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Robert Duran Boynton

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1978

PERFORMANCE OF THE UNITED STATES DAIRY SUB-SECTOR AS AFFECTED BY THE VERTICAL COORDINATION PROCESSES BETWEEN COOPERATIVES AND PROPRIETARY HANDLERS

By

Robert Duran Boynton

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ABSTRACT

PERFORMANCE OF THE UNITED STATES DAIRY SUB-SECTOR AS AFFECTED BY THE VERTICAL COORDINATION PROCESSES BETWEEN COOPERATIVES AND PROPRIETARY HANDLERS

By

Robert Duran Boynton

This research examined relationships between dairy cooperatives and proprietary handlers throughout the U.S. to better understand their contribution to the vertical coordination process and to assess the performance of the milk procurement stage in the dairy sub-sector.

Vertical coordination is the process by which the functions of a vertical value-adding system (a sub-sector) are brought into harmony regarding what is produced and marketed. This concept in conjunction with the industrial organization paradigm yields a framework amenable to consideration of (i) how organization and behavior of economic units comprising a sub-sector stage can affect the organization and behavior of other stages and (ii) how the nature of exchange between two stages affects the performance of the sub-sector.

Three specific tasks were undertaken. First, structural and behavioral variables relating to cooperatives and proprietary handlers were measured to describe the procurement environment. Second, milk supply contracts, membership agreements and independent producer contracts were analyzed for their vertical coordination implications.

Third, specific areas of inquiry suggested by the framework were investigated.

It was found that cooperative-proprietary handler exchange is effectively coordinated. The existing procurement system yields results consistent with selected performance criteria.

The areas of inquiry produced several specific conclusions.

1. Two types of cooperative behavior were observed. Enforcer behavior is characterized by the use of economic power to obtain preferred exchange terms. Compromiser behavior, which facilitates vertical coordination, recognizes the mutual reliance of each party on the other and power is seldom exercised. Although proprietary handlers may exhibit these same behavioral types most accept cooperatives as compromisers but will use their power against enforcer behavior.

2. Cooperative marketing behavior is effectively disciplined by few alternative sellers. Proprietary handlers are disciplined by the marketing order system and the few potential suppliers able to efficiently serve their needs.

3. Cooperatives are providing handler procurement services for which buyers are generally willing to make compensation adequate to ensure their continuance. Essential marketwide services, particularly reserve and surplus milk disposal, have become cooperatives' responsibility but compensation is not always adequate.

4. Surpluses are a recurring problem and are exacerbated in the interest of equity by pricing and pooling provisions of most marketing orders. The price support program often contributes to surpluses.

Cooperatives are unable to improve quantity coordination at the farm level.

5. Various activities of cooperatives and proprietary handlers which have antitrust implications were found to occur frequently but make little positive contribution to sub-sector coordination. Participants felt that such behaviors should be illegal.

6. Full supply arrangements are largely satisfactory to both parties and make a positive contribution to sub-sector coordination. Buyers enter into them not out of fear of recriminations but to relieve themselves of procurement responsibility. Written full supply contracts are less common than verbal ones and in most cases either type functions satisfactorily.

7. Cooperative integration into processing is a source of disharmony between exchange partners in many areas. This does not encourage vertical coordination. Processing cooperatives will continue to fill geographical and product line niches abandoned by proprietary handlers but they will not replace proprietary firms on a large scale nationally.

Two recommendations arose from the research. A marketwide payment plan was proposed to compensate those who dispose of reserve supplies. This plan would allow cooperatives to assume more disposal responsibility which is desirable since they can most efficiently provide this service.

A producer payment plan was recommended which would change marginal revenue signals reaching producers and thereby facilitate quantity coordination.

The effort which this volume represents is dedicated with love and appreciation to my parents, Ernest and Letha.

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CHAPTER 1

INTRODUCTION

Coordinating the thousands of decisions, people, and movements into a system designed to meet all facets of intermediate and final product demand is an immense and complex task. This role was formerly left to thousands of loosely organized small firms. For various reasons this has changed. A more tightly organized system of large, multiproduct, multiplant, incorporated firms has taken over. These are frequently linked by contractual arrangements, vertical integration, and other public and private coordinating mechanisms.

Many changes of this nature have taken place in the U.S. dairy sub-sector. Because of the changes and because of the extremely important role played by the coordination process many questions have been raised in regard to the performance of this agricultural sub-sector. These include:

1. What coordination mechanisms are being used within and between various stages in the vertical process which affect the harmony with which the system operates?
2. How do the provisions of such mechanisms affect the character of the coordination process?
3. What is their effect on the performance of the dairy sub-sector?

Preliminary inquiries into these areas revealed that there was little information available which could be used in answering these and similar questions regarding the dairy sub-sector. Furthermore,

sub-sector analysis is a relatively new undertaking on the part of economists.

The basic objective of this research is to examine the performance of Grade A milk procurement in the United States as an integral part of a vertically-organized system, ultilizing criteria suggested by the vertical coordination framework.

In pursuit of this objective, specific questions will be addressed. These include:

1. What is the structure of the U.S. dairy sub-sector under which procurement is currently coordinated?

2. What types of producer-first handler agreements and cooperative-proprietary handler milk supply arrangements are being used and what are their implications for vertical coordination at the procurement stage?

3. What effects do the procurement environment as defined by the structure of the market, the types of contractual arrangements being used, and the behavior of the participants have on sub-sector performance?

In assessing the performance of the sub-sector, criteria which are judged to be appropriate will be used. These include:

1. Stability or reliability of prices, output and institutions;

2. Equity of distribution of returns, sharing of responsibilities, rights and risks;

3. Exchange efficiency; and

4. Supply and demand matching.

Areas of inquiry which will be explored in attempting to assess the performance of the procurement stage of the sub-sector are:

1. The nature of communication between the participants--information flows;

2. The availability of alternative milk supplies for proprietary handlers;

3. Procurement services offered by the cooperatives;

4. Production control measures, if any, being used;

5. Participant behavior in relation to anti-trust measures;

6. Bulk milk supply arrangements which are being used; and

7. Forward integration movements on the part of cooperatives.

As indicated before, efforts on the part of economists to develop a conceptual framework for sub-sector analysis have met with only limited success. Henderson and Marion have begun to adapt the structure-conduct-performance paradigm of industrial organization theory for this purpose. This will provide the basis for the framework used in this study and will be elaborated in Chapter 3. As a prelude to a consideration of the framework a further discussion of sub-sectors, vertical and horizontal organization and coordination seems appropriate.

Economic systems are comprised of horizontal and vertical components. The horizontal component is made up of firms engaged in common functions. The vertical component is comprised of the relationships between firms performing dissimilar but complementary functions as part of the total process of delivering a good or service to the consumer or user. If one views economic activity, whether agriculture or not, as occurring in isolated horizontal units (industries) and studies production and marketing thusly, the critical linkages between horizontal stages is largely ignored. If a process or function is viewed as part of an inter-related system a richer analysis is encouraged.

To begin to conceive of agricultural systems it is helpful to consider the idea of agricultural sub-sectors. If the agricultural sector were sub-divided by commodity groups, sub-sectors would result--e.g. the dairy sub-sector. A sub-sector is a horizontal and vertical

array of organizations, laws and institutions inter-related by market relationships and involved in producing, processing and distributing a commodity. Shaffer [1970, p. 15-16] suggests that when viewed in a total sub-sector context, marketing and production are continually interfacing parallel systems both of which are necessary to provide a product in the quantity and quality desired and where, when and in the form preferred. Production is the physical transformation process which occurs on the farm, in the processing facilities and in the store and creates utility. Marketing is the coordination process which synchronizes production at every stage (including on the farm) and establishes rights and responsibilities for the next stage in the production process.

This coordination role can be likened to the function performed by the choreographer in a song and dance number as physical activities are blended in a precise way to yield a well-executed, graceful and harmonious routine. Coordination defines the precision with which demands are filled just as choreography attempts to translate the director's preferences into a virtuoso performance. In the agricultural sector, biologically-induced lags between decisions to act and the results of the act, the vagaries of nature and the differences in participant's objectives within the sector all combine to exacerbate the already monumental problems encountered in coordinating production.

As will be more fully elaborated in Chapter 3, the process of coordinating a sub-sector can be viewed as encompassing flows of information, the physical product and ownership-exchange rights. Information affects the quality and timeliness of decisions. Information about the form and the nature of demand at successive stages is of

critical importance. Handling of the actual commodity between stages or industries determines how smoothly the next process in line can be accomplished and how closely it matches requirements. Rules of exchange and ownership impact upon the production process. The effectiveness of the coordination process is largely determined by the harmonizing incentives offered by exchange mechanisms. Mechanisms can reduce or re-assign risk, reduce product waste, decrease transaction costs and facilitate more orderly and timely transfer. The mechanisms can themselves be a medium for the communication of preferences by those making decisions at each stage. It becomes apparent that coordination and planning are partners, perhaps even synonymous. The ability to effectively plan is a prerequisite to a high degree of coordination.

Shaffer [1970, p. 16] points out that the marketing or coordinating function relies on both administered coordination either between stages within vertically integrated firms or by publicly instituted and managed rules and exchange coordination involving markets.

In the United States the market mechanism is the primary basis for coordinating all the activities which must be performed from the producer to the consumer. When market participants perceive a problem arising which individual self-interest acting through the market allows, they historically have attempted to solve it themselves. Firms and individuals also work out standard operating procedures and exchange arrangements pertaining to their economic decisions which recognize the potential maleficient nature of undisciplined economic activity.

On other occasions the interests and viewpoints of participants including consumers cannot be reconciled without government involvement. Government is frequently required to administer to markets

because externalities cannot be effectively internalized, the perceived essential nature of the good or service in question, the biological nature of production, cyclical or seasonal demand, and special handling properties of the good or service involved.

Public laws, rules, and assorted institutions are intended to affect decisions in ways judged through the political process to be superior to the decisions (behavior) and outcomes (performance) resulting from the actions of free individuals acting in their own self-interest. They are the puppet strings on the otherwise "invisible hand."

The design of positive public institutions and the publicly dictated sanctions on market structure or participant behavior affect the accomplishment of performance objectives and the emergence of externalities vis-a-vis other performance objectives.

Research can serve the food system by assisting in the design of solutions which have the desired performance effects and by elaborating the trade-offs between several performance dimensions for proposed solutions.

It is the general purpose of this research to contribute to the body of information pertaining to the vertical coordination process in the dairy sub-sector. This is a first step in addressing the needs of the public and private decision-making process.

CHAPTER 2

PROBLEM SETTING

2.1 RESEARCH SETTING

Several functions or activities must be performed between the on-farm production site and utilization of milk by a processing or manufacturing plant. These are often grouped under the term--procurement. Yet this name does not do justice to the magnitude of this task in its scope or significance in the dairy sub-sector. At least four separate tasks can be identified:

1. locate and measure the milk supply
2. insure quality on-farm and in transit
3. transport the bulk milk
4. meet production schedules of plants with bulk milk deliveries

From this list, it should become apparent that there is a multitude of coordination tasks associated with each of these activities which must be performed if procurement is to be done effectively. Specific activities which are necessary include acquiring knowledge of farm level production, agreeing to terms of milk sales and transfers, monitoring and ensuring milk quality, arranging for bulk milk hauling, route design, ensuring honesty in weights and tests, delivering milk where, when and in the form it is needed, disposing of reserve and surplus milk and so forth.

This research is designed to look closely at these procurement activities and the mechanisms which have been developed to coordinate procurement with production and with processing/manufacturing in the U.S. dairy sub-sector.

Dairy farmer cooperatives and proprietary milk handlers are the two major market participants who are involved in milk procurement activities. To study coordination in milk procurement is to examine the actions of these groups and how they relate to each other and to farmers, and the legal, political and economic incentives created by various public institutions such as marketing orders, price supports and antitrust laws. Consequently, dairy cooperatives and proprietary handlers will be used as the focal points for the study of coordinating Grade A bulk milk procurement in the U.S. As will become clearer later, each major function in a sub-sector is critical to the functions above and below it in the process of getting a product to the consumer. Procurement has a major part to play in the operation of the milk marketing system and therefore is of interest to farmers, processors, wholesalers, retailers and consumers. To better set the scene for this endeavor, a brief look at the historical and contemporary role of dairy cooperatives and proprietary handlers will be presented following the definition of some key terms.

2.2 DEFINITION OF MARKET PARTICIPANTS

2.2.1 DAIRY COOPERATIVES

For purposes of this study three distinct types of dairy farmer cooperatives are identified. These definitions are designed to serve the purposes of this research and may differ from definitions used by others. The three types are bargaining, marketing and operating.

A bargaining cooperative or association markets its members' milk but usually will have no facilities for storage, manufacturing[1] or processing[2] of bulk milk. It coordinates member production with its customers' needs and may arrange bulk milk hauling. Often the cooperative will attempt to secure prices above the minimum prices set by the government in most areas.

A marketing cooperative has facilities for storage, manufacture and/or processing of members' milk. It does not operate these facilities as a primary business activity, but rather to increase their members' bargaining strength and to handle reserves and surpluses. It performs the other functions attributed to the bargaining cooperative. For purposes of this study, if a cooperative processes no more than 10% and manufactures no more than 40% of its received volume annually, and processes and manufactures (combined) no more than 40% of its annual volume but does have facilities for processing and/or manufacturing it will be considered a marketing cooperative.

An operating coooperative performs all the functions ascribed to the marketing cooperative with one significant exception. It operates manufacturing and/or processing facilities as a primary business activity and will be defined as any cooperative processing more than 10% or manufacturing more than 40% of its annual received volume or manufacturing and processing (combined) more than 40% of its annual volume.

---

[1]Manufacturing is defined as the conversion of Grade A or B milk to hard dairy products such as butter, powder and cheese (the lowest product classification).

[2]Processing is defined as the conversion of Grade A milk to fluid or soft dairy products such as bottled milk, yogurt and cottage cheese (the higher product classifications).

Although capacity is necessary, it is not a sufficient condition for categorization of a cooperative as an operating cooperative rather than a marketing cooperative. The criterion is more subjective, and as the definitions imply, is based on the cooperative's intention and objectives with respect to that capacity.

The respondents in this study will be categorized using these three definitions and the descriptive results will be broken down by cooperative type as well as size of cooperative and location of the cooperatives' main office.

2.2.2 PROPRIETARY HANDLERS

Proprietary handlers include two distinct groups of participants which will be referred to as independent handlers and food store handlers.

Independent handlers are those companies who (i) receive some Grade A milk for processing and (ii) do not own any retail sales outlets for their output except home delivery.

Food store handlers (i) bottle fluid milk and may process or manufacture other products and also (ii) own retail stores through which all or part of their output is sold. Collectively these two groups will be referred to as proprietary handlers, processors or dealers.

Proprietary handlers, as defined here, do not include farmer cooperatives engaged in similar activities nor private companies involved solely in the manufacture of hard products such as cheese and butter. Food store handlers include both unified, national or regional grocery chains as well as associations of otherwise independent food stores in a metropolitan area (called voluntary or cooperative

chains) who form a company to bottle milk collectively for their stores.

2.3 BACKGROUND INFORMATION ON DAIRY COOPERATIVES

2.3.1 MERGER AND FEDERATION ACTIVITY BY DAIRY COOPERATIVES

The period since 1950 represents the time of greatest change in dairy cooperatives' structure and their role and influence in the U.S. dairy sub-sector. Dairy cooperatives accounted for 45% of the total farm level milk marketed in 1950 and had expanded this volume to 73% by 1972 [Abrahamsen, p. 109]. By the end of 1974, 88% of producers shipping to federal order milk markets were members of cooperatives [Cook, 1976-b, p. 32]. Table 2-1 gives data on the number, membership and business volume of U.S. dairy cooperatives for selected years between 1951 and 1968.

Table 2-1. Number, Membership and Volume of U.S. Dairy Cooperatives, 1951-68[1]

Year	No. of Co-ops	Membership		Business Volume	
		Total (1000's)	Average Per Co-op	Total (mil.$)	Average Per Co-op($)
1951	1928	814	422	1934	1003
1956	1762	800	454	2543	1443
1961	1500	630	620	3243	2162
1966	1226	507	414	3833	3126
1967	1174	459	391	4169	3551
1968	1100	434	395	4505	4095

Source: Knutson, p. 5.

[1]The number of dairy cooperatives had dropped to 592 by 1973 [Tucker, 1977-b, p. 24] and the number may be below 500 in 1977 [Tucker, 1977-a].

In the early 1960's dairy cooperatives began to change form as they responded to changes in the processing industry. Processors discovered that new economies of scale were possible in processing and distribution as reciprocal inspection agreements, one-way paper cartons and bulk milk tank procurement arrived on the scene. Their bottling facilities expanded and small dealers started to fall by the wayside. Overlapping sales areas for milk dealers became common as businesses expanded and a dairy cooperative found its customers more and more often in direct, intense competition with the customers of another small, adjacent cooperative. Coordination became difficult when the competing dealers demanded competitive terms regardless of the strain this put on local supplies and producers. The solution for cooperatives seemed to be growth through association.

At this same time, new on-farm production technologies increased milk output. Demand did not keep pace. Dairy farmers began to go out of business in large numbers. Cooperatives looked toward government to apply the income-improving objectives of the Agricultural Marketing Act but according to Cook [1976-b, p. 94] were let down by the administrators of these programs. This is cited as yet another factor contributing to cooperative amalgamation.

A decision by the U.S. Supreme Court in the LeHigh Valley Case at about this time further contributed to a less hospitable economic environment for cooperatives operating in federal market order areas. Milk not regulated under Federal order would now be unconstrained in its access to Federal order areas since compensatory payments for such intrusions were unconstitutional [Cook, 1976-a, p. 94]. Cooperatives would respond to these multifarious pressures with federation and

merger activity. Table 2-2 provides some information on the formation of the principal cooperative federations.[1]

Table 2-2. Principal Dairy Cooperative Federations Formed in the 1960's

	1970	
	No. of Producers	Annual Volume (Bil. Lbs.)
Associated Dairymen, Inc. (Central U.S.) 1964	53,000	20.0
Great Lakes - Southern Milk, Inc. (Central U.S.) 1960	34,000	13.2
N.Y.-N. England Dairy Cooperative Coordinating Comm. 1966	25,000	10.0
Central Milk Producers Cooperative (Chicago) 1968	15,000	6.0
Federated Milk Producers (Midwest) 1968	10,000	3.0
Penn-Marva Producers (Philadelphia-Baltimore-Wash.) 1968	5,000	3.0
Mountain Milk, Inc. (Western U.S.) 1968	2,400	1.8
Florida Dairy Farmers Fed. 1969	500	1.0

Source: Knutson, p. 10.

Merger activity also affected the structure of cooperative organizations and the procurement environment. All of the incentives favoring federation strategy contributed to merger activity while one

[1]Cooperative federations are republics in their decision structures. Authority and control rests with the local cooperatives at all times. Farmers are members of local cooperatives and these cooperatives are members of the federation.

characteristic of federation behavior often required merger to meet the challenge of multi-market processor bargaining power. It became obvious that marketing decisions made by loose federations of many small, single-market cooperatives tended to break down in the face of bargaining pressure by multi-market processors. Tighter and more disciplined organizations were needed to cope with their power. Table 2-3 details six milk cooperative mergers which resulted in new organizations.

Table 2-3. Principal Dairy Cooperative Mergers in the 1960's

	No. of Co-ops Merged	No. of Producers	Annual Volume (Bil. lbs.)
Associated Milk Producers, Inc., 1969	111	31,000	10.8
Mid-America Dairymen, Inc., 1968	31	23,000	7.5
Dairymen, Inc., 1968	24	9,800	5.2
Milk, Inc., 1969	4	8,000	2.5
Consolidated Milk Producers, 1967	3	2,000	1.1
Dairy Creamery Assn., 1968	3	1,000	.5

Source: Knutson, p. 10.

Two principal phenomena occurring in the dairy sub-sector and involving cooperatives deserve attention here. The first was discussed earlier--the change in the structure of the dairy farmer cooperative component of the dairy sub-sector, through the federation and merger processes. Cooperatives became fewer in number and larger in terms of geographical area covered, membership per cooperative and business volume. As detailed previously, these structural shifts occurred

largely through federation and merger activities in the late 1960's.

The second observation is that dairy cooperatives have been vertically integrating. In the process they absorbed numerous procurement, processing, manufacturing and distribution functions.

2.3.2 COOPERATIVE PROVIDED SERVICES AND FACILITATIVE FUNCTIONS

Dairy cooperatives today perform numerous procurement functions. Some benefit only their membership. Some services are performed for handlers while the benefits of some cooperative activities accrue to all producers in the affected area whether or not they are cooperative members. Certain of these services and functions can be shown to affect two or more groups of market participants. The issue of compensation for services performed--either payment for services or sole capture of the desirable results--is of crucial interest to participants involved in procurement.

A study of several cooperatives in the Midwest and South revealed a host of handler services which these cooperatives believed they were providing [Carley et al., p. 7-8]. These included prescribed deliveries of milk to handlers by day and volume, diverting unwanted supplies, delivery by order, delivery by tank load lots, quality control, furnishing of supplemental supplies, handling individual producer payments, delivery f.o.b. plant, allowances for shrinkage, etc.

Cook [1976-b, p. 31] noted several functions commonly managed by Grade A marketing cooperatives for their members including checking weights and tests, field services and quality improvement services, guarantee of market and payment, purchasing needed farm inputs at cost,

low cost farm capital and insurance, market information and mangement skill.

Several cooperative actions produce marketwide impacts (usually benefits) for which the cooperative has great difficulty in capturing remuneration from non-cooperative members or proprietary handlers (the free rider problem). Several of these are designed to improve producer returns through the supply side activities and others seek to increase demand. Bargaining over price and other terms of trade, handling reserve and surplus supplies, balancing supplies within and among regions, preparing and presenting testimony at order hearings, funding market research, representing producers in governmental forums and general quality research and information programs fall into the first group while advertising, sales promotion and funding of new improved product research are designed to stimulate demand.

2.4 PROPRIETARY HANDLERS

To understand the milk processing industry today, it is necessary to know what shaped its current structure and the attitudes and behavior of its participants. A brief presentation of background material follows.

2.4.1 HISTORY OF THE PROCESSING INDUSTRY

Economies of scale in milk processing became significant in the 1950's and spelled doom for many small dealers. Table 2-4 traces the decline of fluid milk processors.

The structure of the fluid milk processing industry today has been profoundly shaped by Federal Trade Commission (FTC) merger policy. Until 1950 no effective merger policy existed and a handful of

Table 2.4. Number of Fluid Milk Processors in the U.S., 1950-74

Year	Number of Processors[1]
1950	8185
1955	6726
1960	5328
1965	3743
1970	2216
1974	1619

Source: Mueller, p. 33.

corporations mushroomed into giants via mergers with previously independent large and small milk and ice cream firms. Between 1920 and 1950 the eight largest dairy processors acquired about 1800 other dairy concerns. It has been estimated that National Dairy, Borden's and Beatrice had used mergers to achieve 64%, 75% and 63% respectively, of their growth prior to 1948 [Mueller, p. 7]. Foremost began its merger activity after World War II but was even more aggressive than its earlier national competitors. By 1956 the FTC was ready to move against hundreds of acquisitions made by the nation's then four leading dairy processing corporations. In all four cases, the corporations were required to divest themselves of many of their 1951-56 acquisitions. In addition, the judgments imposed a ten year prohibition on future mergers by these companies without prior FTC approval. Although some acquisitions were approved for these companies between 1964-75, the FTC had effectively stopped merger activity by large national dairy concerns.

[1]Excludes producer distributors.

Mueller traces the impact of FTC policy on medium-sized firms and concludes that the policy was successful in preventing the continuing disappearance of these companies. Medium-sized firms did not merge with each other but continued to absorb small dealers.

With this background of the milk processing industry in the 1950's and 1960's, the current market structure to be discussed in the next section can be better understood.

2.4.2 CURRENT STRUCTURE OF THE PROCESSING INDUSTRY

Local fluid milk processors still play a significant role in this industry. While national and regional processors sold about 31% of the fluid milk sold in the United States in 1970, food store handlers sold 10-13% and farmer cooperatives accounted for 12%. The remaining 45-47% was sold by local independent processors. Notice in Table 2-5 that although local processors represent 92% of the United States milk processors, they sell only 47% of the milk. According to Mueller, at least half of the sales of these local processors are to government institutions and home delivery customers [p. 65].

Table 2-5. Number of Sales of Fluid Processors, by Types, as Percentages of the Total, 1970-71

Type of Firm	Firms, Dec. 1971 No.	%	Percent of Total Sales, 1971
INDEPENDENTS:			
National	7	0.4	23.3
Regional	8	0.5	7.7
Local (97% single plant firms	1528	91.7	47.2
FOOD STORE HANDLERS	31	1.8	10.3
COOPERATIVES (75% single plant firms)	93	5.6	11.3
TOTAL	1667	100.0	100.0

Source: Manchester, 1974, p. 4-5.

Of the five categories of milk processors noted in Table 2-5, four have been previously discussed. Perhaps the most interesting group and the one having the most profound structural and behavioral impacts on this industry, is the food store group. Although in 1970 food store processors accounted for 13.6% of total fluid sales, this represented 21% of the total sold through food stores. And their share is increasing [Parker, p. 102 and Mueller, p. 40]. This integration reduces the sales available to all other proprietary handlers, but it most profoundly affects large and medium size independent processors who typically have supplied much of the fluid milk to these food stores. It is these food store processors which set the competitive tone for the independent proprietary handlers in those markets where they actively or potentially compete. Additionally, it is interesting to note that the food store processors are the only one of the processing types making significant investments in new bottling facilities in recent years.

Proprietary handlers of both types--independent and food store handlers--have turned more and more of the milk procurement functions over to cooperatives. Indeed, much of the economies of scale created by technological change could have been realized only with the help of cooperative assisted procurement. As milk processing and distribution became more demanding of technical expertise and required larger capital investments, processing firms became more conglomerate in nature and began to operate retail sales outlets. In response, procurement territory spread across federal and state marketing order areas. Management skills became a limiting resource for the processing firm.

Also, the need for large volumes of milk made procurement a more difficult job for an individual handler.

2.5 COMPARISON OF SOME STRUCTURAL PARAMETERS BETWEEN COOPERATIVES AND PROPRIETARY HANDLERS

Manchester provides evidence that concentration among processors is high. He argues that national ratios are misleading since fluid milk markets, unlike manufactured product markets, are local in nature despite improved transportation capabilities. He applied the principle of potential competition to compute concentration ratios for 144 metropolitan areas and their adjacent communities by including sales of all large and some small plants within a 250 mile radius of a central city, regardless of whether particular plants ship any milk to that city. With this approach he found that the average four firm concentration ratio was 47% in 1969-70 [p. 11]. The potential for new entrants disciplines these concentrated markets, however, as food store integrators, farmer cooperatives and existing independent processors exert some competitive pressure.

Tucker [1977-b] measured dairy cooperative concentration. Notice in Table 2-6 the high concentration ratios in the milk procurement market.

No data are available for measuring local market cooperative concentration with which to compare Manchester's processor ratios.

In 1973 it is estimated that cooperatives handled 81% of all Grade A milk delivered to plants and dealers in the United States [Tucker, 1977-b, p. 27]. About 77% of this total cooperative volume was sold as raw whole bulk milk [Tucker, 1977-b, p. 29]. Combining these last two figures, it can be calculated that cooperatives marketed

Table 2-6. Measures of Dairy Cooperative National Market Concentration for the Largest Cooperatives, 1973

Size Category	Share of Total U.S. Volume		Share of Total U.S. Sales			
	Receipts of Grade A Milk	Milk Processed or Mfg'd.	Pkg. Fluid	Butter	Dry Products	Natural Cheese
	PERCENTAGES					
4 largest cooperatives	31	10	4	34	46	13
8 largest cooperatives	41	12	6	41	57	18
20 largest cooperatives	54	17	9	51	72	25

Source: Adapted from Tucker, 1977-a, p. 45.

approximately 63% of all raw whole bulk milk delivered to proprietary handlers in 1973.

2.6 SUMMARY OF COOPERATIVE-PROPRIETARY HANDLER INTERFACE

A myriad of separate but related procurement activities must be completed if milk is to move from farms to processing and manufacturing plants. As long as fluid markets were geographically restricted and processors were small, largely independent, single commodity firms most chose to do virtually all their own procurement work. Although the existence of dairy cooperatives to provide a high quality milk supply was not a necessary condition for the growth of multi-market milk dealers in the 1950's and 1960's, they certainly facilitated it. Since then, cooperatives have taken on a growing number of sub-sector responsibilities. In the earlier years, the largest independent processors could grow and still handle their own procurement chores since they had their own farmer-shippers and an experienced staff to supervise

quality and coordinate hauling. Besides, these companies were spreading their management skill over only one commodity.

By the early 1960's cooperatives were reacting to the size of their customers and were growing themselves both to better serve the large processors and to attempt to match their economic power. At about the same time, large processors' merger activities were halted and they responded by growing in non-dairy directions. These dealers found milk procurement functions less complementary to their overall operations than they had before. In addition, food chains began to see the benefits of integration into milk processing but with the exception of Safeway and Kroger, lacked for the most part, the desire or expertise to undertake procurement activities. Dairy cooperatives were ready to step into the breach.

Their relationship with proprietary handlers has grown stronger as large handlers have turned over procurement to the cooperatives. Independent processors realize that relieving themselves of procurement duties is essentially a non-reversible step at least in the short to intermediate run. Dairy farmers given up by a proprietary handler and a field staff dissolved are not quickly re-established. Furthermore, the decision by a food chain to build a bottling plant is often predicated on the availability of a high quality, reliable milk supply in sufficient quantities to satisfy economies of scale and the needs of the captive stores. As cooperatives have assumed more and more procurement responsibility in a market, they have found it necessary to dispose of Grade A milk not needed by their customers into manufacturing product uses. A struggle has been over what procurement costs are to be borne by the processor-customer, the total market or by the

cooperatives. In part cooperatives actively pursued their central role in procurement to enhance their bargaining power and in part because processors' actions or inactions led them into it. They have established service charges and/or prices above order minimums both as a manifestation of their power and to recover costs of procurement activities which federal and state marketing orders do not assume farmers should bear.

Cooperatives often claim that they suffer losses on these procurement functions because proprietary handlers will not compensate them adequately for providing needed milk volumes and for absorbing the costs of balancing supplies and manufacturing the Grade A reserve and surplus. Furthermore, cooperatives have claimed that other cooperatives and non-cooperative farmers receive the benefits of their marketwide procurement-related activities but pay none of the costs.

Some proprietary handlers suggest that cooperatives get service charges and/or price premiums to compensate them for these services, that they are inefficiently managed, they choose to do the job of procurement and that the processors could take back some of these functions and do them cheaper than the cooperative is now doing them.

Amidst this setting of over-lapping activities, growing reliance of processors on cooperatives for milk procurement, rapid food chain integration, charges of cooperative abuse of power, and large, powerful economic entities interacting in the market, milk marketing takes on new dimensions and offers new challenges to effective and equitable coordination of the sub-sector.

CHAPTER 3

TOWARD A CONCEPTUAL FRAMEWORK FOR THE STUDY OF VERTICAL COORDINATION WITHIN A SUB-SECTOR

3.1 THE NEED FOR VERTICAL COORDINATION RESEARCH

Vertical coordination is often defined as a process which affects the synchronizing or harmonizing of two or more related activities such as on-farm production and processing. This chapter is designed to emphasize the importance of adequate coordination and to suggest a conceptual framework within which vertical coordination can be examined.

A scenario in which price is the sole harmonizing and synchronizing agent does not describe the dairy sub-sector today. A complete, unassisted coordinating role for price cannot be assumed when social, political and economic power is distributed unequally, resources are not freely mobile, products are differentiated or information on prices, quality, etc. is not costless. Furthermore, certain coordinating services may have non-exclusionary properties or near zero marginal cost. Any or all of these conditions may bring about government involvement in the dairy sub-sector. Such involvement may modify exchange behavior (e.g. marketing orders and quality standards), prescribe and enforce acceptable behavior (e.g. fair trade practice laws and antitrust laws) and affect sub-sector structure through the adjudication of antitrust laws (e.g. restricting the merger activity

of milk dealers). Some coordinating institutions are discussed in more detail below.

Local, state and federal governments established raw milk inspection services, minimum sanitation standards, farm bulk tank temperature rules, Grade A and B milk quality standards and open dating to insure the safety and freshness of milk. Independent, fragmented consumer "buy"-"no buy" decisions in the market place could not discipline the market participants to provide these attributes consistently and with some reasonable degree of certainty.[1] The political decision making process was called upon to determine the public interest aspects of what consumers needed and then to orchestrate or coordinate these preferences with the actions of producers and processors/manufacturers. Quality standards of the types mentioned above are vertical coordinating mechanisms which were judged necessary by the political system in order to insure a particular type of product. Price alone could not carry such signals.

Another type of vertical coordinating mechanism which requires implicit government enforcement authority but not direct involvement and is administered by private firms is the use of contracts between proprietary handlers and individuals or dairy cooperatives. To fully specify terms of sale, reduce uncertainty, assign risk and set liabilities, contracts are often written. These instruments are in response to the costs associated with committed resources, the vagaries of

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[1] In the case of an oligopolistic processing industry, Hirschman's theory suggests that individuals "buy"-"no buy" decisions (i.e. exit) convey little information to a relatively homogeneous and perhaps lackluster industry since for each customer lost by firm A a disenchanted customer of firm B buys from A and so on, such that the impact is lost on the firms in the industry.

nature and the market, imperfect information and vested interests. Of course government mandated quality rules discussed earlier contribute to the formation of contracts since they offer a common and understood benchmark and an impersonal authority as enforcer to rely on in coordinating product quality via a written or verbal contract.

State fair practice laws have often been enacted to prevent certain types of behavior between processors and retailers or retailers and consumers which the political decision-making process believes to be in the best interest of the public in providing a product in sufficient quantities over time as well as maintaining the type of market structure in which competition can flourish and/or equitable relationships be maintained. Such coordinating rules are enacted in response to unequal power, irreversible or slowly reversible supply functions and differentiated products.

Federal and state marketing orders have been authorized and adopted to respond to unstable producer milk markets brought on by unequal market power, disparities in the quantity, quality and costs of information available to the various participants, milk's perishable and essential nature and slowly reversible supply functions. Legislators were convinced that these markets could not coordinate themselves in a manner judged adequate if the unrestricted actions of buyers and sellers acting in their own best interests had to be relied upon to synchronize the sub-sector regarding what, when, how and where milk and milk products are to be produced and marketed.

It is clear that intervention by public or private entities in the coordinating process will have differential resource allocation and income distribution impacts among sub-sector participants. It

becomes important to understand the efficiency[1] and equity[2] trade-offs of alternative vertical coordinating mechanisms in solving a problem. In public sector intervention, the political capital controlled and exercised by the interest groups will often tip the form of the coordinating mechanism in one or the other's favor. In these cases, research can often serve the public decision-making process best by providing information regarding the choices through critical analysis of the allocative and distributional trade-offs of alternative proposals. In the case of private efforts at coordination between participants (e.g. supply contracts), research on alternative forms may assist both participants in reaching a stable, effective solution.

Studying vertical coordination in milk procurement then requires both an identification and cataloging of the several mechanisms involved in procurement as well as an analysis of their performance implications.

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[1]Efficiency is the production of the planned output (and the associated level and nature of related outputs or externalities) where and when it is wanted and employing a production function plus an assignment of property rights consistent with the preferences of a chosen group of participants.

Note that an efficient outcome in an economic analysis assumes a particular distribution of property rights which itself might be less than universally accepted. Therefore there is an infinite number of efficient outcomes, one corresponding to all possible distributions of property rights.

[2]Equity here is defined as the distribution of rights, responsibilities, returns and costs (including risk and uncertainty) between sub-sector participants. Equity does not imply equality. Any distribution may be a preferred outcome of the public or private decision-making process depending upon the objective function of the evaluator. This research will attempt to establish the nature, but not necessarily the desirability of various distributions.

3.2 DEVELOPMENT OF A CONCEPTUAL FRAMEWORK

3.2.1 THE VERTICAL COORDINATION PROCESS

Vertical coordination between actors in a sub-sector requires that the contributions of each must be synchronized and integrated. This process is complicated since participants most frequently have conflicting goals and objectives. Vertical coordination can be visualized as consisting of flows of (i) information (including price and other incentives), (ii) the actual commodity (with associated logistical services) and (iii) ownership and exchange rights which assign "property rights" through contracts, specification of rules for provision of services and vertical integration and thereby allocating responsibilities, rights, liabilities and risk within a transaction. The flows can be seen as occurring at exchange points (transactions) wherever two functions meet. Appendix A identifies for each of thirteen exchange points the specific components of the information, product and ownership-exchange flows for the dairy sub-sector. If a firm spans more than one function, the exchange point is internal to the firm, the flows may be more streamlined and firm and perhaps sub-sector efficiencies gained, but the identical flows are postulated to occur despite the internalization of the functional interface.

Conceiving of vertical coordination as flows suggests certain flow characteristics worthy of consideration. These have behavioral and performance implications and can suggest hypotheses or areas of inquiry dealing with the consequences of certain coordinating mechanisms. Six such characteristics can be identified.

a) direction of the flows; i.e. does information flow both ways or is it uni-directional where one participant or industry feeds

information as desired up or down the sub-sector? Such insights could signal interesting structural and behavioral power shifts with respect to information and ownership-exchange rights.

b) cost of the flows; what are the efficiency and equity impacts of particular flows?

c) quality of the flows; this is particularly applicable to information flow in terms of its accuracy, availability, etc.

d) power relationships involved in the flows; power manifests itself primarily through flows of ownership-exchange rights and information.

e) conflict associated with the flows; within-industry relations (e.g. between dairy cooperatives), exchanges, transactions and the like all have degrees of conflict from none to a totally disruptive amount. Conflict is the antithesis of cooperation and cooperation is directly related to the degree of vertical coordination and performance.

f) timeliness of the flows; this characteristic embodies the essence of the dynamism inherent in vertical coordination decisions in a sub-sector. Although largely descriptive, this characteristic can be enlightening in regard to the importance of flow rates of product, exchange arrangements that facilitate timely transfers and information access at appropriate times.

3.2.2 THE CONTRIBUTION OF INDUSTRIAL ORGANIZATION THEORY TO UNDERSTANDING THE VERTICAL COORDINATION PROCESS

The framework upon which this research is based combines elements of vertical coordination with industrial organization theory. Several researchers including Shaffer [1974], Henderson [1975], Marion

[1976-c] and Williamson have attempted to integrate these ideas. Most recently, Henderson [1977] attempted to test the idea that coordination as an objective is achieved differentially by various mechanisms and is a function of market structure parameters and that performance is related to the coordinating mechanism employed. He found little statistical corroboration of these hypotheses but suggests that limited data and poorly specified performance measures may have been responsible.

These researchers have recognized that the industrial organization paradigm has important applications to the study of vertical systems (sub-sector) and the coordination of these systems in addition to its early application to single industry research. The relevant structure, conduct (behavior) and performance parameters for vertical coordination research derive from the relationships between firms in an industry and the inter-action between industries comprising the sub-sector. Marion [1976-d, p. 3] suggested a parallel set of structure, conduct and performance parameters for an industry and the sub-sector. He recognized that the decisions of individual economic units form the basis for industry and sub-sector conduct and stressed the importance of studying the firm's decision environment.

Some definitions of terms as they will be used in this research are needed here.

Structure is that collection of parameters defining the opportunity set of sub-sector participants in day to day activities. There are three classes of parameters:

1. basic conditions are characteristics of the product and its market geography relating to supply and demand conditions. These

include elasticities, product perishability, seasonal demand, etc. They are largely exogenous to sub-sector participants, at least in the short run.

2. firm and market characteristics which are commonly known as market structure variables in the traditional application of the industrial organization framework.

3. institutions are established procedures, laws, rules, services or customs and are of four types:

--laws and regulations (public and formalized)

--rules and standard operating procedures (less formal)

--formalized arrangements (organizations)

--personal, human interrelationships

Vertical coordinating mechanisms are a sub-set of the structural parameters namely institutions which define participants' opportunity sets and positively or negatively affect coordinating behavior. While it seems logical to place mechanisms such as marketing orders, contracts, standard operating procedures, services, etc. into the set of structural parameters, since they at least partially shape conduct, it also causes some concern. Structure is malleable and therefore a mechanism takes on behavioral aspects normally assigned to conduct variables. In the short run, structure does define the opportunity set but even then several behaviors can be accomodated within this set so that vertical coordination behavior is not in lock-step with the structural parameters. An informal agreement may exist between haulers and a cooperative which appears to rigidly define behavior but in fact may allow alternative behaviors each with different consequences. This can give the impression that a mechanism is a conduct

variable. This is not conceptually useless but it can be confusing. Mechanisms are a product of basic supply/demand conditions, traditional market structure variables and various participants' perception of the desirability of behavioral consequences (i.e. their own performance evaluation). It appears that although the mechanism is born in structure it gives fruit (forbidden or not) within conduct as persons involved in using it give it substance.

Conduct describes the behavior of participants represented by their goals, objectives, strategies, plans and decision-making processes.

Performance of participants, industries or the sub-sector refers to the consequences which flow from the given structure and conduct. Performance evaluation involves the appraisal of the extent to which the interactions of buyers and sellers--as influenced by structure and conduct--stimulate results consistent with stated criteria, called performance dimensions. Performance measures are indicators or appraisers of the status of a particular performance dimension--on a nominal, ordinal, interval or ratio scale.

Several key performance dimensions will be elaborated. These are not presented as absolute or comprehensive conditions but rather as dimensions of performance which should be included in a policy trade-off matrix.

1. Stability

To the extent the coordinating mechanisms encourage stability, they serve as a significant facilitator of efficient planning. Planning is essential and like coordination is never totally absent in an operating system. The quality of planning involved in resource

committments (time, personnel and money) to normal production, innovation, expansion and market development is markedly affected by levels of stability of prices, incomes, returns and institutions.

Trade-offs are involved between performance dimensions. Marion [1976-c, p. 181] suggests that mechanisms which are most effective as stabilizers may mitigate against the achievement of another performance dimension--adaptability of the system. Marketing orders have been put in this category by some writers.

Reducing uncertainty for participants by reallocating risk between participants in a manner consistent with public policy priorities is related to sub-sector stability and can be differentially affected by various mechanisms.

2. Exchange Efficiency

Procurement related activities should be instituted so as to reduce transactions costs for the system as a whole. Reassignment of such costs should be highlighted for their equity and overall efficiency ramifications.

Exchange behaviors or incentives of the following types[1] should not be encouraged by a coordinating mechanism:

--refusals to deal which seek to punish aggressive marketing or maintain traditional exchange arrangements.

--undesirable discrimination in terms of sale against patrons not justifiable on grounds of costs or competitive conditions and that endanger particular participants, areas or technologies.

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[1]See Sosnick, 1968.

--failure to cooperate between industry partners or internode participants which precludes activities designed to improve the product (grades, standards), foster conservation or information exchange, etc.

--collaboration between intra-industry actors or sub-sector participants that leads to less aggressive marketing through cartelization, obstructing entry when demand exceeds supply at prices reflective of real social costs, fixing prices in excess of observable social costs or restricting production when demand exceeds supply at prices reflective of real social costs.

--product or input waste.

Efficient exchange is affected by flows of information. An effective coordinating mechanism could be expected to facilitate the flow of accurate, timely, appropriate and non-repetitive information between vertical market participants. The combined decisions of sub-sector or industry participants determine the degree and quality of the vertical coordination process. Data and information are absolutely critical in defining the character of the decision-making process. Differential power relationships affect information flows and content as well as explain differences in participant ability to utilize available data.

3. Equity

Coordinating mechanisms, as discussed earlier, can be expected to significantly affect equity within a sub-sector. Equity-related effects can be analyzed against objectives or valuations prescribed by the political process or alternatively, against equity defined as participants sharing in the benefits in proportion to their acceptance of costs (dollars, risk, etc.).

The use of power by sub-sector participants affects sub-sector equity (both types) by affecting the distribution of risk, assignment of rights and responsibilities and the terms of trade.

4. Supply and Demand Matching

Coordinating mechanisms should contribute to the provision of sufficient rewards to sub-sector participants to maintain resource committments necessary to meet present and option demand but not great enough to develop real excess capacity. In addition, the concept of allocative accuracy developed by Henderson [1975] is applicable here. It is defined as the extent to which the supply offerings match demand preferences with respect to quantity, quality, timing and location.

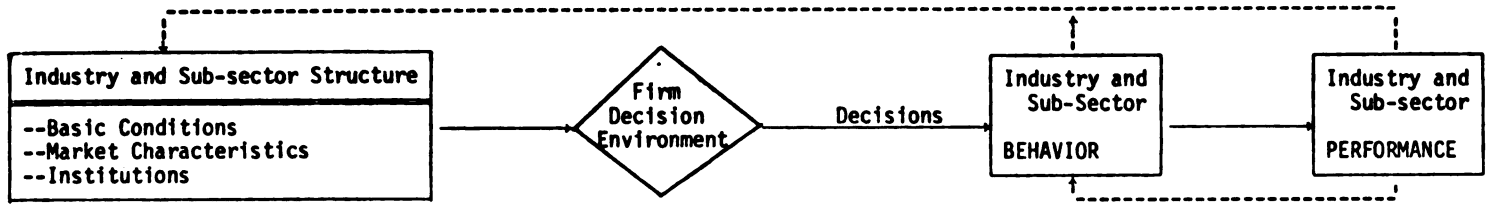
Performance measures to operationalize the criteria are typically difficult to develop. Researchers who have written extensively on performance include Marion [1973, 1975, 1976-b], Sosnick [1968], Shaffer [1968, 1970, 1973, 1974], Scherer [p. 233-34, 408-411], Bressler and King [p. 402-416] and Henderson [1975, 1977]. Although some measures have been developed they are open to criticism. They are often several steps removed from the dimension they allegedly are representing, suffer from data problems and are relied on too heavily since at best they capture a limited number of performance dimensions.

Sosnick [1968] did perhaps the most comprehensive job of constructing what he called market flaws that could not exist if a market was to be effectively competitive. Although cognizant of the necessity to make these characteristics operational so that one could easily determine whether or not the flaws existed, Sosnick met with only limited success. This is testimony to the extreme difficulty of constructing measures of performance (or lack of it in this case) and

not the quality of Sosnick's efforts. He made a significant contribution to industrial organization literature dealing with assessing performance. However, by stating that the absence of each and every one of his twenty-five flaws is necessary for effective competition, he may have obscured a major issue. A market is not effectively competitive if even one of the flaws exists and only if all are absent is the market effectively competitive. While he does not argue for corrective action to mitigate the observed flaws, his "all or none" decision rule begs the issue of value trade-offs and demonstrates the difficulty of freeing oneself of the gravitational pull of positive economics. Sosnick's framework implies that each criterion has complete veto power over all the others. Unanimity is required. It is not illogical to assume that some one of these criteria might be more or less important than another. Sosnick's decision rule may be neater to apply and might be welcomed by over-worked policy-makers but it seems to limit information available for decision-making and suggests simple, almost value-free, choices when no such things exist.

Performance measures corresponding to the dimensions discussed in Section 3.3.4 will be provided by participants attitudes, perceptions and experiences regarding milk procurement. Some of this information will come from the mail questionnaires while personal visits with key cooperative and proprietary handler management will provide additional information.

The framework developed here attempts to incorporate the concept of vertical coordination as a sub-sector process with the industrial organization paradigm. The conceptual framework which results is shown diagrammatically in Figure 3-1. Several important elements of



Basic Conditions:
1. Production and Consumption patterns
2. Elasticities
3. Geographical location of supply and demand sites
4. Product characteristics

Market Characteristics:
1. Number and sizes of buyers and sellers
2. Entry and exit conditions
3. Vertical relationships, including vertical integration
4. Economies of scale
5. Differences between industries

Institutions:
1. Cooperatives
2. Marketing orders and price supports
3. Exchange arrangements
4. Sanitation rules

1. Power relationships
2. Information/ communication
3. Past experiences and perceptions held
4. Incentives
5. Alternative Decisions

Coordination Behavior:
1. Cooperation/ conflict
2. Pricing behavior
3. Bargaining environment
4. Operation of exchange mechanisms
5. Services offered and accepted
6. Use made of co-op facilities

Vertical Coordination Performance Criteria:
1. Stability of prices, income, output and institutions
2. Exchange efficiency
3. Equity
4. Supply and demand balancing (allocative accuracy)

Figure 3-1. SUB-SECTOR STRUCTURE, CONDUCT AND PERFORMANCE FRAMEWORK WITH ELEMENTS PARTICULARLY APPLICABLE TO THE VERTICAL COORDINATION PROCESS

the framework's components are listed on this figure. They were chosen for the relevance to milk procurement and its role in sub-sector coordination. Marion [1976-d] provides a larger and more general list of elements.

Structure, conduct and performance factors interact. They are not static. An hypothesis of the following general form is suggested:

$$\bar{S}_1 \rightarrow \bar{C}_1 \rightarrow \bar{P}_1 \rightarrow \bar{S}_2 \rightarrow \bar{C}_2 \rightarrow \bar{P}_2 \rightarrow \ . \ . \ . \ \bar{P}_t$$

where $\bar{S}$, $\bar{C}$ and $\bar{P}$ denote vectors of structural, conduct (behavioral) and performance parameters and the subscripts denote successive time periods. Performance in time period t acts as the catalyst for a change in the structure in the next period. A judicial decision in the LeHigh Valley milk case, which from the farmers' viewpoint eroded market control and income (private assessment of poor performance, P_t), prompted a structural response, S_{t+1}, by dairy cooperatives--merger and federation activity changed the cooperative institution (mechanism).

Another situation manifests itself in applying the industrial organization paradigm. An element of the structure vector $\bar{S}_t$, may also possess attributes arguing for its inclusion in $\bar{C}_{t+1}$, as a conduct parameter. Stated as an hypothesis, there exists one or more structural parameters that if at time t is in $\bar{S}_t$, then it will be in $\bar{C}$ at a later time period. Federal milk marketing orders are traditionally considered a structural parameter. As one ponders these orders and learns about the sub-sector participants it is tempting to cast them as conduct parameters. Upon analysis this dual categorization is logical since cooperatives have the major impact on marketing orders among all affected actors and the amended Federal order structure stands as clear testimony to cooperative conduct and cooperatives' perceptions of

desired performance in earlier time periods. Again the dynamic nature of the industrial organization paradigm is highlighted by the concepts of vertical coordination. Although it is often necessary to categorize a parameter or mechanism as a structural or behavioral (conduct) variable, such a designation is not immutable.

The causal linkages between structure and conduct and performance are usually tenuous. No structure or conduct parameter or combination of parameters seem to be sufficient to yield a particular type of performance, yet several parameters can be demonstrated to be necessary conditions to the attainment of desired or undesired performance objectives. Difficulties such as these testify to the complexity of real world situations and the impossibility of finding interpersonally valid welfare measures upon which to make prescriptive choices. Such difficulties in applying the paradigm lead to its modification. Some of these will be discussed later in this chapter.

Vertical coordination as a process links up successive industries in a sub-sector to study how industries interact in a complete system. Schneider in King [1970, p. 43] suggests that structure or morphology in his terminology, is less important than the mode of behavior of the several market participants in determining the operation of an economic system. Since particular modes of behavior, according to Schneider, are not bound to particular forms of supply and demand, research is justified to treat the morphology of supply and demand as being of secondary importance. Some exception can be taken to this. Structure, conduct and performance are dynamic concepts. Because of this, structure is not totally exogenous to the participants but has major components which are manifestations of the participants' interactions with the given structure.

King [1977] envisions structure as a filter between conduct and performance outcomes. Structure operating as a filtering device allows certain behavior-performance pairs to form but prevents others from doing so by reflecting certain types of conduct. This is an interesting model of the interaction of the three components, but it makes more sense when an active role is assigned to structure. Structure is not impersonal. If certain conducts were rejected previously which may now be acceptable, the structure may be modified to allow that behavior and certain behaviors may have been permitted which are not now acceptable. Additionally, certain behaviors might have passed through the structural filter and translated into a particular type of performance but if the structural filter was modified that same behavior mode might pass through but with a different performance outcome paired with it.

Institutions are part of the set of structural parameters. These mechanisms are at least partially controllable by participants but since they are not neutral in their impact, the issue of who controls them is paramount. Furthermore, since no one has perfect information and since individuals adapt to changing conditions the design of these institutions often has unintended results (performance). The institutions are designed to affect behavior in particular ways which, in supposed lock-step, will yield desired performance. They do this by creating incentives or dis-incentives for behaving in certain ways while seeming to allow individuals some free choice within the acceptable range. Normally the incentive structure is designed to make it unprofitable to take undesirable actions. Other institutions are preemptive since they attempt to restrict choice totally to achieve the desired result, e.g. laws against monopoly behavior in restraint of

trade. Contracts, standard operating procedures, laws and methods of personal interaction are institutions that do affect behavior and in return are affected by the interplay of performance assessments and market power relationships. It is for these reasons that structural parameters--principally controllable, endogenous institutions--are of primary importance in both understanding and affecting behavior. When structure is viewed in this more complete way, its contribution to the course of the economic process is more significant.

Prescriptive institutions are not easy to construct. The interplay of all the structural parameters makes achievement of the desirable behavior through incentives or preeemptive rules difficult. Furthermore, behavior may be stimulated which is conducive to objective A but detrimental to objective B. The point is that institutions can be designed to affect behavior (think about how income tax rules affect our own behavior) and there may be several ways to get the intended behavior which yield different performance vectors. Inextricably bound up with the design problem for institutions is the fact that public and private sub-sector interests seldom embrace a common set or weighing of performance dimensions. The economist's task in such a situation is to provide information about the alternative designs and the trade-offs of performance objectives involved.

3.3 AREAS OF INQUIRY

3.3.1 THE ROLE OF THE FRAMEWORK

A principal purpose for a conceptual framework is to provide a means of organizing and interpreting observed real world situations. It can assist the researcher in abstracting from the complexities of real situations while retaining the essential relationships. A

framework arises from the inductive research process and then is used deductively to predict outcomes, suggest causal relationships and hypotheses capable of statistical verification. The framework developed in this chapter is still evolving and offers few deductive applications. For these reasons testable hypotheses were not developed for this research. Rather areas of inquiry were chosen consistent with the framework to begin the process of acquiring knowledge about vertical coordination within the dairy sub-sector. It is hoped that the results of this research will provide information which will facilitate the development of testable hypotheses in future sub-sector research. By doing this, a contribution will have been made to the inductive process of formulating a conceptual framework. The vertical coordination concept as an evolutionary, adaptive scheme can be expected to change in the course of its application both because of its youth and because of its built-in flexibility.

3.3.2 SPECIFIC AREAS TO BE ADDRESSED

The areas of inquiry or research issues selected for investigating are presented in the following pages. They arise from the conceptual framework of vertical coordination and a knowledge of milk procurement in the dairy sub-sector. They will be studied by use of information gained from mail questionnaires and personal interviews with cooperative and proprietary handler management.

Area of Inquiry: INFORMATION AND COMMUNICATION

It is reasonable to assume that when attitudes, perceptions and information are inaccurate or not held in common by cooperative and proprietary handler management, coordination is adversely affected.

In this sub-sector of less than perfect markets, personal competition and interaction occur. Personalities can dominate exchanges. Harmony implies cooperation which is positively related to vertical coordination. To the extent these two groups are willing to trust each other, share, work together and understand the other person's situation, the more harmony is created. Although objectives held by cooperatives and proprietary handlers will often conflict, to the extent that they each perform their functions and recognize the essential role the other plays, a commonality of objectives can be created. Several key questions need to be dealt with in this area.

1. What incentives or disincentives exist for cooperative and proprietary handler communication and cooperation?

2. Do proprietary handlers know what cooperatives desire in a bulk milk customer? Do cooperatives know what proprietary handlers value most about their milk supply?

3. Which sub-sector participants are in the best position to "manage" marketing order programs, take the lead in institutional change and exert political pressure through the public decision structure?

4. Do proprietary handlers understand cooperative pricing strategies and procedures? Do cooperatives understand proprietary handler bulk milk price concerns and competitive limitations?

Area of Inquiry: AVAILABILITY OF ALTERNATIVE SUPPLIES OF MILK

Dairy cooperatives in a market do not represent the only viable source of supply for proprietary handlers. Buyers in most markets have several alternative cooperative suppliers also available. However, the scale of plant operation in conjunction with federal order provisions

does restrict the number of potential sources available to the handler.

Several pertinent issues in this area can be identified.

1. How many potential suppliers do handlers have relative to the number of customers cooperatives have?

2. What impacts do suppliers such as National Farmers Organization and the Farmers Union have in procurement markets and how do their offerings compare with conventional cooperatives?

3. Can handlers procure milk supplies and associated services more cheaply than from a conventional cooperative?

4. How important is horizontal (industry) coordination to the achievement of vertical coordination?

Area of Inquiry: PROCUREMENT SERVICES

Marketwide services such as disposing of Grade A reserves and surpluses and coordinating Grade A milk markets plus services associated with bulk milk procurement such as scheduling and directing deliveries, handling producer transactions and providing flexible exchange rules can be positive coordination factors. The degree will depend upon (i) the quality of their provision, (ii) whether compensation for such services is adequate from the cooperative's viewpoint and reasonable and equitable from the proprietary handler's perspective and (iii) whether these services are freely provided and accepted.

Milk can be supplied to proprietary handlers under many different arrangements These arrangements lie along a continuum from each dealer maintaining an independent group of producer-suppliers with no cooperative involvement to the complete assignment of all procurement

chores to the cooperative including monitoring quality, arranging transportation, scheduling deliveries and paying individual producers and haulers. In this latter situation the customer simply orders milk where, when and in the quantities needed to fit the processing and distribution schedule.

The responsibility for supply management and handling Grade A reserves and surplus must be borne by some combination of the efforts of dairy cooperatives and proprietary handlers. Several questions about the provision of marketwide and handler services must be answered.

1. Where should responsibility for these services lie if transfer and transaction costs are to be minimized?

2. What incentives exist which encourage or discourage provision of these services by cooperatives or proprietary handlers?

3. How is equity to be established with respect to compensation for providing these services? What impact does the "free rider" problem have on sub-sector coordination and the design of compensation plans? Do cooperatives offer customers a choice of services?

4. What affect does uncertainty over the equity of charges between handlers for services have on coordination?

5. To what extent are marketwide and handler services used by cooperatives as sources of market power? What implications does this have for coordination?

6. What incentives exist to stimulate communication about the quality and type of services provided?

Area of Inquiry: PRODUCTION CONTROL

There are currently no effective production control programs in the dairy sub-sector offered by either cooperatives or marketing orders. Neither does the price support program consistently address the production control problem since it has the often conflicting welfare role of maintaining farm income and is subject to political pressures.

Cooperatives are not willing or able to influence milk production levels among their members or on an industry-wide basis. Mechanisms in federal orders offer only limited production control potential, as designed. State orders with closed base plans erect a major entry or expansion barrier to milk production and thereby affect resource allocation and income distribution. They may result in the value of the production right being incorporated into the farm level milk pricing scheme.

Area of Inquiry: ANTITRUST RELATED BEHAVIOR

It is alleged that manipulation of inter-market prices to gain market power, collusion, forms of cross-subsidization, refusals to deal except under restrictive terms and other forms of antitrust related behavior occur. How frequently they happen and the attitudes of participants regarding these forms of conduct are the subjects of this inquiry.

This area is concerned with the effectiveness of antitrust and trade practice regulations in modifying behavior and the wisdom of restricting certain types of business activity. What do participants believe should be the extent of public regulation of these activities?

Area of Inquiry: SUPPLY ARRANGEMENTS

Supply arrangements (formal and unwritten types) between cooperatives and proprietary handlers can improve quantity, quality and timing coordination by encouraging communication, defining responsibilities and reducing risk. It is reasonable to assume, however, that their design is of major importance in determining the degree to which they serve these functions.

Several areas need to be explored about supply arrangements.

1. What differential effects on coordination and performance do written, verbal, full and partial supply arrangements have?

2. What incentives exist for either party to seek a particular type of supply arrangement?

3. What factors affect participant satisfaction with and the longevity of a particular type of supply arrangement?

4. Does the existence of full supply arrangements constitute a barrier to the entry of new producers?

Area of Inquiry: COOPERATIVE VERTICAL INTEGRATION

Cooperatives who have integrated into processing by virtue of reblending opportunities may be able to gain a competitive advantage over proprietary handlers in their market.

A number of salient features of this integration activity should be examined.

1. Why do cooperatives vertically integrate?

2. Does their presence inject healthy competition or spawn price wars, antagonism and discourage coordination? What determines proprietary handler's reaction to cooperative competition?

3. Will cooperative integration into processing increase?

3.4 SUMMARY

Vertical coordination was presented as a choreographing task to be done jointly by the market mechanism and the political process whereby supply and demand are aligned in time, form, space and quantity dimensions. Public and private mechanisms of vertical coordination have developed in the dairy sub-sector which seek to correct poor performance resulting from unequal power between participants, the production and demand characteristics of milk and milk products, less than perfect information which is not costless and resources not free to move in the short run.

Industrial organization theory and the concepts of vertical coordination were integrated into a framework to analyze the milk procurement function. Vertical coordination was represented as flows of information, commodities and ownership-exchange rights and characteristics of these flows were described. Stability, exchange efficiency, equity and supply and demand matching were offered as appropriate performance dimensions for procurement coordination. Measures of these dimensions were discussed. In addition, several areas of inquiry germane to the consideration of vertical coordination and performance of the sub-sector were presented.

CHAPTER 4

DATA ACQUISITION

Milk procurement behavior and performance are profoundly affected by the structural environment under which the process occurs. Structural conditions differ widely across the United States. To address the issues in a comprehensive manner required nationwide coverage and gave rise to a data acquisition plan using mail questionnaires and field interviews. The direct field contact was used along with mail questionnaires in order to

1. provide a check on the validity of survey questions and resulting answers, and
2. supplement the content of the mail questionnaires since certain issues did not seem amenable to the mail questionnaire format. Many were particularly sensitive, some complex and still others required interaction between the interviewee and the principal researcher. Face-to-face meetings would allow for new areas to be identified and explored, attitudes and disposition of the interviewees to be noted and additional insights gained.

Mail questionnaires would be sent to a sample of cooperative management and proprietary handler personnel in the United States. The survey would be designed to be answered with as little writing by the respondent as possible to increase the amount of data requested and

still keep the time required to complete the survey within reasonable limits. The opportunity for personal contact in the second phase of data acquisition allowed this rather rigid questionnaire format since some respondents would have the opportunity for expansion and embellishment of their ideas in the personal interviews.

The personal interviewees were chosen to provide a geographical cross-section of major dairy farmer cooperatives and proprietary handlers in all areas of the U.S. No attempt was made at randomness nor was any attempt made to talk to many small participants. Large cooperatives and proprietary handlers seemed to be setting the subsector tone, identifying issues, creating and resolving problems and influencing public and private policies. It was therefore decided to talk to them.

A detailed description of the administration of the two media follows in Sections 4.1 and 4.2.

4.1 MAIL QUESTIONNAIRES

Following development of several research issues involving milk procurement, the first draft of questions for the mail questionnaires was undertaken. Two separate questionnaires were constructed--one for mailing to cooperative management and the other to proprietary handler management. Following the technique of Purcell [1970, 1972] approximately 80 percent of the queries on the two questionnaires were either identical in form or mirror images of each other. This format allowed for statistical analysis of the different responses by the two populations. The majority of the remaining 20 percent of the questions involved descriptive data of relevance to only one or the other group. The questions were chosen to convey information on the procurement

environment faced by the two populations and the coordinating practices they employ. The descriptive results from the questionnaires will be reported in Chapter 5 while the remaining questions will be used to examine specific issues in Chapter 7. Copies of the final cooperative and proprietary handler questionnaires, as mailed, can be found in Appendices B and C respectively.

4.1.1 PRE-TEST

An earlier version of the questionnaire was tested with three cooperatives and three proprietary handlers located in Michigan. The pre-test respondents were chosen for their proximity to the University, their representativeness and anticipated cooperation. An introductory letter was sent requesting their help followed in two weeks by the questionnaire with accompanying cover letter. After one week each organization was called to obtain its comments. The completed questionnaires were mailed to the researcher for further examination. Only one failed to complete the pre-test questionnaire--a proprietary handler who could not complete it in time for it to be of help in the development of a final version. The final sample was drawn prior to selecting pre-test organizations to avoid pre-testing the questions with organizations who would be asked to fill out the final version. Numerous suggestions came from the pre-test procedure which ultimately led to changes in questionnaire format and the addition, deletion and amending of particular questions. The importance of the pre-test procedure cannot be over-stated.

Prior to the pre-test, early versions of the questionnaire were critically reviewed by personnel of the Economics, Statistics and Cooperatives Service and the Dairy Division of the Agricultural

Marketing Service, United States Department of Agriculture. The National Milk Producers Federation and the Milk Industry Foundation representing U.S. dairy farmer cooperatives and proprietary handlers respectively, reacted to an early draft. The input of these organizations was extremely helpful. Also all Federal Milk Market Order Administrators were informed by letter of the research plan and their comments invited. The letter sent to Market Administrators is contained in Appendix E, Figure E-1.

4.1.2 CONSTRUCTING THE POPULATION LISTS

4.1.2.1 THE COOPERATIVE LIST

The cooperative population list was designed to include all cooperatives who market and/or bargain for the sale of Grade A milk in the U.S. As will be explained later, some cooperatives who handle only Grade B milk were unavoidably included. The final list was composed from four cooperative lists.

List #1. National Milk Producers Federation membership list which is highly aggregated since a parent cooperative will often represent several otherwise independent cooperatives in the Federation.

List #2. Farmer Cooperative Service, U.S.D.A. national all-agricultural cooperative list.

List #3. Agricultural Marketing Service, U.S.D.A. list of dairy cooperatives qualified under most federal orders.[1]

List #4. Agricultural Marketing Service, U.S.D.A. list of cooperatives marketing milk only under Federal Order No. 2.

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[1]This list does not contain cooperatives who market milk strictly in Federal Order No. 2--parts of New York and New Jersey.

The rules for composing the final list were as follows:

1. Lists #2, #3 and #4 were screened with the help of the National Milk Producers Federation to eliminate any cooperatives who had gone out of business since the list was compiled.

2. List #4 was not used since addresses for the cooperatives could not readily be obtained. This did not prove to be serious since list #2 contained virtually all of the cooperatives on list #4.

3. Since list #2 included all cooperatives, both dairy and non-dairy, it was purged of all non-dairy entries.

4. Since list #2 still included many cooperatives who handled only Grade B milk, it became a list of last resort as explained in No. 6 below.

5. List #3 became the primary list since it contained only cooperatives who handled some Grade A milk (since they were regulated under a federal order).

6. If a state was under a state marketing order, a combination state and federal order or no order at all, list #2 was substituted for list #3 in that state so as not to fail to include all Grade A cooperatives. In most cases list #2 contained at least as many dairy cooperative entries as did list #3. This practice caused the inclusion of some "Grade B only" cooperatives in the population list for the sake of comprehensiveness with respect to Grade A cooperatives. This was necessary in only 15-18 states and then the number of cooperatives involved was small and the discrepancy between lists #3 and #2 was negligible.

The final list constructed under the six rules outlined above contained 304 U.S. dairy cooperatives handling some Grade A milk.

4.1.2.2 THE PROPRIETARY HANDLER LIST

A list of proprietary handlers in the U.S. was obtained from the Milk Industry Foundation which represents approximately 75-80 percent of the Grade A milk processed in the U.S. and 65-75 percent of the U.S. plants involved in the processing. The Foundation's list includes virtually all food store handlers, national and regional independent handlers and cooperative processors. The percentage of small independent handlers who are members of the Foundation is less than 75 percent [Tipton]. Dairy Division and M.I.F. officials gave assurance that obtaining a more complete list would be extremely difficult. Since the Foundation's list contained all the major proprietary handlers and a sizeable portion of small proprietary handlers, it was deemed adequate for the purposes of this study.

Before the list was used, all dairy cooperative members were excluded since they would be included in the other list. All firms who manufactured only hard dairy products were excluded. Of course much of the hard product manufacturing activity was captured since many fluid processors also manufacture some hard products. The Milk Industry Foundation's May 1977 membership list was amended to include 389 separate proprietary handlers. These firms made up the population list.

4.1.3 STRATICATION AND DRAWING THE SAMPLE

4.1.3.1 DAIRY COOPERATIVE SAMPLE

The 304 dairy cooperatives were stratified by size based on the following designations:

small cooperative	<500 members
medium cooperative	500-4,999 members
large cooperative	>5,000 members.

National Milk Producers Federation assisted in categorizing each cooperative on the list according to the three sizes. It was assumed that membership and milk volume handled were positively correlated to a high enough degree to let membership be a proxy for cooperative milk volume handled. It was decided to sample the large and medium-sized groups at a rate of 100 percent since few cooperatives were in these two categories. A 40 percent sampling rate for the small group was calculated to yield the desired amount of accuracy when an estimate of the variance of the membership of the small cooperatives was used in the sample size formula. The sample was enlarged to offset an anticipated response rate of 30 to 50 percent.

The small group was further stratified by region. Mailing address of the organization's office (or main office, if several offices were operated) was used to place a cooperative or proprietary handler in a particular state. These regional groupings were formed in such a way as to (i) maintain geographical integrity as well as common milk marketing characteristics and (ii) provide regions with a reasonable number of firms. The states contained in each region are given below.

WEST: Alaska, Arizona, California, Hawaii, Idaho, Oregon, Washington

CENTRAL: Colorado, Iowa, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota, Utah, Wyoming

SOUTH: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas

MIDWEST: Illinois, Indiana, Kentucky, Michigan, Minnesota, Missouri, Ohio, Wisconsin

NORTHEAST: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia

Appendix D contains a map delineating the five regions defined above. After partitioning the small group into regions, each cell was sampled at the 40 percent rate, using a random number table. Table 4-1 decomposes the population and sample by size and region. The total sample size was 159 or 52 percent.

4.1.3.2 PROPRIETARY HANDLER SAMPLE

From the Milk Industry Foundation list it was possible to identify handlers with one plant and those with more than one plant. The multi-plant group, composed of 54 U.S. proprietary handlers and designated the large group, was sampled at a rate of 100 percent. As with the small cooperative sub-population, the 335 single plant proprietary handlers were stratified in the same manner into the identical five geographical regions and then each region sampled at the 40 percent rate using a random number table. Table 4-2 breaks the population and sample down by size and region. The total sample size was 187 or 48 percent.

4.1.4 DISTRIBUTING THE QUESTIONNAIRES

As Buse recognized, motivating recipients of mail questionnaires is one of the major challenges, and too often the reason for the poor performance, of mail questionnaires. Many procedures were employed to stimulate maximum response.

Key people within selected cooperatives and proprietary handler firms were identified with the help of the National Milk Producers Federation and the Milk Industry Foundation respectively.[1] These

[1]Key people were identified for 100 percent of the proprietary handler sample and approximately 35 percent of the cooperative sample.

Table 4-1. Decomposition of the Cooperative Population and Sample by Size and Region

Region	Size			Total No.	Row Percentage of Total Sample
	Number in Sample/Number in Population				
	Large	Medium	Small		
West	0/0	12/12	9/23	21/35	13%
Central	1/1	6/6	15/37	22/44	14%
South	1/1	6/6	9/23	16/30	10%
Mid-West	5/5	21/21	40/100	66/126	42%
Northeast	5/5	6/6	23/58	34/69	21%
Total No.	12/12	51/51	96/241	159/304	52%
Column Percentage of Total Sample	8%	32%	60%		

Table 4-2. Decomposition of the Proprietary Handler Population and Sample by Size and Region

Region	Size		Total No.	Row Percentage of Total Sample
	Number in Sample/Number in Population			
	Large	Small		
West	6/6	13/33	19/39	10%
Central	4/4	14/36	18/40	10%
South	16/16	23/59	39/76	21%
Mid-West	15/15	36/89	51/104	27%
Northeast	13/13	47/118	60/131	32%
Total No.	54/54	133/335	187/389	48%
Column Percentage of Total Sample	29%	71%		

individuals were believed to be a combination of the most knowledgeable on the topics in the questionnaire and those most willing to take part. In the case of about 10 percent of the cooperatives, questionnaires were sent to more than one individual in the same cooperative to insure that it would receive attention as well as to alert top cooperative management of the potential involvement of their cooperative. Large regional cooperatives received copies at their headquarters and at division manager's offices. In the cases where a cooperative received more than one questionnaire, a letter made it clear that only one need be completed unless in the case of a regional cooperative, the management felt separate questionnaires completed by each division manager were most appropriate.

Observation of mail sorting procedures in business offices indicates that individually addressed envelopes, as opposed to labels typed or machine printed, hand stamped and with an individual's name included in the address receive top priority. Since three mailings were planned, address labels were typed and duplicated but otherwise every effort was made to ensure that the envelope containing the questionnaire would get the attention of the addressee. Envelopes were hand stamped and the first line of the address contained the name of a particular person if one had been identified.

A 15 percent randomly selected sample from both the cooperative and proprietary handler samples was drawn. The sub-sample of size 24, from the cooperative sample received metered mailed (i.e. machine stamped) rather than hand stamping. The proprietary handler sub-sample of size 28, received certified letters. This procedure was followed to

investigate the hypotheses about business office mail sorting and delivery. The results of this experiment are presented in Appendix D.

A hand-stamped, self-addressed return envelope was included with each questionnaire. A cover letter stating the objectives of the research and its importance to the cooperative or proprietary handler, entreated them to respond and established the identity of the researcher. Although the cover letters were printed, each one had the individual's or organization's name written at the top. A copy of the two first round cover letters is contained in Appendix E, Figures E-2 and E-3. Confidentiality was stressed in the cover letter as well as on the front page of the questionnaire. Code numbers were prominently printed in the upper left hand corner of the questionnaire's first page. No mention was made of the existence or use of the code number. Only one organization who returned a questionnaire obliterated the code number. It was used to identify respondents so that follow-up mailings did not go to those who had already completed the survey. In addition, the code number was used to identify members of the sub-samples who received certified or machine stamped mailing so that comparisons could be made of response rate.

A card was affixed to each questionnaire allowing each recipient, whether he chose to complete the questionnaire or not, to request a copy of a publication summarizing the findings of the research. The card was self-addressed and required the individual to affix a stamp and indicate his name and address. A copy of this card can be found in Appendix E, Figure E-4. Buse had suggested this device as a way of stimulating interest in the research and rewarding the effort of respondents.

Although the effect of the free publication offer cannot be measured, Buse found that no one requested a publication who did not also return a completed questionnaire. Also Buse found that 80 percent of those who completed a survey also requested a publication. Interestingly, the results in this study were virtually identical to Buse's. Eighty-one percent of the cooperatives returning questionnaires requested a publication while the proprietary handler percentage was 67 percent. Only one organization from both samples who requested a publication failed to complete a questionnaire.

Two weeks following the initial mailing a reminder letter was sent to all those who had not responded. This letter was printed and contained no personalized salutation. A copy of the common follow-up letter is included in Appendix E, Figure E-5.

Two weeks following the follow-up letter and four weeks after the initial mailing, a new questionnaire and cover letter were sent along with a return envelope (not stamped) to those cooperatives and proprietary handlers who had not responded. A copy of this common cover letter is contained in Appendix E, Figure E-6. No further follow-up procedures were employed. The pattern of responses over time, the effect of the follow-up stimuli and the costs of the data acquisition medium are presented in Appendix D.

4.1.5 CHARACTERIZATION OF COMPLETED QUESTIONNAIRES

A 41 percent response rate for completed, usable questionnaires was obtained from the cooperative group and a 42 percent rate from the proprietary handler group. Sixty-two completed cooperative questionnaires were returned and 76 proprietary handler ones. This response rate fell within the anticipated range and was judged a success given

the length of the survey and the sensitive nature of some of the information requested. For a more detailed discussion of the response rate see Appendix D.

Tables 4-3 and 4-4 characterize the sources of completed cooperative and proprietary handler surveys respectively, using the same format employed in Tables 4-1 and 4-2. Notice that the completed surveys represented each cell in the tables. No region or size group was poorly represented, although the medium-sized cooperative group responded at a higher than average rate (61 percent) while the small cooperative group had a below average response rate (22 percent).

Table 4-3. Decomposition of Completed Cooperative Questionnaires by Size and Region

Region	Size			Totals	Row Percentage of Completed Questionnaires	Row Sample Percentage
	Number of Questionnaires					
	Large	Medium	Small			
West	0	8	2	10	17%	13%
Central	0	5	2	7	11%	14%
South	1	2	1	4	6%	10%
Mid-West	5	11	10	26	42%	42%
Northeast	4	5	6	15	24%	21%
Totals	10	31	21	62		
Column Percentage of completed questionnaires	16%	50%	34%			
Column sample percentage	8%	32%	60%			

Table 4-4. Decomposition of Completed Proprietary Handler Questionnaires by Size and Region

Region	Size		Totals	Row Percentage of Completed Questionnaires	Row Sample Percentage
	Number of Questionnaires Completed				
	Large	Small			
West	5	5	10	13%	10%
Central	3	8	11	15%	10%
South	7	9	16	21%	21%
Mid-West	8	15	23	30%	27%
Northeast	4	12	16	21%	32%
Totals	27	49	76		
Column Percentage of completed questionnaires	35.5%	64.5%			
Column sample percentage	29%	71%			

4.2 PERSONAL INTERVIEWS

As indicated at the beginning of this chapter, large, dominant cooperatives and proprietary firms as well as other related, knowledgeable individuals were selected for personal visits. The populations from which cooperative and proprietary handler interviewees were chosen were identical to those constructed for the mail questionnaires in Section 4.1.2. An effort was made to interview cooperative and proprietary firm personnel who were influential in their markets but small firms were not sought in representative numbers. No random selection procedures were followed. After consultation with sub-sector participants and knowledgeable students of this sub-sector, the interviewees were selected. The list changed only slightly over the course of the

ten week interview process. A few were added as additional information established their important role. A few were dropped when schedules could not be accomodated. Only one selectee--a cooperative--chose not to be interviewed. Complete lists containing the individuals visited, the organization's name and location and the date of the interview are presented in Appendices F, G and H for cooperatives, proprietary handlers and other related participants, respectively. Table 4-5 depicts the geographical dispersion of all interviews by region and interviewee type.

Table 4-5. Location of Cooperative, Proprietary Handler, and Other Interviews by Regions[1]

Region	Number of Interviews With			
	Co-ops	Proprietary Handlers	Others	Total
West	6	5	1	12
Central	3	0	0	3
South	2	2	0	4
Mid-West	13	8	1	22
Northeast	7	2	1	10
Total	31	17	3	51

Potential interviewees were contacted initially by phone. The nature of the research was explained and the value of their cooperation stressed. They were assured confidentiality. Letters of confirmation

[1]The regional designations used here are identical to those defined in Section 4.1.3. Recall that classification of an organization in a particular region is based on its mailing address and not its marketing area.

as well as reminder calls were normally employed. A trip was planned into each major region of the country and all interviewees in each region scheduled for a visit sometime during that trip. In most cases return trips were impractical. The scheduling of visits proceeded exceptionally well, as cooperatives and proprietary handlers selected made every effort to accomodate the schedule agreed upon. In only a few cases did incompatible schedules preclude the setting of appointments. Only two previously set appointments were subsequently cancelled, both due to unforeseen committments.

Scheduling and conducting the interviews was a major coordinating task. Fifty-one appointments with cooperatives (31), proprietary handlers (17) and related industry participants (3) were accomplished in 18 states in 10 consecutive weeks. The average interview lasted two hours. Copious notes were taken during the interview. These were transcribed onto cassette tapes as soon as possible (usually the same day) and a typed copy produced later. Thank you letters were sent to each individual or group of individuals with whom an interview was conducted.

Interviews were designed to gather information on areas omitted or only partially covered in the mail questionnaires. Current issues and problems were discussed. The state of cooperative-proprietary handler relations in a market were covered. The workings and terms of supply arrangements were carefully examined. Locations and shifts of power within the sub-sector were elucidated and recommendations for changes in the sub-sector explored. Open-ended questions as well as opportunities for the interviewee to suggest new directions for the discussion caused the general structure of the interview process to

evolve over the ten week period. Although each interview did not follow the same rigid format, a typical set of interview questions can be constructed. Appendix I presents such typical formats for the cooperative and proprietary handler discussions.

Appendix J presents the costs of using the personal interview medium in this research project.

The information gathered in these interviews will be presented in Chapters 5, 6 and 7. In Chapter 5 descriptive information from the interviews will be discussed. Supply arrangements and cooperative membership agreements as coordinating mechanisms will be analyzed in Chapter 6. In Chapter 7 insights, attitudes and analyses of mechanisms and issues discussed in the visits will be brought to bear on the areas of inquiry identified in Section 3.3.2.

CHAPTER 5

DESCRIPTIVE RESULTS

5.1 INTRODUCTION

This chapter presents the descriptive results obtained from the mail questionnaires and the personal interviews. Chapter 6 presents an analysis of agreements and contracts in use in the sub-sector. Chapter 7 will examine seven specific areas of inquiry which focus on the vertical coordination process and the performance of milk procurement activities in a sub-sector context.

5.2 THE ROLE OF DAIRY COOPERATIVES IN MILK PROCUREMENT ACTIVITIES

5.2.1 THE NATURE OF ACTIVITIES PURSUED

Dairy cooperatives today can, in increasing numbers, be observed to not only bargain for price with milk dealers but to arrange farm pick-up (perhaps owning the tractor and/or tank and hiring the drivers), route bulk milk to dealers, receive milk in their own pumpover facilities, distributing plants or supply plants, manufacture and process bulk milk from their members under their own and private labels and distribute the final products to wholesalers, retail stores or on home delivery routes.

Cooperatives' procurement role is an important and complex one. They negotiate supply contracts with milk dealers for steady, top quality bulk milk supplies on agreed upon schedules. They can deliver milk when, where and how it is desired by milk dealers. This

coordination activity is handled very satisfactorily once terms are agreed upon but there is the further activity in all fluid milk markets of arranging for or actually performing manufacturing services for reserve supply management and disposal of surplus milk above the necessary reserves.[1] The existence of reserve supplies necessary in all markets, points up the single most important supply and demand condition (structure) affecting vertical coordination in a market. No other farm or non-farm commodity poses such a coordination challenge. The basis for this activity will be examined further.

From day to day and month to month a reserve of Grade A milk as high as 20 percent to 40 percent above Class I requirements must be carried if the Class I market is to be served with fresh milk.[2] This

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[1]The Grade A milk not needed for fluid purposes can be sub-divided into two types: reserve and surplus milk. Although operationally the sub-sector does not make this distinction, it is necessary here. Reserve supplies can be considered unavoidable if Class I demand is to be continually met on a daily basis while surplus milk can be viewed as production not necessary to serve normal Grade A demand. More will be said about this in Sections 7.5 and 8.2.

[2]Production is seasonal with the highest production available in May (four year seasonal index of 111.1, where the average month's output equals 100.0) and lowest in November (93.6). In general, March through May are high production months and August to November are low supply months [Christ, p. 51]. If demand fluctuated in the same seasonal pattern things would be much simpler. Christ [p. 51] offers a nine year sales index which indicates that demand goes from a high of 104.6 in October to a low to 91.8 in July. The months of peak demand are September through December and January to April with lows in the months of May through August. Comparing indices of production and sales for each month shows that the excess supply runs from a high of +15.6 points in June to a low of -9.9 points in October. Christ [p. 45] suggests that a 17 percent seasonal Grade A reserve is needed by calculating the spread between the high and low production months and assuming that supply and demand match in the high month. Of course because of less than perfect coordination of milk supplies between markets, reserve requirements in many individual fluid markets are higher.

Another problem relates to consumer shopping habits. Production fluctuates little from day to day but the increasing share of milk purchased in grocery stores intensifies daily demand variations. With home delivery representing around 10-12 percent of retail sales now as

reserve must be manufactured by someone if product waste is to be avoided. Cooperatives throughout the United States are managing and/or manufacturing more and more of this reserve and serving the market by coordinating supply and demand both within and between relevant fluid markets.[1] These activities are considered part of the procurement function and are often called marketwide services since they serve the total market and their benefits do not accrue solely to the organization which performs them. For this reason marketwide services are often discussed in the same breath with "free rider" problems--at least by dairy cooperatives. The operation of pumpover and receiving stations, manufacturing plants and to a limited degree bottling facilities by dairy cooperatives is in response to their increasing responsibility for managing and disposing of reserve supplies, the collection and routing of bulk supplies so as to accomplish intra- and inter-market alignment and serving an increasingly more exacting bulk milk delivery schedule to milk dealers.

Milk supplies above the 20-40 percent reserve requirement can be termed actual surplus supplies. Cooperatives in many cases, have taken

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opposed to 70 percent in the late 1930's [Parker], supermarkets sell a higher percentage of the milk than ever before, and since consumer shopping habits favor Mondays, Fridays and Saturdays milk demand varies widely during a typical week. Christ [p. 52] suggests that the coordination problems caused by fluctuations within the week are at least as great as those created by seasonal patterns. As a result of these weekly patterns, processors demand for bulk milk fluctuates from day to day, but the dairy farmer has a steady, non-stop supply. If sufficient capacity exists for two-day storage of bulk fluid milk within a market, then an additional 20 percent reserve supply is needed (or at total reserve of 37 percent) but if only one-day storage capacity exists the needed reserve and surplus disposal could go higher. And this implies optimum daily inter-market coordination.

[1]The question of surplus disposal as a marketwide service or a monopolizing strategy [Masson, 1976, p. 6] will be discussed in Section 7.4.

on the responsibility of disposing of not only the necessary reserves but for the actual surplus milk as well. Beside the vertical integration activity and the provision of marketwide services, dairy cooperatives today are providing more and more procurement services designed to be complementary to the delivery of bulk milk supplies. The customer may or may not pay a charge over the order minimum price for any or all of these services. A brief description of the typical common services, commonly referred to as handler services since they tend to benefit primarily the bulk milk customer, is presented below. Carley and Cook [1976-b] identified these services and this study bore out the completeness and appropriateness of this list for all regions of the United States.

Diverting bulk deliveries off farms provides for the milk from a fixed group of farmer members of a cooperative to be shipped directly and regularly to a proprietary handler's plant. This milk may be received at the handler's plant in farm tankers or it may have been pumped over from farm-sized trucks into over-the-road tankers (50,000-100,000 lbs. capacity). It does not go through any plant facilities other than a pumpover station. Proprietary handlers may prefer this since it gives them the stability and accountability of a regular supply source for quality assurance. In addition to the quality assurance benefits, having a regular group of producers shipping to a proprietary handlers can almost be considered an independent milk supply which many dealers still believe inspires loyalty among the farmers and may serve to counteract cooperative power over milk supplies if the need ever arises to establish principal loyalties.

If a dealer receives direct off-farm deliveries and perhaps even if plant milk is received, the dealer might find it desirable to return milk to the cooperative when unanticipated inadequate capacity or sales occur. This practice is called diverting milk for manufacturing, since usually the cooperative must find a manufacturing outlet for this volume.

The counterpart to diverting already delivered or normally committed milk for manufacturing is providing supplemental milk on order. Dealers often need additional bulk milk above their regularly scheduled order and some cooperatives provide this service.

Selling milk f.o.b. the customer's plant is a practice some cooperatives follow. This provides the dealer with a delivered price and provides freedom from day-to-day concerns over hauling route costs and the proximity of supply.

Some proprietary handlers wish to receive standardized milk, i.e. milk whose composition has been altered, normally by fortification with additional solids-not-fat or the removal of some of the milkfat. The receipt of such milk complements or substitutes for the dealers own facilities and equipment and facilitates the processing function carried out by the dealer.

Splitting a tanker load of milk between customers is a service which small dealers in particular may use. The practice increases transaction costs as accounting procedures, weighing and testing, and routing activities require increased coordination. For the customer it allows for receipt of incremental supplies in units of less than 50,000-100,000 pounds of milk and may make subsequent diversions unnecessary.

Most dairy cooperatives write their members' checks for production delivered. This requires that the handler customer write only one check per cooperative supplier instead of perhaps a hundred or more. It also reduces the accounting detail for the dealer since accounting is made only for weights and tests on each shipment and not for the individual farmers whose milk comprises that shipment. Some cooperatives allow the dealer to pay the individual cooperative members whose milk is received at the dealer's plant. This reduces the accounting task for the cooperative and often pleases the customer, since most sub-sector participants agree that producer loyalty and the source of payment are closely related. Although most cooperatives prefer to pay their members, a few do not make individual member remuneration. Most proprietary handlers feel that the cost savings realized by a dramatic reduction in their transaction costs more than offsets foregone producer loyalty. Whether this option is offered to the customer is a function of cooperative market power. Whether this option is sought by dealers is often dependent upon their attitude toward and perception of dairy cooperatives operating in that market.

Some cooperatives write the checks for non-members who ship to a customer's plant. For the cooperative this activity allows it to partially offset the effect of non-cooperative milk supplies purchased by a dealer and provides the cooperative with the opportunity to have a direct input to these non-members to win their loyalty and demonstrate the advantages of membership. Whether this service is sought by the dealer or offered by the cooperative is contingent on the same factors discussed relative to the writing of member checks.

Many cooperatives assume responsibility for all transactions involving off-farm and out-of-plant hauls. In some instances the cooperative owns tractors and/or tanks and hires drivers and in other situations contracts (formal or informal) for hauling services. If producer-members are obligated for the haul, the cooperative will pay the haulers and deduct the amount from members' checks. If the handler-customer is responsible, the cooperative will pay the hauler and bill the dealer.

In virtually all federal milk marketing orders, if a dealer accepts farm weights (calculated via certified farm bulk tank calibration) as measured by the milk hauler, the dealer is authorized to take a two percent shrink loss on which the lowest classified price is paid. If the handler purchases on tanker weights federal orders normally allow 1.5 percent shrink loss.

On out-of-plant loads the cooperative has no choice but to sell on tanker weights and tanker butterfat tests but on direct (pumpover or not) shipments they may offer dealers the option--usually for a service charge--of buying on tanker weights and/or tanker tests so that the cooperative and its collective membership bear the costs of the shrink involved in receiving milk and any variation in butterfat test between individual farms and pooled farms. The method of quantity measurement used in bulk milk exchanges determines the shrink allowance that can be claimed by the proprietary handler.

5.2.2 MEASURES OF COOPERATIVE INVOLVEMENT IN THE DAIRY SUB-SECTOR

This section presents questionnaire data on cooperative involvement in procurement and beyond. Separate measures are presented by cooperative size, regional location and type, in addition to the

overall response. Although cooperatives were not asked to characterize themselves by types, the questionnaire data when transformed indicate that 38 percent of the sample are bargaining cooperatives, 15 percent are marketing cooperatives and 47 percent fall into the operating group.

Many of the parameters reported in the following tables are not based on a ratio scale.[1] For this reason no statistical tests were performed on these parameters. For ratio scale variables single factor analysis of variance (ANOVA) was performed based on size, region and, in the case of cooperatives, type of cooperative. Details are contained in the footnotes to each table. If a variable was other than a ratio scale type, (#) appears at the left hand margin of the table indicating that a variance was not statistically meaningful and therefore an ANOVA was not performed. All means are simple averages of all responses.

Table 5-1a presents data on basic cooperative structure and the market order environment under which most operate. As expected, size and the number of states spanned by a cooperative marketing area were positively related. Large cooperatives market member milk (bulk and manufactured/processed) in nearly nine states while small cooperatives span less than two states. The low figure in the West is attributable to smaller cooperatives, larger states and concentrated demand centers. The figure in the South reflects the large cooperatives operating there.

Membership numbers exhibit expected patterns across size and regions. The average Grace A cooperative received 987 million pounds of milk in 1976. Notice the expected relationship between volume and

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[1]See Moser, p. 352.

TABLE 5-1a. U.S. DAIRY COOPERATIVE CHARACTERISTICS AND MARKETING ORDER ENVIRONMENT, BY SIZE AND REGION, 1976-77

	Selected Parameter[1]	Total Sample	Mean or %			Mean or %				
		Mean or %	Small Group	Medium Group	Large Group	West	Central	South	Mid-West	Northeast
(**)	AGE of the co-op (yrs.)	40.7	45.5	39.5	34.7	44.9	40.3	13.0	41.8	44.1
(*)	No. STATES in marketing area	4.0	1.8	3.8	9.0	1.6	3.3	5	3.7	5.1
(***)	No. of MEMBERS--1976	2008	184	994	8597	360	891	8091	2121	1685
(***)	VOLUME received from members--1976 (mil. lbs.)	987	73	506	4071	550	257	3723	1106	636
	Received volume which was:									
(***)	GRADE A(%)	74.3	54.3	84.2	82.0	88.1	52.9	95.5	64.8	86.2
(***)	GRADE B(%)	25.7	45.7	15.8	18.0	11.9	47.1	4.5	35.2	13.8
(#)	Membership in NAT'L federation(%)	54	30	65	64	20	86	50	56	60
(#)	Membership in REGIONAL federation(%)	63	43	71	80	50	43	50	62	87
(#)	Co-ops operating under FED. ORDER(%)	85	86	80	100	20	86	100	96	93
(***)	NUMBER of FED. ORDERS	2.5	1.1	1.9	6.6	1.6	2.2	6.5	2.5	1.8
(#)	Co-ops operating under STATE ORDER(%)	44	38	43	60	70	57	0	28	60
(*)	NUMBER of STATE ORDERS	1.6	1.0	1.5	2.3	1.6	1.5	0	1.4	1.7
(#)	Co-ops operating under WHLSE.price MINIMUMS(%)	28	21	21	60	0	57	0	23	47
(#)	Co-ops operating under RETAIL price MINIMUMS(%)	29	21	17	80	0	43	0	18	67

[1]Ratio scale variables were subjected to statistical analysis by size and region. The null hypothesis in each case is that the mean of all sub-samples and the total sample are equal. (*), (**) and (***) indicate significance at the 10% level for size, region and both, respectively, based on an F test for single factor ANOVA. Variables not amenable to statistical tests are indicated by (#).

cooperative size. Each size group's received volume varies by a magnitude of almost eight.

One indication of coordination of the milk supply within one stage of the sub-sector might be the extent of cooperative participation in regional or national organizations. Many of these regional organizations are designed to coordinate the price surface over several markets. Still others are to coordinate milk supplies between markets to reduce total needed reserves and control large units of milk to enhance bargaining positions. National organizations are normally trade associations whose job it is to influence federal decision makers. Fifty-four percent of all cooperatives responding belong to a national federation while 63 percent indicated membership in a regional organization. Larger cooperatives tend to belong to this type of association. It is noted that Western cooperatives have low national participation due both to geographical separation and California's use of a state marketing order.

Table 5-1b breaks down the parameters by type of cooperative. The most salient point made by this table is the dominant size of marketing cooperatives. They dwarf bargaining and operating cooperatives in membership, volume and geographical spread. Bargaining cooperatives are much smaller than operating cooperatives.

Table 5-2a details the vertical and horizontal involvement of dairy cooperatives in this sub-sector. Cooperatives are heavily involved in owning and contracting for off-farm milk hauling. Those owning their own equipment hauled 56 percent of their member milk with this equipment. This figure supports an often observed cooperative

TABLE 5-1b. U.S. DAIRY COOPERATIVE CHARACTERISTICS AND MARKETING ORDER ENVIRONMENT, BY TYPE OF COOPERATIVE, 1976-77.

Selected Parameter[1]	Mean or %			
	Total Sample	Bargaining	Marketing	Operating
AGE of the co-op (years)	40.7	40.4	32.4	44.4
*No. STATES in mktg. area	4.0	2.2	7.1	4.8
*No. MEMBERS--1976	2008	461	6768	1897
*VOLUME received from members 1976 (mil.lbs.)	987	171	3093	931
Received volume which was:				
GRADE A(%)	74.3	67.1	73.1	78.7
GRADE B(%)	25.7	32.9	26.9	21.3
Membership in NAT'L federation(%)	54	39	71	62
Membership in REGIONAL federation(%)	63	48	75	72
Co-ops operating under FEDERAL ORDER(%)	85	83	87	86
*NUMBER of FEDERAL ORDERS	2.5	1.4	5	2.7
Co-ops operating under STATE ORDER(%)	44	48	50	41
*NUMBER of STATE ORDERS	1.6	1.1	1.2	2.1
Co-ops operating under WHLSE. price MINIMUMS	28	24	37	29
Co-ops operating under RETAIL price MINIMUMS	29	29	37	29

[1]Ratio scale variables were subjected to statistical analysis by type of cooperative to test the null hypothesis that the mean of all subsamples and the total sample are equal. (*) indicates significance at the 10% level based on an F test for single factor ANOVA. Variables not amenable to statistical tests are indicated by (#) (see Table 5-1a).

TABLE 5-2a. DAIRY COOPERATIVE MARKETING ACTIVITIES, BY SIZE AND REGION, 1976-77

	Cooperative Activities[1]	Total Sample	Mean or %			Mean or %				
		Mean or %	Small Group	Medium Group	Large Group	West	Central	South	Mid-West	Northeast
	SELL farm SUPPLIES:									
(#)	Co-ops involved(%)	66	76	53	80	60	71	75	72	53
	HAUL bulk MILK, off farm:									
(#)	CO-OPS OWNING EQUIP(%)	57	57	50	70	60	86	50	48	53
(*)	VOLUME hauled on own equip(*)[2]	56.5	87.0	52.3	13.3	70.5	62.3	65.0	43.5	59.1
	CO-OPS contracting for(%)[2]	79	57	87	100	80	71	75	88	67
(#)	VOLUME contract hauled(%)[2]	78.5	77.9	80.4	75.3	59.6	65.4	90	84.4	85.3
	Maintain receiving and/or PUMP-OVER stations:									
(#)	CO-OPS involved(%)[2]	52	48	50	70	20	57	75	64	47
(*)	NUMBER of stations[2]	6.3	1.0	2.9	21.0	1.5	4.2	19.7	6.9	1.6
	MANUFACTURE hard products:									
(#)	CO-OPS involved(%)	54	19	67	90	80	57	25	52	47
(*)	% of total VOLUME rec'vd[2]	44.7	42.2	54.1	26.2	48.7	44.2	22.0	53.3	28.4
	Products under PVT. LABEL(%)[2]	26.1	54.7	19.8	27.7	33.1	3.5	90	24.9	24.2
	PROCESS fluid and/or soft products:									
(#)	CO-OPS involved(%)	43	14	50	80	60	43	25	36	47
(*)	% of total VOLUME rec'vd[2]	28.2	65.7	30.1	10.7	35.8	38.3	1.0	21.1	31.4
	Products under PVT. LABEL(%)[2]	43.7	60.0	45.1	35.5	61.6	93.0	1.0	43.1	38.8
	DISTRIBUTE PRODUCTS:									
(#)	CO-OPS involved(%)	43	29	47	60	60	43	25	52	20
	OWN RETAIL OUTLETS or routes:									
(#)	CO-OPS involved(%)	30	10	37	50	40	43	25	32	13

[1] Ratio scale variables were subjected to statistical analysis by size and region. The null hypothesis in each case is that the mean of all sub-samples and the total sample are equal. (*),(**) and (***) indicate significance at the 10% level for size, region and both, respectively, based on an F test for single factor ANOVA. Variables not amenable to statistical tests are indicated by (#).

[2] These means and percentages calculated only for those co-ops engaged in the particular activity, and not for the entire sample.

strategy. Union drivers are generally less preferred than non-union drivers and many cooperative managers believe their organization is less vulnerable to unionization attempts if the cooperative hauls less than half of their members' milk. The existence of unions for drivers and the implied abrogation of cooperative management discretion as well as the increased costs of equipment maintenance which may arise with union drivers will undoubtedly limit cooperative ownership of hauling equipment and preserve a niche in the sub-sector for independent truckers. The figures in Table 5-2a also indicate that the extent of cooperative ownership of hauling equipment is inversely related to cooperative size. The volume of milk under the control of large cooperatives precludes hauling a large percentage of it on cooperative-owned equipment. Seventy percent of large cooperatives do choose to own some equipment, but all large cooperatives surveyed contract for an average of 75 percent of their member volume. Notice in Table 5-2b that more marketing cooperatives than either of the other types own their own equipment, but they have proportionally less hauling capacity than does the bargaining group. The situation is almost identical for contract hauling.

Cross tabulation of the survey data shows that 42 percent of the cooperatives both own their own equipment and contract for off-farm hauling. Only six percent of the cooperatives choose not to get involved in hauling arrangements at all. Thirty-seven percent contracted for hauling but owned no equipment of their own while only 14 percent did the converse.

TABLE 5-2b. DAIRY COOPERATIVE MARKETING ACTIVITIES, BY TYPE OF COOPERATIVE, 1976-77.

Cooperative Activities[1]	Mean or %			
	Total Sample	Bargaining	Marketing	Operating
SELL farm SUPPLIES:				
Co-ops involved(%)	66	70	87	55
HAUL bulk MILK, off farm:				
CO-OPS OWNING EQUIP(%)	57	56	62	52
* VOLUME hauled on own equip(%)[2]	56.5	80.6	46.8	39.1
CO-OPS contracting for(%)	79	52	100	93
* VOLUME contract hauled(%)[2]	78.5	75.0	59.0	86.6
Maintain receiving and/or PUMP-OVER stations:				
CO-OPS involved(%)[2]	52	43	75	55
NUMBER of stations[2]	6.3	1.6	11.5	7.2
MANUFACTURE hard products:				
CO-OPS involved(%)	54	0	87	86
* % of total VOLUME rec'vd[2]	44.7	0	12.2	46
Products under PVT. LABEL(%)[2]	26.1	0	32.5	24.3
PROCESS fluid and/or soft products:				
CO-OPS involved(%)	43	0	62	69
* % of total VOLUME rec'vd[2]	28.2	0	2.7	23.6
Products under PVT. LABEL(%)[2]	43.7	0	30.2	49.7
DISTRIBUTE PRODUCTS:				
Co-ops involved(%)	43	13	50	62
OWN RETAIL OUTLETS or routes: Co-ops involved(%)	30	0	25	52

[1]Ratio scale variables were subjected to statistical analysis by type of cooperative to test the null hypothesis that the mean of all subsamples and the total sample are equal. (*) indicates significance at the 10% level based on an F test for single factor ANOVA. Variables not amenable to statistical tests are indicated by (#) (see Table 5-2a).

[2]These means and percentages calculated only for those co-ops engaged in the particular activity, and not for the entire sample.

Calculations made from survey data reported in Table 5-2a[1] show that 21 percent of cooperatives' member milk production was hauled on the cooperative's own equipment while 70 percent of the member volume was transported by contract haulers. The remaining nine percent was hauled by other means such as producer-hauler arrangements not involving the cooperative. Fifty-seven percent of the cooperatives owned equipment and hauled 21 percent of all milk in this study. Current data suggests 79 percent of all cooperatives contract for some hauling and 70 percent of the total cooperative volume on the survey was hauled in this manner.

Manufacturing of hard dairy products is done by 54 percent of the cooperatives in the study. These cooperatives committed 45 percent of their supplies to these products. Notice that only 19 percent of the small cooperatives, 67 percent of the medium-sized group and 90 percent of the large group did manufacturing of dairy products. When cooperatives are responsible for large volumes of milk, their Grade A reserve and surplus disposal job is too large to be totally diverted to other organizations' manufacturing facilities, so they find it necessary to own at least some manufacturing capacity for disposal.

Forty-three percent of all cooperatives responding indicated that they did some processing of fluid and/or soft dairy products. The percentage of cooperatives involved in processing is positively related to the size of the cooperative. These cooperatives processed 28 percent of the milk which they received.

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[1]For cooperatives reporting hauling by either method, their 1976 member volume was multiplied by the percentage they reported hauled by each method. The resulting volumes were then summed for each hauling method.

Cross tabulation of manufacturing and processing shows that 36 percent of all cooperatives are engaged in both activities while 37 percent are engaged in neither. Nineteen percent of all cooperatives surveyed owned manufacturing facilities but no processing facilities and eight percent did the converse.

Recalling the individual cooperative data on processing and manufacturing operations used to construct Table 5-2a, some interesting figures can be calculated. Tucker [1977-a, p. 39] finds that dairy cooperatives process 12 percent of the U.S. total of packaged fluid milk products. By multiplying the volume of milk received by the cooperatives in this study in 1976 by the percentage each indicated it processed, the cooperatives accounted for approximately 9.3 percent of the U.S. total. Utilizing average processing volumes for each size group calculated from the sample, the percentage of cooperatives in each size group bottling fluid milk and knowledge of some cooperative operations,[1] a processing volume figure for the non-respondents can be constructed. Such calculations suggest that cooperatives might have processed as much as 17 percent of the U.S. total milk supply in 1976. Discussions with sub-sector participants throughout the U.S. indicate the cooperatives processing activity is increasing and probably is in excess of the 12 percent reported in 1973.

Although this survey does not permit detailed comparisons with Tucker's findings [1977-a] with respect to cooperative manufacturing operations, it is interesting to note that the cooperatives in the survey manufactured approximately 28 percent of the total U.S. manufactured product output in 1976.

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[1]The single large cooperative which did not respond does no fluid bottling.

Cooperatives which process fluid or soft products also typically assume the distribution function. Large cooperatives are more involved in distribution than are the smaller cooperatives. As a group, 43 percent of all cooperatives distribute some processed or manufactured products, but 60 percent of the large cooperatives do some of their own distribution. Thirty percent of all cooperatives and 50 percent of cooperatives indicated that they maintained some retail outlet for their processed or manufactured products.

Table 5-2b suggests the pattern of manufacturing, processing, distribution and retailing expected of the three cooperative types.

Dairy cooperatives were asked several questions about their bulk milk sales relationships with proprietary handlers. Table 5-3a summarizes the responses of those queries. The average cooperative indicated that there were 48 potential bulk milk customers in their market, and they sold milk to roughly half of them. The number of potential buyers as well as the percentage of possible buyers with whom the cooperative deals increases with cooperative size.

In Table 5-3b observe that bargaining cooperatives indicate that they have fewer potential customers than either of the other two types. This is probably explained by the decreased number of handler and marketwide services that can be provided by bargaining cooperatives due to their lack of facilities (see Table 5-4b). The large number of marketing cooperative customers relative to operating cooperatives may be because marketing cooperatives are more active, higher volume sellers of bulk milk than are operating cooperatives.

The positive relationship between the number of potential buyers and cooperative size is expected, since the marketing area of a large

TABLE 5-3a. DAIRY COOPERATIVE PROCUREMENT RELATIONSHIPS WITH PROPRIETARY HANDLERS, BY SIZE AND REGION OF COOPERATIVE, 1976-77

	Selected Parameter[1]	Total Sample	Mean or %			Mean or %				
		Mean or %	Small Group	Medium Group	Large Group	West	Central	South	Mid-West	Northeast
(*)	NO. of POSSIBLE BUYERS of bulk milk	48.0	26.4	21.8	133.4	16.6	25.7	112.7	47.3	56.6
(***)	NO. of BUYERS co-op SELLS TO	23.4	5.1	7.7	78.7	11.2	3.7	87.2	21.5	22.3
(#)	Co-ops SELLING SOME bulk milk(%)	90	81	94	100	80	86	100	96	87
(#)	Co-ops marketing ALL member MILK through ANOTHER CO-OP(%)	13	38	0	0	0	0	0	27	7
	NO. of CO-OPS each co-op COMPETES with	13.5	8.6	9.2	35.6	3.9	14.0	18.2	18.5	10.3
	MARKET SHARE held by a co-op(%)	37.0	46.9	33.2	31.9	28.6	66.0	29.7	42.1	25.4
	CUSTOMERS buying under FULL SUPPLY ARRANGEMENT(%)	33.8	51.9	25.9	40.4	35.6	27.5	66.5	23.1	40.5
	Co-ops having FULL SUPPLY ARRANGEMENTS which are:									
(#)	FORMAL - written(%)	62	40	55	87	75	50	25	71	71
(#)	INFORMAL - verbal(%)	62	60	64	62	25	50	100	71	57
	VOLUME of co-op MILK committed under FULL SUPPLY ARRANGEMENTS(%)	30.4	45.0	24.3	35.8	28.9	29.2	69.0	20.7	35.7

[1]Ratio scale variables were subjected to statistical analysis by size and region. The null hypothesis in each case is that the mean of all sub-samples and the total sample are equal. (*), (**) and (***) indicate significance at the 10% level for size, region and both, respectively, based on an F test for single factor ANOVA. Variables not amenable to statistical tests are indicated by (#).

TABLE 5-3b. DAIRY COOPERATIVE PROCUREMENT RELATIONSHIPS WITH PROPRIETARY HANDLERS, BY TYPE OF COOPERATIVE, 1976-77.

Selected Parameter[1]	Total Sample	Mean or %		
	Mean or %	Bargaining	Marketing	Operating
*NO. of POSSIBLE BUYERS of bulk milk	48.0	22.6	111.4	47.1
*NO. of BUYERS co-op SELLS TO	23.4	8.4	75.1	17.3
Co-ops SELLING SOME bulk milk(%)	90	87	100	90
Co-ops marketing ALL member MILK through ANOTHER CO-OP(%)	13	22	12	7
NO. of CO-OPS each co-op COMPETES with	13.5	7.1	13.6	19.7
MARKET SHARE held by a co-op(%)	37.0	45.6	41.0	27.6
*CUSTOMERS buying under FULL SUPPLY ARRANGEMENT(%)	33.8	56.8	39.3	20.4
Co-ops having FULL SUPPLY ARRANGEMENTS which are:				
FORMAL - written(%)	62	54	83	57
INFORMAL - verbal(%)	62	54	67	71
*VOLUME of co-op MILK committed under FULL SUPPLY ARRANGEMENTS(%)	30.4	64.4	40.5	11.2

[1]Ratio scale variables were subjected to statistical analysis by type of cooperative to test the null hypothesis that the mean of all subsamples and the total sample are equal. (*) indicates significance at the 10% level based on an F test for single factor ANOVA. Variables not amenable to statistical tests are indicated by (#) (see Table 5-3a).

cooperative will interface with more milk dealers than would a smaller cooperative's sales area. But the positive relationship between cooperative size and the percentage of potential customers served suggests that larger cooperatives are larger (in terms of milk volume) relative to their customers needs than are smaller cooperatives to their customers, allowing larger cooperatives to serve more customers.[1]

Notice that the percentage of cooperatives selling at least some bulk milk is fairly uniform across all size and regional categories. Those cooperatives who market all their milk through another cooperative make up a small percentage of the cooperative population. Not surprisingly they are small cooperatives and all are in the Mid-west and North-east where substantial inter-cooperative harmony and federated structures prevail.

The number of cooperatives with which each cooperative believes it competes is a measure of seller concentration and the competitive discipline imposed by other bulk milk sellers. The average cooperative estimated it competes with 13 other cooperatives. Predictably the figure increases with cooperative size but not all 36 competing cooperatives interface with the large cooperatives in all their markets. That

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[1]Comparing 1976 volume data for cooperatives from Table 5-1a with dealer data from Table 5-7 suggests that a small cooperative annually handles 35 percent (73 ÷ 207 million lbs.) of the average small dealer's yearly processing volume while a large cooperative annually handles 911 percent (4071 ÷ 447 million lbs.) of the average large dealer's annual processing volume. While the magnitude of this difference may not be accurately reflected by these figures for reasons given below the relative position of the size groups is clearly indicated.

The percentages indicated here may not represent precisely the true situation since size grouping of cooperatives and dealers do not correspond and since dealers often manufacture and bottle milk and only bottling volume was included in these calculations.

figure is a cumulative measure of cooperatives with which the large cooperative competes. Small cooperatives indicated that they were in competition with nine other cooperatives. This probably is a more accurate measure of the number of competing cooperatives faced by a large cooperative in any one of its localized markets.

According to figures in Table 5-3b, the three types of cooperatives report different numbers of competing cooperatives. A bargaining cooperative is specialized in selling bulk milk and therefore has limited marketing flexibility. It may perceive fewer competitors than either of the other types because of its more restricted nature. The small size of most bargaining cooperatives may also help to explain this situation. Operating cooperatives, on the other hand, are more diversified and may view all types of cooperatives in their market as competitors.

As a measure of cooperative market power, cooperatives were asked to estimate their market share of the milk sold in their area. By their own calculations, the average reporting cooperative believes it markets 37 percent of the milk sold in its market area. This is an interesting figure made even more interesting by the fact that small cooperatives believe they control a substantially greater share of the milk in their market than do large cooperatives. Of course large cooperatives circumscribe larger marketing areas so to some extent this is expected but the fact that smaller cooperatives do not feel dominated by large cooperatives in their markets would seem to testify to the localized nature of bulk Grade A markets and the isolation small cooperatives can enjoy.

The remainder of Table 5-3a deals with the use of full supply arrangements. Such an arrangement may be formal (written) or informal

(verbal) but represents an explicit commitment by the cooperative to furnish all[1] the dealer's bulk needs and by the dealer to purchase needed milk supplies exclusively from the cooperative. Forty-two percent of the cooperatives indicated that they offered full supply arrangements and they have full supply arrangements with 34 percent of their proprietary handler customers. Interestingly, small cooperatives report such arrangements with 52 percent of their customers--more than either of the other two size groups. Notice the dominance of full supply arrangements in the South and their relative scarcity in the Central and Mid-west regions.

Cross tabulation of the two types of full supply arrangements shows that 24 percent of the cooperatives use both types and all of the cooperatives surveyed employ one or both types. Forty percent had an informal arrangement but no formal ones while 36 percent had the converse. Small and medium-sized cooperatives use verbal more often than written arrangements while larger cooperatives employ more of the formal type.

The percentages of cooperative volume committed under full supply arrangements is of some interest. Large cooperatives commit 36 percent of their huge supplies under full supply arrangements while small cooperatives sell 45 percent. Large cooperatives sell more as a percentage of their total volume under such arrangements than do medium-sized cooperatives.

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[1]Written full supply arrangements frequently specify some maximum amount the cooperative is bound to supply and amounts in excess of this may be filled by the contracting cooperative subject to availability. Also non-fluid use supplies are frequently excluded from the full supply arrangement. More will be said about supply arrangements later in this chapter and in Chapters 6 and 7.

These figures serve to show that although full supply arrangements are widely used by all sizes of cooperatives in all regions, they do not represent a majority of cooperative volume. Written full supply arrangements are not overwhelmingly employed by cooperatives as compared with informal types. Discussion with cooperative leaders in the large and medium sized groups indicates that although many have one or more written full supply arrangements, the verbal type of agreement is used with more customers. If a count of both types of arrangements was made from cooperative to cooperative, the informal type would dominate. It would appear that the frequency of use of written full supply arrangements is declining due both to the antitrust interest in such contracts and because cooperatives and dealers have worked together for a long enough period of time in many markets that written agreements are not necessary to convey exchange information or provide security to the participants.

As reported in Table 5-3b, bargaining more than marketing and marketing more than operating cooperatives have full supply arrangements with their customers. The successive reduced flexibility of marketing and bargaining cooperatives and their relative reliance on bulk milk sales may explain their preference for such arrangements since they insure a "home" for the milk in the intermediate run and thereby reduce uncertainty.

More marketing cooperatives use written full supply arrangements than any other type of cooperative. Marketing cooperatives, as shown earlier (Table 5-1b), handle large volumes of milk and deal with a major share of the biggest proprietary handlers, especially food chains. The

large volumes involved and the investments made by large proprietary handlers may encourage use of formal agreements.

Extensive data were gathered from dairy cooperatives on handler services provided in conjunction with a bulk milk supply. Some of that information is presented in Table 5-4a. The remaining information on these services can be found in Chapter 7.

Notice in Table 5-4a that with only four exceptions, all services are provided by at least 80 percent of the cooperatives.[1] The delivery of standardized milk, splitting loads between customers and writing non-member checks are performed by fewer than one-third of the cooperatives surveyed. Few size or regional differences are apparent.

Somewhat surprisingly, Table 5-4b indicates that bargaining cooperatives offer a package of services quite similar to the other, more flexible cooperatives. The major exception to this is the delivery of standardized milk which bargaining cooperatives are not equipped to provide. Since bargaining cooperatives tend to be small, a comparison of Table 5-4a and 5-4b is helpful in better understanding bargaining cooperatives. As shown in both tables, small cooperatives and bargaining types are less likely to provide supplemental milk than other cooperatives since their volumes are tightly committed and they do not have the flexibility arising from large volumes and the ownership of facilities. Interestingly, however, these cooperatives are able to divert milk for manufacturing, obviously to someone else's plant. Small and bargaining cooperatives are less apt to split a load between handlers probably because of their low volume relative to customer

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[1]See Section 7.4 for a discussion of why some cooperatives do not provide buyer procurement services.

TABLE 5-4a. PROVISION OF PROCUREMENT SERVICES BY COOPERATIVES TO PROPRIETARY HANDLERS WHO ARE BULK MILK CUSTOMERS, BY SIZE AND REGION OF COOPERATIVE, 1976-77

Type of Procurement Service	Percentage Co-ops Providing The Service								
	Total Sample	Size			Region				
		Small	Medium	Large	West	Central	South	Mid-West	North-east
Direct bulk deliveries off farms	87	100	79	100	75	100	100	82	90
Divert milk for manufacturing	89	86	86	100	62	100	100	94	90
Provide supplemental milk	83	62	82	100	75	67	100	82	91
Sell milk f.o.b. buyer's plant	85	75	79	100	87	100	80	76	82
Deliver standardized milk	29	0	32	40	50	17	25	35	11
Split load between customers	29	20	33	20	50	0	0	41	12
Write member checks	93	75	96	100	100	100	100	94	82
Write non-member checks	21	0	20	30	14	0	25	19	33
Pay the hauler(s)	89	100	81	100	75	100	100	89	90
Direct-shipped milk sold on tanker weights and tests	62	43	65	70	57	60	75	53	78

TABLE 5-4b. PROVISION OF PROCUREMENT SERVICES BY COOPERATIVES TO PROPRIETARY HANDLERS WHO ARE BULK MILK CUSTOMERS, BY TYPE OF COOPERATIVE, 1976-77.

Type of Procurement Service	Percentage Co-ops Providing The Service			
	Total Sample	Co-op Type		
		Bargaining	Marketing	Operating
Direct bulk deliveries off farms	87	92	100	78
Divert milk for manufacturing	89	85	100	87
Provide supplemental milk	83	71	100	83
Sell milk f.o.b. buyer's plant	85	79	100	78
Deliver standardized milk	29	0	14	54
Split load between customers	29	31	29	20
Write member checks	93	86	100	95
Write non-member checks	21	18	29	16
Pay the hauler(s)	89	86	100	86
Direct-shipped milk sold on tanker weights and tests	62	43	57	78

needs and also because their tankers may be smaller. Fewer small and bargaining cooperatives pay their members than do other cooperatives because a bargaining cooperative frequently ships directly to the customer and without backup facilities often lacks the bargaining strength to offset proprietary handler requests to write the producer checks.

Results of this study compare quite closely with those found by Carley [p. 7] for Great Lakes-Southern Milk, Inc. cooperatives in 1971 and Beren [p. 38] for the Chicago market in 1973. Deiter [1976, Table 2] in working with 1973 data from the North Central region of the United States reported slightly lower figures than Carley [p. 7] or the current study found (for the Mid-west region) but figures quite similar to those of Beren who studied the same region as Deiter.

Most studies of dairy cooperatives have failed to simultaneously solicit the feelings of proprietary handlers who are recipients of these services listed in Table 5-4a, to ascertain whether they view them in the same light as the cooperatives who provide them. This study will attempt to do this in Chapter 7.

5.3 PROPRIETARY HANDLERS' PLACE IN THE DAIRY SUB-SECTOR

The descriptive results from the proprietary handler questionnaires will be recounted here in the same manner aswere the cooperative data. Wherever possible and appropriate, handler results will be compared with those of cooperatives.

Table 5-5 gives basic information on the vertical involvement of handlers and characterizes the market order environment under which they operate. Although the market area of dealers is almost identical to that of cooperatives both overall and by size groups, some regional differences can be noted. Handlers in the West and Central regions

TABLE 5-5. U.S. PROPRIETARY HANDLER GENERAL OPERATIONS AND MARKETING ORDER ENVIRONMENT BY SIZE AND REGION, 1976-77

	Selected Parameter[1]	Total Sample	Mean or %		Mean or %				
		Mean or %	Small Group	Large Group	West	Central	South	Mid-West	Northeast
(*)	No. of STATES in marketing area	4.2	2.4	7.8	5.1	5.2	4.8	2.7	4.3
(#)	Firms involved in MFG. hard prod.(%)	56	50	67	90	60	44	48	56
(#)	Firms involved in PROCESS. fluid and soft prod.(%)[2]	99	100	96	100	100	100	96	100
(#)	Firms owning RETAIL routes or outlets(%)	62	66	56	60	91	44	57	86
(#)	Firms operating under FED. ORDER(%)	79	86	65	30	82	75	100	81
(#)	Firms operating under STATE ORDER(%)	28	18	46	80	27	25	5	31
(#)	Firms operating under WHLSE. price MINIMUMS(%)	16	12	22	10	18	25	0	31
(#)	Firms operating under RETAIL price MINIMUMS(%)	11	8	15	10	9	6	0	31

[1]Ratio scale variables were subjected to statistical analysis by size and region. The null hypothesis in each case is that the mean of all sub-samples and the total sample are equal. (*), (**) and (***) indicate significance at the 10% level for size, region and both, respectively, based on an F test for single factor ANOVA. Variables not amenable to statistical tests are indicated by (#).

[2]By the definition of proprietary handler and construction of the popular list, this row should contain all 100%, however, one respondent (large group) indicated he(she) did none.

cover larger market areas than do their cooperative counterparts, however, the situation is reversed in the other three regions.

Proprietary handlers, selected for their processing operations, are also frequently engaged in manufacturing. Fifty-six percent of the handlers surveyed do some manufacturing of hard products and this figure is virtually identical to that of cooperatives surveyed. Two-thirds of the large handlers are engaged in manufacturing while only half of the smaller ones are. Notice that in the East where cooperatives have not until recently been asked to handle disposal and where handlers are large and often deal with independent producers, 90 percent of all proprietary handlers do some manufacturing. This is proportionally more than in other regions.

Sixty-two percent of all handlers have some retail outlets. Home delivery routes are the most common type although this outlet represents a very small proportion of the volume retailed by these handlers.

Seventy-nine and twenty-eight percent of proprietary handlers purchase their milk supplies under federal and state orders, respectively. These percentages are lower than those found for cooperatives. To show how state and federal marketing orders blanket the country and impact upon almost all proprietary handlers, cross tabulations were made of these types of marketing orders. Only five percent operated under no orders whatsoever and 16 percent purchased milk under a state order but not a federal order while 67 percent did the converse. Resale price minimums do not impact upon many proprietary handlers, although as reported by cooperatives, these minimums are most prevalent in the Northeast.

Table 5-6 characterizes proprietary handler manufacturing operations in some detail.[1] The large number of plants run by proprietary handlers in the West is indicative of their traditionally large commitment to manufacturing products for retail markets and for reserve and surplus disposal. In the Northeast the reverse is true as cooperatives have been responsible for most of the disposal.

Ice cream and hard cheese production dominate the manufacturing activities of handlers with 73 percent and 16 percent respectively of the manufacturing output of proprietary handlers accounted for by these two products. Notice that the surplus disposal products, butter, powder and cheese, are not manufactured in any great quantities by proprietary handlers. Only in the West, where as has been already pointed out, proprietary handlers take more balancing responsibility in the market, are butter and powder produced in significant quantities. Surpluses have also been minimal in the West so these percentages have been kept low.

To obtain an indication of the extent of proprietary handler-cooperative exchange, the proprietary handlers were asked to report the sources of their bulk milk supplies used in manufacturing. For the entire sample, 63 percent of handler milk was provided by cooperatives and 31 percent from independent producers. Notice that in the West handlers rely less on cooperatives than in any other region.

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[1]Volumes of milk manufactured as reported by proprietary handlers on this questionnaire may be biased upward. Some evidence was noted at the time the questionnaire data were coded for keypunch which suggests that some respondents may have included more than volume manufactured. Processing volume data is believed to have been accurately reported.

TABLE 5-6. CHARACTERISTICS OF PROPRIETARY HANDLER MANUFACTURING OPERATIONS BY SIZE AND REGION, 1976-77[1]

	Selected Parameter[2]	Total Sample	Mean		Mean				
		Mean	Small Group	Large Group	West	Central	South	Mid-West	Northeast
(*)	No. of manufacturing PLANTS	2.9	1.3	5.2	4.1	2.2	2.7	3.9	1.2
	VOLUME of milk used in mfg. in 1976 (mil.lbs.)	2759	3026	2366	2300	3835	2741	3010	2119
	% manufacturing OUTPUT which was:								
(*)	Hard cheese	15.7	7.1	24.9	5.6	32.5	2.2	26.7	15.0
(**)	NFDM powder	2.6	.6	4.7	10.0	0	0	0	0.8
	Butter	3.2	3.2	3.1	7.5	0	0	0	7.5
	Ice cream	72.9	80.6	64.7	67.6	67.5	97.5	73.3	58.3
	Other	5.6	8.5	2.6	9.3	0	0.3	0	18.4
	% milk used in mfg. PROCURED FROM:								
	Co-ops	63	69	55	39	95	76	69	52
	Independent producers	31	26	36	54	3	24	24	38
	Other processors or manufact.	6	5	9	7	2	0	7	10
	TYPE used in manufacturing:								
(*)	Surplus grade A(%)	98	100	96	97	100	97	97	100
(*)	Grade B(%)	2	<.1	4	3	0	3	3	0
	Mfgd. prod. packaged under PVT. LABEL(%)	22.5	24.8	19.6	31.7	23.8	4.2	34.3	14.6

[1]All figures are based only on those who were engaged in the manufacture of hard dairy products.

[2]Each parameter has been subjected to single factor analysis of variance with size and region as successive independent variables. The null hypothesis in each case is that the mean of all sub-samples and the total sample are equal. (*), (**) and (***) indicate significance at the 10% level for size, region and both, respectively, based on an F-test.

In Table 5-7, proprietary handler processing activities are described. Proprietary handlers processed an average of 294 million pounds of milk in 1976 or 24.5 million pounds per month. Large handlers reported processing 447 million pounds in 1976 or about 37 million pounds per month while smaller handlers processed less than half of this amount.

Volumes processed per proprietary handler dwarf those processed by each cooperative bottler. Large bottling cooperatives process approximately 60 percent of the volume handled by a typical large proprietary handler and the disparity is even more pronounced when the small groups are contrasted. Supplemental calculations made with the questionnaire data show the typical small bottling cooperative processed only 39 percent of that processed by the typical small proprietary handler.

If volumes processed per plant are calculated from data in Table 5-7, they are lower for large proprietary handler's plants than for those run by small handlers. Volume processed per proprietary plant averaged 155 million pounds annually with small handlers averaging 184 million pounds and large handlers 105 million pounds per plant. This observation can be explained by two factors. First, economies of scale force all dealers to have large plants if they are to remain competitive. Secondly, the segregation of proprietary handlers into the large or small group was based on the number of plants operated. Large handlers were defined as those who operated more than one plant. Consequently it can be reasoned that those proprietary handlers with a single plant must have adequate volume to reduce unit processing

TABLE 5-7. CHARACTERISTICS OF PROPRIETARY HANDLER PROCESSING AND DISTRIBUTING OPERATIONS BY SIZE AND REGION, 1976-77

Selected Parameter[1]	Total Sample	Mean		Mean				
	Mean	Small Group	Large Group	West	Central	South	Mid-west	Northeast
(*) No. of Processing PLANTS	2.2	1.2	4.0	3.6	2.0	3.4	1.4	1.2
VOLUME of milk processed in 1976(mil. lbs.)	294	207	447	571	72	566	180	85
% milk processed,PROCURED FROM:								
Co-ops	72	71	72	56	79	72	81	62
Independent Producers	25	26	25	44	20	28	14	31
Other processors or manufacturers	3	3	3	0	1	0	5	7
Processed products packaged under PVT. LABEL(%)	22.3	20.0	26.3	25.5	23.6	15.8	25.0	22.5
Fluid products you DISTRIBUTED(%)	81.2	79.3	85.0	85.9	86.6	86.9	70.6	80.9

[1] Each parameter has been subjected to single factor analysis of variance with size and region as successive independent variables. The null hypothesis in each case is that the mean of all sub-samples and the total sample are equal. (*), (**) and (***) indicate significance at the 10% level for size, region and both, respectively, based on an F test.

costs to levels sufficient to offset increased distribution costs.[1]

Sources of milk for processing were reported by proprietary handlers. An even larger percentage of milk for processing was procured from cooperatives than for manufacturing--72 percent as opposed to 63 percent.

Both small and large proprietary handlers are heavily involved in distribution. Over 80 percent of the products processed by proprietary handlers surveyed were also distributed by them. This percentage is relatively constant across the five regions.

Details of proprietary handler milk procurement practices are shown in Table 5-8. Proprietary handlers estimate that there are ten cooperatives selling bulk milk in their market. This question and responses to it must be interpreted as an indication of all cooperatives selling bulk Grade A milk in the proprietary handler's market regardless of the volume the cooperative may have for sale on a regular basis. For this reason, responses to this question cannot be considered as the number of practical buying choices available to a handler. Consequently the figures reported may be biased downward as measures of

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[1]Those handlers with two or more plants process more volume than the single plant firm but can bottle less per plant than the single plant firm since decreased distribution costs, realized because each plant serves a more localized market, offset the increased processing costs. This suggests that if a firm can sell sufficient volume to run two plants at some profitable capacity level (perhaps 100 million pounds or less annually) then it will prefer to operate the two plants rather than one and capture increased distribution economies. Of course other factors will affect the firm's decision in this regard but this is undoubtedly a factor. Between 1971 and 1975 the only processing plant sizes registering an increase in number were those processing at least 43 million pounds per year and 22 percent of all fluid plants (proprietary and cooperative) were in this size group [Mueller, 1976, p. 31].

TABLE 5-8. PROPRIETARY HANDLER PROCUREMENT RELATIONSHIPS WITH COOPERATIVES BY SIZE AND REGION OF PROPRIETARY HANDLER, 1976-77

	Selected Parameter[1]	Total Sample	Mean		Mean				
		Mean	Small Group	Large Group	West	Central	South	Mid-West	Northeast
	NO. of CO-OPS selling bulk milk in proprietary handler's market	10.2	2.5	25.1	53.8	1.9	2.3	3.6	3.6
(#)	Proprietary handlers who BUY from a CO-OP(%)	88	88	88	90	82	87	96	81
	CO-OP as SOURCE of milk for:								
	Manufacturing (% of volume used)	63	69	55	39	95	76	69	52
	Processing (% of volume used)	72	71	72	56	79	72	81	62
(#)	Are OVER-ORDER PRICES in effect? (% yes)	78	71	63	20	73	56	100	63
(#)	Proprietary handlers buying under FULL SUPPLY ARRANGEMENT(%)	46	43	52	44	33	38	55	50
	% of full supply arrangements which are:								
(#)	FORMAL (written)	58	62	50	80	50	100	20	67
(#)	INFORMAL (verbal)	42	38	50	20	50	0	80	33
	LENGTH of TIME had such an arrangement (yrs)	11.7	12.7	9.8	12.8	13.7	8.3	13.6	10.4

[1]Ratio scale variables were subjected to statistical analysis by size and region. The null hypothesis in each case is that the mean of all sub-samples and the total sample are equal. (*), (**) and (***) indicate significance at the 10% level for size, region and both, respectively, based on an F test for single factor ANOVA. Variables not amenable to statistical tests are indicated by (#).

seller control in the market, since more cooperatives may be reported than are viable, potential sellers.[1] Regardless of which observations are included or how the question was interpreted, a comparison of Table 5-3a with Table 5-8 suggests that proprietary handlers have many fewer cooperative buying choices (as proprietary handlers perceive them) than cooperatives have either possible or actual selling choices (as cooperatives perceive them). It is also clear from the data in Table 5-7 that cooperatives are not proprietary handlers' only supply source, so the data from the two tables are not strictly comparable. More will be said about this in Chapter 7.

Despite variations in the quantities purchased for processing from cooperatives across regions, a high and quite constant percentage of handlers across sizes and regions buy some milk from a cooperative. The overall figure is 88 percent. Figures on cooperatives' share of bulk sales for manufacturing and processing purchases are repeated in Table 5-8.

Sixty-eight percent of all proprietary handlers reporting are paying over-order prices for at least part of their Grade A milk supply. Respondents were asked to report the payment of prices in excess of the state or federal order minimums, so actual premiums and charges for services rendered were reported together. Notice that in the West, Mid-west and Northeast over-order or premium prices are less prevalent.

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[1] A note regarding this parameter is in order. A proprietary handler in the West reported a response for this question that lies well beyond any other handler's response. This response significantly affects the overall, large and West averages in an upward direction, which may not be indicative of the true situation. Reported estimates of overall, large size and Western region values change to 3.1, 4.4 and 4.2 respectively, if this extreme observation is excluded.

The existence of large numbers of independent producers contributes to this condition in the West and the Northeast. In addition, in the Northeast intense proprietary handler competition and difficulty in keeping handlers competitive when premiums are in effect serve to discourage premiums. In the South, the emergence of several medium-sized cooperatives has begun to erode some of AMPI's control and make premiums more difficult to hold.

Forty-six percent of responding handlers purchased bulk milk under a type of full supply arrangement. This figure is relatively constant with respect to size groups and regions, but is higher than the proportion of customers with which cooperatives reported having full supply arrangements (34 percent). No explanation can be given for this discrepancy other than sampling or non-response bias in one or both samples. Fifty-eight percent of all proprietary handlers with full supply arrangements have formal, written contracts while the remainder have informal, verbal agreements. These results are not inconsistent with the information given by cooperatives and reported in Table 5-3a.

Single plant handlers seem to prefer the formal type of arrangement to the informal type while the large group reported an equal incidence of both. The prevalence of informal arrangements among Mid-west proprietary handlers probably reflects the confidence each group has in the other, their reliance upon each other for essential, specialized procurement services and the availability of ample supplies of Grade A milk.

Although it is often thought that full supply arrangements are a new exchange mechanism, data reported in this table do not bear it out. In all but one region such arrangements have existed for at least ten

years. It is true that full supply arrangements especially written contracts, have received more attention recently as the volumes involved became larger.

In Table 5-9 proprietary handlers reported on the provision of certain marketwide services by cooperatives in their market area. Very little variation is indicated either by size or region for the three services. The nature of these services was discussed in Section 5.2.1, so they will not be repeated here.

Approximately 90 percent of all responding proprietary handlers in all size groups and in all regions report that cooperatives manufacture Grade A reserves, dispose of Grade A reserves to other plants and use various techniques such as routing and disposal to balance supply with demand in and between markets. In Deiter's 1973 study of cooperatives in the North Central region [1976, Table 2], 52 percent of the cooperatives surveyed indicated that they manufactured for disposal. This does not contradict the results of the current study where proprietary handlers were asked if a cooperative in their market offered this marketwide service, since more than one of the reporting handlers could indicate the same cooperative. The same interpretation is true for another question from the Deiter study [1976, Table 2] regarding balancing supplies within and between markets where 57 percent of the cooperatives indicated that they performed this activity.

In Table 5-10 proprietary handler responses to the availability and acceptance of ten selected handler services are presented. These are the same services about which cooperatives responded in Table 5-4a and b and which were described in Section 5.2.1. Cooperatives' assurance that they are provided closely coincides with proprietary handlers'

TABLE 5-9. PROPRIETARY HANDLERS ACKNOWLEDGING THE PROVISION OF MARKETWIDE SERVICES BY A CO-OP(S) IN THEIR MARKET, BY SIZE AND REGION

Type of Service	Percentage Acknowledging Provision							
	Total Sample	Size Group		Region				
		Small	Large	West	Central	South	Mid-West	North-east
Manufacture Grade A reserves	91	91	92	100	82	80	95	100
Dispose of Grade A reserves to other plants	93	93	92	78	100	81	100	100
Balancing supplies in and between markets by various methods	89	87	92	89	82	81	90	100

TABLE 5-10. AVAILABILITY AND ACCEPTANCE[1] OF PROCUREMENT SERVICES PROVIDED TO PROPRIETARY HANDLERS BY COOPERATIVES, BY SIZE AND REGION OF PROPRIETARY HANDLER, 1976-77

Type of Procurement Service		Percentage Prop. Handlers Answering "Yes"							
		Total Sample	Size Group						
			Small	Large	West	Central	South	Mid-West	Northeast
Direct bulk delivery off farms	Available	95	93	100	89	100	92	95	100
	Receive	95	92	100	100	89	100	95	92
Divert milk for manufacturing	Available	88	90	86	78	89	92	90	90
	Receive	80	73	94	67	62	91	87	78
Provide supplemental milk	Available	100	100	100	100	100	100	100	100
	Receive	90	92	86	100	78	92	95	82
Sell milk f.o.b. buyer's plant	Available	90	89	91	89	100	100	82	82
	Receive	86	81	95	100	89	100	73	75
Deliver standardized milk	Available	30	37	19	56	33	27	20	30
	Receive	----	----	----	insufficient observations[2]			----	----
Split load between customers	Available	23	27	16	25	11	18	7	67
	Receive	----	----	----	insufficient observations[2]			----	----
Write member checks	Available	97	95	100	89	100	100	100	90
	Receive	86	87	83	100	62	92	87	87
Write non-member checks	Available	31	35	27	20	33	0	53	0
	Receive	----	----	----	insufficient observations[2]			----	----
Pay the hauler(s)	Available	95	97	91	89	100	100	95	91
	Receive	92	94	88	100	87	91	93	89
Direct-shipped milk sold on tanker weights and tests	Available	72	76	67	67	78	85	50	91
	Receive	89	88	92	80	100	82	86	100

[1]Percentage accepting (receiving) the service is based only on those to whom it is available.

[2]Due to the low availability, not enough firms answered this question to make percentages meaningful.

reports that they are available from cooperatives. Proprietary handlers corroborate the rather low incidence of provision of standardized milk, split loads, payment to non-members and tanker weights and tests as an exchange option. Few size or regional differences are apparent from Table 5-10. It is also interesting that there is no evidence of differential treatment of large and small buyers by cooperatives in the provision of these services. This latter observation may be explained in part by the evidence presented earlier in this section showing that small dealers (single plant) process larger volumes than the average plant of a large (multiplant) dealer and often a cooperative will supply only one plant of a multiplant firm. The second row presented for each service listed in Table 5-10 reports the percentage of those proprietary handlers to whom the service is available who avail themselves of it. By reason of its construction the figure in row 2 for a particular service can be greater than the figure directly above it in row 1. Notice that a very high percentage of proprietary handlers to whom the service is available choose to receive it. Much more will be said about the provision of these services and charges made for them in Chapter 7.

This concludes the presentation of the descriptive results obtained from the cooperative and proprietary handler questionnaires. Some transformations, recombinations and calculations were performed on the individual variables distinct from the tabular presentations and were reported in the preceding sections. Still other measures could be computed from the data gathered in these surveys. This has not been done because it did not appear to contribute to the specific task at hand.

5.4 SUMMARY

This chapter presented the descriptive results obtained from the mail questionnaires and the personal interviews with cooperatives and proprietary handlers in the United States. Section 5.1 discussed the role of cooperatives and proprietary handlers in milk procurement and related activities and characterized the marketwide and handler services provided by some cooperatives.

Section 5.2 presented data on cooperative characteristics, vertical integration, bulk supply activities and provision of related services which were derived from the questionnaires sent to cooperative management. Data were presented separately by type, size and location of the cooperative.

Section 5.3 presented data gathered in mail questionnaires on proprietary handler structure, manufacturing, processing and related activities, supply sources and arrangements and the availability and acceptance of marketwide and handler services from cooperatives. Data were presented separately by size and location of the proprietary handler.

CHAPTER 6

AGREEMENTS, CONTRACTS AND SUPPLY ARRANGEMENTS

6.1 AGREEMENTS AND CONTRACTS BETWEEN PRODUCERS AND FIRST HANDLERS

An important planning device which reduces uncertainty, assigns rights and responsibilities and clarifies the details of transactions is the agreement or contract between the farmer and the first handler of the milk. Clearly such mechanisms have important implications for vertical coordination. In the dairy sub-sector these are used between farmers and their cooperatives and between independent farmers and proprietary handlers. Cooperative membership agreements and contracts with independent producers in the dairy sub-sector may differentially affect the level of uncertainty between the two participants, determine at what stage in the vertical system certain coordinating functions will be performed, set quality standards and liability for failure to meet them and transmit information about quantities to be transferred. An examination of several cooperative membership agreements, hereinafter called agreements, and contracts between proprietary handlers and farmers, hereinafter called contracts, reveals terms which are especially relevant to the coordinating role of milk procurement. A description of all terms of agreements and contracts will not be presented. Only those portions applicable to vertical coordination behavior and performance will be discussed. Many of the terms not covered here are standard contractual terms and as such are well

understood and in many cases have little marginal impact upon coordinating behavior or resulting performance. The description of agreements and contracts which follows is meant to familiarize the reader with such mecahnisms and helps to lay the ground work for more analytical presentations in Chapter 7.

6.1.1 COOPERATIVE MEMBERSHIP AGREEMENTS

Fifteen cooperative membership agreements were collected from dairy cooperatives during the personal interview process. The presentation which follows is not based on a random sample of dairy cooperatives but rather relies on agreements provided by large and medium-sized cooperatives from various regions of the U.S. Many standard terms, provisions and forms were encountered within the agreements available.

With the growing inclination of proprietary handlers to turn the procurement tasks over to cooperatives it is imperative that cooperatives have a stable and committed milk supply to secure and fulfill supply arrangements with customers. For this reason, membership agreements are vitally important to the cooperative and to sub-sector coordination since these agreements confer marketing rights and responsibilities to the cooperative.

Signing a marketing agreement relieves producers of direct vertical sub-sector involvement beyond farm production and makes them owners of a firm involved in one or more additional sub-sector functions beyond farm production. They hope to improve their returns by cooperative membership through the collective market power of an organization they themselves own and control.

In a recent paper, Black identified twelve provisions commonly found in cooperative agreements for most commodities. Some of those

noted by Black and additional terms found in conjunction with this research are germane to dairy sub-sector coordination and will be discussed next.

Duration of Agreement

This provision is important for two reasons. First, it defines the planning horizon applicable to the agreement and secondly, it sets the rules for termination of the agreement by either party. If member requirements for exit from the agreement are set too tightly it allows the cooperative to behave without the checks provided by relatively quick and easy member exit or may allow the cooperative to keep reluctant members for an unreasonable length of time. The consent degrees signed in 1975 by Associated Milk Producers, Inc., the nation's largest dairy cooperative, and in 1977 by Mid-American Dairymen, Inc., another large cooperative, both addressed the issue of length of agreements and their termination procedure in an effort to make withdrawal from the cooperatives clearer, simpler and faster for the members. Although simpler, quicker termination of an agreement may make cooperative planning more difficult, it does succeed in making the hired management and Board of Directors more accountable and could be expected to contribute to behavior and performance deemed satisfactory by the membership. There appears to be a precarious balance to be struck here, however, with regard to procedures for agreement termination.

As pointed out by Hirschman, an organization's performance may be improved by making exit more difficult and encouraging the use of the voice option to signal poor performance and bring about its rectification. If farmers leave cooperative "A" and join cooperative "B" little information may be communicated to cooperative "A" about its

performance. Hirschman thinks this is particularly important in oligopolistic industries where exit and entrance go on between firms but the total sales of the firms involved may be unchanged while consumers are universally dissatisfied with all firms in the industry. In some milk markets, producers' selling choices may be limited such that an ologopsony situation exists. Under these conditions, withdrawal from cooperative "A" and subsequently joining cooperative "B" while another producer has done the converse, leaves both cooperatives' membership rolls the same and may not have communicated either producer's displeasure with their marketing choices. Ideally, Hirschman would suggest, exit should not be so restrictive as to limit exercise of normal freedoms, yet be designed to encourage transmittal of performance signals. The cooperative organizational structure with a Board of Directors composed exclusively of farmer members elected by the general membership, which sets all cooperative policy, facilitates communication on cooperative performance and member satisfaction.

Hirschman also suggested that the existence of consumer loyalty to the product or firm could be expected to encourage exercise of the voice option vis-a-vis the exit option. In cooperatives, where members have often invested equity and operating capital and where pride in the organization is cultivated, loyalty is encouraged and the transaction costs of exit increased.

Rules for exit from the cooperatives from whom agrements were collected, vary greatly but in general are less complex and quicker than expected. Most agreements run for one year with automatic renewal if neither party exercises the termination option. Some agreements specify longer membership periods but the effect on exit is

inconsequential since all termination procedures examined specify annual exit opportunities. The usual rule if for either party to serve notice in writing to the other during a specified period in advance of the anniversary date of the agreement each year if termination is desired. If this option is exercised by either party the agreement is terminated on the upcoming anniversary date. About two-thirds of the agreements contained an arrangement such as this. Frequently the time period is specified as not more than 60 days or less than 30 days before the anniversary date, although 45/30 and 30/15 day periods were also encountered. Several indicated that notice could be given anytime up to 30 days prior to the anniversary date. Four cooperatives have a more easily exercised option. Termination follows 30 days after written notice is given by either party without regard for the anniversary date. Three other termination procedures were identified, each having different coordination consequences.

One of these provisions is of the type which formerly was the rule rather than the exception. It makes the exit rule understandable only by a lawyer with a pocket calculator and a calendar. It stipulates that either party can give notice during the first ten days of the tenth month after the month in which the agreement was signed and termination is effective at the end of the month in which notice is given.

Another cooperative allows termination by the member after 60 days notice without regard for the anniversary date but does not specify in the agreement any mechanism for termination by the cooperative other than for non-performance under quality or other delivery terms of the agreement.

While all termination rules examined thus far have the effect of scattering potential membership withdrawals throughout the year, one cooperative has a provision which concentrates all in the same month each year. While this facilitates planning by the cooperative, especially if proprietary handler supply arrangements could be negotiated immediately following the membership termination period, it also could put a tremendous financial strain on the cooperative if a large number of members exercised their option in any year. Such a rule does cause both member and management consideration of the organization's plans and anticipated supplies at the same time each year and may facilitate coordination and increase cooperative accountability to market conditions. The provision permits termination by either party effective April 1 if notice is given in February of the same year.

Definition of Delivery

In only one agreement was specific mention made of the point at which the milk becomes the responsibility of the cooperative. In this case responsibility passes to the cooperative when it is pumped into the tank truck designated by the cooperative association.

Discussions with cooperative leaders confirm the standard operating procedure described by Black [p. 9]. Normally delivery is made when the tank truck owned or authorized by the cooperative is connected to the farm bulk tank or in the case of producer-arranged hauling, when the truck connects to a facility owned or otherwise designated by the cooperative. The relationship between these delivery rules and the rules used to establish liability for contamination and related quality problems discovered after delivery, but having occurred on the farm, will be dealt with later.

Bloc Voting in Market Order Referendums

Although three agreements examined contained a provision dealing with the cooperative's right to vote for their members in federal order referenda, such a provision is not necessary to authorize cooperative bloc voting. It is included to inform the members of the right to individual ballot they are surrendering with cooperative membership. The cooperative in order to bloc vote must be a bona fide Capper-Volstead cooperative recognized by the Secretary of Agriculture. Upon completion of a voting form by the secretary of the cooperative, the cooperative may vote collectively for all its members[1] in the establishment of new orders or when amending existing ones. The actions of cooperatives in maintaining and updating federal and state milk marketing orders affect coordination in the sub-sector. The types of conduct exhibited and the ensuing consequences will be discussed in Chapter 7.

Breach of Agreement

Only two agreements specified montary penalties for member failure to deliver milk produced on their farms to the cooperative. If the cooperative is to enter into supply arrangements and otherwise make decisions based on volume committed to the cooperative, provision must be made to handle breaches of the agreement. In most cases cooperatives

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[1]Although the cooperative may be authorized to bloc vote it may choose to let its individual members vote in cases of major membership splits. Before this occurred, however, the cooperative would do all it could to bring about a consensus, since order referenda can have significant effects on the marketing environment and a cooperative can lose membership in situations such as this. The problems of membership are particularly critical to a federated cooperative, since if bloc voting is exercised without strong support in each member cooperative, members leave in bunches when entire cooperatives resign.

rely on member loyalty and reasonableness to discourage failure to deliver and reserve the right to terminate the agreement if a breach occurs. Since milk is produced continually and cannot be stored in an unmanufactured state, breaches are less likely because the producer needs a dependable, steady purchaser and runs high risks in changing buyers for short run gains. The two cooperatives which go beyond the right of termination in dealing with breaches specify member liability for liquidated damages and penalties resulting from failure to deliver all milk produced. In one case no specific penalties are enumerated but rather are left to the discretion of the Board of Directors. In the second case, the agreement requires payment of 50¢ per hundred weight to the cooperative for all milk not delivered to the cooperative in accordance with the agreement. Further by joining the cooperative, the member agrees to pay all costs of legal action brought by the cooperative for breach of the agreement and recognizes the cooperative's right to seek a court injunction to prevent breach or continued breach of any or all provisions of the agreement.

Establishing Member Pay Prices

All agreements examined authorize the cooperative to pool all returns for milk and dairy product sales and through its Board of Directors establish deductions and price differentials as necessary to allow the cooperative to carry out its marketing programs, maintain member equity and finance operations and expansion. No guarantee of price is indicated in the agreement. It is this ability of the cooperative to pool or reblend proceeds from milk sales in conjunction with premium prices which concerns proprietary handlers when cooperatives vertically integrate.

Quality Provisions and Related Liability

The reliance of agreements on state and local health, sanitation, inspection and building codes to stipulate quality terms is significant. Agreements use few words detailing quality rules for milk produced on member farms. This is an example of public laws facilitating private exchange by standardizing and policing quality regulations. If member milk fails to meet these standards it can be rejected by the cooperative or paid a lower price (manufacturing price less handling costs) if it is suitable for manufacturing uses. In recurring and severe cases, the cooperative can terminate the agreement. All agreements examined contain this right for the cooperative. The problem of milk with excessive bacterial counts and related tests reflecting poor on-farm cleaning and cooling practices fortunately involves a small percentage of all milk produced. Cooperatives have chosen in many cases to pay the member what the cooperative can recover (net of handling costs) for the poor quality milk (sometimes nothing) or in others to assign the costs of the poor quality milk to all members via pooling provisions. With increases in tanker size, direct shipments, supply contracts and cooperative responsibility for quality of milk supplied, these rules have come under close scrutiny by cooperatives. It appears that in the past cooperative members have been at least partially insulated from their on-farm omissions or commissions affecting quality by their cooperative associations. There is some evidence that this situation may be changing as potential losses grow in magnitude, pressuring cooperatives to assign costs to the individual member wherever possible. With increasing cooperative responsibility for insuring quality and commingling in tankers and silos the costs of cooperative acceptance of

poor quality milk have been dramatically increased. Furthermore, the increased concern for antibiotic contamination of milk and more sensitive but still slow tests for such contamination exacerbate the quality maintenance problems of cooperatives. Approximately six hours is required for a complete, definitive test of antibiotic contamination and in the meantime a tanker or silo of milk may be contaminated due to the commingling of tainted milk.[1] As will be discussed in Section 6.1.2 independent producer contracts have begun to assign producer liability for all costs associated with contamination but no such provision was found in any cooperative agreement. Two agreements specify the delivery of milk which conforms to the terms of the federal Food, Drug and Cosmetic Act and allows for non-payment for milk in violation of this law but fails to assign member liability. According to cooperative leaders, Boards of Directors are beginning to adopt new rules which will become part of the agreement or Articles and By-laws. A third cooperative agreement appears to pass all contamination liability to the cooperative since it specifies that upon delivery, as defined previously, the cooperative waives all rights of rejection. The agreement could be terminated but the costs would have already been incurred by the cooperative.

A particular cooperative had a policy toward antibiotics which provided for half normal payment on contaminated milk received by the cooperative which could be used in some capacity. They had written an additional rule, however, which in conjunction with the first one

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[1]Discussions with cooperatives leaders suggest that antibiotic contamination may often be the result of advice by uninformed veterinarians relative to the use of these drugs and the duration of residues in milk rather than farmer negligence.

created a perverse incentive on the member. If a member suspected antibiotic contamination and requested a test by the cooperative before the milk left the farm, and the results were positive, the milk was dumped and the farmer received nothing. This policy has since been changed to encourage honesty and advance testing. Regardless of whether the member notifies the cooperative of a possible contamination problem, half payment is received the first time it happens in any year and zero payment the second time. Alternatives are being considered to strengthen the incentive for advance notice relative to the incentive for shipment, if necessary to reduce the incidence of contaminated milk. No individual member liability for the additional contamination caused by his (her) milk is provided for by the cooperative.

Quantity Restrictions

No explicit or implied limitations on quantities which the cooperative will accept from any member were contained in any of the agreements examined. The agreements require the member to deliver all that is produced on his (her) farm to the cooperative for marketing.[1] Production can be increased or cut back without affecting the agreement. Indeed the cooperative philosophy embodies the idea of a guarantee of market for all milk produced. In the next section some contracts offered independent producers will be examined and the contrast discussed. In Chapter 7 the over-riding coordination issue of production control will be more fully developed.

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[1]The member is normally allowed to retain that quantity of milk needed for on-farm use.

6.1.2 CONTRACTS WITH INDEPENDENT PRODUCERS

Contracts with independent producers are not as common as they once were. They were used extensively in the West prior to marketwide pooling and are still most prevalent there. Only four were made available while several other proprietary handlers with some independent producers indicated they did not use them. Some others were badly outdated in relation to current operating procedures. Only the more important coordinating provisions or those deviating from cooperative agreement terms will be discussed.

Duration of the Contract

Procedures for termination of contracts do not appear to be substantially different than those for agreements. Of the agreements and contracts examined and discussed in the course of this research it can be said that the procedures for terminating a contract are at least as simple to understand and require about the same length of time as cooperative agreements.

Quality Provisions and Related Liability

Flavor, odor, sediment, bacterial count, antibiotic and temperature rules for acceptance of the milk are operationally similar to those found in agreements. The liability for contamination, however, is placed solely on the producer in three cases.[1] The language of these liability provisions was identical in two of the cases. This provision is reproduced below.

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[1]The fourth contract is outdated and no later version was available. Since the antibiotic problem is a fairly recent phenomenon, a newer contract drawn up by this proprietary handler may contain a liability provision.

> Producer understands that adulteration of milk by medicinal or germicidal preparations or by pesticides may not be determinable except by tests after receipt at X's plant. If X receives milk from Producer which is so adulterated, X shall have the right to dump it, or any part of it, at the expense of Producer, and Producer's milk shall therefore be deemed to be adulterated until shown to be free from adulterants in tests conducted by an agency authorized to conduct such tests pursuant to the Agricultural Code of the State of California. If milk which does not comply with the quality requirements of this agreement is delivered by Producer and contaminates in any way milk received by X from other Producers, then Producer shall be solely liable for any costs or damages to X resulting from such contamination. In addition to any other remedies it may have, X is authorized to deduct from any amounts due Producer hereunder all losses resulting from such contamination; if amounts due are less than the losses, Producer shall pay X any additional amounts immediately upon demand.

The other contract containing a liability provision only holds producers responsible for contamination in the transportation vehicle and specifies compensation to the damaged parties and not to the proprietary handler.

> Milk not meeting the requirements . . . [which is] commingled with other product resulting in contamination to all the product contained in the transportation vehicle shall be the sole financial responsibility of the Seller to other parties damaged.

Pay Prices

Proprietary handlers buying under federal or state orders are required by law to pay the producers who ship to their plant at least the minimum classified prices established under the order. Deductions from the amount due based on these prices are only authorized for hauling,[1] location differentials, marketing service deductions or related fees under the order and individual producer-designated deductions. The distinction between this determination of producer payment

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[1]Except federal order No. 2, New York-New Jersey, where farm point pricing is in effect and producers pay no explicit hauling charges, or where producers arrange their own hauling and pay for it separately.

of that of cooperatives' for their members should be kept in mind during the discussion of cooperative vertical integration.

Quantity Restrictions

All contracts examined specified a definite quantity of milk the proprietary handler agreed to purchase on an average daily basis or for a four week period. While the standard operating procedure in these sales relationships is to buy all the milk of acceptable quality produced, the contract provides a disciplining effect on production decisions of independent producers since any added production has no guarantee of a market. In one instance, the proprietary handler has an annual meeting with his producers to exchange information on anticipated demand and supply for the upcoming year. In times of extreme surpluses[1] or loss of a major customer proprietary handlers have left milk on their producers' farms which was not needed and which exceeded contract quantities. Proprietary handlers do not like to do this since it damages their image with producers and may cause some to terminate their contracts and make others reluctant to sign a contract when the proprietary handler needs additional supplies.

6.2 SUPPLY CONTRACTS

6.2.1. INTRODUCTION

Supply contracts between cooperatives and proprietary handlers are an important exchange component in the dairy sub-sector. As the contract signed by a producer constitutes a primary alternative to cooperative marketing arrangements, so is the supply contract an

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[1]This practice took place this Fall in Pennsylvania where milk was overly abundant. Cooperatives picked up most of the slack.

alternative for proprietary handlers to contracts with independent producers for their milk supplies.

Earlier data suggested that nearly half of the proprietary handlers surveyed purchased milk under a full supply arrangement from a cooperative. Of these arrangements nearly 60 percent were formal, written contracts. The others were verbal exchange arrangements. Although no data were collected in the survey on partial supply arrangements, interviews with cooperatives and proprietary handlers suggest that the vast majority of Grade A milk not purchased under contract or verbal arrangement from independent producers or under a full supply arrangement with a cooperative is purchased from cooperatives on a regular basis to fill a part of the proprietary handler's needs. Only a very small percentage of the milk moves on spot markets. Virtually all independent Grade A milk is committed to a proprietary handler or manufacturing plant prior to production and most milk produced by cooperative members is committed in advance of production beyond the cooperative (supply arrangements).

For purposes of understanding, supply contract will be used to describe any written arrangement for the sale of bulk Grade A milk by cooperatives to proprietary handlers, signed by representatives of both parties. All verbal understandings will be called supply agreements. If the contract or agreement is for all the Grade A milk needed by a proprietary handler, it will be designated as full supply, otherwise the term partial will be used. The term supply arrangement is the collective term for all of the above types.

Discussions with cooperatives and proprietary handlers produced much information on supply arrangements. Full supply rather than

partial supply arrangements were a major focus of this research, since they are the most comprehensive private coordinating mechanism being used at this stage in the sub-sector. Formal, written rather than informal, verbal full supply arrangements received more research attention since they have tighter potential coordinating effects, raise interesting market foreclosure concerns and are more amenable to study than verbal arrangements.

Several supply contracts were provided by proprietary handlers and cooperatives. Understandably, not all cooperatives or proprietary firms who have one or more supply contracts in effect were willing to provide the researcher with a copy. Some terms found in supply contracts will be described in this section. From the several contracts collected, a set of provisions will be assembled which represent an example of the types of provisions encountered. No one contract necessarily contains all the provisions to be described, although none are mutually exclusive. Each provision deals with a particular aspect of the exchange process and may be constructed to yield different exchange behaviors. Any examples of contract provisions cited here will be employed to clarify a point or to suggest a typical but not universal format. Despite the fact that only provisions of supply contracts are being presented, they have important implications for supply agreements too. Many of the same provisions found in contracts are discussed, verbally clarified and agreed to in supply agreements. Furthermore, many agreements have evolved from supply contracts after both parties learned to work with each other in an atmosphere of mutual trust, reasonableness and predictability. The contract provides the structure under which to begin the sales relationship, to fully

specify procedures and liabilities for all anticipated circumstances and to offer security to both parties. In time this formal vehicle may be allowed to fall away.

In the course of the interviews it became clear that no one party to the transaction consistently requested or preferred the supply contract. A variety of factors affect the preferences of cooperatives and proprietary handlers for supply contracts vis-a-vis agreements including the reputation and experiences of each party, the availability of supplies and the growth and investment plans of each party. Some avoidance of full supply contracts by cooperatives and proprietary handlers in favor of partial contracts (some as high as 95 percent of needed supplies) or full supply agreements was encountered in response to antitrust concerns over foreclosures or collusion. Some proprietary handlers chose to have at least two sources of supply to diffuse seller market power.

6.2.2 PROVISIONS OF SUPPLY CONTRACTS

Quantity Involved

Normally a delivery period is specified and the quantities to be delivered and accepted during this time are noted. The quantities specified are normally minimums. Some contracts will simply have the words "full supply" in the contract with a schedule of monthly or weekly deliveries attached or verbally agreed to later. Others specify an annual volume with an attached monthly delivery schedule. Still other contracts incorporate an average monthly or weekly quantity. In any event frequent (usually daily) communication between buyer and seller is understood as being necessary to coordinate any supply arrangement.

Contracting proprietary handlers are required, in virtually all cases, to purchase at least the amounts specified in the contract, however, if requested the cooperative will often divert milk normally going to the contracting handler or remove it from the buyer's plant for a service charge or buy it back for a reduced price. Normal practice in this regard depends to a large extent on whether the contract is for full or partial supply. Certain contracts provide for periodic opportunities to change contractual amounts.

A partial supply contract examined contained a provision whereby the buyer could decrease the purchased quantity below the contract level on short notice with no additional charge, but only if all other suppliers of the buyer were reduced on a pro rata basis. The provision is included to protect the cooperative from being used as residual supplier and bearing the total balancing and disposal costs attributable to that buyer's plant.

Most contracts make provision for the sale of milk in excess of the minimum contracted amount. Additional quantities do not normally bear a service charge but this depends on the other terms of the contract, the advance notice given and the availability of supplies. Charges for additional quantities under a full supply contract were not encountered unless the buyer gave unreasonably short notice imposing otherwise avoidable costs on the cooperative.

Vertical coordination is best served by the most accurate estimates of anticipated demand available and the honest and timely communication of these between buyer and seller. Depending on the service charges for removing and supplementing normal contractual quantities, the buyer will have an incentive to under, over, or as accurately as

possible estimate needed volume. Buyers would prefer a reduced committment if additional supplies bore no service charge. Marketing or operating cooperatives can more readily deal with under and especially over estimates than can a bargaining cooperative, although under estimates may hurt efficient production scheduling in an operating cooperative's facilities.

The contract negotiation process offers an opportunity to articulate needs and trade-off service charges or terms. Reasonableness seems to most often prevail in such negotiations and quite accurate demands are communicated. It was found that buyers are able to make quite accurate, dependable estimates of their needs except in cases of major demographic shifts or the firm's expansion into new or different markets. In addition, the necessary daily communication between buyer and seller often allows daily or even weekly variation in the quantity which mitigates problems involved in contractual specification of quantities to be exchanged. It should also be recognized that the negotiating posture of each participant with respect to quantity terms and associated service charges is profoundly affected by the anticipated availability of Grade A supplies in the relevant market.

If the contract is for a partial supply, the quantity provision normally contains no further terms, however, if it is a full supply contract, additional terms may be included to establish procedures for requesting amounts above the minimum. If the contract is for the buyers' full supply, then the cooperative may be required to furnish upon demand supplies in excess of the minimum, calculated as a percentage of the contractual minimum.[1] For buyer requirements in excess of

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[1]Twenty to thirty percent of the minimum amount was frequently quoted.

this buffer volume, the cooperative is not obligated to supply it but the buyer must procure it from the cooperative if it has the milk available. These terms put an upper limit on the quantity which must be delivered which facilitates cooperative planning. Notice that under a full supply contract the buyer cannot procure any milk other than from the contracting cooperative unless as described above, the cooperative cannot provide all needed quantities.

Transfer of Title

Title passes to the proprietary handler buyer under either of two commonly used rules. In cases where all responsibility for delivery rests with the cooperative, the buyer takes title at his (her) plant when the hose is connected to the tanker and the valve has been opened. All risks to the product prior to change of title belong to the cooperative. The buyer reserves the right to subsequently reject delivered milk of unacceptable quality. A different rule is needed for that milk hauled by or under the direction of the buyer. One contract specified that title shall pass to buyer at such time as it is signed for by a duly authorized employee or agent of the buyer in a truck operated by or on behalf of the proprietary handler. These two rules can both be used if buyer and seller both do some hauling or the latter rule can be used for all milk purchased regardless of hauling arrangements by stipulating that for deliveries by the seller to the buyer's plant, title shall change when the milk is signed for by an employee of the buyer at the plant.

Delivery Terms

This provision includes the assignment of hauling responsibilities and costs for direct and plant shipped milk. Normally both parties pledge to act so as to accommodate each other's schedules and delivery preferences. The advance notice required of the buyer as to timing and quantities of daily deliveries is specified and any penalties for short notice deliveries included.

Weights and Tests

As discussed in Section 5.1, two means of establishing weights and butterfat tests of transferred bulk milk are in common use. This provision stipulates the method to be followed, who will administer it, and the exact steps to be used in carrying it out. Procedures for cross-checking and reconciling differences are normally included. In some areas of the country private state certified laboratories may do butterfat tests. Cooperatives often have the instruments for testing the milk, however, the proprietary handler often runs a test of his (her) own on a tanker or farm sample to serve as a cross-check. According to participants, discrepancies have been quickly rectified in most cases.

Price

Due to the existence of federal or state marketing orders in most milk producing areas, the determination of a contract price is simpler than might be expected. Prices may change as often as monthly so a contract cannot set a long run price. If federal or state order minimum prices are the prevailing market prices then the contract need only specify that these will be followed, however, in many federal

order markets, cooperatives have negotiated premium prices and/or service charges. When this situation exists most contracts refer to a schedule of prices announced by the cooperative and revised as often as monthly. Provision is often made to attach a schedule of handler services and related charges which can also be revised by the cooperative. The buyer is frequently given the choice of accepting any or all of the proferred services with their cost known to the buyer.

Proprietary handlers are intensely concerned with their competitive position vis-a-vis their fellow bottlers. Cooperatives are aware of this and indeed, have a stake in maintaining the economic health of their customers. Since cooperatives may change prices and service charges frequently and under terms of the contract buyers are required to pay the announced prices and charges, buyers demand some competitive guarantees and perhaps a provision allowing for release from the contract under unusual circumstances. The form of one such provision is provided below.

> Seller may amend or replace from time to time during the term of this agreement the Price Schedule in effect on the date of this agreement. Seller shall give Buyer at least twenty-five (25) days written notice of any change in the Price Schedule, and the effective date thereon. Seller may increase or decrease any or all the terms in the Price Schedule, but such changes shall not be effective retroactively. Buyer may object in writing about any or all changes in the Price Schedule at any time before the fifth (5th) business day prior to the effective date.
>
> Upon the receipt of a timely objection from Buyer, Seller shall either withdraw or amend the Price Schedule, or this Milk Sales Agreement may, at the option of either party, be terminated on the effective date of the new Price Schedule . . .
>
> Seller represents that the prices and charges set forth in the attached Price Schedule, or such schedule as amended from time to time, are or will be no higher than prices or charges at which milk of like grade and quality is offered under the same conditions to another buyer or other buyers of milk in the same pricing zone of the federal milk order regulating Buyer's plant. Seller agrees that in the event such prices or charges to Buyer

> should be higher than those offered to such other buyer or buyers under such conditions, the Seller shall accord Buyer such lower price or charge on the milk or portion thereof delivered by Seller to Buyer to which it is applicable.

A supply contract in force in California has an interesting section in the price provision. Prices in excess of the state order minimum prices are not provided for in the contract, however, a set of service charges and a means for updating them are included. Buyer and seller agree to abide by the applicable state order minimum prices and area differentials. The contract does not stop here, however. Since California's milk pooling law which establishes quota and base production allotments under a closed plan has been under judicial scrutiny, and since the state order has been periodically challenged by consumer groups and because producers have occasionally entertained the idea of a federal marketing order in California, the supply contract provides contingency plans for establishing prices in the event the state order is not applicable and also in the event neither a state or federal order exists. In the latter case average prices paid based on comparable usage by four named proprietary handlers or their successors operating in the same general market area would be utilized.

Quality

Quality provisions in supply contracts rely heavily on federal, state and local health and inspection regulations. In many cases the contract specifies that the cooperative will maintain a field staff to provide technical assistance on problems affecting milk quality. In every case the cooperative is responsible for maintaining quality through the transfer of title, but the buyer may reject the milk after delivery. Such rejection was found to be based on two slightly

different rules. In one contract the buyer's "reasonable judgment" after customary quality inspections and tests at the plant is sufficient to justify rejection of that milk. In the other case, the buyer may reject the milk if it does not meet "legal requirements." In practice these rules may yield identical behavior but would appear to clearly have different legal implications.

Indemnification by Cooperative for Costs Associated with Quality Problems

This provision was found in only one contract. It stipulates that the cooperative agrees to indemnify buyer and assume all legal responsibilities for claims against buyer arising from failure of the milk supplied by the cooperative to meet the quality standards contained in the contract. The cooperative who is party to this particular contract purchased sufficient liability insurance to cover any anticipated claims. This provision protects the buyer from lawsuits resulting from the consumption of a product not meeting legal requirements which was not detected by the buyer and which could be attributed to the cooperative's failure to deliver milkin conformity to all quality terms in the supply contract.

Excuse for Non-performance

Either party is excused from meeting any and all terms of the examined contracts for reasons of acts of God, strikes, disease, governmental order and the like.

In several contracts, provision is made for short supplies of milk which make it impossible or extremely difficult for the cooperative to meet its contractual committment. Under such situations the cooperative may fail to deliver the minimum volume required without penalty

providing the cooperative prorates the member milk available among all regular cooperative customers on the basis of Class I requirements or the share of cooperative volume normally purchased.

Damages for Failure to Perform

When both buyer and seller recognize that there are major costs imposed on the one party by a breach of the contract by the other, contract provisions are frequently included which specify fixed penalties to be paid by the party breaching the contract. Such payments are in lieu of any other damages and claims resulting from the breach. In the case of a breach by the buyer, the cooperative is normally afforded a per hundredweight payment for any part of the contractual volume not accepted. In the case of a breach by the cooperative three different procedures were encountered in the contracts collected. In one case a per hundredweight payment similar to that defined for buyer breach is to be paid on contracted volume not delivered. In another case, the buyer is awarded compensation sufficient to cover the costs incurred by the buyer in excess of those which would have been paid under the contract in obtaining the quantity necessary to satisfy contractual requirements. In yet another contract, no liquidated damages are provided for the buyer.

The inclusion of fixed penalties, in lieu of all others, for breaches of the contract reduces the costs of extended legal action. It forces both parties during the negotiation process to rationally and without the pressures of an actual breach, recognize each other's situation and assess the costs of or suitable compensation for a breach. By specifying the penalties in advance, any avoidable breach is undertaken with full knowledge of the monetary costs. It would appear that

the specification of an actual per unit penalty is preferable to the rule requiring compensation for reasonable additional costs since legal action could be necessary to work out a workable definition of "reasonable additional costs" in the latter case. If further seems equitable and in the interests of minimizing the cost of conflict, to provide for liquidated damages for buyers as well as sellers under supply contracts.

Time of Payment and Credit

Contracts frequently specify time of payment and the terms under which credit is extended to the buyer. Under provisions of federal and state orders all milk is paid for approximately a month following delivery. Indebtedness can soar quickly because of the normal payment delay and the large volumes of milk involved. Often additional credit is granted the buyer by the cooperative. Federal orders have two types of pooling systems through which funds move from proprietary handlers to producers (including cooperatives) and between proprietary handlers as part of the equalization process under marketwide pooling. Under one type of plan[1] the handler pays the order blend price to producers (including cooperatives) and then draws from or pays into a market administrator pool rather than a producer settlement fund. Market administrator audits are slower to detect proprietary handlers who are late in payment under this plan than with the more common alternative. This lack of close audit control under one type of federal order

[1]The so-called Texas plan since it was first used in Texas federal order no. 126.

structure exacerbates the credit and cash flow problems of independent producers and cooperatives.[1]

Contracts may specify seller rights under conditions of late payment under federal or state order rules. These rights may include the cancellation of the agreement by the seller, requirement of cash payment in advance, proof of financial health and the posting of security. Frequently interest rates applicable on overdue amounts are included in the contract.

Cooperatives are, of course, free to extend additional credit beyond the normal order payment period and frequently do in order to accommodate a customer or to hang on to an account. On occasion the extensions have proven to reflect poor judgment on the part of the cooperative as its losses have increased over time. Whether by cooperative design or poor judgment in the extension of credit, the cooperative must often take over the bottling facilities of the indebted handler in the event of business failure in order to recover any amounts owed the cooperative. This concern will be returned to in Chapter 7 when the vertical integration activities of cooperatives are discussed.

Several proprietary handlers interviewed in this research expressed concern over the inequitable terms of sale perpetuated by cooperatives when they make special credit concessions to certain customers. The proprietary handlers suggest that these actions make them less

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[1]At the time of this writing, cooperatives have requested an amendment to federal order no. 36 covering Eastern Ohio and Western Pennsylvania which would authorize a change to a producer settlement fund with closer audit and accountability than is exercised under the current plan. Cooperatives have experienced cash flow problems in their efforts to pay their members on time due to delays in proprietary handler payment.

competitive than those bottlers to whom additional credit is extended since the effect of the special policy is to reduce the cost of the milk to those receiving the separate terms. While this concern may be relevant for an otherwise financially healthy bottler who infrequently delays payment to earn interest income or improve the cash flow situation, it is not as germane when it applies to those buyers who can scarcely remain solvent. These bottlers are not serious long run competition for the buyer who consistently pays on time, although in the short run these struggling proprietary handlers can bring havoc to an otherwise stable wholesale market by their frantic efforts at survival.

Length and Termination[1] of the Contract

Usually supply contracts are for a period of twelve months with automatic renewal provisions for additional periods of twelve months unless notice is given sufficiently in advance of the anniversary date. Some contracts are of longer duration but antitrust interest in milk supply contracts have tended to reduce their duration. In the longer term contracts involving large volumes of milk frequently more elaborate provisions for termination are incorporated to ameliorate the associated market adjustments. In practice, it appears that few parties to a supply contract would hold the other party to it if problems could not be rectified to the discontented party's satisfaction. Many cooperatives and proprietary handlers interviewed expressed no desire to continue a supply arrangement for an extended period of time with someone who strongly wishes to terminate it. The contract can be viewed as a mechanism to facilitate communication between parties

[1]These termination procedures are the normal ones and are in addition to those already mentioned which are based on various "failures to comply."

involved in exchange, encourage anticipation of exchange problems, provide a forum for their resolution and offer some short run stability. Contracts appear to facilitate coordinating behavior by encouraging planning and the exercise of the voice rather than the exit option by both parties.

Most Favored Nation Clause

This provision is inserted in many supply contracts in an effort to assure the buyer of the continuing competitiveness of the price and service charges being paid. The text of a typical "most favored nation" clause is presented below.

> Seller represents that the terms and conditions, including price, of this Agreement are comparable to the terms and conditions offered to other purchasers in the same marketing area; and Seller agrees that in the event any such other purchaser (including a member, subsidiary or affiliate of Seller's Cooperative Association) is offered terms and conditions different than those offered the Buyer hereunder, then Seller shall offer Buyer such terms and conditions.

6.3 SUMMARY

Section 6.1 detailed the role of cooperative membership (marketing) agreements and contracts between proprietary handlers and independent producers in milk procurement. Provisions with significant coordinating effects were extracted from the set of agreements and contracts collected in the course of the personal interview process. These provisions were discussed. Provisions in contracts between independent producers and proprietary handlers were found to foster an attitude among producers mitigating problems of quantity coordination. Individual producers were found to be held less accountable for the spillover effects of their actions affecting quality under cooperative agreements. Under cooperative agreements the collective membership was

most often responsible for contamination of milk when commingled. Cooperative agreements were reported to provide a guarantee of market and more direct control over weighing and testing for the producers. Bloc voting by cooperatives as a means of maintaining the viability of federal orders was stressed.

Provisions discovered in the examination of several supply contracts between cooperatives and proprietary handlers were elaborated next. Those with major coordinating ramifications were highlighted and discussed at some length. Many of the provisions found in supply contracts apply in verbal supply agreements in common use in the subsector. While contracts are seldom used to continue a supply relationship against the wishes of one party, they do facilitate planning, encourage communication between the parties and may foster use of the voice rather than the exit option. Coordination appears to be facilitated by the use of supply arrangements but no significant operational difference can be consistently found between contracts and the more informal agreements.

CHAPTER 7

ANALYTICAL RESULTS

7.1 INTRODUCTION

This chapter is designed to analyze the areas of inquiry previously introduced. The data from the mail questionnaires and personal interviews will be used to support the task of this chapter.

Few studies have sought the views and insights of both major parties involved in a study of vertical coordination and related activities in a major commodity sub-sector. This study brings dairy cooperatives and proprietary handlers together. They have let their feelings be known through the mail surveys and the personal interviews. Wherever possible throughout this chapter, similarities and differences between the two groups will be pointed out. It is felt that the discovery of common as well as divergent views on topics in the dairy sub-sector can provide important clues about the nature of coordinating behavior and its performance consequences. The sites of harmony and discontent might provide important clues for policy makers in understanding the problems of sub-sector performance and mechanisms through which to address them.

Interviewees were guaranteed confidentiality since many of the topics discussed were of a sensitive nature. In order to preserve this trust few references to specific cooperatives, firms or individuals will be made.

Describing structural parameters, conditions, institutions and mechanisms and the conduct which is observed under various structural opportunity sets is an important research task and is a secondary objective of this research effort. However, the evaluation of the consequences which result from the behaviors observed is at least as important. The performance criteria of stability, exchange efficiency, equity and supply-demand matching elaborated in Chapter 3 will be used throughout this chapter to evaluate coordinating behavior. It should be remembered that the selection and application of performance criteria is a normative process. The reader of any performance evaluation of sub-sector outcomes must recognize that efficiency is not a positivistic concept. Equity is not the same as equality and no concensus exists as to its definition for most applications. The relevancy of the performance evaluation contained in this chapter is dependent upon the degree to which values and the premises and objectives to which they give rise are shared by this researcher and the decision maker in the dairy sub-sector.

The areas of inquiry set forth in Chapter 3 will be examined in an attempt to determine their conformity to actual sub-sector behavior and their performance implications. The areas were chosen because they were deemed to be of special significance in reflecting the nature of coordinating behavior and performance consequences.

A scaling technique will be used and references to any scale question from the mail questionnaires will be to the "strongly agree" to "strongly disagree" type where 1 = strongly disagree, 2 = disagree, 3 = no opinion, 4 = agree and 5 = strongly agree. Average scores will be reported and tested for their statistical differences from a score

of 3.0 as an indication of the respondents' intensity of feeling relative to a middle of the road position. For all scale questions common to both questionnaires a mean difference test was performed.[1]

7.2 INFORMATION AND COMMUNICATION AS AN AREA OF INQUIRY

It is reasonable to assume that when attitudes, perceptions and information are inaccurate or not held in common by cooperative and proprietary handler management, coordination is adversely affected.

7.2.1 GENERAL ATTITUDES HELD BY COOPERATIVES AND PROPRIETARY HANDLERS

With some significant exceptions, cooperatives and proprietary handlers have an understanding of each other's role in the sub-sector and the problems each face. The spirit in which they interact, however, differs across the country. Toughness in sales relationships is not eschewed or resented by either group. Unreasonableness, intolerance and an unwillingness to compromise are. Fairness within the rules of the game as defined by federal and state order systems, normal business practices and an appreciation for each participants' role and competitive pressures is of paramount importance in determining the attitudes each hold about the other.

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[1] Although the use of Likert scaling techniques [Moser, p. 361] creates only ordinal scale variables, means and variances are calculated and statistical tests performed. This is not technically correct procedure with such variables, however, the researcher felt that such summary statistics reported for scale questions would be instructive to convey some information on the distribution of the responses. The reader should keep in mind that the mean responses and the results of statistical tests reported on scale questions in this chapter are not statistically correct without fixed, constant intervals and an absolute zero point for the scale used. Accordingly, their appropriateness is for compact presentation of the response patterns and not for rigorous analytical extensions.

The personalities of the key people involved in any procurement transaction determine the marketing environment. When they turn over frequently little trust or respect is able to develop between the cooperative and the proprietary handler. Cooperatives need to establish a track record in their dealings with proprietary handlers. It is important to demonstrate expertise, competence and stability. An accurate and speedy "integrity grapevine" exists within cooperative and proprietary handler populations to transmit such information. A leading cooperative said that proprietary handlers and cooperatives develop a reputation for integrity and it is this reputation which determines which ones they deal with and the degree of caution they display in business dealings. Another cooperative expressed the opinion that handlers deal more fairly and openly with the cooperative if the handler knows the hired management of the cooperative is strong and has the unequivocable support of the Board of Directors to make major operating decisions. Another operating philosophy preferred by a cooperative manager is best characterized as equal partners with the buyer, with any disparity in market power not being used unwisely. If all participants are of equal strength or perceive each other as equals and behave accordingly the results will be in the long run best interest of both parties.

Two different scenarios of cooperative behavior vis-a-vis proprietary handler customers emerged in the course of the interview process. One is represented by the equal power approach described above. Market power, represented by a threshold volume of committed Grade A milk having alternative outlets (e.g. the cooperative's own manufacturing facilities) elevates the cooperative to an economic juxtaposition

with major proprietary handlers. Managers of such cooperatives do not use their power as a club nor do they amass more for its own sake. Rather they see the mutual reliance of each party on the other and choose to use their relative power position to relax the agressive posture and relate to customers as equals in the market place. Managers of cooperatives of this persuasion which will be termed compromisers, disdain the exercise of their economic power except in rare cases of handler unreasonableness. These compromisers seek an on-going sales relationship which stays together because it is good for both parties. They seem to recoil from suggestions of handler acquiescence to cooperative power. They suggest that cooperative fairness and thoroughness in presenting their position to buyers are why the relationship continues.

The other cooperative type which will be labeled the enforcers, uses its economic clout to the extent possible to obtain its terms in dealings with proprietary handlers. Although the final terms of an agreement or the resolution of a problem may be identical under the two approaches, the attitudes formed and the coordination environment created may be dramatically different. The old familiar theme is appropriate here--It is not as much what the cooperative did that bothered the proprietary handlers, but how they did it!

In dealings between small cooperatives and proprietary handlers in limited local markets the relative power threshold could be reached by a small cooperative which would allow enforcer type behavior. Typically, however the low level of absolute power in these cases does not seem to spawn compromiser or enforcer behavior as frequently as it does cooperative acceptor behavior where the cooperative adopts a more

detached posture towards exchange.

It may seem odd that the behavior types are defined for cooperatives and not for proprietary handlers. This is a manifestation of the trend to large proprietary handlers which preceded the growth in size of dairy cooperatives. Cooperatives were the party responding to existing power. It can also be attributable to the greater size, as represented by assets, of proprietary handlers relative to cooperatives when the four, eight or twenty largest firms of each type are compared. Their greater size allows them to adopt a less agressive type of exchange behavior. Financial reports collected during the course of the interview process bear this out.

At least half of the cooperatives interviewed would be characterized as compromisers. This may represent a change from the late 1960's and early 1970's when cooperatives were growing rapidly and anxious to prove themselves. As pointed out by more than one cooperative and proprietary handler, the type of individuals needed to put a large cooperative together is very different from the kind required to keep it going. Wholesale changes in leadership among hired management in many of the large dairy cooperatives attest to this.

Cooperatives of the compromiser type and proprietary handlers do disagree. Conflict exists in these relationships, but there is a mutual respect and a recognition that it behooves both parties to strive for a solution with which each can live. Cooperatives prefer to see economically healthy proprietary handlers and handler comments indicate the converse is true. Harmony is more likely to prevail if the proprietary handlers and cooperatives in the market are earning a decent return. It is when either is struggling that exchange related problems

are most likely to be experienced. In the Northeast where an abundance of milk dealers make for low margins and cut throat competition, cooperatives encounter frequent problems of high balancing and reserve and surplus disposal costs as well as escalating costs of other services with marketwide characteristics.

The free rider problem created by a large percentage of independent producers is also a part of the picture. In their own efforts to remain competitive proprietary handlers find themselves shirking market responsibilities by taking on independent producers and leaving the market service job to the Northeast cooperatives who are usually unable to obtain premium prices or service charges sufficient to offset their costs. As a result, their membership rolls dwindle and soon proprietary handlers will be forced to take back market service responsibility in the absence of viable dairy cooperatives. The adjustment, disinvestment, investment and transaction costs will be larger than they would need to be if a less desperate competitive situation existed in the processing industry in the Northeast. In addition a few large cooperatives are often able to achieve economies in procurement services not possible for several proprietary handlers.

Movement toward a compromising type exchange represents the achievement of the necessary condition for harmony between cooperatives and proprietary handlers which in one handler's words is a mutuality of objectives. Certainly this type of exchange behavior is not alien to Breimyer's concept of associationism or syndicalism.

> . . . an organizational structure of interest groups held in a kind of balancing suspension operating under a complex set of rules designed to keep the various groups in something close to bargaining equity rather than allow anyone to dominate. The situation is always a bit chaotic, ever subject to dissatisfaction, protest; also subject to being nibbled at the edges. My

> idea corresponds to what the historian calls neoguildist. [Breimyer, p. 2]

The alternative to associationism seen by Breimyer is statism or rigid administrative structures where authoritarian rule replaces debate, bargaining and compromise. Enforcer type behavior in exchange relationships might be seen as encouraging the rigid statism form of economic organization in the dairy sub-sector. Although it could be argued that as tight or tighter coordinating control could be secured through the latter structure, equity, freedom and individual initiative would be sacrificed. This researcher believes that coordination is best served by a compromising exchange environment where conflicting positions can be worked out without enforcer tactics being used and with a minimum of bitter feelings. Harmony, respect, trust and cooperation are more likely to result under this bargaining climate.

Proprietary handlers had some interesting observations on their relationships with cooperatives. One handler suggested that it was up to them to keep pressure on the cooperative to perform. It was his belief that cooperative management wanted to do the job right but the pressure must originate with the buyer. He reasoned that it is unnatural for the cooperative's fieldmen to tell the member producers that they need to do a better job. In his judgment, it is easier for the cooperative if the buyer assumes this disciplining role.

Almost all proprietary handlers interviewed stated that they preferred the existence of healthy cooperatives in their market. Any bad experiences they had with cooperatives could be traced to an "enforcer" attitude exhibited by the person or persons with whom they intereacted from the cooperative. This study did not deal with relationships between the general membership and the hired management or the Board of

Directors and the hired management. For this reason, it is difficult to locate the source of the attitude the cooperatives displayed. In all cases the buyer deals with the hired management so these are the relevant personalities, but there are complex and interesting dynamics which go on between the Board of Directors and hired management. Hired management needs to have a high degree of autonomy in day to day operating decisions, but the essence of the cooperative concept is member-owner control. Typically the Board sets general policy within which hired management operates. But, it is not always this neat. Although little definitive light can be shed on the formation of cooperative exchange posture, it is important to keep cooperative control structure and its dynamic elements in mind in subsequent discussions. This provides a rich area for additional research.

Many proprietary handlers began their comments on cooperatives with the statement, "There are cooperatives and there are cooperatives; there are areas and there are areas." This reflects the handlers exposure to cooperatives with varying postures toward exchange and to the differences in supply alternatives, reserve supplies and cooperative flexibility which affects the balance of bargaining power in certain areas. A plant operated by a proprietary handler in an area in which there is no alternative supplier is in a position of paying the cooperatives' price or not getting any milk. The cooperative can quickly divert the milk to its own facilities so it need not sell to the handler, at least in the short run. The handler in this case felt that bargaining was out of balance. Another handler suggested that a major dairy cooperative had the power to throw its weight around in certain areas, but he had heard of no instances of this occurring. Although

not all proprietary handlers interviewed were this magnanimous, several did say that farmers need someone to represent them in dealing with large buyers. They stated that farmers bear a great deal of the risk in the sub-sector and deserve a price which is commensurate with the risk assumed. Several handlers also recognized that cooperatives are set up to balance supplies by routing milk and disposing of reserve and surplus supplies, a role which many handlers are loath to assume.

Cooperatives are not without their proprietary handler critics. Most are concerned with the accumulation of power which accrues to cooperatives with huge volumes of milk committed to them. Some feel that it is inevitable that the power will be misused while others cite instances of compromising behavior on the part of the largest dairy cooperatives. The comments of proprietary handlers demonstrate the applicability of the behavior types previously defined. In discussing a large cooperative, a proprietary handler noted that it had been dominated by two men (in hired management) who had a reputation for being heavy handed and full supply contracts were forced on many handlers. A California proprietary handler expressed the hope that California did not develop a cooperative climate like that found in other parts of the country. He suggested that the control of huge supplies of milk seemed to go hand in hand with an undesirable management element relying on strong arm tactics.

There is a group of disgruntled proprietary handlers who formed an organization in 1974, to deal with the relative degree of antitrust immunity enjoyed by dairy cooperatives under the Capper-Volstead Act. Called the National Association for Milk Marketing Reform (NAMMR), it has 25 proprietary handler members concentrated in the Northeast and

upper Midwest. Most members are small family corporation-type proprietary handlers. NAMMR is headquartered in Washington, D.C. where it lobbies and tries to keep the issue of cooperative power before the Department of Justice and the Federal Trade Commission. Its goal is to amend Capper-Volstead to remove any preferential antitrust treatment of cooperatives. It is specifically concerned with issues relating to inter-cooperative relationships (including collective price determination) and cooperative merger activity.

Although this organization is concerned about marketing orders and their management by cooperatives, there is no concensus within NAMMR as to what problems exist, so they do not propose any revisions of marketing orders at this time. Their membership runs the gamut from outspoken critics of cooperatives and all they stand for to much less militant handlers who are concerned about the damage that can be done by unchecked cooperative power. Most NAMMR members will admit cooperatives perform many procurement functions and should continue to do so but with a few more checks on their power. It would appear that NAMMR was not started out of personal vendettas by particular proprietary handlers (although some of those are being carried on), but rather out of fundamental philosophical differences in issues regarding agricultural structure and the competitive squeeze faced by many handlers in low margin markets. It may not be coincidential that NAMMR started in the Northeast where proprietary handlers are intense individualists and also face strong competition due to excess processing capacity.

For an assessment of the sympathy for the goals of NAMMR among proprietary handlers surveyed consider the following questionnaire query.

SCALE QUESTION:

> Capper-Volstead legislation should be amended or supplemented to reduce cooperatives' advantage over proprietary handlers in the dairy industry.
>
> Mean score, proprietary handlers = 4.19; significantly greater than 3.0 at the 1 percent level.

There is strong support for the general objective of NAMMR although it cannot be concluded from this response that the form or effect of any NAMMR proposal would be backed this solidly.

An important question to answer is what encourages the development of a harmonious, mutually beneficial but tough coordinating relationship between cooperatives and proprietary handlers. It has already been suggested that the maturation process of cooperatives may affect it as may the personalities of key people in each organization. Also there needs to be time for respect, trust and confidence to develop. But there are other incentives and disincentives as well for such behavior.

At this time the strongest disincentive to harmony between cooperatives and proprietary handlers is the integration of cooperatives into processing. This issue will be the topic of a major section, Section 7.8, so will not be dealt with in detail here. In part proprietary handlers are responding to the added competition which makes their jobs more difficult but there is certainly more to it than that. Regardless of whether or not cooperatives are competing unfairly, the situation faced by proprietary handlers, of procuring bulk milk supplies from a source who also sells the same final product, is bound to be stressful. Compound it with cooperative-set prices in excess of order minimums and cooperative ability to reblend which can redistribute losses in any of several ways and hard feelings by proprietary handlers are inevitable.

As mentioned in Section 6.2, the credit policies of cooperatives are often a point of contention in cooperative-proprietary handler relationships. A proprietary handler who learns that a cooperative with which he (she) deals has extended special credit privileges to another customer may be angered since it increases his (her) cost of capital relative to the other customer. In addition, even an otherwise disinterested proprietary handler may feel that a credit concession will draw the cooperative into the processing business in the event of default. The extension of extra credit is not without risks to the cooperative. Often cooperatives lose money in such exchanges and may inherit a plant destined by age, location, size, proprietary handler pressure or lack of goodwill among wholesale customers to be unprofitable at least in the short run.

A number of cooperatives and proprietary handlers expressed the belief that the more the two parties needed each other the better was the relationship. Dependence appears to foster harmony in many cases. As one cooperative manager expressed it, when there is no alternative for either side, where a cooperative has to deal with a proprietary handler and vice versa, the relationship seemed to be the most harmonious because neither party had the advantage. They needed each other and had to work together. It is true that many large proprietary handlers, because of the volumes of milk they require, have few sources for a particular plant. The quantities available from a cooperative limits these dealer's options and so does the competitive situation in many local areas. If a large volume buyer procures supplies from outside the local area the competitive price can drop significantly. As a

result the large handler may find him (her) self at a price disadvantage relative to the handlers remaining in the local area.

Cooperatives lose respect for proprietary handlers if the buyer fails to see the problems of the cooperative in performing marketwide or handler services. Some handlers are not willing to provide or pay the cooperative for providing procurement services. Some proprietary handlers will take a short run view of procurement responsibilities. They may be happy to take advantage of cooperative vulnerability or poor fortune to avoid their share of market service costs. In the long run, however, their costs may be higher.

7.2.2 SHARING INFORMATION

In an effort to determine the willingness of cooperatives and proprietary handlers to communicate for the purpose of sharing information germane to coordination between the groups, three scale questions about information were asked. Both groups were asked identical or mirror image questions. The results are reported in Table 7-1.

Cooperatives feel freer to exchange demand and supply information with proprietary handlers than the handlers do with the cooperatives. This response may be indicative of several things. Proprietary handlers may feel at a relative power disadvantage or they may distrust the cooperative because of their excursion into processing. Cooperatives may be less wary of the need for secrecy which often permeates corporate dealings. Cooperatives might also be less concerned with the anti-trust implications of collusive information exchange between buyer and seller than are handlers. In any event, the difference in the responses of the two groups may suggest that cooperatives should be encouraged to

TABLE 7-1. SCALE QUESTIONS DEALING WITH INFORMATION

Statement[1]	Mean Score[2]	
	Co-ops	P. Handlers
*There is little information (on prices, projections of supply, costs, concerns and plans) which we have, that if shared with our customers (the co-ops) would put us at a competitive disadvantage.	3.41**	2.28**
*We try to get such information (as indicated in E above) from our customers (the cooperatives).	3.46**	2.25**
*Information is a major source of power in the marketing process.	3.95**	3.64**

[1](*) indicates mean scores significantly different at 5% level.

[2](**) indicates the mean score is significantly different from 3.0 at 5% level (one-tail test).

be the leaders in facilitating procurement coordination since they are apparently predisposed in that direction.

The response to the second statement in Table 7-1 suggests that cooperatives are more likely to seek information from proprietary handlers than the converse situation. This question is not independent of the previous one. It appears that cooperatives are both willing to offer information and actively seek information. This information could be sought for competitive reasons but may be an important contributor to sub-sector coordination. The combination of the last two questions suggests that cooperatives may view proprietary handlers more as sub-sector partners than rivals.

The response to the third statement in Table 7-1 is a bit confusing. Clearly both groups recognize the value of information in conferring or retaining power, but would not cooperatives be more reluctant to

share information if it embodies power in bargaining? Any why do not proprietary handlers seek out information more actively if they are aware of its role in bargaining?

7.2.3 UNDERSTANDING OF BUYER-SELLER PREFERENCES

Cooperatives were asked to indicate characteristics of bulk milk customers which they consider important. Proprietary handlers were asked to choose which characteristics they believe cooperatives judge to be important. The results are shown in Table 7-2. By an overwhelming margin, cooperatives indicated that a reliable, stable and solvent buyer is the most important factor. Ninety-six percent gave this as the most important factor and 98 percent of those responding said it was important. Proprietary handlers correctly perceive cooperatives' desires in this regard. During the course of the interviews several cooperatives observed that bulk milk often moves only reluctantly to certain handlers because of the credit risk perceived by the supplier.

Forty-two percent of the responding cooperatives felt that having a customer they could talk to and share information with was an important characteristic. Handlers, however, ranked this fourth. The other two most often chosen characteristics were identified in approximately similar proportions by both groups. It is interesting to notice that 25 percent of the cooperatives felt it desirable for their customers to be predisposed to a full supply arrangement while more than half of the proprietary handlers surveyed believed it to be an important factor to cooperatives. No cooperatives expressed a preference for a customer of inferior bargaining strength. Neither did proprietary handlers perceive this to be important to cooperatives.

TABLE 7-2. IMPORTANT CHARACTERISTICS OF BULK MILK CUSTOMERS OF CO-OPERATIVES, AS REPORTED BY COOPERATIVES AND PROPRIETARY HANDLERS

Characteristic	Cooperatives		Prop. Handlers	
	Important[1] (%)	Most Important (%)	Important[1] (%)	Most Important
A reliable stable solvent business.	98	96	72	53
Buying large volumes of milk.	23	-	43	20
Easy to talk to; willing to share information in order to improve the efficiency of the marketing system.	42	2	14	3
Desires a full supply arrangement.	25	2	54	20
A weaker bargaining participant.	0	-	4	3
Other	6	-	-	-

[1]Respondents could designate more than one characteristic as important.

Proprietary handlers were asked to express their preferences for certain attributes or qualities of their bulk milk supply. Cooperatives chose from the same list in an effort to see how accurately they perceived their buyers' needs and preferences. Some interesting results were found and are shown in Table 7-3. While cooperatives correctly assessed the general importance of quality to their buyers, they failed to perceive the extremely high priority they assign to it. Cooperatives estimated that having supplies available on request and providing a steady flow of milk to the buyers' facilities were of the

TABLE 7-3. SUPPLY ATTRIBUTES MOST DESIRED BY PROPRIETARY HANDLERS, AS REPORTED BY COOPERATIVES AND PROPRIETARY HANDLERS

Attribute	Cooperatives		P. Handlers	
	Important[1] (%)	Most Important(%)	Important[1] (%)	Most Important (%)
The assurance of a top quality milk supply.	81	22	89	74
A competitive price.[2]	-	-	67	20
Supplies available on request.	65	34	43	3
A steady flow to our plant.	69	32	39	3
Not require us to deal with individual producers.	31	2	18	-
Not require us to manage hauling activities.	25	-	20	-
Other	10	10	1	-

[1]Respondents could designate more than one attribute as important.

[2]This choice was inadvertantly omitted from the cooperative questionnaire. Cognizance of its importance to proprietary handlers, however, was verified in personal interviews with cooperative managers and by several indicating this under the "OTHER" option on this question.

highest importance to proprietary handlers. Both groups understand the importance of a competitive price for the milk purchased.

When price premiums are in effect an important component of exchange efficiency is an understanding by both groups of those supply and demand factors to which their bargaining partner responds. If cooperatives recognize the factors which impact on their customers, then cooperatives' bargaining conduct will be better informed as to the ability and willingness of their buyers to agree to a price increase

and may be more reasonable in their position than without such understanding. The converse is also true.

7.2.4 ATTITUDES TOWARD PRICE

7.2.4.1 UNDERSTANDING OF PRICING BEHAVIOR

In Table 7-4 factors important to cooperatives in determining their preferred price are reported. Proprietary handlers indicated what they believed cooperatives considered in their pricing actions. Important factors as singled out by cooperatives included the competitive pressure exerted by the potential for milk to move in from nearby markets and the costs of services provided to the entire market and directly to customers. Proprietary handlers believed these to be less important. By an overwhelming margin, proprietary handlers feel cooperatives charge what the market will bear. This strong indication of perceived cooperative pricing and bargaining strategy by proprietary handlers indicates their general belief that cooperatives charge whatever price they can maintain in the face of alternative supplies. Cooperatives admitted as much when they highlighted the potential for milk to move in from nearby markets. While this basis for pricing rests on a solid theoretical foundation, in the short run proprietary handlers are concerned about their ability to pass on increased raw material costs in the face of tight wholesale competition and imperfections in the geographical price surface across their marketing area. Cooperatives apparently are aware of the importance of maintaining a viable processor sector, however, as indicated by the results shown in this table.

TABLE 7-4. FACTORS IMPORTANT TO COOPERATIVES IN DEVELOPING A PRICE UNDER BARGAINED EXCHANGE, AS REPORTED BY COOPERATIVES AND PROPRIETARY HANDLERS

Factor	Cooperatives		P. Handlers	
	Important[1] (%)	Most Important (%)	Important[1] (%)	Most Important
What the market will bear[2]	-	-	69	51
Cost of production	50	6	31	11
Current retail sales	18	-	5	-
The potential for milk to move in from nearby markets	63	35	32	11
Local supplies available	39	9	22	8
Co-op member preferences/ expectations	18	3	5	2
Other co-op's actions	39	3	27	9
Long term health of processors and the entire industry	47	12	10	2
Cost of services rendered	63	29	22	4
Other	8	3	2	2

[1]Respondents could designate more than one factor as important.

[2]This choice was not given to cooperative respondents.

Table 7-5 shows the results of an inquiry into proprietary handlers' pricing factors. Most handlers react to the total supply of milk available in their market in evaluating their pricing position. Remaining competitive with their fellow processors is also important and cooperatives believed it to be the most important factor. Both groups recognized the importance of alternative supplies to the handlers'

TABLE 7-5. FACTORS IMPORTANT TO PROPRIETARY HANDLERS IN DEVELOPING A PRICE TO PAY FOR BULK MILK UNDER BARGAINED EXCHANGE, AS REPORTED BY COOPERATIVES AND PROPRIETARY HANDLERS

Factor	Cooperatives		P. Handlers	
	Important[1] (%)	Most Important (%)	Important[1] (%)	Most Important (%)
Milk supplies available	49	13	65	45
Retail demand	21	3	5	2
Prices paid by competitors	79	50	42	25
Value of services received	49	16	5	-
Availability of alternative supplies	64	16	30	16
Solvency of dairy farmers	3	-	3	2
Your power relative to the co-op	8	-	5	2
Other	5	3	8	9

[1]Respondents could designate more than one factor as important.

bargaining position. It is interesting to notice that cooperatives believed customers assigned much more importance to the value of services received than was indicated by the handlers. Proprietary handlers tend to think of the cost of services as a fixed component of the price and look to factors affecting the supply and demand of bulk milk for price changes. Cooperatives on the other hand, feel that their service offerings are themselves subject to supply and demand pressures and believe buyers should consider these in evaluating price and other terms of trade. Notice too that proprietary handlers indicate a lack of concern for farmer welfare but this attitude was not demonstrated by

cooperatives toward handlers (Table 7-4). Proprietary handlers have largely divorced themselves from concern or responsibility for producers as a result of the presence of strong producer cooperatives who appear to the handlers to be able to watch out for their members' welfare. In addition cooperatives suggested that the size of proprietary handlers and the tendency for conglomerateness among many of the largest ones make them most conscious of enterprise profitability to the almost complete exclusion of concern for farm production. Some cooperatives admit, however, that this is a posture they have encouraged by placing themselves between the producers and the processors and discouraging any direct contact.

7.2.4.2 IMPORTANCE OF A COMPETITIVE PRICE

The importance of a competitive price to proprietary handlers' and cooperatives' cognizance of it was demonstrated with the questionnaire results. The personal interviews also afforded an opportunity to stress its importance.[1] Several proprietary handlers noted that buying milk in an area where a common marketing agency[2] links several

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[1]Although T. Roberts [p. 23] suggests that cooperative assurances of a competitive price are a ploy to induce proprietary handlers to accept a full supply arrangement, this researcher found no supportive evidence for this hypothesis in discussions with either group. It is true that buyers are concerned with the competitiveness of the price they pay, that it is more important to a full supply customer and that cooperatives do verbally and in writing (see Section 6.2) guarantee such a price but there is nothing to suggest that it is being used currently as a ploy. This will be discussed further in Section 7.7.

[2]Central Milk Producers Cooperative (CMPC) is an organization made up of 14 cooperatives in the Chicago Regional market. CMPC handles virtually all bulk milk sales of its member cooperatives. A federated group of 16 cooperatives, Great Lakes-Southern Milk, Inc., attempts to coordinate price among the several cooperatives from the upper Mid-west to Florida. They do not handle any sales for the individual cooperatives.

cooperatives helps assure the payment of a competitive price over a large geographical area. Central Milk Producers Cooperative (CMPC) in Chicago recognizes all competitive situations by reducing their announced Class I premium price to allow their customers to compete with their fellow processors who do not buy from CMPC. In 1976, 28 percent of the potential superpool (over-order) revenue was lost to CMPC by the competitive credits granted [CMPC]. CMPC member cooperatives refer to this as the "free rider" loss which will be discussed in Section 7.4. At the same time that price coordination by groups of cooperatives helps ensure competitive prices it also makes proprietary handlers a bit uneasy since these groups of cooperatives control a large percentage of the supply available to the processors in that market.

Proprietary handlers rely on the state or federal order system with their minimum classified prices to establish a high degree of certainty relative to a knowledge of the prices paid by all handlers in a market. In fact, it appears that in the absence of premium prices, communication between proprietary handlers is dramatically reduced over the situation some handlers face when premiums are in effect. When premiums get relatively high the uncertainty increases among handlers because there is more room for special concessions by cooperatives for certain customers. Additionally, whem premiums are large those handlers buying only a partial supply from cooperatives with premium prices, enjoy a lower blend price for all their supply relative to those buyers with a full supply arrangement with a cooperative charging a Class I premium.

Cooperatives react to the prices charged by other cooperatives selling bulk milk in their area. A cooperative cannot hold a price for

long if it is out of line with another cooperative's offer. The cooperative is often able to justify a higher price than a competing source if quality or service is superior. This will be discussed further in Section 7.3 The point to be made here is that cooperatives have to respond to lower price offers available to their customers if the difference cannot be justified by differences in quality, stability, service or integrity. The number of potential suppliers does not have to be large to discipline the pricing behavior of a cooperative.

Sales relationships with cooperatives have been terminated by proprietary handlers for failure to meet competitive pressures, although often the threat of switching suppliers or reducing purchases will get the desired effect. Usually in these cases, the cooperative will verify that their price is out of line and that the buyer does have a viable alternative supply.

In an effort to establish their integrity and satisfy the buyer's request, one cooperative agreed to allow the buyer access to the cooperative's records to establish the competitiveness of the price charged under a supply contract. To this point the buyer has not exercised this option.

In the Northeast an interesting situation developed involving two federal orders which demonstrates cooperatives' commitment to the continued viability of their customers. Federal order no. 1, the Boston regional order, sets prices for milk at the plant of first receipt, whereas order no. 2, the New York-New Jersey marketing area, prices milk at the farm. As originally constituted the spatial price surface across these two market areas maintained appropriate competitive relationships among handlers selling fluid milk products in both markets.

However, due to rapid increases in transportation costs, handlers in order no. 2 were forced to absorb increased hauling costs which placed them at a competitive disadvantage relative to the handlers in the Boston order. Order no. 2 processors began to lose their customers in New York-New Jersey to Boston marketing area handlers who could sell at a lower price due to their lower delivered raw product cost. Cooperatives and proprietary handlers in the Boston order were not going to change their price structure while enjoying increased sales in a time of growing production so cooperatives in order no. 2 were obliged to amend their order so as to return their buyers to a comparable position with order no. 1 handlers but in so doing reduced their producers' prices. This action was necessary to save the markets for order no. 2 producers and in the long run can mean improved producer incomes relative to what would have prevailed had no corrective action been taken.

Although the predominant concern about price was its competitiveness, a few cooperatives and several proprietary handlers expressed concern for the level of price. Retail price elasticity of demand for fluid milk is estimated to be approximately -0.3 [Cook, 1976-b, App. A]. Income elasticity is also very low for fluid milk. Despite this, some sub-sector participants particularly proprietary handlers caution against the continuing increase in milk prices. Others, however, notice that with real disposable incomes doing no better than holding their own and fluid milk prices rising at retail, sales have declined very little or even increased in the past few years. Some cooperatives suggest that concerns over price level voiced by proprietary handlers are a bargaining tactic used to discourage price premiums.

7.2.4.3 ATTITUDES TOWARD PREMIUM CLASS I PRICES

Several proprietary handlers interviewed suggested that the recent over-order prices were not unreasonable, although there is general agreement that in the early 1970's, cooperatives were flexing their muscles and behaving as enforcers in some markets in securing large Class I premiums over federal order Class I minimums. Since then attitudes have changed and small to medium-sized cooperatives have formed in some areas along with NFO and FU to discipline cooperative price demands. One cooperative leader indicated that although they may have abused their power in the early 1970's to get high prices, it was done in an effort to make up for lost time and not to get or keep an unfair advantage.

Several proprietary handlers observed that even when premiums were very high, the cooperatives were not always able to return the federal order blend price to their members implying that the cooperatives were being inefficiently run, or were amassing money for political purposes or were subsidizing a losing manufacturing or bottling operation. Cooperatives countered by saying that they were being victimized by "free riding" cooperatives and processors and made to bear a disproportionate share of the marketwide costs of balancing, diverting and disposal. Often cooperatives maintained they were expanding their facilities during these periods and so were retaining funds for this purpose. Both groups are partly correct.

Even small cooperatives have extensive market power when supplies are short so can behave as enforcers for a while, but most cooperatives (and all of the compromising type) recognized that although they could get tough in the short run, this would hurt their long run

relationships with proprietary handlers and could not be maintained in the face of available alternative supplies. Competition from other supply sources as well as competition faced by proprietary handler customers in wholesale markets discipline the cooperative.

7.2.4.4 IMPORTANCE OF PRICE STABILITY

Price stability is an issue discussed by many persons interviewed. Despite articles stressing the societal benefits of price instability,[1] there can be little doubt that some degree of price stability at the farm level facilitates producer, cooperative and proprietary handler planning and improves sub-sector coordination. Price instability, which is often of a very short run nature, can inflict severe costs on proprietary handlers in tight wholesale markets, as accounts can turn on fractions of cents. The loss of a contract by a proprietary handler can have major readjustment impacts on cooperatives who supply the losing and the gaining processor. Farm price instability can cause untimely investment or disinvestment decisions. The federal order system announces a new set of minimum prices each month while many state order systems, most notably California's, move Class I prices only when deemed necessary after a public hearing. More stability but less responsiveness is obtained under the public hearing system. Participants contend that prices always lag on the up side so much that producers have difficulty operating in the short run. The downside lag, it is held, is shorter than the upside one. Over-order prices have as a secondary objective that of reducing the monthly price swings in federal orders. Since producer prices cannot be below order prices,

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[1] See Turnovsky, 1974 and T. Roberts, 1976, p. 45.

over-order prices always act to increase total bulk milk supply costs to customers. They raise the peaks and valleys in price patterns but can never lower the valleys or cut off the order price peaks. Most proprietary handlers agreed that price stability at the retail level was important in maintaining sales and stable farm level prices contribute to it. Major price reductions on fluid milk at the retail level encourage consumption but small decreases seem to have no effect. Additionally, the media stresses price increases and ignores decreases, so a constant price may be the most desirable.

7.2.5 POWER IN BARGAINING RELATIONSHIPS

As noted in Chapter 5, Table 5-8, 68 percent of proprietary handlers surveyed reported paying a premium Class I price. How were these prices determined? Table 7-6 presents the results of a question asked of both cooperatives and proprietary handlers regarding the nature of bargaining for price. The five principal choices run from absolute discretionary control over price by cooperatives to the same total control for proprietary handlers. Sixty percent of the handlers indicated that cooperatives are in control and no real bargaining takes place. Forty-five percent of the cooperatives characterized bargaining as evenly balanced and 10 percent said it usually favored the proprietary handler. Seventeen percent of the handlers called it even and none felt they had the advantage.

These results are supplemented by those in Table 7-7. Scores for five scale questions are presented. Two of the queries were not included in the cooperative questionnaire since their responses could be anticipated. That proprietary handlers definitely feel in an

TABLE 7-6. NATURE OF BARGAINING RELATIONSHIPS, AS REPORTED BY COOPERATIVES AND PROPRIETARY HANDLERS, WHEN PRICES ABOVE THE ORDER MINIMUMS ARE SOUGHT[1]

Type of Bargaining Relationship	Co-ops	P. Handlers
	%	%
The co-op offers a price and a package of terms and the handler must take it or leave it.	21	60
Usually favors the co-op to some degree; some negotiation and compromise occur.	24	14
Balanced evenly between the co-op and the handler so that two-way bargaining does take place.	45	17
Usually favors the handler to some degree; some negotiation and compromise occur.	10	-
The handler informs the co-op of what he will pay and related terms of trade and the co-op must take it or leave it.	-	-
Other	-	8

[1]Respondents were asked to select only one of the six choices.

inferior bargaining position is indicated here. Cooperatives perceive a positive benefit-cost ratio for bargaining but proprietary handlers are uncommitted. Proprietary handlers believe that the standby pool cooperative has improved cooperatives' bargaining strength. Cooperatives do not believe they have squeezed processors' margins to a critically low level and the processors are undecided. Proprietary handlers believe that cooperatives have unduly enhanced price but the results are not overwhelming. This latter result was supported by the processor interviews.

TABLE 7-7. SCALE QUESTIONS DEALING WITH POWER, BARGAINING AND PRICING

Statement[1]	Mean Score[2]	
	Co-ops	P. Handlers
*Proprietary handlers are in a stronger, more powerful bargaining position than co-ops in their dealings together.	2.94	1.85**
*For the entire dairy industry, bargaining between co-ops and proprietary handlers yields marketing improvements which justify the costs of making those improvements.	3.85**	2.85
The Associated Reserve Standby Pool Cooperative has enhanced the cooperatives' bargaining strength.	3/	3.58**
*Dairy cooperatives have squeezed the margin received by processors of milk and dairy products to a critically low level.	1.97**	3.12
In the past five years, co-ops have unduly enhanced price in our market.	3/	3.32

[1](*) indicates mean scores significantly different at 5% level.

[2](**) indicates the mean score is significantly different from 3.0 at 5% level (one-tail test).

[3]Question not asked of cooperative managers.

One large integrated food chain said that they had gotten the management of a large cooperative to admit that they did not have a particularly sound basis upon which to form their price. It was characterized as a unilateral announcement. A cooperative recounted the story of a processor triumphantly telling the cooperative manager that he took the Wisconsin price, added transportation costs and then added on some premium which was designed to reflect the fact that the buyer

would rather buy milk locally than depend on a supply 400 miles away. The cooperative manager confessed that it might not be that sophisticated a system, but that the description was close to how it was done. Certainly today, costs of services performed enter into the pricing equation.

Cooperatives are restricted by competitive pressures from striking a separate deal with each customer and by antitrust laws from bargaining with all processors at the same time. Although little bargaining goes on over price, some communication occurs with respect to it. One member of a regional federated cooperative indicated that when a price increase is to be implemented they invite all their customers to lunch and explain the reasons for the price change. No negotiation takes place but there is an opportunity for the proprietary handlers to express their feelings and to indicate any problems they are going to have in adjusting their wholesale prices accordingly. In some instances the cooperative has modified the timetable to accommodate the buyers. Any antitrust concerns of the buyers are allayed by the purely informational context of the meeting and its voluntary nature.

An Eastern cooperative has used price premiums intermittently during times of low prices to ensure adequate supplies in the Fall. Because of the excellent relationship between the cooperative and their customers, the handlers each in turn voluntarily agreed to pay the premium as long as all the cooperative's customers paid it. The unanimity was accomplished without an edict by the cooperative. It is interesting to note that the cooperative's customers had to compete with the customers of other cooperatives who did not pay a premium. The

proprietary handlers valued their supply relationship with the cooperative and were willing to recognize the cooperative's position.

7.2.6 SUMMARY AND CONCLUSION

This section requires some summary and concluding comments. The idea that an understanding between exchange partners of the concerns of others, common perceptions of situations and relationships and shared information all positively affect sub-sector coordination, is supported by the behavioral climate observed for procurement coordination. Additionally the observed behavior can be evaluated based on the performance criteria previously developed.

Cooperatives which behave as enforcers by flexing their supply control muscles set anti-coordination forces in motion, although in the short run they may secure their organization's goals. Cooperatives which have learned to behave as compromisers and recognize the stake they have in a viable proprietary handler community and the benefits of mutual respect between participants contribute most to sub-sector coordination. This is not to say that conflict will or should disappear between these two groups, but it does suggest that in all but cases of extreme belligerence, the conflict is best handled by reasoned mutual resolution and not by the imposition of unilateral edict by either party. Such enforcing behavior, on the part of cooperatives, may have been necessary when they were struggling to reach a par with proprietary handlers but in most cases now, continued enforcer behavior only antagonizes the proprietary handlers and sets counteracting behavior patterns in motion. Little is served by the cycle that results. It would appear that the sub-sector is approaching a period of growing compromise between these two parties. The only cloud on the horizon is

the growing involvement of cooperatives in bottling activities. Exchange efficiency, equity and price and institutional stability all stand to be served by a climate of understanding, respect and cooperation between cooperatives and proprietary handlers.

Cooperatives and proprietary handlers demonstrated a remarkably accurate understanding of the preferences and pricing behavior of their procurement partners. Many proprietary handlers feel that in many cases the cooperative's price is set to extract what the market will bear. Cooperatives do recognize the problems of their customers in remaining competitive and are willing to go to great lengths to assure a competitive price.

Price stability facilitates planning and discourages costly adjustments which are not justified in the long run. Both groups share this attitude.

Bargaining is perceived by proprietary handlers to be much more unbalanced in favor of cooperatives than cooperatives believe it to be. Control of a major portion of Grade A supplies, the ability to provide quality assurance and related procurement services and ownership of manufacturing/processing facilities by cooperatives limit proprietary handlers' choices and confer bargaining power on cooperatives. What they do with that power is critical. Proprietary handler size, fluctuations in inter-cooperative harmony and the success of NFO and FU all will affect buying alternatives. In the end, both groups need each other. Neither one will disappear or cease to be a major force in the sub-sector, barring unforeseen circumstances.

7.3 AVAILABILITY OF ALTERNATIVE SUPPLIES OF MILK AS AN AREA OF INQUIRY

Dairy cooperatives in a market do not represent the only viable source of supply for proprietary handlers. Buyers in most markets have several alternative cooperative suppliers also available. However, the scale of plant operation in conjunction with federal order provisions does restrict the number of potential sources available to the handler.

What are the limitations to viable supply alternatives for proprietary handlers? How do market order provisions affect availability of supplies? Does the milk procurement function serve a market or individual plants? What reasons exist for buying milk from a cooperative? What incentives exist to have two or more supply sources? What role do independent producers, NFO and FU play in providing supply alternatives to proprietary handlers? Are sufficient alternative supply sources available to provide disciplining competition for a cooperative supplier? These and other questions will be addressed in this section.

7.3.1 LIMITATIONS TO SUPPLY ALTERNATIVES

Proprietary handlers' size restricts their choice of sources of bulk Grade A milk. In the short run there is more flexibility, but large volume dealers cannot tolerate for long the uncertainty associated with buying distressed milk,[1] milk brought in from long distances, erratic quality, fluctuating quantities or unpredictable delivery schedules. The tight scheduling of processing activities, milk's special

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[1]Distressed milk is Grade A milk which is held by cooperatives, proprietary handlers or independent brokers in time of excess supply which must be moved to a buyer so as to incur the smallest loss. In extreme cases some milk may have to be dumped if no manufacturing capacity can be found.

handling requirements, the importance of quality and sales commitments combine to make the quantity, quality, scheduling and consistency of bulk milk deliveries of foremost concern to proprietary handlers. Their supply coordination problems are magnified as their plant volumes increase. To work with more than four or five cooperatives poses nearly as high transaction costs as maintaining a group of independent producers at least for dealers who have some expertise in providing their own supply. For this reason, processors of all sizes prefer to deal with a small number of cooperatives if they are going to buy from cooperatives at all. The integrated food chains and large independent handlers who require 500,000 to a million pounds of milk a day normally prefer no more than two sources[1] for any one plant. The quantities they require and their efforts to minimize transaction costs do limit the number of viable alternative sellers the large proprietary handlers have. In some areas large proprietary handlers are offered no viable choice for a single, stable supply source, especially if the buyer does not wish to develop an independent milk source. However, as will be discussed later, sources of partial supply do exist in most markets and can have significant disciplining effects.

Of course, in some relatively isolated markets, medium or even small handlers may be faced with the same dilemma due to market order boundaries, arrangements between cooperatives, poor credit history, health inspection barriers and the like. The Central Milk Producers Cooperative coordinates the sale of 85-95 percent of all the bulk Grade A milk sold in the Chicago regional market. Although buyers may buy from any of the CMPC member cooperatives, price is administered

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[1]One source may be a group of independent producers.

uniformly and all transactions are handled through CMPC. Some non-price differentiation is possible based on reputation and special services but the buying choices are reduced. Some NFO and FU milk is sold in this market and it, along with competition on the geographical fringes of Chicago dealers' wholesale market, require price concessions in the form of competitive credits.

A scale question asked of both cooperatives and proprietary handlers attempted to get an indication of the extent to which buyers' supply choices were limited to cooperative sources.

SCALE QUESTION:

> Proprietary handlers in our area have no satisfactory source for their milk supply other than dairy cooperatives.
>
> Avg. score, cooperatives = 2.69; significantly different from 3.0 at 5 percent level.
>
> Avg. score, proprietary handlers = 3.36; significantly different from 3.0 at the 5 percent level.
>
> Mean difference significant at 5 percent level.

Proprietary handlers agreed with this statement while cooperatives tended to disagree. This does reflect bottlers' recognition of the dominance of cooperatives in Grade A procurement but also cooperative awareness of the availability of non-cooperative source milk which disciplines cooperative power. This statement is not a measure of the availability of alternative cooperative sources but by referring to Table 5-8 in Chapter 5, it can be recalled that proprietary handlers indicated an average of ten cooperatives selling bulk Grade A milk in their market. When this figure was broken down by size of the proprietary handler it was found that small proprietary handlers indicated only between two and three cooperative sellers in their market. It

would appear that in any well-defined fluid milk market most proprietary handlers (unless severely restricted by size) have between two and four cooperative suppliers from which to choose.

The relationship between cooperative administered prices across areas also affects large proprietary handlers. If a large dealer goes outside the local area to procure milk supplies, the competitive effects can be significant. If spatial price differences are sufficient to entice outside milk in after allowing for increased transportation and service costs, large processors must be wary. Removing a large quantity from the local demand may set in motion a series of geographical price adjustments between cooperatives such that the effective local blend drops to at or below the net price offered by the more distant supplier. Large proprietary handlers may find themselves trapped in a supply situation which puts them at the mercy of other local processors enjoying the reduced blend and the local cooperative who can work with the geographical price difference. This possibility reduces the options of large processors and encourages the use of the voice option with the local cooperative.

Pooling requirements under federal orders can affect the availability of alternative supplies in both directions. Pooling requirements are minimum Class I sales percentages which proprietary and cooperative supply plants must satisfy in order to classify as pool plants and thereby qualify to share in Class I sales in the order. These performance requirements as they are often called vary between orders and are instituted to ensure the handlers' commitment to serve the Class I market. If performance requirements are tight (e.g. requiring 15 percent Class I shipments in the Fall by the combined plants of the handler but

not for each individual plant in the unit), then cooperatives may be anxious to sell large volumes for Class I use on a regular basis in order to qualify their manufacturing plants.[1] Under such conditions finding a cooperative supplier willing to provide all the Class I needs of a proprietary handler may be easy. In other areas where marketing and operating cooperatives are prevalent and pooling requirements are very loose (e.g. shipment of 45,000 pounds of milk per year to a qualified distribution (bottling) plant to qualify on the federal order) the transaction costs of milk procurement for a proprietary handler can be high. Consider the case of a medium-sized processor bottling and selling fluid products in Federal Order 68--the Upper Mid-west order. Since the consolidation of all or part of five orders and inclusion of some previously unregulated milk into federal order no. 68 in June 1976, this proprietary handler has had difficulty procuring milk in a coordinated fashion. Under the new order, the pooling requirements were so low that no single cooperative wished to supply all of this bottler's needs. Previously they had a full supply arrangement with a major cooperative but now they must rely on between six and thirteen separate cooperative and proprietary supply plant sources each month. Supply plants both cooperative and proprietary would rather leave the milk in their plants than service the Class I market and the liberal performance standards allow this. Consequently, this proprietary handler has had to scramble to procure bulk milk, scheduling problems have

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[1]The situation in the Chicago market is a very complex one. Here elaborate inter-cooperative and cooperative-proprietary cheese plant relationships exist to qualify supply plants. The interested reader is referred to Deiter, 1977 for a thorough discussion of the arrangements in the Chicago market.

often arisen and quality problems have been harder to track down and correct. Replacing rejected milk has also been difficult. Under terms of all federal orders the market order administrator can raise the pooling requirements (a call provision) during periods of short supplies when the Class I market is not being served, but this is usually not done until the situation is severe. In the meantime exchange efficiency is reduced for the entire system and for the proprietary handlers affected. Liberal pooling provisions are becoming more common as equity is stressed for all Grade A producers and handlers. All who produce or purchase Grade A milk wish to share in the receipts from the limited Class I sales and draw from the revenue pool if their Class I usage is below the marketwide average. But also in the interest of equity and exchange efficiency, performance standards have been imposed to require some commitment to the Class I market if a handler was to share in Class I revenues and to provide for adequate, readily available quantities for processors. There is a trade-off here, however. As pooling requirements are tightened to require more commitment to the Class I market, often needless milk movement between supply and distributing plants[1] is set up simply to qualify the supply plant whether the milk

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[1]In federal order terminology, a supply plant is one which receives Grade A milk and manufactures/processes it or routes it to another manufacturing/processing plant. A distributing plant receives Grade A milk, processes fluid products and disposes of these products in routes in consumer-type packages. A pool plant is a plant which qualifies under the order rules to share in Class I sales revenue by virtue of its service to the Class I market. The rules are complicated and differ between orders but distributing plants are pool plants if they process and sell on routes at least 50 percent of the Grade A bulk volume they receive. The balance of their received Grade A volume can be resold in bulk or manufactured into non-fluid products. Supply plants qualify as pool plants if they ship a specified percentage of their received Grade A volume to a qualified distributing plant.

is needed or not. Federal order loopholes have existed from time to time which allowed the pumping of milk immediately, or after a short delay, back into the same tanker that brought it to the processing plant. It is then hauled back to the supply plant it originated from and this volume contributes to the supply plant's shipping requirements. Other equally needless hauling schemes to qualify supply plant milk have been devised as order rules are amended. Exchange efficiency is reduced in these cases. The debate continues over the equity question of the level of Class I responsibility necessary to earn supply plants a share of Class I sales. Decision-makers need also to weigh the wasteful transportation incentives created by requirements which are too rigid against the increased transaction costs of minimal ones.

An issue which surfaced several times during the interviews with cooperatives involved their procurement responsibility to individual proprietary handlers and to the entire market. This issue at least tangentially involves the subject of alternative supplies and does have profound coordination consequences. The issue involves the effects of dairy product sales decisions by large proprietary handlers (particularly integrated food chains) on the welfare of cooperatives in their sales area and the incidence of coordination responsibility within the subsector. The problem is best presented with an actual case.

Under federal order provisions the distributing plant qualifies as a pool plant in whichever federal order it has most of its fluid milk sales (route disposition). Large distributing plants, particularly those serving the plant's own food store network often sell fluid products in two or more federal order areas. If sale's proportions change between order areas, all the milk going into the distributing

plant can be shifted from one federal order to another. Such a shift was imminent in the summer of 1977 involving a Mid-west food chain distributing plant and two federal orders. The food chain handler calculated that his raw product costs and the total Class I revenues due producers would be nearly identical regardless of which order their plant qualified in or which of two cooperatives supplied them milk. The processor was correct in this assessment but only to the extent that he could be successful in diverting all responsibility for necessary logistical adjustments and inter-cooperative distributional impacts to the two principal cooperatives involved. The size of the distributing plant is what gives rise to the severity of the adjustment problems. The food chain suggested that they needed to play a coordinating role in bringing about needed adjustments between the cooperatives to provide for continuity, harmony and to ensure that they continue to have a reliable milk supply. Cooperatives observing the situation suggested that certain costs to the affected cooperatives would change depending on where the milk was pooled. Spatial price surfaces created by the two federal orders would also cause distributional affects. The resolution of which cooperative will supply the plant and in what quantities, how prices are to be aligned and who will bear the costs and lost revenues associated with the adjustment is a difficult task. If the cooperatives' role is to serve the proprietary handler then they are justified in expecting some compensation from the processor or some other form of acceptance of responsibility for the effects of his high volume plant and associated sales patterns. If the more relevant role for cooperatives is judged to be serving the market, then the adjustment costs are not the particular processor's to bear alone but more

appropriately the entire processing industry. In either case these are procurement costs which the entire sub-sector, meaning ultimately the consumer must bear. Such inter-order coordination problems brought on by the increasing size and marketing area of participants are largely responsible for the trend toward federal order consolidations. As recently as 1974, 60 federal order markets existed. By January 1977, the number had dropped to 50 [Dairy Division, USDA, 1977].

7.3.2 REASONS TO BUY FROM A COOPERATIVE

Several of the reasons proprietary handlers choose to buy from cooperatives have already been alluded to. These will be elaborated on and supplemented with other points.

Eighty-eight percent of the proprietary handlers surveyed indicated that they bought at least some of their milk supplies from cooperatives (Table 5-8). Table 7-8 details the principal reasons given by proprietary handlers for buying from a cooperative. Proprietary handlers say they buy some milk from cooperatives primarily because they have no other viable choice. They also deal with them for their services and the lower procurement costs (transaction costs) associated with buying from many independent producers. It may have been true in the past, but the results of this question clearly demonstrate that the decision to buy from cooperatives is not made out of fear of recriminations. This contradicts the findings of Masson [1976], T. Roberts and Lenard.

The reason for not doing so given by those few proprietary handlers surveyed who did not buy any milk from cooperatives was satisfaction with independent producers as a supply source. There were so few who qualified to answer this question that the results are not reported

TABLE 7-8. REASONS GIVEN BY PROPRIETARY HANDLERS FOR BUYING BULK MILK FROM COOPERATIVES

Reason	Important[1] (%)	Most Important (%)
For a particular service or group of of services they provide.	23	13
For fear of recriminations by the co-op.	3	2
They are the only supplier(s) in the area.	59	53
We do not want to have to worry about individual farmer-shippers.	22	10
They have the most preferred shippers as members.	5	-
The quality of their milk is consistently high.	14	5
Other	20	17

[1]Respondents could choose more than one reason.

in tabular form. The reader is referred to Appendix C, Question 37 for the other choices offered with this question.

Proprietary handlers buy from cooperatives for the reasons noted in Table 7-8. As long as cooperatives offer a competitive price, consistently deliver top quality milk in the large volumes required and reduce transaction costs for the buyer they will be the major supply source. In any fluid milk market, if cooperatives' pricing behavior fails to remain competitive, their bargaining behavior becomes unreasonable or their vertical integration activity produces conflict, incentives will exist for proprietary handlers to develop their own supply.

If member net prices are depressed over a year or more due to poor management or "free rider" problems, cooperative membership will drop. Many of these producers will remain independent and reduce the volume controlled by cooperatives. Proprietary handlers in some markets, particularly in the Northeast stand ready to take on these producers as independent shippers.

7.3.3 CHOICE OF THE NUMBER OF SUPPLY SOURCES

Approximately half of the proprietary handlers surveyed purchased their total supplies from one cooperative. What are some of the reasons for maintaining a sole source of supply and similarly, multiple suppliers?

Numerous proprietary handlers interviewed preferred two or more supply sources for the bargaining leverage it afforded them. If multiple suppliers were already established each furnishing a partial supply, the threat of switching a greater proportion of the business to one or the other of the cooperatives, served to discipline the performance and bargaining demands of all the cooperatives. This is most often used with a cooperative supplier furnishing the majority of the needs and NFO, FU or independent producers supplying the balance.

A conglomerate, independent proprietary handler described their strategy of diffusing cooperative power by maintaining at least two suppliers at each of their plants. If they were to buy their total needs from one cooperative they would be foreclosing an outlet for minor cooperatives. Foreclosure could force the merger of these smaller cooperatives with the largest ones and further concentrate cooperative power. This same handler noted that his firm is unable to encourage

any competition among the three largest cooperatives because their marketing areas do not overlap to any significant degree.

Some cooperatives suggested that proprietary handlers prefer to buy from a medium to large size cooperative in addition to regularly buying from small cooperatives and/or independent producers, because they can use the largest cooperative as their residual supplier. This cooperative alone bears the supply balancing and reserve and surplus disposal costs for the buyer. The other suppliers "free ride." This buyer behavior has prompted some cooperatives to call for supply arrangements to penalize such buyers for disproportionate changes in purchased quantities between the several suppliers or enjoin them from engaging in such conduct.

Some proprietary handlers choose a single cooperative supplier for improvements in exchange and operating efficiency realized due to better scheduling of deliveries, closer quality accountability, reduced transaction costs and increased cooperative concern for full supply customers. Although no buyers suggested discrimination against partial supply customers by cooperatives, several noted that cooperatives seem to pay particular attention to their full supply customers. This type of cooperative behavior is most characteristic of the compromising behavior mode. It suggests that full supply arrangements need not lead to seller complacency and buyer vulnerability.

7.3.4 ROLE OF INDEPENDENT PRODUCERS

As pointed out previously, independent producers are a viable source of supply for many proprietary handlers. Their use by processors forces cooperatives to maintain competitive prices to their members lest they leave the cooperative. Their existence provides a means for

processors to counteract over-order premiums and discipline other facets of cooperative procurement behavior. The number of independent producers and the volume they represent need not be large to have a significant effect on cooperative behavior. In certain situations proprietary handlers need not actually receive any independent producer milk to derive its disciplining benefits. The potential for this supply source is threat enough.

Proprietary handlers often express a preference for independent producers because their supply source is not under the control of one or two organizations. Processors in these situations have more short run supply control by virtue of their power. Of course this was the inequitable situation which cooperatives sought to address in some areas prior to mid-1960's when cooperatives gained impetus as a countervailing force to proprietary handler control over producer-first handler exchange. Then, as now, federal and state marketing orders provided minimum price guarantees for all producers in many markets. Although proprietary handler behavior is often judged satisfactory by many independent producers, magnanimity may be less responsible for this than is the existence of a practical marketing alternative for independent producers--dairy cooperatives. They discipline each other.

Cooperatives often charge independent producers with free riding on the successes of cooperative bargaining and inflicting a disproportionate share of the balancing and disposal costs on the cooperative. Proprietary handlers are loath to terminate or reduce purchases from independent producers when demand drops or supplies increase because of the adverse effect on their desirability as buyers and the resulting increase in the merits of cooperative membership.

Proprietary handlers use independent producers to keep cooperative suppliers attentive to their needs and to counteract over-order premiums. Premiums may be reduced by competitive credits when independent producers are willing to sell below the premium price, but the most significant use made of independent producers is for the purpose of circumventing premium prices.

Consider the following example. If the Class I premium charged by a cooperative in a market with 50 percent Class I utilization is 50¢ per hundredweight, a 90 percent Class I utilization proprietary handler can often entice enough previously independent producers or cooperative members away from the cooperative by offering a 35¢-40¢ private premium to anyone who ships to them. A 50¢ premium in a 50 percent utilization market is worth only 25¢ per hundredweight on the blend price but a 90 percent utilization handler can offer up to a 45¢ premium in this case and incur no additional costs over the cooperative premium (90 percent X 50¢). Producers would receive a higher blend price, however, than under the cooperative plan and so would have an incentive to become or remain independent. With a 40¢ private premium by this processor, producers would receive a blend price above the order minimum of 36¢ per hundredweight (40¢ X 90 percent) compared to 25¢ by being a cooperative member. This form of producer behavior of course, gives rise to cooperative charges of free ridership.

Some proprietary handlers choose to have no independent producer suppliers for reasons previously discussed.

7.3.5 ROLE OF NFO AND FU AS BULK MILK SUPPLIERS

National Farmers Organization (NFO) and National Farmers Union Milk Marketing Cooperative (FU) have philosophical, structural and

behavioral differences but their affect on the competitive environment for bulk Grade A milk is similar in most markets. Both are general farm organizations first and milk bargaining cooperatives second.[1] They are unconventional suppliers who provide yet another type of supply alternative in many markets. Their effects on over-order premiums and their use as a general disciplining force on conventional cooperatives are identical to that of independent producers. They have an advantage over independent producers from the buyers' standpoint, however, because they can deliver fairly large quantities in some markets and like conventional cooperatives, reduce some transaction costs of milk procurement for buyers. NFO and FU do provide many of the same handler services that other cooperatives do but without facilities contribute very little to marketwide responsibilities associated with procurement. Additionally, conventional cooperatives contend that NFO and FU charge lower member dues and other assessments than they must charge because NFO and FU free ride on conventional cooperatives' services to all producers. These include sales promotion, research and development funding, lobbying activities, maintenance of federal and state orders, education of producers and consumers regarding marketing problems and the like, all of which are costly to provide but whose effects are non-exclusionary in nature.

The disciplining effects of NFO and FU are often used directly by a buyer when they furnish a partial supply to a plant. On other occasions, a proprietary handler need not buy from them to reap their effects. Competitive credits may be enjoyed or the level of the overall

[1]There is some question as to whether NFO is a legitimate Capper-Volstead cooperative, but the Dairy Division of USDA has accorded them this status for federal order purposes.

premium reduced as a result of NFO or FU presence in a closely coordinated market such as that created by CMPC in Chicago. Often the choice for a proprietary handler wishing an alternative supply as a competitive factor for conventional cooperatives is between NFO/FU or independent producers.

These two organizations have typically sold milk at 10¢ to 20¢ per hundredweight under prevailing over-order prices except in cases where Class I supplies were scarce, such as in the upper Mid-west order where loose pooling requirements caused cooperative and proprietary supply plants to keep their milk at home. Most proprietary handlers interviewed who had experience with these organizations admitted the necessity of a price concession to compensate for quality and service deficiencies and inconsistencies when buying supplies from NFO or FU. However, they contend that the value of competitive pressure on conventional cooperatives is worth some foregone quality or service level and the uncertainty created by their sometimes erratic behavior and unpredictable delivery schedules.[1]

7.3.6 HORIZONTAL COORDINATION AT THE FARM LEVEL

Marion [1976-c, p. 192] suggested that a necessary condition for vertical coordination in a sub-sector was a high degree of horizontal coordination in one or more industries. If an industry within the sub-sector is not coordinated, then it would be only by chance that the uncoordinated actions of individual firms in the several industries of the sub-sector would produce a vertically coordinated system. A

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[1] It should be noted that proprietary handlers and conventional cooperatives found FU's marketing approach to be more compatible with and encouraging of coordination and their quality and service record superior to NFO's.

vertically integrated firm might be tightly coordinated through all sub-sector stages, however, other firms need not be, such that the total sub-sector would not be synchronized. Under assumptions of the perfectly competitive model, price guides the resource allocation decisions of individual units to yield a coordinated system, however, with the imperfections in structure observed for this sub-sector price cannot be expected to perform this function alone. Marion argues that horizontal coordination achieved by concentration within an industry, coordinating institutions (cooperatives or federations of cooperatives for example) or specially designed exchange arrangements which facilitate planning, can facilitate vertical coordination.

Because of their position in the vertical system, the rights conferred on them under Capper-Volstead and their stewardship of the federal and state marketing order programs, cooperatives appear to be prime candidates to provide such horizontal coordination at the farm production and milk procurement stages. Although cooperatives do contribute to horizontal coordination of their industry, especially with respect to quality, timing and location, it is far from complete. Closer horizontal coordination will occur with concentration of supply control in the hands of synchronized cooperatives. Acceptable performance need not be incompatible with horizontal coordination, however.

What factors currently reduce cooperatives' effect on horizontal coordination? The guarantee of a market which is an integral part of their basic philosophy may encourage surplus production. In addition, two factors encourage inter-cooperative competition which often reduces the degree of horizontal coordination attainable. Differences in producers' philosophical approaches to milk marketing and different

supply-demand conditions between regions discourage consensus formation and unified marketing-bargaining strategies between cooperatives. Secondly, the effect of independent producers on cooperative power can encourage inter-cooperative competition. Two large cooperatives currently face this. One is experiencing a growing membership disenchantment due to low blend prices. The other one is torn between support of its sister cooperative and the erosion of cooperative control if those producers sign as independent producers for proprietary handlers.

The growth and influence of large regional cooperatives is often blunted by strong differences in members' preferred marketing strategies caused by differences in supply-demand conditions and traditional modes of cooperative behavior between markets. This situation is often seen when decisions are reached within cooperatives regarding whether to acquire manufacturing facilities, seek over-order prices or join cooperative federations.

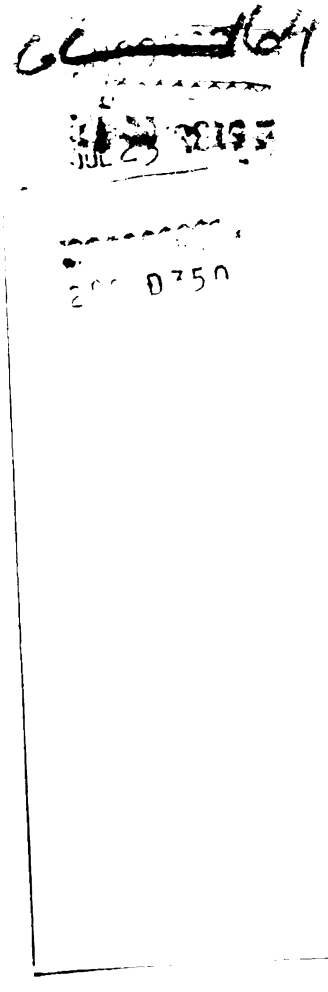
One cooperative manager defined market power as the ability to affect the preferred over-order price in the face of competition from other supplies. Although some free riding on cooperative negotiated prices does occur, with the number of buying outlets shrinking and milk supplies increasing, incentives exist for price competition between cooperatives and between cooperatives and other sources. As this section was designed to show, cooperative power as defined above is not the dominant factor in many markets that it is often believed to be. Even in a market as dominated by compatible cooperatives as the Chicago regional market, the existence of small supplies available from NFO, FU, independent producers and even cooperatives in other regions reduces over-order premiums.

The non-exclusionary nature of many services provided by cooperatives further reduces the degree of horizontal control they can exert.

The performance implications of this lack of horizontal coordination are important. Cooperatives' procurement services and supply arrangements have affected resource allocation within the sub-sector as proprietary handlers avail themselves of the exchange efficiencies associated with cooperative involvement in procurement. Quality, location and timing coordination are markedly increased through the activities of cooperatives in most instances. However, farm level resource allocation has not been atuned to quantity signals (commercial demand).[1] The guarantee of market which is the essence of cooperatives' operating philosophy has discouraged production discipline. The existence of alternative supply sources discussed previously is a manifestation of the lack of control which hinders improved quantity coordination. Most U.S. market structure policy is directed toward diffusing control and power by maintaining competition but monopoly or oligopoly structure need not signal an inexorable march toward undesirable performance. It can facilitate horizontal and vertical coordination. This section has tried to show that a large number of supply sources is not necessary for market discipline, even when significant power is vested in one or a unified group of cooperatives by virtue of the supplies under their control. Other structural parameters such as the number of buyers, perishability of the product, wholesale competition and marketing orders also affect pricing and procurement behavior.

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[1]Although cooperatives may have exacerbated this situation in many cases, it is true that they have offered sufficient ex post coordination to avoid product waste as surplus Grade A production has been manufactured into price support commodities.



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Cooperative pricing and general marketing behavior is effectively disciplined in most cases by few alternative suppliers--cooperative and other types. Sufficient regional differences and inter-cooperative competition exist to preclude significant, unchecked monopoly behavior in most instances. NFO and FU do inject some disharmony by their free riding activities and unconventional behavior but do serve a useful disciplining purpose. Independent producers will probably never disappear completely as long as farmers retain their independent spirit and some proprietary handlers want an independent supply source and are willing to treat those producers fairly.

Policy implications of these observations include the suggestion that a large number of bulk Grade A milk sellers is not required for their effective discipline because of approximate equality in buyer-seller size and power as well as other structural parameters such as an effective information network regarding alternative supplies.

7.4 PROCUREMENT SERVICES AS AN AREA OF INQUIRY

Marketwide services such as disposing of Grade A reserves and surpluses and coordinating Grade A milk markets plus services associated with bulk milk procurement such as scheduling and directing deliveries, handling producer transactions and providing flexible exchange rules can be positive coordination factors. The degree will depend upon (i) the quality of their provision, (ii) whether compensation for such services is adequate from the cooperative's viewpoint and reasonable and equitable from the proprietary handler's perspective and (iii) whether these services are freely provided and accepted.

Cooperatives provide services to their proprietary handler customers which are directly associated with the milk purchased. These are

called handler services and include paying haulers, writing producer checks, providing supplemental milk, etc. They were discussed extensively in Chapter 5. The type of service that marketing and operating cooperatives frequently provide is related to procurement but is not directly associated with any particular volume of milk. The effects of these services normally accrue to all proprietary handlers, cooperatives and producers regardless of their intended beneficiaries. For this reason they are called marketwide procurement services. By their nature they often give rise to problems for the providers in collecting adequate payment and for both providers and recipients of devising equitable cost sharing plans. Cooperative providers of marketwide services such as reserve and surplus disposal, frequently charge that other sub-sector participants are free riding on the cooperative's efforts. This charge may mean that the cooperative is not being adequately compensated and/or there are some participants who are benefiting without sharing in the cost. Both cases raise equity problems. Carley identified other marketwide services often provided by cooperatives such as research, educating producers and testifying at order hearings but these are not procurement-related services and therefore, will not be discussed here. Services provided only for members of cooperatives will also be excluded. The following presentation will deal with handler and marketwide procurement services.

7.4.1 MARKETWIDE SERVICES

The major issue involves management and disposal of Grade A reserves and surpluses. All other procurement service issues pale in importance as a coordinating issue. If markets are to be balanced, disposal of milk not needed in Class I products must occur. The first

issue is whether or not reserve and surplus disposal is a service as cooperatives insist or a monopolizing strategy as suggested by Masson and Eisenstat et al. Owning or having access to manufacturing facilities and operating them for reserve and surplus disposal both serves the market and increases cooperative market power. When cooperatives grow they must have facilities to dispose of the larger share of the Grade A reserve and surplus milk they account for. Their increased member volume must be sold and they cannot rely solely on the availability of non-cooperative facilities or the returns that result. So to control more supply and thereby gain market power cooperatives must not have to dump large volumes of reserve and surplus Grade A milk on the procurement market because it would undermine over-order price attempts and result in low returns from such distressed sales. In addition, if cooperatives want to be the majority or sole supplier for a proprietary handler, then they have to be able to handle the reserve and surplus supplies which would otherwise be borne by the producers as independent shippers or by the proprietary handler. If a cooperative must rely on a buyer for a market outlet then the cooperative has little bargaining strength. The buyer can call the cooperative's bluff. If on the other hand, the cooperative can manufacture the volume it is proposing to regularly sell to the proprietary handler, the buyer realizes that the cooperative has another way to handle the continuous, daily production. The cooperative can manufacture the milk and sell it commercially or to the Commodity Credit Corporation if the cooperative is equipped to produce price support commodities according to government specification. The marketwide pooling provision in almost all federal orders removes some incentive for the cooperative to retain Class I

markets because as long as fluid sales are made, all producers in the market share proportionally in the returns. Of course to the extent that a cooperative receives an over-order premium, those receipts remain exclusively within the cooperative which does provide some incentive to get and keep Class I customers. In certain short run circumstances manufacturing facilities may be used to make a bargaining point. Normally, however, they serve as deterrents and to handle actual, regular reserve quantities or meet emergency situations within a market.

The use of manufacturing facilities to gain market power is recognized and understood by both groups of participants. It allows cooperatives to balance the power of proprietary handlers acquired by virtue of their size, facilities and milk's perishable nature. The power can be abused and Capper-Volstead and antitrust legislation provide two means to prevent its abuse. Supplies from non-traditional cooperatives and independent producers also furnish some discipline on this power as does inter-cooperative competition. Proprietary handlers are doing less and less reserve and surplus milk disposal which is an integral part of market balancing. The manufacturing operations of most bottlers concentrate on non-price support commodities. Many proprietary handlers, especially food chain handlers, want no procurement responsibilities whatsoever. Their operations depend on the disposal activities of cooperatives. In addition, as shown in Table 7-9 nearly 90 percent of all proprietary handlers surveyed wanted cooperatives to continue their marketwide activities. Two-thirds to three-quarters of the buyers believed they benefited from these cooperative activities. But there is still a problem. It involves equity, exchange efficiency and marketing stability. The problem is cooperatives' dissatisfaction

Table 7-9 Proprietary Handler Attitudes Toward Marketwide Procurement Services Provided by Cooperatives

	Service		
	Manufacture Grade A Reserves and Surpluses	Dispose of Reserves and Surpluses to Other Plants	Balance Supplies by Various Means
	Percentage Responding Affirmatively		
Does it benefit proprietary handlers?	67	70	77
Do proprietary handlers pay for it in any way?	66	66	74
Should cooperatives continue to do it?	87	89	88

with the terms under which they provide these services. This is a problem only if the reader accepts, as does this researcher, that disposal is not just a power-grabbing strategy. It also serves a necessary coordinating function. In the interests of exchange efficiency and marketing stability, it will be argued that more equitable means of financing the provision of these marketwide procurement services by cooperatives should be found. Keep in mind that the concern for abuse of power associated with supply control via ownership of reserve and surplus disposal facilities is not gone. Their conduct must be monitored as it has been by the Justice Department and the Federal Trade Commission. The three civil actions against the major dairy cooperatives have had a profound effect on the attitude and conduct of all dairy cooperatives. Care must be taken, however, to ensure that structural and behavioral prescriptions do not preclude the real sub-sector efficiencies possible with a strong cooperative community.

The essential elements of cooperatives' concern are these. If proprietary handlers expect to turn over more marketwide procurement responsibilities to cooperatives, then they must be adequately compensated for successfully performing the required tasks. Adequate compensation to those cooperatives interviewed was payment for costs incurred in building, operating, maintaining and under-utilizing manufacturing facilities plus associated routing and handling costs. No cooperatives expected service charges to do more than cover the costs of making available and operating the facilities. Some economists [Masson, Eisenstat et al., Robert, Lenard] and some proprietary handlers would suggest that over-order premiums provide more than adequate compensation for reserve and surplus disposal. Although this may be true, it is not always so and furthermore this researcher believes that this form of financing of marketwide or handler services does not maximize exchange efficiency, equity or marketing stability relative to other methods. One reason that paying for Grade A disposal and other marketwide services out of over-order premiums causes difficulties is that handler services may have a partial or total pre-emptory claim on such revenues. Additionally, such premiums may be economically justified to elicit desired on-farm production and should not be diverted from producers to pay for a service that is not the responsibility of the producer. It is believed that producers whether members of a cooperative or not should not bear the costs of disposal of normal or unavoidable Grade A reserves. Incentives (positive or negative) could be offered to producers to discourage surplus production and to assign responsibility for disposing of any surplus production to the accountable producers. Such a system, if well-conceived, could be expected to improve quantity

coordination. Another related problem arises if over-order monies are relied upon to compensate cooperatives for reserve or surplus disposal but such revenues are not collected because competitive credits must be granted.

Another reason for not using over-order premium financing is the lack of information this method conveys to buyers vis-a-vis their competitive position with other proprietary handlers. Numerous bottlers interviewed preferred the information communicated by a specific service charge or set of service charges. Without this information buyers cannot separate the raw product cost from associated procurement costs and assess the competitiveness of their price. This is equally true of handler services.

The third reason is the most important one. It is based on a concern for equity and the costs to be borne by the sub-sector if cooperatives are forced out of disposal activities. If over-order premiums pay for marketwide services, then only those who buy from cooperatives pay. Compensation for marketwide or handler services out of over-order premiums also assesses each buyer equally on a hundredweight basis regardless of the particular services needed or requested. Such financing can lead to subsidization of some buyers by others. Furthermore with a constant marginal premium those who buy more of their milk supply from cooperatives pay more than those who buy less, creating an equity problem between cooperative customers. It should be noted that this method of payment exacerbates the problem of disposal responsibility by charging those who buy a partial supply from the cooperative less than the total costs borne by those purchasing a greater percentage of their needs from a cooperative. Cooperatives argue that a

payment scheme should be designed in the reverse manner. This will be discussed further later.

One large cooperative has adopted the policy of charging a service charge for marketwide and handler services above the order minimum price and if justified and possible a separate over-order premium. This plan works for this cooperative because it has substantial supply control. Prior to this recent change in policy, the cooperative relied on the over-order premium to cover their service-related costs. They experienced problems in returning a competitive price to their members in areas with significant independent producer supplies or where other cooperatives provided fewer services. The other suppliers would obtain the large cooperatives' premium price but incur less costs such that these producers would receive a higher blend price. The large cooperative experienced a loss of membership.

If marketwide activities are paid for by a separate service charge, all the problems previously assigned to over-order revenue financing disappear except the final equity argument. Service charges still have to be collected and if collected, not all proprietary handlers have contributed--only those who buy from the participating cooperatives. Cooperatives which provide marketwide procurement services contend that those who fail to pay their share of the costs of these services are free riding. These cooperatives are arguing for compensation based on what they do. If a buyer wants to buy only 30 percent of needed supplies from a full service cooperative which has service charges established and the other 70 percent from other sources who do not dispose of reserves and surpluses, then the cooperative

expects to be responsible for only 30 percent of the disposal activity or be paid for assuming more responsibility.

Some supply arrangements specify proportional reductions in purchases from all suppliers such that all bear pro rata disposal shares. Another approach is to charge a special assessment on all milk bought by a particular buyer from the cooperative in the Fall (when supplies are short) which exceeds the proportion of total needed supplies purchased from that cooperative in the Spring (when supplies are abundant). Still other plans specify differential charges depending on how much disposal the cooperative does. All of these solutions, however, require buyer magnanimity or cooperative power for effective implementation.

If a cooperative is adequately compensated from whatever source for services rendered, interview discussions indicated that their competitive concerns would be alleviated. Apparently, however, they are wary of solutions which preserve inequities between proprietary handlers because they indicated agreement with the following statement. Proprietary handlers expressed no strong opinion.

SCALE QUESTION:

> If the cooperative is completely paid for the services they provide to handlers or the entire market but there are some handlers who have benefited without contributing to the cost, these handlers should somehow be made to contribute their share.
>
> Avg. score, cooperatives = 3.82; significantly greater than 3.0 at 1 percent level.
>
> Avg. score, proprietary handlers = 3.16; not significantly greater than 3.0 at 5 percent level.
>
> Mean difference significant at 1 percent level.

Cooperatives who claim they are being taken advantage of normally cast independent producers or non-traditional cooperatives as the villains. Still others charge proprietary handlers who buy from these sources as the free riders. Clearly the non-exclusionary nature of these services creates an unavoidable climate for private behavior by producers and proprietary handlers of the type called free riding. No one is to blame. Although villains can be spotted, they are only acting in their own short run economic best interest. If stability is to be maintained and equity and exchange efficiency fostered, some public sector involvement will be required.

Some economists such as Masson, a few proprietary handlers and even one of the non-traditional cooperatives have suggested that the market should be allowed to work. If a cooperative with manufacturing facilities cannot operate them profitably, they should go out of business and take their losses. They argue that often charges of free riding are cooperatives' efforts to avoid disciplining competition. Certainly if a cooperative is poorly managed it should be subject to termination at the hand of the market as any business would be. But if their losses are the result of inequities created by the non-exclusionary nature of an activity which is most efficiently performed at this stage in the sub-sector and by management units controlling larger volumes than do proprietary handlers, should these cooperatives be forced out of business--especially when a significant segment of the proprietary handler sector desires cooperatives to continue these activities? Cooperatives should not be protected from competition. Their charges of free riding on their over-order prices or undercutting their prices are not justified unless their competitors for bulk milk sales

are assuming less market responsibility. If a cooperative is performing a marketwide service in a well-managed manner should it be penalized by the market because it cannot capture all the benefits of its activities or obtain adequate compensation? It may not be in the best interest of sub-sector organizational efficiency [Marion, 1976-e, p. 6] to allow them to be penalized.

In the absence of major concentrations of market power in the hands of cooperatives in a market area which government regulators and proprietary handlers do not want to see, cooperatives will not be able to secure consistently adequate compensation for these marketwide services. In previous sections of this chapter, it was shown that cooperatives can be effectively disciplined by a relatively small number of alternative suppliers. In these cases, service charges or over-order premiums cannot be maintained and losses can accrue to the affected cooperative who has invested in facilities for marketwide disposal and supply management.

During the course of the personal interviews it was observed that in the West, particularly California, and in the Northeast, particularly New York, service charges were not continually collected and neither were they always adequate to cover costs. In both of these regions independent producer supplies are large and proprietary handler competition strong. Proprietary handlers understandably use the independent supplies to keep service charges paid to cooperatives down. The situation is more critical to cooperatives in the Northeast who have made large investments in manufacturing facilities and who are larger than cooperatives in the West and so have to assume more of the disposal responsibility as bottlers pick up independent producers.

In California, cooperatives are smaller and have not invested in manufacturing facilities to the extent found in the Northeast. Proprietary handlers in the West have traditionally done most of the disposal themselves so cooperatives have not had to get heavily involved. However, to the extent they have done some disposal and supply balancing they have had little success at getting service charges because of their lack of supply control. With the recent growth in production, particularly in Southern California, cooperatives there have begun to invest in disposal facilities not so much as a bargaining device but rather to avoid the huge losses associated with shipping milk out of the area for manufacture or dumping it if no manufacturing outlet can be located. Their growing responsibility has come about not only as a result of the growing surplus but also because of increasing reliance by food chain handlers on cooperatives for full service procurement. The older independent proprietary handlers in the West are losing the fluid sales to the integrated food chains who do not want to be concerned with disposal.

It is more efficient from the standpoint of sub-sector organization to have reserve and surplus milk disposal done by cooperatives who can better schedule milk movements and who can better coordinate the entire activity over a larger volume of milk than can proprietary handlers who for the most part manage smaller supplies. Cooperatives, especially if they can work together, can build and operate more efficient-sized plants as well. In addition, in most markets with the exception of some in the Northeast, food chain handlers are relying on cooperatives to perform disposal and supply management and handler services as well. Cooperatives will have the responsibility in these

cases. Without some public provision for the collection of equitable and adequate compensation for marketwide services for which the entire sub-sector bears the costs, cooperatives will either falter and the responsibility will fall back in the proprietary handlers' laps or the cooperatives will amass more market power in an attempt to demand adequate compensation. Any plan which is developed should compensate any cooperative or proprietary handler for the marketwide services which they perform.

One federal order (New York-New Jersey area) currently provides for cooperative payments from the order pool financed by all producers to compensate the qualifying cooperative for performing primarily non-procurement related marketwide services (those benefiting producers directly such as testifying at order hearings, education and information) although a token payment is made for disposal [Market Administrator]. Most other federal orders authorize an assessment on independent producers payable to the market administrator which is used to defray costs of verifying weights and tests, providing information and education services which cooperatives normally provide for their members [Dairy Division, 1977, p. 7]. This plan, however, does not address reserve and surplus disposal costs. Machinery exists through the federal order system to institute a plan to equitably assign disposal costs and insure the adequacy of compensation. Some precedent exists in New York-New Jersey for payments to cooperatives for such services, however, it would appear that the source of financing is misplaced. Some general suggestions for the design of a plan to compensate those who provide reserve and surplus disposal will be presented in Chapter 8.

It should be noted again here that concern for the possibility of abuse of the power conferred on cooperatives by virtue of their ownership of manufacturing facilities is not dismissed. Continued monitoring by authorized agencies is appropriate and a more complete understanding of the importance of this service, the problems created by its non-exclusionary nature and the ramifications of cooperative failure to provide it are important for sub-sector participants, researchers and regulators.

7.4.2 HANDLER SERVICES

The provision of services directly associated with the supply of milk delivered to a proprietary handler are not subject to the same equity concerns since these are normally exclusionary by type. Nevertheless because of differences of opinion over the cost or value of such services between cooperatives and proprietary handlers, there are problems over the level of compensation. In some cases, cooperatives try to obtain charges in excess of the full costs of the service and may succeed if they enjoy a relative advantage in market power over the buyer. In other cases when the power relationship is reversed, cooperatives may be disadvantaged.

These behaviors are infrequent. Some cooperatives try to extract adequate compensation from the over-order revenues but this can lead to some of the same problems described in the previous section, including the communication of little information to the buyer about costs of the services or the competitiveness of the total price. The provision of these services for the most part is a free choice by the cooperative and need not impose any free rider hardships on those who offer them.

If a buyer is not willing to pay, the service need not be provided. Cooperatives complain if the service charges are too low or cannot be collected but the remedy does not demand public assistance. Proprietary handlers object when over-order premiums are high and they feel cooperatives are using the services to justify the premium. The system would be better served if price premiums and service charges were kept separate in all exchanges. Occasionally buyers contend that they are forced to take a service and pay for it whether they want it or not because of the cooperatives' power, their service charge structure or the use of over-order premiums to pay for services. These issues and concerns will be discussed in the remainder of this section.

Tables 7-10 through 7-19 explore the attitudes of both groups of participants about ten handler procurement services. Some general comments can be made about these services. Almost all proprietary handlers believed cooperatives could perform these services more cheaply than they could themselves. About half of the proprietary handlers feel they pay the cooperative for performing the services[1] but almost all believe the cooperatives are adequately compensated. The high percentage who indicated that cooperatives are adequately compensated may reflect their belief that the services are not as costly as cooperatives believe them to be. Notice that only half to two-thirds of the cooperatives felt they were adequately compensated for most services. In a companion question, half to two-thirds of the cooperatives said that

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[1]It became apparent in some of the interviews and upon examination of the questionnaires that some proprietary handlers defined payment for services only if a specific service charge(s) was established. This may have reduced the percentage of buyers answering affirmatively to the question of their payment for handler services.

Table 7-10. Attitudes of Cooperatives and Proprietary Handlers about DIRECT DELIVERY from Producers' Farms[1]

Attitude Questions[2]	Co-ops	P.handlers
	% responding affirmatively	
Is co-op adequately compensated?	76	100
Does co-op do it cheaper than p. handler could?	83	72
Should co-op continue to do it?	NA	90
Does p. handler pay for it (if received)?	NA	56
Does it benefit those who do not pay for it?	47	NA
SCALE QUESTION:	SCALE RESPONSE	
P. handlers realize its value	4.0**	NA

[1]Questions answered ONLY by co-ops offering the service and proprietary handlers to whom it is available.

[2]NA indicates that the question was NOT ASKED of that group.

**Significantly greater than 3.0 at 1% level.

Table 7-11. Attitudes of Cooperatives and Proprietary Handlers About DIVERTING MILK for Manufacture[1]

Attitude Questions[2]	Co-ops	P.handlers
	% responding affirmatively	
Is co-op adequately compensated?	49	100
Does co-op do it cheaper than p. handler could?	92	87
Should co-op continue to do it?	NA	95
Does p. handler pay for it (if received)?	NA	61
Does it benefit those who do not pay for it?	74	NA
SCALE QUESTION:	SCALE RESPONSE	
P. handlers realize its value.	3.7**	NA

[1]Questions answered ONLY by co-ops offering the service and proprietary handlers to whom it is available.

[2]NA indicates that the question was NOT ASKED of that group.

**Significantly greater than 3.0 at 1% level.

Table 7-12. Attitudes of Cooperatives and Proprietary Handlers about Providing SUPPLEMENTAL MILK on Order[1]

Attitude Questions[2]	Co-ops	P.handlers
	% responding affirmatively	
Is co-op adequately compensated?	40	100
Does co-op do it cheaper than p. handler could?	95	93
Should co-op continue to do it?	NA	98
Does p. handler pay for it (if received)?	NA	71
Does it benefit those who do not pay for it?	69	NA
SCALE QUESTION:	SCALE RESPONSE	
P. handlers realize its value.	3.9**	NA

[1]Questions answered ONLY by co-ops offering the service and proprietary handlers to whom it is available.

[2]NA indicates that the question was NOT ASKED to that group.

**Significantly greater than 3.0 at 1% level.

Table 7-13. Attitudes of Cooperatives and Proprietary Handlers about SELLING MILK F.O.B. Plant of Buyer[1]

Attitude Questions[2]	Co-ops	P.handlers
	% responding affirmatively	
Is co-op adequately compensated?	64	95
Does co-op do it cheaper than p. handler could?	62	89
Should co-op continue to do it?	NA	96
Does p. handler pay for it (if received)?	NA	55
Does it benefit those who do not pay for it?	43	NA
SCALE QUESTION:	SCALE RESPONSE	
P. handlers realize its value.	3.7**	NA

[1]Questions answered ONLY by co-ops offering the service and proprietary handlers to whom it is available.

[2]NA indicates that the question was NOT ASKED of that group.

**Significantly greater than 3.0 at 1% level.

Table 7-14. Attitudes of Cooperatives and Proprietary Handlers about DELIVERING STANDARDIZED MILK[1]

Attitude Questions[2]	Co-ops	P.handlers
	% responding affirmatively	
Is co-op adequately compensated?	50	100
Does co-op do it cheaper than p. handler could?	85	50
Should co-op continue to do it?	NA	100
Does p.handler pay for it (if received)?	NA	50
Does it benefit those who do not pay for it?	50	NA
SCALE QUESTION:	SCALE RESPONSE	
P. handlers realize its value.	3.8**	NA

[1]Questions answered ONLY by co-ops offering the service and proprietary handlers to whom it is available.

[2]NA indicates that the question was NOT ASKED of that group.

** Significantly greater than 3.0 at 1% level.

Table 7-15. Attitudes of Cooperatives and Proprietary Handlers about SPLITTING A LOAD to Different Handlers[1]

	Co-ops	P.Handlers
	% responding affirmatively	
Is co-op adequately compensated?	50	100
Does co-op do it cheaper than p. handler could?	85	67
Shoul- co-op continue to do it?	NA	75
Does p. handler pay for it (if received)?	NA	40
Does it benefit those who do not pay for it?	80	NA
SCALE QUESTION:	SCALE RESPONSE	
P. Handlers realize its value	3.8*	NA

[1]Questions answered ONLY by co-ops offering the service and proprietary handlers to whom it is available.

[2]NA indicates that the question was NOT ASKED of that group.

*Significantly greater than 3.0 at 5% level.

Table 7-16. Attitudes of Cooperatives and Proprietary Handlers about WRITING MEMBER CHECKS[1]

Attitude Questions[2]	Co-ops	P.Handlers
	% responding affirmatively	
Is co-op adequately compensated?	74	98
Does co-op do it cheaper than p. handler could?	85	81
Should co-op continue to do it?	NA	89
Does p. handler pay for it (if received)?	NA	42
Does it benefit those who do not pay for it?	50	NA
SCALE QUESTION:	SCALE RESPONSE	
P. handlers realize its value.	3.7**	NA

[1]Questions answered ONLY by co-ops offering the service and proprietary handlers to whom it is available.

[2]NA indicates that the question was NOT ASKED of that group.

** Significantly greater than 3.0 at 1% level.

Table 7-17. Attitudes of Cooperatives and Proprietary Handlers about WRITING NON-MEMBER CHECKS[1]

Attitude Questions[2]	Co-ops	P.Handlers
	% responding affirmatively	
Is co-op adequately compensated?	80	100
Does co-op do it cheaper than p. handler could?	100	100
Should co-op continue to do it?	NA	100
Does p. handler pay for it (if received)?	NA	57
Does it benefit those who do not pay for it?	50	NA
SCALE QUESTION	SCALE RESPONSE	
P. handlers realize its value.	4.0	NA

[1]Questions answered ONLY by co-ops offering the service and proprietary handlers to whom it is available.

[2]NA indicates that the question was NOT ASKED of that group.

Table 7-18. Attitudes of Cooperatives and Proprietary Handlers about PAYING THE HAULERS[1]

Attitude Questions[2]	Co-ops	P.Handlers
	% responding affirmatively	
Is co-op adequately compensated?	68	98
Does co-op do it cheaper than p. handler could?	80	86
Should co-op continue to do it?	NA	95
Does p. handler pay for it (if received)?	NA	45
Does it benefit those who do not pay for it?	47	NA
SCALE QUESTION:	SCALE RESPONSE	
P. handlers realize its value	3.7**	NA

[1]Questions answered ONLY by co-ops offering the service and proprietary handlers to whom it is available.

[2]NA indicates that the question was NOT ASKED of that group.

** Significantly greater than 3.0 at 1% level.

Table 7-19. Attitudes of Cooperatives and Proprietary Handlers about Selling Direct Shipped Milk on TANKER WEIGHTS AND TESTS[1]

Attitude Questions[2]	Co-ops	P.handlers
	% responding affirmatively	
Is co-op adequately compensated?	64	100
Does co-op do it cheaper than p. handler could?	64	83
Should co-op continue to do it?	NA	85
Does p. handler pay for it (if received)?	NA	69
Does it benefit those who do not pay for it?	55	NA
SCALE QUESTION:	SCALE RESPONSE	
P. handlers realize its value.	4.1**	NA

[1]Questions answered ONLY by co-ops offering the service and proprietary handlers to whom it is available.

[2]NA indicates that the question was NOT ASKED of that group.

** Significantly greater than 3.0 at 1% level.

the services benefited some buyers who did not pay for them. This response supports the answer given by the buyers about their payment for these services. Cooperatives strongly concurred with the idea that proprietary handlers recognize the value of the services to them. Virtually all proprietary handlers expressed a desire for cooperatives to continue to provide these services. The reader may examine the responses for particular services in the accompanying tables.

A high proportion of compatible attitudes and beliefs between cooperatives and proprietary handlers about handler procurement services was found. Satisfaction with the services was demonstrated by buyers' desire for their continuance. Cooperatives believed that proprietary handlers are cognizant of the value of these services.

Many of the circumstances surrounding the method of payment and the ability to collect compensation for handler services have already been discussed. Some additional information on the method of payment and the choice of services received is provided by the questionnaires. In Table 7-20a information about handler services is provided by cooperatives. Over half the cooperatives surveyed indicated that all their customers receive the same set of services, while 43 percent said that the choice of services is determined through negotiations. Over half of the cooperatives use service charges to get compensation for their provision while only a quarter of the cooperatives rely on over-order premiums to pay for handler service. One fifth of the cooperatives employ both forms of compensation. Approximately half the cooperatives have established separate charges for each service and negotiate the service charge with the buyer. Half the responding cooperatives believe there have been differences in the service charges between

TABLE 7-20a. Choice and Method of Payment For Handler Procurement Services as Reported By Cooperatives.

	%
How does your co-op determine which services it will provide to a particular handler-customer?	
All our customers receive the same set of services.	53
The particular set of services a customer gets is determined individually in negotiations with the customer.	43
NOT all customers receive the same set of services from our co-op, however, the choice of those is up to our co-op.	--
Other	4
Do you have an actual service charge(s) for the services you provide handler-customers or are the costs of these services covered under the over-order premium?	
An actual service charge(s)	56
Covered under the over-order premium	25
Both Methods	19
Do you have separate service charges established for each service you offer?	
Yes	52
Is the service charge(s) subject to negotiation with the handler-customer?	
Yes	55
Have different co-ops in the same market offered either a different set of services to handlers at the identical cost or the same set of services by different co-ops at different costs?	
Yes	51
Don't know	36

cooperatives. As shown in Table 7-20b, only 20 percent of the proprietary handlers were aware of such differences. Apparently service charge schedules are reasonably comparable between cooperatives and if the charges differ there is normally a substantive difference in the service provided. If this were not the case, it could be a source of instability and disharmony between buyers and sellers since proprietary handlers need to remain competitive. Continuing with the discussion of Table 7-20b, it can be seen that proprietary handlers feel that their choices are restricted due to the similarity of services and charges between alternative cooperative suppliers. Proprietary handlers expressed little discontent over service offerings or charges when service charges were in effect, however, some were concerned when large over-order premiums were rationalized by cooperatives as necessary to pay service charges.

There appear to be relatively few inequities in the provision of handler services. Harmony and open communication prevail. Most cooperative managers interviewed told of buyer reasonableness despite power differentials regarding payment for these services if the cooperative could justify the charges. Proprietary handlers confirmed this contention. This type of relationship exists because handler services unlike marketwide services, can easily be withheld and accrue only to those for whom they are provided. Additionally, their costs can be more easily determined than those for marketwide services and handler services do not represent any significant market power shifts from proprietary handlers to cooperatives. In almost all cases, buyers want the services to be provided.

TABLE 7-20b. Choice and Method of Payment for Handler Procurement Services as Reported by Proprietary Handlers.

	Mean Score[1]
SCALE QUESTIONS:	
A proprietary handler has the option to receive or not receive a particular service which co-op may offer.	3.00
If a proprietary handler chooses to NOT receive a particular service, the rate structure of the co-op for services allows the handler to pay for JUST those services he receives.	2.88
Proprietary handlers have little choice of what services they will receive with their milk supply since usually the handler must deal with a single co-op or a group of co-ops who all offer the same package of services at the same cost.	3.62*
	%
Have different co-ops in the same market offered EITHER a different set of services to handlers at the identical cost OR the same set of services by different co-ops at different costs?	
Yes	20
Don't know	61

[1]*Indicates mean score significantly different from 3.0 at 5% level (one tail test).

A few proprietary handlers expressed a desire for cooperatives to offer services which they did not currently provide. Most requests were for one of the ten handler services listed but three proprietary handlers requested tighter quality control and two others asked for closer adherence to their preferred delivery schedule.

For those services which were not provided by a responding cooperative, they were asked to indicate why it was not offered. Table 7-21 summarizes the results of this question. A lack of demand was the most common reason for not offering a service, followed by an inability to recover the costs of providing it.

7.4.3 SUMMARY

Handler procurement services were found to be positive coordinating factors. Cooperatives are in the best position of any sub-sector participant to efficiently provide them. Proprietary handlers realize this and are relying on cooperatives for such services more and more. Compensation is adequate in most cases. Buyers are willing to pay for these services but prefer to have separate charges rather than using over-order revenues since more information is conveyed and over-order premiums can be more accurately evaluated. Separate service charges can help to avoid subsidization of one buyer by another when the cost of services differs between customers.

Marketwide services, most notably reserve and surplus disposal, suffer from numerous equity problems and because of their non-exclusionary nature require public intervention if inequities are to be reduced, incentives for cooperative market power decreased and their provision maintained at a high degree of sub-sector organizational

TABLE 7-21. Reasons Given By Cooperatives For Not Providing Particular Procurement Services.[1]

Services	Number of Responding Co-ops Giving Reason[2]			
	No Demand	Can't Recover Costs	Buyer Can Do It More Efficiently	Members Don't Want To Offer It
Direct milk delivery from producers farms	3	3	--	--
Divert milk for manufacturing	3	--	1	--
Provide supplemental milk on order	6	--	--	--
Sells milk f.o.b. plant of buyer	19	6	--	--
Delivers standardized milk	2	2	--	1
Split a load to different handlers	15	4	7	1
Writes member checks	1	--	1	--
Writes non-member checks	14	1	4	6
Pays the haulers	3	--	--	--
Milk shipped direct from farms sold on tanker weights and tests	3	3	--	4

[1]Only those cooperatives who sell bulk Grade A milk to proprietary handlers and do not provide the particular service answered these questions.

[2]Respondents could choose more than one reason. Percentages not used because the number of qualified respondents was small.

efficiency. Arguments were advanced supporting the offering of these services by cooperatives as the most efficient provider in the sub-sector. Private solutions can be designed to ensure adequate compensation but some inequities remain because not all proprietary handlers have contributed to the fulfillment of this responsibility which rightly belongs to the sub-sector. Private solutions, however, cannot be effectuated by many cooperatives because of insufficient power to force other participants to behave contrary to their own best short run economic interest. Mandatory support for reserve and surplus disposal through the marketing order machinery is required for maximum exchange efficiency, equity and stability. Without this, disposal will revert to proprietary handlers who cannot do it as efficienctly. Since they will handle smaller volumes in an attempt to avoid the cost problems currently experienced by many cooperatives and because cooperatives are in a better position to effectively coordinate the disposition of milk supplies over large geographical areas, costs of disposal will rise if proprietary handlers are forced to do it. The logic of cooperatives providing reserve and surplus disposal is enhanced by the continuing integration into processing of food chains who do not want any procurement responsibility.

7.5 PRODUCTION CONTROL AS AN AREA OF INQUIRY

There are currently no effective production control programs in the dairy sub-sector offered by either cooperatives or marketing orders. Neither does the price support program consistently address the production control problem since it has the often conflicting welfare role of maintaining farm income and is subject to political pressures.

This section will argue that producers' attitude toward price affects their production decisions in a fashion which offers no effective production control as long as price is at least equal to variable unit costs (and possibly less). Furthermore, despite efforts by some cooperatives to gain market power by increasing price and controlling quantities marketed, cooperatives have no effective way of affecting their members' production level. Federal and state orders do very little to affect supplies and with some payment plans may in fact exacerbate the problem by blunting marginal revenue signals. The price support program offers the most direct and effective production discipline but its primary goal of maintaining producer incomes often operates at cross purposes with the secondary objective of coordinating supply with demand.

Milk production varies throughout the year because of the cow's physiological processes and the husbandry practices of producers in spreading calving dates throughout the year. Some gradual change in production patterns during the year can be accomplished by producers' breeding practices. Production varies year to year in patterns not easily explained. Commodity Credit Corporation (CCC) purchases under the price support program vary widely from year to year [NMPF, p. 27]. Grade A supplies in excess of Class I needs are manufactured into other dairy products. Some excess Grade A supplies are unavoidable under monthly and weekly supply and demand conditions which defy synchronization. In certain years, such as 1977, milk supplies are large, putting a strain on manufacturing facilities, causing huge buildups in CCC stocks of butter, powder and cheese and depressing all milk prices. Supplies have been so heavy that the price support machinery was not

able to maintain the announced parity level. Surplus production clearly exists signaling a mis-allocation of resources. The lack of quantity coordination is a recurring problem. To examine why this occurs and shed some light on means of improving quantity coordination, it is first necessary to look at what affects farmers' production decisions.

Farmers respond to price signals but in ways not totally akin to the pure, instantaneous adjustments of the perfectly competitive model. In the short run not only will some dairy farmers continue to produce when price is below average variable cost but they may increase production in periods of falling prices. They do the former because of the specialized nature of the fixed inputs to milk production, the availability of family labor and cross-subsidization between home and farm enterprises. Dairy farmers may increase production when prices fall to maintain the cash flows necessary to meet payments on fixed inputs or to more fully utilize lumpy labor inputs. Such behavior is conditioned by expectations of fluctuating prices. Price is not totally ineffective in guiding resource allocation in dairying, however. Its effect is often slower than expected or absent in the short run--especially in periods of falling prices. Several cooperatives and proprietary handlers observed the swift increase in production normally achieved when prices rise. This is especially true of price support increases. Beef prices do affect milk production in both directions but most dramatically in the down direction. Rises in beef prices often have a marked effect on the quantity of dairy cows culled. Generally low beef prices can retard normal culling decisions and slow production declines.

Federal and state marketing orders[1] affect price as a source of resource allocation information. It is fair to say that in most federal and state orders, payment provisions insulate producers from some of the resource allocating signals normally transferred by prices. No substitute allocation tool is provided in most orders although a few orders have attempted to affect seasonal production patterns and improve price signals.

The federal order machinery in seven markets [Dairy Div., 1977, p. 39] sets up a base-excess payment plan which has the effect of intensifying price signals. The excess price communicates marginal revenue[2] information to producers more clearly than does the payment plan in the other order plans.

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[1]Lenard [p. 10] argues that classified pricing which exists in all marketing orders misallocates resources to milk production by creating a higher average revenue than would prevail in the absence of classified pricing. He assumes, correctly in this researcher's opinion, that without the assistance of the public sector, classified prices would not exist. Since the effect of classified prices is to raise farm prices for milk used in fluid products proportionally more than it reduces farm prices for milk used in other uses, the blend price is elevated over what it would be with one class (price). Classified pricing is characterized as price discrimination and blamed for production in excess of the socially optimal level. With all other marketing order and classified pricing pro and con arguments aside, upon careful examination the issue reduces to one of income distribution and property rights which confirms the wisdom of taking a sub-sector view of problems and issues involving a commodity, rather than considering farm level production as an isolated stage. The success of classified pricing as a price discrimination and market segmenting strategy within the sub-sector rests less on market order legislation and more on the differences in price elasticities of demand for fluid (lower) and manufactured dairy products (higher). There is no reason to expect price discrimination to disappear in the absence of market orders and classified farm prices. Participants at other stages in the sub-sector would be able to establish and maintain a differential price structure. Eliminating farm level classified prices would redistribute the benefits within the sub-sector. The desirability of such a shift is a matter for the public decision-making process.

While farm level classified pricing may increase production over a one price schedule as Lenard argues, the retail price increases caused by production declines under a one price plan might be less socially desireble regardless of the issue of price discrimination.

The base-excess payment plans in these federal orders are open plans. This means that any producer can acquire the right to share in high value sales (Class I) free and with a maximum of a one year wait. The producer's base is determined by calculating average daily Grade A deliveries during the Fall of each year (when milk is needed most). This daily quantity becomes the volume for which the producer will receive the highest or base price for the following twelve months. The base price is affected by the usages of Grade A milk in the several classes in each month. Any amount delivered over this base quantity in any month receives the lower, excess price. The base cannot be sold or traded and is re-established each year by all producers selling Grade A milk in the market area. No value accrues to it. Production statistics in the federal order markets employing this payment plan show less seasonality in production which facilitates quantity coordination by more closely matching output with demand [Ag. Mktg. Svc., 1977-a, selected years]. This is accomplished by the marginal revenue signals of the excess price which more clearly convey the higher value of additional production in the Fall relative to the Spring. Of course, to the extent that the excess price is itself sufficient to at least cover variable costs, surplus production may be encouraged.

Farmers are less aware of the marginal revenue earned from additional production units under a belnd price payment system which prevails in all other federal orders. They respond to a blend price which appears as a constant average revenue unaffected by output levels. State orders vary in payment plans. California has a quota-base-overbase plan which unambiguously delineates marginal revenue information.

In ten federal orders where a blend price payment plan is employed, a "take out-pay back" plan is also used. This is called the Louisville plan after the market which first implemented it. This plan is designed to smooth out seasonal production patterns and not to control total production although it might have some effect on total output if the seasonal incentives were strong enough. Since the husbandry practices of producers can affect the annual production pattern, this plan is an attempt to offer price incentives sufficient to cause these actions to be taken. The evidence suggests that the Louisville plan has been largely unsuccessful in effectuating its intended purpose. Although the mechanics of the plan vary somewhat between orders, all call for a withholding of a specified amount (per hundredweight) from the producer-settlement fund in each of several Spring months (traditionally high production months) to be put into a special fund. In each of several Fall months (traditionally low production months) a proportion of the total amount withheld is added on to the prices paid producers. All cooperative leaders interviewed who had experience with the Louisville plan indicated that it was ineffective because the amounts withheld and paid back were not large enough to offer the required incentive. Most amounts have not been updated for several years, but prices have risen significantly in this time. In addition some cooperative managers felt that producers were not aware of the amounts being withheld or paid back. Several design problems contribute to the plan's reduced effectiveness. It operates on averages and not the margin. It withholds and pays back over total quantities rather than reductions or increases over a set of monthly output levels.

Federal and state marketing orders also blunt individual producer response to price by creating handler or marketwide pools for the sharing of high value Class I sales among producers. While this fosters equity among producers, reduces proprietary handler discretionary control over usage allocations and promotes exchange efficiency it does protect the producer from market conditions and the demand for his (her) production. Again no alternative means of promoting a just adequate supply of milk (quantity coordination) is offered by the order machinery.

While there are other factors to be discussed which also contribute to the lack of individual producer responsibility for the quantities produced, it can already be seen that the order system has created what Hardin called a common property resource of most U.S. farm level milk markets. The effect of this is to create individual incentives to overuse (over produce) the common property resource (milk sales). The socially optimum level is exceeded as individual producers attempt to maximize their own profit or otherwise satisfy some criteria function (such as achieving optimal cash flow patterns or utilizing family labor).

Cooperatives too have exacerbated the production control problem by guaranteeing a market for all member milk. Proprietary handlers on the other hand, ostensibly create some production discipline by retaining their right to accept only a specified quantity. Evidence gathered in the interview process, however, suggests that this control is seldom realized. Today proprietary handlers are more reluctant to refuse milk or drop an independent producer than 10-20 years ago because of the stronger competition provided by cooperatives. Proprietary handlers

know that if they take these actions, previously independent producers will be encouraged to join cooperatives, thereby decreasing the availability of non-cooperative supplies and strengthening cooperatives' control of the milk supply.

Up to this point the means for production control are absent. Producers respond slowly and often in the wrong direction in the short run to price reductions but quickly and as expected to price increases. The federal and state order provisions create a common property resource out of milk sales markets and insulate producers from the direct effects of their output decisions.

The price support program does affect producer output decisions but cannot be relied upon to transmit timely signals.[1] Twice in 1977 price support levels were announced which were questionable in light of the adequate supplies available. Neither could it be persuasively argued that farmers needed a support price increse to supplement incomes. Because of the peculiar nature of farmers' milk production decisions discussed earlier or the lag which often exists between increased costs of production and rising milk prices, some support price hike could perhaps have been justified, but not the magnitude

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[1]There is a fundamental difference between the behavior of different types of cooperatives vis-a-vis the Class II price and the price support program. Bargaining cooperatives are smaller and will often have all their member production committed to proprietary handlers. If supplies exist for which they do not have a Class I market, they normally have contingency arrangements with another cooperative or with a non-cooperative manufacturer. Since they do not manufacture any milk themselves, they prefer a high Class II price to make their members' checks as large as possible. Bargaining cooperatives desire a high support level. Marketing and operating cooperatives normally prefer to keep the Class II price and the support level which affects it relatively low. This makes it easier for these cooperatives to produce competitively priced manufactured products.

granted by the Administration. The decision to raise the price support level and to subsequently maintain it at this level for another six months were motivated by other than economic reasons [Wade]. This decision in the face of rapidly growing surpluses demonstrates the inability of this program to consistently discipline production. As structured, the two federal programs are not coordinated and together tend to aggravate production problems.

Cooperatives as a sub-sector institution warrant examination to see it they can discipline farm level decisions. The conclusions are not encouraging. Cooperative managers interviewed confess to their inability to influence member production despite management's recognition of their depressing effect on prices (order minimums and over-order premiums), increased disposal costs and the threat to the continued existence of the price support program created by surplus production. Whether selflessly or selfishly, hired management of cooperatives are concerned about production levels but are essentially helpless to influence them. An examination of the evidence follows.

According to Table 7-22, many cooperatives do not attempt to influence member production levels. Most efforts that are made have little more than informational effect, although a small percentage of responding cooperatives did indicate that they discouraged or refused new memberships.[1]

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[1]Youde suggested that cooperatives with market power might seek to restrict membership in an effort to increase their average revenue product. While cooperatives in this survey believed they should not be held to open membership policies it is doubtful if restricted membership would consistently improve the cooperative's profit maximizing behavior in light of the independent production decisions of their members. Also restricted membership may not serve the market power goals of cooperatives which require large percentages of the available supply under cooperative control.

TABLE 7-22. METHODS USED BY COOPERATIVES TO AFFECT MEMBERS' PRODUCTION LEVEL.

Method	% of cooperatives indicating method is...	
	Important[1]	Most Important
We don't try to influence them.	42	48
Fieldmen disseminate industry trends and needs.	37	6
Magazine, newsletter, annual reports.	45	24
Co-op instituted production base allocation plans.	10	8
Meetings.	37	6
Discourage or refuse new memberships.	13	2
Other	10	6

[1]Respondents could choose more than one method.

A scale question asked of cooperatives and proprietary handlers dealing with membership policies of cooperatives yielded the results shown below.

SCALE QUESTION:

Cooperatives should not be allowed to refuse membership to any farmer.

Avg. score, cooperatives = 2.29; significantly less than 3.0 at 1 percent level.

Avg. score, proprietary handlers = 3.43; significantly greater than 3.0 at 1 percent level.

Mean scores significantly different at 1 percent level.

Cooperatives believe they should be allowed to refuse memberships but proprietary handlers do not. The revenue maximizing reasons suggested by Youde for cooperatives with market power may explain some cooperatives' response. Some may be trying to reduce costs associated with inconvenient off-farm hauling, poor quality milk offered by some producers or added manufacturing disposal. Proprietary handlers are indicating a recognition of the potential power conferred on cooperatives by the ability to restrict their membership.

As discussed previously, cooperatives' guarantee of a market does not contribute to farm level production discipline. Cooperative instituted base plans are designed to transmit marginal revenue signals so as to either control quantities for which the cooperative is responsible[1] or provide for distribution of cooperative proceeds in a way judged to be historically equitable. These base plans have usually collapsed because of the common property nature of the milk market. If a member has a production base which is lower than the overall market average, dropping out of the cooperative and drawing the higher order blend price would be an alternative. Only one major cooperative interviewed had a base plan currently in operation and theirs was a deficit market. Little production control can be expected from cooperative base plans. If they were successful in limiting cooperative volume, they might be judged to encourage undesirable sub-sector performance by affecting resource allocation for the private gain of cooperatives. Other solutions must be found.

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[1]This could be done for the reasons suggested by Youde or to reduce marketing costs (especially disposal).

Cooperative managers say that they cannot with sound conscience tell a member to cut back production because there is often no individual incentive for him (her) to do so. It may benefit the cooperative, the market or the individual members themselves in the long run but due to the common property nature of production it cannot be argued that any individual producer should cut back output for reasons predicated on conditions outside the producer's farm. This is a decision which will be made by the individual member in response to price signals. As discussed previously, these signals do not produce an output level which consistently matches a socially optimal one. Cooperatives can only pass on market information to keep the member informed. If more aware of market conditions, members may make production decisions more consistent with the overall supply-demand environment.

Premium Class I prices charged by cooperatives have received the attention of several researchers studying this sub-sector. Many of these studies suggest that these premiums represent undue price enhancement [see Masson, Eisenstat, and T. Roberts]. The Capper-Volstead Committee found very few instances of undue price enhancement and argued that premiums could be justified by option demand, the lag in the federal order prices and the costs of services provided by cooperatives.[1] When over-order premiums are used to recover costs of handler

[1]The existence of over-order premiums and service charges by cooperatives are not sufficient evidence of abuse of market power. Information collected in the course of this research suggests that a cooperative performing some marketwide procurement services and some services for individual proprietary handler buyers is incurring some costs for which compensation is justified. Virtually all proprietary handlers interviewed recognized these costs and felt that reasonable charges for them was not price enhancement. The appropriate level of charges for various services is difficult to determine because of the wide variety of conditions existing across markets.

and marketwide procurement costs, it is difficult to evaluate their appropriateness. Table 7-23 shows participants' responses to two scale questions regarding the effect of premiums on production levels. Notice that as expected, cooperatives and proprietary handlers disagree on the effect of the premiums.

The evidence presented in this section suggests that there is no consistently effective endogenous production control in the sub-sector. Gross downward adjustments are provided by significant price decreases perceived as non-transitory by producers. These may be provided by supply-demand information freely transmitted through the product markets or by cuts in price support levels. Production increases are much easier to elicit. The federal and state order system and the price support program are not well coordinated. The order system works to reduce individual producer accountability to market conditions by creating a common property resource out of the Grade A milk market. Cooperatives are kept from any meaningful production control by the environment created by these institutions. Furthermore, cooperative efforts at restricting production or membership may be undesirable because of the income redistributions they perpetrate.

If the problem of adequate and equitable compensation for reserve and surplus disposal can be solved, cooperatives will continue to assume more and more procurment responsibility. If this occurs the job of disposal will shift almost completely away from proprietary handlers, a direction it is already moving. The production discipline supplied by proprietary handlers who were individually responsible for their own reserve and surplus disposal will disappear. One of two scenarios can be anticipated. If cooperatives are guaranteed compensation for this

TABLE 7-23. SCALE QUESTIONS DEALING WITH ATTITUDES OF COOPERATIVES AND PROPRIETARY HANDLERS TOWARD THE CONTRIBUTION OF PREMIUM PRICES TO OVER-PRODUCTION

Statement[1]	Mean Score[2]	
	Co-ops	P. Handlers
*Premium Class I prices encourage over-production on farms and over-investment in farm equipment and facilities.	2.70**	3.39**
Premium Class I prices are moving upward faster than rising production costs.	1.83**	NA[3]

[1](*) indicates mean scores significantly different at 5% level.

[2](**) indicates the mean score is significantly different from 3.0 at the 5% level (one-tail test).

[3]NA indicates that this question was not asked of proprietary handlers.

service and if no effective production controls exist, the sub-sector will have growing disposal costs imposed upon it. If, however, cooperatives amass enough power to effectively dictate price so as to experience a decreasing average revenue product they could limit member production or membership so as to maximize member return. Although this might discipline output it might produce an unacceptable income distribution scheme. Neither one of these scenarios need be played out, however. The general solution discussed earlier coupled with some strong production control incentives for all producers could help achieve equitable treatment for providers of marketwide services, promote exchange efficiency and provide for adequate but not excessive output levels. The system should recognize the inevitability of

sub-sector reserves and shift the costs of carrying these to the sub-sector. Producers should be accountable for amounts marketed in excess of normal reserves through a price structure which quickly and directly provides disincentives to the production of these marginal quantities. Marketing orders should provide for a two or three level price structure so that marginal revenue information is unambiguously communicated to producers. Pay statements furnished producers monthly should clearly show the various prices and the quantity of their milk which received each price. The excess or surplus price would be the lowest and should not be so high as to perpetuate these surplus quantities. The right to the higher prices could be allocated to all producers in advance based on their historical production levels. This would provide reasonably free entry to milk production and no value would accrue to this production right.[1]

7.6 ANTITRUST RELATED BEHAVIOR AS AN AREA OF INQUIRY

It is alleged that manipulation of inter-market prices to gain market power, collusion, forms of cross-subsidization, refusals to deal except under restrictive terms and other forms of antitrust related behavior occur. How frequently they happen and the attitudes of participants regarding these forms of conduct are the subjects of this inquiry.

The major source of information for this section is the mail questionnaires, although some insights on pool loading and the sharing

[1]Both of these problems exist in the closed base plan created under the California milk pooling law operated in conjunction with the state order. The one major cooperative operating a base plan has also built in these restrictions. Not only are barriers to entry created by base plans that accrue value but also this value is incorporated into the cost of milk production.

of information between proprietary handlers derived from the personal interview process. Both groups of participants were asked to respond to the same six hypothetical behavioral scenarios.[1] Each was designed to describe a form of conduct sometimes condemned by one or another sub-sector participant including those responsible for monitoring and regulation in the sub-sector. Some are illegal in all states, others such as sales below cost are subject to individual state's trade practice laws and still others are per se legal within the current rules under which the sub-sector operates. Three scenarios involve cooperatives only, two involve proprietary handlers and one deals with their mutual associations. It was expected that the tendency of each group would be to stress the benefits but deny the frequency of behaviors in which their industry was involved.

All of the behaviors characterized in these hypothetical scenarios are extremely sensitive. The dairy sub-sector has been the recipient of a disproportionately high share of the government's antitrust interest in recent years. For this reason several steps were taken in order to encourage response. These questions were located in the last section of the questionnaires so less sensitive parts would be completed first and the respondent would not immediately reject the entire survey as too sensitive to complete.[2] The hypothetical nature of the scenarios were stressed as was the confidentiality of the completed questionnaires. The questions were constructed to ensure that a respondent would not be

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[1]Only five will be discussed in this section. The last one will be presented in Section 7.8.

[2]In fact, less than five percent of those responding failed to complete this section, although several chose to indicate "No Opinion" for all questions.

indicating personal or organizational involvement in or first hand knowledge of such activities. Finally, all questions allowed respondents to indicate "No Opinion" if they chose not to take a definitive position.

7.6.1 POOL LOADING

Federal order rules specifying the particular market order in which a producer's milk will be pooled can encourage cooperative and proprietary handler behavior not originally foreseen or desired by certain subsector participants. For example, it has been charged that a cooperative would direct its member milk to plants pooled in two or more orders so as to depress the price in one order relative to another. This is called pool loading or pressure pooling. Although milk movements between orders with the intention of increasing cooperative returns are not per se illegal, the effects of some milk movements undertaken for various motives have been questioned. The alleged intention of some such activities in the early 1970's was to force non-member producers to join the cooperative or cease acting in competition with it by demonstrating an ability to reduce their returns. As T. Roberts observed [p. 23] successful pool loading lowers the price received by dairy farmers (by increasing the quantity of Class II milk) without lowering the classified order prices paid by proprietary handlers. The producers are encouraged to join the cooperative and buyers have to find a new supply source--most likely the pool loading cooperative. Under the consent decrees[1] signed by Associated Milk Producers, Inc. in 1975

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[1] A consent decree is a legal device whereby a defendant agrees to refrain from and/or engage in certain specified practices in lieu of adjudication in a civil case without admitting to any wrongdoing addressed in the terms of the decree.

[AMPI] and Mid-American Dairymen, Inc. in 1977 [Mid-America] both cooperatives agreed to refrain from . . .

> Qualifying milk for participation in federal milk marketing order pools with a purpose of suppressing the uniform price paid to producers participating in a federal milk marketing order pool in order to force, coerce or induce such producers who are not members of defendant to join defendant or to cease selling milk in competition with defendant; [Mid-America, p. 2]

The Justice Department felt such behavior was not in the public interest since it represented attempts to reduce competition by forcing individuals to join or refrain from competing with a particular cooperative.[1] The effect of these consent decrees has been to make such behavior, at least for the intentions described, illegal for all cooperatives.

Table 7-24 presents the results of cooperative and proprietary handler responses to questions concerning this type of behavior. Both groups neither feel it should be allowed nor believe it to have desirable consequences. Proprietary handlers hold the latter view more strongly than do cooperatives, however. Both groups' response indicates that pool loading behavior is a frequent occurrence.

It is apparent from these responses that such behavior is not condoned by cooperatives or proprietary handlers, but may occur frequently[2] in the sub-sector. Interviewees had some useful insights. Their observations indicate that it is often difficult to infer that observed behavior was undertaken for any particular purpose. Two other motives for engaging in behavior identical to pool loading which could

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[1]Several other effects of this behavior might also be judged to be undesirable in and of themselves.

[2]This attitude might be prevalent because of publicity arising from recent civil proceedings.

TABLE 7-24. Scale Questions Regarding Pool Loading: Cooperative and Proprietary Handler Responses to a Behavioral Scenario.

SCENARIO A dairy co-op has members in two federal order areas, A & B. The co-op accounts for a smaller percentage of the milk in Market B than in Market A. In an attempt to increase its membership (and volume of milk marketed) in Market B, the co-op ships milk from Market A to Market B so that more milk qualifies under Market B's pool and the blend price in Market B is subsequently reduced. The co-op adjusts their members' returns in Market B so that they are above the newly reduced blend price there.

QUESTIONS[1]	Mean Scores[2]	
	Co-ops	P.Handlers
Should it be allowed by law?[3]	2.58**	2.75**
*Does behavior such as this ever have desirable marketing consequences?[3]	2.21**	2.52**
Cases such as this probably occur frequently.[4]	3.21	3.53**

1 (*) indicates mean scores significantly different at 5% level.

2 (**) indicates the mean score is significantly different from NO OPINION (i.e., 2.0 for first two questions and 3.0 for the third one) at the 5% level (one tail test).

3 Respondents were given a choice of YES, NO OPINION or NO, where YES = 1, NO OPINION = 2 and NO = 3.

4 The usual five point scale was used for this statement, where STRONGLY AGREE = 5 to STRONGLY DISAGREE = 1.

inadvertantly demonstrate some effects similar to it, but not for the purpose of reducing competition, were offered by some cooperatives interviewed.

One large cooperative said that the abundance of federal orders forced inter-order movements of bulk milk. Some orders, it was suggested, were not possessed of necessary reserve and surplus disposal capacity so some milk had to be routed to other orders. Shipping milk where the plants are could look like pool loading. Movements for intentions such as this should be reasonably easy to distinguish from the predatory motives described earlier.

The second motive is more difficult to segregate from the intention of reducing competition. It could be considered sound business conduct or exercising order loopholes. The effects could be judged in several lights. Cooperatives have strong feelings on both issues. A cooperative might allocate milk between orders in an attempt to maximize returns by equating the marginal revenues in the several markets with the cooperatives' marginal cost.[1] A large cooperative described the following behavior in 1970 which was in their members' best interest and which took advantage of federal order rules governing how producer milk was qualified on various orders.

Under rules that existed then, a supply of milk could qualify on Order A, regardless of the fact that the order received less than

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[1]Masson [1976, p. 16] argues that all cooperatives attempt to behave in this quantity allocation manner so as to maximize their return via consumer overcharges. Limiting total supply, as previously suggested, is not feasible for most cooperatives. Masson contends that such behavior is contrary to the public interest and would disappear if marketing orders were eliminated or significantly modified.

a plurality of this volume during a month. Milk was shipped for one or two days a week from Order B which qualified this entire Order B volume on Order A all month and took advantage of the higher prices in this order net of transportation costs. This behavior had the effect of lowering Order A's blend price but the cooperative maintains that it was not for the purpose of reducing competition.

This action could still be judged to be undesirable for its effect on retail prices or farmer profits as Masson, Ippolito and Eisentat argue. Amendments in the milk qualification rules for Order A were made to stop this practice. It is true that the undesirable performance addressed in the consent decrees are not the only results of such behavior justifying public sector scrutiny. It is not unreasonable or per se undesirable for cooperatives to behave as profit maximizers for their members, but the performance outcomes may not be acceptable to other sub-sector participants or guardians of the public interest. The critical sub-sector issue for regulators and administrators, is the design of marketing order rules and constraints on participant behavior which take advantage of the contribution each can make to sub-sector organizational efficiency, equity and stability while discouraging behaviors leading to undesired performance. Design becomes especially critical in these cases. If the intent of the former qualification rules was to allow the free movement of milk between orders while preserving the integrity of local markets or to reduce needed sub-sector disposal capacity then its design also gave rise to manipulations which may have increased transportation costs, distorted geographical price surfaces, affected producer welfare or reduced competition which may have not been in the best interest of all sub-sector

participants. One proprietary handler observed that the consent decrees may not have been necessary to stop pool loading since the continuing trend of order consolidations produce larger federal orders which are harder to load.

A large cooperative stated that if a cooperative is observed to allocate their member milk between orders in such a way as to reduce their net margin, their intention may be to load the pool.[1] In such a case, the interviewee argued, the cooperative would be better advised from the standpoint of net margin to avoid such movements. The same end could be served by moving money, he suggested. The cooperative could reblend their receipts in such a manner that their members in one area would receive a higher price than the non-members in the same area while the cooperative earned its maximum net margin. Intra-cooperative pay prices (geographic income redistribution) would be affected but membership agreements confer the right to undertake any such reblending plan and in the short run the membership would not be aware of it.[2]

It is clear that cooperatives and proprietary handlers disdain pool loading, at least for the purposes covered in the consent decrees

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[1]Masson [1976, p. 13-14] reports that AMPI lost at least $500,000 by such pooling practices in South Texas in 1970-71, and continued to lose over $20,000 per month on the same practice through mid-1974. The money on pooling was lost by driving down the price in a market by pooling milk in that market while it could have been more profitably pooled in another market without actually changing any shipping of milk, buyers of milk, or prices paid by any buyers of milk.

[2]Such redistributions may be justified to avoid intra-cooperative cross-subsidization or to compensate some members for transient losses in the interest of equity, but Eisenstat reported that in 1970 the income of AMPI's Northern dairy farmers was increased by 7-10 percent while simultaneously lowered for their Southern region, despite a higher over-order premium in the South.

and the scenario in Table 7-24. The consent decrees and the trend of order consolidation have effectively precluded it among all cooperatives although it has been prevalent in the recent past.

7.6.2 REFUSALS TO SELL

It has been alleged that cooperatives have refused to sell milk to a proprietary handler unless a full supply arrangement was agreed to [Eisenstat et al.]. Both consent decrees forbade such behavior. Referring to Table 7-25, cooperatives take a "middle of the road" position on all questions regarding such conduct while proprietary handlers clearly and predictably feel it should be illegal and has no desirable consequences. Furthermore, they believe it occurs frequently. As with pool loading, it might be true that the publicity associated with the consent decrees heightened respondents' awareness of such behavior. No proprietary handlers interviewed expressed any dis-satisfaction with full supply arrangements. Proprietary handler questionnaire responses suggested general satisfaction with such arrangements.

7.6.3 COOPERATIVE-PROPRIETARY HANDLER ASSOCIATIONS

The idea of cooperatives and proprietary handlers jointly planning a marketing strategy might have certain vertical coordination benefits. It could also be collusive, predatory and in restraint of trade. Joint ventures and other business relationships are legal but can lead to conduct which is in violation of antitrust rules. Proprietary handlers, especially those large independents and integrated food chains, are concerned for any relationship with any type of supplier including cooperatives which gives the appearance of discriminatory sales practices. Under the Robinson-Patman Act, prices to various

TABLE 7-25. Scale Questions Regarding Refusals to Deal: Cooperative and Proprietary Handler Responses to a Behavioral Scenario.

SCENARIO A co-op refuses to sell any milk to a proprietary handler unless the handler agrees to a full supply arrangement.

QUESTIONS[1]	Mean Scores[2]	
	Co-ops	P.Handlers
*Should it be allowed by law?[3]	2.08	2.85**
*Does behavior such as this ever have desirable marketing consequences?[3]	2.10	2.47**
Cases such as this probably occur frequently.[4]	3.02	3.19**

1 (*) indicates mean scores significantly different at 5% level.
2 (**) indicates the mean score is significantly different from NO OPINION (i.e., 2.0 for first two questions and 3.0 for the third one) at the 5% level (one tail test).
3 Respondents were given a choice of YES, NO OPINION or NO, where YES = 1, NO OPINION = 2 and NO = 3.
4 The usual five point scale was used for this statement, where STRONGLY AGREE = 5 to STRONGLY DISAGREE = 1.

customers must be based on differences in costs of servicing the particular buyers. If the power of a buyer is used to achieve a discriminatory price this could be found to be in violation of this Act. In fact, in a recent case brought by the FTC against the A & P Company, it was ruled sufficient grounds for conviction of a buyer on a Robinson-Patman violation that he (she) ought to know that the price was discriminatory and not the more liberal interpretation requiring actual knowledge of such an offer (see U.S. Court of Appeals, Second Circuit,

Docket #76-4179, #922, Sept. Term 1976, decided June 21, 1977). An integrated food chain indicated that on the basis of that court ruling, they would not accept an over-order premium concession granted by a cooperative as a result of pressure brought by the buyer unless such price reduction was extended to other proprietary handlers of comparable size.

The scenario in Table 7-26 attempted to assess the environment for cooperative-proprietary handler relationships which were clearly beyond the typical seller-buyer roles. No specific type of association was specified, nor was the conduct described in the scenario per se illegal. The responses presented in Table 7-26 demonstrate the cautious approach of both groups of participants to such associations and suggest that relationships such as this, in the absence of strong competitive incentives to the contrary, are not likely to occur to any significant degree.

7.6.4 PROPRIETARY HANDLER COLLUSION

Proprietary handlers are forbidden by law from conspiring to act in restraint of trade. There can be no ex ante communications between firms regarding pricing or marketing and bargaining strategies. Proprietary handlers interviewed were very aware of recent cases involving alleged collusion which turned on appearances of collusion and not manifestations of it (e.g., western cattle ranchers vs A & P).

Although all proprietary handlers interviewed showed an awareness of and a concern for the antitrust laws, the larger ones because of their visibility were more cautious. An integrated food chain said that they hesitated to attend meetings where other proprietary handlers would be present for fear of hearing information that put them in

TABLE 7-26. Scale Questions Regarding Co-op-Proprietary Handler Associations: Cooperative and Proprietary Handler Responses to a Behavioral Scenario.

SCENARIO A proprietary handler and a dairy co-op plan jointly their marketing strategies, coordinate price structures and exchange information between each other about their plans and goals.

QUESTIONS[1]	Mean Scores[2]	
	Co-ops	P.Handlers
Should it be allowed by law?[3]	2.23**	2.35**
*Does behavior such as this ever have desirable marketing consequences?[3]	1.69**	2.19**
Cases such as this probably occur frequently.[4]	3.02	3.00

1 (*) indicates mean scores significantly different at 5% level.
2 (**) indicates the mean score is significantly different from NO OPINION (i.e., 2.0 for first two questions and 3.0 for the third one) at the 5% level (one tail test).
3 Respondents were given a choice of YES, NO OPINION or NO, where YES = 1, NO OPINION = 2 and NO = 3.
4 The usual five point scale was used for this statement, where STRONGLY AGREE = 5 to STRONGLY DISAGREE = 1.

potential violation of antitrust laws. The interviewee indicated that if he heart a statement in a meeting or over the phone such as, "Did you get that premium notice in the mail this morning from the cooperative," he would write a memo for the company files specifying exactly what transpired. Furthermore, he would not use the information or tell

anyone else about it.[1] Another integrated food chain indicated that before an employee can attend a meeting where a competitor will be present they must obtain prior permission, it must be arranged for a legal counsel to be present at the meeting and if the employee is going to actively participate, the agenda must be available in advance. A cooperative reported that a prominent proprietary handler had made it clear from the beginning of their sales relationship that they did not want to take a chance of being involved in any negotiation or discussion about price with any other handler or for the cooperative to create a situation whereby the customer learns something about another handler's transactions.

Table 7-27 shows the responses of cooperatives and proprietary handlers to a collusion scenario. Both groups felt it should not be legal but interestingly, cooperatives more than proprietary handlers, hesitated to say it had any desirable marketing consequences. One proprietary handler said he felt that such exchanges between proprietary handlers as are presently illegal, may be necessary to stop price wars which are often destructive of competition.

Notice in Table 7-27 that neither group took a position on the incidence of such behavior. One proprietary handler suggested that the importance of information exchange is reduced when order prices are the effective prices or premiums are low. However, as premiums and service charges get larger a buyer is less certain of the competitiveness of the price and incentives exist for covert information exchange. Another proprietary handler suggested that cooperatives in any market,

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[1] Ex post information detailing actions already taken carries no such antitrust sensitivity.

TABLE 7-27. Scale Questions Regarding Proprietary Handler Collusion: Cooperative and Proprietary Handler Responses to a Behavioral Scenario.

SCENARIO Two proprietary handlers exchange information about sales plans and price schedules.

QUESTIONS[1]	Mean Scores[2]	
	Co-ops	P.Handlers
*Should it be allowed by law?[3]	2.23**	2.55**
*Does behavior such as this ever have desirable marketing consequences?[3]	1.84	2.31**
Cases such as this probably occur frequently.[4]	3.19	3.04

1 (*) indicates mean scores significantly different at 5% level.
2 (**) indicates the mean score is significantly different from NO OPINION (i.e., 2.0 for first two questions and 3.0 for the third one) at the 5% level (one tail test).
3 Respondents were given a choice of YES, NO OPINION or NO, where YES = 1, NO OPINION = 2 and NO = 3.
4 The usual five point scale was used for this statement, where STRONGLY AGREE = 5 to STRONGLY DISAGREE = 1.

and particularly a market with a dominant cooperative or a federated group of cooperatives, can coordinate a market effectively and reduce the need for proprietary handler communications. Because the cooperative can talk to all buyers and to all other cooperatives, it can synchronize each buyer with all the cooperatives. To the extent this is true, Capper-Volstead creates an institution able to contribute to sub-sector coordination. At the same time, the right to free

information exchange among cooperatives which makes this possible also creates a mechanism whereby cooperatives might amass and exercise market power in undesirable ways.

7.6.5 CROSS-SUBSIDIZATION FOR SALES BELOW COST

Sales below cost are not universally illegal although several states have laws forbidding it. Under most, if not all, trade practice laws, sellers are allowed to meet competition, however. The scenario given in Table 7-28 was presented to all respondents to assess their feelings about a proprietary handler allowing a dairy, non-dairy product or general overhead to subsidize a dairy product so it can be sold below cost. Although both groups felt that this practice likely occurs frequently, neither indicated that it should be allowed by law or had desirable consequences. Proprietary handlers expressed significantly stronger feelings on the latter two points than did cooperatives.

7.6.6 SUMMARY

The results based on these hypothetical scenarios suggest that sub-sector participants believe cases such as those described in the scenarios do occur frequently, but should not be legal and have few desirable marketing consequences. An important coordinating role for cooperatives was indicated by several proprietary handlers as a result of antitrust restrictions on communications between proprietary handlers.

7.7 SUPPLY ARRANGEMENTS AS AN AREA OF INQUIRY

Supply arrangements (formal and unwritten types) between cooperatives and proprietary handlers can improve quantity, quality and timing

TABLE 7-28. Scale Questions Regarding Cross-subsidizations for Sales Below Cost: Cooperative and Proprietary Handler Responses to a Behavioral Scenario.

SCENARIO A proprietary handler allows one part of his operation to subsidize another part for a brief time so the one product line can be sold at less than cost.

QUESTIONS[1]	Mean Scores[2]	
	Co-ops	P.Handlers
*Should it be allowed by law?[3]	2.02	2.49**
*Does behavior such as this ever have desirable marketing consequences?[3]	1.98	2.41**
Cases such as this probably occur frequently.[4]	3.68**	3.66**

1 (*) indicates mean scores significantly different at 5% level.
2 (**) indicates the mean score is significantly different from NO OPINION (i.e., 2.0 for first two questions and 3.0 for the third one) at the 5% level (one tail test).
3 Respondents were given a choice of YES, NO OPINION or NO, where YES = 1, NO OPINION = 2 and NO = 3.
4 The usual five point scale was used for this statement, where STRONGLY AGREE = 5 to STRONGLY DISAGREE = 1.

coordination by encouraging communication, defining responsibilities and reducing risk. It is reasonable to assume, however, that their design is of major importance in determining the degree to which they serve these functions.

The background for this section was presented in Section 6.2 Some of the conclusions drawn there relate to this discussion. This section will present additional information on supply arrangements

acquired from the interviews and questionnaires. Participants' motives for preferring particular types of supply arrangements will be discussed. The behavioral differences observed under various supply arrangements and some indication of participants' satisfaction with different arrangements will also be explored. Finally, quantity and timing coordination of bulk milk deliveries will be discussed.

7.7.1 PARTIAL OR FULL SUPPLY ARRANGEMENTS

Cooperatives prefer full supply arrangements because they reduce the uncertainty of a market for members' milk and facilitate planning. Bargaining cooperatives stand the most to gain in this regard from full supply arrangements but often cannot offer a complete line of procurement services (especially reserve and surplus disposal) normally attached to such an arrangement or in the absence of manufacturing facilities, do not possess enough bargaining power to negotiate such an arrangement. Full supply arrangements also ensure that the cooperative will not be doing more than its share of supply balancing and disposal although no automatic guarantee of adequate compensation is provided by a full supply arrangement. Competitive conditions in the local market, the cooperative's bargaining strength and the reasonableness of the proprietary handler combine to determine the payment of compensation for these and handler services rendered. Full supply arrangements confer some additional market power on cooperatives because of buyer reliance on them and the portion of the market it forecloses to other cooperatives. Masson [p. 18] suggests that such arrangements place the buyer at a disadvantage because of the inability to taper in partial supplies in preparation for termination of the arrangement. This is

caused because milk, unlike most other commodities cannot be stockpiled to diminish buyer reliance on the single supplying cooperative. Proprietary handlers indicated much less concern about this than did Masson since alternative supplies are normally available at low transaction costs and the former full supply cooperative will usually be willing to provide a partial supply rather than lose the entire account. Furthermore, the supply contract can be designed to provide gradual termination over a two or three year period which at least partially alleviates Masson's concern.

Table 7-29 shows the results of three scale questions dealing with full supply arrangements. Proprietary handlers definitely feel cooperatives have more to gain from these arrangements and cooperatives do not disagree.

Proprietary handlers prefer a full supply arrangement when supplies are short or are expected to be, while cooperatives would have the opposite reaction. They prefer supply flexibility when supplies are tight and supply commitments when quantities are abundant. These simple rules can explain much of the behavior toward full supply arrangements shown by these two groups. Almost all food chain handlers and proprietary handlers without experience in milk procurement prefer to turn the entire procurement job over to one supplier who is completely responsible for all bulk supply matters including balancing, disposal, hauling and quality. Several proprietary handlers indicated that the transaction costs were significantly reduced when only one supplier was involved. Quality was more easily monitored, problems corrected and overall coordination improved.

TABLE 7-29. Scale Questions Dealing with Full Supply Arrangements.

STATEMENT[1]	Mean Score[2]	
	Co-ops	P.Handlers
*Co-ops benefit most from full supply arrangements.	2.77	3.78**
*Co-ops prefer full supply arrangements because it puts them in a better bargaining position with proprietary handlers.	2.98	3.95**
*Co-ops prefer full supply arrangements because they allow the co-op to gain a competitive advantage over other co-ops operating in the same market.	2.87	3.61**

1 (*) indicates mean scores significantly different at 5% level.
2 (**) indicates the mean score is significantly different from 3.0 at the 5% level (one tail test).

A food chain which had recently integrated into processing was adamant in their preference for a single cooperative supplier. Theirs is a case which demonstrates the major contribution to sub-sector coordination that a large regional cooperative can make and the costs to the system in terms of exchange efficiency which result from a larger number of smaller buyers and sellers. The food chain handler asked the cooperative where it was going to get five million pounds of milk per month to put into their new plant the day it was scheduled to open. The cooperative indicated that it already had the milk. They were

already supplying most of the independent proprietary handlers from whom the food store chain had been buying their dairy products. When the chain started up their new plant it took milk sales away from existing cooperative customers--the food store's suppliers. The key coordination consequence of such a structural shift is the disruption that would have occurred in the system had there not been a large volume, regional cooperative to smooth this transition. If the food chain handler had to deal with several small cooperatives or even independent producers, there would have been tremendous localized effects on particular small proprietary handlers and consequently the producers supplying them. For example, if they bought milk away from a cooperative and that cooperative could no longer supply another proprietary handler in the area, then that proprietary handler might go out of business. Also, if that proprietary handler's volume was reduced because he was no longer able to sell to the food chain, then there might be some farmers in a local market without a handler to which he (she) could sell. The effect of the cooperative in this transaction was to ameliorate the situation facing local cooperatives, farmers and proprietary handlers by moving the milk all the back from the processing plants that they had formerly been supplying with milk to the food chain's plant, they were able to minimize the total disruptive effect on the system. There are some proprietary handlers now who have less milk sales than they did before since the food chain is now processing a lot of its own milk needs but the disruptive effects were reduced by the existence of a regional cooperative.

In response to survey questions, 57 percent of those proprietary handlers purchasing their bulk milk needs under a full supply

arrangement indicated that it provided a more preferred flow of milk to their plant than before such an arrangement. In addition 94 percent of those buyers indicated satisfaction with their full supply arrangement. Sixty percent reported general satisfaction and 34 percent have found them totally satisfactory. These results suggest that proprietary handlers who have full supply arrangements, although feeling that they benefit cooperatives more, receive some benefits themselves. According to the surveys, the contention that proprietary handlers are coerced into full supply arrangements by the availability of procurement services to full supply customers only, is not borne out. In the case of the ten procurement services previously discussed, no more than 13 percent of the responding cooperatives indicated that any particular service was available only to those customers with a full supply arrangement.

Proprietary handlers reported virtually no instances of cooperative recriminations--actual or anticipated--against themselves or other proprietary handlers.

Some cooperatives and proprietary handlers noticed a qualitative difference in the treatment afforded a full supply buyer over a partial supply customer. Quality problems were corrected more quickly with no opportunity for the responsibility to be passed to another source when the buyer had a single supply source. Some buyers and sellers said that it was reasonable to expect a full supply customer to get preferential treatment in times of short supplies. No full supply customer indicated a hesitancy on the part of a cooperative to correct problems with the bulk milk supply. It appears that despite some disincentive by virtue of the full supply nature of the arrangement to quickly redress

buyers' concerns, there is sufficient competition for buyers among cooperatives and termination of supply arrangements (written or verbal) is quick and easy enough that cooperative performance is assured.

7.7.2 WRITTEN OR VERBAL SUPPLY ARRANGEMENTS

Interviewees provided several conditions favoring the use of the written over the verbal arrangement.

For the first two or three years of a sales relationship, both parties may prefer a contract until and if mutual trust and respect develop, and standard operating procedures are well established. If a compromising environment develops the contract may be unnecessary.

Without a mutuality of objectives between the two parties, a contract may be preferred by one or both participants. One proprietary handler indicated that after having it demonstrated to him twice that the cooperative was unpredictable and not willing to work with the buyer as a partner, he insisted on a written arrangement.

As with the use of full supply arrangements, when supplies are short, proprietary handlers are particularly anxious to reduce the uncertainty of their supply by signing a contract. Cooperatives, of course, are usually more disposed to this when surpluses develop.

Whenever either party plans a major capital expenditure with outside financing, a supply contract is often required by the lender to ensure the long run viability of the investment. In the antitrust environment today, it is doubtful if any cooperative would enter into a written full supply arrangement in excess of one year but partial supply contracts could be negotiated for longer periods of time.

If a cooperative has no manufacturing facilities or only limited capacity they might prefer a written arrangement to reduce the uncertainty surrounding their disposal task. This condition also favored the use of the full over the partial supply.

The process of negotiating a supply contract conveys more information, most participants believed, than does the establishment of a verbal agreement. Both parties are required to consider contingencies and assign responsibilities and rights under the contract. As seen in Section 6.2, if damages can be established in the contract for breaches by either party transaction costs can be greatly reduced in the event of a breach and the costs of a breach are known with certainty by a party contemplating it. A proprietary handler suggested that if written contracts were used, they should be reviewed by each party at least annually to ensure that all terms still conform to standard operating procedures. If not, the written contract is no different than a verbal agreement and can lead to increased transaction costs in the event of a breach or dispute.

In the West, cooperatives have considerably less market power due to their lack of supply control. Discussions of supply contracts with these cooperatives indicated that in general, contracts were significantly less comprehensive in their detail than in other regions of the country. The reason for this given time and gain by cooperative management was that selling markets were so competitive that they had no room for negotiation. This suggests that in the absence of significant cooperative power, terms of contracts are more likely to be sketchy and in general assign more responsibility and/or fewer rights to cooperatives than to proprietary handlers. Exchange efficiency can be expected

to be reduced since fewer contingencies are considered in the course of contract construction. Equity is also affected as proprietary handlers rely on abundant supplies as well as their size, experience and greater market power to settle contract disputes.

In the course of the personal interviews several reasons for the use of verbal supply arrangements were suggested.

Primarily as the result of recent Justice Department and Federal Trade Commission attention to cooperative power and the use of supply contracts--especially full supply contracts--many cooperatives are not willing to enter into written arrangements.

The concensus among cooperatives interviewed was that a contract was only as good as the people responsible for maintaining the sales relationship. For this reason, several cooperatives and proprietary handlers could see no real benefit to be gained from a written arrangement. Several also observed that, from their viewpoint, the system worked the same regardless of the type of arrangement employed.

A few cooperatives have decided that a contract which holds them to a fixed supply regardless of the costs of furnishing that supply is not worth the stability it provides. In the face of free riders and growing reserve and surplus disposal costs, these cooperatives find it unprofitable to service some buyers. By using a verbal arrangement they feel that they can establish reasonable service charges and buyers can take or leave the bulk milk supplies of the cooperative as they choose. But if they buy from the cooperative they are expected to pay the established fees. This approach works most effectively for the marketing or operating cooperative which has adequate manufacturing or processing capacity of its own.

As noted in earlier sections, the size of cooperatives and proprietary handlers reduces their options for bulk milk supplies and minimizes the need for a written arrangement.

7.7.3 TIME AND QUANTITY COORDINATION

Two important aspects of any supply arrangement are the timing of daily deliveries to accommodate the processing schedule of the buyer and the adequacy of the quantities delivered. Table 7-30 summarizes the responses of cooperatives and proprietary handlers to three scale questions dealing with the coordination of bulk milk deliveries. These results suggest that although cooperatives perceive their performance to be superior to the assessment given by proprietary handlers, in general quantity and timing coordination of deliveries are good.

Labor unions have profoundly affected the weekly delivery pattern of bulk milk to processing plants. As the five day week with two consecutive days off (usually Saturday and Sunday) is demanded by more and more unions, proprietary handlers desire a corresponding bulk milk delivery schedule. This imposes costs on the sub-sector in the form of storage and transfer costs. In most cases, proprietary handlers request five or six day per week delivery by the cooperative. Cooperatives have to store or manufacture their members' weekend production and have adequate high quality supplies available to fill processors' plants back up Sunday night or Monday morning. Cooperatives contend that as long as there is no incentive for proprietary handlers to resist labors' demands, the work week will be made less amenable to farm production schedules. Cooperatives are concerned that the costs of the altered delivery patterns will accrue to them. In an effort to shift some of

TABLE 7-30. Scale Questions Dealing with the Coordination of Bulk Milk Deliveries.

STATEMENT[1]	Mean Score[2]	
	Co-ops	P.Handlers
* On a day-to-day basis, our deliveries to our customers (of bulk milk) fit their preferred delivery schedule the majority of the time.	4.64**	3.20
* During a month, we deliver more milk than our customers prefer.	1.81**	2.78
It is an unusual occurence if our customers are short of their needed volume of bulk milk on any given day.	4.21**	4.00**

1 (*) indicates mean scores significantly different at 5% level.
2 (**) indicates the mean score is significantly different from 3.0 at the 5% level (one tail test).

the costs as well as to provide proprietary handlers with a monetary disincentive to acquiesce to labors' requests, cooperatives have tried several approaches.

The most common method is to offer a price or service charge reduction to a buyer provided milk will be accepted seven days per week with reasonably equal daily deliveries.[1] An alternative method

[1]One cooperative which charges a fee for five day per week delivery has also worked out a plan with their principal customer to reduce the cooperative's costs of accommodating the union-dictated receipt patterns. The buyer's costs are not affected. The cooperative

is to increase the service charge to proprietary handlers who choose to receive milk five or six days per week. Still other cooperatives offer a discount on any weekend purchases. This latter method is best designed for those situations where the buyer accepts milk every day of the week but prefers significantly lower quantities on the weekends.

Cooperatives had several observations on the use of such plans. Some cooperatives observed that without a plan such as those described above, an inequitable situation existed between their customers with different frequencies of receipt. Another cooperative reported that a system of credits for seven day delivery had resulted in a more steady flow of milk into their manufacturing plant which facilitated their scheduling and operations. Some cooperatives were not able to charge an extra fee for less frequent delivery or able to offer a credit for more frequent receiving patterns. Their customers simply would not pay a service fee or the cooperative could not afford a reduction.[1] Once again, market power as well as the competitive situation faced by proprietary handlers and the relative scarcity of outlets combine to determine the distribution of costs within the sub-sector.

A few cooperatives stated that by the imposition of monetary costs on buyers, cooperatives hoped to redistribute the incidence of storage and transfer costs associated with truncated processing schedules so as to induce proprietary handlers to enlarge and improve their

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agrees to pay the over-time wages of an employee of the buyer to accept delivery of some milk on Sunday. This reduces the burden on the cooperative's manufacturing and storage facilities and prevents the quality deterioration of some bulk milk which would otherwise result.

[1] If order minimum prices prevail, the cooperative cannot, by law, charge less than these prices.

receiving and storage facilities. In fact, some proprietary handlers interviewed suggested that they were considering doing this to enable them to accept milk all week and avoid the costs or capture the credits associated with this practice. For most of them, the potential rewards were not yet large enough or in the long run, certain enough, to justify the investment. A fundamental organizational question for the sub-sector is whether such action by proprietary handlers would minimize sub-sector costs imposed by the required discontinuous delivery schedules. Although not enough information is available to answer this question, it is believed that most cooperatives who handle volumes larger than those used by any single buyer, would be in a better position to own and operate storage facilities in a market. If each bottler was encouraged to own storage capacity sufficient to accommodate week-end receipts, over-investment in these facilities and excess storage capacity in a market might be the result. Further research is indicated in this area both to determine the potential economies of cooperative-run storage with buyers sharing the costs and the trade-offs in terms of equity, harmony and the balance and exercise of market power.

7.8 COOPERATIVE INTEGRATION INTO PROCESSING AS AN AREA OF INQUIRY

Cooperatives who have integrated into processing by virtue of reblending opportunities may be able to gain a competitive advantage over proprietary handlers in their market.

In this section cooperative involvement in the processing and distributing of fluid milk products[1] will be examined. As pointed out

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[1]Cooperatives which process and distribute some fluid milk products are called processing cooperatives.

earlier cooperatives account for at least twelve percent of U.S. fluid milk product marketings. At first glance, the only significant disharmony that might be expected between proprietary handlers and these cooperatives would arise out of healthy rivalry. The situation is not that simple. The special problems, concerns and disharmonies engendered by growing cooperative involvement in processing will be discussed in the following pages. The issues in this debate are different than those previously encountered in this chapter. The central issue is whether or not cooperatives have a competitive advantage in processing and distribution over proprietary handlers which should be eliminated. The debate is heated today in many parts of the United States.

Many proprietary handlers contend that by virtue of their ability to reblend[1] proceeds, dairy cooperatives can allocate processing and distribution costs within their organization in such a way that these costs are subsidized indirectly by general overhead, manufacturing or hauling operations and directly by the membership (farm production enterprise) and, if premium Class I prices exist, by bulk milk customers of the cooperative. At first it might appear that proprietary handlers are claiming that processing cooperatives are not charging themselves the same premium price and service charges that their bulk milk customers must pay. This is not the problem. Sufficient marketing order audit procedures exist to ensure that such competitive advantages are not directly available to processing cooperatives. The problem arises

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[1]As discussed previously, cooperatives reserve the right in their membership-marketing agreement to receive all proceeds from the sale of members' milk and related products and pay on a cooperative-wide basis marketing, operating and overhead costs and allocate the balance to their membership in any manner authorized by the Board of Directors.

because, by virtue of reblending rights, cooperatives need not return the order blend price to their members, while proprietary handlers must pay independent producers or cooperatives through the order pooling procedures the equivalent of the order blend price. It can be argued that in the long run cooperatives cannot fail to return at least the order blend if they hope to retain membership,[1] but it is also true that members may continue to support an unprofitable enterprise for an extended period of time if they believe it serves their competitive and market power interests. Additionally, proprietary handler competitors of a processing cooperative can suffer varying degrees of financial hardship in a short period of time and significant foregone sub-sector efficiencies sacrificed as disinvestments occur and accounts change hands.

Clearly such internal or intra-cooperative cross-subsidization is not illegal but according to the results reported in Table 7-31 both cooperatives and proprietary handlers feel it should be. Designing rules to establish its illegality, however, encounter many of the same problems discussed with respect to pool loading. Difficulties in pairing intentions or purposes with types of observed behavior complicate recognition of the behavior yielding the undesired outcomes. Notice also that in Table 7-31, neither group of participants see any desirable marketing consequences resulting from such behavior. Proprietary

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[1]A few proprietary handlers observed that intra-cooperative cross-subsidization by reblending can be reduced by competition from other cooperatives or independent producers. If the opportunity cost of being a member of a processing cooperative relative to another cooperative or an independent producer reaches some critical threshold sufficient to overcome producer loyalty and transaction costs, the member will leave the cooperative. Under conditions such as this a processing cooperative cannot long operate an unprofitable enterprise.

TABLE 7-31. Scale Questions Regarding Cooperative Integration into Bottling: Cooperative and Proprietary Handler Responses to a Behavioral Scenario.

SCENARIO Co-ops, who process some or all of their members' milk into fluid or soft dairy products, pay their members a blend price which is less than the order minimum (or less than proprietary handlers must pay) to allow them to sell their products below the prices of proprietary handlers.

QUESTIONS[1]	Mean Scores[2]	
	Co-ops	P.Handlers
*Should it be allowed by law?[3]	2.31**	2.96**
*Does behavior such as this ever have desirable marketing consequences?[3]	2.41**	2.67**
*Cases such as this probably occur frequently.[4]	3.02	3.56**

1 (*) indicates mean scores significantly different at 5% level.
2 (**) indicates the mean score is significantly different from NO OPINION (i.e., 2.0 for first two questions and 3.0 for the third one) at the 5% level (one tail test).
3 Respondents were given a choice of YES, NO OPINION or NO, where YES = 1, NO OPINION = 2 and NO = 3.
4 The usual five point scale was used for this statement, where STRONGLY AGREE = 5 to STRONGLY DISAGREE = 1.

handlers believe that cases such as this occur more frequently than do cooperatives.

Proprietary handler reaction to cooperative involvement in processing and distribution depends on both how and why cooperatives undertake it. Suspicions of intra-cooperative cross-subsidization easily arise, especially if premium prices prevail and the

disharmonizing effects are normally just as significant regardless of whether the suspicions are justified. If proprietary handlers in a market believe the cooperative is trying to drive them out of business through what they perceive to be unfair competition, devastating price wars at the wholesale level can erupt. If on the other hand, the processing cooperative operates in a geographical area of the processing market where none of its major bulk milk customers distribute products peaceful coexistence can prevail. Notice that in the scale question below, proprietary handlers express a slight preference for limitations to the degree of cooperative integration. This statement includes manufacturing as well as processing activities and may have elicited a more committed response if it specified processing particularly.

SCALE QUESTION:

> Cooperatives should not be restricted in their integration activities any more than should non-cooperative firms in the dairy industry.
>
> Mean score, proprietary handlers = 2.89; not significantly less than 3.0 at 5 percent level.

There is another side to the issue of processing cooperatives which exists apart from the question of special competitive advantages enjoyed by these cooperatives. It involves the participants' perceptions of the role for cooperatives and proprietary handlers in the sub-sector. Almost all proprietary handlers interviewed suggested that the role of cooperatives should be milk procurement including reserve and surplus disposal but processing and distribution should be left to proprietary handlers. Understandably, proprietary handlers resent competing in final product markets with the same organization from which they procure their raw product. Despite the nature of the

competition, this combination of relationships often produces disharmony. A most graphic example of the conflict which can develop when processing cooperatives, whether competing on an equal basis or not, market their products in direct competition with their bulk milk customers is presented in Appendix K.

Cooperatives indicated several reasons for vertically integrating into processing and distribution.

Although there is not a consensus among cooperatives on this point, many indicated that a cooperative may need to acquire processing and distribution facilities in order to guarantee their members a market. They argue that as independent proprietary handlers become fewer in number and food chains operate their own bottling plants, cooperatives may need to have their own processing capacity in order to ensure a Class I outlet for their members. As the number of potential buyers of bulk milk decline, it is suggested that their power will increase relative to cooperatives and bottling capability will be important to some cooperatives. Other cooperatives and some proprietary handlers disagree. They do not foresee any significant foreclosing of fluid markets to cooperatives. In fact, many argue that as more food chains integrate backwards, the availability of Class I bulk milk outlets increases for cooperatives.

Related to the above is a desire on the part of some cooperatives to fill niches in the wholesale and retail markets being abandoned by proprietary handlers in increasing numbers. Cooperatives feel they can serve the small grocery outlets, the institutional market and home

delivery customers.[1] Home delivery is costly but in many areas the demand exists and some cooperatives believe they can serve it. Small grocery stores are being abandoned by many proprietary handlers and independent jobbers but remain an important outlet for milk and dairy products. The institutional market is significant but requires special products and containers which not all proprietary handlers are choosing to offer. Processing cooperatives which fill these kinds of niches in the market can be quite compatible with their bulk milk customers. If the segment of the market chosen by processing cooperatives does not coincide with that served by proprietary handlers or the cooperatives' fluid distribution area does not overlap with that of their bulk Grade A customers, disharmony can be avoided.

A few cooperatives have entered processing to earn margins to offset the losses suffered in reserve and surplus disposal and other marketwide services. A cooperative, when presented with this justification, suggested that if this was a compelling reason the bulk milk customers of this cooperative would have been better off to pay an increased fee for these services to eliminate the reason for the cooperative to integrate.

As discussed in an earlier section, cooperatives in the event of buyer default often assume ownership of processing facilities in payment for bulk milk receivables. Some proprietary handlers feel that cooperatives extend liberal credit terms in the hope of a takeover,

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[1]Another segment of the market which some cooperatives are filling is the manufacture of private label dairy products (hard and soft) for integrated food chains which do not have sales volumes in these products adequate to capture the economies of scale necessary to justify operation of their own plant.

but other proprietary handlers and most cooperatives believe that in most of these cases cooperatives step into an unprofitable situation. This method of integration normally causes few problems because these ventures offer little competition and furthermore represent only limited inroads into local markets. More aggressive cooperative integration by purchase of proprietary plants, cooperative merger or acquisition, or construction of new facilities is viewed as more of a threat by proprietary handlers.

Cooperatives may also integrate in order to offer their customers a full line of products and services and their members more direct access to consumer markets.

Cooperatives offered several reasons why they have not entered into processing and distribution. Some did not anticipate adequate sales volumes to economically justify the investment. A few cooperatives doubted that it improved their bargaining position with proprietary handlers at all. Others have decided to not cast themselves in the role of their bulk milk buyers' competitor. Still others observed that in their area the processing industry was competitive enough without another entrant. Either the potential profits appeared too meager or the existing bottlers needed no disciplining force to stimulate better run operations. A few cooperatives felt that their organization was better off with as many potential proprietary bulk milk customers as possible and these cooperatives did not want to see processing cooperatives force some proprietary firms out of business.

In Table 7-32 the responses of cooperatives and proprietary handlers to a query about motives for cooperative integration is presented. These results are not applicable solely to the issue of

TABLE 7-32. Reasons Why a Dairy Cooperative Might Integrate into Manufacturing, Processing, Distribution or Retailing.

	% Indicating Each Reason			
	Important[1]		Most Important	
	Co-ops	P.Handlers	Co-ops	P.Handlers
To gain market power.	44	73	9	49
To overcome inadequate information exchange between producers and handlers.	6	4	0	2
Reduce uncertainty or better manage risk.	29	13	15	2
To increase member returns by profitably operating processing manufacturing, distribution or retailing activities.	62	43	43	17
To increase co-op flexibility and diversity.	60	39	19	12
To increase the size of their operations.	14	37	6	8
To achieve more favorable terms of trade.	24	27	2	8
Other	11	9	6	2

1 Respondents could choose more than one reason.

processing cooperatives since manufacturing activities were also included as a direction for cooperative integration. This may explain the choice of "To gain market power" by a high proportion of both groups since manufacturing facilities unequivocably confer some power on the cooperative. Notice that proprietary handlers assigned more importance than did cooperatives to this reason, however. Increasing members' returns and the cooperatives' flexibility and diversity were recognized as important by both groups.

What does the future of processing cooperatives look like? Barring Federal Trade Commission or Justice Department actions or any changes in Capper-Volstead legislation, cooperative involvement in processing and distribution will increase to a limited extent. Many proprietary handlers would like to see such actions by the regulatory agencies. These bottlers contend that cooperatives will force even more of them out of business as they reduce the volume available in the market thereby pushing proprietary firms back up their average unit cost curve.

As previously discussed, cooperatives are divided on this issue. Most believe cooperatives are well-advised to refrain from processing activities. One processing cooperative suggested that cooperatives' roles should not be mixed. Processing cooperatives should not sell any bulk milk and other cooperatives should not bottle any milk. But another cooperative manager strongly expressed the opinion that to be successful dairy cooperatives would have to master the tasks of bargaining for favorable terms of sale for bulk milk, operating manufacturing and processing plants, and selling hard dairy products (the output of reserve and surplus disposal).

Some cooperatives and proprietary handlers observed that if proprietary handlers were successful in their efforts in some markets to curtail bulk milk purchases from these cooperatives, the cooperative would soon be left with only as much volume (members) as they possess manufacturing and processing capacity. Proprietary handlers, in attempts to hang on to wholesale customers in the face of cooperative competition (equal or not), have started price wars at the wholesale level and refused to buy any bulk milk from the cooperative even if a supply contract existed.

It is likely that cooperatives will continue to account for an increased proportion of the processed dairy products but will not gain a majority of it nationally or in most local markets. The intensity of concern felt by proprietary handlers about unfair competition or competition at all by processing cooperatives, will ebb and rise. It can be expected that the discipline on reblending provided by other cooperatives and independent producers in conjunction with proprietary handlers' efforts to resist cooperative competition will keep processing cooperatives' inroads to a minimum. Processing cooperatives will survive and grow in areas isolated from significant proprietary handler marketing activity or when they choose to serve market segments largely abandoned by proprietary handlers. Few gains in sub-sector performance can be seen from cooperative involvement in processing and distribution except as noted above when they can fill a vacated niche. There appears to be no need to provide incentives or disincentives at this time to cooperative involvement in processing and distribution. Private activity can be expected to yield a generally harmonized structure

which encourages coordinating behavior and outcomes consistent with sub-sector performance criteria.

CHAPTER 8

CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS

8.1.1 GENERAL CONCLUSIONS

Two basic conclusions emerge from this research. First, there are profound differences to be found in procurement conditions and the attitudes of participants from market to market and region to region. Furthermore, cooperatives differ as to their objectives and the means they employ to achieve them. Proprietary handlers do not all share common experiences, attitudes and behavior patterns with respect to cooperatives. How these two participants choose to interact in a market is the major determinant of the degree to which procurement coordination exists. In general, a high degree of understanding of each other's preferences, attitudes and decision-making processes was demonstrated by cooperatives and proprietary handlers. This is a good basis upon which to build procurement coordination.

Secondly, the procurement system is facilitating effective sub-sector coordination. When judged against the performance criteria offered earlier, it is concluded that the system is functioning well when one considers the hundreds of largely independent decisions which must be made and combined into an overall industry and sub-sector outcome.

There are some areas of concern, however. The coordination of the system could be improved consistent with the stated performance objectives if solutions to these problems could be found. Not all require nor would necessarily be best served by public sector involvement, but some would. A public sector solution to the efficient and equitable accomplishment of reserve and surplus disposal is needed. In addition, existing public institutions in the dairy sub-sector discourage the timely and undistorted transmittal of information affecting individual producers' production decisions--especially in the downward direction. These provide the basic thrust of the prescriptive measures which will be elaborated later. Several specific conclusions based on the study will be set forth first. They will be organized into groups suggested by the areas investigated in Chapter 7.

8.1.2 INFORMATION AND COMMUNICATION

"Enforcer" type behavior by cooperatives or proprietary handlers is not in the long run best interest of either group or sub-sector coordination. "Compromiser" behavior appears to encourage harmony, communication, understanding and transaction synchronization.

8.1.3 AVAILABILITY OF ALTERNATIVE SUPPLIES OF MILK

Alternative supplies of bulk Grade A milk discipline cooperative conduct. Furthermore, proprietary handler treatment of independent producers is disciplined by marketing order provisions and the existence of viable cooperatives. Although cooperative and proprietary handler power is often significant, a large number of competing sellers and buyers respectively, is not required to elicit concessionary behavior. NFO and Farmers Union, although creating some disharmony

among cooperatives and proprietary handlers, do offset the power of cooperatives in some markets. Competing sellers of these types are not expected to disappear in the foreseeable future.

The plant qualification provisions in federal orders should be structured to ensure that the Class I market is served. If designed too tightly, wasteful transfers of milk are encouraged, but if too loose, proprietary buyers may experience increased transaction costs associated with milk procurement, as supply plants keep their milk at home.

8.4.1 PROCUREMENT SERVICES

Services directly associated with the milk supply delivered to a proprietary handler (handler services) are best provided by cooperatives. Not only does this capture more efficiences relative to other arrangements, but buyers are generally satisfied with the services and prefer that cooperatives continue their provision. These type of services are exclusionary in nature and so offer no serious "free-rider" problems. Cooperatives, in general, feel they are adequately compensated for these services. To capture compensation for services rendered, separate service charges are preferable to the use of general over-order premiums in transmitting information to buyers about the competitiveness of the price they pay.

Marketwide services, particularly reserve and surplus milk disposal, are a source of major coordination concern in the sub-sector. Cooperatives, by choice to gain bargaining power and by imposition as proprietary handlers--especially integrated food chains--opt out of this market responsibility, are doing a large and growing share of the supply balancing in their markets. Significant efficiencies are gained

when cooperatives can assume this role for a larger share of the milk supply than could a single proprietary handler. Problems arise because many of the benefits of disposal are non-exclusionary and produce incentives on other market participants to free ride on the cooperative with balancing facilities. This behavior is not unexpected or irrational but in the absence of constraints market balancing cooperatives will continue to suffer some irrecoverable costs which will contribute to sub-sector instability and reduce producer incomes. If cooperatives are to continue to balance market supplies then public sector assistance through the marketing order program is needed to provide equitable sharing of these responsibilities (costs) and adequate compensation. Producers should not have to bear the costs of disposal of normal and necessary Grade A reserves.

A quicker test for antibiotic contamination of raw milk is needed to improve the quality coordination in procurement. Product waste would be reduced and a tighter incentive placed on producers to more carefully administer antibiotics. Cooperatives and proprietary handlers alike would be well-advised to contribute to research committed to the development of an improved antibiotic test.

8.1.5 PRODUCTION CONTROL

There are no effective farm level production control mechanisms in the dairy sub-sector. Marketing orders tend to create a common property resource of the bulk milk sales market through their blend price signals and their marketwide pooling provisions. The price support program is inconsistent and unreliable as a control mechanism because its primary use is to maintain farm income and it is subject to other than economic pressures. Although it is highly effective in

spurring increased production it often exacerbates over-supply conditions. Cooperatives are powerless to affect production--at least in the downward direction--because of the common property nature of the market created by the public institutions already mentioned. Any cooperative attempts at allocating production rights among their members have been eroded by free rider problems except in deficit markets. Cooperative-negotiated premium Class I prices may have been unjustified in some cases and in some markets but these are difficult to identify because of individual market conditions which might have warranted these premiums to offer price stability, pay for services rendered, overcome free rider costs, serve option demand or compensate for lags in the response of order prices to production costs. To the extent premiums are unwarranted they do contribute to over-production. It is possible to design a payment plan which improves the transmission of marginal revenue signals thereby providing tighter production controls while offering equitable sharing of Class I sales and avoiding the accrual of value to the production-sales right.

8.1.6 ANTITRUST RELATED BEHAVIOR

Pool loading, collusion, forms of cross-subsidization for sales below cost, refusals to sell and other types of behavior, although not all per se illegal, were credited with contributing few benefits to the sub-sector or its participants by both cooperatives and proprietary handlers. In virtually all cases, respondents stated that these activities should be illegal, but admitted to their not infrequent occurrence. Cooperative behavior which resembles that used for pool loading purposes can also be observed serving other purposes. Inter-market order pooling manipulation for the intentions addressed in the two

major consent decrees is accepted by almost everyone in and out of the sub-sector as undesirable, however, similar behavior for other purposes is not so clearly evaluated. This type of behavior does demonstrate the necessity of designing and monitoring marketing orders and other institutions to achieve desired results while reducing incentives for undesired performance.

Collusive tendencies between proprietary handlers are reduced when order minimum prices prevail or cooperatives can effectively guarantee the competitiveness of their premiums and service charges. Incentives for collusion grow as premiums and service charges rise, however, regardless of cooperative attempts to establish their integrity with respect to price guarantees. Cooperatives can improve sub-sector coordination and reduce incentives on proprietary handlers for collusion by virtue of their ability to talk amongst themselves as well as with all proprietary handlers in a market.

8.1.7 SUPPLY ARRANGEMENTS

There was no evidence found of proprietary handlers being coerced into accepting full supply arrangements. In fact, satisfaction with these arrangements among buyers was high. Partial supply customers may take advantage of the cooperative's supply balancing service to avoid some market responsibility. Cooperatives, as their bargaining strength allows, attempt to modify contracts or establish service charges to prevent this behavior or obtain compensation from the buyer commensurate with the cooperative's share of the responsibility.

If one or both parties to a supply arrangement has been known to demonstrate "enforcer" type behavior or if the parties have not

previously dealt with each other for an extended period of time, written arrangements are often preferred to verbal ones. Tight supplies and abundant supplies provide incentives for buyers and sellers, respectively, to seek written arrangements.

Once both parties to a supply arrangement are familiar with and trust each other, and the contingencies of a supply arrangement have been explored and provisions made for dealing with them, written agreements may be unnecessary. There is strong evidence to suggest that the stated duration of supply contracts are seldom enforced if one or both parties experience irreconcilable problems with the provisions of the contract. Incentives exist to avoid a sales relationship with an unwilling partner.

Labor unions have profoundly modified the processing schedules in milk plants. Proprietary handlers' required bulk milk delivery schedules are now on five or six days per week basis. Storage and transfer costs are imposed on the sub-sector as a result. Cooperatives are trying to place incentives in the form of special service charges or price credits to encourage more even deliveries during the week or compensate the cooperative accordingly. There is some question of whether total sub-sector costs would be reduced if each proprietary handler was encouraged to maintain adequate storage capacity for seven day delivery.

Proprietary handlers are concerned about the competitiveness of the bulk milk price they pay relative to their competitors. One fear of proprietary handlers about full supply contracts is their vulnerability to forced payment of non-competitive prices. Cooperatives are acutely aware of this concern. Full supply contracts frequently contain

provisions which allow termination by the buyer if the terms do not remain competitive. Normally, the existence of cooperative charges which put their customers in an unfavorable competitive position are quickly rectified by the cooperative prior to any termination proceedings by the buyer, particularly if the volume involved is large. Cooperatives' willingness to do this is a function of the existence of alternative supplies for the buyer, the size of the account, the number of buyers in the market, and the manufacturing and processing capacity of the cooperative.

Supply arrangements between independent producers and proprietary handlers provide more direct production control incentives than do cooperative membership-marketing agreements, however, cooperative competition for producers negates some of this effect.

Cooperative membership-marketing agreements offer no production control discipline. Furthermore, most fail to place sufficient incentives on the individual member to reduce antibiotic contamination in bulk milk supplies. These agreements do not possess the confusing, restrictive procedures for termination they formerly did. The consent decree signed by AMPI in 1975 affected the form of many membership-marketing agreements. Some restrictive termination procedures can be justified to increase the voice option relative to the exit option and thereby provide incentives for improving cooperative performance as viewed by the member-owners.

In the case of any contracts used in the sub-sector, exchange efficiency and equity are best served by the inclusion of specific liquidated damages and penalties in lieu of all others to be paid to the offended party in the event of a breach. This practice reduces the

transaction costs and ill will which can result when litigation is necessary to settle contract disputes.

Although vertical coordination is best served by the most accurate estimates of anticipated demand possible by proprietary handlers, the relative market power of the two parties will affect the incentives for this behavior incorporated in supply arrangements. Depending on the service charges for removing and supplementing pre-specified quantities, buyers will have an incentive to provide different estimates of normal requirements. Equal bargaining partners will tend to develop the most equitable and exchange efficient set of incentives.

Under federal orders with the Texas payment plan, proprietary handlers are not held as accountable for the timeliness of their payments as are buyers with the use of a producer settlement fund. Indebtedness can more quickly rise, producer payments be delayed and the likelihood of proprietary handler default increased under the former order payment plan.

8.1.8 COOPERATIVE INTEGRATION INTO PROCESSING

Cooperative vertical integration into processing and distribution can produce disharmony, costly price wars and disruptions in bulk supply arrangements as a result of normal rivalry between proprietary handlers and cooperatives or the perceived unfair cost advantages conferred on cooperatives by virtue of reblending. Proprietary firms in most cases resent buying their bulk milk supplies from an organization against whom they compete in wholesale markets. Processing cooperatives are much more likely to peacefully coexist with proprietary handlers in their market if the cooperative serves a geographically separate part of the market or a segment of the wholesale or retail

market not served by proprietary firms with which it has a bulk milk supply arrangement. Processing cooperatives who sell no bulk milk normally do not stimulate disharmony among proprietary handlers in the market area.

Processing cooperatives can contribute to the sub-sector by serving abandoned markets but there is no particular equity or efficiency argument to be made for their integration into processing and distribution. Although they can be expected to account for more of these activities in individual markets and nationally, it seems to pose no serious threat to proprietary handlers in most markets. The competitive pressures on the cooperative to minimize the opportunity cost of membership and the avenues open to proprietary handlers to meet cooperative competition will decrease the impact of the processing cooperatives. Processing cooperatives will survive and grow to the extent they can peacefully co-exist with proprietary handlers and profitably operate processing and distribution activities. No public sector involvement in this area is suggested at this time.

8.2 RECOMMENDATIONS

Two major recommendations will be presented in this section. Their design is general since the details necessary for implementation are too numerous for them to be completely foreseen and for presentation here. These are offered as suggestions to decision-makers to correct deficiencies noted in sub-sector performance. They were suggested in the course of this research and noted in Chapter 7. They stem from the observed disharmony, poor quantity coordination and inequities involved in market balancing of milk supplies with demand

and the handling of necessary reserves of milk along with milk in excess of such reserves. Both the recommendations have definite public interest implications.

Reserve and surplus milk disposal are being done primarily by cooperatives. Since these activities are of a non-exclusionary nature difficulty is experienced in assessing costs in conformity with benefits. A marketwide payment plan for such services is recommended to allow cooperatives, who are in the best position to provide them efficiently, to perform these functions.

The pricing plan recommended here addresses the problem of surplus production which frequently occurs. Surpluses exacerbate the problem of disposal, signal misallocation of resources, lead to product waste and increased government costs for purchase and storage of excess products.

8.2.1 MARKET SERVICE PAYMENT PLAN

In Section 7.4 the importance of reserve and surplus disposal to the sub-sector was discussed. In order to meet the demands of a market throughout the year a reserve above the Class I requirements is needed to meet fluctuations in demand which occur daily, weekly and monthly. In addition, shortened weekly processing schedules affect the required reserve. The reserve needed in most markets ranges from 20-40 percent of Class I sales throughout the year. This quantity is necessary to ensure that fluid demand is continuously served. The amount of this reserve which is ultimately not required for fluid purposes must be manufactured (disposal).

Since quantities of Grade A milk supplied and demanded in individual markets are not often perfectly coordinated, even when necessary reserve supplies are considered, there are quantities in addition to the unused reserve which must be manufactured. This can be called surplus milk production. Although some surplus is almost inevitable, its existence is unnecessary to meet demand. When surpluses are large, the federal government enters the market under the price support program to maintain producer prices by purchasing butter, powder and hard cheese at pre-announced prices.

Both reserve and surplus supplies require disposal facilities. Cooperatives have assumed more and more of this sub-sector responsibility with a mixture of willingness and reluctance. Proprietary handlers, who formerly had most disposal capacity in the sub-sector now prefer to have cooperatives do it. Also many cooperatives handle larger volumes than do most proprietary handlers which allows them to capture operating and exchange economies in disposal not available to other sub-sector participants. For these reasons cooperatives should continue to take disposal responsibility in the interest of efficiency and stability.

The current situation is less than equitable, however. The benefits of disposal activity accrue to the entire sub-sector, but typically cooperatives and their members bear a disproportionately large share of its costs. The arguments advanced in the last chapter called for a method to equitably share the cost of reserve and surplus disposal as well as provide for the adequacy of compensation. Public sector involvement, it was argued, was necessary because of the non-exclusionary nature of this service. If left to the private sector, cooperative

involvement would decline and total sub-sector procurement costs would increase.

Although some cooperatives are able to collect compensation for disposal in the form of service charges or Class I premiums, not all can nor can any cooperative do so consistently.

Even if cooperatives could consistently and universally capture adequate compensation through service charges or premiums, equity would not be served. Premiums or service charges assess only the customers of cooperatives and not all the recipients of the service. Furthermore, per hundredweight premiums or charges extract larger payments from full supply than partial supply customers which exacerbates the equity problem. In most cases partial supply customers take more advantage of disposal and balancing services than do full supply customers. Partial supply buyers often use the cooperative as their residual supplier thereby inflicting all balancing and disposal responsibility on the cooperative furnishing only a portion of their needs.

If no equitable method of adequately compensating cooperatives for providing this marketwide service is found they will gradually lose membership as member returns drop below those available to independent producers. The opportunity cost of cooperative membership will become too high. When this happens some cooperatives will go out of business and others will reduce the scope of their market functions. Cooperatives will do less and less disposal. Proprietary handlers will be forced to make other arrangements any of which could be expected to raise disposal costs in a market and simultaneously lead to excess manufacturing capacity.

In designing a plan to share the costs of disposal and provide adequate payment to those who accomplish it two items should be kept in mind. First, in the interest of equity all handlers with supply plants, both cooperative and proprietary, should be part of any marketwide payment plan for disposal services. Second, it is held by this researcher that individual producers, whether members of cooperatives or not, should not bear the costs of disposal of normal and necessary Grade A reserves. However, supplies in excess of predetermined levels in each market could be the responsibility of the producers through their cooperative or the proprietary handler as is currently the case.

The marketwide service payment plan described below differs from alternative plans which the sub-sector has from time to time considered in one principal way. Supply plants would not be compensated for surplus disposal but only for reserve disposal activities. Without such a limitation a compensation plan would provide a disincentive for production control by subsidizing the manufacture of surplus supplies. The method of distinguishing between reserves and surpluses is an important component of the institutional design.

It is suggested that this plan be instituted under the federal or state marketing order program on a market by market basis. By linking this plan to the marketing order machinery free rider problems associated with this essential activity are eliminated in the interest of equity.[1] The adoption of this plan would come on an individual market

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[1]It should not be forgotten that such a mandatory scheme under the marketing order program solves the free rider problem but does create another one--the unwilling rider. However, it is recommended that in the best interest of sub-sector performance, all participants be legally obligated to take part in this payment plan.

basis as producers, cooperatives and proprietary handlers interact to create a mechanism which will work under their own unique conditions.

The presentation of the proposed marketwide payment plan for the disposal of reserve supplies of Grade A milk is facilitated by the definition and labelling of some key terms.

QAA_i = actual Grade A production in the designated market in month i.

QCI_i = actual Class I sales in the designated market in month i.

$\overline{QA}_i$ = expected necessary quantity of Grade A milk in the designated market in month i to meet Class I demand (fluid and softproducts) and necessary reserves.

$QAN_i = \overline{QA}_i - QCI_i$ = the necessary reserve of Grade A milk in the designated market in month i.

$QAM_i = QAA_i - QCI_i$ = actual quantity of Grade A milk produced which is not needed for Class I purposes and must be manufactured in the designated market in month i.

$QD_i^k = QAM_i^k / QAM_i$ = supply plant k's share of the Grade A milk in excess of Class I needs in the designated market which it manufactured in month i.

$QAE_i^k = QAN_i * QD_i^k$ = supply plant k's allotted quantity of the necessary reserve in the designated market in month i. It is this quantity for which the supply plant will receive a service payment.

$Surplus_i = QAA_i - \overline{QA}_i$ = milk not needed for Class I or reserve needs in the designated market in month i.

Figure 8-1 represents total production for a designated market for a particular month. Its components are identified in conformity to the definitions previously given.

This plan would operate as described below. $\overline{QA}_i$ would be set six to twelve months in advance following an automatic procedure incorporated into the marketing order. This procedure could be determined through the hearing process and would be amended in the same way. The Market Administrator would make the necessary calculations and announce

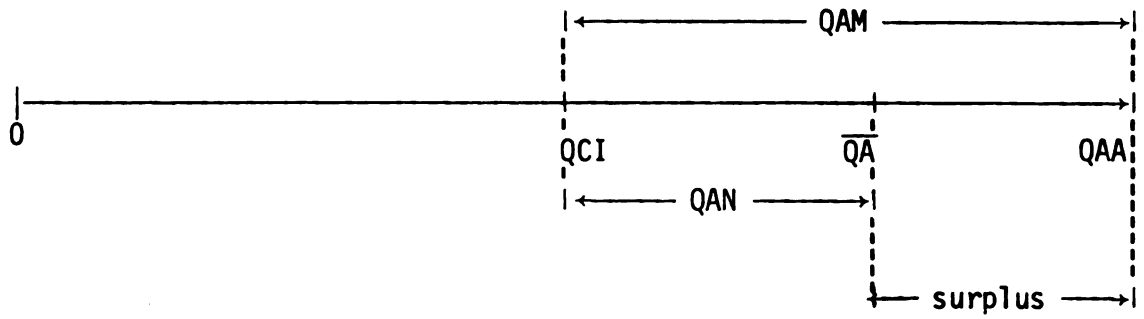


Figure 8-1. Total Monthly Grade A Production and Its Components

the quantity at the earliest possible date. The availability of data on actual quantities as defined earlier would be subject to lags of one to two months. For example QAA_i would not be available until month i+1. This would not change the basic operation of this plan but it would create lags not unlike those which currently exist in federal order machinery. For purposes of simplicity the lags will be ignored in this presentation although they would be important in designing the specific guidelines of this plan.

Once QAA and QCI are known, QAN could be calculated. It is the quantity upon which compensation will be paid for disposal. QAN will be referred to as the reserve supply and its manufacture called reserve disposal.

The next step in the payment plan is to allocate the reserve supply among the individual supply plants who dispose of it and establish the associated assessment and compensation machinery. Each supply plant's share of the reserve supply would be determined. Both cooperative and proprietary supply plants would be eligible to receive a hundredweight payment.[1]

[1] If a supply plant diposed of milk for another handler for which a fee or plant charge was assessed, the handler who incurred the cost could claim the quantity as Grade A milk disposed of.

Each handlers' Class I usage would be assessed a fee to be added to the order minimum Class I price. Both processing cooperatives and proprietary handlers would pay this extra charge into the order pool. These funds would be allocated to each qualified supply plant. The per hundredweight payment would be calculated by dividing the total funds collected from this extra fee by QAN. The reserve disposal payment fee would be designed to yield a per hundredweight payment sufficient to prevent losses on reserve disposal operations but not so high as to compensate for inefficient operations or encourage excess manufacturing capacity. A cost study could provide reasonable guidelines on this for each order. An annual review should be provided for.

8.2.2 PRODUCTION CONTROL

The matching of quantity supplied with quantity demanded is a vital part of vertical coordination. This is an extremely difficult problem in the dairy sub-sector as discussed in Section 5.1. Milk has long been considered as essential food and the preferred quantity coordination error, if supply and demand were not going to perfectly match, was excess supply rather than excess demand. The existence of large reserves testifies to the importance assigned to adequate supplies on even a daily basis as well as to milk's non-storability in fresh form. There are costs to this approach, however. Increased responsibility is placed on the pricing mechanism to communicate resource allocation signals to producers so that surplus production is minimized. In the interest of equity and price and income stability, the dairy sub-sector has institutions which modify the allocation signals of price. The marketing order and price support programs were discussed

in Section 7.5 as two important institutions affecting the resource allocation signals received by dairy farmers. While these programs have improved performance along several dimensions they have created what is largely a common property resource from the bulk Grade A market and thereby reduced the allocating information carried by prices. Surpluses are often the result. While no plan can eliminate all surpluses, it appears that the approach suggested here can be expected to improve quantity coordination. If nothing is done to discipline production, large and costly surpluses can be expected.

Reducing surpluses has its costs too. Some producers may be forced out of business and milk production may no longer be profitable in certain areas and some short run, isolated shortages may occur. The effect of continuing large surpluses is a buildup in both private and government stocks with accompanying higher costs to the consumer and taxpayer.

While many alternative solutions could be offered, most represent non-marginal changes which create at least as many undesirable performance effects as those they seek to redress. Suggestions to eliminate classified pricing, as pointed out earlier, fail to recognize that price discrimination would continue but the distributional impacts would be reorganized--perhaps in less preferred ways. Opponents of marketing orders foresee a return to a perfectly competitive environment for producer-proprietary handler exchange if marketing orders for milk were abolished. While many of the conditions which gave rise to marketing orders have changed, some marketing discipline appears to be necessary to insure adequate supplies, maintain equity between producers, facilitate exchange and prevent disruptive pricing practices. This study

indicates that marketing orders contribute positively to sub-sector coordination, and that changes in the system can improve performance through quantity coordination and equity in handling reserve disposal.

Evidence suggestive of a change in producer price incentives in the interest of quantity coordination will be reviewed. The price support program is designed to maintain dairy farmer incomes by establishing a price floor and so has significant impacts on their production decisions. Unfortunately for vertical coordination, the signals transmitted by the support price can exacerbate the problem of quantity coordination. Various pressures can induce an increase in the support price when its justification is questionable to ensure adequate supplies or supplement producer incomes.

As discussed at some length in Section 7.5, the pooled payment plan in almost all federal and state marketing orders insulates producers from some of the resource allocation signals normally transferred by price.[1] Farmers are largely unaware of the marginal revenue earned from additional production units under a blend price payment system which prevails in most federal orders. They respond to a blend price which appears as a constant average revenue unaffected by output levels. A few federal and state orders improve on this sytem by establishing production bases (rights to shares of higher value sales in their market) and paying a reduced price for amounts produced which exceed the base allotment. Producers under these plans can more easily establish the marginal revenue from an additional unit produced.[2]

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[1]The operation of blend and base-excess producer payment plans will be demonstrated graphically in a later part of this chapter.

[2]Farmers may make marginal output changes by culling unprofitable cows from their herd and replacing them with more productive ones.

Federal and state marketing orders also blunt individual producer response to price by creating marketwide pools for the sharing of high value Class I sales among producers.[1] While this fosters equity among producers, reduces proprietary handler discretionary control over usage allocations and promotes exchange efficiency it does protect the producer from market conditions and the demand for his (her) production. Rather than producing for a particular proprietary handler and receiving payment based on that handler's sales, in virtually all orders a farmer produces for the market. If a producer sells to a proprietary handler, that buyer can and often does communicate his (her) volume needs to the producer but the direct buyer-seller partnership is dissolved by marketwide pooling. If a farmer belongs to a cooperative, he (she) produces with even less concern for handler or market needs because their basic operating philosophy is a guarantee of market for all milk their members produce. This is one coordination aspect for which cooperatives are ill-equipped. This is not meant to suggest changes in cooperative structure or legislative sanction but rather to

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However, non-marginal changes that occur by the net addition of cows to the herd or culling without replacement are predicated largely on the marginal revenue earned on the production from those cows. It is to better inform these choices by producers that this recommendation is intended.

[1]Marketwide pools have almost completely replaced individual handler pools in federal orders because of inequities between groups of producers selling milk to different handlers which developed under the handler pool arrangement. Producers producing identical products in the same locality, but shipping milk to different handlers, would often receive different prices because the Class I sales of the two buyers were different. By eliminating this inequity, marketwide pools encourage the sale of milk to all handlers and not just those with high Class I usages. However, in so doing they contribute to the common property nature of the milk market. Eliminating marketwide pools for the sharing of sales is not recommended by this research both for equity and location coordination reasons.

recognize that despite positive coordination contributions made by dairy cooperatives to the sub-sector, quantity coordination must be improved through other institutions.

The effect of the marketing order program via its blend price signals and marketwide pools is to create a common property resource out of most U.S. farm level milk markets. The effect of this is to create individual incentives to overuse (over produce) the common property resource (milk sales). The socially optimum level is often exceeded as individual producers attempt to maximize their own profit or otherwise satisfy some criteria function.

The information gathered in the course of this research and the subsequent analysis support the amending of market order producer pricing machinery to convey more precise marginal revenue signals to producers in an effort to improve quantity coordination.

As discussed earlier, the price support program can maintain the lowest class price at a level sufficient to call forth surplus Grade A production. If the lowest class price, as established for all federal orders by the Minnesota-Wisconsin series price is not supported by the price support program (when the market price is above the support price), the problem of surplus production is reduced. However, there may still be occasions when the lowest class price established by the unsupported Minnesota-Wisconsin price calls forth production in some markets in excess of necessary reserves. A producer payment plan should convey price signals to producers which call forth Grade A production needed for Class I and reserve demands but discourage surplus production. The recommended plan provides a means to reduce the tendency of the lowest class price to stimulate surplus production.

Preliminary to a discussion of the plan recommended here, a presentation of the two other common federal marketing order producer payment plans is in order. These are the blend price plan with no production base component and the base-excess plan with a production base scheme.

Figure 8-2a shows the operation of the blend price plan from the individual producer's viewpoint. This is by far the most common type found in federal orders. The blend price or average revenue line represents short run, perfectly elastic demand. The producer's average and marginal cost curves are shown. The blend price (demand) line is calculated using the following price and utilization data for the market in which the producer operates. Assume that this market order defines only two classes of Grade A milk, I and II.[1]

P_I = Class I price = \$12/cwt.

P_{II} = Class II price = \$10/cwt.

Class I utilization = 75 percent

Class II utilization = 25 percent

The blend price (P_B) would be \$11.50 (.75 * \$12 + .25 * \$10) as shown in Figure 3-2a. The producer would produce where the perceived marginal revenue equals marginal cost--six units of milk in this example.

Figure 8-2b represents the situation faced by a producer in a federal order with a base-excess plan. The annual determination of a producer's base allotment under this plan sets a daily quantity for which the maximum producer price (the base price) is paid. All

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[1]Some federal and state orders define more than two classes. The proposed plan would operate in the same basic manner in these markets.

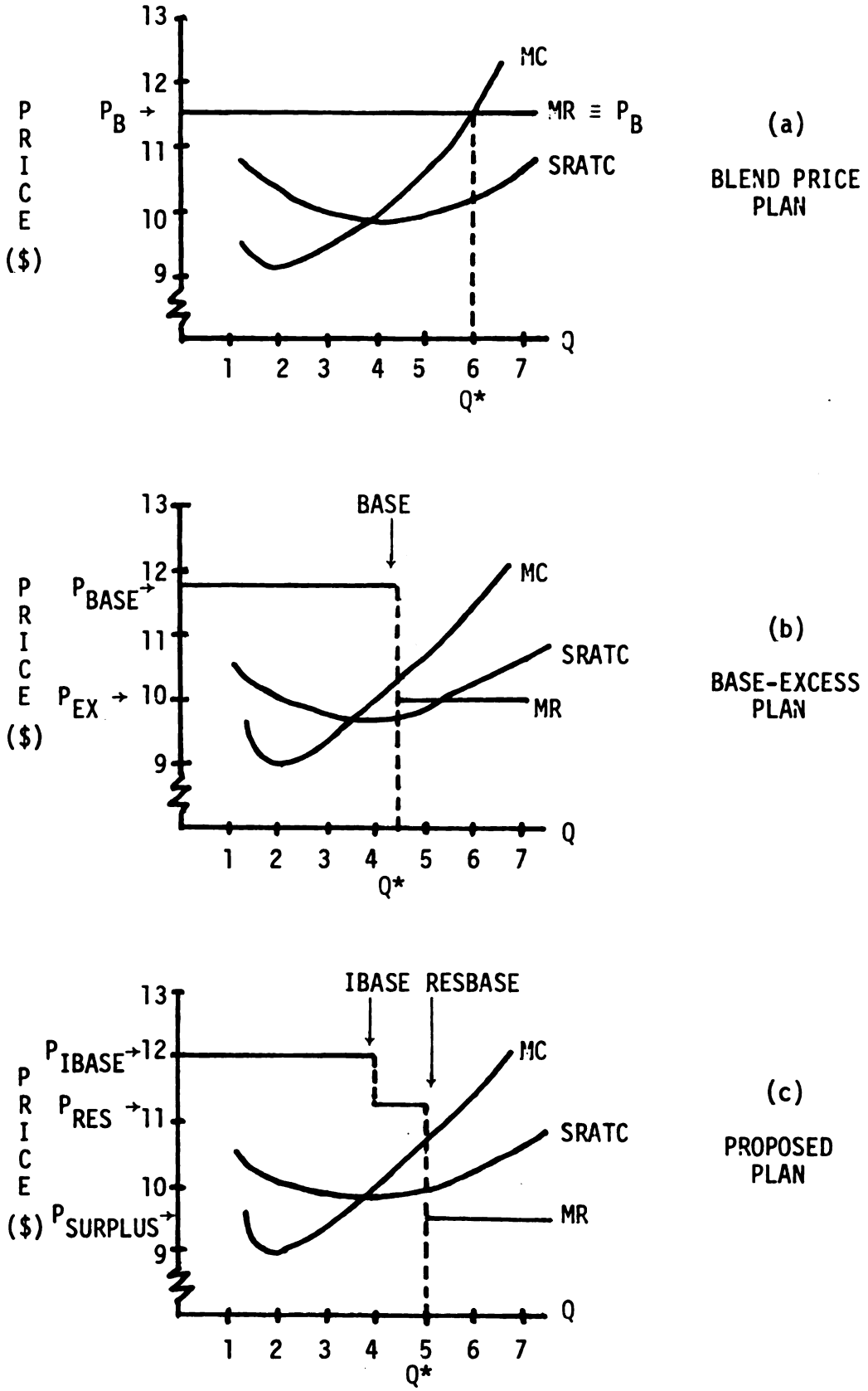


Figure 8-2. Production Decisions of Individual Farmers Under Three Payment Plans

production above this base amount receives the lowest class price called the excess price.

The mechanics of base determination were described in some detail in Section 7.5. The calculation of the base price (P_{BASE}) and excess price (P_{EX}) is more difficult to explain than the blend price. The marketwide revenues collected from all buyers paying the classified prices are allocated to the base and excess milk. First, all excess milk is paid the lowest class price. Next, a detailed procedure establishes the base price which is typically less than the Class I price depending partly on the level of Class I utilization in the market that month. Using the classified prices given before, P_{EX} = \$10 and assume that P_{BASE} = \$11.75.

The producer has a base allocated to him (her) which by design is known in advance of even short run production decisions. Assume that the hypothetical producer has a production base of 4½ units. The existence of this base and the associated two price system produces a discontinuous marginal revenue curve as shown in Figure 8-2b. For the first 4½ units sold the farmer receives the base price but all production over this receives the lower price. With identical cost curves, this figure suggests that the farmer would produce 4½ units.

The producer payment plan recommended here is similar to the base-excess plan in use in seven federal order markets, however, it has three major differences. It creates two separate production bases with three prices instead of one base with two prices. This is designed to convey more precise marginal revenue signals as well as to explicitly recognize the difference between reserve and surplus quantities. The second major difference involves the determination of base allotments.

Under the recommended plan the two bases are computed separately for each month rather than being identical for every month. This change has the effect of creating a plan stressing year-round production control rather than seasonal adjustments. The other difference is perhaps the most important of all in facilitating quantity coordination. Provision is made in the proposed payment plan to pay a price for surplus milk below the lowest class price when the lowest class price would encourage surplus production.

The details of the recommended plan are presented below. A Class I base (IBASE) would allocate Class I sales among all qualified producers under the market order while a reserve base (RESBASE) would allocate rights to the reserve quantity. The details of base determination could be handled in several ways depending on the characteristics of the individual market, however, one possible method will be presented here to help explain the plan.

A Grade A producer selling milk in month i would receive two bases applicable for that same month one year hence. It would take one year for new producers to begin to receive payment under this proposed plan, however, in the meantime they could receive a specially computed blend-type price as is currently done under the base-excess plan. To form bases for month i+12, a producer j selling Grade A milk in month i would have a share computed as

$$SHARE^{j}_{i+12} = QAA^{j}_{i} \; / \; QAA_{i}$$

where QAA^{j}_{i} is defined as actual Grade A production in month i by producer j and QAA_{i} is total marketwide Grade A production in the same month. Actual Class I sales in the market in month i (QCI_{i}) could be

used as an estimate of sales for the same month one year hence or a different estimate could be made by the Market Administrator using procedures ppovided in the order. The chosen quantity of expected Class I sales in month i+12 ($EQCI_{i+12}$) could then be allocated between the Class I and reserve bases.[1] Assume 80 percent of $EQCI_{i+12}$ is allocated to IBASE, then producer j's IBASE in month i+12 ($IBASE^{j}_{i+12}$) would be calculated as $SHARE^{j}_{i+12}$ * ($EQCI_{i+12}$ * .80) and disclosed to him (her) ten to eleven months before it becomes effective. The Class I price, when determined for month i+12 by the present scheme,[2] would become the IBASE price (P_{IBASE}).[3] In the example carried through this section, P_{IBASE} would equal $12/cwt.

Recalling the presentation in Section 8.2.1, an expected quantity of milk for reserve purposes (QAN) was calculated as $\overline{QA}$ - QCI where $\overline{QA}$ was an anticipated quantity of Grade A milk needed each month for Class I plus reserve purposes and QCI was actual Class I sales. QAN_i * $SHARE^{j}_{i+12}$ gives producer j's reserve base (RESBASE) for month i+12 but again known to the producer several months in advance.

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[1]This allocation is important and should be tailored to conditions in the particular market. Some of the expected Class I sales will normally need to be allocated to the reserve base to ensure that the reserve price is greater than the surplus price when the surplus price is not reduced below the lowest class price as explained later. Furthermore, the assignment of a part of expected Class I sales to the reserve base serves to keep the Class I base price equal to the Class I price when expected Class I sales are over-estimated.

[2]The recommended plan proposes no change in the determination of classified prices although the recommended plan could accommodate most changes in procedures for setting the classified prices.

[3]Unless the actual Class I usage in month i+12 was less than total $IBASE_{i+12}$, in which case P_{IBASE} would be less than the Class I price by virtue of the Class II milk needed to fill out the IBASE quantity.

Any milk produced by farmer j in excess of IBASE + RESBASE would be called surplus milk. The price paid for surplus milk would be the lowest class price in that order less a per hundredweight amount designed to reduce the surplus price below average cost of production. The amount by which the lowest class price would be reduced should be large enough to discourage surplus production. It may be necessary in some cases to set the surplus price below average variable cost in that order. The procedure for acquiring cost of production data as well as the mechanism through which the size of the reduction would be determined would both be specified in the order. For the example used here assume a 50¢/cwt. reduction to yield a surplus price of $9.50/cwt.

After IBASE and surplus milk are paid for out of the marketwide revenue pool as detailed previously, the remaining funds would be divided by QAN_i to yield the reserve price (P_{RES}). It is expected that this price would be slightly less than the IBASE price and considerably more than the surplus price but market usages would affect this each month. In this example a reserve price of $11.25/cwt. is assumed.

Figure 8-2c depicts the situation for a producer under the proposed plan when classified prices and costs are identical to those used in the two other plans. In the proposed plan, assume the producer has an IBASE of four units and a RESBASE of one unit. A quantity of five units would be produced which in this example is intermediate between the case presented in Figures 8-2a and 8-2b. With the proposed plan the producer has a marginal revenue function composed of three linear segments. This should improve the information carried by the pricing system over either of the other two plans. Its effectiveness will be improved by the inclusion of the three prices and each producers'

volume in each category on producer statements from proprietary handlers or cooperatives. In addition, by allowing a surplus price, when necessary, below the lowest class price, the capability to discourage surplus production is enhanced over either of the other plans.

8.2.3 ADDITIONAL COMMENTS

These recommendations do not call for the overhaul of the federal order system as have some authors [Masson, Ippolito, Lenard, T. Roberts]. Neither are they comprehensive. It is this researcher's conclusion based on this study that despite some needed changes, the sub-sector is functioning rather well.

It should be recognized that the system is possessed of sufficient inertia and diverse, quickly mobilized centers of political power to slow the pace of change significantly. Most changes will occur within a market order and not over several orders because local interests effectively communicate their concerns and special circumstances.

Major system changes would be unlikely to yield the expected results. Although conditions have changed since the order system was established, there are many justifications for its existence. Changes will be made. The trend toward order consolidation is one that this researcher and many of those interviewed feel contributes to improved sub-sector coordination. It will continue slowly.

8.3 ADDITIONAL RESEARCH NEEDED

Several areas in which additional research is needed both to better understand vertical coordination in the dairy sub-sector and to effectuate the recommendations made here are presented below.

a) What factors bring about "enforcer" and "compromiser" behavior?

Can a test for it be developed to pinpoint certain attitudes, styles or characteristics within individuals or organizational structures? What effects do the structure and environment for member--Board of Director--hired management interaction have on cooperative behavior?

b) What changes in order provisions, including price, will be indicated by the disappearance of Grade B milk production?

c) What are the specific impacts on individual groups of participants and the sub-sector of cooperative versus proprietary handler ownership of bulk milk storage capacity needed to accommodate modified processing schedules?

d) What are the per unit costs of reserve disposal for plants of varying sizes at various capacities and in various locations?

e) What checks will be needed on cooperative power in the event of the implementation of these recommendations? What impact might these checks have on participants' behavior and sub-sector performance?

Information on these areas would be helpful in providing insights into policy and program design which would further help in facilitating coordination in the dairy sub-sector at the procurement stage.

APPENDICES

APPENDIX A

APPENDIX A. ESSENTIAL FLOWS OF INFORMATION, PRODUCT AND OWNERSHIP-EXCHANGE RIGHTS AT DAIRY SUB-SECTOR NODES[1]

ROW 1 ↓ / FIRM → / FUNCT. →	FIRST BUYER → PRODUCER	REF MARKET → FACTORS	HANDLERS → PRODUCER	GOVERNMENT → PRODUCER	HANDLER → DISTRIBUTOR	HANDLER → GOVERNMENT	GOVERNMENT → DISTRIBUTOR	DISTRIBUTOR → RETAILERS	RETAILERS → GOVERNMENT	RETAILERS → CONSUMERS	CONSUMERS → GOVERNMENT	HAULERS (FARM) → PRODUCERS	HAULERS (FARM) → FACILITIES
INFORMATION	-Price -Supplies (Costs) -Performance -Availability (Time) -Joint Products - - - - - - - - -If $ LR, $\bar{q}_t$ -Technical Basis -ITP of $ t -Delivery Needs (flow)	-Prices -Yard Procedures -Commitments or Projections -Characteristics of Supplies - - - - - - - - -Rate of Health of Animals	-Price -Method of Payment -Demand -Utilization -Quality Test -Co-position -Performance - - - - - - - - -Supply, $\bar{q}_t$, $\bar{q}_t^e$, $\bar{q}_{t+1}$ -Flow $\bar{q}_t$, $\bar{q}_{t+1}$ -Quality Assurance -Cost (Price of Product) -Grade -Location of supply -Freshness	-Support Price -Import-Export Plans (Quotas) -PW Price -Static Marketing Order Info -Export-Related Stocks -Physical Plant & Health Requirement - - - - - - - - -Cost of Prod. -Supply Plans -Statistics	-Quantity by Product Type -Prices (costs) -Availability Flows -Start-up Recommendations -Stocks -Physical Plant & Health Requirement - - - - - - - - -Cost of Prod. -Supply Plans -Statistics	-Receipts -Utilizations -Prices (S only) -Costs & Nutrition -Sanitation Compliance - - - - - - - - -Class Prices -Producer Prices -CCC Stores -PW-LIP Plans -Supports Prices -Rules, Laws	-Statistics -Costs - - - - - - - - -Support Price (as info) -Quantity Info in Cert. Form -Resale Price Info (where appropriate) -Rules, Laws -PW-LIP Plans -CCC Stores	-Prices (Costs) -Margins - Est. -Characteristics -Advertising Info -Availability Info -Quantities -Location -Shelf Space- Revenue Quan. (DY & LC) -Info on Other Retailers - - - - - - - - -Demand by Prod. C & P's -Prices C & P -Info on Other Unions. -Delivery Sch. -Payment Sch.	-Statistics -Costs - - - - - - - - -Market Info. -Rules, Laws -Price Info -Info (where appropriate)	-Price -Purchases (Setting) -Nutrition & Concern -Value for Product - - - - - - - - -Demand Schedule Info -Preferences on Prod. Charact. -Complaints & Suggestions -Tax Products -Display Type	-Real Revenue Practices -Trade Products - - - - - - - - -Income & Exp. -Product Safety Assurance -Product Honesty Assurance	-Water -Info About Other Producers -Price Assessment -Info -Info about Processors -Fluid Schedule - - - - - - - - -Quantities -Pick-up Time(s) of day	-Quantities (??) -Delivery Sc. wall -Facility Re -Price -Point of Supply -Status of Supply - - - - - - - - -Quality Flow- Time & Nature of -Plant Locations -Area (if Applicable) -Facility Specifications (If any)
PHYSICAL PRODUCT	-Inventories -Transfer -Storage -Form; packaging - bulk, etc.	-Trucking -Stock Yards -Selling Point -Folding of Animals Not Sold	-On Farm Storage -Prior Receipt Hauling -Long Haul or Bulked (Aggregated) -Plant Assignment -Hauling -Quality Control	NONE	-Storage -Transfer Method & Schedule -Warehouse - - - - - - - - -Quality Control	-Storage -Transfer Method & Schedule -Government Storage	NONE	-Storage -Warehouse -Transfer & Set Up -Bulked -Schedule -Shelf Space	NONE	-Store Facilities -Display Stands -Packaging	NONE	-Tank & Cooling Facilities -Trucking -Hauling Facilities	-Trucks -Hauling -Trucking -Alternatives
OWNERSHIP & PAYMENTS RIGHTS	-Exchange Medium -Capital Availability -Terms of Trade -Legal Rules, Incentives, etc.	-Terms of Sale -Credit -Payment -Exchange Medium -Legal Rules, Incentives, etc.	-Terms of Sale -Loan Facilities? -Hauling -Premiums? -Testing -Exchange Medium -Payments -Legal Rules, Incentives, etc.	NONE	-Terms of Sale -Hauling -Pick-Up -Returns/Returns -Exchange Medium -Payments -Legal Rules, Incentives, etc.	-Price Support Machinery -Level Rules Incentives Etc.	NONE	-Exchange Medium -Payments -Terms of Trade -Delivery -Set Up -Returns/Losses -Legal Rules, Incentives, etc.	NONE	-Type of Outlet as Medium of Exchange -Returns Policy -Store Services -Legal Rules, Incentives, etc.	NONE	-Terms of Service -Rate Setting -Collection -Equipment Ownership -Sales, or Exp.? -Who Owns Milk -Rights -Legal Rules, Incentives, etc.	-Terms of Service -Int. or Exp.? -Rates -Equipment Ownership -Who Owns Milk -Rights -Legal Rules, Incentives, etc.

1 Row 1 contains types of information needed at the node. The upper half of Row 1 cells (above dotted line) lists types of information that the bottom-identified stage in that column heading needs from the top listed stage. For example, cell (1,1) indicates that the farm level production stage needs information on input prices from the input supply stage.
Row 2 contains elements of the physical product transfer at each sub-sector node.
Row 3 suggests elements of ownership-exchange rights at each sub-sector node.

APPENDIX B

0299 **CONFIDENTIAL**

DAIRY INDUSTRY STUDY

Agricultural Experiment Station
Michigan State University
East Lansing, Michigan

GENERAL INSTRUCTIONS.

Thank you for helping us in this study. Try to answer all the questions. If certain questions do not apply to your situation simply indicate this with a "Not Applicable" or "NA". Feel free to make written comments anywhere on the questionnaire or add an additional sheet if necessary. If you have any questions contact ROBERT D. BOYNTON, Department of Agricultural Economics, MSU, East Lansing, Michigan 48824 — (517) 353-6768 or 355-0135.

SECTION ONE: General Questions

1. _____ In what year was your co-op started?
2. Indicate on the map below, the area in which your co-op MARKETS its milk.



3. _____% What share of all the milk in this market do you currently sell?
4. _____ How many co-ops do you believe you compete with in this market area?
5. _____cwts. How much milk did your co-op receive from its members in 1976?
6. How much of the total milk your co-op received in 1976 (Question 5) was
   _____% fluid grade milk _____% manufacturing grade milk?
7. Is your co-op a member of a national federated group?
   ☐ Yes ☐ No
8. Is your co-op a member of a regional federated group?
   ☐ Yes ☐ No

9. In what activities does your co-op engage? *Mark all appropriate choices.*

- ☐ Sell farm supplies (fuel, feed, equipment, supplies).
- ☐ Operate bulk milk hauling equipment from farm to plant; _____% of your total volume hauled with this equipment.
- ☐ Contract for bulk milk hauling from farm to plant; _____% of your total volume hauled by contract haulers.
- ☐ Maintain receiving and/or pump-over stations; how many? _____.
- ☐ MANUFACTURE some hard dairy products; (1) _____% of your TOTAL received volume, (2) _____% of these products you package under private labels.
- ☐ PROCESS some fluid and soft dairy products; (1) _____% of your TOTAL received volume, (2) _____% of these products processed under private labels.
- ☐ Distribute manufactured (hard) and/or processed (fluid and soft) products.
- ☐ Own retail sales outlets or routes for fluid milk.

10. _____ Number of members CURRENTLY in your co-op.

11. Is there a marketing order(s) in your market area? *Check 1 or 2 as appropriate.*

☐ Yes, state order; how many? _____. ☐ Yes, federal order; how many?_____.

☐ No, there are no orders in our market.

12. Are wholesale or retail price minimums set in your area?

☐ No ☐ Yes, wholesale ☐ Yes, retail

If you answered "Yes" above, please continue and answer the next question.

13. How have these resale minimums affected your operations? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after your most important choice.*

- ☐ THEY HAVEN'T AFFECTED THEM.
- ☐ Limited the growth of individual processors with whom we deal.
- ☐ Co-op vertical integration activity is DISCOURAGED since margins are so low.
- ☐ Co-op vertical integration activity is ENCOURAGED.
- ☐ We have to charge resale prices higher than we would otherwise charge.
- ☐ Minimums foster an atmosphere whereby we can share information with other participants that makes the marketing system work better.
- ☐ Resale competition is intense in non-price ways.
- ☐ Supply and demand are not as well matched in our market as they would be if these controls were taken off.
- ☐ Other (specify) _____

14. FOR EACH OF THE STATEMENTS GIVEN BELOW, INDICATE BY CHECKING THE MOST APPROPRIATE RESPONSE AMONG THE 5 GIVEN IN FRONT OF EACH STATEMENT.

SA = STRONGLY AGREE A = AGREE N = NO OPINION D = DISAGREE
SD = STRONGLY DISAGREE

SA	A	N	D	SD	
—	—	—	—	—	A. Proprietary handlers in our area have no satisfactory source for their milk supply OTHER THAN dairy cooperatives.
—	—	—	—	—	B. A new dairy farmer in our area could go into business and find an outlet for his total production WITHOUT joining a co-op.

SA	A	N	D	SD		
_	_	_	_	_	C.	Co-ops SHOULD NOT be allowed to refuse membership to any farmer.
_	_	_	_	_	D.	If the co-op is completely paid for the services they provide to handlers or the entire market BUT there are some handlers who have benefitted WITHOUT contributing to the cost, they should be made to contribute their share.
_	_	_	_	_	E.	Zone differentials are structured to make it more profitable for co-ops or proprietary handlers to manufacture milk RATHER THAN to ship it to the fluid milk market.
_	_	_	_	_	F.	Our members produce the volume of milk we expect them to most of the time.
_	_	_	_	_	G.	Frequently our members produce an EXCESS amount above our own Class I needs AND our share of the reserve needs.
_	_	_	_	_	H.	Information is a major source of power in the marketing process.
_	_	_	_	_	I.	Butterfat content and milk volume as the basis for pricing milk no longer reflect consumer preferences for milk's components.
_	_	_	_	_	J.	For the entire dairy industry, bargaining between co-ops and proprietary handlers yields marketing improvements which justify the costs of making those improvements.
_	_	_	_	_	K.	Premium Class I prices encourage over-production on farms and over-investment in farm equipment and facilities.
_	_	_	_	_	L.	Premium Class I prices are moving UPWARD faster than rising production costs.
_	_	_	_	_	M.	Processors who do not pay premium prices for Class I milk (i.e. buy elsewhere) while their fellow processors in the market DO pay premium prices, are NOT contributing their equitable share to market coordination and development in any market.
_	_	_	_	_	N.	Market power in the dairy industry is now held chiefly by the large supermarket chains.
_	_	_	_	_	O.	Supermarket chains have squeezed the margin received by processors of milk and dairy products to a critically low level.
_	_	_	_	_	P.	Dairy cooperatives have squeezed the margin received by processors of milk and dairy products to a critically low level.

15. How do you try to influence member production levels? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after your most important choice.*

- ☐ WE DON'T TRY TO INFLUENCE THEM.
- ☐ Fieldmen disseminate industry trends and needs.
- ☐ Magazine, newsletter, annual reports.
- ☐ Co-op instituted production base (reblending plans) allocation plans.
- ☐ Meetings.
- ☐ Discourage or refuse new memberships.
- ☐ Other (specify) _____

16. What do you believe are the most likely reason(s) that a marketing co-op would acquire processing, manufacturing, distribution and/or retail facilities? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after your most important choice.*

- ☐ To gain market power.
- ☐ To overcome inadequate information exchange between producers and handlers.
- ☐ Reduce uncertainty or better manage risk.
- ☐ To increase member returns by profitably operating processing, manufacturing, distribution or retail activities.
- ☐ To increase co-op flexibility and diversity.
- ☐ To increase the size of their operations.
- ☐ To achieve more favorable terms of trade.
- ☐ Other (specify) _____

17. If the pricing system needs to reflect a shift in consumer preferences for milk components, who should take the lead in this regard? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after your most important choice.*

- ☐ Farmers through their co-ops.
- ☐ Proprietary handlers.
- ☐ Government.
- ☐ Other (specify) _____

18. Does your co-op manufacture and/or process ALL its members' milk i.e. sell NO milk to a proprietary handler(s)?

☐ Yes ☐ No

19. Does your co-op sell its milk exclusively THROUGH another co-op(s)?

☐ Yes ☐ No

IF YOU ANSWERED "YES" TO EITHER QUESTION 18 OR 19, SKIP AHEAD TO SECTION THREE.

SECTION TWO: Dealing with Proprietary Handlers

20. _____ How many POSSIBLE BUYERS of your milk do you have in your market?

21. _____ How many of these buyers do you sell to?

22. What characteristics do you think the handler considers most important about his milk supply? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after the most important choice.*

- ☐ Quality assurance.
- ☐ Steady flow to his plant.
- ☐ Supplies available on request.
- ☐ Option to refuse all or part of a delivery.
- ☐ Not having to deal with individual producers.
- ☐ Freedom from managing hauling activities.
- ☐ Other (specify) _____

23. What are the most important attributes, to you as a co-op manager, for a handler-customer to have? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after the most important choice.*

- ☐ A reliable, stable, solvent business (a good credit risk).
- ☐ Buying large volumes of milk.
- ☐ Easy to talk to; willing to share information.
- ☐ Desires a full supply arrangement.
- ☐ A weaker bargaining participant.
- ☐ Other (specify) _____

24. Services Provided by Dairy Co-ops to Proprietary Handlers

A LIST OF SERVICES OFTEN PERFORMED BY DAIRY COOPERATIVES FOR THEIR HANDLER-CUSTOMERS IS LISTED BELOW. FOR EACH SERVICE, SEVEN (7) QUESTIONS ARE ASKED. TRY TO ANSWER ALL THE QUESTIONS. INDICATE "NOT APPLICABLE" OR "NA" IF APPROPRIATE, RATHER THAN LEAVING IT BLANK.

SERVICES

QUESTIONS			Stable, certified milk supply	Assist in obtaining milk supply	Provide back-up milk supply	Assist in obtaining milk supply	Help in planning milk supply	Deliver standardized milk	Write non-member checks	Pay handlers	Write checks to handlers	Other (specify)
YES OR NO	A.	Do you provide this service?										
YES	B.	Is it ONLY available to handlers who have full supply arrangements?										
OR	C.	Does this service benefit those who do NOT pay for it?										
NO	D.	Are you adequately compensated for providing this service?										
	E.	Can your co-op provide this service cheaper than the handler could do it himself?										
	F.	Indicate for each service, your level of agreement with the following statement: "Proprietary handlers realize the value of this service to them." SA = strongly agree; A = agree; N = no opinion; D = disagree; SD= strongly disagree										
	G.	If you DO NOT provide a service listed above, indicate "WHY" by choosing any of the following 4 choices and writing its number(s) under the column for that service: (1) No demand for it. (2) Cannot recover the costs of doing it. (3) The handler can do it more efficiently. (4) Membership expressed a desire to NOT provide it.										

25. FOR EACH OF THE STATEMENTS GIVEN BELOW, INDICATE BY CHECKING THE MOST APPROPRIATE RESPONSE AMONG THE 5 GIVEN IN FRONT OF EACH STATEMENT.
SA = STRONGLY AGREE A = AGREE N = NO OPINION D = DISAGREE SD = STRONGLY DISAGREE

SA	A	N	D	SD		
—	—	—	—	—	A.	On a day to day basis, our deliveries to our customers (of bulk milk) fit their preferred delivery schedule the majority of the time.
—	—	—	—	—	B.	Our co-op coordinates deliveries of bulk milk to our customers BETTER than they could carry it out themselves with their own shippers.
—	—	—	—	—	C.	During a month, we deliver MORE milk than our customers prefer.
—	—	—	—	—	D.	It is an unusual occurence if our customers are short of their needed volume of bulk milk on any given day.
—	—	—	—	—	E.	There is little information (on prices, projections of supply, costs, concerns and plans) which we have, THAT IF SHARED WITH OUR CUSTOMERS would put us at a competitive DISadvantage.
—	—	—	—	—	F.	We try to get such information (as indicated in E above) from our customers.
—	—	—	—	—	G.	Proprietary handlers are in a stronger, more powerful bargaining position than co-ops in their dealings together.
—	—	—	—	—	H.	Co-ops benefit most from full supply arrangements.
—	—	—	—	—	I.	Co-ops prefer full supply arrangements because it puts them in a better bargaining position with proprietary handlers.
—	—	—	—	—	J.	Co-ops prefer full supply arrangements because they allow the co-op to gain a competitive advantage over other co-ops operating in the same market.

26. How does your co-op determine which services it will provide to a particular handler-customer? *Choose one.*

- ☐ All our customers receive the same set of services.
- ☐ The particular set of services a customer gets is determined individually in negotiations with the customer.
- ☐ NOT all customers receive the same set of services from our co-op, however, the choice of those is UP TO OUR CO-OP.
- ☐ Other (specify) _____

27. Do you have an actual service charge(s) for the services you provide handler-customers OR are the costs of these services covered under the over-order premium? *Choose one.*

- ☐ An actual service charge(s); CONTINUE WITH QUESTION 28
- ☐ Covered under the over-order premium; GO ON TO QUESTION 30

28. Do you have separate service charges established for EACH service you offer?

☐ Yes ☐ No

29. Is the service charge(s) subject to negotiation with the handler-customer?

☐ Yes ☐ No

30. Have different co-ops in the same market offered EITHER a different set of services to handlers at the identical cost OR the same set of services by different co-ops at different costs?

☐ Yes ☐ No ☐ Don't know

31. What is your source(s) of needed milk IN EXCESS OF THAT SUPPLIED BY MEMBERS? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after your most important choice.*

- ☐ Associated Reserve Standby Pool Cooperative. (ARSPC)
- ☐ Other co-ops. ☐ Other plants.
- ☐ Let buyer(s) take care of their own requirements.

32. Which ONE of the following statements best fits your co-op's position? *Choose one.*

- ☐ We do NO bargaining for price or other terms of trade; SKIP TO QUESTION 36.
- ☐ Although our co-op does not bargain, we belong to a federated group that does bargain; SKIP TO QUESTION 34.
- ☐ Other co-ops in our marketing region bargain for price and other terms of trade. We usually obtain prices and terms of trade similar to what the bargaining co-op(s) received. We take no direct, active role, however; SKIP TO QUESTION 34.
- ☐ We take an active, direct interest in bargaining for price and other terms of trade. GO TO QUESTION 33.

33. Are the bargaining negotiations between your co-op and handlers characterized as: *Choose one.*

- ☐ The co-op offers a price and package of terms and the handler takes it or leaves it.
- ☐ Usually favors the co-op to some degree; some negotiation and compromise occur.
- ☐ Balanced evenly between the co-op and the handler so that two-way bargaining does take place.
- ☐ Usually favors the handler to some degree; some negotiation and compromise occur.
- ☐ The handler informs the co-op of what he will pay and related terms of trade and the co-op takes it or leaves it.
- ☐ Other (specify) _____

34. What factors are considered in developing a cooperative-preferred price (Class I premium)? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after your most important choice.*

- ☐ Cost of production ☐ Current retail sales
- ☐ The potential for milk to move in from nearby markets
- ☐ Local supplies available ☐ Co-op member preferences/expectations
- ☐ Other co-op's actions ☐ Long term health of processors and the entire industry
- ☐ Cost of services rendered ☐ Other (specify) _____

35. What factors do you think the proprietary handlers consider in deciding what price they are willing to pay? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after your most important choice.*

☐ Milk supplies ☐ Retail demand ☐ Prices paid by competitors

☐ Value of services received ☐ Availability of alternative supplies

☐ Solvency of dairy farmers ☐ Your power relative to the co-op

☐ Other (specify) _____

36. _____ % With approximately what percentage of your customers (handlers) do you have full supply arrangements?

37. _____ What volume of your total member milk is committed under full supply arrangements?

38. Are these full supply arrangements...*Choose one or both as appropriate.*

☐ Formal, written contracts? ☐ Informal agreements?

SECTION THREE: Marketing Actions

39. BELOW ARE SIX (6) HYPOTHETICAL CASES OF MARKETING BEHAVIOR. YOUR ANSWERS IN NO WAY IMPLY THAT YOUR CO-OP EVER PARTICIPATED IN ANY SUCH ACTIVITIES. THE CASES ARE HYPOTHETICAL AND DO NOT REFLECT ON YOUR COOPERATIVE. PLEASE ANSWER THE THREE (3) QUESTIONS FOLLOWING EACH CASE.

A. *A proprietary handler allows one part of his operation to subsidize another part for a brief time so the one product line can be sold at LESS THAN cost.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly agree ☐ Agree ☐ No opinion

☐ Disagree ☐ Strongly disagree

B. *Two proprietary handlers exchange information about sales plans and price schedules.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly agree ☐ Agree ☐ No opinion

☐ Disagree ☐ Strongly disagree

C. *A proprietary handler and a dairy co-op plan jointly their marketing strategies, coordinate price structures and exchange information between each other about their plans and goals.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly agree ☐ Agree ☐ No opinion

☐ Disagree ☐ Strongly disagree

D. *A dairy co-op has members in two federal order areas, A & B. The co-op accounts for a smaller percentage of the milk in Market B than in Market A. In an attempt to increase its membership (and volume of milk marketed) in Market B, the co-op ships milk from Market A to Market B so that more milk qualifies under Market B's pool, and the blend price in Market B is subsequently reduced. The co-op adjusts their members' returns in Market B so that they are above the newly reduced blend price there.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly agree ☐ Agree ☐ No opinion

☐ Disagree ☐ Strongly disagree

E. *Co-ops, who process some or all of their members' milk into fluid or soft dairy products, pay their members a net blend price which is less than the order minimum (or less than proprietary handlers must pay) to allow the co-op to sell their products below the prices charged by proprietary handlers.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly agree ☐ Agree ☐ No opinion
☐ Disagree ☐ Strongly disagree

F. *A co-op refuses to sell any milk to a proprietary handler unless the handler agrees to a full supply arrangement.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly agree ☐ Agree ☐ No opinion
☐ Disagree ☐ Strongly disagree

YOU HAVE FINISHED THE QUESTIONNAIRE. THANK YOU FOR YOUR HELP.

APPENDIX C

CONFIDENTIAL

DAIRY INDUSTRY STUDY

'76

Agricultural Experiment Station
Michigan State University
East Lansing, Michigan

GENERAL INSTRUCTIONS.

Thank you for helping us in this study. Try to answer all the questions. If certain questions do not apply to your situation simply indicate this with a "Not Applicable" or "NA". Feel free to make written comments anywhere on the questionnaire or add an additional sheet if necessary. If you have any questions contact ROBERT D. BOYNTON, Department of Agricultural Economics, MSU, East Lansing, Michigan 48824 — (517) 353-6768 or 355-0135.

1. Indicate on the map below, the market area in which you sell fluid and manufactured dairy products.



IN SECTIONS A, B AND C PLEASE GIVE SOME BASIC INFORMATION ON YOUR PLANT(S) FACILITIES AND OPERATIONS, IF APPLICABLE.

SECTION A. MANUFACTURING FACILITIES FOR HARD PRODUCTS

☐ CHECK HERE AND GO TO SECTION B IF YOU DO NO MANUFACTURING OF HARD DAIRY PRODUCTS (CHEESE, BUTTER, POWDER, ICE CREAM, ETC.).

2. _____Number of manufacturing plants you operate.
3. _____Total volume of milk you manufactured in 1976 (Approximately).
4. Percent of your total manufacturing output (product pounds) which is:
   _____% cheese _____% powder _____% butter _____% ice cream _____% other
5. _____% What percent of your manufactured products are packaged under private labels?
6. Indicate the source(s) of your milk used for manufacture:
   _____% from co-ops _____% from non-co-op shippers _____% from other processors or manufacturers
7. Of the milk you manufacture, what percentage is:
   _____% surplus Grade A milk _____% Grade B milk

SECTION B. PROCESSING FACILITIES FOR FLUID AND SOFT PRODUCTS

☐ CHECK HERE AND GO TO SECTION C IF YOU DO NO PROCESSING OF FLUID OR SOFT DAIRY PRODUCTS.

8. _____Number of processing plants you operate.
9. _____Total volume of milk you processed in 1976 (Approximately).
10. _____% What percent of your processed products are packaged under private labels?
11. Indicate the source(s) of the milk used in your processing operations:
    _____% from co-ops _____% from non-co-op shippers _____% from other handlers
12. _____% What percentage of your fluid products do you distribute to wholesalers and retailers yourself?

SECTION C. RETAILING FACILITIES

☐ CHECK HERE AND GO ON TO SECTION D IF YOUR FIRM HAS NO RETAIL SALES OUTLETS.

13. What percent of your total production of milk and dairy products is sold through your own:
    _____% dairy stores _____% home delivery routes _____% out-of-plant direct retail sales
    _____% other (specify) _____

SECTION D. GENERAL QUESTIONS

EVERYONE FILLING OUT THE QUESTIONNAIRE SHOULD COMPLETE THIS SECTION

14. _____How many dairy co-ops sell milk to proprietary handlers in your market area?
15. Is your market regulated by a state or federal order(s)?
    ☐ No ☐ Yes, state order ☐ Yes, federal order
16. Do you pay MORE THAN the state or federal order MINIMUM price for your Grade A milk?
    ☐ Yes ☐ No
17. Are wholesale or retail prices minimums set in your area?
    ☐ No ☐ Yes, wholesale ☐ Yes, retail
18. How have these resale minimums affected your operations? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after the most important choice.*
    ☐ THEY HAVEN'T AFFECTED THEM.
    ☐ We have to charge prices higher than we would otherwise charge.
    ☐ Minimums foster an atmosphere whereby we can share information with other firms that makes the marketing system work better.
    ☐ Competition is intense in non-price ways.
    ☐ Vertical integration activity is DISCOURAGED since margins are so low.
    ☐ Vertical integration activity is ENCOURAGED.
    ☐ Supply and demand are not as well matched in our market as they would be if these controls were taken off.
    ☐ Other (specify) _____

19. Why do you think a marketing co-op might vertically integrate into processing, manufacturing, distribution and/or retailing? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after the most important choice.*

- ☐ To gain market power.
- ☐ To overcome inadequate information exchange between producers and handlers.
- ☐ Reduce uncertainty or better manage risk.
- ☐ To increase member returns by profitably operating processing, manufacturing, distribution or retailing activities.
- ☐ To increase co-op flexibility and diversity.
- ☐ To increase the size of their operations.
- ☐ To achieve more favorable terms of trade.
- ☐ Other (specify) _____

20. Which characteristics of a buyer of bulk milk from a co-op do you think are most important to the co-op? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after the most important choice.*

- ☐ A reliable stable solvent business.
- ☐ Buying large volumes of milk.
- ☐ Easy to talk to; willing to share information in order to improve the efficiency of the marketing system.
- ☐ Desires a full supply arrangement.
- ☐ A weaker bargaining participant.
- ☐ Other (specify) _____

21. What milk supply attributes do you most desire? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after the most important choice.*

- ☐ The assurance of a top quality milk supply.
- ☐ A competitive price.
- ☐ Supplies available on request.
- ☐ A steady flow to our plant.
- ☐ Not require us to deal with individual producers.
- ☐ Not require us to manage hauling activities.
- ☐ Other (specify) _____

22. If the pricing system needs to reflect a change in consumers' preferences for milk components, who should take the lead in this regard? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after the most important choice.*

- ☐ Farmers through their co-op
- ☐ Proprietary handlers
- ☐ The Government
- ☐ Other (specify) _____

23. THREE (3) FUNCTIONS OFTEN PERFORMED BY DAIRY FARMER CO-OPS ARE LISTED BELOW. THERE ARE FOUR (4) QUESTIONS ABOUT EACH FUNCTION--ONE IN EACH COLUMN. PLEASE ANSWER ALL FOUR QUESTIONS FOR EACH FUNCTION BY PLACING "YES" OR "NO" IN THE APPROPRIATE BOX. IF AN ITEM DOES NOT APPLY WRITE "NOT APPLICABLE" RATHER THAN LEAVING THAT BOX BLANK.

SERVICE	Does a co-op in your market provide this?	Do you benefit from it?	Do you pay for it in any way?	Do you think co-ops should continue to do it?
Manufacture Grade A reserves				
Balancing supplies in and between markets				
Dispose of Grade A reserves to other plants				

24. FOR EACH OF THE STATEMENTS GIVEN BELOW, INDICATE BY CHECKING THE MOST APPROPRIATE RESPONSE GIVEN IN FRONT OF EACH STATEMENT.

SA = STRONGLY AGREE A = AGREE N = NO OPINION D = DISAGREE
SD = STRONGLY DISAGREE

SA	A	N	D	SD		
—	—	—	—	—	A.	A new dairy farmer in our area could go into business and find an outlet for his total production WITHOUT joining a co-op.
—	—	—	—	—	B.	Proprietary handlers in our area have no satisfactory source for their milk supply OTHER THAN dairy cooperatives.
—	—	—	—	—	C.	Co-ops should NOT be allowed to refuse membership to any farmer.
—	—	—	—	—	D.	Capper-Volstead legislation should be amended or supplemented to reduce co-ops' advantage over proprietary handlers in the dairy industry.
—	—	—	—	—	E.	Co-ops should not be restricted in their integration activities any more than should non-co-op firms in the dairy industry.
—	—	—	—	—	F.	In those markets where minimum resale prices are set by a state marketing order, the minimums are necessary to keep smaller firms in business against larger, more powerful and lower cost firms.
—	—	—	—	—	G.	In the past five years, co-ops have unduly enhanced price in our market.
—	—	—	—	—	H.	Premium Class I prices encourage over-production on farms and over-investment in farm equipment and facilities.
—	—	—	—	—	I.	Processors who do not pay premium prices for Class I milk (i.e. buy elsewhere) while their fellow processors in the market DO pay premium prices, are NOT contributing their equitable share to market coordination and development in any market.
—	—	—	—	—	J.	On a day-to-day basis, the flow of raw milk into our plant could be better scheduled by our supplier(s) A MAJORITY OF THE TIME.
—	—	—	—	—	K.	During some month(s), we receive MORE milk at our plant(s) than we would prefer.

SA	A	N	D	SD		
_	_	_	_	_	L.	It is an unusual occurrence if we are short of needed volume on any given day.
_	_	_	_	_	M.	Co-ops prefer full supply arrangements because it puts them in a more powerful bargaining position with processors/manufacturers.
_	_	_	_	_	N.	Co-ops prefer full supply arrangements because they allow the co-op to gain a competitive advantage over other co-ops operating in the same market.
_	_	_	_	_	O.	Co-ops benefit most from full supply arrangements.
_	_	_	_	_	P.	Proprietary handlers are in a stronger, more powerful bargaining position than co-ops in their dealings together.
_	_	_	_	_	Q.	For the entire dairy industry, bargaining between co-ops and proprietary handlers yields marketing improvements which justify the costs of making those improvements.
_	_	_	_	_	R.	If the co-op is completely paid for the services they provide to handlers or the entire market BUT there are some handlers who have benefitted WITHOUT contributing to the cost, these handlers should somehow be made to contribute their share.
_	_	_	_	_	S.	We could fully share information (on prices, production, costs, concerns and plans) which we have, WITH A CO-OP without putting us at competitive DISadvantage.
_	_	_	_	_	T.	We solicit such information (on prices, production, costs, concerns and plans) actively.
_	_	_	_	_	U.	Information is a major source of power in the marketing process.
_	_	_	_	_	V.	The Associated Reserve Standby Pool Cooperative reduces the TOTAL needed Class I reserves for the entire region it covers.
_	_	_	_	_	W.	The Associated Reserve Standby Pool Cooperative has enhanced the cooperatives' bargaining strength.
_	_	_	_	_	X.	Zone differentials are structured to make it more profitable for co-ops or proprietary handlers to manufacture milk RATHER THAN to ship it to the fluid milk market.
_	_	_	_	_	Y.	Market power in the dairy industry is now held chiefly by the large supermarket chains.
_	_	_	_	_	Z.	Supermarket chains have squeezed the margin received by processors of milk and dairy products to a critically low level.
_	_	_	_	_	AA.	Dairy cooperatives have squeezed the margin received by processors of milk and dairy products to a critically low level.
_	_	_	_	_	BB.	A proprietary handler has the option to receive or not receive a particular service which the co-op may offer.
_	_	_	_	_	CC.	If a proprietary handler chooses to NOT receive a particular service, the rate structure of the co-op for services allows the handler to pay for JUST those services he receives.
_	_	_	_	_	DD.	Proprietary handlers have little choice of what services they will receive with their milk supply since usually the handler must deal with a single co-op or a group of co-ops who all offer the same package of services at the same cost.

DO YOU BUY ANY OF YOUR MILK SUPPLY FROM A CO-OP OR CO-OPS?

☐ YES ☐ NO

IF "NO" GO TO SECTION H,
IF "YES" GO TO SECTION E.

SECTION E. THOSE WHO BUY FROM CO-OPS

25. Why do you buy from a co-op? *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after the most important choice.*

- ☐ For a particular service or group of services they provide.
- ☐ For fear of recriminations by the co-op.
- ☐ They are the only supplier(s) in the area.
- ☐ We do not want to have to worry about individual farmer-shipper.
- ☐ They have the most preferred shippers as members.
- ☐ The quality of their milk is consistently high.
- ☐ Other (specify) _____

26. A LIST OF SERVICES OFTEN PROVIDED BY COOPERATIVES TO PROPRIETARY HANDLERS IS GIVEN BELOW. SIX (6) QUESTIONS ARE ASKED ABOUT EACH SERVICE. PLEASE TRY TO ANSWER ALL THE QUESTIONS FOR EACH OF THE SERVICES BY WRITING A "YES" OR "NO" IN THE APPROPRIATE BOX. IF A QUESTION DOES NOT APPLY, INDICATE THIS BY PLACING A "NOT APPLICABLE" IN THAT BOX, RATHER THAN LEAVING IT BLANK.

	Does the co-op(s) you buy from offer this?	Do you receive this service?	Do you pay the co-op for doing this? (If you receive it)	Could you do this cheaper than the co-op is?	Do you think the co-op is adequately compensated for doing this?	Do you wish to have the co-op continue to do this?
Direct milk delivery from producers farms						
Divert milk for manufacturing						
Provide supplemental milk on order						
Sells milk f.o.b. plant of buyer						
Delivers standardized milk						
Split a load to different handlers						
Writes member checks						
Writes non-member checks						
Pays the haulers						
Milk shipped direct from farms sold on tanker weights and tests						
Other (specify)						

27. Have different co-ops in the same market offered EITHER a different set of services to handlers at the identical cost OR the same set of services by different co-ops at different costs?

☐ Yes ☐ No ☐ Don't know

28. Are there additional services which you would like the co-ops to provide you?

☐ Yes ☐ No

29. If "Yes" what are they? _____

SECTION F. PRICE PREMIUMS

30. Are the bargaining negotiations between your firm and the co-op(s) characterized as...*Choose one.*

- ☐ The co-op offers a price and a package of terms and the handler must take it or leave it.
- ☐ Usually favors the co-op to some degree; some negotiation and compromise occur.
- ☐ Balanced evenly between the co-op and the handler so that two-way bargaining does take place.
- ☐ Usually favors the handler to some degree; some negotiation and compromise occur.
- ☐ The handler informs the co-op of what he will pay and related terms of trade and the co-op must take it or leave it.
- ☐ Other (specify) _____

31. What factors are most important in establishing your bargaining position with respect to the price you are willing to pay? *Mark all appropriate choices. If you mark more than 1 choice put a star (*) after the most important choice.*

- ☐ Milk supplies available ☐ Retail demand ☐ Prices paid by competitors
- ☐ Value of services received ☐ Availability of alternative supplies
- ☐ Solvency of dairy farmers ☐ Your power relative to the co-op
- ☐ Other (specify) _____

32. What factors do you think the co-op considers in developing its preferred price (Class I premium)? *Mark all appropriate choices. If you mark more than 1 choice put a star (*) after the most important choice.*

- ☐ Cost of production ☐ Retail sales ☐ Local supplies available
- ☐ What the market will bear ☐ Co-op member preferences/expectations
- ☐ Long term health of processors and the entire industry
- ☐ The potential for milk to move in from nearby markets
- ☐ Other co-ops' premiums ☐ Cost of services rendered to handlers and market
- ☐ Other (specify) _____

CONTINUE WITH SECTION G.

SECTION G. FULL SUPPLY ARRANGEMENTS

☐ CHECK HERE IF YOU DO NOT BUY YOUR MILK SUPPLY UNDER A CO-OP FULL SUPPLY ARRANGEMENT.
IF YOU CHECKED THE BLANK ABOVE, GO TO SECTION I.

33. How long have you had a full supply arrangement? _____

34. Is your full supply arrangement a... *choose one*

- ☐ Formal, written contract? ☐ Informal agreement?

35. Indicate the appropriate response below regarding your satisfaction with full supply arrangements. *Choose one.*

- ☐ They have NOT been satisfactory for us.
- ☐ In general, they are satisfactory, but certain features of them need to be amended, added or deleted.
- ☐ They have been totally satisfactory from our point of view.

36. Have full supply arrangements tended to provide a more preferred flow of milk to your plant(s) than before full supply arrangements?

☐ Yes ☐ No

GO TO SECTION I.

SECTION H. IF YOU DO NOT BUY ANY MILK FROM A CO-OP

37. Indicate below the reason(s) you do NOT buy any milk from a co-op. *Mark all appropriate choices. If you mark more than 1 choice, put a star (*) after the most important choice.*

- ☐ There are no co-ops in our market.
- ☐ We don't like their prices.
- ☐ They can't supply all our needs.
- ☐ The co-op(s) won't sell to us.
- ☐ They insist on a full supply arrangement or other terms of trade we don't like.
- ☐ We have a group of shippers we can rely on to furnish us a quality product.
- ☐ Other (specify) _____

GO TO SECTION I.

SECTION I. MARKETING ACTIONS

38. BELOW ARE SIX (6) HYPOTHETICAL CASES OF MARKETING BEHAVIOR. YOUR ANSWERS IN NO WAY IMPLY THAT YOUR FIRM EVER PARTICIPATED IN ANY SUCH ACTIVITIES. THE CASES ARE HYPOTHETICAL AND DO NOT REFLECT ON YOUR FIRM. PLEASE ANSWER THE THREE (2) QUESTIONS FOLLOWING EACH CASE.

A. *A co-op refuses to sell any milk to a proprietary handler unless the handler agrees to a full supply arrangement.*

Regardless of whether or not this action is presently allowed by law DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly Agree ☐ Agree ☐ No opinion
☐ Disagree ☐ Strongly Disagree

B. *Co-ops, who process some or all of their members' milk into fluid or soft dairy products, pay their members a blend price which is less than the order minimum (or less than proprietary handlers must pay) to allow them to sell their products below the prices of proprietary handlers.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly Agree ☐ Agree ☐ No opinion
☐ Disagree ☐ Strongly Disagree

C. *A dairy co-op has members in two federal order areas, A & B. The co-op accounts for a smaller percentage of the milk in Market B than in Market A. In an attempt to increase its membership (and volume of milk marketed) in Market B, the co-op ships milk from Market A to Market B so that more milk qualifies under Market B's pool and blend price in Market B is subsequently reduced. The co-op adjusts their members' returns in Market B so that they are above the newly reduced blend price there.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly Agree ☐ Agree ☐ No opinion
☐ Disagree ☐ Strongly Disagree

D. *A proprietary handler and a dairy co-op plan jointly their marketing strategies, coordinate price structures and exchange information between each other about their plans and goals.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly Agree ☐ Agree ☐ No opinion
☐ Disagree ☐ Strongly Disagree

E. *Two proprietary handlers exchange information about sales plans and price schedules.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly Agree ☐ Agree ☐ No opinion
☐ Disagree ☐ Strongly Disagree

F. *A proprietary handler allows one part of his operation to subsidize another part for a brief time so the one product line can be sold at LESS THAN cost.*

Regardless of whether or not this action is presently allowed by law, DO YOU BELIEVE THAT IT SHOULD BE PERMITTED?

☐ Yes ☐ No ☐ No opinion

Do such actions ever have desirable marketing consequences?

☐ Yes ☐ No ☐ No opinion

Cases such as this probably occur frequently.

☐ Strongly Agree ☐ Agree ☐ No opinion
☐ Disagree ☐ Strongly Disagree

YOU HAVE FINISHED THE QUESTIONNAIRE. THANK YOU FOR YOUR HELP.

APPENDIX D

APPENDIX D. ADMINISTERING MAIL QUESTIONNAIRES

Many of the details of the mail questionnaire's design and deployment were presented in Section 4.1. This Appendix contains additional information. The contents of Appendix D are:

a) a map depicting the five regions into which the U.S. was divided and which were used in stratifying the two survey samples (Table 4-1, 4-2, 4-3 and 4-4) and characterizing the personal interviews (Table 4-5). Recall that the assignment of cooperatives and proprietary handlers to a particular region was based on the address of its main office, and not its marketing area. Figure D-1 depicts the five regions.

b) the detailed calculation of the response rates of the two samples.

c) explanations of the response rates obtained.

d) the effect of certified, metered and hand-stamped mail on response rate.

e) response pattern over time and the effects of follow-up stimuli on the pattern and rate of response.

f) indicators of the extent of non-response bias in the two samples.

g) the cost of using the mail questionnaire medium of data acquisition.

Calculation of Response Rates

COOPERATIVE SAMPLE.

One hundred fifty-nine cooperatives received mail questionnaires. Sixty-two were completed and returned. Nine others were returned, not completed but bearing the following information:

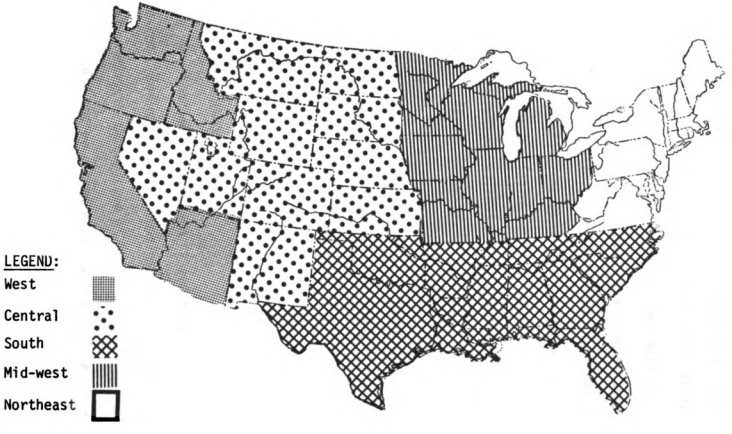


FIGURE D-1. Regional Designations Used in Stratifying Samples and Reporting Data From Cooperative and Proprietary Handler Questionnaires.

3 out of business

1 merged with another dairy co-op

5 inappropriate, i.e. they did not fit any of the definitions of dairy cooperatives given in Section 2.2.1.1.

Since these nine would not have been included in the population or sample if this information had been known apriori, their number was subtracted from the total to leave a corrected sample size of one hundred fifty. The corrected response rate was then calculated as 62 ÷ 150 = 41%. The corrected response rates by size were,

small	(21/89)	24%
medium	(31/49)	63%
large	(10/12)	83%

and by region were,

West	(10/19)	53%
Central	(7/20)	37%
South	(4/15)	27%
Mid-west	(26/65)	40%
Northeast	(15/31)	48%

PROPRIETARY HANDLER SAMPLE

One hundred eighty-seven proprietary handlers received questionnaires. Seventy-six were completed and returned. Additionally, five were returned, uncompleted with the following explanations:

3 sold out or merged with another proprietary handler

2 not appropriate, i.e. did not fit the definitions given in Section 2.2.1.2.

Using the same reasoning as with the cooperative sample, these five were eliminated to yield a corrected sample size of 182 and a corrected response rate of 76 ÷ 182 = 42%. The corrected response rates by size were,

small (49/130)	38%
large (27/52)	52%

and by region were,

West	(10/19)	53%
Central	(11/17)	65%
South	(16/40)	40%
Mid-west	(23/49)	47%
Northeast	(16/57)	28%

Explanation of the Response Rates Obtained

While a 42% response rate on a mail survey might be considered average or slightly better than average [Kalton], it was below both Tucker's [1977] response rate (77%) and that achieved by Buse (91%). Tucker surveyed both Grade A and B dairy co-ops in the U.S. while Buse queried Wisconsin food and fiber-related corporations. Several reasons can be given for this relatively poor showing. Unlike the Wisconsin study [Buse], this survey was national in scope and therefore less helpful identification with Michigan State University could be expected than Buse received from the University of Wisconsin endorsement. Buse also recovered useful questionnaires from telephone call reminders as well as completing some questionnaires over the phone. The two questionnaires used in this research were both longer than either sent by Buse or the Farmer Cooperative Service [Tucker, 1977]. This study lacked the additional response incentive enjoyed by the Wisconsin

study--a state law was under consideration dealing with the subject of the query--or the Tucker survey--dairy farmer cooperatives were being surveyed by their own Federal protector agency. This questionnaire used in this study requested much sensitive information from cooperatives and proprietary handlers acutely cognizant of the Federal government's anti-trust interest in the dairy sub-sector. It should also be recognized that all individuals and businesses are besieged by an increasing number of questionnaires both public and private and often hastily discard all private requests (non-mandatory) for assistance.

Effect of Varied Stamping and Delivery Methods on Response Rate

Twenty-four of the one hundred fifty-nine cooperative questionnaires were sent by machine (metered) stamped envelope and twenty-eight of the one hundred eight-seven proprietary handlers were sent by certified mail. The null hypothesis is that mailing techniques different from hand-stamped envelopes have no effect on the attention given to a mail questionnaire. Note that "response rate" was not used. It is the feeling here that what is of interest is whether or not sufficient importance was assigned to the questionnaire by the recipient that he (she) either completed it or communicated his (her) reasons for not completing it to the researcher.

For the cooperative sample the following tabulation can be made:

	hand-stamped	metered
Sent	135	24
Returned Completed	51	11
Uncompleted, but acknowledged	10	3
Total	61	14
Rate	46%	58%

The null hypothesis is that the response rate of the sample receiving metered mail is not lower than the response rate obtained with hand-stamped envelopes. Examination of the tabulations above dispense with the need to subject this to statistical testing since the metered sample has a higher rate.[1]

For the proprietary handler sample observe the follow tabulation below:

	hand-stamped	certified
Sent	159	28
Returned completed	64	12
Uncompleted, but acknowledged	4	3
Total	68	15
Rate	43%	54%

The null hypothesis is that the response rate of the sample receiving certified mail is not higher than the rate obtained with hand-stamped envelopes. The random variable response rate follows the binomial distribution. The mean and standard deviation of the binomial distribution can be easily calculated. Given,

N	number of trials	28
P_a	probability of acknowledging the questionnaire	.43

the mean (M) and standard deviation (σ) are given by

---

[1]Incidentally, this rate is significant at the 16% level for the hypothesis of "not greater than" the hand-stamped rate.

$M = N * P_a = 12.04$ and

$\sigma = \sqrt{N * P_a (1 - P_a)} = 2.62$

Using the normal approximation to the binomial distribution produces reasonable accuracy since P_a and $1 - P_a$ are both close to .50 so that the binomial distribution for a sample of this size approaches the symmetric normal curve. It is found that the certified rate is significant at only the 17% level. Another experiment with a larger sample is in order to further test this hypothesis. Notice, however, that the two sub-samples had virtually identical rates (12% and 11% above the hand-stamped sample rates) which tends to diminish the credibility of the latter hypothesis.

In summary, it must be stated that the effects of alternative stamping techniques to hand-stamping produce ambiguous results.

Response Patterns Over Time

Figures D-2 and D-3 graphically display the response pattern over time for completed questionnaires returned by cooperatives and proprietary handlers, respectively. Since the University mail delivery system was plagued with discontinuities of service and since the principal researcher was travelling during the period the questionnaires were returned, post mark dates were used to establish response time. Examination of figures D-1 and D-2 indicates that the follow-up letter and the mailing of a second questionnaire stimulated recipients of the questionnaires to respond. Three waves or sets of responses can be identified for each sample and the percentages of questionnaires received in each wave calculated. This is done in Table D-1.

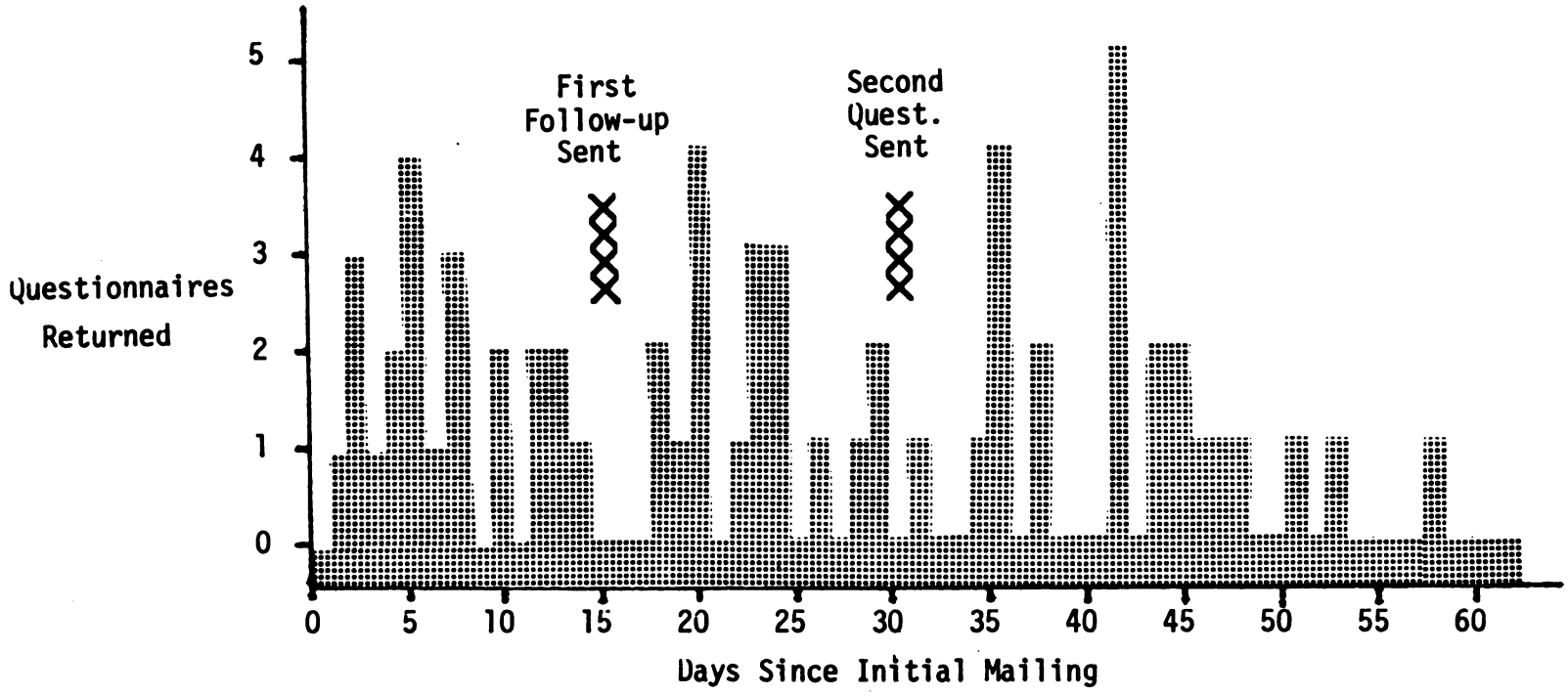


FIGURE D-2. Frequency Distribution of Cooperative Questionnaires Returned, By Days.

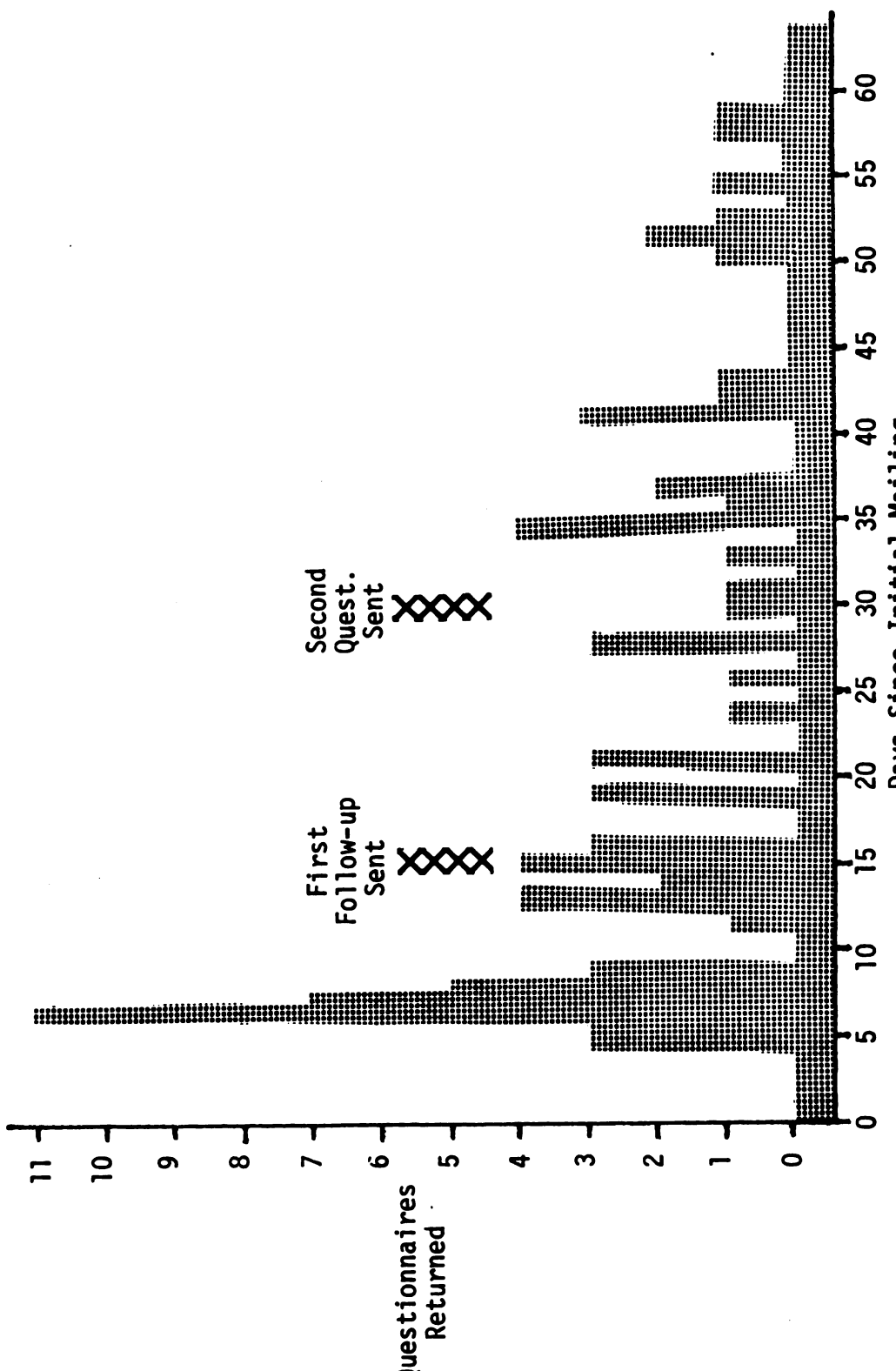


FIGURE D-3. Frequency Distribution of Proprietary Handler Questionnaires Returned, By Days.

Table D-1. Responses Decomposed by Waves Over Time; Cooperative and Proprietary Handler Samples

	Cooperatives	Proprietary Handlers
	Percentage of Responses Received in	
Wave 1: Initial Mailing	44%	64%
Wave 2: After Follow-up Letter	21%	18%
Wave 3: After Second Questionnaire	35%	18%
TOTAL RESPONSES	62	76

From Table D-1 it is clear that a significant number of questionnaires were received in each wave. Notice that the follow-up letter had nearly the same effect on the two samples but that proprietary handlers responded more promptly than did cooperatives. Cooperatives made up for the slow start in the third wave. It is important to note here that another factor disturbed the integrity of the three waves. Personal interviews were being conducted during the entire time the questionnaires were completed and therefore correspondence (mail and phone) as well as the visit itself could be expected to stimulate the return of the questionnaires. Some bias was injected into the mail survey to the extent that the non-random personal interviews may have encouraged completion and return of the mail questionnaires by the interviewees. The response rate to the mail questionnaire for the cooperatives and proprietary handlers interviewed was 61% and 71%, respectively. Sixty-three percent of the cooperatives and 83% of the proprietary handlers interviewed and returning questionnaires did so after the interview. The

only way to eliminate this source of bias under the non-random interview method, would be to conclude all phases of the questionnaire administration before the scheduling or holding of the interviews began. Time did not allow this approach.

Non-response Bias

A major concern with mail surveys must be the bias injected by the non-respondents, especially with a corrected response rate with both samples of only 42%. Although regional response rates in both samples were quite consistent as presented earlier in Appendix D, the response rates by size in the cooperative sample showed considerable variance--small at 24%, medium at 63% and large at 83%. Due to the small number of observations present in any cell of a wave (1 through 3) by size (large, medium, small) cross-tabulation, such analysis can not be fruitfully carried out. Therefore, non-response bias by size cannot be effectively dealt with. It is possible, however, to analyze each wave in the aggregate to see how much, if any, the three waves differed for the two samples. Tables D-2 and D-3 trace for selected variables the difference between means for the three waves for the cooperative and proprietary handler samples, respectively.

The figures presented in Table D-2 allay some of the fears of non-response bias in that the three waves were not significantly different (at the 5% level) from each other or the overall mean. This, of course, does not say anything about the non-respondents but does suggest that the final sample did not vary over time and therefore, by implication, might be representative of the entire population. Also notice that with the exception of the "percentage using some type of full supply arrangement,"

TABLE D-2. Comparison of Wave Means for Selected Variables in the Cooperative Sample

Variable	Means				Significance Level[1]
	Total Sample	Wave 1	Wave 2	Wave 3	
1. Age of Co-ops (yrs.)	40	43	34	40	.58
2. No. States in Mktg. Area	4	3	5	4	.44
3. No. of Members	2055	994	3884	2375	.18
4. Market Share (%)	38	36	46	35	.69
5. Milk Received-1976 (mil. lbs.)	1048	482	2387	1170	.06
6. Manufacture? 1 = yes, 2 = no	1.45	1.43	1.33	1.55	N.A.
7. Process? 1 = yes, 2 = no	1.56	1.64	1.42	1.55	N.A.
8. % who have a full supply arrangement	34	37	37	28	N.A.

[1]Based on the F statistic for the null hypothesis: the means of all three waves are equal to each other and to the mean of the total sample.

Table D-3. Comparison of Wave Means for Selected Variables in the Proprietary Handler Sample

Variable	Means				Significance Level[1]
	Total Sample	Wave 1	Wave 2	Wave 3	
1. No. of states in Marketing Area	4	3	7	4	.20
2. Volume Processed-1976 (mil. lbs.)	294	279	321	327	.97
3. % milk for processing bought from co-ops	72	72	90	47	.03
4. No. of co-ops. selling bulk milk in your marketing area	10	14	3	5	.80
5. Manufacture? 1 = yes, 2 = no	1.44	1.49	1.43	1.25	N.A.
6. Do you have a full supply arrangement? 1 = yes, 2 = no	1.46	1.49	1.31	1.57	N.A.

[1]Based on the F statistic for the null hypothesis: the means of all three waves are equal to each other and to the mean of the total sample.

the total sample mean and the mean of the third wave were almost identical, suggesting that the sample had "settled down."

The same points made above can be made with respect to the proprietary handler sample as seen in Table D-3. Notice, however, that the total sample mean is virtually identical to the mean of wave 1, rather than wave 3 as observed with the co-op sample.

Costs of Administering the Two Questionnaires

Table D-4 presents a breakdown of all costs associated with composing, printing and mailing the questionnaires and all follow-ups as well as the costs of obtaining the desired population lists from which to draw the samples. Table D-4 does not include the time of the principal researcher or the costs incurred in analyzing the completed questionnaires (keypunching and computer time; approximately $350.00). Since the two questionnaires were composed and administered jointly, their costs are presented together.

The cost per completed questionnaire for this study was high. Normal ranges are between $2 and $6 per useable questionnaire. Buse, for example, incurred costs of $3.45 per useable survey. The costs were particularly high in the case reported here for two principal reasons. First, travel facilitated the prompt and accurate composition of the population lists. These costs were substantial--$2.30 per completed questionnaire. One pay-off from this costly procedure was that only three questionnaires were undeliverable--less than 1%. Secondly, the high fixed costs to any questionnaire had to be borne by a relatively small total sample and low response rate. Tucker [1977] had a sample size of nearly 1,000 while Buse mailed 880 surveys.

TABLE D-4. Costs of Composing and Administering the Cooperative and Proprietary Handler Questionnaires

Cost Item	Incurred prior to first follow-up	Incurred in first follow-up	Incurred in mailing of second questionaire	Total
Travel[1]	$319.50	--	--	$319.50
Labor[2]	244.32	$ 7.00	$ 21.00	272.32
Printing[3]	178.94	4.00	136.35	
Supplies	30.00	-	-	30.00
Postage	165.76	37.83	67.60	271.19
Phone[4]	12.00	--	--	12.00
TOTAL COSTS	$950.52	48.83	224.95	1224.30
Number Organizations Receiving Questionnaires	--	--	--	346
Number Questionnaires Completed[5]	77	27	35	138
Cost per Completed Questionnaire	$12.34	$1.81	$6.62	$8.87

1. Two trips to Washington, D.C. to obtain useable population lists and addresses.
2. Typing (6 times) and 20 hours of student help.
3. Although questionnaires for both mailings were printed at the same time, the costs were pro-rated over the two mailings. The second mailing was approximately 75% of the first.
4. Estimated; costs incurred in obtaining population lists.
5. Wave 1, 2 and 3 correspond to the first 3 columns above, respectively.

Notice that the cost per completed questionnaire for the second wave (Column 2) was very low. The follow-up letter was well worth its cost. The wave three costs appear high but the figure is exaggerated since printing costs for approximately 650 questionnaires (180% of the first mailing) were simply pro-rated on the basis of the number mailed each time. Undoubtedly the fixed printing costs were large and should have been borne by the first mailing alone. The mailing of a second questionnaire was probably worthwhile but one must wonder if a second, hard-hitting follow-up letter would have returned more completed surveys per dollar spent.

APPENDIX E

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS
AGRICULTURE HALL

EAST LANSING • MICHIGAN • 48824

June 24, 1977

[Dear *individual market administrator's name typed here*]

As part of the requirements for my Ph.D. degree in Agricultural Economics at Michigan State University, I am undertaking a study of milk marketing at the cooperative--non-cooperative handler levels. My emphasis is on the processes of exchange between cooperatives and processors and the mechanisms which have developed to facilitate coordination of supply with demand, such as full supply arrangements, bargaining, marketing services, vertical integration and supply management activities.

To aid me in this study, I plan to distribute a questionnaire to a sample of U.S. cooperatives and non-cooperative processor-handlers. Some of those to be sampled are in your market order areas. The survey should be mailed out by early July. Also as part of the study, I will be personally interviewing a number of cooperative managers and fluid processors.

Although this letter is designed to inform you about the nature of this study, any comments or suggestions you might have regarding these important issues or the study itself will be appreciated.

Sincerely,

[*individually signed*]

Robert D. Boynton
Research Assistant

Figure E-1: Letter to Market Administrators

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS
AGRICULTURE HALL

EAST LANSING · MICHIGAN · 48824

July 28, 1977

[*Hand-written personal salutation added*]

I am very anxious to have the benefit of your help in a study which I feel can be of great importance to our dairy industry. It attempts to get at some of the major issues and problem areas in the industry in a fair, thorough and understandable way. A sample of proprietary handlers, some of whom your cooperative might deal with, will be answering a similar questionnaire. Only by having your help can a balanced picture of any of the problem areas which may exist be obtained. The National Milk Producers Federation has participated in the development of this questionnaire and fully supports the objectives of the research.

The enclosed questionnaire was pre-tested with several cooperative managers and took about 40 minutes to complete. Virtually every question requires only a check mark to answer. Only if you feel it is necessary, will you have to write out an answer.

Although I may be asking you to divulge some confidential information, be assured that all information will be kept in the strictest confidence. I hope to work with dairy cooperatives throughout my professional career, and would do nothing to jeopardize my rapport with any cooperative or individual.

I am completing my Ph. D. degree in Agricultural Economics at Michigan State University and this research makes up my doctoral thesis. The dairy industry is no stranger to me. I was born on a dairy farm in Northern California, where I lived and worked for 21 years. My family still dairies there. I am vitally concerned for the health of this industry and its people. The many different arrangements which have been developed to facilitate the marketing of Grade A milk have received scant analysis. I want to change that. A few of the topics which I want to study include full supply arrangements, bargaining, marketing services, supply management, reserve supply handling activities and vertical integration.

Feel free to have anyone in your cooperative--management or Board of Directors--participate in filling out the questionnaire. Please return it in the enclosed, stamped, self-addressed envelope at the earliest possible date. If you have any questions or suggestions concerning this survey, please let me know.

In addition to this mail questionnaire, I will be visiting personally with several cooperative managers and proprietary handlers throughout the

United States. I may be calling on you to visit with me concerning these and other issues of importance in the dairy industry. Thank you for your help.

Sincerely,

[*Individually signed*]

Robert D. Boynton
Research Assistant
(517) 353-6768
(517) 393-2845

Figure E-2: Initial cover letter to cooperative questionnaire

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS
AGRICULTURE HALL

EAST LANSING · MICHIGAN · 48824

July 28, 1977

[*Hand-written personal salutation added*]

I am very anxious to have the benefit of your help in a study which I feel can be of great importance to our dairy industry. It attempts to get at some of the major issues and problem areas in the industry in a fair, thorough and understandable way. A sample of cooperatives, some of whom your firm might deal with, will be answering a similar questionnaire. Only by having your help can a balanced picture of any of the problem areas which may exist be obtained.

The enclosed questionnaire was pre-tested with several handlers and took about 40 minutes to complete. Virtually every question requires only a check mark to answer. Only if you feel it is necessary, will you have to write out an answer.

Although I may be asking you to divulge some confidential information, be assured that all information will be kept in the strictest confidence. I hope to work with the dairy industry throughout my professional career, and would do nothing to jeopardize my rapport with any firm or individual.

I am completing my Ph.D. degree in Agricultural Economics at Michigan State University and this research makes up my doctoral thesis. The dairy industry is no stranger to me. I was born on a dairy farm in Northern California, where I lived and worked for 21 years. My family still dairies there. I am vitally concerned for the health of this industry and its people. The many different arrangements which have been developed to facilitate the marketing of Grade A milk have received scant analysis. I want to change that. A few of the topics which I want to study include full supply arrangements, bargaining, marketing services, supply management, reserve supply handling activities and vertical integration.

Feel free to have anyone in your firm participate in filling out the questionnaire. Please return it in the enclosed, stamped, self-addressed envelope at the earliest possible date. If you have any questions or suggestions concerning this survey, please let me know.

In addition to this mail questionnaire, I will be visiting personally with several cooperative managers and proprietary handlers throughout the United States. I may be calling on you to visit with me concerning these

and other issues of importance in the dairy industry. Thank you for your help.

Sincerely,

[*Individually signed*]

Robert D. Boynton
Research Assistant
(517) 353-6768
(517) 393-2845

Figure E-3: Initial cover letter to proprietary handler questionnaire

I would like to have a copy of the report summarizing the results of this research project, as soon as it is available.

_____
Signature

_____
Name of Organization

PLACE
STAMP
HERE

ROBERT D. BOYNTON
Department of Agricultural Economics
7 Agriculture Hall
Michigan State University
East Lansing, Michigan 48824

Figure E-4: Card to request copy of summary publication

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS
AGRICULTURE HALL

EAST LANSING • MICHIGAN • 48824

August 15, 1977

[Dear Cooperative Manager *or* Dear Proprietary Handler *was typed*]

This letter is to remind you of the questionnaire you received from me about two weeks ago. Your help is needed in this study of dairy cooperative--proprietary handler exchange if a balanced picture of the industry is to be obtained. If you have already returned the completed questionnaire, please accept my thanks and disregard this letter. If you have not yet taken the time to fill it out, please do it soon. It should require only 30 - 40 minutes.

The many different arrangements which have been developed to facilitate the marketing of Grade A milk have received scant analysis. I want to change that. A few of the topics which I want to study include full supply arrangements, bargaining, marketing services, supply management, reserve supply handling activities and vertical integration.

If you wish a copy of the final report of this study, just complete and return the card attached to the questionnaire. I will be happy to send you a report as soon as they are ready. If you have questions or require another copy of the questionnaire write or call me (517)355-0135 or 353-6768. Thank you for your help.

Sincerely,

[*presigned*]

Robert D. Boynton
Research Assistant

Figure E-5: Common Follow-up Letter

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS
AGRICULTURE HALL

EAST LANSING • MICHIGAN • 48824

August 29, 1977

[Dear Cooperative Manager *or* Dear Proprietary Handler *was typed*]

You can help the dairy industry!

As a friendly reminder that your cooperation is so important, I am sending you a duplicate questionnaire. Won't you take a few minutes today to fill it out? Your help is greatly needed in this study of dairy cooperative--proprietary handler exchange if a balanced picture of the industry is to be obtained. If you have already returned your completed questionnaire, please disregard these materials.

A copy of the final report will be sent to you by completing the attached card. Any questions may be answered by writing me at the above address or phoning (517)355-0135 or (517)353-6768.

Sincerely,

[*presigned*]

Robert D. Boynton
Research Assistant

Enclosures

Figure E-6: Common coverletter for second mailing of questionnaire

APPENDIX F

APPENDIX F. List of Cooperative Management Interviews

Date	Name of Cooperative	Individual(s) Interviewed	Location
July 6	Michigan Milk Producers Assn.	Jack W. Barnes	Detroit, MI
July 12	Associated Reserve Standby Pool Cooperative (ARSPC)	John Smith	Cincinnati, OH
July 13	Associated Milk Producers, Inc.	Jerry Gehling	Chicago, IL
July 13	Wisconsin Dairies	Robert Williams	Baraboo, WI
July 14	Farmers Union Milk Marketing Co-op	Stuart Huber, Mr. Hoover Mr. Velmen	Madison, WI
July 22	Mt. Empire Dairymen's Assn.	Vernon Bingham, L.Mortensen	Thornton, CO
July 25	Dairymen's Co-op Creamery Assn.	George DeMederios	Tulare, CA
July 28	California Co-op Creamery	William VanDam	Petaluma, CA
August 3	Dairymen's League of San Diego Co.	George Foster	Escondido, CA
August 3	Pacific Dairymen, Inc.	Richard Mullard	Montebello, CA
August 4	California Milk Producers	Gary Korsmeier	Artesia, CA
August 5	Danish Creamery Assn.	John Payne	Fresno, CA
August 10	Dairymen's, Inc.	Dr. Albert J. Ortego, Jr.	Louisville, KY
August 15	McDonald Co-op Dairy Co.	Don VerWest	Flint, MI
August 18	Associated Milk Producers, Inc.	Dr. Art Miller, Lynn Elrod	San Antonio, TX

List of Cooperative Management Interviews (con't.)

Date	Name of Cooperative	Individual(s) Interviewed	Location
August 22	Tampa Independent Dairy Farmers Assn.	Riley Hogan	Washington, DC
August 24	Maryland & Virginia Milk Prod. Assn.	R. H. Rollins	Arlington, VA
August 26	Milk, Inc.	J. Gordon Riehl	Cleveland, OH
August 29	Eastern Milk Producers	Joe Mathis	Syracuse, NY
August 29	Northeast Dairy Co-op Federation,Inc.	Art Little	Syracuse, NY
August 30	Yankee Milk	Dick Langworthy, Paul McVey, Joe Garro	N. Andover, MA
August 31	Dairylea Cooperative	George O'Brien, E.J.Vandenbord, Bruce Snow, F.R.Pardoe, Willis Day	Pearl River, NY
August 31	Lehigh Valley Cooperative Farmers	Bill Stout	Allentown, PA
Sept. 7	National Farmers Organization	Ed Graf, John Bobbe, O. L. Staley	Corning, IA
Sept. 8	Mid-America Dairymen, Inc.	Gary Hanman, Bill Blakeslee	Springfield, MO
Sept. 8	Mississippi Valley Milk Prod. Assn.	Carl E. Zurborg	Davenport, IA
Sept. 12	Lake-to-Lake Cooperative	Truman Torgerson	Manitowoc, WI
Sept. 13	Associated Milk Producers, Inc.	R. J. Van Liere	Chicago, IL
Sept. 13	Central Milk Producers Co-op	George Hansen	Chicago, IL
Sept. 15	Land O'Lakes Cooperative	Harvey Ebert, Art Jepsen	Minneapolis, MN

APPENDIX G

APPENDIX G. List of Proprietary Handler Interviews

Date	Name of Firm	Individual(s) Interviewed	Location
July 11	Kroger Co.	Harold Cope	Cincinnati, OH
July 15	Detroit Pure Milk Co.	Jerry Mindling	Detroit, MI
July 25	Foremost	Otho Murray	Lemoore, CA
July 27	Safeway	Dave Hennigh, Neil Holbrook	Oakland, CA
July 27	Lucky Stores	Don Pflueger	San Leandro, CA
July 28	Crystal Creamery	Gerald Hansen, R.B. Roberts	Sacramento, CA
August 4	Carnation Co.	Rex Phillips	Los Angeles, CA
August 17	Farmbest	Al Hamilton	Jacksonville, FL
August 19	Southland Corp.	Russell Dethlefsen	Dallas, TX
August 23	Kraft, Inc.	John Beatty	Washington, DC
August 24	The Great A&P Tea Co.	Richard Kattner	Landover, MD
Sept. 6	Dean Foods	Mr. Rittmueller	Franklin Park, IL
Sept. 6	Oberweis Dairy	Joe Oberweis, Sr.	Aurora, IL
Sept. 9	Borden Co.	Norm Hibinger	Columbus, OH
Sept. 13	Beatrice	Ted McCarty	Chicago, IL
Sept. 14	Kraft, Inc.	J. Heisinger	Chicago, IL
Sept. 15	Marigold Foods	Conrad Loepsberger	Minneapolis, MN

APPENDIX H

APPENDIX H. List of Interviews with Other Sub-sector Participants

Date	Name of Organization	Individual Interviewed	Location
July 13	University of Wisconsin	Dr. Hugh Cook	Madison, WI
July 26	California Bureau of Milk Stabilization	Robert Abbott	Sacramento, CA
August 22	National Assn. for Milk Marketing Reform	Jack Pearce	Washington, DC

APPENDIX I

APPENDIX I

TYPICAL INTERVIEW FORMATS

The topics in the two lists below were typically covered in visits with U.S. dairy co-op management and proprietary handlers. Not all topics were appropriate in every situation and time did not always permit coverage of all subjects listed below. Extra questions suggested by prior knowledge of the cooperative or proprietary handler or by comments made during the discussions were frequently added.

Cooperative Format

1. History and current scope of operations of the co-op.
2. Background of the interviewee.
3. Sales relationships and experiences with proprietary handler customers; why are some relationships better than others?
4. Types of sales arrangements with bulk milk customers, especially written and informal full supply arrangements.
5. What services do you provide for bulk milk customers and for the entire market? Are you adequately compensated? How do you set rates? Do you charge premium prices? How are price decisions made and enforced?
6. What are the similarities and differences between marketing and operating co-ops? If your co-op is an operating co-op what factors are responsible for this? What special problems does it create with proprietary handlers, especially bulk milk customers?

7. What have been the effects of National Farmers Organization and Farmers Union on milk procurement activities in your marketing area?
8. Do you exercise or try to exercise any supply control? What should government's role be?
9. Do you have "free-rider" problems with non-members, members of other co-ops or proprietary handlers?
10. How do you deal with on-farm quality, correcting quality problems noticed by proprietary handler customers, antibiotic problems, and inspection jurisdictions? What rules exist for trading on farm or tanker weights and tests?
11. What efforts at joint cooperative marketing ventures have been tried? What is your assessment of their performance?
12. How do you coordinate off-farm hauling activities and delivery schedules?
13. What are the effects of federal and state orders and unregulated areas on milk procurement activities?
14. What have been the effects, if any, of the consent decrees on your operations?
15. Current issues of concern.
16. Future role of dairy cooperatives.

Proprietary Handler Format

1. History and scope of current operation.
2. Background of the interviewee.
3. Sales relationships with co-ops in their market; pleasant and unpleasant experiences; do co-ops facilitate the procurement

function?

4. Partial and full supply arrangements; written and informal; which do you use and why?
5. Payment and effects of over-order prices.
6. Payment for cooperative-performed services; are they worth what you pay? Are you a "free rider?"
7. Is there a role in your market for operating co-ops? What experiences have you had with them?
8. Are there any effective production controls in this sub-sector?
9. Do co-ops deliver milk when and where you need it? Any problems with quality? What experiences have you had with alternative ways of buying on weights and tests?
10. Do co-op common marketing and bargaining organizations facilitate coordination?
11. What effects are federal and state orders and unregulated milk having on your operations?
12. Characterization of proprietary handler's position between co-ops and food chains.
13. What are the effects of food chain integration on your operations and the sub-sector?
14. Current issues of concern
15. How much information is shared between handlers which may be illegal but facilitates vertical coordination and does <u>not</u> violate the spirit of the law? To what extnet do anti-trust laws inhibit such desirable communization?
16. What is the future of proprietary handlers in this sub-sector?

APPENDIX J

APPENDIX J

COST OF PERSONAL INTERVIEWS

The cost of the fifty-one personal interviews can be grouped under three headings as follows:

Travel, Room and Board	$ 4,347.93
Telephone Costs (from Michigan State University)	250.00
Secretarial Support	87.40
TOTAL COST	$ 4,685.33
COST PER INTERVIEW	$ 91.87

The cost of personal interviews are significantly affected by (i) the geographical dispersion of the interviewees, (ii) the ability to schedule trips which reduce travel and related expenses and (iii) the budgeted length of each interview. The cooperatives and proprietary handlers visited in this study were scattered from California to upstate New York and Florida to Minnesota. Eighteen states were visited. The scheduling of the trips and visits proceeded nearly as desired. Careful planning, diligent follow-up work and luck all contributed to the scheduling success. This kept costs down since backtracking, missed appointments, gaps in scheduling and multiple trips into one region were minimized. Although it was rare to have more than one interview in any city, on several occasions scheduling would have been facilitated if not for the desire to allow at least 3 hours per interview in case it could be productively used. Many visits did last three hours or longer.

APPENDIX K

APPENDIX K

EXAMPLE OF PROCESSING COOPERATIVE AND PROPRIETARY HANDLER CONFLICT

The issue of dairy cooperative integration into fluid bottling was discussed at some length in Chapter 7. Several problems which can arise between dairy cooperatives who operate processing facilities and proprietary handlers in the same market were elaborated. A graphic manifestation of this conflict was found in an advertisement for a cooperative's fluid and manufactured dairy products and a subsequent follow-up placed by the cooperative as an apology to their bulk milk customers. The advertisement depicted a farmer leaning on a fence with his farmstead in the background. The text of the ad is shown below:

PAY THE WORKING MAN INSTEAD OF
THE MIDDLEMAN. BUY (brand name)

Even when you pay a lot for food, the farmer often doesn't get a fair return on his hard work and big investment. Because usually there's a maze of middlemen between you and the farmer who produces the food you buy.

But not when you buy (brand name) dairy products. With (brand name), the farmer and the consumer get back into direct contact. Because (brand name) is cooperatively owned by families who run small to medium-sized dairy farms --many just a short drive out into the country from where you live.

So from the cow to the supermarket dairy case, (brand name) products remain in the proud, watchful care of the farm families who work so hard to make those products possible.

Which means that (brand name) freshness and quality can't be matched. And that most of the fair price you pay goes fairly to the working folk, not to the middlemen.

Try (brand name). It comes straight from the farm family to your family.

Six days later the cooperative deemed it advisable to print a special message in the newspaper to the middlemen-customers to whom the cooperative sells bulk milk and private label products. The cooperative assured the middlemen that the advertisement had been placed without the approval or knowledge of the management. The follow-up message appeared on cooperative stationery, under the title, "We apologize to our customers in (city). The message signed by the General Manager, appears below:

> An advertisement stating "Pay the working man instead of the middleman. Buy (brand name)." appeared in this newspaper last week.
>
> This advertisement was placed without the approval or knowledge of the management of (cooperative). I wish to publicly state that the message expressed in this advertisement is contrary to the policy and philosophy of (cooperative), owner of (brand name).
>
> The services provided by middlemen are not only necessary, but essential, in the marketing system employed in this country. This system has made this country great and is the foundation of moving products from the point of production to the point of consumption. It all contributes to making our food production and marketing system the most efficient in the world. We are proud to be a part of it.
>
> We want you, as our customers, to understand that the statements made in this unauthorized advertisement do not reflect the policies or the philosophies of (cooperative) and its subsidiary, (brand name).

Although the incident recounted here is not an inevitable result of cooperative vertical integration since it could have been prevented by adequate intra-cooperative communication, it does demonstrate that conflicts may arise which adversely affect coordination.

BIBLIOGRAPHY

BIBLIOGRAPHY

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