EFFECT OF THE BASE RATING PLAN OF PAYMENT ON THE SEASONAL VARIATION IN SUPPLY OF FLUID MILK IN THE DETROIT MILKSHED

Thesis for the Degree of M. A.

MICHIGAN STATE COLLEGE

Henry Alfred Homme

1948

This is to certify that the

thesis entitled

EFFECT OF THE BASE RATING PLAN OF PAYMENT
ON THE SEASONAL VARIATION IN SUPPLY OF
FLUID MILK IN THE DETROIT MILKSHED

presented by

HENRY ALFRED HOMME

has been accepted towards fulfillment
of the requirements for

M. A. degree in ECONOMICS

Lawrence Witt
Major professor

Date Dec 9, 1948

H Wyngarden

M-795

EFFECT OF THE BASE RATING PLAN OF PAYMENT ON THE SEASONAL VARIATION IN SUPPLY OF FLUID MILK IN THE DETROIT MILKSHED

By

HENRY ALFRED HOMME

A THESIS

Submitted to the School of Graduate Studies of Michigan
State College of Agriculture and Applied Science
in partial fulfillment of the requirements
for the degree of

MASTER OF ARTS

Department of Economics

1948

THESIS

1/20/49

ACKNOWLEDGMENT

This study was written under the inspiring guidance of Dr. G. G. Quackenbush, to whom the author is also grateful for aid in organization, computations, development of techniques of measurement, and constructive criticism.

The author also acknowledges the helpful criticisms of Dr. Lawrence Witt and of Lawrence Boger, who read the manuscript. The statistical work of Mrs. Dorothy Kline was a valuable contribution to the completion of the study. Others aided in many ways.

The cooperative gestures of the Michigan Milk Producers' Association, the Detroit Board of Health, the Michigan Producers Dairy at Adrian, and the Toledo, Ohio Milk Marketing Administrators, in making available their records, was of primary importance to the undertaking, and the officers and clerical assistants of these organizations were very helpful.

Finally, I owe a debt of gratitude to my wife, Stella, who took many hours from household duties to aid in the completion of the study.

HENRY ALFRED HOMME

TABLE OF CONTENTS

TABLE OF CONTENTS - (Cont'd.)

TABLE OF CONTENTS - (Cont'd.)

LIST OF FIGURES

LIST OF FIGURES - (Continued)

LIST OF FIGURES - (Continued)

LIST OF FIGURES - (Continued)

LIST OF TABLES

LIST OF TABLES - (Continued)

LIST OF TABLES - (Continued)

Chapter I

INTRODUCTION

The base rating plan is a means of providing a higher price to a milk producer who delivers a more nearly constant supply of milk to the market, than to one who delivers a relatively high proportion in the spring. Since 1923, with the exception of certain periods, the base rating plan of producer payment has provided the incentive for producing a more constant supply of milk in the Detroit milkshed.

This plan, also known as the base and surplus plan, and the base and excess plan, and by other names, was instituted as a price incentive scheme in Detroit at a time when scores of other markets were also adopting the plan. Detroit is today the largest of the few markets still using the plan.

Milk pricing procedure in Detroit is quite complicated. The classification-use system by which dealers buy the milk, the base rating plan by which the producer is paid for his milk, and the pooling structure in between by which the latter prices are adjusted to the former, are the result of a long period of development

in market techniques.

The Michigan Milk Producers Association has an agreement with milk distributing firms that the firms pay for the milk which they sell according to a schedule of prices. The highest price is paid for Class I milk (or that amount sold in fluid form); the second highest price is paid for Class IIA (7 per cent of Class I sales); and the lowest price is paid for Class IIB (that amount in excess of Class I and Class IIA sales). This pricing schedule is a modified form of the classification-use plan of payment.

Each month the receipts from all the milk used; i.e., the sum of each price times the amount of milk sold at that price, is calculated. This is the market-wide pool.[1]

The Association then calculates two prices for payment to producers, a base price which is paid each producer for an amount of milk equal to that he delivered in a base period, and an excess price which is paid for the remainder of his deliveries. Actually each distributor in the Detroit market pays his own producers, but he must pay each producer according to the base rat-

---

[1] Actually only about 92 per cent of the milk sold in Detroit is "pooled" milk. Six distributors collect and distribute independently of the Michigan Milk Producers Association.

ing plan. Any loss or gain caused by the dealer paying his own producers is adjusted by an Equalization Committee.

Objectives

A conviction of the intrinsic worth of the base rating plan has led this author to examine the plan more closely, to see how it performs its task of evening production. The objectives of the study are several:

1. To relate the base rating plan to seasonal fluctuations in milk production and measure its effectiveness in seasonal production control.

2. To determine whether the plan is losing its value in the enlargement of the Detroit milkshed.

3. To measure the price incentives inherent in the base rating plan which will tend to affect production, and compare these incentives with those in other production-control price plans.

Sources and Adequacy of Data

Primary data used in the study were obtained from the records of the Michigan Milk Producers Association, the Equalization Committee of the Association, the Detroit Board of Health, the Market Administrator of the Toledo, Ohio Milk Marketing Area, and the Michigan Producers Dairy at Adrian, Michigan.

In addition, a considerable number of experiment station bulletins, some of which were specific studies of the effect of base rating plans of payment, and a number of other publications and articles on milk marketing, were perused. Visits to the sales-committee meetings of the Michigan Milk Producers Association and to the producer-dealer negotiations gave an insight into the market mechanism.

One of the principal avenues of determining the effect of the base rating plan on production, the comparison of production before and after the inauguration of the plan, was closed because of the lack of detailed data in the earlier years. Similarly production statistics in the development stages of the base rating plan in Detroit market are not sufficiently detailed for use in comparison with later periods. As a matter of fact, comparable production statistics are not available previous to 1934. It is for this reason that no attempt has been made to compare recent production with that previous to 1934. In the analysis of base formulation policies, data were also deficient.

In all of the analyses, the large number of variables made the use of correlation techniques questionable in the determination of causal relationships.

Procedure

After a review of literature in the field, the collection of primary data, and the obtaining of a knowledge of the market, analysis was aimed principally toward reaching a measure of price incentives in the base rating plan which affected production and a measure of the effect of the base rating plan on the seasonal production of milk.

Price incentives were secured by:

1. A measurement of the average annual prices obtained by producers with varying proportions of milk shipments in the fall and spring.

2. A comparison of the average annual prices received by this group of producers under the base rating plan as used in Detroit with those received by producers selling under other incentive plans.

3. An adaptation of this data to various levels of prices.

4. A theoretical examination of the maximum incentive in the plan, and its modification to the practical application.

The effect of the base rating plan on the seasonal production of milk was studied by:

1. Considering results obtained by research workers in other areas.

2. A comparison of average seasonal fluctuation

in production of three groups of producers in Lenawee county; one group selling to Detroit under the base rating plan, one group to Toledo under a seasonal differential plan, and one group selling to the Michigan Producers Dairy in Adrian, a condensery plant paying a flat price with certain premiums for quality. These samples were composed of the producers in each group which had remained in the market for a considerable period of time.

Two other comparisons, one concerning variation in seasonality of production in various types of farming areas, and the other concerning variations in seasonality due to distance from the market, were made from data on:

1. Monthly receipts at country receiving stations.

2. A sample of 329 producers randomly selected from the files of the Michigan Milk Producers Association.

In studying the action of factors within the plan, primary attention was given to the effect of base formulation policies on the effectiveness of the plan.

Chapter II

THE SEASONAL PROBLEM

The Detroit milkshed extends over an area approximately 100 miles in radius to the north and west of Detroit. Although a small percentage of the milk is direct shipped[1/], the greater part is trucked in from country receiving stations operated by the Michigan Milk Producers Association or by milk distributing firms.

Variations in the supply of milk to the Detroit market is of considerable importance in the orderly marketing of fluid milk. The fluctuations in supply are of three dominant types:

1. Trends over a period of years.
2. Daily variations.
3. Seasonal variations.

Long time trend is not important in the seasonal problem. Production in the Detroit milkshed increased from a daily average of 1,700,000 pounds in 1934 to 2,630,000 pounds in 1947; an increase of 65 per cent in 13 years. This trend in milk production does not af-

---

1/ A term used to identify farm pickup by truck routes originating at the city distributing plant.

fect the present study unless it is shown that the base rating plan has an adverse effect on the desired direction of the long-time trend.

Daily variations, likewise, are not considered in this study, inasmuch as they are usually due to factors beyond the recognized control of a price plan. Storms, strikes, and holidays are examples of this type of factor.

Daily variations are important, however, in their effect on the level of production necessary to provide the market with a constant supply of fluid milk. Figure 1, the line graph of daily deliveries to the Detroit market in 1945, indicates certain days in November and December in which daily deliveries are nearer to the Class I average sales than in other days. The market must have a sufficient average daily delivery for the month so that the daily delivery is never below the needs of the market for more than one or two days.[1] Similarly the daily Class I sales vary considerably. It may easily happen that the low day in delivery during the month may coincide with one of the high days insofar as sales are concerned. This situation must

---

[1] The needs of the market are variously estimated at from 7 per cent to 15 per cent above the Class I sales for the day, to allow for variation in sales. Milk must be sold within three days of bottling so a large hold-over is not practicable.

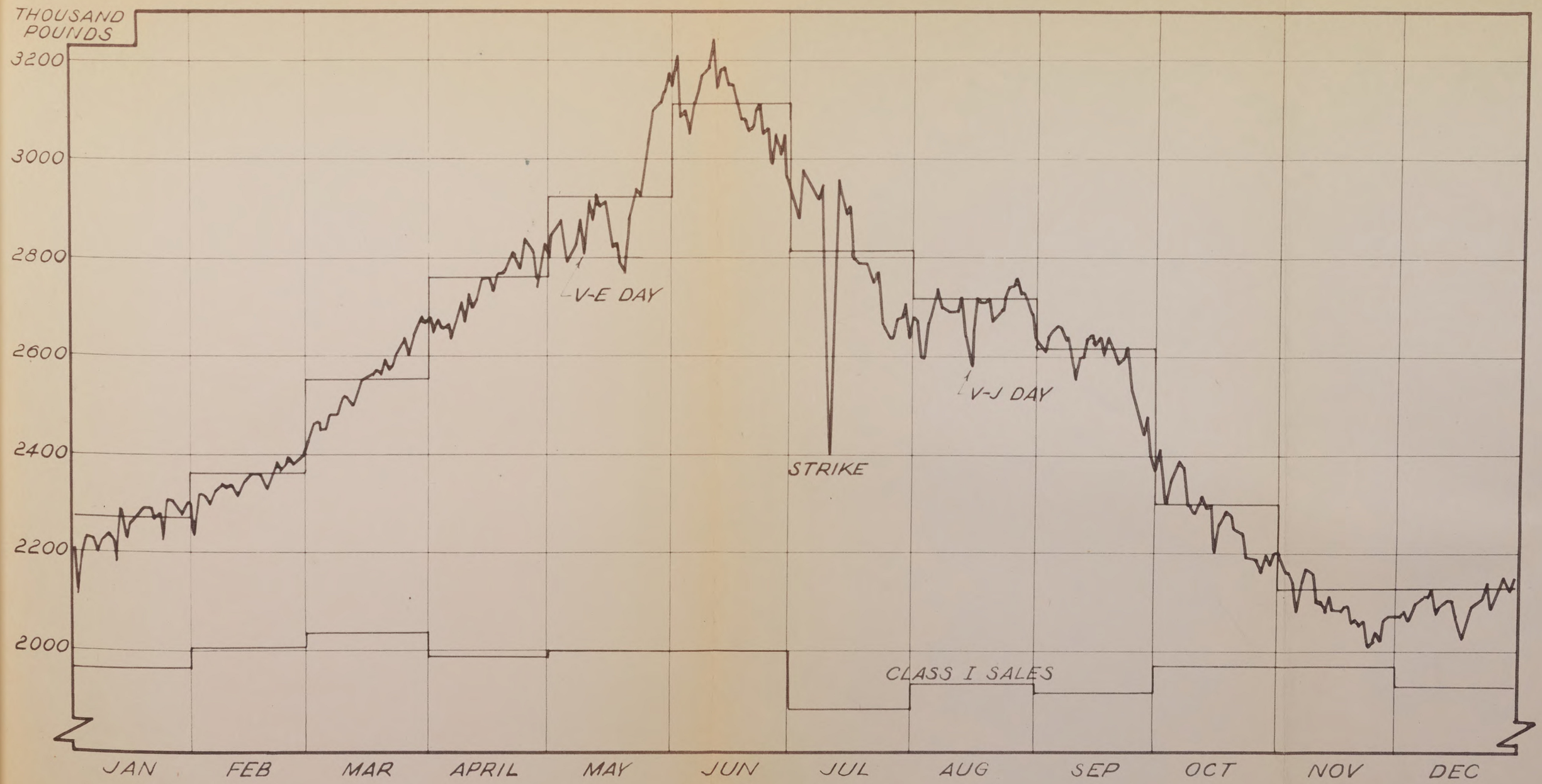

FIGURE 1. -- DAILY MILK DELIVERIES TO DETROIT MARKET, 1945, COMPARED WITH DAILY AVERAGE DELIVERIES AND CLASS I SALES (By Months)

Source: Daily Average Deliveries and Class I Sales from Michigan Milk Producers Association. (includes out area milk)
Daily Deliveries from Detroit Department of Health (includes all milk delivered in Metropolitan Area, Detroit.

always be kept in mind when working with daily averages by months. The 1945 monthly averages used in this study are compared in Figure 1 with daily deliveries in 1945 to point out that monthly averages (or three month averages) show neither the high nor low points of seasonal production or sales.

Figure 1 also illustrates the difference between the extensive seasonal fluctuation in production and the negligible seasonal fluctuation in monthly consumption of Class I (bottled) milk in the Detroit market. This is the crux of the problem of the seasonal supply of milk. In order to obtain a sufficient quantity of milk in the fall, a far greater amount must be accepted in the spring.

In years when genuine shortages of fluid milk develop in the fall, as in 1943, 1944, and 1947, it would be of considerable apparent value to the market to shift a portion of the spring production to the shortage months in the fall; usually November and December. Even in other years, a considerably greater efficiency in milk marketing could be obtained if receipts were more evenly distributed. It is often reiterated that the costs of processing the excess above fluid milk and cream sales would be less if the manufacturing milk were to be delivered more evenly throughout the year. A smaller outlay of trucking facilities, plant capacity,

yearly operating capital and labor would be necessary and the storage costs on the finished product would be less.[1]

In addition, the statement has often been made that since fewer shippers (or a smaller milkshed) are required if seasonal production is more even, the shippers remaining in the milkshed can obtain a higher average price for their milk than previously, since a greater percentage is used as Class I at a higher price. In some markets, restriction of the size of the milkshed (or the number of shippers) is imposed by the competitive demand of other markets; in some markets it is self imposed by refusal of a city Board of Health to inspect farms beyond a given point, or by associations or dealers refusing to accept new shippers; and in all markets, the cost of collection increases with distance.

---

[1] Gaumnitz, E. W., and Reed, O. M., in their bulletin, "Some Problems Involved in Establishing Milk Prices", U.S.D.A., AAA Marketing Information Series DM-2, Sept., 1937, P. 98, indicates that from the standpoint of efficiency of operation, distributors may be able to pay a premium for even production since their costs of collecting, processing and selling are higher under uneven production than under even production. This apparently means that a higher annual average price could be paid for even production.

Chapter III

PRICE PLANS DESIGNED TO LEVEL PRODUCTION

Various price plans have been devised to provide a higher payment for milk delivered in the fall than for milk delivered in the spring, in an attempt to level the seasonal production of milk. Most important are:

1. The Base Rating plan.
2. The Seasonal Differential plan.
3. The Take-off and Pay-back plan.

Base Rating Plan

In the base rating plan used in the Detroit market, each producer builds up a base quantity which is normally his average daily delivery during the base-forming period of August, September, October, November, and December. He may retain his previous base for another year if his deliveries during the base-forming period are equal to 90 per cent of his previous base. At any time a shipper has the option of reverting to "new shipper" status, so that a new base is determined by multiplying his deliveries by specified percentages for the three months following his declaration of "new shipper" status.

The base price for the market is determined by the weighted average of the prices for the classes in which base is used. To illustrate the method of obtaining the base price, following are the calculations used in obtaining the base price in May, 1948, when 83.36 per cent of total base milk was sold as Class I at $4.90 per cwt., 5.69 per cent as Class IIA at $4.44 per cent per cwt., and 10.95 per cent as Class IIB at $4.11 per cwt. The base price in this example is $4.78 per cwt.

Class I	83.36% x $4.90 1/	=	$4.08
Class IIA	5.69% x $4.44 2/	=	$ .25
Class IIB	10.95% x $4.11 3/	=	$ .45
	Base price f.o.b. Detroit		$4.78

Excess price is calculated by the weighted average of the prices for the classes for which it is used. Usually this price is the same as that of Class IIB, since usually Class I sales and Class IIA sales do not utilize all the base milk delivered, and all excess milk is therefore sold as Class IIB.

One of the theoretical objectives of the base rating plan is that it designates the amount of each producer's milk which shall be considered his proper share of the Class I sales of the market. For all practical purposes when dealing with the seasonal pro-

---

1/ Negotiated price.
2/ Average price paid by 5 Michigan condenseries plus 50 cents.
3/ Average price paid by 5 Michigan condenseries plus 17 cents.

duction problem, Class I sales are even throughout the year. Theoretically, the even producer should receive Class I prices for all of his milk; other producers should receive Class I price only for that amount which is delivered evenly throughout the year. Excess milk used for manufacturing should be priced more in line with manufacturing prices. Actually the producer does not receive Class I price for his base milk, but a base price calculated as shown above. The price advantage received by the even producer over the uneven producer depends on the three variables, the spread between the base price and excess price, the amount he sells at each price, and the seasonal difference in both prices.

Other markets adopting the base rating plan have used various methods of relating base quantity to Class I sales. In some the base price was made equal to the Class I price but applied only to the proportions of base milk sold as Class I. Some markets have paid Class I price for all base milk and attempted to maintain base deliveries equal to Class I sales by adjusting bases, or by changing the base-forming period, or by infrequent and careful reestablishment of bases (a closed base system), or by penalties for under-base shipments.

Seasonal Differential Price Plan

Markets in which seasonal differential price plans operate usually calculate a basic price[1], using formulas based

[1] Distinct from base price.

on averages prices paid for manufacturing milk or on the manufactured dairy products themselves. This basic price is increased by a specified amount for each month to obtain a Class I price for each month. This additive varies seasonally. Prices for other classes are also based on the basic price. The seasonal additive on prices for other classes may also vary seasonally. Under the plan of payment, a producer's annual average price is an average of the market blend prices throughout the year weighted by his individual deliveries in each of the months. Two variables in this plan may give a producer a higher average annual price, the amount of seasonal differential in blend price, and his deliveries each month.

The Take-off and Pay-back Plan

The take-off and pay-back plan is similar in that a monthly blend price is first obtained by the weighting of each class price by the amount sold at that price in the market as a whole. The class prices are based on alternative formulas using manufactured product prices as the primary base. During the flush season, interpreted in the Louisville market as April, May, and June, a sum is deducted from the blend price of each hundredweight delivered. In 1948 this sum was 35 cents in the Louisville market.[1] One third of the fund collectedis

[1] In the Washington, D. C. and Nashville markets, 50 cents is deducted. The Louisville market plans to increase the deduction to 40 cents in 1949.

paid out in each of the three months September, October, and November, in an amount per hundredweight computed by dividing the monthly fund by the amount of milk delivered during the month. The amount paid out per hundredweight is greater than the amount deducted in the spring, since less milk is delivered in the fall. Under this plan of payment, as in the seasonal differential plan, a producer's annual average price depends on the seasonal differential in the market price, and the amount he delivers in each season.

Chapter IV

AVERAGE ANNUAL PRICE, THE CRITERION OF INCENTIVE

Although at first glance it might be assumed that the incentive for additional fall production is the difference between the spring price and the fall price, this is not entirely true. Most producers in the market deliver milk in every season. It can be shown that in the Louisville plan a part of the funds collected by deduction in the spring (or by underpayment) is paid back to the same producers from whom it is secured. To the extent that they are repaid to the same producers at his old level of production, the average annual price of the producer is not influenced by the differences in spring and fall prices. It would be naive to assume that dairymen react entirely to differences in seasonal prices rather than to differences in average annual prices. Costs of milk production do become higher as cattle go off pasture and into shelters for the winter, but a dairyman can compute his changes in costs due to a change in production pattern on an annual basis only.[1] He must also compute his annual average price in order to determine if the increase in average annual price is greater than that of average annual cost.

---

[1] A change in production pattern involves a production change in every season of the year, and it may change the entire farm organization.

Chapter V

THE BASE RATING PLAN IN RETROSPECT

The base rating plan does not appear to be an acceptable or satisfactory means of producer payment in the majority of the large city fluid milk markets, in spite of the fact that it offers considerable reward for even production, requires no withholding of producer payment, and enables the distributor to retain a constant retail price without financing seasonal pricing.

Over 100 markets have adopted the base rating plan in its various forms, most of which have rejected it, some after a considerable period of successful operation. Baltimore is believed to have been the first to adopt the plan, in 1918, followed by Philadelphia, Washington, D.C., Los Angeles, Chicago, Houston, Syracuse, Pittsburgh, Indianapolis, Louisville, Boston, etc. Large scale adoption took place in the early thirties, when the plan was hailed as the solution to the depression marketing of fluid milk.

Since that time the base rating plan has lost favor in one market after another. Many of the markets discarding the base rating plan have not since emphasized the control of production through price, a blend price based on a formula being the only source of seasonal in-

centive. Difficulty of producer acceptance is the chief reason advanced for the discard of the base rating plan in most markets.

There is no doubt that producer acceptance of the base rating plan is a difficult matter. Should the most profitable farm management practices for the majority of producers in an area be those in which a large seasonal flush was obtained, a large share of producers would vote against a production control program such as the base rating plan. Any plan which would give less price advantage to even producers in such an area would be more easily accepted.

Many writers, however, have found that the base rating plan has been effective in reducing fluctuations in the seasonal supply of milk where it has been used.

Lininger in 1928 wrote, "From 1921 to 1925 the range in the seasonal variation for milk purchased under the basic-surplus plan for the Philadelphia market was reduced from 54 to 23 per cent."[1]

Fowler states, "analysis of data relating to the deliveries made continuously throughout the five-year period 1927-31 by 274 fluid milk patrons of plants in Orleans, St. Albans, Richmond and Randolph, Vermont reveals:

(1) That New England Milk Producers Association members in Orleans, St. Albans and Randolph, who were

---

1/ Lininger, F. F., "The Basic Surplus Milk Marketing Plan," Penn Bulletin, No. 231, 1928, p.3.

affected by the basic rating marketing plan adopted within the period by that organization, increased fall production in the later years more than did a group of farmers in Richmond who were not under the influence of such a plan.

(2) That the deliveries of basic producers at the close of the period tended to be more nearly in accord with fluid milk requirements, than did those of non basic producers, the violent seasonal fluctuations in the deliveries of the former group having largely disappeared."[1]

In a study of 20 Indiana markets, Hardin found that in the 8 markets using the base and surplus plan from 1937 through 1940, the plan was effective in reducing seasonal variation in milk receipts. To quote, "In 1937 daily receipts during the month of highest milk production in those eight markets were 140 per cent of the receipts during the month of lowest production. Variation in receipts between the low and high month decreased each year in the markets with base and surplus plans, until in 1940 receipts during the high months were only 120 per cent of the low month. In the markets which did not use base and surplus plans, receipts during the month of highest production were 155 per cent of the receipts of lowest production in 1937, 166 per

---

1/ Fowler, H. C., "Seasonal Variation in Milk Production under the Basic Rating Plan", Vermont Bulletin no. 353, 1933, p.1.

cent of the receipts of lowest production in 1937, 166 per cent in 1938, 157 per cent in 1939, and 149 per cent in 1940."[1]

Pollard showed in a theoretical study applying various production-adjustment price plans to records of 3000 New York dairies, that the application of the base rating plan to production records from July, 1938 to June, 1939 caused the greatest change in price returns between the even and uneven producers. He says, "Under the straight pooling plan with no production-adjustment feature, the summer producers received slightly less than the average price and the winter producers received 1.5 per cent more than the average price....The difference in returns to the several seasonal groups were only slightly greater under the monthly-quota or under the differential plan. Under either form of the base rating plan, however, the calculated returns to the even producers were about 7 per cent more than the returns to the spring producers."[2]

Cowden and Fouse, after a study of reports of milk distribution to the Pennsylvania Milk Control Board in April, 1934 stated that "seasonal variation in the daily average receipts in different months of the year was found to be much less in the 18 plants where the milk

---

1/ Hardin, C. M., "An Economic Analysis of Fluid Milk Markets in Indiana", Indiana Special Bulletin No. 463, p.35.

2/ Pollard, Anson J., "Seasonal Variation in Production in the New York Milkshed and Its Relation to Production-Adjustment Plans," Cornell Bulletin No. 783, June 1942, p. 44 and 50.

was bought under the base-surplus price plan than in the 20 plants not using the plan. There was an average range of only 23 per cent in daily receipts between June and February for the plants using the base-surplus plan. For the plants not using the plan there was a difference in daily receipts of 50 per cent between June, the month of heaviest production, and December, the month of lowest production.

"The range in receipts for the plants not using the base-surplus plan was more than double that found in plants using the plan. These data show that the base-surplus plan was an effective means of reducing the seasonality of production."[1]

The evidence seems to indicate the base rating plan is relatively successful in performing the task of adjusting the seasonal variation in milk receipts. The evidence indicates the success of the base rating plan in some of the markets in which it has been tried. It is not easy to compare its effectiveness, however, with other plans, since other plans, such as the take-off and pay-back plan, are of more recent adoption. A period of operation plus development and standardization is necessary before the final results are apparent. Theoretical analysis of the take-off and

---

1/ Cowden, T. K., and Fouse, E. G., "The Supply and Utilization of Milk in Pennsylvania", Penn. Bulletin No. 327, April, 1936, p.36.

pay-back and the seasonal differential plans should yield a basis of comparison between these plans and the base rating plan, and this is undertaken in a later section.

Chapter VI

HISTORY OF THE BASE RATING PLAN IN THE DETROIT MARKET

Prior to 1923 Detroit milk distributors paid a flat rate for their milk purchases, although from 1918 through 1920 a higher price was paid for a certain percentage of the supply and a lower price was paid for the balance during the flush season. The base rating plan was adopted in January, 1923, with the base price negotiated and the excess price (f.o.b. country station) based on New York 92 score butter plus 20 per cent.

Later on in the same year dealers began paying for their milk purchases according to "use" or "classification." A "call" was issued for whatever percentage of a producer's base the dealer believed he could sell during the month as Class I, and the dealer agreed to pay him Class I price for that amount. For the excess delivered over the call, the producer was paid the excess price. Since the excess price was very low, the producers began to dispose of their excess milk in other markets or by use on the farm. This was especially true in periods of milk shortage, when other markets paid a higher price than the Detroit excess price. Many dealers, in order to maintain their milk receipts at the

desired level, began making special contracts with groups of producers. As a result, in the spring of 1927, somewhere between 25 per cent and 50 per cent of the milk coming to the market was being paid for on a flat price basis.[1] Consequently, the base rating plan was voted out of the Detroit market in July, 1927, a flat price plan being substituted.

On May 1, 1930, the base rating plan was reinstated. Under the new plan, individual distributors paid their producers a base price determined from the percentage of total base milk sold as fluid and percentage used for other purposes. Receipts and sales, as reported by from 4 to 6 companies, were used to compute a common price for the entire market. Excess price was bargained for. No equalization pool was maintained to clear individual dealer variations from the average figures used. During the first six months of 1931, however, dealers paid 5 cents per cwt. into the "market adjustment fund," usually on base milk only. This fund was used to pay base price for all base milk even though at times it was sold for manufacture due to the abnormally large amounts received. October, 1931 price was bargained direct, and in December, dealers had an op-

---

[1] Horner, J. T., "The Detroit Milk Market," Michigan Special Bulletin, No. 170, March, 1928, p.37.

tion as to paying market average or dealer average prices.

During 1932, the excess price determinant became 3.5 x Chicago 92 score butter f.o.b. receiving stations, except when negotiated. In the period beginning with March, 1931, and until August, 1933, except in January and February, 1932, producers were paid base price for only 80 per cent of their base rating, but the base price was equal to Class I price. In January and February, 1932, they were paid base price for only 65 per cent of their rating. In 1932 and 1933 dealers were supposed to purchase base milk equal to 110 per cent of their ClassI sales (120 per cent after March 16, 1933).

In 1932, 1933, and 1934, dealers paid "pool fees", the total of which equalled the difference between average base price paid by dealers and average net base returns on all base, and the sum collected was used to make up the difference.

One other important cog was still to develop in the marketing structure. When the federal license went into effect in 1934, it provided for complete equalization of dealer buying prices. Pool fees to equalize payment to producers on milk diverted for manufacture were discontinued when the market pool and Equalization fund was set up. When the federal license was discontinued, this arrangement was continued under the State Milk Marketing Board, and when this board was suspended[1/],

---

1/ The Milk Marketing Law was declared unconstitutional, December, 1940.

an Equalization Committee continued the functions of the market pool.

Although provisions for establishing base varied considerably during the development years 1930 to 1937, no change of significance has been made since that time, except for the addition of December to the base-forming period, in 1943. Regulations for new shippers entering the market also changed more violently in the earlier years than since 1937. During recent years, new shippers have been encouraged to enter the market by lenient base provisions.

Chass II prices by 1938 were based on condensery prices, at first the calculated federal code, and later the average price paid by several Michigan condenseries. In April, 1942, Class II was divided into Class IIA and IIB.

Chapter VII

MILK SUPPLY, UTILIZATION AND SEASONALITY IN THE DETROIT MARKET

A quick survey of the trends in the Detroit market since 1934 is available in the following series of charts:

1. Class utilization of average daily milk deliveries (by months), (Figures 2 and 3).
2. Delivered base compared with total deliveries and Class I sales (Figure 4).
3. Total shippers by years (Figure 5).
4. Daily average pounds per shipper by months (Figure 6).

Class Use

Figure 2 graphically illustrates the relation of Class I sales to total receipts in the period 1934-48. In the first half of the period, the per cent of milk sold as Class I averaged 59.6 per cent. The percentage increased rapidly in 1942 and 1943 so that in the last half of the period, 75.1 per cent was sold as Class I. This is shown in Table I and is graphically illustrated in Figure 3.

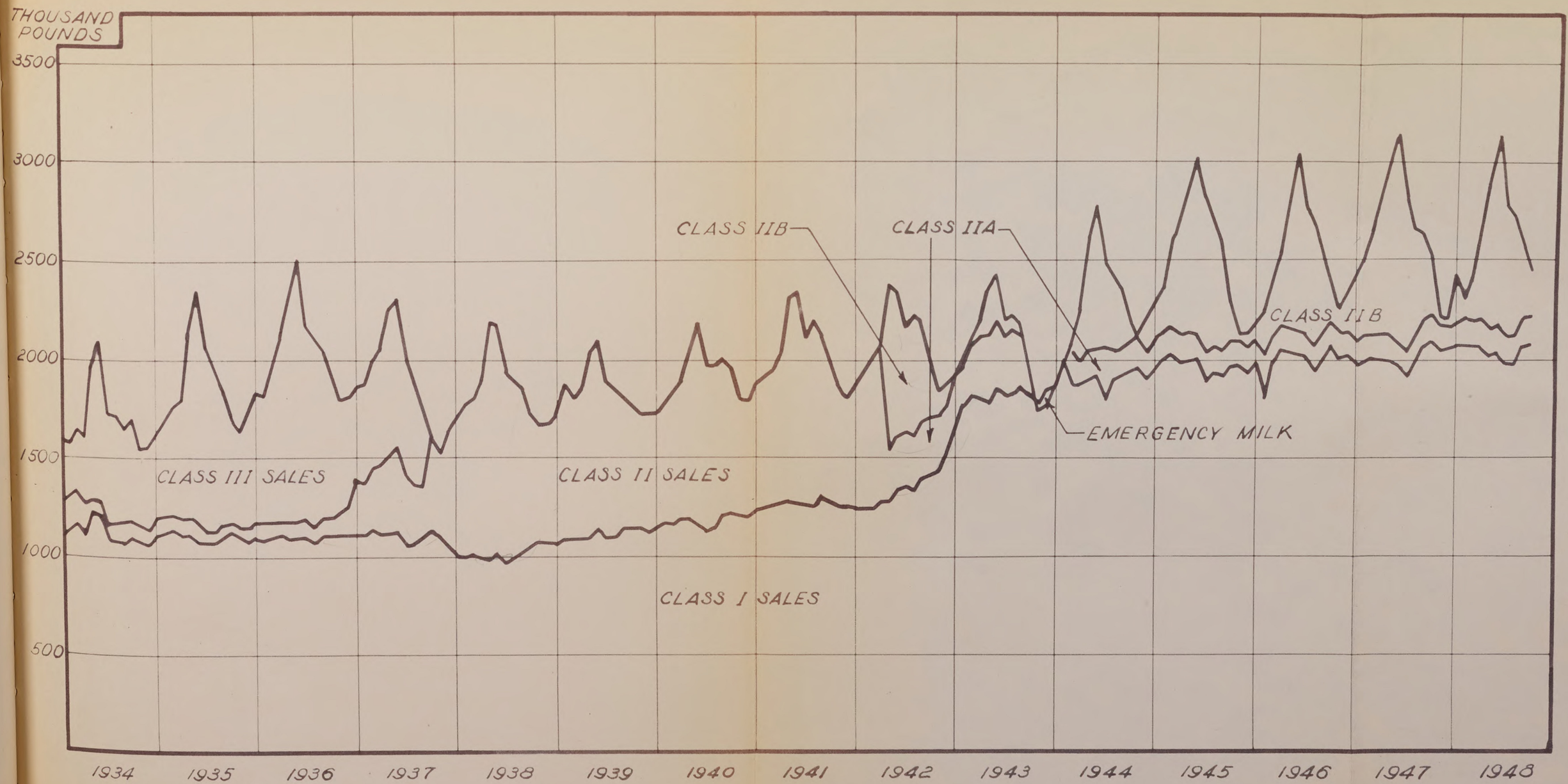

FIGURE 2. -- CLASS UTILIZATION OF AVERAGE DAILY MILK DELIVERIES, DETROIT MARKET, 1934-48.

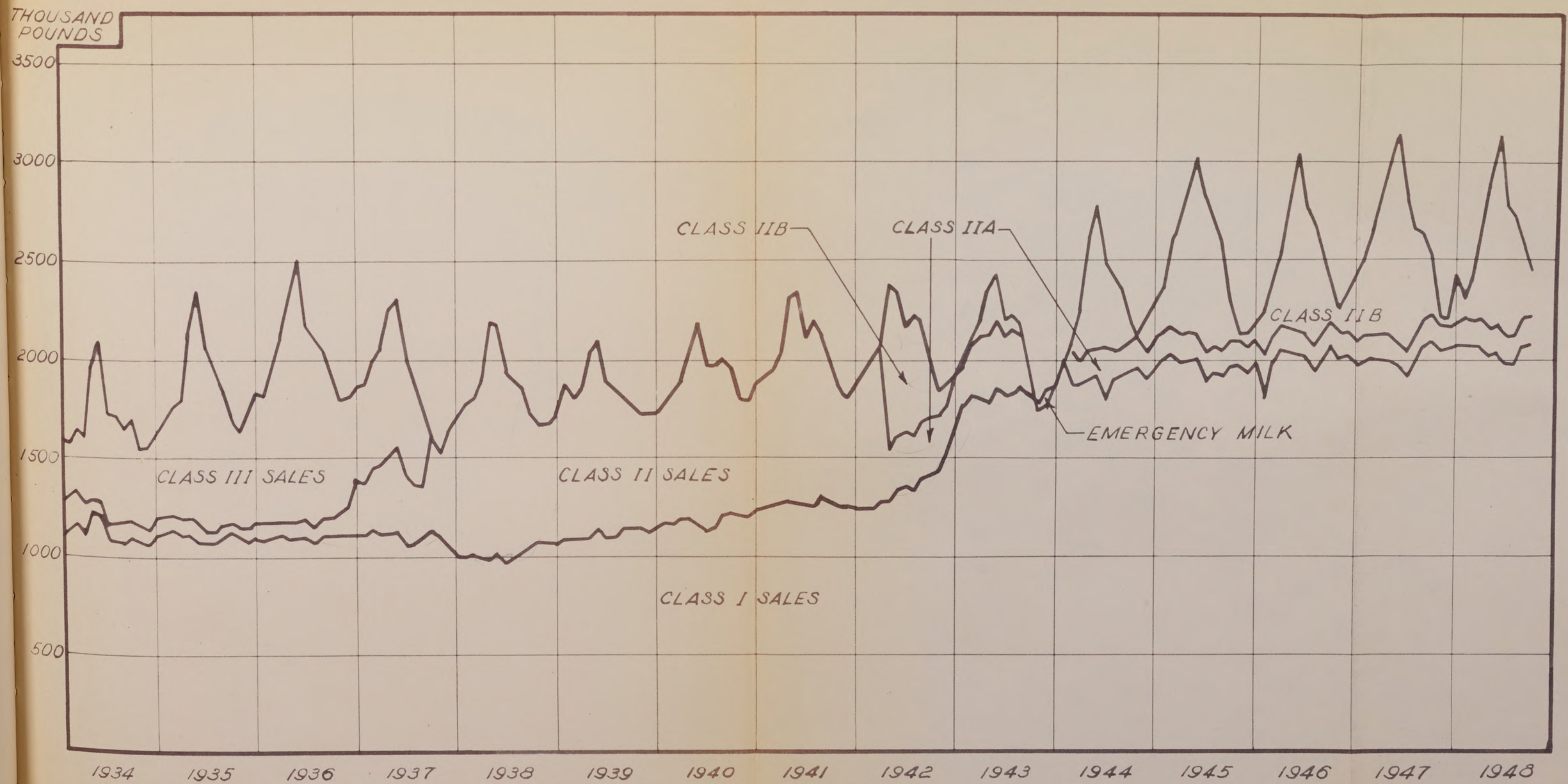

FIGURE 2. -- CLASS UTILIZATION OF AVERAGE DAILY MILK DELIVERIES, DETROIT MARKET, 1934-48.

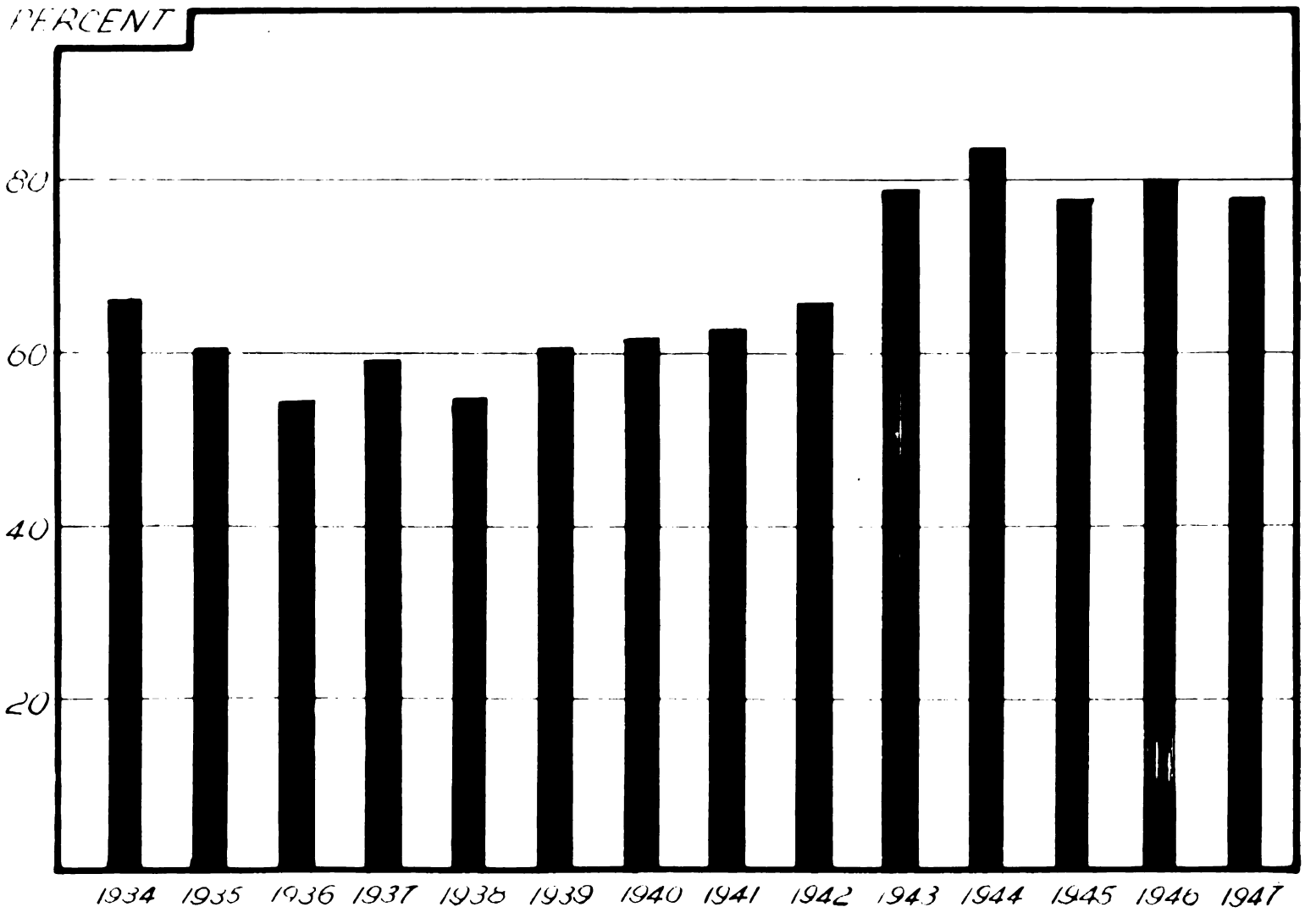

FIGURE 3.— PER CENT OF TOTAL RECEIPTS SOLD AS CLASS I, DETROIT MARKET, 1934-47.

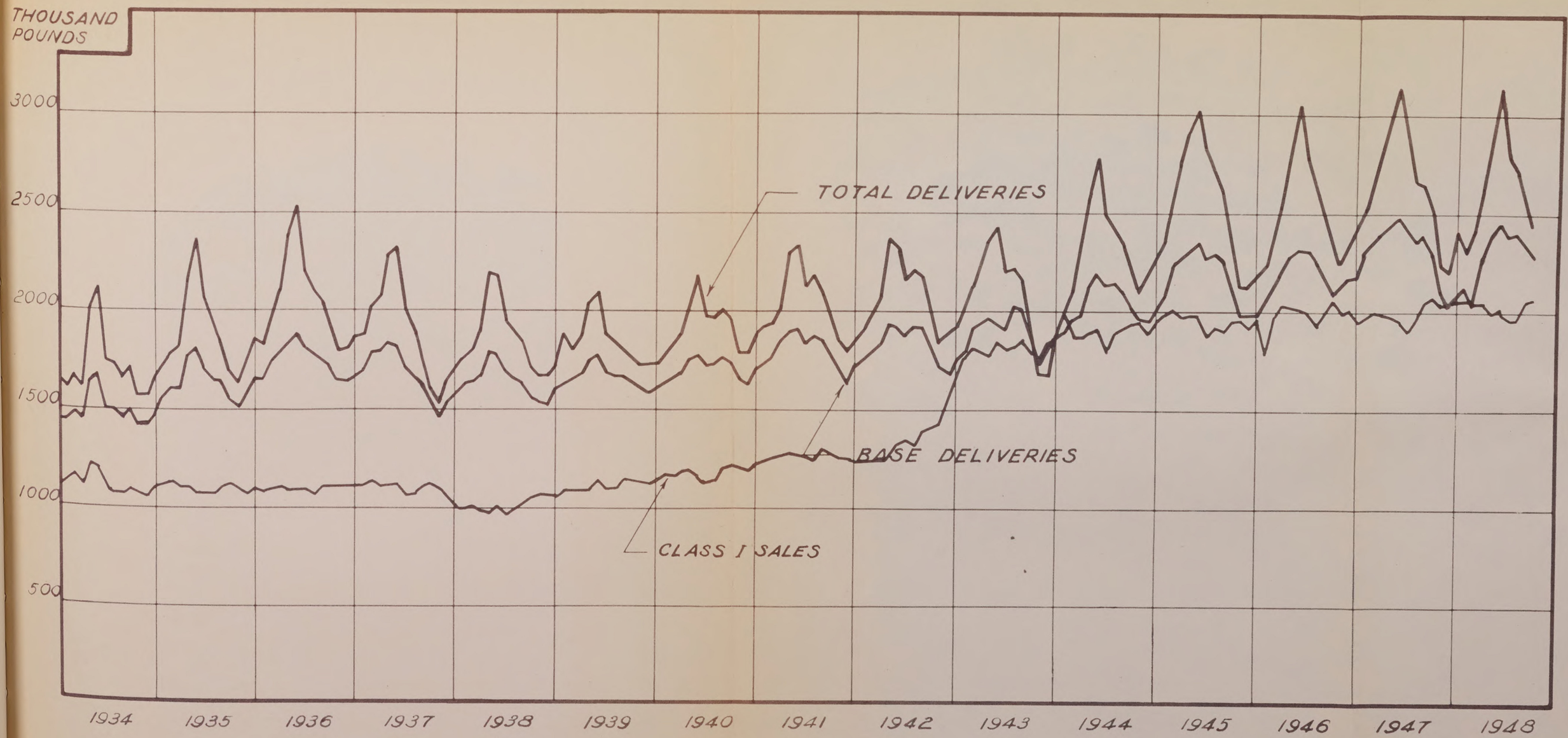

FIGURE 4. -- AVERAGE MONTHLY BASE AND EXCESS DELIVERIES COMPARED TO CLASS I SALES, DETROIT MARKET, 1934-48.

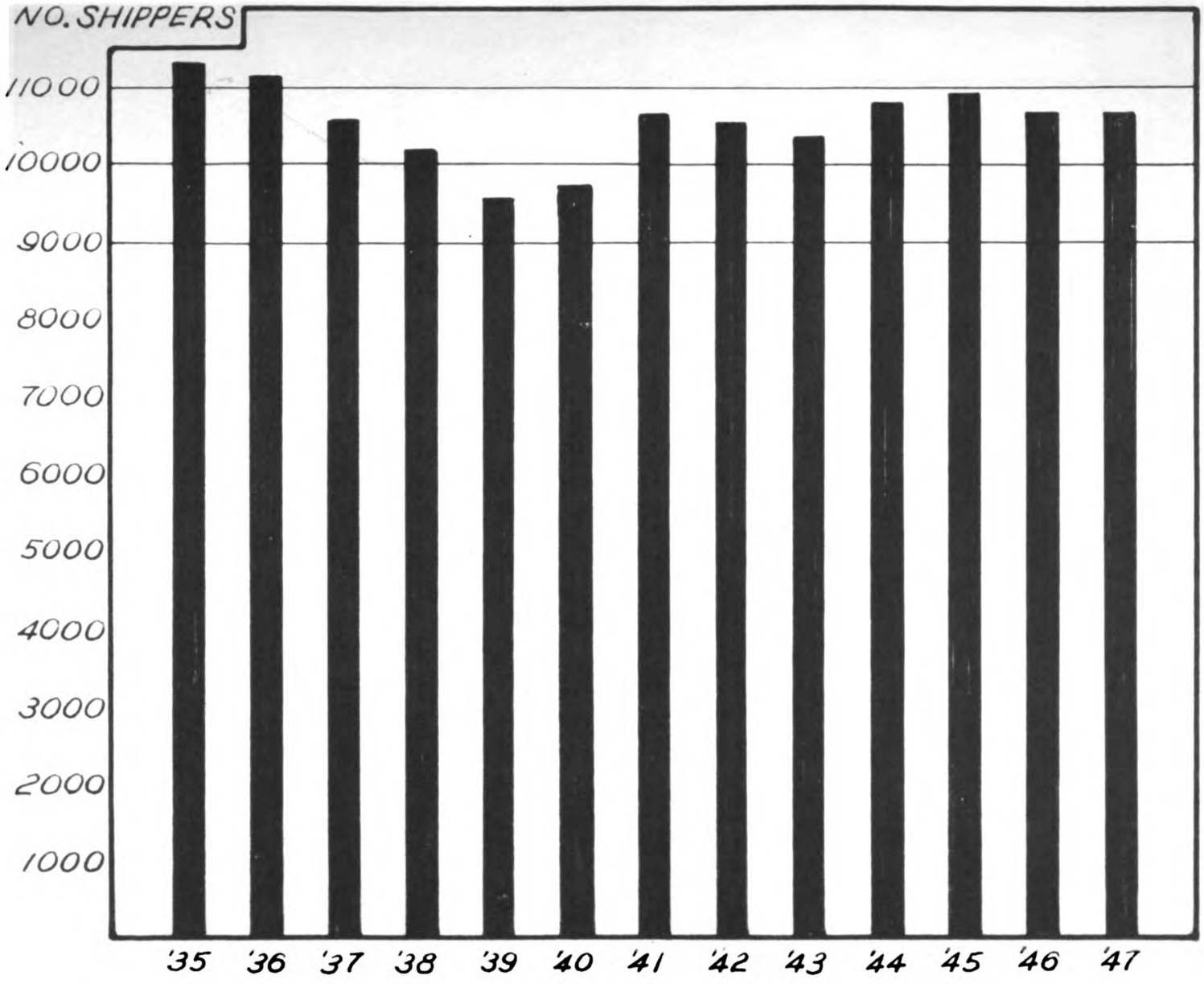

FIGURE 5.-- YEARLY AVERAGE NUMBER OF SHIPPERS, DETROIT MARKET, 1935-47.

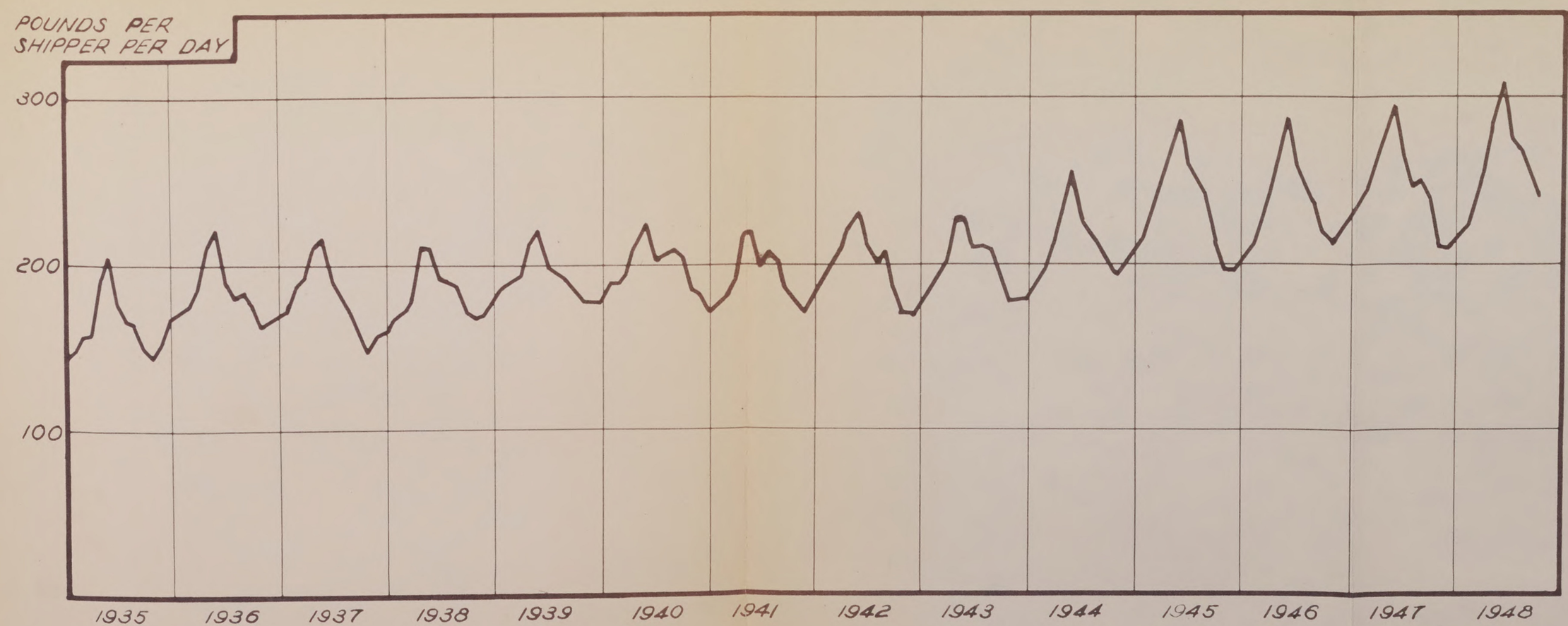

FIGURE 6. -- AVERAGE DAILY DELIVERIES PER SHIPPER PER DAY, by months DETROIT MARKET, 1934-48.

Table I

PER CENT OF TOTAL RECEIPTS SOLD AS CLASS I,

DETROIT MARKET 1934-47

1934	66.1	1941	62.7
1935	60.7	1942	65.5
1936	54.2	1943	78.8
1937	59.1	1944	83.9
1938	54.8	1945	77.7
1939	60.3	1946	79.7
1940	61.7	1947	77.7
Average	59.6	Average	75.1

Simultaneous with the considerable increase in percentage of milk sold as Class I, there was an increase in the absolute amount of Class I sales. This increase was particularly impressive in 1942 and 1943. Average monthly Class I sales in 1941 were 38,590,000 pounds, compared to 57,890,000 pounds in 1944, an increase of 67 per cent.

It is apparent from Figure 2 that Class I sales have increased more than production. The increase in demand was due partly to the increase in per capita consumption. In addition, population of the metropolitan district of Detroit has increased rapidly during the past few years. In 1947 estimates placed the figure at 2,702,000 compared to 2,296,000 in 1940, and 2,105,000 in 1930.[1] Neighboring cities also increased

[1] The 1947 figure is a Bureau of Census estimate, Sample Survey Series P-21, No. 19, Current Population Reports. Other figures are census reports.

in size in the same period.

Consumption of fluid milk per capita rose from an estimated 190 pounds in 1941 to 240 pounds in 1947.[1] The nature of these changes is important in the marketing of fluid milk, since they determine the level of the blend price, the per cent of milk sold as Class I, and indirectly influence seasonal pricing.

Base Deliveries

Figure 4 compares the delivered base during the period 1934-1947, with total deliveries and Class I sales. Base deliveries have increased since 1934 approximately proportionally with total deliveries. It is significant that, as the range in total deliveries between high and low months increases, the range in base deliveries also increases.

For the same reasons that Class I sales are a greater proportion of total deliveries in the period 1941-48 than in the period 1934-40, Class I sales are also more nearly equal to base deliveries.

The narrowing of the difference between Class I sales and base deliveries has tended to increase the spread between base price and excess price, but the narrowing of the difference between Class I sales and total deliveries has tended to decrease the spread between

---

[1] These figures cannot be considered as highly accurate.

base price and excess price. The effect of these two opposing forces is analyzed in the exposition on maximum incentives.

Number of Producers

The yearly average number of producers delivering milk to the Detroit market from 1934 to 1947 is indicated by the height of the bars in Figure 5. The number of shippers decreased from 1935 to 1939 and then began to rise. It would be difficult to identify the change in producer numbers as a trend. It can be stated that the major portion of the increase in supply has not been due to an enlargement of the milkshed in terms of an increase in number of shippers, but has been due rather to the increase in the supply per shipper.

Average Daily Deliveries per Shipper

The daily average deliveries per shipper (by month) from 1934 to 1948 are shown in Figure 6. The seasonal variation in deliveries per shipper decreased from 1934 to 1941, when it began to rise again, until in 1947 the seasonal variation in deliveries per shipper was greater than ever before.

In 1940 and 1941, it was believed the base rating plan had been instrumental in narrowing the seasonal range. Now the market is again wondering why the seasonal variation has increased so greatly in the past 6

years, with the base rating plan still in effect.

The seasonal variation in deliveries per shipper per day are placed on an index basis in Figure 7. Three periods are selected to illustrate the change in seasonality, 1936-37, 1938-40, and 1944-47. In 1936-37, the percentage range in seasonal variation in the index was 34 per cent. In 1938-40 the range in seasonal variation was 23 per cent. In 1944-47 the range was 36 per cent. The index basis adds a sense of proportion to Figure 6. While it is still evident that of recent years seasonal variation in deliveries has been considerably above that in 1938-40, proportionally, seasonal variation was only 2 per cent greater in the period 1944-47 than in 1936-37. From the market standpoint, seasonal variation in volume of deliveries per shipper is considerably greater than in 1936-37, but from a percentage standpoint it is only slightly greater.

The difference between the actual picture and the proportional picture is a result of the increased total volume of milk per shipper. Figure 8 illustrates the increase in deliveries per shipper per day. The average deliveries per shipper per day were computed for each year and plotted as points on the chart. A straight line was drawn in along the direction of the plotted

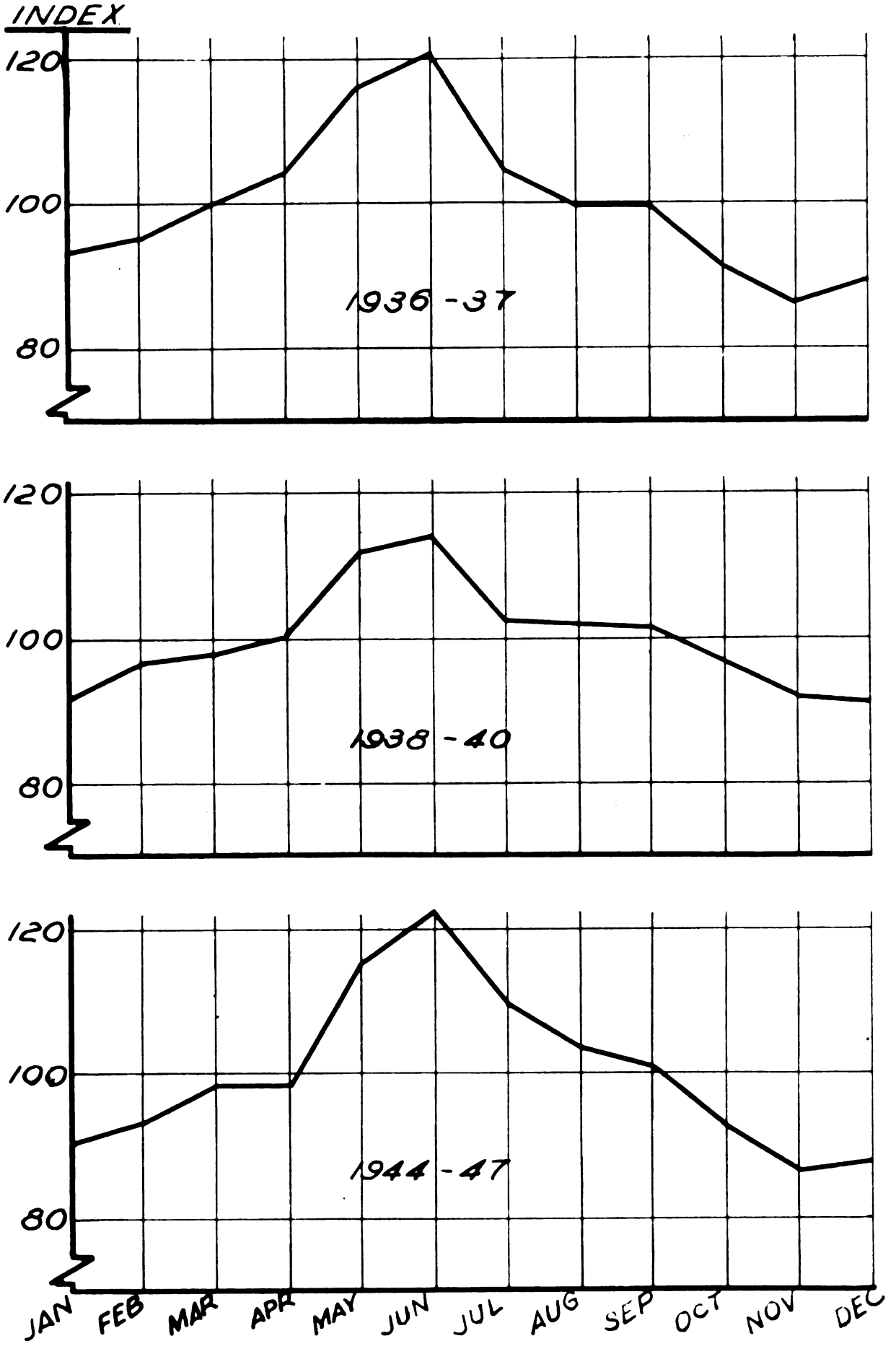

FIGURE 7. -- SEASONAL INDICES OF AVERAGE PRODUCTION PER SHIPPER PER DAY, 1934-37, 1938-40, and 1944-47. (By Months)

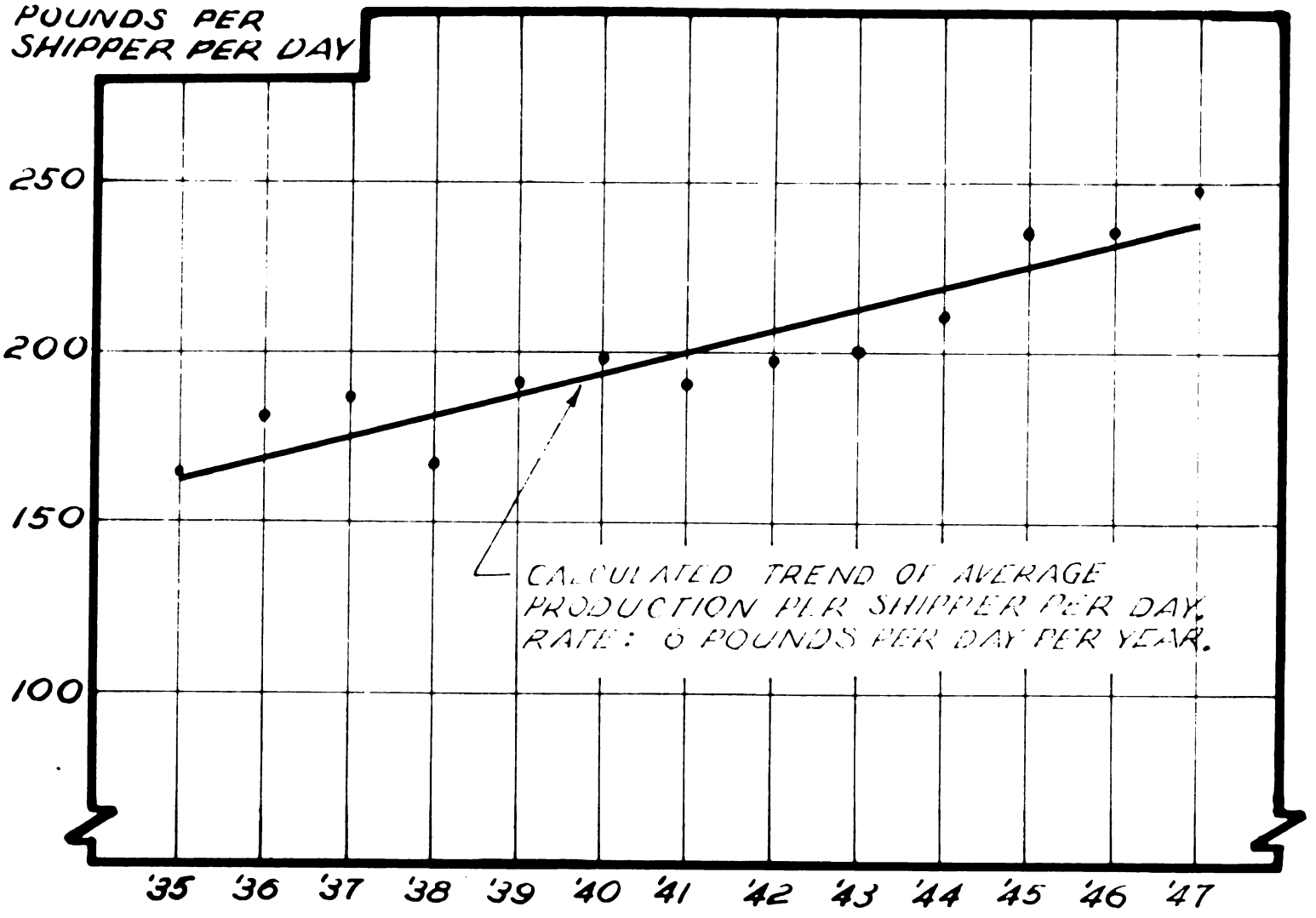

FIGURE 8.--CALCULATED TREND OF AVERAGE PRODUCTION PER SHIPPER PER DAY, DETROIT MARKET, 1935-47.

points.[1] The slope of this line represents the rate of increase in delivery per shipper per day per year. The approximate rate of increase in daily deliveries per shipper was 6 pounds each year to 1947. Increase in the size of herd per farm, and better management practices, including better breeding and feeding practices and better control of insects and disease, are major contributing factors to this increase.

We have seen that percentage-wise the increase in seasonal variation is not as great as it might seem. There remains to explain the considerable increase in variation from 1938-40 to 1944-47. Lacking data, it is difficult to do this. Partial explanation may lie in:

1. The emphasis during the war on increasing total volume of milk rather than on reducing seasonal variation. This may have led to different farm management practices than were in effect in 1938-40.
2. The demand for manufactured dairy products which made excess prices more favorable relative to base prices and which were not so sensitive to low fall delivery. This trend reduced the price advantage

---

[1] Equation of straight line trend fitted by least squares
Equation for a straight line: $y = a + bx$
y = the calculated production per shipper per day in a given year
a = 200.2 = average production per shipper per day in the 13 years. This point is plotted at the middle year (1941).
b = 6 pounds = a constant rate of increase per year along the line.
x = number of years before or after the middle year.

to fall producers under the base rating plan.

3. The more lenient base provisions, which gave the producer a larger share in the base price without increasing base deliveries.

4. The decrease in labor supply during the war which may have contributed to the trend, since more labor is required for care of cattle in the barn than while on pasture.

Some of these points will be described in greater detail in other sections. Regardless of what caused the trend toward greater seasonal variation in shipments per producer, the problem is now before the Detroit market. As a result of the trend, milk shortages in the fall of 1946 and 1947 have been acute, and are likely to be so again. The question of the effectiveness of the base rating plan in levelling production will arise again and again.

From the foregoing discussion the chief market problems emerge:

1. At what level of total deliveries should the market aim?

2. What attempts should be made to even the seasonal flow of milk?

Even after arriving at an answer to the first question, the market must determine how the level is to be arrived at. Two methods of influencing the total shipment are: (1) increasing and decreasing the number of

of shippers, and (2) increasing and decreasing the production per shipper. Either method presents its own problems. Changing production is a long time job; and a market must plan ahead on questions relating to population, consumption, alternative enterprises, and the like.

The second question is a difficult one, for in increasing the supply of milk in a period of low receipts, the costs of production of milk rise. There is a point at which this extra cost of production becomes so great that milk from other shippers, or from a distance, becomes relatively cheaper. This milk may come on the market, either as supplemental milk, or as an increase in the number of shippers. The rate of the rise in costs of production may vary with the type of farming area. Different areas have different alternative enterprises. The areas may also vary in the relative cost of pasture, hay and concentrates. It may be that the distance from the market is a variable in seasonal production. These two variables--type of farming area and distance from the market--are next analyzed to determine the modifications necessary in the base rating plan to accommodate all areas of the milkshed.

Chapter VIII

RELATION OF THE BASE RATING PLAN TO TYPE OF FARMING AREA

Costs of production in each season vary depending on the most profitable type of farming in the area. On a farm where land and pasture are cheap a spring flush may be more profitable than on a farm in which cattle are entirely barn fed. In cash crop areas where large amounts of labor are expended in the fall months, the tendency is to neglect the dairy enterprise in periods of labor shortage. Specialized dairy farmers are probably more concerned with dairy production and obtaining the highest returns from darying than are farmers in a diversified farming area. These statements are propositions. They may not be entirely true, but to the extent that the seasonal pattern of production varies because of type of farming area, they may be the causal factor.

The differences in type of farming areas concern the base rating plan in these important considerations:

1. The base-forming period may affect the base of

the producer differently in the various areas.

2. The incentive price necessary to achieve the same shift in production pattern may vary according to the area.

3. Pricing plans may affect the total amount of milk delivered by a producer by making other enterprises relatively more or less profitable.

From a sample of 359 producers selected at random[1] from the files of the Michigan Milk Producers Association, data on 1947 milk deliveries were analyzed and a tabulation made of the number of producers in several classes. The producers were classed as:

1. Spring producers, including those whose high peak in production was in the months May, June or July.

2. Summer producers, including those whose high peak in production was in the months August, September, or October.

3. Even producers, including those who did not deliver less than 75 per cent of their monthly average in any month of the year.

4. Fall and winter producers, including all those whose high peak in production was in the fall and winter months, November through April.

The per cent of producers in each classification

1/ Every 20th card in the files of Michigan Milk Producers Association, beginning with a random number, was used as the record in this sample, providing they shipped throughout all of 1947. This gave a sample of about 3.5 per cent of the shippers in each area.

was computed by types of farming area (Table 2).

Adding together the even producers and those with delivery peaks in the fall and winter (in short, those with patterns which tend to subtract from the spring peaks and add to the fall milk supply), it was found that type of farming area had considerable effect on the number of producers who were fall, winter, or even producers (Figure 9).

In Area 1, a corn and livestock farming area, 55.6 per cent of the producers were fall, winter, or even producers. In Areas 5, 6, and 8 about 41 per cent of the producers were fall, winter or even producers. Area 5 is mostly dairying and general farming, Area 6, dairy and cash crops, and Area 8, beans, sugar beets, and dairy. The lowest percentage of fall, winter, and even producers was recorded from Area 7, a farming area devotedto dairy, hay, and special crops. The type of farming areas referred to are those used by the Farm Management Department of Michigan State College. (Figure 10).[1]

A further demonstration of the effect of area on seasonal production pattern was obtained from data on daily average deliveries per shipper at receiving stations. Receiving stations were plotted on a map ac-

---

[1] Hill, E. B., "Types of Farming in Michigan," Michigan Special Bulletin 206, 1939, p.68.

Table 2

PER CENT OF SAMPLE PRODUCERS WITH EACH TYPE OF SEASON PATTERN

BY TYPE OF FARMING AREA, DETROIT MILKSHED, 1947

	TYPE OF FARMING AREA				
	1	5 & 6	7	8	Average
	per cent	per cent	per cent	per cent	per cent
Spring producers	30.6	44	55	47.1	45.3
Summer producers	13.8	15	20	11.1	15.6
Even producers	16.7	18.8	13.8	19.4	17.5
Fall & Winter producers	38.9	22.2	11.2	22.2	21.4
	100.0	100.0	100.0	100.0	100.0
Fall, winter, and even producers	56.6	41	25	41.6	38.9

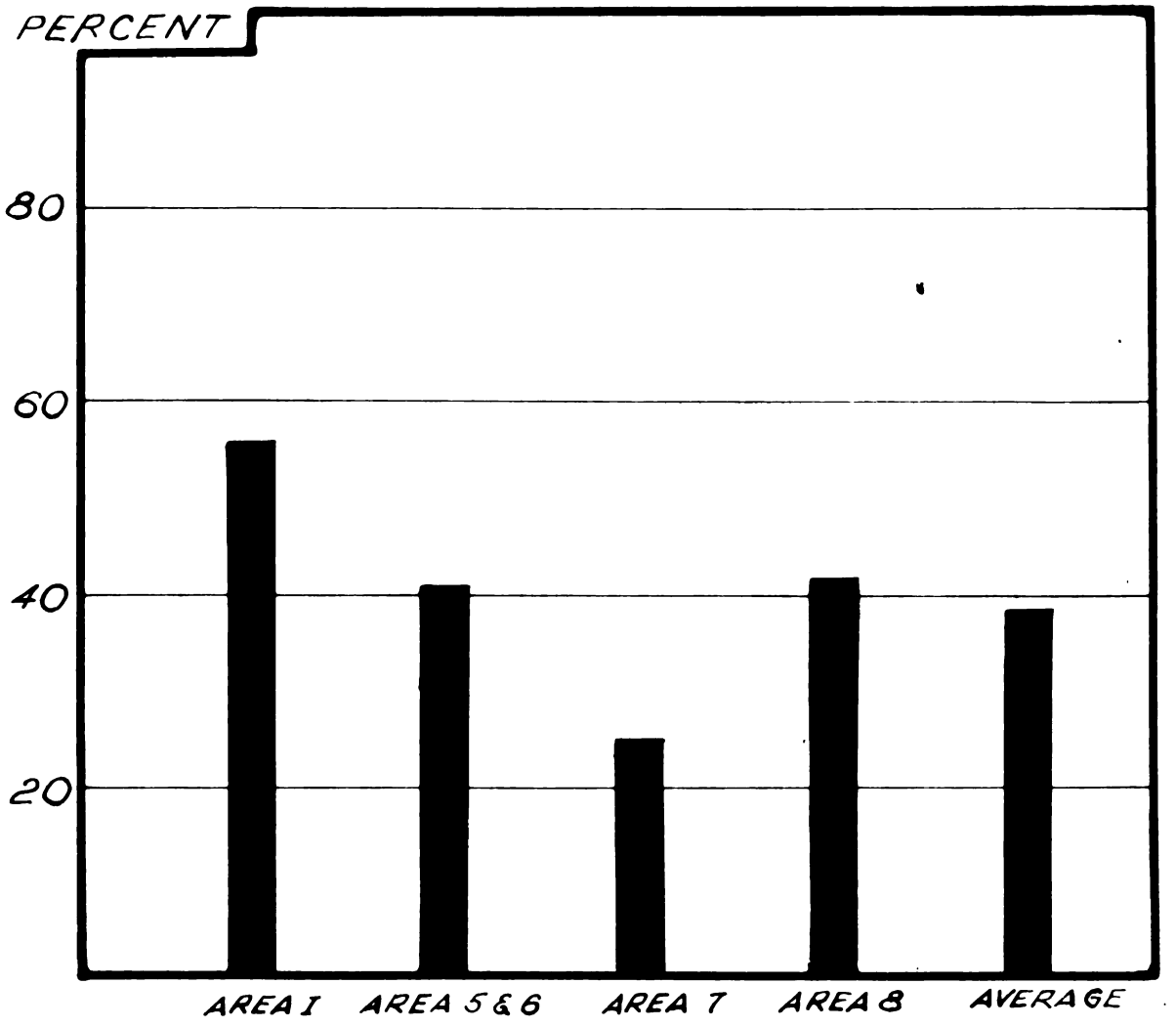

FIGURE 9. -- PER CENT OF SAMPLE PRODUCERS WITH SEASONAL PEAKS IN THE FALL OR WINTER, OR PRODUCING RELATIVELY EVENLY, ACCORDING TO TYPE OF FARMING AREA, DETROIT MILKSHED, 1947.

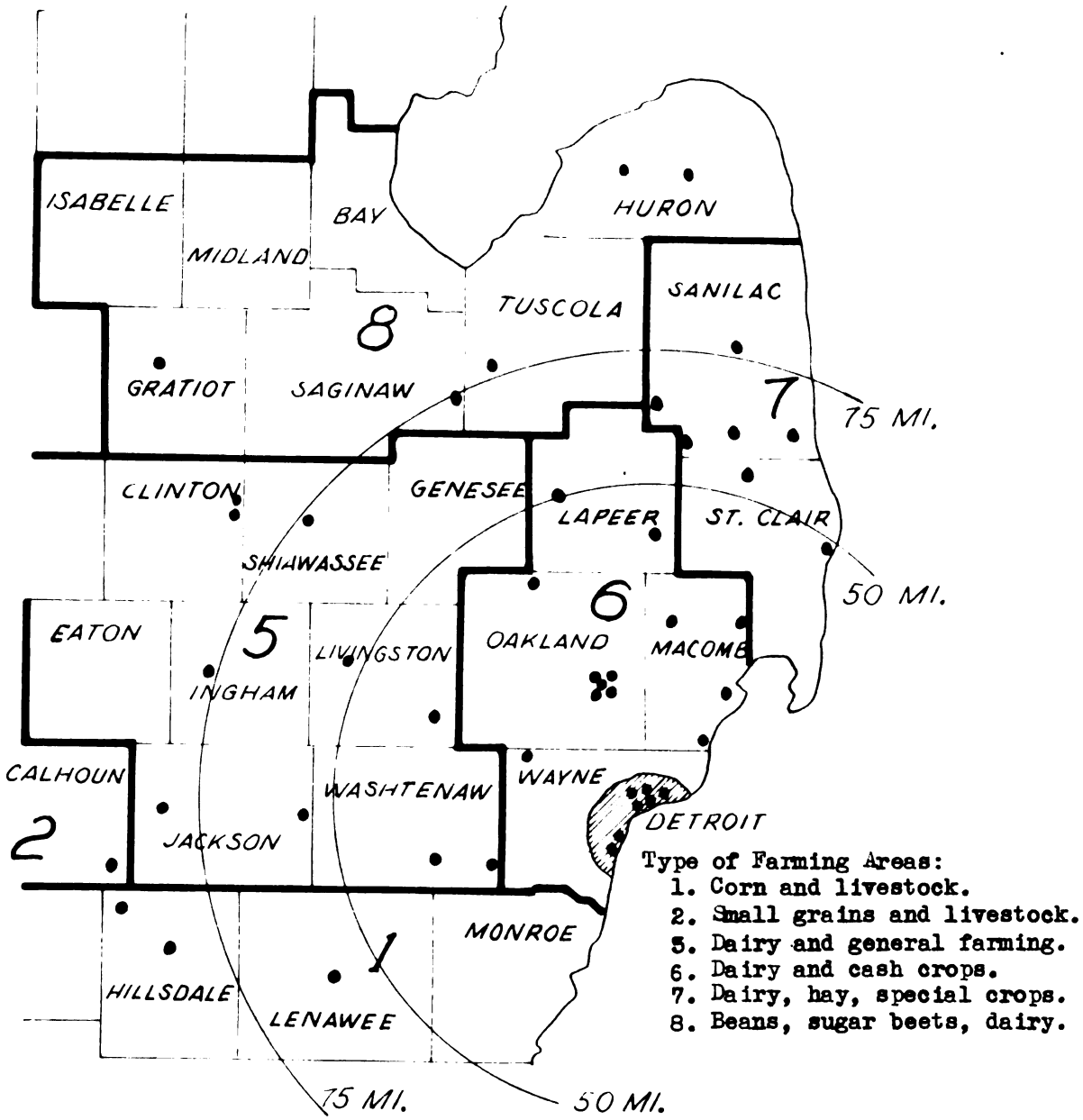

FIGURE 10. -- LOCATION OF RECEIVING STATIONS IN THE DETROIT MILKSHED, IN RELATION TO TYPE OF FARMING AREAS AND DISTANCE FROM THE MARKET.

cording to type of farming area (Figure 10). Average monthly shipments per producer per day were calculated and tabulated according to type of farming area, and the average production pattern calculated for each area. The overlapping of milk routes from one area to another probably had slight effect on the seasonals obtained.

The seasonal patterns formed by dividing the daily average deliveries by the number of shippers as obtained from the monthly data in 1947 are shown in Table 3. Index numbers of the monthly production figures are graphed in Figure 11, the average daily deliveries for the year in each area being set at 100 per cent. By this procedure the difference in seasonal patterns is easier to see. Variations between one area and another were considerable. Area 1 had a percentage range of 34 per cent in average daily delivery per shipper between the high month and the low month. Area 5 had a range of 29 per cent, Area 6 had a range of 28 per cent, Area 7 had a range of 44 per cent, and Area 8 a range of 34 per cent.

The data indicates that type of farming area 7 has a relatively low production in the fall months compared with the flush season. Exact reasons for the greater variation in seasonal deliveries in this area is not known, but is now being analyzed in another phase of the over-all Michigan State College study of the base rating plan. It is apparent, however, that the incentives

TABLE 3

AVERAGE DAILY DELIVERIES (Also per [illegible])

BY TYPE OF FARMING AREA, DETROIT MARKET, 1947

	Type of Farming Area									
	1 pounds	[illegible]	5 pounds	[illegible]	6 pounds	[illegible]	7 pounds	[illegible]	8 pounds	[illegible]
Jan.	247	115	241	111	213	114	221	108	248	109
Feb.	267	124	251	116	218	107	225	110	266	117
Mar.	276	128	251	116	227	111	237	116	281	123
Apr.	286	133	267	123	248	122	267	125	294	129
May	298	139	281	129	266	130	288	140	308	135
June	306	142	289	133	274	134	309	151	321	141
July	266	124	251	116	259	127	280	136	284	124
Aug.	234	109	229	106	244	120	266	130	262	115
Sept.	237	110	236	109	246	121	256	125	263	115
Oct.	237	110	233	107	233	114	240	117	249	109
Nov.	215	100	217	100	204	100	205	100	228	100
Dec.	222	103	221	102	198	97	200	98	237	104

Source: Records of receiving station receipts from Michigan Milk Producers Association

[illegible] = 100

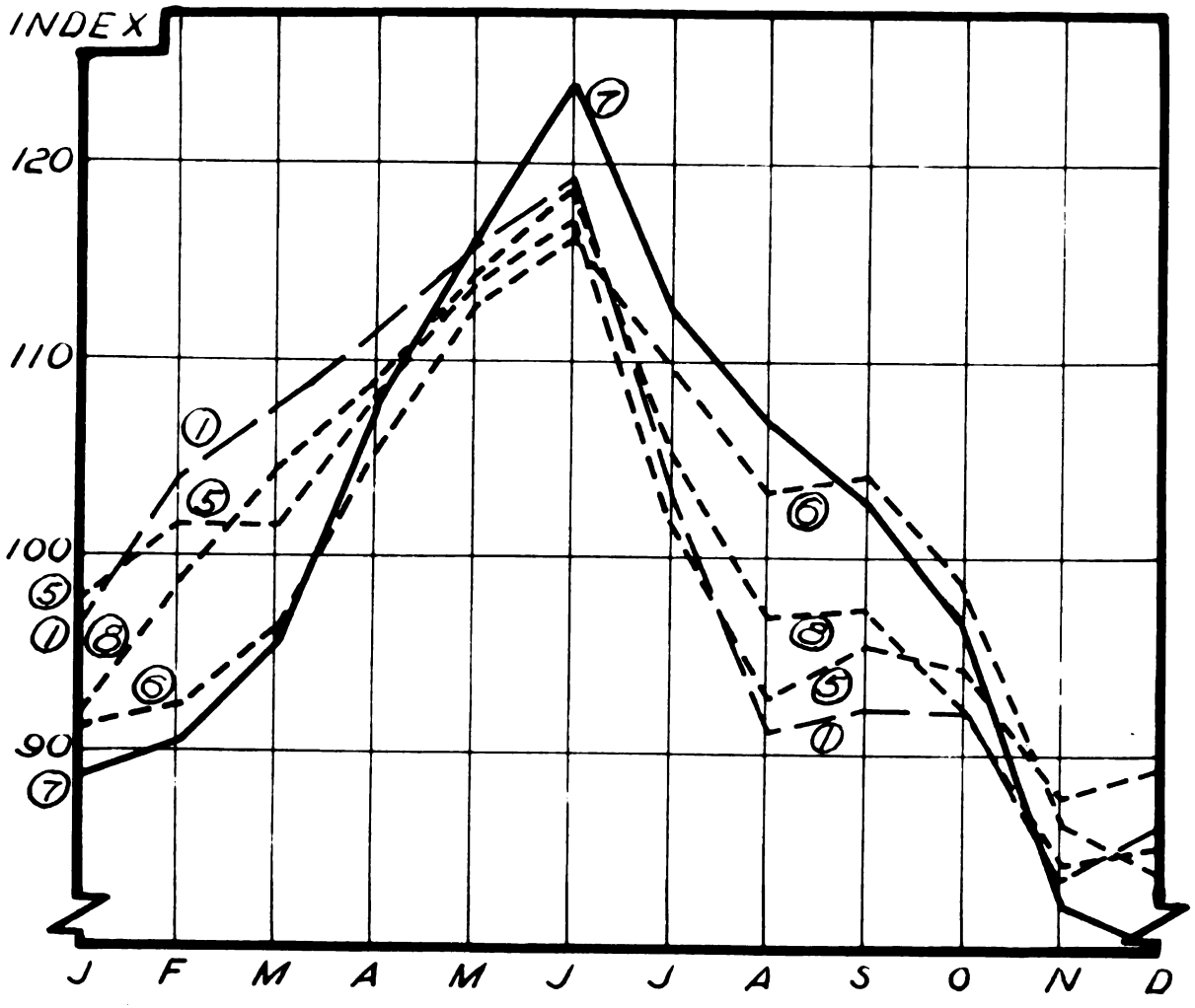

FIGURE 11.— INDEX OF SEASONAL PATTERN OF MILK PRODUCTION BY TYPE OF FARMING AREA, DETROIT MILKSHED, 1947.

provided in the base rating plan for levelling production do not produce the same effect in Area 7 as they do in other areas.

Chapter IX

BASE RETING PLAN IN RELATION TO DISTANCE FROM MARKET

In his book "The Dairy Industry and the AAA", Dr. J. D. Black analyzed rather thoroughly the effect of distance on the base rating plan.[1] According to Dr. Black, questionable procedures often develop in the operation of the base rating plan in regard to allocation of base ratings between the nearby and more distant producers.

"It is an abuse of the rating plan," he says, "to give the same base ratings to nearby as to more distant producers, even though the milk of all is needed at some seasons." He explains this statement by referring back to a time, before the adoption of the base rat-ing plan, when the milk from these outlying producers was purchased only during the season of the year when supplies from nearby areas were not sufficient for the market.

Doctor Black's treatment of the problem neglects the costs inherent in changing the number of shippers from season to season. These costs include:

---

[1] Black, J. D., "The Dairy Industry and the AAA," Brookings Institute, 1935, pp. 206-222.

1. The friction involved in the shifts of sales outlets on the part of the producer.

2. The clerical, contacting and collecting costs involved in the increase and decrease in the number of producers.

3. The difficulty of procuring milk in actual shortage periods.

It would appear that milk marketing would be more orderly and probably more efficient if the market was not closed periodically to outlying shippers or if producers were not treated in line with the theory that they should be excluded in flush periods, as Dr. Black suggests.

In the Detroit market, prices to producers at the receiving station are identical except for the difference in station charges, which are roughly equivalent to hauling charges from the receiving station to Detroit. The station charges are by zones, according to distance from Detroit (Table 4).

As long as the market is open to new shippers, transportation charges are the only discrimination against producers because of distance. The market price in Detroit therefore brings in milk from outlying points if the price minus transportation is greater than that available from other market outlets at the outlying points. It is true that prices to nearby producers fallrelative to

Table 4

TYPICAL STATION CHARGES FOR TRANSPORTATION FROM RECEIVING STATIONS TO DETROIT, 1931, 1939, 1940, and 1947 (deducted from price f.o.b. Detroit)[1]

	1931[2]	1939[2]	1940	1947
Zone 1				
Romeo	24	15	12	13
Willis	24	15	12	13
Saline	26	16	12	13
Zone 2				
Imlay City	30	18	13	14
Zone 3				
Lapeer	32	19	14	15
Grass Lake	34	21	14	16
Zone 4				
Adrian	26	21	15	17
Peck	37	22	15	17
Zone 5				
Marlette	37	22	16	18
Mason	39	23	16	18
Zone 6				
Croswell	40	24	17	19
Vassar	40	24	17	19
Sandusky	40	24	17	19
Owosso	41	25	17	19
Frankenmuth	41	25	17	19
Tuscola	41	25	17	19
Zone 7				
Ovid	44	27	18	20
Hillsdale	45	27	18	20
Zone 8				
Homer	45	27	19	21
Litchfield	45	27	19	21

Source: Michigan Milk Messenger

(1) Note that these are station charges, and are not necessarily the actual costs of transportation.

(2) Zones were not used until 1939.

those in outlying areas who previously had no other market than manufacturing plants, but it would appear that producers closer to Detroit should have no special treatment other than distance differentials.

Professor Black speaks favorably of zone discrimination in base ratings when he says, "Another such (systematic) treatment (of the distance problem) would be to give the producers in the nearby zone ratings equal to say 85 per cent of their average monthly production (the 15 per cent being for reserves against daily fluctuations): the producers at the outer edge of the milkshed ratings equal to 50 per cent of their low month production (this 50 per cent being estimated as compensation for keeping herds and equipment ready for inspection) and the producers between, various combinations of intermediate percentages of average and low-month production....Of course, the differentials according to distance could also be handled as a discount from transportation charges, this becoming more nearer the city. ...Obviously a price policy which underpays the near-in producer and over-pays the outlying producer has the effect of thinning out production near the market and hence of spreading out the milkshed, when concentration of production near the market is highly to be desired from all points of view. Accordingly, a shift toward more equitable ratings is certain to be followed by ex-

pansion of near-in production, which in turn will call for further enlargement of the bases in this territory."1/

In regard to the statement that production closer to the market is more desirable from all points of view, it would appear that production is most desirable wherever the price of milk at the farm, plus costs of transporting quality milk to the market, is lowest. This may be close to the market, or it may be at some distance from the market.

The advantage which a dealer obtains in many markets which sell excess milk to the dealer priced f.o.b. country station does not apply in the Detroit market where excess milk is sold to the dealer at prices higher than condensery by average hauling rates to Detroit. Since dealers are charges average hauling rates for all excess milk as well as that used for fluid milk ~~and cream~~, there is no more advantage to dealers in having a larger surplus at outlying points (which can be diverted to a condensery in that area) than there is in having a surplus at points nearby. The market mechanism still favors the nearby producer by this procedure, however, since his transportation rate is less than the average.

For example, if the condensery price is $3.00 Detroit price for Class IIB milk is $3.17. This is the producers price f.o.b. Detroit. A producer at Romeo (Zone 1) pays a station charge of 13 cents, making his net price $3.04 f.o.b. receiving station. A

1/ Black, J. D., op. cit., p. 217.

producer in Ovid (Zone 7) pays a station charge of 20 cents, giving him a net of $2.97. Dealers, however, pay $3.17, which is more than the condensery pays. All producer milk is thus treated alike, but the returns to producers vary according to distance by the approximate transportation cost.

The effect of the base rating plan on seasonal patterns at various distances from Detroit cannot be definitely stated. In the sample of 359 producers previously referred to, when producers were divided into three groups according to distance from the market, the per cent whose peak deliveries was in the fall or winter or who produced evenly, was 46.1 per cent within 50 miles of Detroit, 34.8 per cent between 50 and 75 miles from Detroit, and 41.0 per cent for those producers beyond 75 miles from Detroit (Table 5). This random sample did not provide clear cut evidence that production is more even the nearer the producer is to Detroit.

Table 5

PER CENT OF SAMPLE PRODUCERS ACCORDING TO SEASONAL PEAK OF PRODUCTION WITHIN THREE PERIPHERAL ZONES FROM DETROIT, 1947

	Miles from Detroit		
	0 - 49.9 per cent	50 - 74.9 per cent	75 & Over per cent
Spring	36.2	48.6	48.8
Summer	17.7	16.6	10.2
Even	24.6	14.5	15.4
Fall and Winter	21.5	20.3	25.6
	100.0	100.0	100.0
Fall, Winter, Even	46.1	34.8	41.0

Comparison of the range in deliveries between high and low months computed from daily average deliveries (by months) at receiving stations located in each of the three zones, indicated similar results. Index numbers, using the yearly average as 100, indicated seasonal variations as follows: At distances within 50 miles of Detroit, the range between high and low months of delivery was 35 per cent per shipper per day. In the area between 50 and 75 miles from Detroit, the range was 39 per cent per shipper per day, at distances over 75 miles, the range dropped to 31 per cent. Seasonal patterns in each of the three zones are graphed in Figure 12.

Climate, soil, and farm management practices change at various peripheries around Detroit, and these variations probably are more important than distance from the market in influencing seasonality of production. There is no conclusive evidence that producers at a distance from Detroit react differently to the base rating plan than those nearby. Perhaps this is because the difference in transportation rates approximates the advantages or disadvantages of distance from the market.

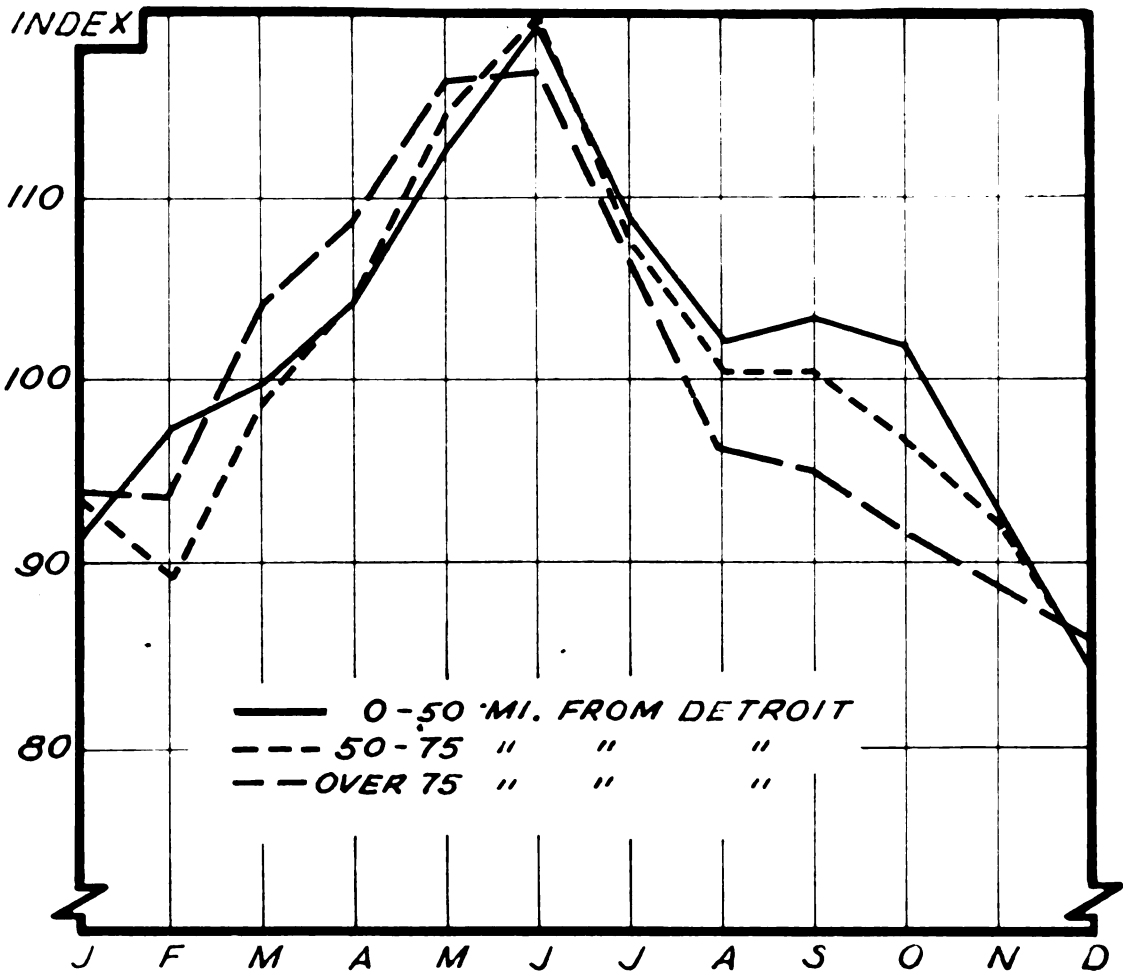

FIGURE 12.-- INDEX OF SEASONAL PATTERN OF MILK PRODUCTION IN ZONES AT VARIOUS DISTANCES FROM THE MARKET, DETROIT, 1947.

Chapter X

FACTORS INFLUENCING PRICE INCENTIVE IN THE BASE RATING PLAN

The method used to even production in any price plan is the offer of a price advantage to the fall producer. This price advantage may be termed the price incentive in the production-control plan. The following paragraphs will investigate the method by which the incentive price in the base rating plan is obtained.

As has been stated, the difference between the average annual price per hundredweight of the even producer and that of the uneven producer is the result of three variables:

1. The spread between the base price and the excess price.
2. The seasonal fluctuation in the base price and the excess price.
3. The producer's deliveries, especially in the base-forming period.

The Spread between the Base Price and Excess Price

The spread between base price and excess price from 1934-48 is shown in Figure 13. To make these prices proportional, they were divided by the index of prices farm-

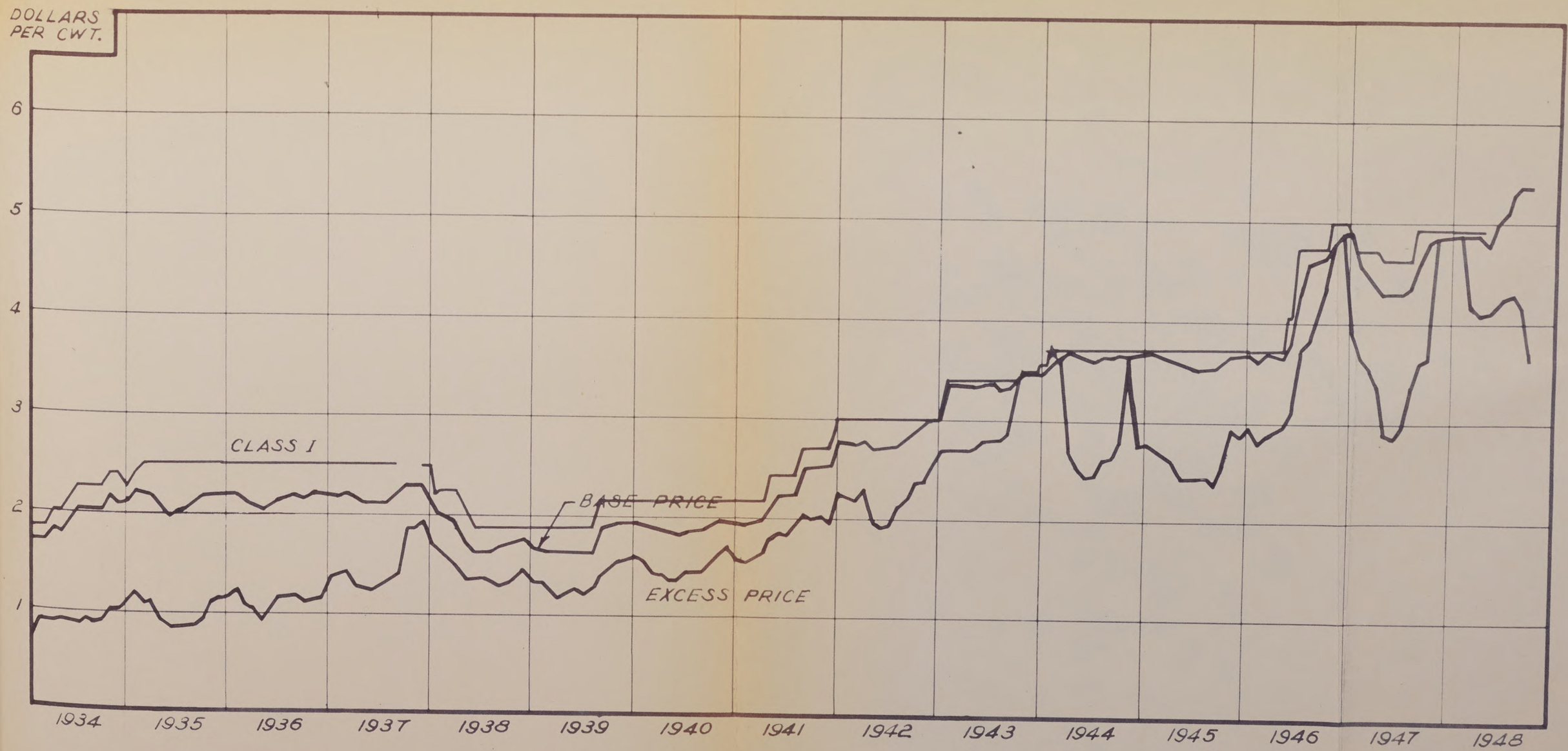

FIGURE 13. -- BASE, EXCESS, AND CLASS I PRICES, DETROIT MARKET, 1934-48.

ers pay to obtain indices of the purchasing power of base and excess milk. Index numbers are computed for base and excess prices in the Detroit market from 1934 to 1947 in Table 6. Making 1934 equal to 100, the index of purchasing power of base milk rose slightly in 1935, 1936, and 1937, fell again in 1938 and 1939, and since that time has risen rather steadily until 1946 when the peak was 146, after which it began to decline. Showing a different pattern, the index of purchasing power of base milk rose rapidly to 1937, dropped slightly in 1938 and 1939, rose to over 200 in 1943, 1944, and 1946, with sharp drops in 1945 and 1947 (Figure 14).

Two differences are apparent in the purchasing power of base and excess milk upon a study of Figure 14:

1. Excess milk had a considerably greater purchasing power relative to base milk in 1942, 1943, 1944, and 1946 than it did in the years 1934-40 and in 1945.

2. Purchasing power of excess milk fluctuated more widely than that of base milk.

The base price is dependent to a great degree on the negotiated Class I price, since an average of about 75 per cent of all milk is sold as Class I. Class prices in the Detroit market from 1934 to 1948 are shown in Figure 15. In arriving at a Class I price, the association representatives and distributors consider the supply trends (costs of production), the competitive markets, and demand trends. Figure 13 illustrated how base price has followed Class I price from 1934-48.

Table 6

INDEX OF PRICES FARMERS PAID, PRICES OF BASE AND EXCESS MILK, AND PURCHASING POWER OF BASE MILK AND EXCESS MILK, 1934-48 (1934 = 100)

year	Col.1 Index of Prices Farmers Paid 1/ (1934=100)	Col.2 Yearly Ave. Base Prices	Col.3 Index of Base Prices	Col.4 Yearly Ave. Excess Prices	Col.5 Index of Excess Prices	Col.6 Index of Pur. Power Base Milk 2/	Col.7 Index of Pur. Power Excess Milk 3/	Col.8 % Base Index is of Excess Index
1934	100	1.92	100	1.07	100	100	100	100
1935	101	2.13	111	1.21	113	110	112	98
1936	98	2.14	111	1.32	123	113	126	90
1937	103	2.20	115	1.60	149	112	145	77
1938	98	1.80	94	1.42	133	96	136	71
1939	96	1.76	92	1.34	125	96	130	74
1940	97	1.90	99	1.49	139	102	143	71
1941	102	2.22	116	1.82	170	114	167	68
1942	116	2.80	146	2.20	206	126	178	71
1943	125	3.33	173	2.90	271	138	217	64
1944	132	3.60	187	2.94	275	142	208	68
1945	135	3.60	187	2.61	244	138	181	76
1946	149	4.16	217	3.60	336	146	225	65
1947	179	4.57	238	3.63	339	133	189	70

1/ From Agricultural Statistics. Index of prices paid includes interest and taxes.

2/ Divide Col. 3 by Col.1.

3/ Divide Col. 5 by Col. 1.

4/ Excess prices 1934-35-36-37 increased by 20 ~~per~~ cent average hauling rate to make all prices f.o.b. Detroit.

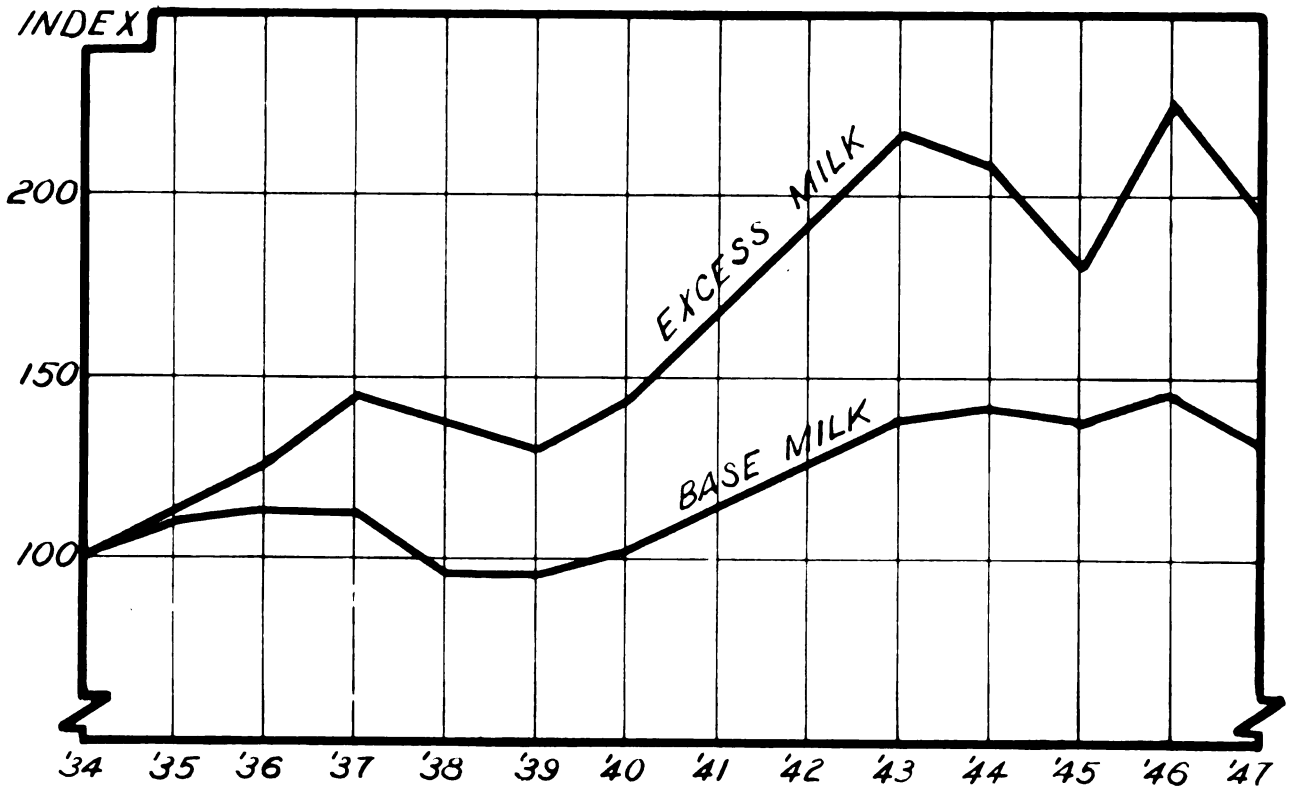

FIGURE 14. -- INDEX OF PURCHASING POWER OF BASE AND EXCESS MILK, 1934-47.

Excess prices, on the other hand, are dependent on the average price paid by five Michigan condenseries which are in turn dependent on anticipated demand for condensed milk and alternative dairy products. Demand for condensed milk has been particularly heavy during war years, which accounts to some extent for the relative rise in purchasing power of excess milk over base milk. Figure 16 shows how condensery prices have related to Class I prices from 1935-48.

Prices of milk products vary more widely than prices of fluid milk. To a large extent this is the cause of the second phenomena observed; that purchasing power of excess milk fluctuates more widely than that of base milk. The increase of excess price relative to base price in the fall of 1943, 1944, 1946, and 1947 as shown in Figure 13, resulted in considerable decrease in incentive under the base rating plan. Why the decrease in incentive has occurred will be explained later.

Seasonal Differences in Base Prices and Excess Prices

Even though an attempt is made in the Detroit market to hold Class I price constant, some seasonal variation will occur due to the tendency to make the long-time price rises in the fall, and the reductions in the spring. This seasonality extends to the base price. In addition, seasonal variations in other class prices af-

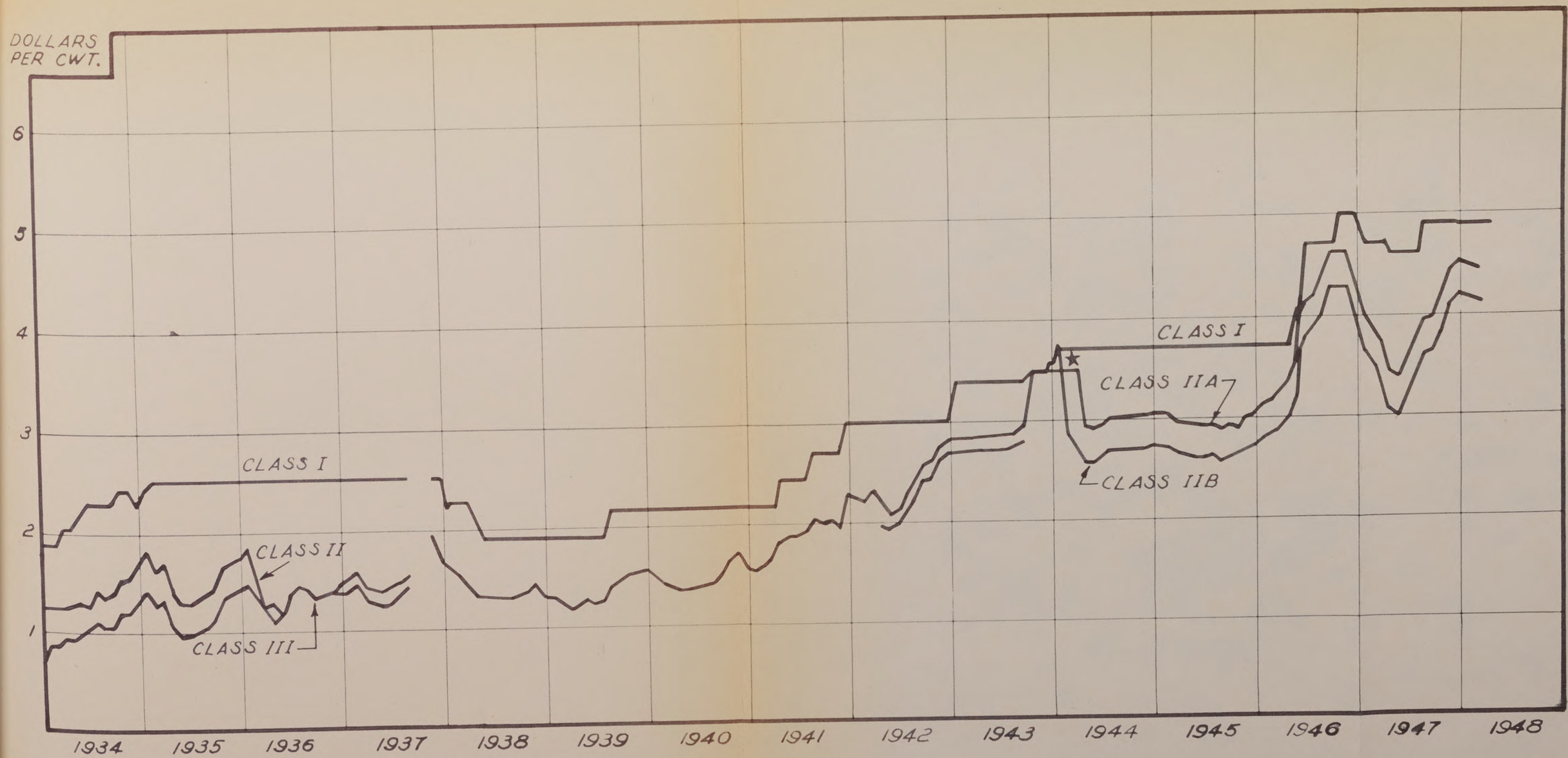

FIGURE 15. -- CLASS PRICES, DETROIT MARKET, 1934-48.

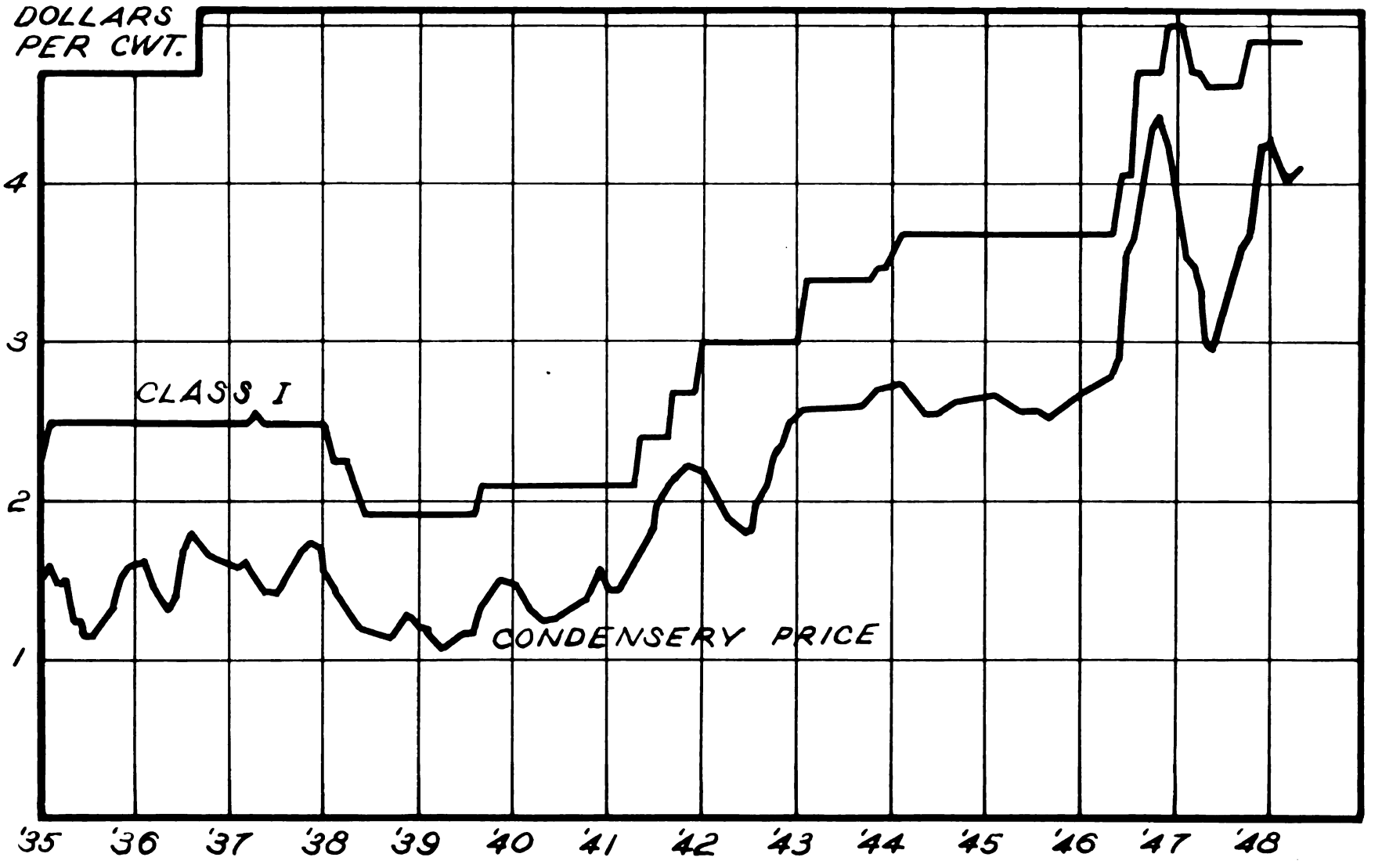

FIGURE 16. -- CONDENSERY PRICES AND CLASS I PRICES, DETROIT MARKET, 1935-48.

ect base prices somewhat.

Indices of seasonal variation in base prices are shown in Figure 17 for the three periods, 1935-40, 1942-47, and 1946-47. The variation amounts only to about 5 per cent above or below the yearly average in any period. It will be noted, however, that the seasonal difference is slightly higher in the period 1946-47 than when the entire 1942-47 period is considered and slightly higher in the period 1935-40 than in the period 1942-47. OPA fixed prices tended to hold the base price more constant in the years 1943-46. In making the calculations above, actual prices were adjusted for trend by using moving totals, an adaptation of moving averages.

The result of the greater seasonal variation in 1946-47 was to provide a greater price advantage for the even or fall producer in that period. This greater seasonal variation in base prices is not normal since the attempt is to hold Class I price constant. The effect of seasonal fluctuation of Class I price is analyzed later.

Excess prices fluctuate considerably more seasonally than do base prices. Indices of seasonal variation in excess prices are graphed in Figure 18. Similarly to the variation in base prices, excess prices in 1946-47 fluctuated considerably more seasonally than in the periods 1935-40 and 1942-47. The range in 1946-47 was ap-

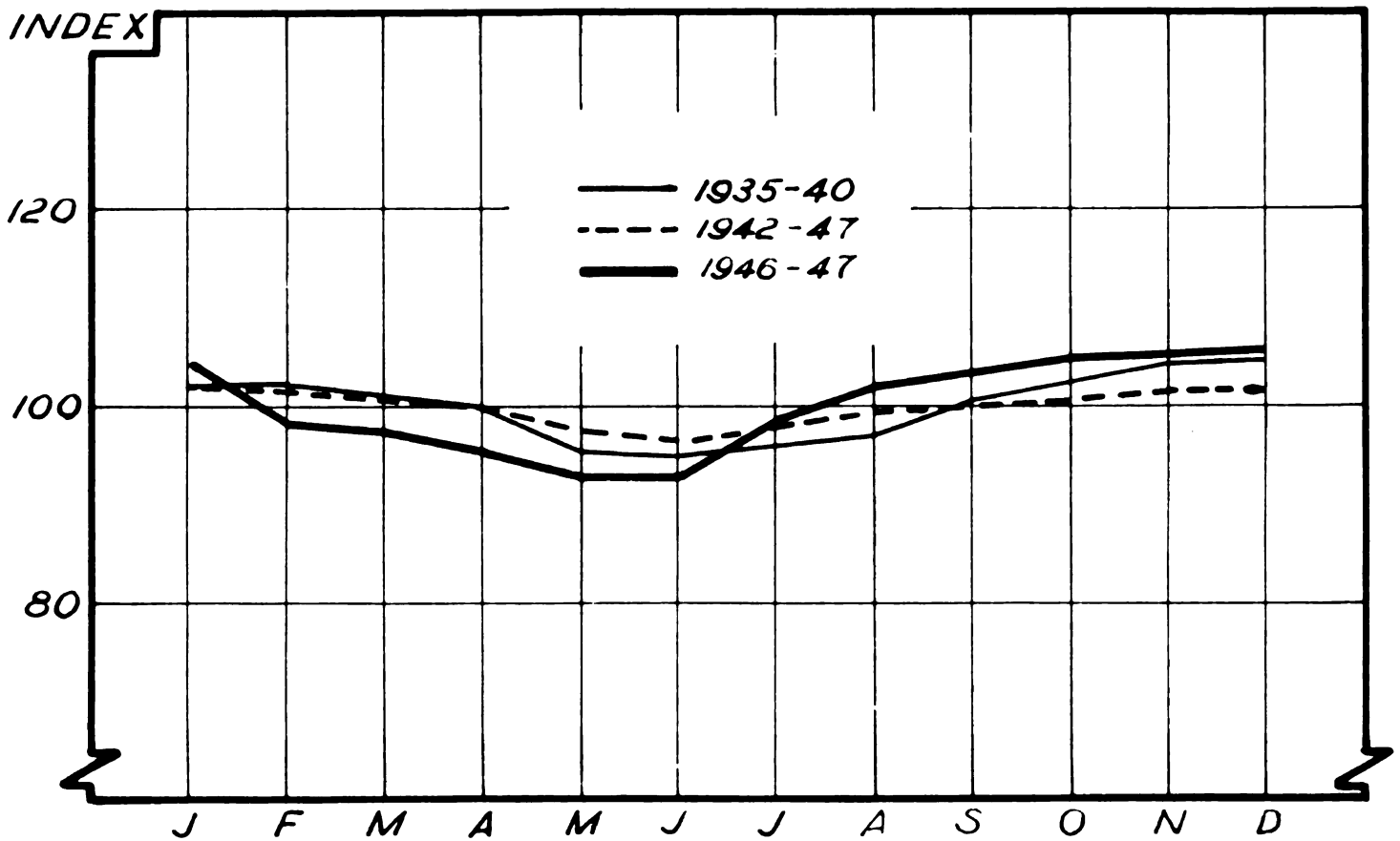

FIGURE 17. -- INDEX OF SEASONAL VARIATION IN BASE PRICES, 1935-40, 1942-47, and 1946-47.

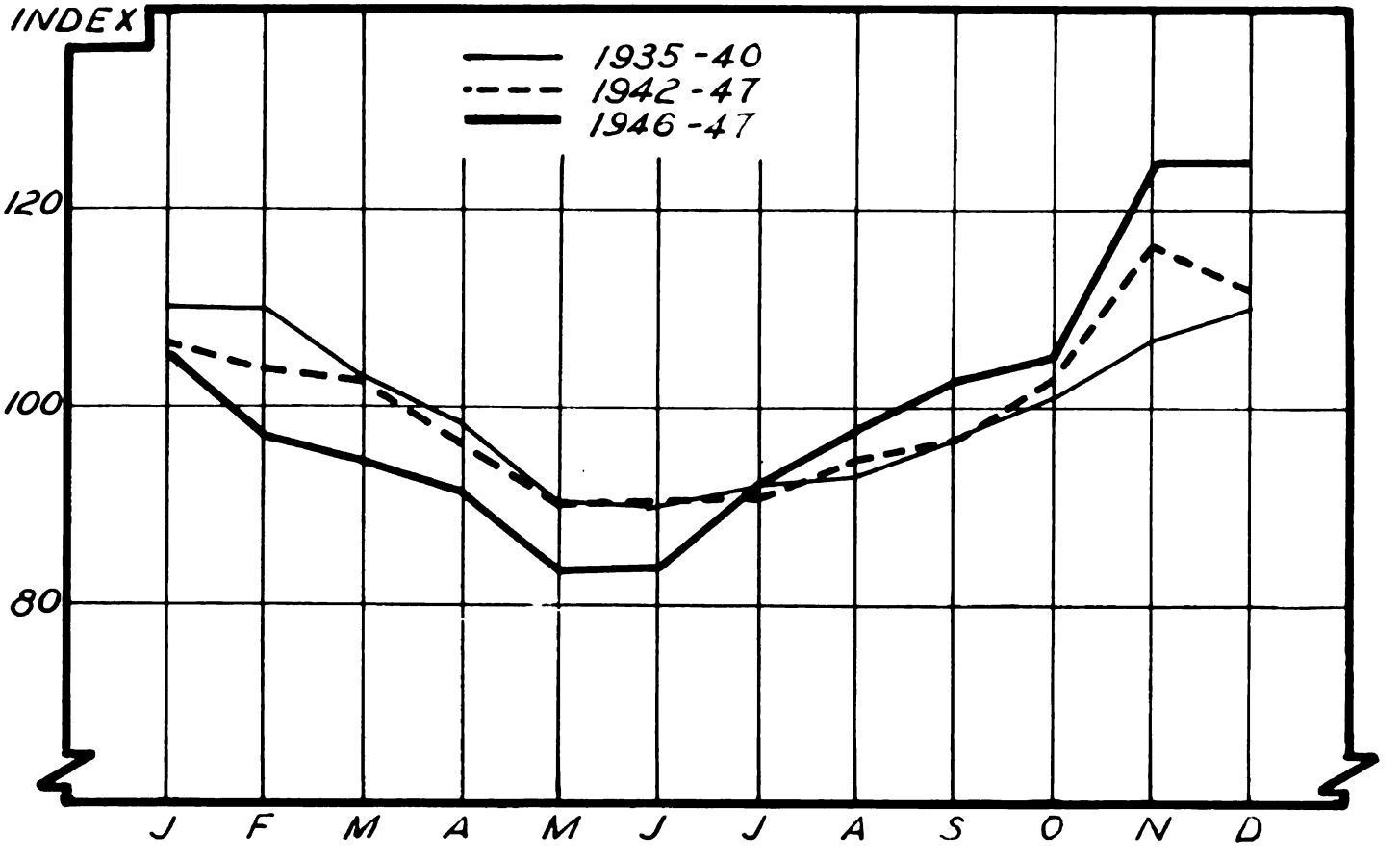

FIGURE 18. -- INDEX OF SEASONAL VARIATION IN EXCESS PRICES, 1935-40, 1942-47, and 1946-47.

proximately 20 per cent above and below the yearly average, but only about 10 per cent above and below the average in the longer periods. An increase in seasonal variation in base prices increases the price advantage to even and fall producers.

Producer Deliveries.

Total producer deliveries and total base deliveries each month determine to a large extent the per cent of base sold as Class I which varies the base price and thus changes the spread between base and excess prices. In the base rating plan, however, in addition to this small influence on base price, the individual producer can regulate the amount of milk he sells at each price. He has some control over the factors usually regarded as responsible for seasonal production, which include:1/

1. Month of calving.
2. Dairy merit or capacity.
3. Feed consumption.
4. Weather.
5. Miscellaneous factors including disease, insects, and the relative lack of attention that the cows get during the crop season.

Most of these factors affect costs and are subject to some managerial control by the dairy farmer. The costs of the input items vary from season to season and from farmer to farmer.

Since producers can vary their production to a considerable extent to increase their annual average price, it is well to look at the degree of relationship of individual production patterns under the base rating plan.

In Figure 19 are drawn a number of theoretical pro-

1/ Maine Bulletin 459, Factors affecting Seasonal Milk Production and Their Effect on Producers Costs and Returns, Report of Subcommittee I, 1948.

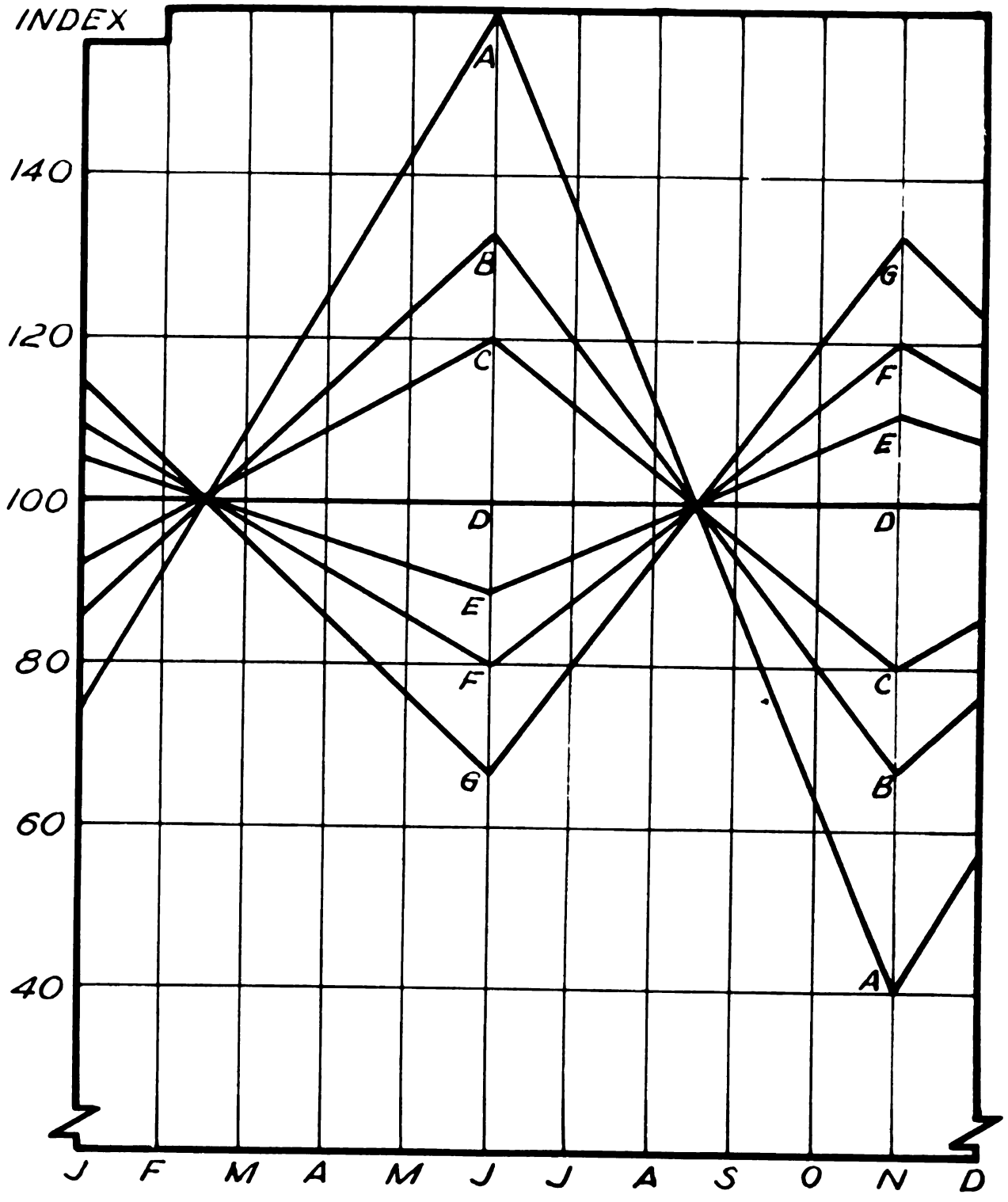

FIGURE 19. -- THEORETICAL PRODUCTION PATTERNS.

duction patterns simulating some possible patterns from which a producer may choose. Pattern A represents a pattern in which production in November is equal to one-fourth that in the flush month of June. Similarly, Pattern B represents a November production equal to one-half of June, Pattern C, one equal to three-fourths of June, Pattern D, even production throughout the year, and so on.

Chapter XI

METHOD OF COMPUTING INCENTIVE PRICE.

In anticipating an average annual price in the future, the exact base and excess prices are not known, and the dairyman's production each month is not known. The dairyman can estimate, however:

1. The behavior of his production pattern.
2. The influence of the spread between base price and excess price.
3. The seasonal variation of the base and excess prices.

If the dairyman would then estimate the level of the base and excess prices, he could approximate his average annual returns.

Suppose that several production patterns are assumed as in Figure 19, ranging from extreme flush production in the spring (Pattern A), to even production throughout the year (Pattern D) and to the other extreme, a seasonal peak in the fall (Pattern G).

Suppose further that the expected class usage in the year ahead is as shown in Figure 20, 75 per cent selling as Class I, 5 per cent as Class II and 20 per cent as Class III- and that the total market deliveries assume the shape shown in Figure 20. Assume base deliveries remain constant at 91 per cent of the average total deliveries.

Suppose further that the expected Class I price remains constant at $3.75 while the Class IIA and Class IIB prices

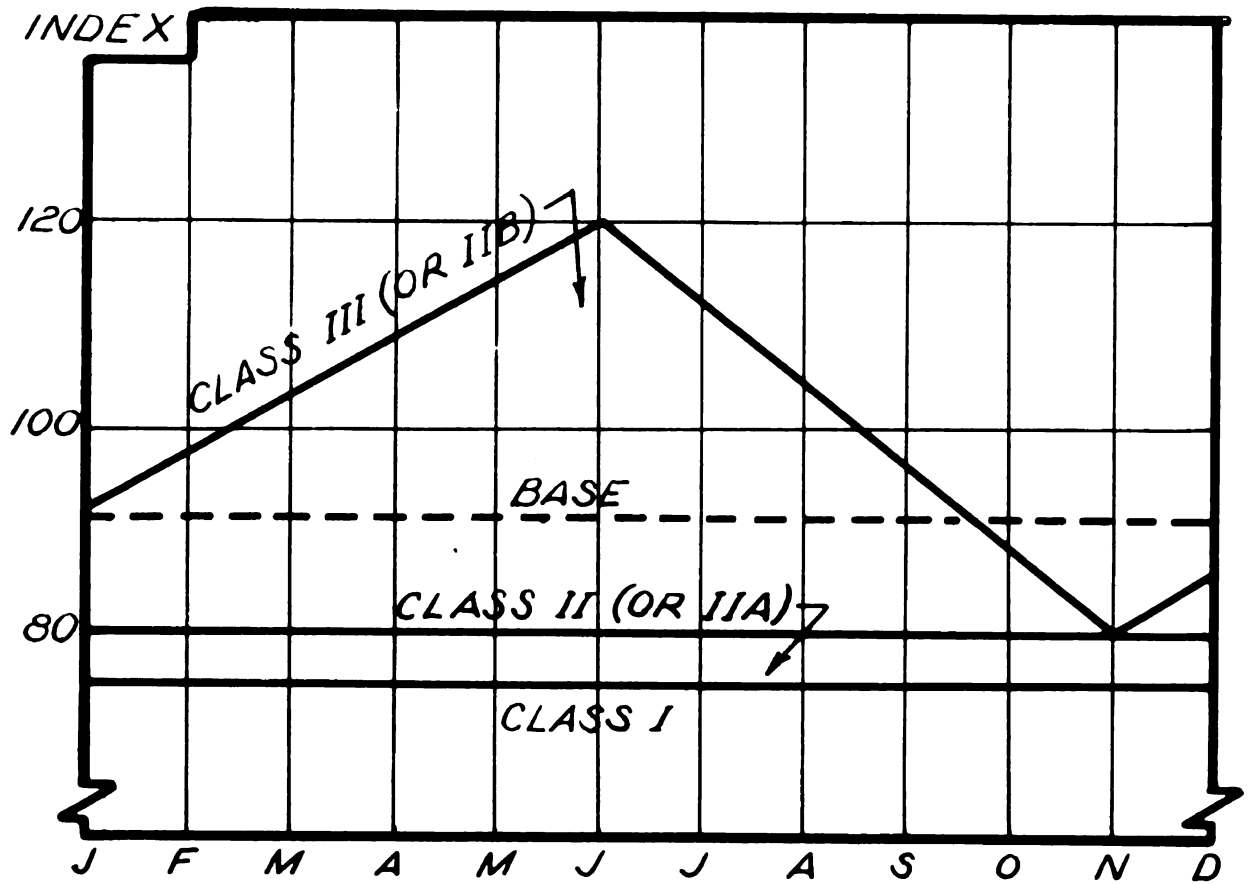

FIGURE 20.-- THEORETICAL DELIVERIES AND CLASS USE BY MONTHS.

are 50¢ and 17¢ respectively above condensery prices which will vary as shown in Figure 21.

We have now made certain assumptions of production and price data which are similar to historical market data, but which considerably simplify the problem. With these given, the average annual price which will accrue with each production pattern can be determined.

First, the base price for each month is computed from the class prices, class use, total deliveries, and base deliveries (See Table 7). In January, 92 pounds (relative to an average of 100 lbs. per month throughout the year) is delivered, of which 91 is base and 1 excess. Of this amount 75 pounds are sold at Class I price ($3.75); 5 pounds sold at Class IIA price ($3.70) and the remaining 11 pounds at Class IIB price ($3.37). The value of the 92 pounds is thus $3.404. The calculation is then continued in Table 8. Since the 1 pound of excess is sold at Class IIB price ($3.37) its value is $.034. The value of the remaining 91 pounds of milk ($3.37) is divided by the pounds of base milk (91) to secure the price per cwt. of base milk.

The base prices and excess prices obtained by this method are transferred to Table 9, Columns 1 and 2 respectively.

Reading from the production pattern A in Figure 19, in which a high spring flush and low fall production is indicated, the deliveries each month are obtained as in Column 7. Adding his deliveries for the last five months (the base-forming period) and dividing by five determines his base as 72.

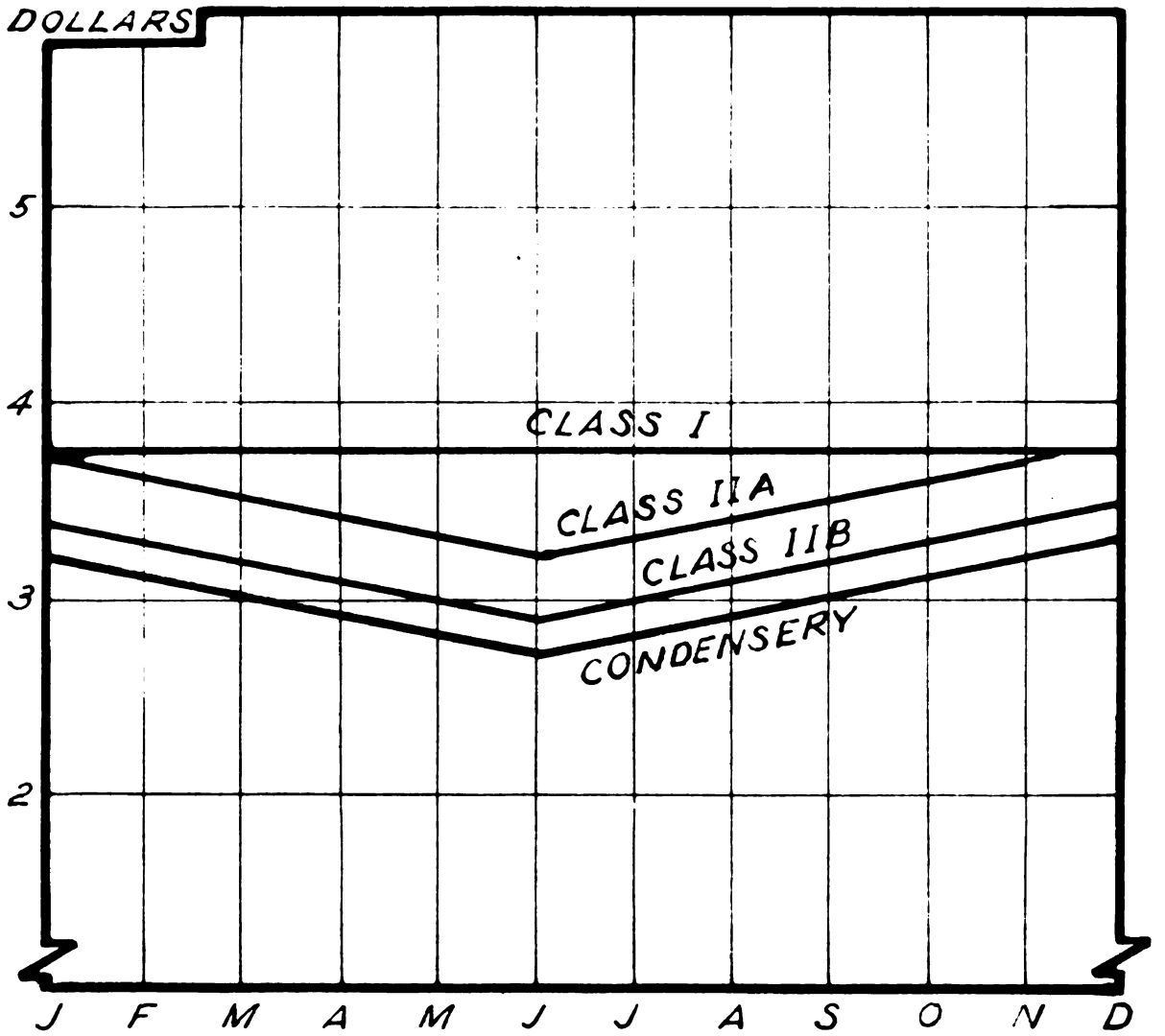

FIGURE 21.-- SIMPLIFIED PRICE STRUCTURE FOR DETROIT MARKET.

TABLE 7 - Determination of Market Value and Blend Price of Milk Delivered Each Month with Class Prices as in Figure 21.[1]

	CLASS I			CLASS IIA			CLASS IIB			TOTAL		
	LBS	PRICE PER CWT	VALUE	LBS	PRICE PER CWT	VALUE	LBS	PRICE PER CWT	VALUE	LBS	PRICE PER CWT	VALUE
Jan.	75	3.75	2.81	5	3.70	.19	12	3.37	.404	92	3.700	3.404
Feb.	75	3.75	2.81	5	3.60	.18	17	3.27	.556	97	3.656	3.546
Mar.	75	3.75	2.81	5	3.50	.18	23	3.17	.729	103	3.611	3.719
Apr.	75	3.75	2.81	5	3.40	.17	29	3.07	.890	109	3.550	3.870
May	75	3.75	2.81	5	3.30	.17	34	2.97	1.010	114	3.500	3.990
June	75	3.75	2.81	5	3.20	.16	40	2.87	1.148	120	3.432	4.118
July	75	3.75	2.81	5	3.30	.17	32	2.97	.950	112	3.509	3.930
Aug.	75	3.75	2.81	5	3.40	.17	24	3.07	.737	104	3.574	3.717
Sep.	75	3.75	2.81	5	3.50	.18	16	3.17	.507	96	3.643	3.497
Oct.	75	3.75	2.81	5	3.60	.18	8	3.27	.262	88	3.695	3.252
Nov.	75	3.75	2.81	5	3.70	.19	0	3.37	0	80	3.750	3.000
Dec.	75	3.75	2.81	5	3.75	.19	6	3.47	.208	86	3.730	3.208

TABLE 8 - Determination Of Base And Excess Prices From Values Computed In Table 7.

	TOTAL			EXCESS			BASE		
	LBS.	VALUE	BLEND PRICE	LBS.	PRICE PER CWT.	VALUE	LBS.	VALUE	PRICE PER CWT.
Jan.	92	3.404	3.700	1	3.37	.034	91	3.370	3.703
Feb.	97	3.546	3.656	6	3.27	.196	91	3.350	3.681
Mar.	103	3.719	3.611	12	3.17	.380	91	3.339	3.669
Apr.	109	3.870	3.550	18	3.07	.553	91	3.317	3.645
May	114	3.990	3.500	23	2.97	.683	91	3.307	3.634
June	120	4.118	3.432	29	2.87	.832	91	3.286	3.611
July	112	3.930	3.509	21	2.97	.624	91	3.306	3.633
Aug.	104	3.717	3.574	13	3.07	.399	91	3.318	3.646
Sep.	96	3.497	3.643	5	3.17	.159	91	3.338	3.668
Oct.	88	3.252	3.695	0	3.27	-	88	3.252	3.695
Nov.	80	3.000	3.750	0	3.37	-	80	3.000	3.750
Dec.	86	3.208	3.730	0	3.47	-	86	3.208	3.730

AL	
bs	Va
00	4.0
00	3.7
00	3.5
00	3.1
00	3.1
00	2.8
00	3.1
00	3.5
00	3.8
00	4.1
00	4.4
00	4.2

4.0

3.6

TABLE 9 - Determination of Annual Average Price Under Base-Rating Plan for Each of Various Production Patterns.

	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
	BASE PRICE	SURPLUS PRICE	BASE		SURPLUS		TOTAL	
			Lbs.	Value	Lbs.	Value	Lbs.	Value
Jan.	3.70	3.37	72	2.664	2	.067	74	2.731
Feb.	3.68	3.27	72	2.650	19	.621	91	3.271
Mar.	3.67	3.17	72	2.642	36	1.141	108	3.783
Apr.	3.65	3.07	72	2.628	53.5	1.642	125.5	4.270
May	3.63	2.97	72	2.614	70.5	2.094	142.5	4.708
June	3.61	2.87	72	2.599	88	2.526	160	5.125
July	3.63	2.97	72	2.614	64	1.901	136	4.515
Aug.	3.65	3.07	72	2.628	40	1.228	112	3.856
Sep.	3.67	3.17	72	2.642	16	.507	88	3.149
Oct.	3.70	3.27	64	2.368	0	0	64	2.368
Nov.	3.75	3.37	40	1.500	0	0	40	1.500
Dec.	3.73	3.47	57	2.126	0	0	57	2.126
Totals							1198	41.402
Average Annual Price								3.46

Add Total Lbs. for 12 Months.
Add Total Value for 12 Months.
Divide Total Value by Total Lbs. to Get Average Price Per CWT. for Year.

	- PATTERN B -						- PATTERN C -					
	BASE		SURPLUS		TOTAL		BASE		SURPLUS		TOTAL	
	Lbs.	Value	Lbs.	Value	Lbs.	Value	Lbs.	Value	Lbs.	Value	Lbs.	Value
Jan.	84.5	3.126	2	.067	83	3.193	91	3.367	1	.034	92	3.401
Feb.	84.5	3.110	11	.359	92.5	3.469	91	3.349	6	.196	97	3.545
Mar.	84.5	3.101	20	.634	102.5	3.735	91	3.340	12	.380	103	3.220
Apr.	84.5	3.084	29	.890	112.5	3.974	91	3.321	18	.553	109	3.874
May	84.5	3.067	39	1.15	122.5	4.217	91	3.303	23	.683	114	3.986
June	84.5	3.050	48.5	1.392	133	4.442	91	3.285	29	.832	120	4.117
July	84.5	3.067	35.5	1.054	120	4.121	91	3.303	21	.624	112	3.927
Aug.	84.5	3.084	22	.675	106.5	3.759	91	3.322	13	.399	104	3.721
Sep.	84.5	3.101	9	.285	93.5	3.386	91	3.340	5	.158	96	3.498
Oct.	80	2.960	0	0	80	2.960	88	3.256	0	0	88	3.256
Nov.	67	2.513	0	0	67	2.513	80	3.000	0	0	80	3.000
Dec.	76.5	2.853	0	0	76.5	2.853	86	3.208	0	0	86	3.208
Totals					1200	42.622					1201	43.253
Average Annual Price						3.552						3.60

	- PATTERN D -						- PATTERN E -					
	BASE		SURPLUS		TOTAL		BASE		SURPLUS		TOTAL	
	Lbs.	Value	Lbs.	Value	Lbs.	Value	Lbs.	Value	Lbs.	Value	Lbs.	Value
Jan.	100	3.70	0	0	100	3.70	105	3.885	0	0	105	3.885
Feb.	100	3.68	0	0	100	3.68	102	3.754	0	0	102	3.754
Mar.	100	3.67	0	0	100	3.67	98.5	3.615	0	0	98.5	3.615
Apr.	100	3.65	0	0	100	3.65	95.5	3.486	0	0	95.5	3.486
May	100	3.63	0	0	100	3.63	92	3.340	0	0	92	3.340
June	100	3.61	0	0	100	3.61	89	3.213	0	0	89	3.213
July	100	3.63	0	0	100	3.63	93.5	3.394	0	0	93.5	3.394
Aug.	100	3.65	0	0	100	3.65	98	3.577	0	0	98	3.577
Sep.	100	3.67	0	0	100	3.67	102	3.743	0	0	102	3.743
Oct.	100	3.70	0	0	100	3.70	105	3.885	1.5	.049	106.5	3.934
Nov.	100	3.75	0	0	100	3.75	105	3.938	6	.202	111	4.140
Dec.	100	3.73	0	0	100	3.73	105	3.917	3	.104	108	4.021
Totals					1200	44.07					1201	44.102
Average Annual Price						3.67						3.67

	- PATTERN F -						- PATTERN G -					
	BASE		SURPLUS		TOTAL		BASE		SURPLUS		TOTAL	
	Lbs.	Value	Lbs.	Value	Lbs.	Value	Lbs.	Value	Lbs.	Value	Lbs.	Value
Jan.	109	4.033	0	0	109	4.033	114	4.218	0	0	114	4.218
Feb.	103	3.790	0	0	103	3.790	105	3.864	0	0	105	3.864
Mar.	97.5	3.578	0	0	97.5	3.578	95	3.486	0	0	9.5	3.486
Apr.	91.5	3.340	0	0	91.5	3.340	80	2.920	0	0	80	2.920
May	86	3.122	0	0	86	3.122	76	2.759	0	0	76	2.759
June	80	2.888	0	0	80	2.888	67	2.419	0	0	67	2.419
July	88	3.194	0	0	88	3.194	80	2.904	0	0	80	2.904
Aug.	96	3.504	0	0	96	3.504	93	3.394	0	0	93	3.394
Sep.	104	3.817	0	0	104	3.817	106	3.890	0	0	106	3.890
Oct.	109	4.033	3	.098	112	4.131	115	4.255	4.5	.147	119.5	4.402
Nov.	109	4.087	11	.371	120	4.458	115	4.312	18.0	.607	133	4.919
Dec.	109	4.066	5	.173	114	4.239	115	4.289	8.5	.295	123.5	4.584
Totals					1201	44.094					1198	43.759
Average Annual Price						3.67						3.65

The deliveries each month are then divided into base and excess deliveries (Columns 3 and 5). The value of base milk deliveries (Column 4) and excess milk deliveries (Column 6) are then computed and added together (Column 8) to obtain the value of his milk each month if the average monthly delivery was 100 pounds. The average of the values, obtained by dividing the total value for 12 months by the total pounds for the 12 months, is 3.46. This would be the average annual price received by the producer with Pattern A under the given market conditions.

Similarly, average annual returns are computed for producers with other patterns given in Figure 18. Results are tabulated in Table 10.

TABLE 10 - Average Annual Price Obtained by Producers With Various Production Patterns.

Production Pattern			Average Annual Return
Pattern	A	(Nov. $\frac{1}{4}$ of June)	3.46
"	B	(Nov. $\frac{1}{3}$ of June)	3.552
"	C	(Nov. 3/4 of June)	3.60
"	D	(Nov. equal to June)	3.67
"	E	(Nov. $1\frac{1}{4}$ that of June)	3.67
"	F	(Nov. $1\frac{1}{3}$ of June)	3.67
"	G	(Nov. twice that of June)	3.65

Graphing the average annual price obtained under the various productions, a curve is obtained as in Figure 22 which

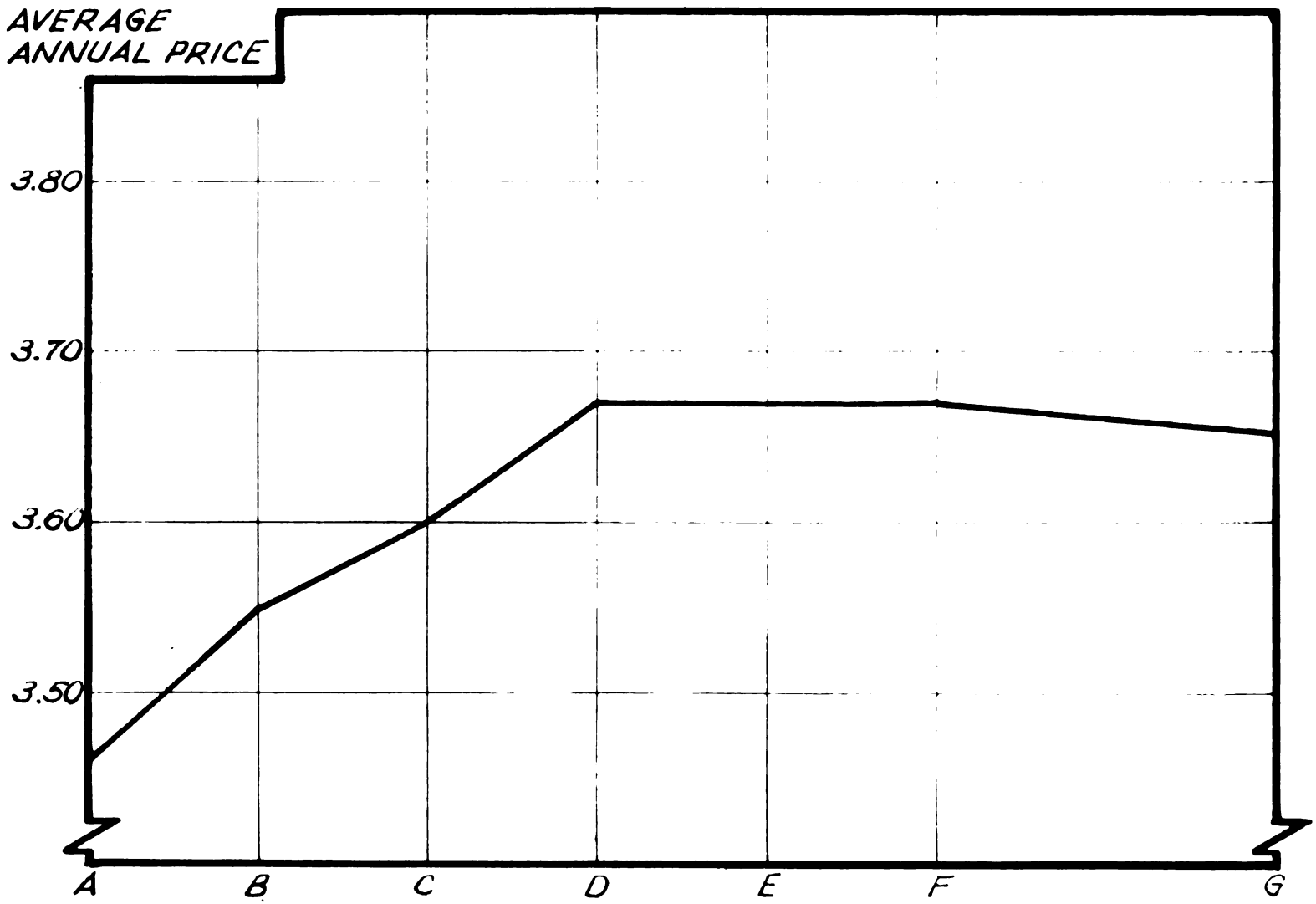

FIGURE 22.-- AVERAGE ANNUAL PRICES DERIVED FROM THEORETICAL PRODUCTION PATTERNS, THEORETICAL DELIVERIES AND CLASS USE, AND SIMPLIFIED PRICE STRUCTURE.

rises as the production pattern becomes more level. The slope of this curve represents the rate at which average annual returns increase as a producer changes from an uneven production pattern to a more even one (under the market conditions given). It will be noticed that the rate is high until even production is obtained, after which it levels off, and even turns downward when excess milk is delivered in the fall.

CHAPTER XII

COMPARISON OF INCENTIVES IN THE BASE RATING PLAN UNDER VARIOUS BEHAVIORS OF THE INFLUENCING FACTORS.

With Class I Price Varying and Constant.

Having discussed previously the effect of various factors creating the variation in incentive price under the base rating plan, it next appears logical to explore their effect by the use of actual examples. One of the factors influencing the incentive is the variation of prices seasonally. Let us see how varying the Class I price seasonally will affect the incentive prices we have worked out. The same market use and market production as used in the original example is assumed, with the exception that the Class I price, while still averaging $3.75 per cwt. throughout the year as before, now changes seasonally as much as in markets using a seasonal differential plan. Note that the Class I price cannot vary more except by varying the Class IIA price also, or by in-

creasing the average price level (Figure 23). The seasonal variation in the Class I price will provide base and excess prices in each month as shown in Table 11.

TABLE 11 - Base and Excess Prices in Theoretical Example With Class I Price Varying Seasonally.

	Base Price	Excess Price
Jan.	$3.91	$3.37
Feb.	3.81	3.27
Mar.	3.71	3.17
Apr.	3.36	3.07
May	3.26	2.97
June	3.16	2.87
July	3.47	2.97
Aug.	3.57	3.07
Sep.	3.67	3.17
Oct.	3.95	3.27
Nov.	4.39	3.37
Dec.	4.17	3.47

With these base and excess prices and using the production patterns in Figure 18, the average annual prices for each producer was calculated as before. Results are tabulated in Table 12.

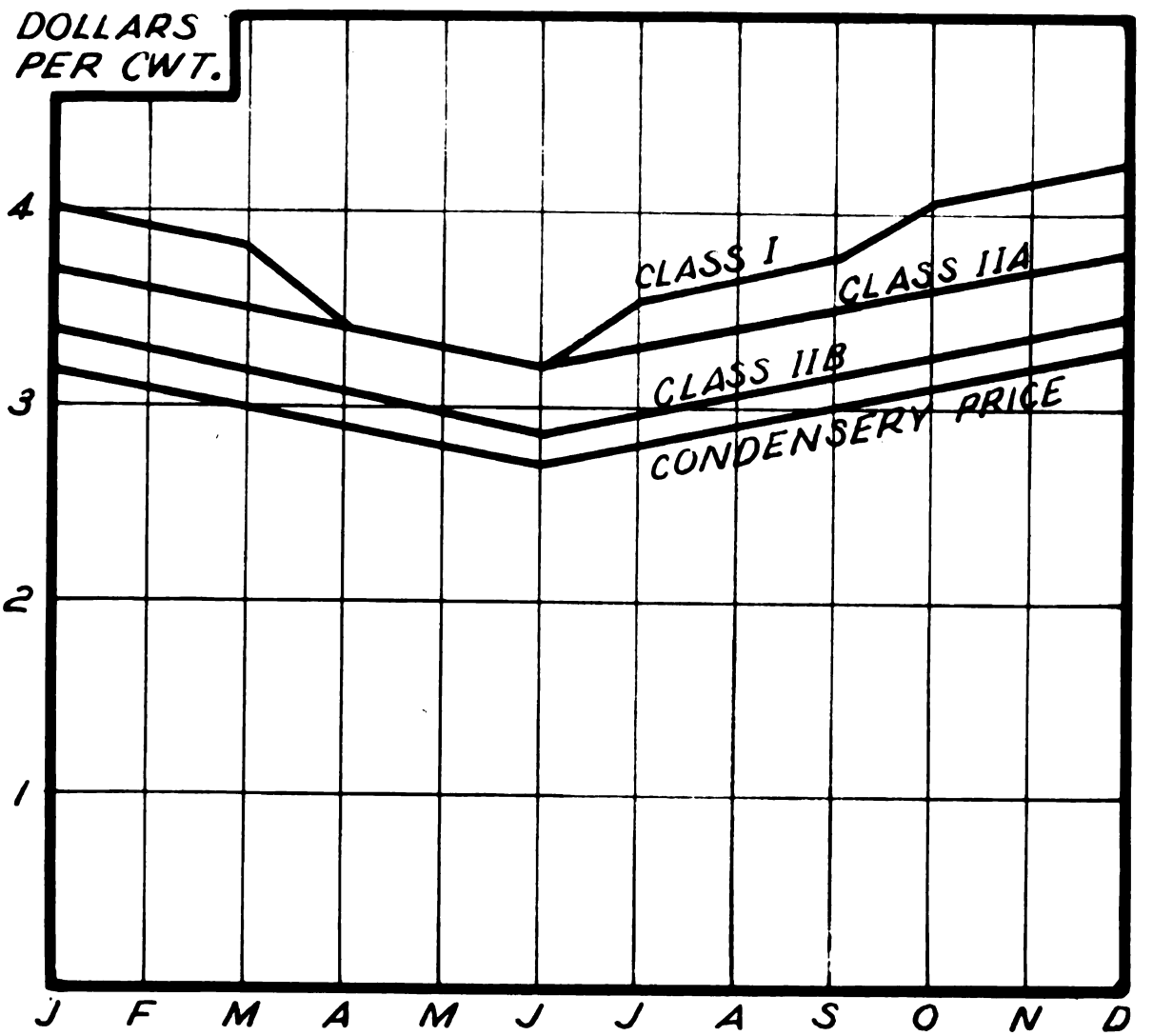

FIGURE 23. -- CLASS PRICES AS SHOWN IN FIGURE 21, EXCEPT THAT CLASS I PRICE VARIES SEASONALLY.

TABLE 12 - Annual Average Prices and Index of Annual Average Prices Comparing Varying Class I Price with Constant Class I Price.

Production Pattern	With Constant Class I Price 1/		With Varying Class I Price	
	Annual Av. Price	Index 2/	Annual Av. Price	Index 2/
A	3.46	96.1	3.452	95.3
B	3.552	98.7	3.565	98.5
C	3.60	100.0	3.620	100
D	3.67	101.9	3.702	102.3
E	3.67	101.9	---	---
F	3.67	101.9	3.728	103.0
G	3.65	101.4	3.729	103.0

The average annual prices are then computed as in the previous example. The indices of the average annual prices received with each production pattern are plotted in Figure 24. Plotting the indices rather than the average annual prices themselves was done in order to:

1. Place one point on each curve at an identical spot.
2. Make application to other prices easier by having the incentive measured in per cent.

The fall producer is somewhat better rewarded when the Class I price varies than when the Class I price is constant. The difference is most noticeable when the production patterns have high fall peaks. Adding a seasonal variation to the Class I price prevents the curve from turning downward within the

1/ Same as in Table 10.

2/ Pattern D (Fall Production = 3/4 of Spring) = 100.

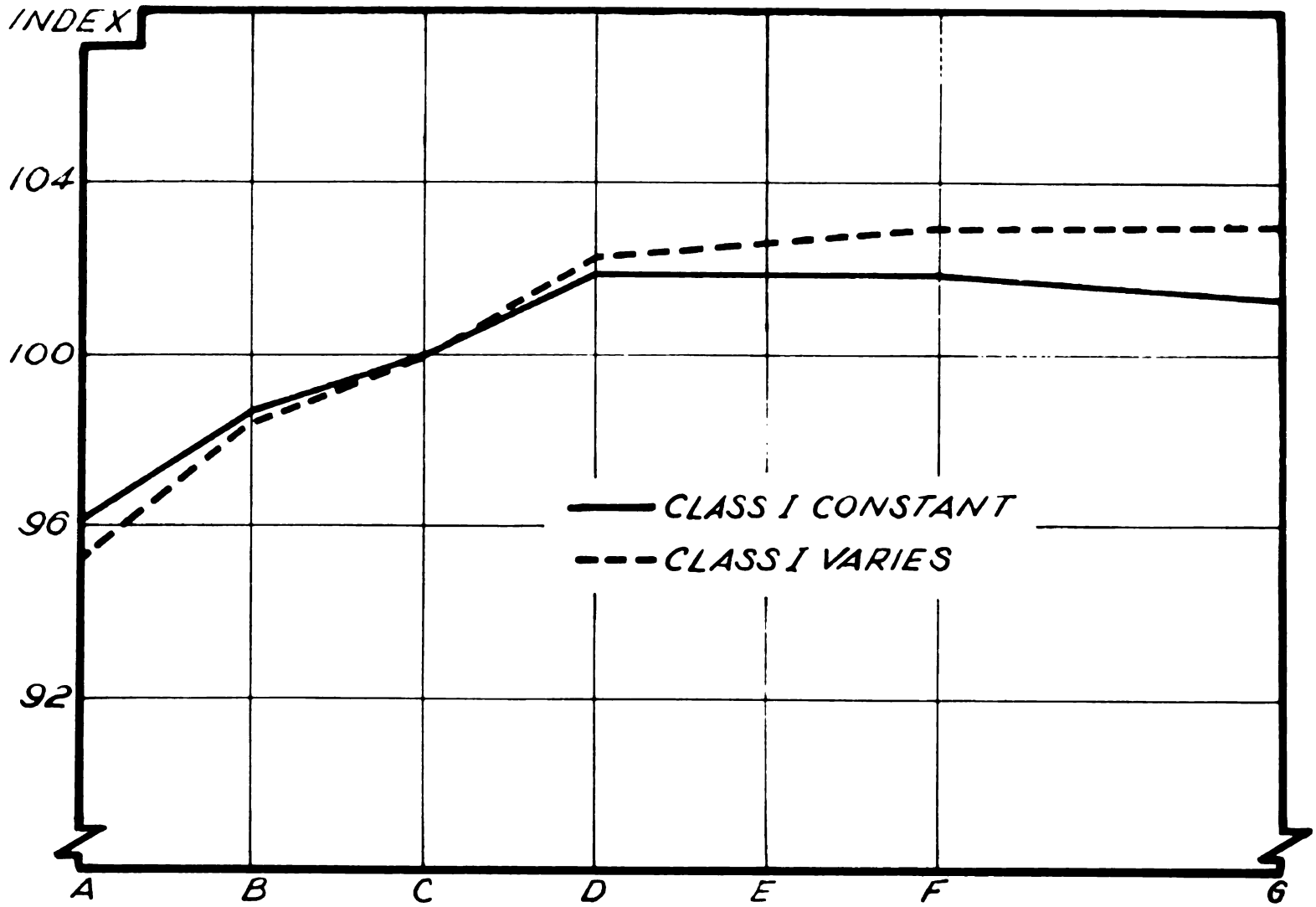

FIGURE 24.-- INDEX OF AVERAGE ANNUAL PRICES COMPARING CONSTANT CLASS I PRICE WITH VARYING CLASS I PRICE.

plotted range as it does with a constant Class I price. That is, producers who deliver excess milk in the fall are paid a higher price for their milk than the even producer when the Class I price varies.

With Small and Large Spread Between Condensery and Class I Price.

A comparison was made of the change in annual average prices which occurs when the spread between condensery and Class I prices is increased. Class prices as shown in Figure 25 were assumed. This procedure raised the average level of prices above that in the two previous examples. The extent to which this could be done is discussed in the section on practical application of the plan. Base and excess prices calculated from these Class prices, using the same market use and production as in the original example, are given in Table 13.

The annual average prices obtained under the several production patterns, the index numbers, together with those of the original example are compared in Table 14. The index numbers are graphed in Figure 26.

The curve representing returns under a market situation with a small spread between the condensery price and the Class I price, is the same as that in Figure 21. A dairyman producing according to pattern A would receive 96.1 per cent of the amount he would receive if he produced according to pattern C. However, when a large spread was introduced between the

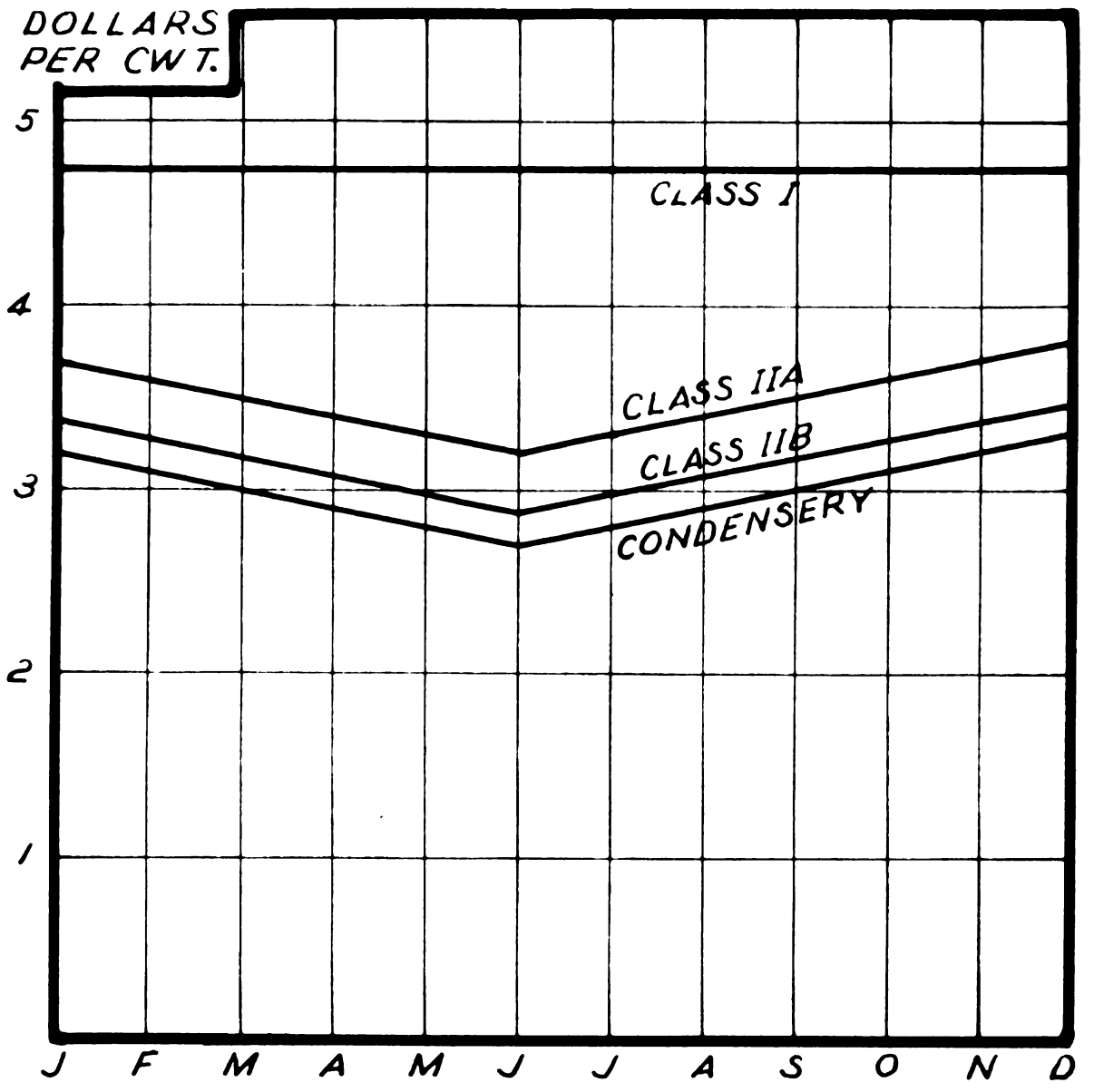

FIGURE 25. -- CLASS PRICES WITH CONSTANT CLASS I PRICE BUT WITH $1.00 GREATER SPREAD BETWEEN CLASS I AND CONDENSERY PRICE THAN IN FIGURE 21.

TABLE 13 - Base and Excess Prices in Theoretical Example With $1.00 Greater Spread Between Class I and Condensery Prices Than Shown in Table.

	Base Prices	Excess Prices
Jan.	4.80	3.37
Feb.	4.78	3.27
Mar.	4.77	3.17
Apr.	4.74	3.07
May	4.73	2.97
June	4.71	2.87
July	4.73	2.97
Aug.	4.74	3.07
Sep.	4.77	3.17
Oct.	4.67	3.27
Nov.	4.40	3.37
Dec.	4.62	3.47

TABLE 14 - Annual Average Prices and Indices of Annual Average Prices Comparing a Small Spread Between Class I Prices and Condensery Prices with a $1.00 Greater Spread.

Production Pattern	With Spread Between Class I & Condensery Prices as in Fig. 21 1/		With A $1.00 Greater Spread	
	Annual Av. Price	Index 2/	Annual Av. Price	Index 2/
A	3.46	96.1	4.166	92.1
B	3.552	98.7	4.406	97.4
C	3.60	100.0	4.522	100
D	3.67	101.9	4.705	104
E	3.67	101.9	---	---
F	3.67	101.9	4.673	103.4
G	3.65	101.4	4.642	102.6

1/ Same as in Table 10.

2/ Pattern C = 100.

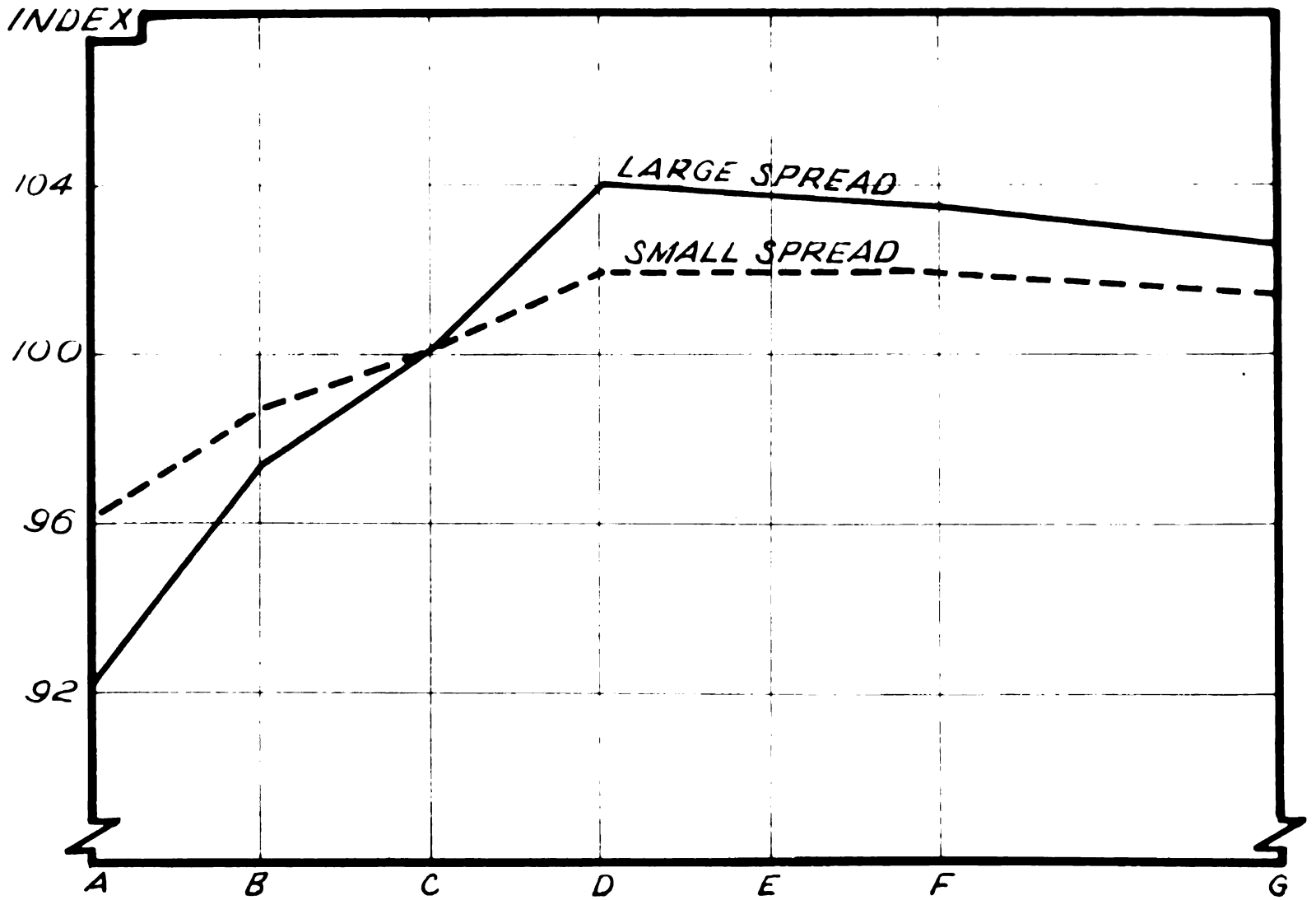

FIGURE 26.— INDEX OF AVERAGE ANNUAL PRICES COMPARING A LARGE SPREAD BETWEEN CLASS I AND CONDENSERY PRICE, WITH A SMALL SPREAD.

condensery price and the Class I price, the producer with pattern A would receive only 92.1 per cent of the amont he would receive under pattern C. The incentive for a producer to change from a pattern with a spring flush to a more even pattern is considerably greater with a large spread between the condensery and Class I prices. It continues greater until a producer produces evenly as in pattern D.

So far we have been using for our analysis a simplified class use pattern, and a class price pattern roughly comparable to those existing in the period 1942-47. Changing now to the use of actual historical base and excess prices let us see how the average annual prices differ in two historical periods. The two periods selected for comparison were 1935-40 and 1946-47. The first period represents a period of relative stability of prices and production, the second represents a more unstable market condition, greater fluctuation in production, and a higher price level. Average base and excess prices for the two periods, adjusted for trend by the moving total method, are shown in Table 15.

Computing the annual average prices under each production pattern and with the market conditions existing in these two periods, the result in Table 16 were obtained.

The indices of the average annual prices for these two periods are charted in Figure 27. It can be seen from the graph that the price advantage to the fall producer was considerably greater in 1935-40 than it was in the more recent

TABLE 15 - Average Base and Excess Prices for Periods 1935-40 and 1946-47, Detroit Market.1/

	1935-40		1946-47	
	Base Price	Excess Price	Base Price	Excess Price
Jan.	2.03	1.33	4.30	3.28
Feb.	2.03	1.32	4.09	3.06
Mar.	2.01	1.24	4.10	3.03
Apr.	1.99	1.17	4.05	2.97
May	1.90	1.06	3.98	2.73
June	1.89	1.06	4.02	2.82
July	1.91	1.09	4.31	3.19
Aug.	1.93	1.12	4.51	3.46
Sep.	2.00	1.18	4.63	3.70
Oct.	2.04	1.22	4.74	3.84
Nov.	2.07	1.22	4.81	4.64
Dec.	2.08	1.29	4.87	4.71

1/ Trend removed by moving total method in which a monthly index is multiplied by the average price.

TABLE 16 - Annual Average Prices and Indices of Annual Average Prices Obtained in 1935-40 Compared With Those Obtained in 1946-47.

Producer Pattern	1935-40 Annual Av. Price	1935-40 Index 1/	1946-47 Annual Av. Price	1946-47 Index 1/
Pattern A	1.704	89.9	3.962	93.9
" B	1.796	94.7	4.114	97.5
" C	1.896	100	4.217	100
" D	1.990	104.9	4.367	103.5
" E	-	-	-	-
" F	1.983	104.6	4.470	106.0
" G	1.970	103.9	4.482	106.3

1/ Pattern C = 100

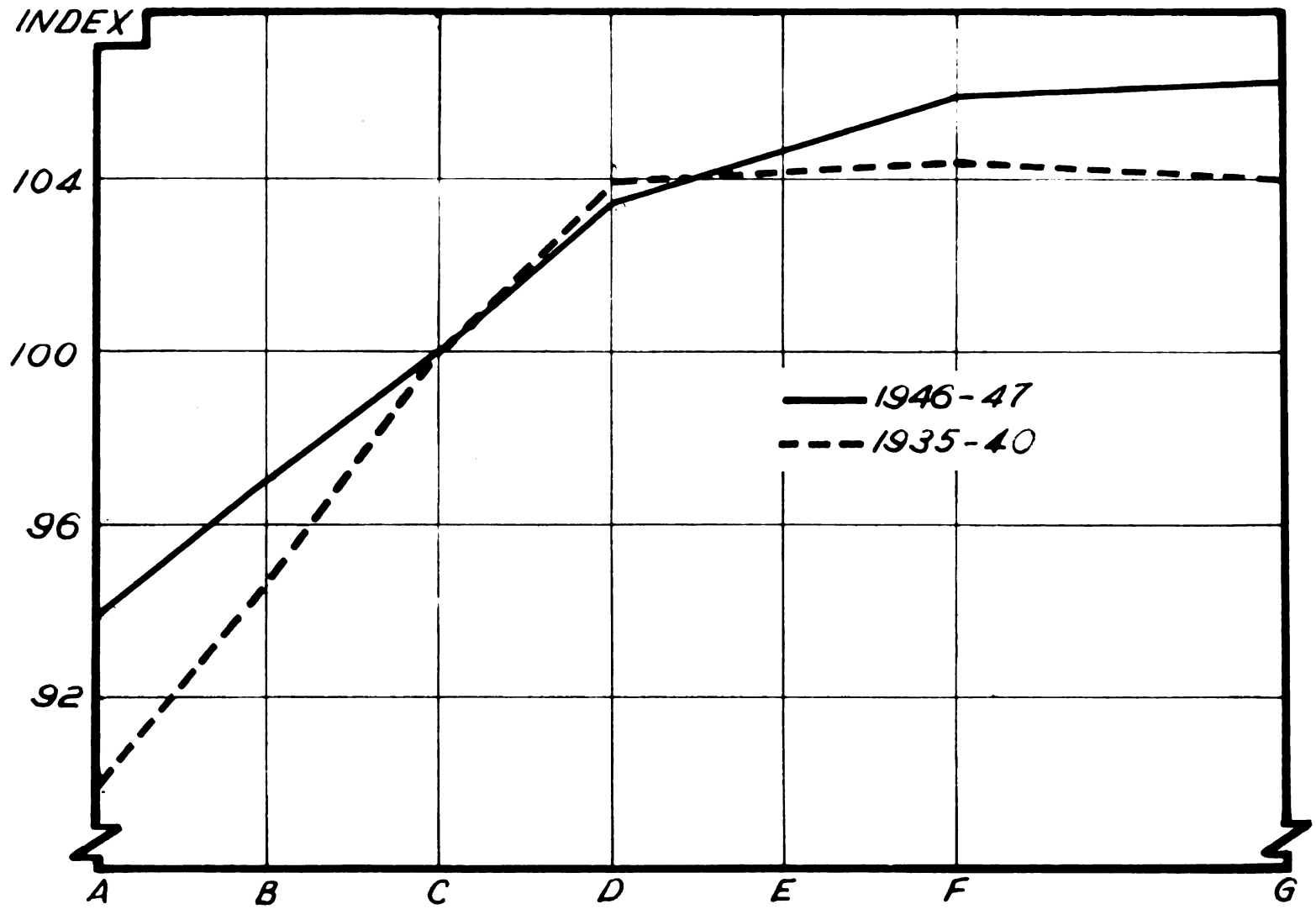

FIGURE 27.— INDEX OF AVERAGE ANNUAL PRICES OBTAINED UNDER MARKET CONDITIONS IN 1935-40 COMPARED WITH THOSE OBTAINED IN 1946-47.

period, 1946-47, especially in the range from production pattern A to C.

Class I sales and base deliveries were more nearly equal in 1946-47 than in 1935-40. This tended to increase the incentive. The purchasing power of excess milk increased more than the purchasing power of base milk. This tended to decrease the incentive. Apparently the rise in the price of excess milk relative to base milk influenced the incentives in the base rating plan more than did the increase in base deliveries sold as Class I. The seasonal fluctuations in all class prices were also less in the more recent period. The result of the change in incentive has been an increase in the seasonal fluctuation of milk receipts in the Detroit market.

It would be interesting to explore one more possible cause of this increase in fluctuation of the milk receipts. Expansion of the milkshed into new geographic areas may have been a contributing cause. Comparison of the receipts in a new receiving station compared with the receipts in an older one might give an answer.

CHAPTER XIII

MAXIMUM PRACTICAL INCENTIVE UNDER THE BASE RATING PLAN.

How and to what extent can the factors which influence the price advantage to fall production be controlled? Some of the factors are subject to some control while others, such as the condensery price, are not within the control of the market administration.

Spread between base and excess price.

Considering first the spread between base and excess price, the factors of importance are:

a. Condensery market price level.

b. Class I negotiated price level.

c. Per cent of base milk sold in each class.

1. Condensery Price Level.

The price for excess milk is that of the average of five Michigan condenseries plus average transportation to Detroit. The excess price level could be raised or lowered slightly by using a different base, such as a basic price compiled by formula from demand factors, or a price paid by another group of condenseries, or by tying the excess price to butter or cheese prices. The Michigan condenseries used include two cooperative condensery plants, both of which tend to pay minimum price for condensery milk and the difference in dividends later. That part of the price repaid in dividends does not appear in the price quotation of the condensery. It is hardly likely in the event a change in the basic price were made, that

it would be made in the direction of a lower price, except where market factors dictated a lower condensery price. This method of increasing the incentive price is therefore impractical.

2. Class I Negotiated Price Level

The negotiation of Class I price is one of the most difficult phases of the market mechanism in Detroit. Ordinarily the blend price levels in comparable markets follow rather closely. The blend price in Detroit has never been very far below or above that in Toledo (See Figure 28). But since Toledo is a Federal Order market with a seasonal differential pricing structure based upon the highest of several formulas, its prices react more quickly to short-run demand changes and less rapidly to the long-run changes, the latter because hearings are necessary before additives to the basic price become effective. Not too much leeway is offered in increasing the Class I price above that paid in other markets. Three factors, however, which may provide a higher Class I price in Detroit than in other markets are:

1. The strength of the producer association in Detroit may enable it to control the price better than in other markets by absorbing part of dealers profit or by monopoly forcing up of the price.
2. The base rating plan, by creating a more even flow of milk to the market may offer economies in distribution which may be returned to the producer in the form of a higher Class I price.

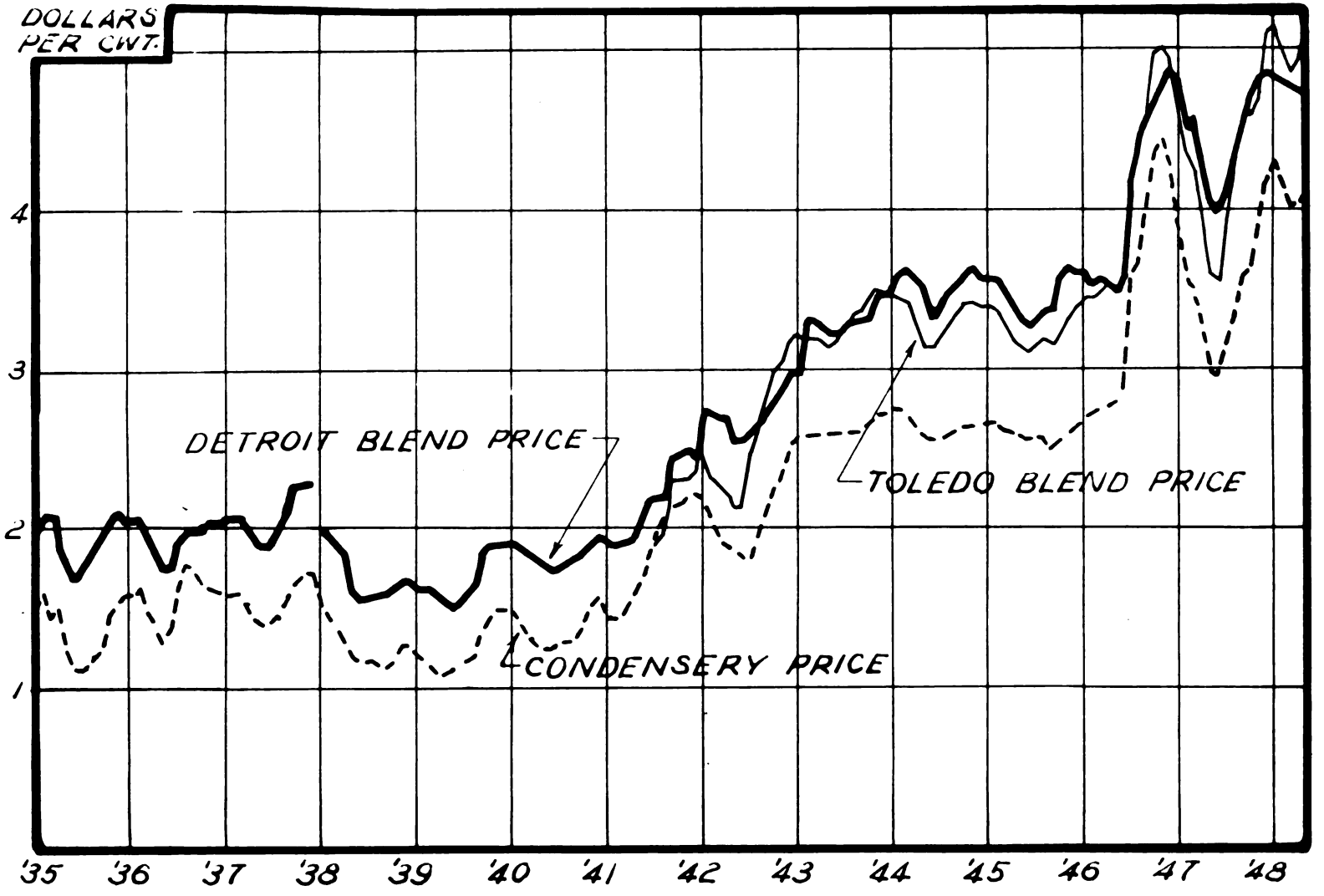

FIGURE 28.-- COMPARISON OF TOLEDO AND DETROIT BLEND PRICES, AND CONDENSERY PRICES, 1935-48.

3. The constant Class I price possible under the base rating plan may increase the amount sold as Class I.1/

Considerable discussion has been generated of recent months by the adoption in Boston of a milk pricing scheme based on demand, supply, and general prices, all factors independent of milk prices. While it would appear that this plan might bring higher Class I prices in some periods, it is questionable whether the Class I level could remain consistently above that which would be in effect in more free markets.

Per cent of Base Sold as Class I.

Probably the best method the Detroit market has of maintaining a large spread between base and excess milk prices is by keeping base deliveries equal to Class I sales. This would avoid dilution of the base price with Class II prices and make base price equal to Class I price. One way to do this would be to pay a producer the base price for only that percentage of his base which was sold as Class I. Another way would be to penalize shippers who failed to deliver their base, expecially in the fall months. The reduction of bases, however, has limitations. It is believed that producer dissatisfaction with bases has caused the base rating plan to be voted out of many markets.

The market demand may keep the average percentage of base sold as Class I higher in one year than another in spite of higher seasonal fluctuation in deliveries in the first year.

1/ Many marketing men claim that demand for fluid milk remains at a higher level if the price remains fairly constant than if it fluctuates, while still averaging the same throughout the year.

The per capita consumption of milk becomes less in periods of low economic activity. The problem of the amount of milk sold as Class I thus becomes more acute during periods of low income, and has led many authors to commit themselves as to the desirability of monopoly of a fluid market by local shippers. The decrease in the milkshed advocated would increase the blend price paid to local producers.

Varying Class I Price Seasonally.

Although it is not easy under the present formula for the market to increase the seasonal variation in Class II prices at will, the question might be raised as to the advantage of varying the Class I price seasonally as in other markets, retaining in addition the base rating plan as it now exists. Figure 23 indicated that this possibility would increase the rate that returns increase as a producer produces more evenly. Of especial merit would be the continuing increase in annual average price to that group of producers in the Detroit market who produce more milk in the fall than in the spring. Figure 23 indicated that the producer with Pattern G (producing twice as much in the fall as in the spring) would receive over 3 per cent more for his milk than the even producer, while under the present base rating plan, the producer with Pattern G would receive about 2 per cent less than the even producer. Of the sample of 359 producers in the Detroit milkshed previously referred to, about 22 per cent had peak production in the fall and winter. Under the present plan, these producers are being penalized. If our hypothesis holds true

that as they produce more milk in the fall and less in the spring, then their returns should also rise. Under the base rating plan in Detroit their returns do not rise as they produce above their base in the fall and fail to deliver their base in other months of the year.

If it were decided to vary the Class I price then the means by which it is varied must be determined. Two methods are in use today:

1. The dealers vary the retail sale price of milk in accordance with the variation in price or finance the seasonal variation in price if he holds retail prices constant.
2. Deductions from the spring price are made in order to add to the fall price as in the take-off and pay-back plan, so that the producers finance the variation in price.

By the use of these devices, either singly or severally, the price advantage of fall producers can be increased in the Detroit market. Before they are applied, however, the market must ask itself, how much more is fall milk worth than spring milk? The incentives to produce more milk in the fall should be no more than the extra value obtained. At some point in seasonal pricing it becomes uneconomic to add further incentive. Enlarging the milkshed or bringing in supplemental milk may be cheaper solutions. This question is a whole new field of investigation.

CHAPTER XIV

COMPARISON OF OTHER SEASONAL PRICING PLANS WITH THE BASE RATING PLAN.

The difference in blend prices in each month as different seasonal pricing plans are applied to the production and class use patterns in Figure 19 is shown in Figure 29. In computing these prices for the average producer typical price structures were assumed for the seasonal differential plan and the take-off and pay-back plan.

Figure 30 is the price structure assumed for the seasonal differential plan. The assumed structure makes the Class III price equal to the basic prices used, which in this case is the condensery prices used in the examples of the base rating plan. The amount added to the basic price to form Class I and II prices increases during the fall and winter, and decreases in the spring.

Weighting each class price by the amount used in that class, a value of the milk for each month is obtained (Table 17). Dividing this value by the pounds of milk delivered in the month (compared to 100 pound average monthly delivery during the year) gives the price per cwt in that month. In Table 18 the blend prices for the month are multiplied by the production during the month of producers with patterns as in Figure 18, the same patterns used in the base-rating plan analysis. The average for the year of the values resulting gives the annual average price for that producer.

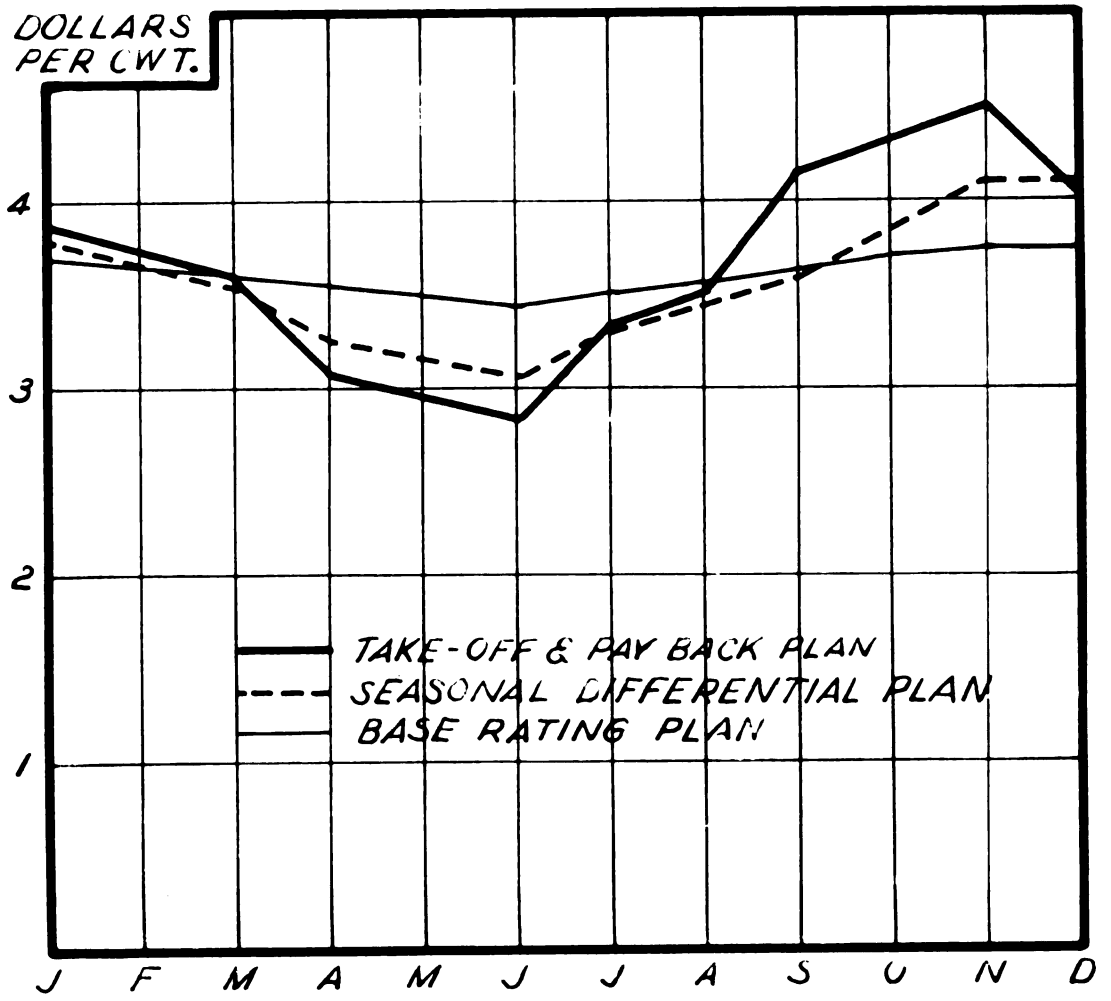

FIGURE 29. -- BLEND PRICES CREATED BY APPLYING VARIOUS PRICE SYSTEMS TO A MARKET STRUCTURE.

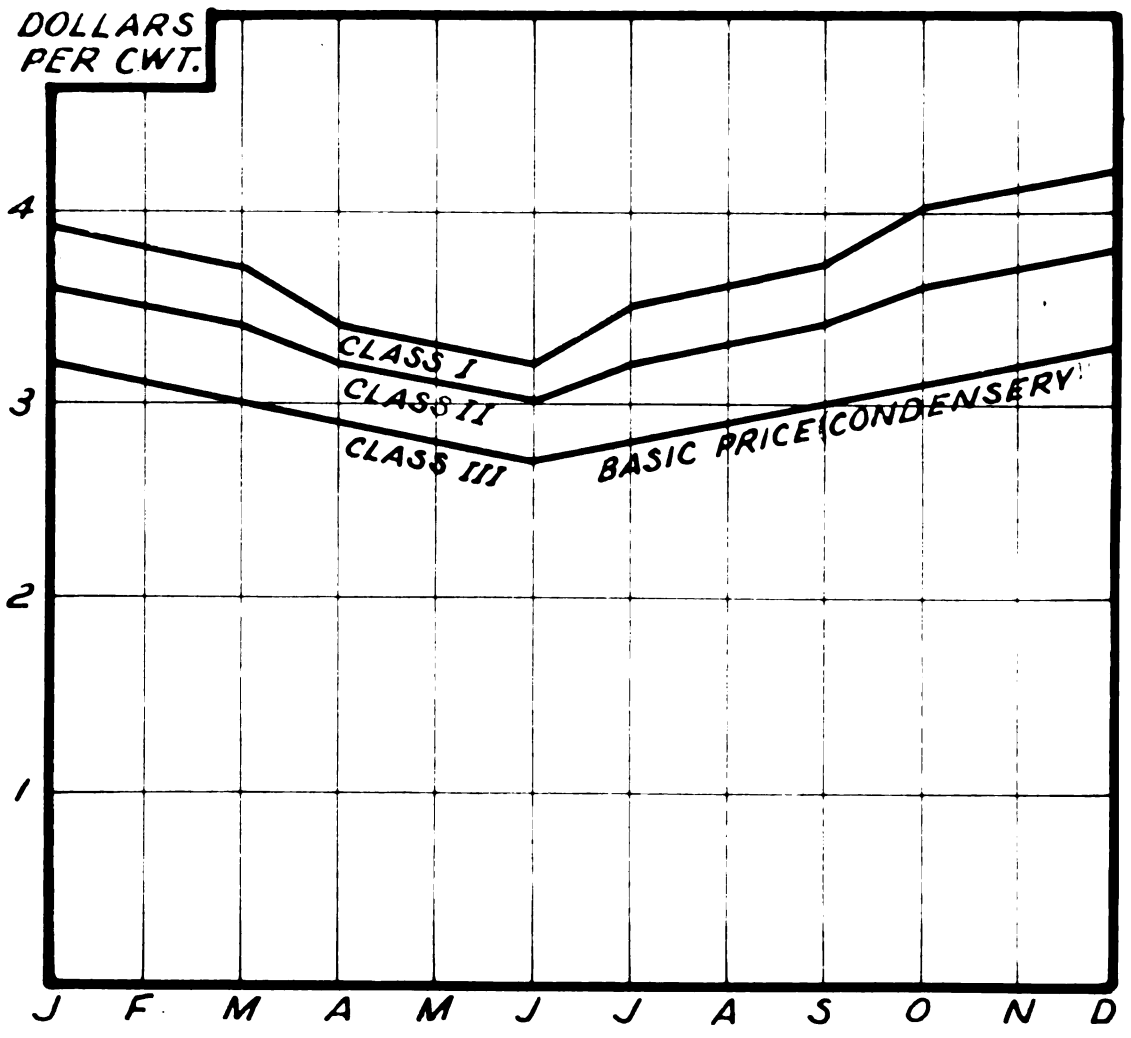

FIGURE 30. -- CIASS PRICES ASSUMED FOR SEASONAL DIFFERENTIAL PLAN.

TABLE 17 - Determination of Market Value and Blend Price of Milk Delivered Each Month, with Class Prices as in Figure 31. 1/

	CLASS I			CLASS II			CLASS III			TOTAL		
	Lbs	Price Per Cwt.	Value	Lbs	Price Per Cwt.	Value	Lbs	Price Per Cwt.	Value	Lbs	Value	Price Per Cwt.
Jan.	75	3.90	2.93	5	3.60	.18	12	3.20	.384	92	3.494	3.798
Feb.	75	3.80	2.85	5	3.50	.18	17	3.10	.527	97	3.557	3.667
Mar.	75	3.70	2.78	5	3.40	.17	23	3.00	.690	103	3.640	3.534
Apr.	75	3.40	2.55	5	3.20	.16	29	2.90	.841	109	3.551	3.258
May	75	3.30	2.48	5	3.10	.16	34	2.80	.952	114	3.592	3.151
June	75	3.20	2.40	5	3.00	.15	40	2.70	1.080	120	3.630	3.025
July	75	3.50	2.63	5	3.20	.16	32	2.80	.896	112	3.686	3.291
Aug.	75	3.60	2.70	5	3.30	.17	24	2.90	.696	104	3.566	3.429
Sep.	75	3.70	2.78	5	3.40	.17	16	3.00	.480	96	3.430	3.573
Oct.	75	4.00	3.00	5	3.60	.18	8	3.10	.248	88	3.428	3.895
Nov.	75	4.10	3.08	5	3.70	.19	0	3.20	0	80	3.270	4.088
Dec.	75	4.20	3.15	5	3.80	.19	6	3.30	.198	86	3.538	4.114

1/ Using production and use figures as in Figure 20.

TABLE 18 -- DETERMINATION OF AVERAGE ANNUAL PRICES UNDER THE SEASONAL DIFFERENTIAL PLAN FOR EACH OF VARIOUS PRODUCTION PATTERNS.

	BLEND PRICE/CWT.	A LBS.	A VALUE	B LBS.	B VALUE	C LBS.	C VALUE
Jan.	3.80	74	2.81	85.5	3.25	92	3.50
Feb.	3.67	91	3.34	95	3.49	97	3.56
Mar.	3.53	108	3.81	104.5	3.69	103	3.64
Apr.	3.26	125.5	4.09	114	3.72	109	3.55
May	3.15	142.5	4.49	123.5	3.89	114	3.59
June	3.03	160	4.85	133	4.03	120	3.64
July	3.29	136	4.47	120	3.95	112	3.68
Aug.	3.43	112	3.84	106.5	3.65	104	3.57
Sept.	3.57	88	3.14	93.5	3.34	96	3.43
Oct.	3.90	64	2.50	80	3.12	88	3.43
Nov.	4.09	40	1.64	67	2.74	80	3.27
Dec.	4.11	57	2.34	76.5	3.14	86	3.53
TOTAL		1198	41.32	1199	42.01	1201	42.39
AVERAGE ANNUAL PRICE			3.443		3.504		3.533

	D LBS.	D VALUE	E LBS.	E VALUE	F LBS.	F VALUE	G LBS.	G VALUE
Jan.	100	3.80	105	3.99	109	4.14	114	4.33
Feb.	100	3.67	102	3.74	103	3.78	105	3.85
Mar.	100	3.53	98.5	3.48	97.5	3.44	95	3.35
Apr.	100	3.26	95.5	3.11	91.5	2.98	86	2.80
May	100	3.15	92	2.90	86	2.71	76	2.39
June	100	3.03	89	2.70	80	2.42	67	2.03
July	100	3.29	93.5	3.08	88	2.90	80	2.63
Aug.	100	3.43	98	3.36	96	3.29	93	3.19
Sept.	100	3.57	102	3.64	104	3.71	106	3.78
Oct.	100	3.90	106.5	4.15	112	4.37	119.5	4.66
Nov.	100	4.09	111	4.54	120	4.91	133	5.44
Dec.	100	4.11	108	4.44	114	4.69	123.5	5.08
TOTAL	1200	42.83	1201	43.13	1201	43.34	1198	43.53
AVERAGE ANNUAL PRICE		3.569		3.594		3.612		3.628

In a similar manner to the above, the annual average prices under the take-off and pay-back plan are computed in Tables 19 and 20, using a basic price structure as in Figure 31, excepting that in this case, a subtraction of $.40 is made from the April, May and June blend price and an addition of $.476, $.520 and $.572 made to the September, October and November blend price, respectively.

A comparison of the annual average prices obtained by the various production patterns under the three price plans is graphed in Figure 32. The price incentive offered by the seasonal differential plan is least. Those of the base rating plan and take-off and pay-back plan are roughly comparable, except that from the uneven producer to the even producer, the base rating plan offers greater incentive; for producers with production peaks in the fall, the take-off and pay-back plan offers greater incentive.

Since it is shown that the base rating plan offers greater price advantage in the range from fall production up to even production, it will be illuminating to determine the extent of seasonal pricing required in other plans to equal the incentives in the base rating plan. Accordingly higher and higher seasonal differentials were added in these plans until the graph in Figure 33 was secured, in which the slopes of the curves connecting the indices of annual average prices were roughly similar. In order to obtain this slope the differential over condensery price, in the seasonal differential plan, must be as indicated in Figure 34, while the take-off must

TABLE 19 -- DETERMINATION OF VALUE OF MILK EACH MONTH UNDER TAKE-OFF AND PAY-BACK PLAN (USING CLASS USE AS IN FIGURE 20 AND CLASS PRICES AS IN FIGURE 31)

	CLASS I			CLASS II			CLASS III			TOTAL		
	Lbs.	Price per Cwt.	Value	Lbs.	Price per Cwt.	Value	Lbs.	Price per Cwt.	Value	Lbs.	Price per Cwt.	Value
Jan.	75	4.00	3.00	5	3.60	.18	12	3.20	.384	92	3.564	3.874
Feb.	75	3.90	2.925	5	3.50	.175	17	3.10	.527	97	3.627	3.739
Mar.	75	3.80	2.85	5	3.40	.17	23	3.00	.690	103	3.710	3.602
Apr.	75	3.70	2.775	5	3.30	.165	29	2.90	.841	109	3.781	3.469
May	75	3.60	2.70	5	3.20	.160	34	2.80	.952	114	3.812	3.344
June	75	3.50	2.625	5	3.10	.155	40	2.70	1.08	120	3.860	3.217
July	75	3.60	2.70	5	3.20	.160	32	2.80	.896	112	3.756	3.354
Aug.	75	3.70	2.775	5	3.30	.165	24	2.90	.696	104	3.636	3.496
Sept.	75	3.80	2.85	5	3.40	.17	16	3.00	.480	96	3.50	3.646
Oct.	75	3.90	2.925	5	3.50	.175	8	3.10	.248	88	3.348	3.805
Nov.	75	4.00	3.00	5	3.60	.18	0	3.20	--	80	3.180	3.975
Dec.	75	4.10	3.075	5	3.70	.185	6	3.30	.198	86	3.458	4.021

	Price/Cwt.	Lbs.	TAKE-OFF AND PAY-BACK Take-Off			Take-Off	Pay-Back	Net Price/Cwt.
Apr.	3.469	109	@	.40	=	$ .436		3.069
May	3.344	114	@	.40	=	.456		2.944
June	3.217	120	@	.40	=	.480		2.817
						1.372[1]		
Sept.	3.646	96					+.476	4.122
Oct.	3.805	88					+.520	4.325
Nov.	3.975	80					+.572	4.547

[1] Total take-off fund = 1.372: Divide by 3 to make 3 equal funds. Divide one of these funds by the production in September to obtain pay-back in that month. Same for October and November.

TABLE 20 -- DETERMINATION OF AVERAGE ANNUAL PRICE UNDER TAKE-OFF AND PAY-BACK PLAN (WITH 40¢ TAKE-OFF) FOR PRODUCERS WITH PATTERNS AS IN FIGURE 19.

	BLEND PRICE/CWT.	A		B		C	
		LBS.	VALUE	LBS.	VALUE	LBS.	VALUE
Jan.	3.87	74	2.86	85.5	3.31	92	3.56
Feb.	3.74	91	3.40	95	3.55	97	3.63
Mar.	3.60	108	3.89	104.5	3.76	103	3.71
Apr.	3.07	125.5	3.85	114	3.50	109	3.35
May	2.94	142.5	4.19	123.5	3.63	114	3.35
June	2.82	160	4.51	133	3.75	120	3.38
July	3.35	136	4.56	120	4.02	112	3.75
Aug.	3.50	112	3.92	106.5	3.73	104	3.64
Sept.	4.12	88	3.63	93.5	3.85	96	3.96
Oct.	4.33	64	2.77	80	3.46	88	3.81
Nov.	4.55	40	1.82	67	3.05	80	3.64
Dec.	4.02	57	2.29	76.5	3.08	86	3.46
TOTAL		1198	41.68	1199	42.69	1201	43.24
AVERAGE ANNUAL PRICE			3.479		3.560		3.600

	D		E		F		G	
	LBS.	VALUE	LBS.	VALUE	LBS.	VALUE	LBS.	VALUE
Jan.	100	3.87	105	4.06	109	4.22	114	4.41
Feb.	100	3.74	102	3.81	103	3.85	105	3.93
Mar.	100	3.60	98.5	3.55	97.5	3.51	95	3.42
Apr.	100	3.07	95.5	2.93	91.5	2.81	86	2.64
May	100	2.94	92	2.70	86	2.53	76	2.23
June	100	2.82	89	2.51	80	2.26	67	1.89
July	100	3.35	93.5	3.13	88	2.95	80	2.68
Aug.	100	3.50	98	3.43	96	3.36	93	3.26
Sept.	100	4.12	102	4.20	104	4.28	106	4.37
Oct.	100	4.33	106.5	4.61	112	4.85	119.5	5.17
Nov.	100	4.55	111	5.05	120	5.46	133	6.05
Dec.	100	4.02	108	4.34	114	4.58	123.5	4.96
TOTAL	1200	43.91	1201	44.32	1201	44.66	1198	45.01
AVERAGE ANNUAL PRICE		3.659		3.690		3.719		3.757

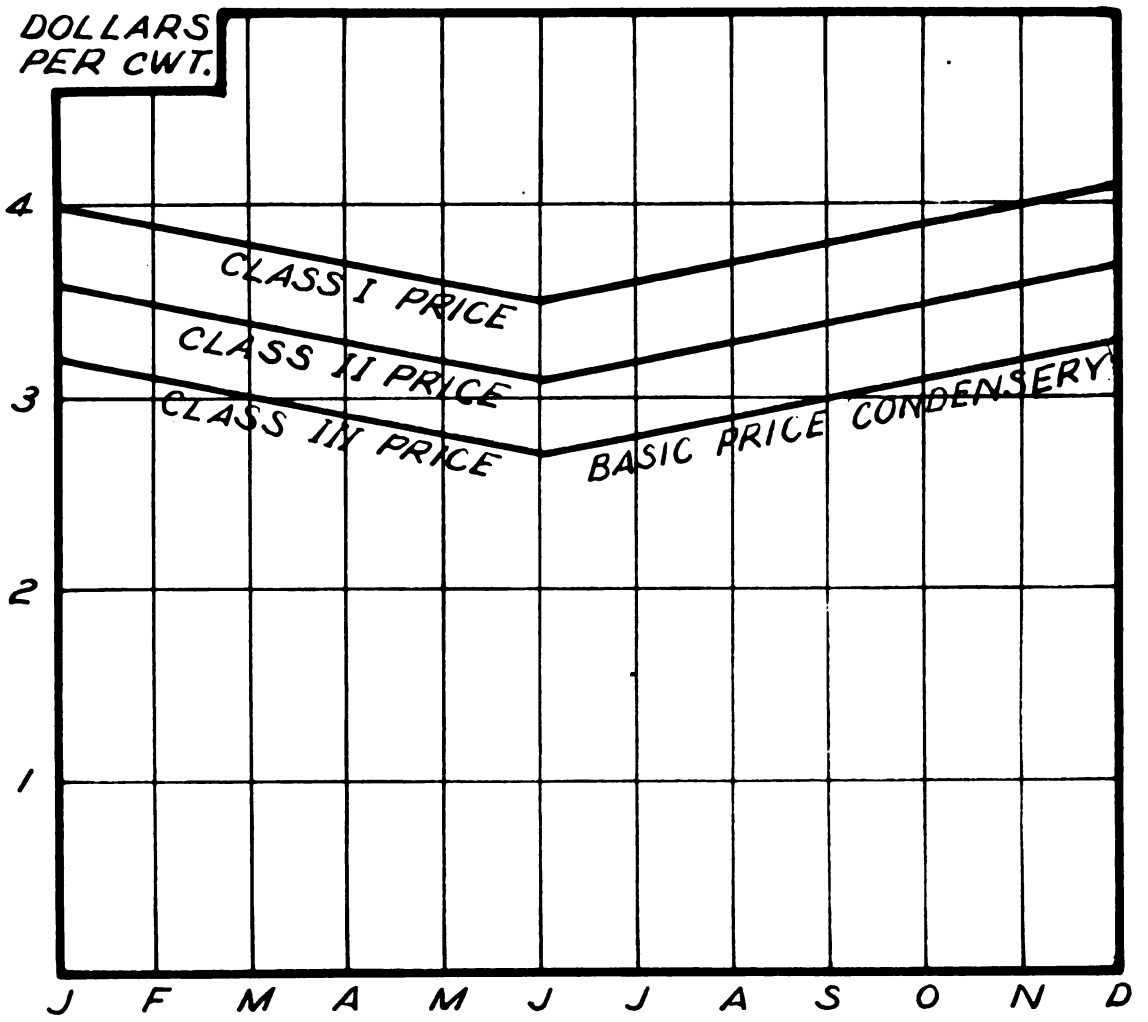

FIGURE 31. -- CLASS PRICES ASSUMED FOR TAKE-OFF AND PAY-BACK PLAN.
(With Condensery prices the same as in Figure 21)

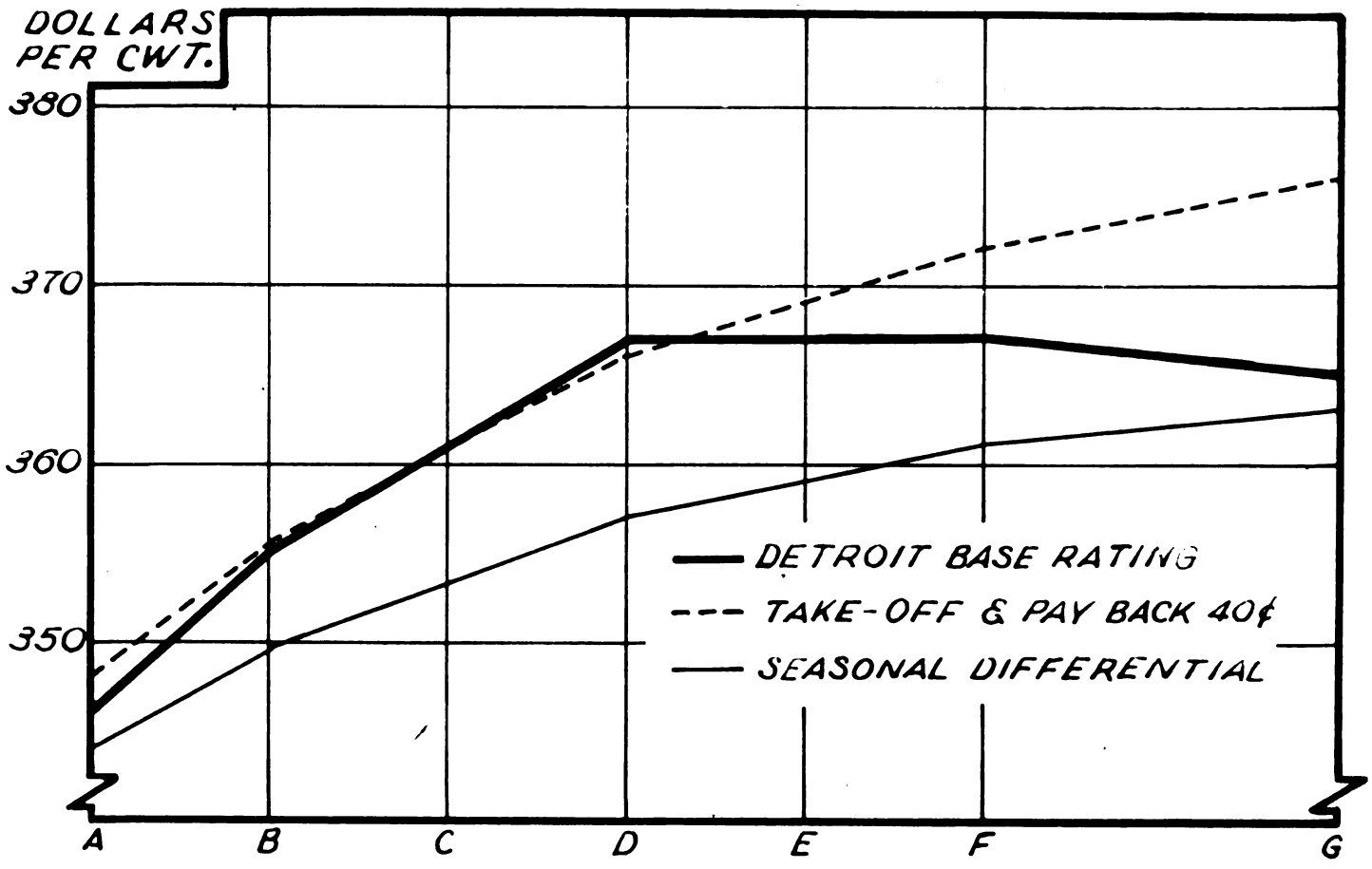

FIGURE 32.— AVERAGE ANNUAL PRICES OBTAINED UNDER VARIOUS PRICING SYSTEMS.

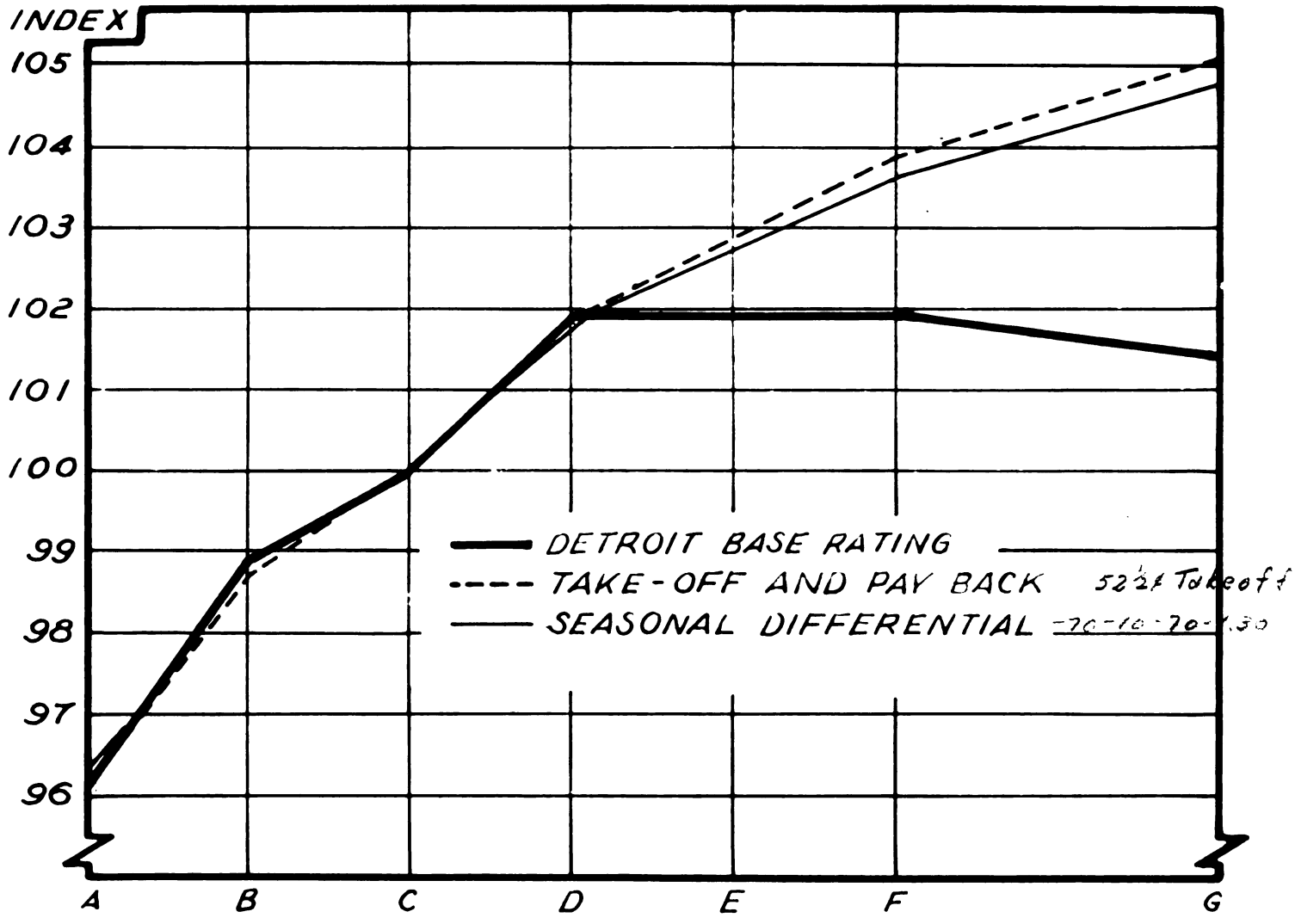

FIGURE 33. — AVERAGE ANNUAL PRICES WITH CALCULATED DIFFERENTIALS NECESSARY IN OTHER PLANS TO PRODUCE INCENTIVES EQUAL TO THOSE IN THE BASE RATING PLAN.

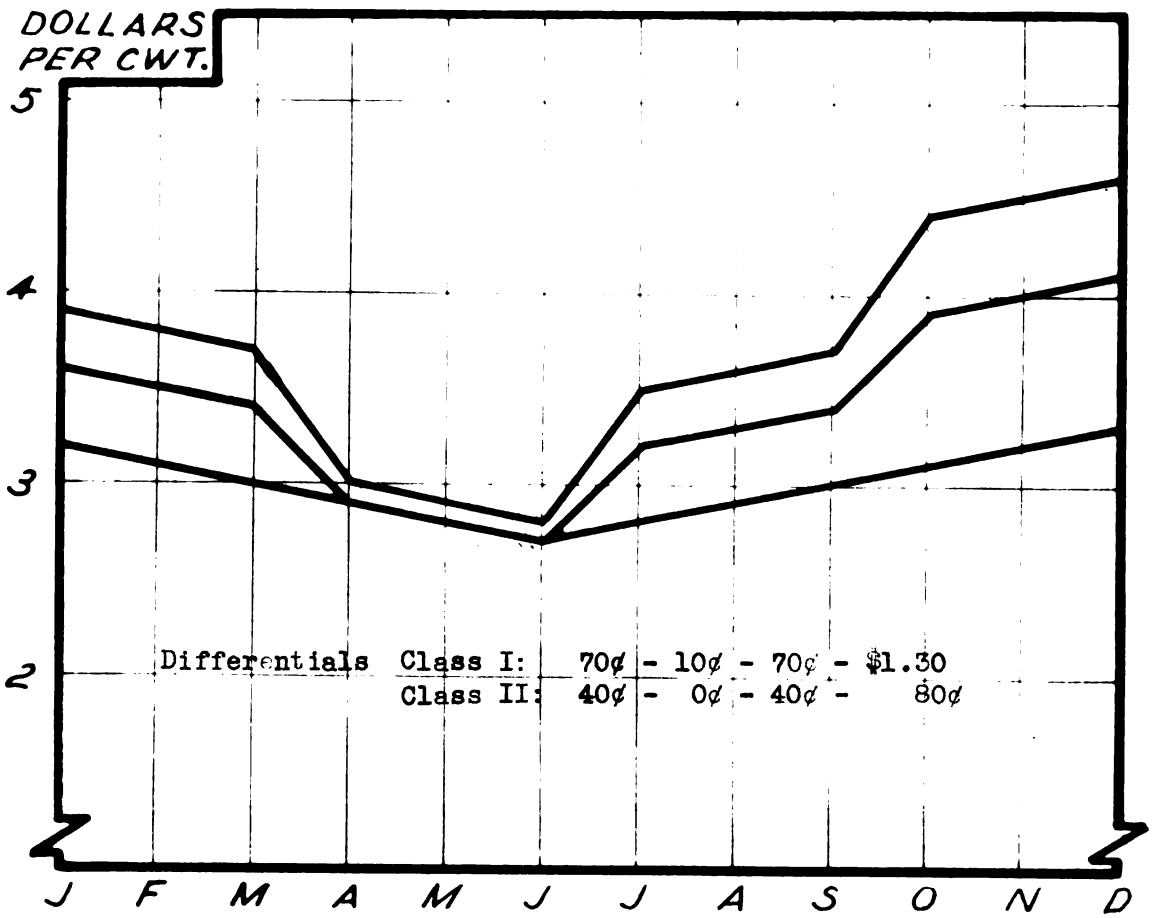

FIGURE 34. -- DIFFERENTIAL PRICING NECESSARY TO EQUAL INCENTIVE IN BASE RATING PLAN.

be 52½ cents under the take-off and pay-back plan. Average annual prices at different levels of seasonal pricing are shown in Table 21.

TABLE 21 - Average Annual Price and Indices Obtained under Take-Off and Pay-Back Plan and Seasonal Differential Plan as various differentials are applied.

	Take-Off and Pay-Back Plan				Seasonal Differential Plan			
	52½¢ Takeoff		60¢ Takeoff		120 70 20 70 / 70 40 10 40 1/		130 70 10 70 / 80 40 0 40 2/	
Production Pattern	Annual Av. Price	Index	Ann. Av. Price	Index	Ann. Av. Price	Index	Ann. Av. Price	Index
A	3.46	96.11	3.449	95.8	3.412	96.65	3.400	96.31
B	3.555	98.75	3.550	98.61	3.492	98.92	3.488	98.81
C	3.60	100.0	3.600	100.0	3.530	100.0	3.530	100.0
D	3.67	101.94	3.677	102.13	3.588	101.64	3.594	101.81
E	3.705	102.92	3.714	103.16	3.619	102.52	3.630	102.83
F	3.74	103.89	3.749	104.13	3.645	103.25	3.659	103.65
G	3.785	105.14	3.798	105.5	3.682	104.3	3.699	104.79

1/ Class I Differentials 120-70-20-70.
Class II Differentials 70-40-10-40.

2/ Class I Differentials 130-70-10-70 (See Figure 34).
Class II Differentials 80-40- 0-40.

CHAPTER XV

BASE FORMULATION POLICIES AND THEIR EFFECT ON THE PLAN.

Many variation in the methods of allocating bases are possible under the base rating plan, while still retaining the central idea that a producer should obtain a higher price for a certain portion of his milk. According to Weldon and Herrman 1/, markets in the past have varied in respect to base provisions principally in:

1. The frequency with which entirely new bases are established.
2. The treatment accorded new producers.
3. The extent to which current adjustments and transfers in bases are made.
4. The timing and the length of the base-forming period.
5. The extent to which total bases exceed fluid milk sales.
6. The number of months during the year in which bases are used.
7. The extent to which the base plan is related to other phases of the marketing program of the local associations.

1/ Weldon, William C. and Herrmann, Louis F., "Base Allotment or Quota Plans used by Farmers' Cooperative Milk Associations," Farm Credit Administration Miscellaneous Report No. 23, 1940, p. 9.

The Frequency with Which Entirely New Bases are Extablished.

Since 1939 a producer in the Detroit market has had three alternatives in maintaining his base:

1. Retaining his old base, providing he ships 90 per cent of his base in the base forming months.
2. Establishing a new base on 100 per cent of his average daily delivery during August, September, October, November, and December.
3. Taking the position of a "new shipper" during any month (See Appendix G).

The easy changing of bases allowed in this framework is termed an "open" base plan, as compared with a "closed" base plan in which the same base is retained over a period of years. The tendency under the "open" base plan is for producers to accumulate bases which are only slightly over 90 per cent of their deliveries in the fall months. Not even in the fall months, therefore, do Class I sales equal the base deliveries. In the spring months (when almost 100 per cent of total producer base is delivered) Class I sales are considerably less than base deliveries. In the period 1942-47, for example, base deliveries in June averaged 17.9 per cent higher than deliveries in November. In the period 1935-39, base deliveries in June were 17.4 per cent of November base deliveries. The flow of base deliveries has fluctuated as much during recent years as in the thirties, even though more stringent rules existed in the

thirties, for retaining old bases and establishing new bases (See Appendix F).

Bases for New Producers

New producers were not treated favorably in the depression period. The old producer generally had his choice of two alternative schemes in the calculation of his base. Either scheme was better than that afforded the new shipper.

The Detroit market was never closed entirely to new producers, even in depression years, but the new shipper had to accept excess price for a large share of his milk until he could take advantage of another base forming period to increase his base.

Since 1939, however, new shippers have been allowed to enter the market with increasingly high percentages of their total deliveries as base, (See Table 1, Appendix F). This has been done to attract new producers into the market in an attempt to increase the total supply of milk. The extent to which this policy has attracted new producers is debatable, but it has provided more incentive to new producers. This policy has also favored producers with spring peaks by allowing them to increase their base without contributing proportionally to the milk supply in the fall. It appears to be the attitude of the association that new shippers should be able to enter the market with the same base percentage as Class I sales is a per cent of total deliveries.

Base Adjustments and Transfers.

The Base Adjustment Committee of the Michigan Milk Pro-

ducers Association has adjusted individual producer bases where the loss in base was due to home quarantine, burned buildings, quality exclusions by the Board of Health, losses of a substantial part of the herd, such as official condemnation due to Bangs disease or T. B., and serious feed shortage. The committee has continually taken the position that adjustments are not made when the loss in base was due to the ordinary hazards of the dairy business.

Base transfers were allowed on the sale of the entire herd but not if the herd was sold at auction or individually. When herds were transferred, base transfer was limited to 30 pounds per cow until Feb. 1, 1937, when the limit was reduced to 20 pounds. 1/

Throughout the years adjustments have not been made to a large number of producers nor have the adjustments been very liberal. Most requests for adjustment are in the spring flush period.

The Base-Forming Period.

The base-forming period in the Detroit market was October, November, and December from 1930-1932. In the 1932 base-forming period, September was added. In 1934 the period was August through November while in 1935, 1936, 1937, and 1938 it was the 4 highest of each producer's 5 low months during the previous year.

In 1939, August September, October, November ~~and December~~ became

---

1/ Pounds per day.

the base-forming period, to which ~~August~~ September was added in 1943. Weldon and Hermann have compared the length of the base-forming period in 83 markets using the base rating plan as of January, 1940, in Table 22. 1/

TABLE 22 - Length of Base-Forming Period Under the Base Plan Last Used in 82 Milk Markets, January 1940. 1/

Months in Base-Forming Period	Number of Markets Using One Base-Forming Period For				Total Markets
	1 Yr. Av.	2 Yr. Av.	3 Yr. Av.	5 Yr. Av.	
½	1				1
1	4		1		5
2	1				1
3	13	1	1		15
4	10				10
5	9		2	2	13
6	14		1		15
7	1				1
8	1				1
9	5				5
10	1				1
12	9	3	2		14
All Periods	69	4	7	2	82

Using a five months base-forming period causes a higher total base than would be the case if a shorter period were used. However, the longer period is equitable to a larger number of

1/ Op. cit., p.11.

producers, since a producer can only approximate his exact deliveries in any one month, and he may be penalized should his deliveries vary from his expectations because the base-forming period is too short.

It has been said that the base rating plan shifts the shortage months to those outside the base-forming period. This would be another reason for having a fairly long base-forming period.

The relation of the Base to other Phases of the market mechanism.

Weldon and Harrman state, in considering the relationship of the base to other market factors, "Opinions differ on the advantage of keeping the sum of all bases somewhere near if not equal to fluid sales. When bases are low the price for base milk can be higher, and a given quantity of has more significance to the producer in terms of the net price he will receive. With larger bases, almost the same effect can be accomplished by paying base prices for some percentage, rather than for all base milk delivered. The more usual practice, however, is to pay a lower price for all base milk, making it a base pool price rather than a price equal to the Class I price. Larger bases in relation to sales have become more common as the plans have been used longer, and as new health regulations have required milk for other uses than fluid milk to come from inspected sources. Many cooperative leaders now feel that bases should cover fluid-milk and fluid-cream sales and also a small operating reserve quantity to cover day-to-day variations in sales."2/

2/ Ibid, p. 12.

In the Detroit market no definite attention has been given to maintaining base deliveries equal to Class I, or to pay a base price only for that per cent of total deliveries sold as Class I. This has tended to reduce the spread between base price and excess price, but has probably been the expedient thing to do.

Since the per cent of base used as Class I has increased in recent years there has been little concern over the lack of spread between base and excess prices.

However, suppose Detroit average consumption were to drop from the 1947 level of 240 pounds down to 190. The 50 pound drop would decrease the total milk consumption by about 400,000 pounds of milk per day. In 1947 daily average Class I sales per day were approximately 2,000,000 pounds. Daily average base deliveries were 2,300,000 pounds. Both these figures are yearly averages. The 300,000 difference is approximately the amount required as daily reserve. Total base in 1947 was by this token not exceptionally high, but if consumption of fluid milk were to be reduced, and Class I sales were only 1,600,000 pounds per day, the base price would necessarily be reduced in relation to the surplus price to the detriment of the seasonal pricing system.

Reducing the base is always a delicate proposition. Likely means of reducing the base include:

1. Requiring shippers to deliver more than 90% of their base in the base forming months in order to retain their old base.

2. Decreasing the percentages of deliveries used in calculating the base for new shippers.
3. Changing the base forming period to include fewer months.
4. Paying the base price for only a specific percentage of the producer's base.

The last method is the easiest to apply and is quite equitable.

CHAPTER XVI

SEASONAL PATTERNS IN RELATION TO MARKET OUTLET

To determine how various price systems and markets influence seasonal variation in production, Lenawee County, Mighigan was selected since it had producers selling in three different markets. Lenawee is in Type of Farming Area 1, about 50 miles from Detroit and 20 miles from Toledo.

From the files of the Michigan Milk Producers Association, a sample of 71 producers who sold milk over a long period of time to the Wilson plant at Adrian, a receiving station for the Detroit market, was selected at random.

The Michigan Producers Dairy at Adrian, a condensery plant, provided records from which a sample of 100 producers, who shipped to the condensery over a long period of time, was selected at random.

A sample of 35 producers selling to various Toledo milk distributors was obtained from the Market Administrators Office in Toledo, Ohio. Records in Toledo were not available prior to 1938 when the Federal Order became effective.

From these samples, average daily deliveries per shipper were computed for each month for each group of shippers. Results in typical years are recorded in Table 23. The index numbers obtained by using the average of each group for each year are also given in Table 23. The index numbers for 1936 are plotted in Figure 35, for 1939 in Figure 36, for 1943 in Figure 37, and for 1947 in Figure 38.

TABLE 23 - Average Daily Deliveries and Index Numbers, Three Different Market Outlets, Lenawee County, 1936, 1939, 1943 and 1947

	1936				1939					
	DETROIT		CONDENSERY		CONDENSERY		DETROIT		TOLEDO	
	Av. Per Day	Index	Av. Per Day	Index	Av. Per Day	Index	Av. Per Day	Index	Av. Per Day	Index
Jan.	188.05	96.8	63.8	75.1	71.1	91.0	186.02	96.1	228.5	104.5
Feb.	186.06	95.8	74.8	88.1	83.1	106.4	201.11	103.9	241.8	110.6
Mar.	194.59	100.1	71.0	83.6	66.6	85.3	200.44	103.6	241.9	110.6
Apr.	204.74	105.4	87.9	103.5	84.2	107.8	202.80	104.8	245.3	112.2
May	220.68	113.6	92.5	109.0	82.0	105.0	221.46	114.4	261.6	119.6
June	216.45	111.4	125.4	147.7	102.5	131.2	214.10	110.6	253.7	116.0
July	193.30	99.5	99.3	117.0	95.2	121.9	193.13	99.8	217.9	99.6
Aug.	187.21	96.3	87.2	102.7	83.6	107.0	186.93	96.6	193.8	88.6
Sep.	186.53	96.0	78.8	92.8	78.7	100.8	178.22	92.1	169.7	77.6
Oct.	185.44	95.4	76.5	90.1	63.8	81.7	170.78	88.3	172.4	78.8
Nov.	183.63	94.5	81.3	95.8	63.6	81.4	178.96	92.5	187.0	85.5
Dec.	185.02	95.2	80.2	94.5	62.3	79.8	187.95	97.1	211.2	96.6
Av.	194.31		84.9		78.1		193.49		218.7	

	1947						1943					
	CONDENSERY		DETROIT		TOLEDO		CONDENSERY		DETROIT		TOLEDO	
	Av. Per Day	Index	Av. Per Day	Index	Av. Per Day	Index	Av. Per Day	Index	Av. Per Day	Index	Av. Per Day	Index
Jan.	105.98	94.4	220.48	97.0	277.7	107.5	846.7	90.8	213.78	98.0	237.3	94.7
Feb.	122.95	109.5	220.60	97.0	289.8	112.2	972.4	104.3	223.64	102.6	258.7	103.2
Mar.	106.92	95.2	229.52	100.9	297.7	115.2	864.7	92.8	229.47	105.2	283.5	113.1
Apr.	123.39	109.9	236.03	103.8	282.1	109.2	1018.1	109.2	230.19	105.6	292.8	116.8
May	122.87	109.4	251.68	110.7	303.8	117.6	1029.9	110.5	245.45	112.6	302.5	120.7
June	150.97	134.4	260.73	114.6	315.9	122.2	1240.3	133.1	244.32	112.0	297.3	118.6
July	140.02	124.7	230.89	101.5	265.3	102.7	1097.8	117.8	210.90	96.7	254.9	101.7
Aug.	116.30	103.6	205.45	90.3	222.7	86.2	972.8	104.4	213.01	97.7	222.5	88.8
Sep.	100.56	89.5	222.45	97.8	212.2	82.1	888.8	95.4	205.41	94.2	206.3	82.3
Oct.	91.79	81.7	225.92	99.3	210.3	81.4	756.3	81.1	207.37	95.1	216.2	86.3
Nov.	87.20	77.7	211.52	93.0	198.8	76.9	720.4	70.3	196.49	90.1	211.6	84.4
Dec.	78.77	70.1	213.49	93.9	224.3	86.8	776.8	93.3	196.83	90.3	223.7	89.3
Av.	112.31		227.40		258.4		932.1		218.07		250.6	

Source: Random Samples taken from Michigan Milk Producers Association, Michigan Producers Dairy and Toledo Market Administrator.

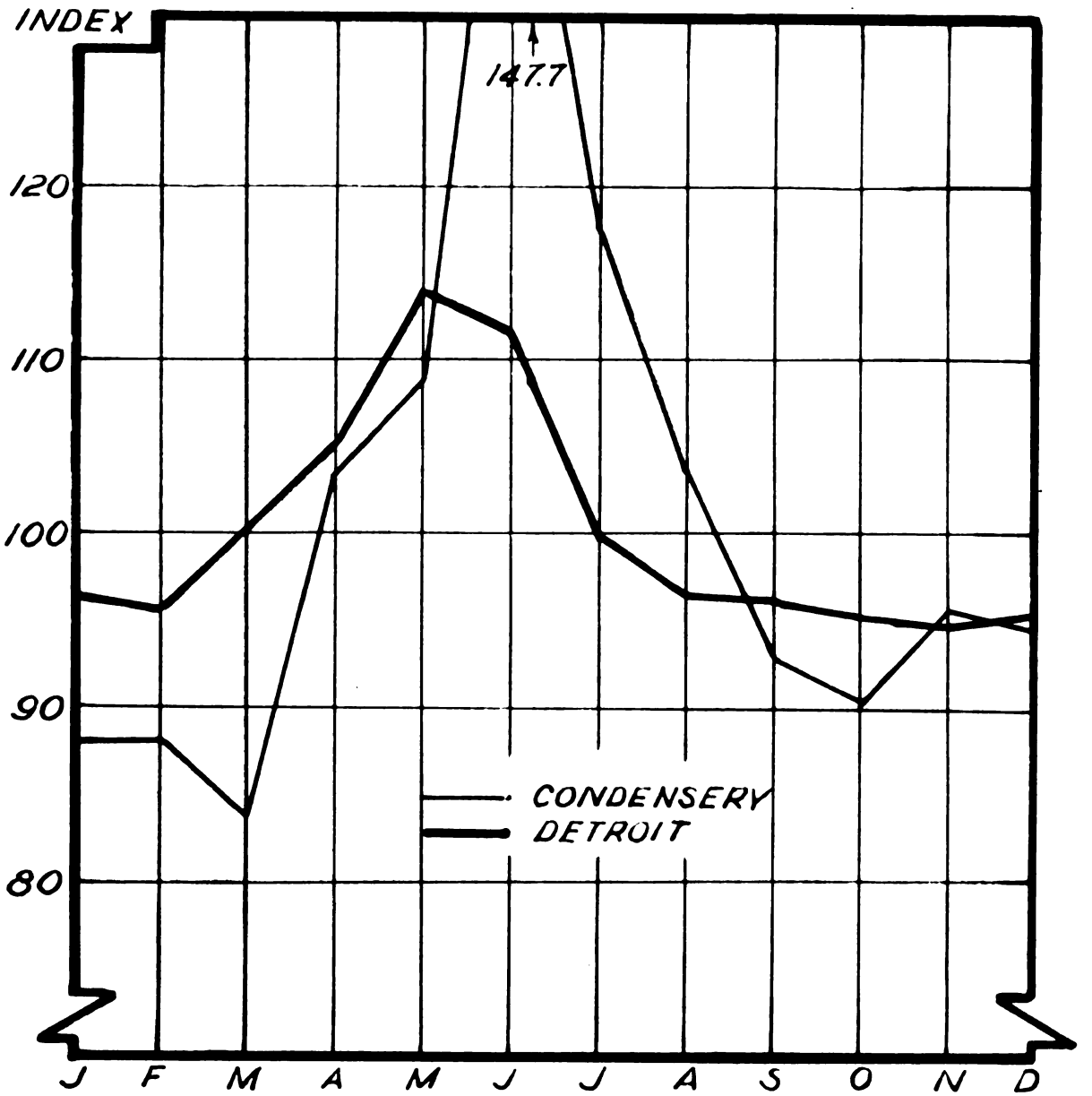

FIGURE 35. -- COMPARISON OF SEASONAL PATTERNS OF LENAWEE COUNTY PRODUCERS DELIVERING TO TOLEDO, DETROIT, AND CONDENSERY PLANT, 1936.

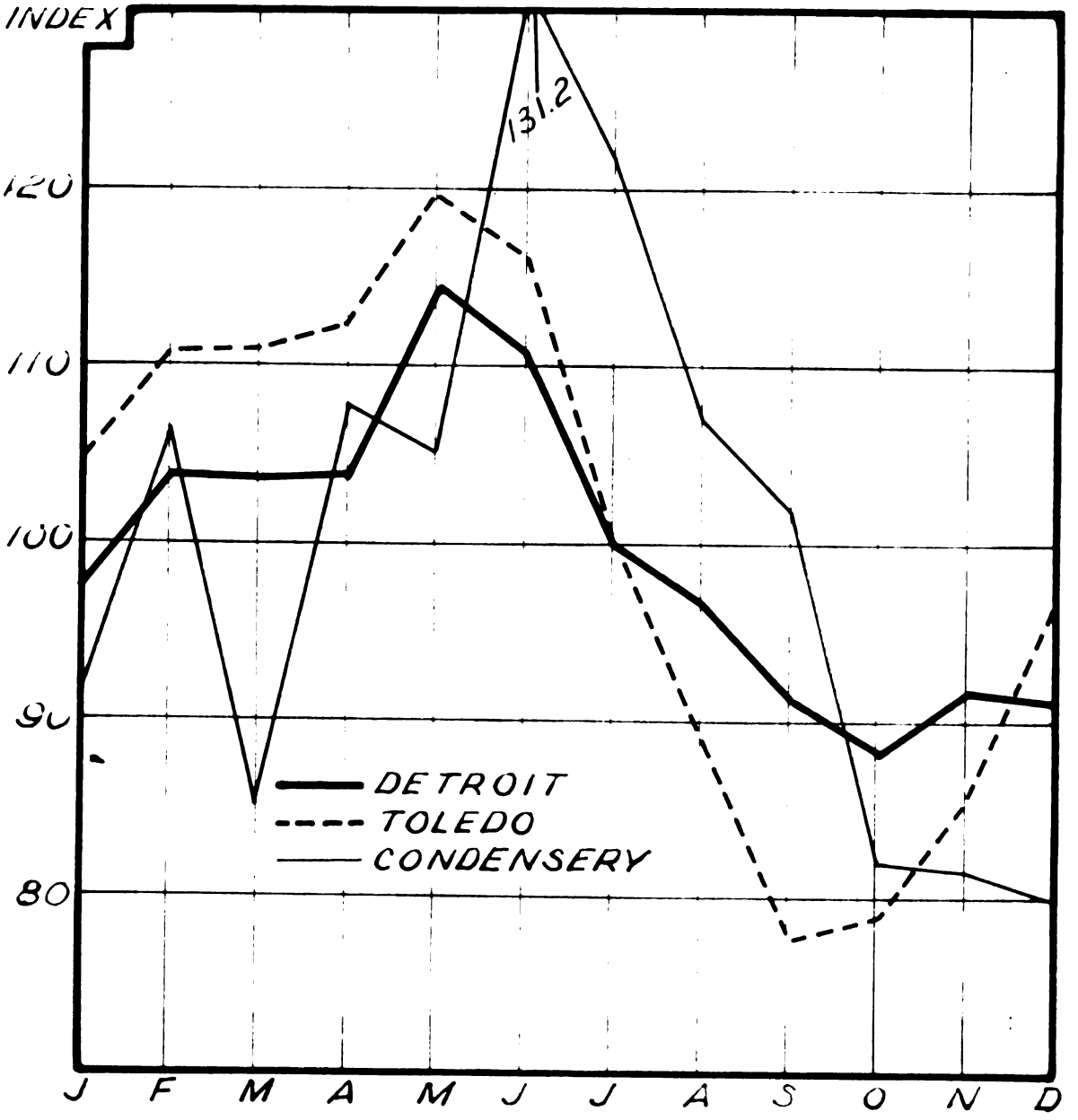

FIGURE 36. -- COMPARISON OF SEASONAL PATTERN OF LENAWEE COUNTY PRODUCERS DELIVERING TO TOLEDO, DETROIT, AND CONDENSERY PLANT, 1939.

In 1936, the variation from high to low in deliveries to the Detroit receiving station was 17 per cent, while the range in deliveries to the condensery was 64 per cent. In 1939 the range in deliveries to Detroit was 26 per cent, while the range in deliveries to the condensery was 49 per cent. Toledo deliveries were in between with a range of 42 per cent. A similar situation to that in 1939 occurred in 1943 and 1947 as shown in Figures 37 and 38.

This illustrates the difference in seasonal variation in deliveries producers selling under the base rating plan, and those selling under other plans. In the above illustration, type of farming has been held constant, the in and out producer has been omitted, and the patterns shown are those of steady producers to the market outlet indicated. Many of the variables have thus been eliminated in the sample.

The Detroit producers definitely had the least seasonal fluctuation in deliveries, Toledo, next, and condensery patrons had the greatest fluctuation. This bears out the results obtained by other investigators, and verifies that farmers do respond to the incentives in the base rating plan.

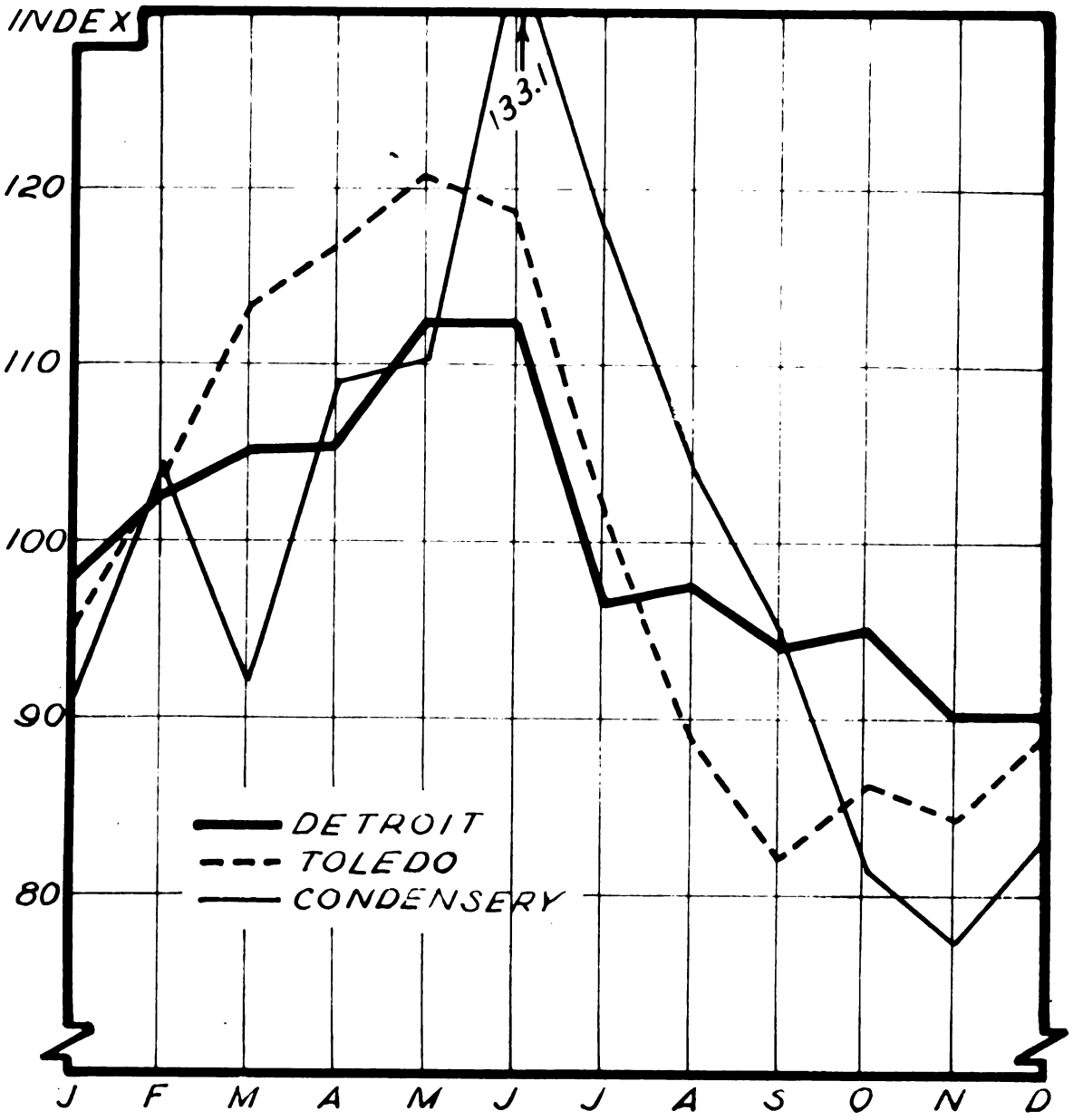

FIGURE 37. -- COMPARISON OF SEASONAL PATTERNS OF LENAWEE COUNTY PRODUCERS DELIVERING TO TOLEDO, DETROIT, AND CONDENSERY PLANT, 1943.

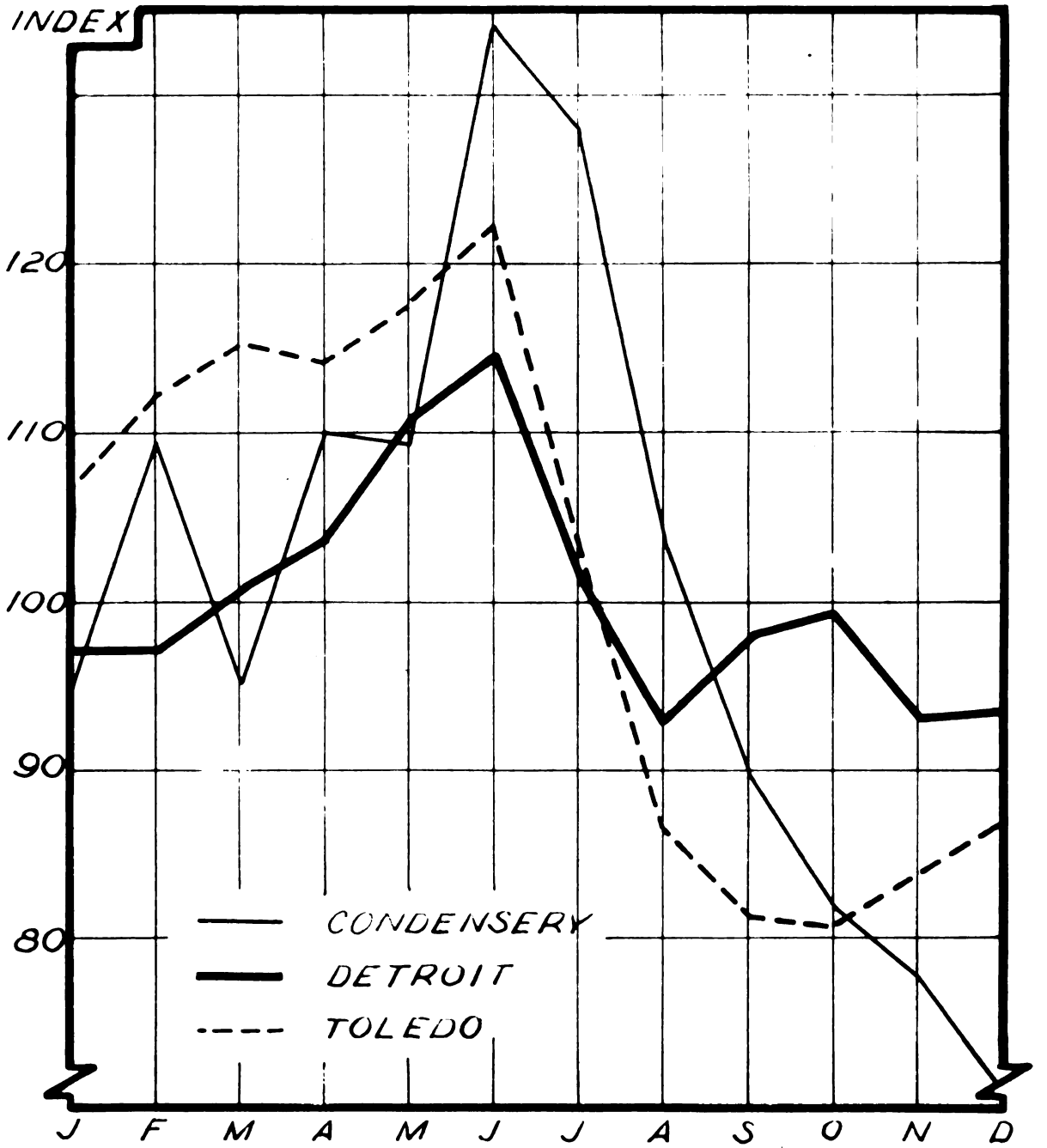

FIGURE 38. -- COMPARISON OF SEASONAL PATTERNS OF LENAWEE COUNTY PRODUCERS DELIVERING TO TOLEDO, DETROIT, AND CONDENSERY PLANT, 1947.

CHAPTER XVII

SUMMARY AND CONCLUSIONS

The base rating plan was first instituted in the Detroit market in 1923 as a price plan to give the producer of an even supply of milk a price advantage over the uneven producer, in order to reduce the high seasonal deliveries of milk in the spring which were extremely burdensome to the market.

Of more recent use in incentive pricing to fall producers is the seasonal differential price plan and the take-off and pay-back plan.

In measuring the effectiveness of the different plans, the average annual price received by producers with various production patterns was the criterion. It was found that to provide the same incentive for fall production as in the base rating plan, the take-off and pay-back plan would have to provide a take-off of about 52½ cents per cwt. in the spring. The seasonal differential plan would have to provide a Class I differential of 1.30 above the basic price in October, November, and December, 70 cents in January, February, March, July, August, and September and 10 cents in April, May, and June, plus differentials in Class II price. This amount of seasonal differential is hardly possible if any competition exists. In one respect, however, the other plans had an advantage over the base rating plan. This was in rewarding the producer with peak delivery in the fall, which the base rating plan fails to do in its present form.

Evidence of the effectiveness of the base rating plan was brought by sampling producers in one county in which three market outlets existed. The seasonal variation in production was much greater among producers selling to a condensery plant than among producers selling under the base rating plan. Seasonal variation in production was somewhat greater among producers selling to a market using a seasonal differential plan than among producers selling under the base rating plan.

It was found that no significant difference in the seasonal patterns among producers existed as a result of distance from the market, but that the type of farming did influence the production pattern.

A comparison of the incentives in the base rating plan in 1935-40 and in 1946-47 revealed that considerably more incentive to produce evenly existed in the latter thirties than existed in the past two years.

A discussion of the methods by which a market can manipulate the amount of incentives to fall producers brought out that the incentives in the base rating plan can be modified by:

1. Increasing or decreasing the spread between base and excess prices.
2. Increasing or decreasing the seasonal fluctuation in base and excess prices.
3. Changing the amount of producers base.

The best method of increasing the spread between base and excess is by keeping base milk more equal to Class I sales.

Another method is by negotiating as high a Class I price as possible. Both methods are severely limited under actual market conditions.

It would be possible to superimpose upon the present base rating plan a seasonal fluctuation in Class I price which would increase the incentive to fall producers, especially those producers with second production peak in the fall. This policy would correct one of the major defects in the base rating plan.

No attempt has been made in this study to develop a specific program which the association should follow. This is an administrative function. Rather it has been the intention to develop techniques of analysis and show how various factors affect seasonality of milk production and the incentives for fall production. Further study is still necessary to demonstrate the effect of these factors with more precision.

The base rating plan is a useful, successful tool for reducing fluctuation in the seasonal supply of milk. It is worth while to concede a portion of the incentives which can be provided by the plan, in order to retain the plan in the market. The reasons the base rating plan is still operating in the Detroit market is another story awaiting investigation, but it may be due to just these concessions.

Other phases of the marketing problem have hardly been touched. The question of the point at which incentives for fall production become an uneconomic means for obtaining milk in the fall involves the cost of obtaining supplemental milk

in the fall or of enlarging the milkshed geographically. One phase of this field, that of producers' cost under various conditions, is now under investigation in another study.

BIBLIOGRAPHY

Bartlett, R. W., Maintaining Stability in the Market-Milk Industry Through the Use of Flexible Prices, Illinois Farm Economics, March, 1947.

Black, John D., The Dairy Industry and the AAA, Brookings Institute, 1935

Brown, Alfred A. and Donley, J. Elizabeth, Product-Costs of Milk to Dealers in the Springfield Area, 1935, Massachusetts Bulletin No. 365, 1939.

Cassels, John M., A Study of Fluid Milk Prices, Harvard University Press, 1937.

Carrigan, J. E., The Effect of Extension Education on the Seasonal Surplus Milk Problem in Addison County, Vermont, Vermont Bulletin 330, 1931.

Cowden, T. K., and Fouse, E. G., The Supply and Utilization of Milk in Pennsylvania, Penn. Bulletin 327, 1936.

Fowler, H. C., Seasonal Variation in Milk Production under the Basic-Rating Plan, Vermont Bulletin 353, 1933.

Gaumnitz, E. W., and Reed, O. M., Some Problems Involved in Establishing Milk Prices, USDA, DM-2 Marketing Information Series, 1937.

Hardin, Clifford M., An Economic Analysis of Fluid Milk Markets in Indiana, Indiana Bulletin 463, 1941.

Heminway, Earl, Milk Production Control by the Use of the Base and Surplus Plan, Mimeo.

Horner, J. T., The Detroit Milk Market, Mich. Special Bulletin No. 170, 1928.

Johnson, S. M., Elasticity of Supply of Milk from Vermont Plants, Vermont Bulletin 429, 1937.

Lininger, F. F., The Relation of the Basic-Surplus Marketing Plan to Milk Production in the Philadelphia Milkshed, Penn. Bulletin 231, 1928.

Maine Bulletin 459, Factors Affecting Seasonal Milk Production and Their Effect on Producers' Costs and Returns, A report of Subcommittee Involving Cooperation of State Experiment Stations and Bureau of Agricultural Economics, U S D A, 1948.

McBride, C. G., The Ohio Farmer and His Milk Market, Bulletin 614, 1940.

McBride, C. G., and Cowden, T. K., Sources of Market Milk and Butterfat in Ohio, Ohio Bulletin 523, 1933.

MacLeod, Alan, The Local Structure of Milk Prices in New Hampshire Markets, New Hampshire Bulletin 332, 1941.

Metzger, Hutzel, Cooperative Marketing of Fluid Milk, USDA Technical Bulletin No. 179, 1930.

Pickford, I. T., and Horner, J. T., Milk Prices in the Detroit Market, 1902-1943, Mimeo.

Pollard, Anson J., Seasonal Variation in Production in the New York Milkshed and its relation to Production-Adjustment Plans, Cornell Bulletin 783, 1942.

Perry, Alvah L., and Dow, George F., Costs and Returns in Milk Production for Local Maine Markets, Maine Bulletin 456, 1947.

Pierce, C. W., Seasonal Peaks and Valleys of Milk Production in the Pittsburgh Milkshed, Penn. Paper No. 1297, Journal Series, 1945.

Roberts, John B., The Louisville Fall-Premium Plan for Seasonal Milk Pricing, Kentucky Bulletin 510, 1947.

Spencer, Leland, and Cunningham, L. C., and Blanford, C. J., The Syracuse Milk Marketing Area, Cornell A. E. 332, 1940.

Spencer, Leland, and Luke, H. Alan, The Fall Shortage of Milk, Cornell Bulletin A. E. 550, 1946.

Spencer, Leland, The Surplus Problem in the Northeastern Milksheds, Farm Credit Administration Bulletin No. 24, 1938.

Stitts, T. G., and Welden, William C., Economic Analysis of Bargaining Problems of Milk Cooperatives, Farm Credit Administration Circular C-104, 1937.

Stitts, T. G., and Gaumnitz, E. W., Relative Prices to Producers under Selected Types of Milk Pools, Farm Credit Administration Bulletin No. 25, 1938.

Ulrey, Orion, Marketing of Milk Products in Lenawee County, Michigan, Mich. Special Bulletin 310, 1940.

Vial, E. E., and Pearson, F. A., A Long Look at the Northeastern Milk Supply, Speech presented at Dairy Products Improvement Institute, 1948.

Weldon, William C., and Stitts, T. G., Milk Cooperatives in Four Ohio Markets, Farm Credit Administration Bulletin No. 16, 1937.

Weldon, William C., Formula Pricing of Class I Milk Under Market Orders, Paper presented Sept. 14, 1948 at American Farm Economics Association Conference.

Weldon, William C., and Herrman, Louis F., Base Allotment or Quota Plans Used by Farmers' Cooperative Milk Associations, Farm Credit Administration Misc. Report No. 23, 1940.

Woodward, T. E., and Jensen, Einar, The Influence of Season on Milk Production, USDA, BAE, Mimeo., 1942.

OTHER SOURCES OF DATA

Michigan Milk Messenger.

Records of Michigan Milk Producers' Association.

Records of Michigan Producers' Dairy.

Records of Toledo, Ohio, Milk Marketing Administrator.

Federal Orders issued for Chicago and Toledo Markets.

APPENDIX A -- TOTAL DELIVERIES AND CLASS SALES, DETROIT MARKET, 1934-48.

1934	TOTAL DELIVERIES	CLASS I	CLASS II	CLASS III	CLASS IV
Jan.	49,432,104	34,245,396	5,136,809	1,712,270	8,337,629
Feb.	44,167,902	31,716,040	4,757,407	1,585,802	6,108,649
Mar.	50,874,267	36,107,209	5,416,051	1,805,350	7,545,657
Apr.	48,155,690	33,560,802	4,364,306	10,230,582	
May	61,526,880	37,852,583	2,158,411	21,515,886	
June	62,963,395	35,956,764	2,061,644	24,944,987	
July	53,690,214	33,727,421	1,592,078	18,370,717	
Aug.	53,627,048	33,415,585	2,934,432	17,277,031	
Sept.	49,537,021	32,386,243	3,553,352	13,597,426	
Oct.	52,367,390	33,915,809	2,357,682	6,093,899	
Nov.	46,488,731	32,309,301	2,271,628	11,907.802	
Dec.	48,008,951	32,686,697	2,395,669	12,926,585	
1935					
Jan.	50,745,365	34,410,865	2,769,130	13,565,370	
Feb.	47,026,098	31,422,785	2,379,720	13,223,594	
Mar.	54,922,251	35,224,336	2,361,448	17,336,467	
Apr.	53,806,954	32,965,807	2,235,286	18,605,861	
May	66,578,901	34,593,125	2,528,086	29,457,690	
June	70,737,673	32,334,190	2,546,556	35,856,927	
July	63,279,469	33,475,913	1,835,932	27,967,624	
Aug.	59,037,621	33,289,304	1,554,705	24,193,612	
Sept.	55,530,638	33,303,524	1,460,614	20,766,500	
Oct.	52,304,614	34,924,498	1,473,530	15,906,586	
Nov.	48,912,968	33,187,797	1,407,340	14,317,831	
Dec.	53,165,237	33,252,765	2,157,845	17,754,618	
	676 047 779				
1936					
Jan.	57,252,490	34,044,514	2,594,114	20,613,862	
Feb.	52,638,324	31,364,004	2,433,425	18,840,895	
Mar.	60,870,153	34,002,180	2,627,577	24,240,396	
Apr.	62,510,602	33,202,919	2,624,284	26,683,399	
May	73,243,204	33,742,300	2,589,558	36,911,346	
June	75,365,217	32,808,650	2,629,174	39,927,393	
July	67,693,258	34,020,515	1,717,113	31,955,630	
Aug.	64,963,236	33,203,602	2,315,664	29,443,970	
Sept.	61,441,933	33,161,273	2,629,768	25,650,892	
Oct.	60,180,328	34,221,105	3,001,659	22,957,564	
Nov.	53,681,095	33,288,536	3,139,300	17,253,259	
Dec.	55,825,996	34,234,981	3,371,564	18,219,451	
	715 765 936				

APPENDIX A -- TOTAL DELIVERIES AND CLASS SALES, DETROIT MARKET, 1934-48.

1937	TOTAL DELIVERIES	CLASS I	CLASS II	CLASS III	CLASS IV
Jan.	57,683,495	34,528,047	9,063,152	14,092,296	
Feb.	52,417,574	31,129,653	7,701,287	13,586,635	
Mar.	62,079,370	35,299,001	9,601,345	17,179,024	
Apr.	61,846,570	33,415,624	10,368,156	18,062,790	
May	69,910,840	34,759,016	12,812,957	22,338,867	
June	69,428,584	33,809,604	12,979,890	22,639,090	
July	61,997,317	33,053,295	10,779,673	18,164,349	
Aug.	58,119,659	33,366,327	9,252,975	15,500,357	
Sept.	53,740,366	33,434,815	7,558,715	12,746,836	
Oct.	49,878,118	35,034,831	14,843,287		
Nov.	45,740,036	33,324,463	12,415,573		
Dec.	50,160,037	32,364,049	17,795,988		
1938					
Jan.	53,198,976	31,297,441	21,896,535		
Feb.	49,493,869	28,025,959	21,467,910		
Mar.	55,505,495	31,453,922	24,051,573		
Apr.	55,772,808	29,748,068	26,024,740		
May	68,234,622	30,563,814	37,670,808		
June	65,646,020	30,683,276	34,962,744		
July	60,007,490	29,734,025	30,273,466		
Aug.	58,592,009	30,854,529	27,737,480		
Sept.	55,724,215	30,815,978	24,908,237		
Oct.	52,959,965	32,556,430	20,403,515		
Nov.	49,936,328	32,096,610	17,839,718		
Dec.	51,800,854	32,885,598	18,915,256		
1939					
Jan.	53,381,563	33,090,246	20,291,317		
Feb.	49,778,350	30,521,798	19,256,552		
Mar.	56,295,648	33,752,116	22,543,532		
Apr.	55,417,440	32,600,850	22,974,039		
May	63,247,997	34,408,903	28,839,094		
June	62,727,425	34,236,549	28,490,876		
July	57,972,345	33,921,680	24,050,665		
Aug.	57,521,275	33,858,213	23,663,062		
Sept.	54,375,168	34,226,846	20,148,322		
Oct.	54,375,025	35,409,950	18,965,075		
Nov.	51,931,892	34,204,583	17,727,309		
Dec.	53,358,972	35,689,256	18,426,030		

APPENDIX A --- TOTAL DELIVERIES AND CLASS SALES
DETROIT MARKET, 1934-48. (Continued)

1940	TOTAL DELIVERIES	CLASS I	CLASS II-A	CLASS II-B
Jan.	53,896,189	35,689,256	18,206,933	
Feb.	51,715,267	34,033,589	17,681,678	
Mar.	56,919,414	36,032,161	20,887,253	
Apr.	56,834,528	34,758,307	22,076,221	
May	64,337,133	36,814,664	27,522,469	
June	65,856,698	35,260,305	30,596,393	
July	61,129,594	35,069,564	26,060,030	
Aug.	61,158,153	35,659,816	25,498,337	
Sept.	60,146,200	36,657,730	23,488,470	
Oct.	60,704,927	37,854,726	22,850,201	
Nov.	53,882,345	36,410,392	17,471,953	
Dec.	55,353,550	36,977,090	18,376,460	
1941				
Jan.	57,139,123	38,048,123	10,091,000	
Feb.	52,645,142	35,003,931	17,641,211	
Mar.	60,238,427	39,094,870	21,143,557	
Apr.	61,014,112	38,292,851	22,721,261	
May	71,983,177	39,820,505	32,162,672	
June	70,386,474	38,333,276	32,053,198	
July	65,062,857	39,268,585	25,794,272	
Aug.	67,678,107	38,773,924	28,904,183	
Sept.	63,512,359	39,281,934	24,230,425	
Oct.	60,766,789	39,749,309	21,017,480	
Nov.	55,964,747	37,599,466	18,365,281	
Dec.	55,763,941	38,930,977	16,832,964	
1942				
Jan.	57,973,200	38,264,896	19,708,304	
Feb.	53,557,076	34,789,629	18,767,447	
Mar.	61,752,961	38,689,835	23,063,126	
Apr.	62,436,600	38,480,535	23,956,065	
May	73,652,847	39,618,879	8,374,173	25,659,795
June	70,360,361	40,003,705	8,443,635	21,913,021
July	66,973,659	41,700,378	8,947,257	16,326,024
Aug.	68,776,539	41,104,826	8,883,149	18,788,564
Sept.	65,585,366	41,595,518	8,961,983	15,027,865
Oct.	62,684,148	43,966,518	9,257,575	9,460,055
Nov.	55,105,454	42,860,642	8,786,397	3,458,415
Dec.	58,103,972	50,416,439	7,051,039	636,494

APPENDIX A --- TOTAL DELIVERIES AND CLASS SALES
DETROIT MARKET, 1934-48. (Continued)

1943	TOTAL DELIVERIES	CLASS I	CLASS II-A	CLASS II-B	CLASS II-C
Jan.	59,282,947	51,901,392	6,560,633	820,922	
Feb.	55,880,557	49,674,018	5,684,619	521,920	
Mar.	65,491,904	56,667,425	8,039,097	785,382	
Apr.	66,052,059	54,151,375	9,264,121	2,636,563	
May	72,961,428	54,951,630	10,193,854	7,815,944	
June	72,876,421	55,487,928	10,335,275	7,053,218	
July	68,139,024	56,186,398	9,255,975	2,696,651	
Aug.	68,949,138	56,713,957	10,127,508	2,107,673	
Sept.	64,922,103	55,864,571	7,621,268	1,436,264	
Oct.	59,391,205	55,955,046	3,428,949	7,210	
Nov.	52,306,424*	53,063,178	2,508,961		
Dec.	54,917,982*	57,344,557	3,365,714		
1944					
Jan.	57,744,591*	57,896,259	5,381,621		
Feb.	56,995,966*	55,967,405	3,729,243	523,824	
Mar.	64,518,898	57,971,981	4,241,742	2,670,125	
Apr.	67,730,449	56,184,103	3,623,762	7,922,584	
May	80,269,877	58,945,549	3,932,904	9,265,528	
June	83,454,649	57,521,340	3,889,570	4,760,473	17,283,266
July	77,011,797	55,780,228	3,785,269	4,852,021	12,594,279
Aug.	74,449,909	59,138,198	3,980,909	11,330,802	
Sept.	70,440,794	57,804,489	3,739,364	9,143,951	
Oct.	67,796,863	60,243,193	4,062,687	3,490,983	
Nov.	63,391,644*	58,604,071	837,805	431,789	
Dec.	67,645,794	58,568,799	3,927,562	5,248,968	
1945					
Jan.	70,434,202	60,686,765	4,055,046	5,692,391	
Feb.	66,132,814	56,096,772	3,723,469	6,312,573	
Mar.	79,124,437	63,109,006	4,206,443	11,808,988	
Apr.	82,868,246	59,465,160	4,037,971	19,365,115	
May	91,139,259	61,845,486	4,220,062	4,960,360	
June	93,374,518	59,865,621	4,060,116	4,802,305	
July	87,179,567	58,159,574	3,970,987	5,057,366	
Aug.	84,309,511	59,674,169	4,039,603	4,913,231	
Sept.	78,515,325	57,373,814	3,916,410	4,822,599	
Oct.	71,397,358	60,813,123	4,172,981	6,411,254	
Nov.	63,802,649	59,027,707	3,859,416	915,526	
Dec.	65,954,594	59,578,706	3,917,227	2,458,661	

* Outside milk brought in not included in production figures.

APPENDIX A --- TOTAL DELIVERIES AND CLASS SALES
DETROIT MARKET, 1934-48. (Continued)

1946	TOTAL DELIVERIES	CLASS I	CLASS II-A	CLASS II-B	CLASS II-C
Jan.	67,721,537	61,422,425	4,018,231	2,280,881	
Feb.	62,756,522	50,201,541	3,164,225	9,390,756	
Mar.	73,806,507	61,697,381	4,119,441	7,989,685	
Apr.	76,470,343	61,557,687	4,162,546	10,730,110	
May	88,076,067	63,202,655	4,306,923	20,566,489	
June 1-17	52,930,890	34,668,866	2,294,061	15,967,963	
18-30	38,609,695	26,251,865	1,691,322	10,666,508	
July 1-15	85,977,095	30,272,742	2,059,444	10,349,898	
16-31		31,824,498	2,116,973	9,353,540	
Aug.	83,020,253	59,806,407	4,043,636	19,170,210	
Sept.	76,337,303	60,158,230	4,066,865	12,112,208	
Oct.	72,864,825	64,376,397	4,200,908	4,287,520	
Nov.	67,834,674	60,186,410	3,925,714	3,722,550	
Dec.	72,012,493	59,459,043	3,942,143	8,611,307	
1947					
Jan.	74,924,346	60,793,182	4,038,350	10,092,814	
Feb.	70,327,781	55,979,796	3,733,606	10,614,379	
Mar.	82,030,042	61,291,643	4,147,387	16,601,012	
Apr.	85,050,013	59,893,592	4,033,794	21,122,627	
May	92,889,364	61,540,869	4,177,951	8,782,281	18,388,263
June	94,446,407	59,058,082	4,066,870	8,992,865	22,328,590
July	87,877,032	59,152,781	4,023,646	8,739,365	15,961,240
Aug.	81,865,055	61,077,851	4,155,681	16,631,523	
Sept.	79,004,535	62,208,985	4,220,656	12,574,894	
Oct.	78,016,489	64,954,943	4,363,231	8,698,315	
Nov.	66,962,043	61,202,925	3,713,505	2,045,613	
Dec.	68,113,835	63,461,195	3,345,586	1,307,054	
1948					
Jan.	69,587,783	63,853,706	3,743,642	1,990,435	
Feb.	66,641,836	59,845,206	3,484,261	3,312,369	
Mar.	74,835,508	64,152,242	4,124,030	6,469,236	
Apr.	77,880,633	62,232,652	4,244,383	11,403,598	
May	91,436,136	62,127,709	4,241,024	25,067,403	
June	93,962,485	60,839,985	4,107,698	29,014,802	
July	85,990,191	61,208,645	4,186,915	20,594,631	
Aug.	84,152,994	60,924,045	4,150,204	19,078,745	
Sept.	77,680,325	61,845,458	4,222,388	11,612,479	
Oct.	75,798,272	64,172,138	4,319,537	7,306,597	

APPENDIX B --- TOTAL BASE, TOTAL EXCESS, TOTAL SHIPPERS, AND AVERAGE POUNDS PER SHIPPER PER DAY, DETROIT MARKET, 1934-48.

1934	TOTAL BASE DELIVERIES	TOTAL EXCESS DELIVERIES	TOTAL SHIPPERS	AVG. POUNDS PER SHIPPER PER DAY
Jan.	44,127,984	5,304,120		
Feb.	39,890,132	4,277,770		
Mar.	45,791,157	5,083,110		
Apr.	43,109,361	5,046,329		
May	50,430,592	11,096,288		
June	49,823,018	13,140,377		
July	46,179,209	7,511,007		
Aug.	46,040,517	7,586,531		
Sept.	43,276,248	6,260,773		
Oct.	46,162,546	6,204,844		
Nov.	42,091,918	4,396,813		
Dec.	43,459,422	4,549,529		
1935				
Jan.	45,154,180	5,591,185	11,303	145
Feb.	43,333,628	3,692,470	11,322	148
Mar.	49,552,500	5,369,751	11,288	157
Apr.	47,813,204	5,993,750	11,370	158
May	54,708,548	11,870,353	11,349	189
June	54,142,615	16,595,058	11,474	205
July	52,342,843	10,936,626	11,400	179
Aug.	50,866,685	8,170,936	11,379	167
Sept.	48,936,921	6,593,717	11,202	165
Oct.	47,937,662	4,366,952	11,269	150
Nov.	45,347,797	3,565,171	11,210	145
Dec.	48,483,799	4,681,438	11,102	154
1936				
Jan.	51,454,292	5,798,198	10,973	168
Feb.	47,815,177	4,823,147	10,991	171
Mar.	53,577,003	7,293,150	11,245	175
Apr.	53,558,782	8,951,820	11,206	186
May	73,243,204	16,571,467	11,276	210
June	56,225,794	19,139,423	11,314	222
July	56,073,457	11,619,801	11,354	192
Aug.	55,465,741	9,497,495	11,501	182
Sept.	52,816,258	8,625,675	11,092	185
Oct.	53,234,811	6,945,517	10,975	177
Nov.	49,198,723	4,482,372	10,934	164
Dec.	50,500,345	5,325,651	10,778	167

APPENDIX B --- TOTAL BASE, TOTAL EXCESS, TOTAL SHIPPERS, AND AVERAGE POUNDS PER SHIPPER PER DAY, DETROIT MARKET, 1934-48. (Continued)

1937	TOTAL BASE DELIVERIES	TOTAL EXCESS DELIVERIES	TOTAL SHIPPERS	AVG. POUNDS PER SHIPPER PER DAY
Jan.	51,316,020	6,367,475	10,953	170
Feb.	47,231,032	5,022,797	10,831	173
Mar.	54,664,509	6,893,146	10,680	188
Apr.	53,111,174	8,141,040	10,674	193
May	56,422,764	12,799,462	10,631	212
June	54,018,820	14,628,937	10,672	217
July	52,422,328	8,846,069	10,523	190
Aug.	50,893,794	6,527,153	10,442	180
Sept.	47,947,012	5,092,751	10,355	173
Oct.	46,028,865	2,982,361	10,299	156
Nov.	43,209,312	1,918,869	10,232	149
Dec.	47,130,371	3,029,666	10,279	158
1938				
Jan.	48,968,188	4,225,788	10,503	161
Feb.	45,621,327	3,872,542	10,483	169
Mar.	50,761,358	4,744,137	10,390	172
Apr.	50,164,678	5,608,130	10,357	180
May	55,475,994	12,758,628	10,353	213
June	53,092,049	12,553,971	10,333	212
July	52,228,754	7,778,737	10,156	191
Aug.	51,046,776	7,545,233	10,014	189
Sept.	48,831,394	6,892,921	9,939	187
Oct.	48,065,830	4,894,135	9,953	172
Nov.	45,776,799	4,518,007	9,964	167
Dec.	47,282,847	4,518,007	9,878	169
1939				
Jan.	49,732,228	3,649,335	9,543	180
Feb.	45,774,681	4,003,669	9,499	187
Mar.	51,345,151	4,950,497	9,474	192
Apr.	50,117,385	5,300,055	9,518	194
May	54,265,507	8,982,490	9,514	214
June	52,917,904	9,809,521	9,478	221
July	52,300,492	5,671,853	9,443	198
Aug.	51,624,636	5,892,921	9,536	195
Sept.	49,774,918	4,600,250	9,476	191
Oct.	50,424,685	3,950,340	9,533	184
Nov.	48,071,822	3,860,070	9,644	179
Dec.	49,084,823	4,274,149	9,656	178

APPENDIX B --- TOTAL BASE, TOTAL EXCESS, TOTAL SHIPPERS, AND AVERAGE POUNDS PER SHIPPER PER DAY, DETROIT MARKET, 1934-48. (Continued)

1940	TOTAL BASE DELIVERIES	TOTAL EXCESS DELIVERIES	TOTAL SHIPPERS	AVG. POUNDS PER SHIPPER PER DAY
Jan.	50,189,571	3,706,618	9,804	177
Feb.	47,482,797	4,232,470	9,790	189
Mar.	51,498,038	5,421,378	9,750	188
Apr.	50,708,161	6,126,367	9,705	195
May	54,507,078	9,830,055	9,727	213
June	53,333,632	12,523,066	9,750	225
July	53,345,081	7,784,513	9,711	203
Aug.	53,793,948	7,364,205	9,635	205
Sept.	52,880,850	7,265,350	9,604	209
Oct.	54,088,321	6,616,606	9,589	204
Nov.	49,549,344	4,333,001	9,709	185
Dec.	50,547,423	4,806,127	9,794	182
1941				
Jan.	53,378,415	3,760,708	10,855	170
Feb.	48,519,368	4,125,774	10,813	174
Mar.	54,949,857	5,288,570	10,836	179
Apr.	54,298,540	6,715,572	10,776	189
May	58,723,420	13,259,757	10,593	219
June	57,207,917	13,178,557	10,670	220
July	56,919,962	8,142,895	10,637	197
Aug.	58,130,066	9,548,041	10,569	207
Sept.	55,644,564	7,867,795	10,532	201
Oct.	55,211,132	5,555,657	10,678	184
Nov.	51,326,861	4,637,886	10,601	176
Dec.	50,372,364	5,391,577	10,547	171
1942				
Jan.	54,064,385	3,908,815	10,481	182
Feb.	49,218,119	4,338,957	10,500	190
Mar.	55,722,324	6,030,637	10,644	198
Apr.	55,073,097	7,363,503	10,521	209
May	59,947,104	13,705,743	10,511	224
June	57,595,687	12,764,674	10,503	231
July	58,195,320	8,778,339	10,498	209
Aug.	59,678,888	9,097,651	11,100	200
Sept.	57,646,643	7,938,723	10,416	208
Oct.	57,091,829	5,592,319	10,425	184
Nov.	51,419,701	3,685,753	10,332	169
Dec.	53,479,071	4,624,901	10,563	168

APPENDIX B --- TOTAL BASE, TOTAL EXCESS, TOTAL SHIPPERS, AND AVERAGE POUNDS PER SHIPPER PER DAY, DETROIT MARKET, 1934-48. (Continued)

1943	TOTAL BASE DELIVERIES	TOTAL EXCESS DELIVERIES	TOTAL SHIPPERS	AVG. POUNDS PER SHIPPER PER DAY
Jan.	55,383,341	3,899,606	10,422	179
Feb.	51,316,747	4,563,810	10,382	184
Mar.	58,908,188	6,583,716	10,365	192
Apr.	58,027,409	8,024,650	10,317	202
May	61,424,606	11,536,822	10,354	229
June	59,245,934	13,630,487	10,307	228
July	59,569,472	8,569,552	10,342	209
Aug.	65,499,370	3,449,768	10,535	211
Sept.	62,314,524	2,607,579	10,504	208
Oct.	58,015,514	1,375,691	10,351	195
Nov.	51,189,007	1,117,417	10,385	177
Dec.	53,254,870	1,663,112	10,489	179
1944				
Jan.	56,238,716	1,505,875	10,375	180
Feb.	54,839,938	2,156,028	10,395	189
Mar.	61,554,762	2,964,136	10,616	196
Apr.	59,585,372	8,145,077	10,720	211
May	65,916,889	14,352,988	10,770	240
June	66,116,584	17,338,065	10,850	256
July	66,220,794	10,791,003	10,881	228
Aug.	66,234,349	8,215,560	11,056	217
Sept.	63,677,423	6,779,727	11,068	212
Oct.	62,967,435	4,829,428	10,947	200
Nov.	59,010,351	4,381,293	10,949	193
Dec.	61,300,819	6,344,975	10,845	201
1945				
Jan.	62,551,590	7,882,612	10,917	208
Feb.	59,354,182	6,778,632	10,913	216
Mar.	69,043,246	10,081,191	10,931	234
Apr.	68,082,393	14,785,853	11,018	251
May	71,712,494	19,426,765	10,932	267
June	70,385,875	22,988,643	10,894	286
July	70,310,756	16,868,811	10,910	258
Aug.	70,545,148	13,764,363	10,942	249
Sept.	67,598,553	10,916,772	10,922	240
Oct.	65,554,422	5,842,936	10,919	211
Nov.	59,762,911	4,039,738	10,911	195
Dec.	60,972,451	4,982,143	10,855	196

APPENDIX B --- TOTAL BASE, TOTAL EXCESS, TOTAL SHIPPERS, AND AVERAGE POUNDS PER SHIPPER PER DAY, DETROIT MARKET, 1934-48. (Continued)

1946	TOTAL BASE DELIVERIES	TOTAL EXCESS DELIVERIES	TOTAL SHIPPERS	AVG. POUNDS PER SHIPPER PER DAY
Jan.	61,145,423	6,576,114	10,699	204
Feb.	57,676,595	5,079,927	10,655	210
Mar.	66,357,163	7,449,344	10,760	221
Apr.	66,129,135	10,341,208	10,634	240
May	70,792,827	17,283,240	10,609	268
June 1-17	39,869,521	13,061,369	10,614	287
18-30	29,809,608	8,800,087		
July	71,472,917	14,504,178	10,776	257
Aug.	71,535,088	11,485,165	10,827	247
Sept.	68,572,199	7,765,104	10,840	235
Oct.	67,337,520	5,527,305	10,710	219
Nov.	63,143,922	4,690,752	10,538	213
Dec.	65,663,203	6,349,290	10,562	220
1947				
Jan.	67,323,309	7,601,037	10,635	227
Feb.	64,446,841	5,880,940	10,654	235
Mar.	73,043,783	8,986,259	10,773	245
Apr.	72,615,280	12,434,733	10,825	262
May	76,107,482	16,781,882	10,635	282
June	74,425,483	20,020,924	10,649	296
July	75,117,343	12,759,689	10,673	266
Aug.	72,921,586	8,943,469	10,689	247
Sept.	71,406,890	7,597,645	10,521	250
Oct.	72,064,217	5,952,272	10,634	237
Nov.	63,910,934	3,051,109	10,615	210
Dec.	64,540,201	3,573,634	10,521	209
1948				
Jan.	64,914,913	4,672,870	10,464	214
Feb.	61,872,585	4,769,251	10,361	222
Mar.	68,004,048	6,831,460	10,276	235
Apr.	68,519,081	9,361,552	10,194	255
May	74,529,229	16,906,907	10,206	289
June	73,116,536	20,845,949	10,154	308
July	73,811,046	12,179,145	10,175	273
Aug.	74,208,455	9,944,539	10,170	267
Sept.	70,532,503	7,147,822	10,189	254
Oct.	70,794,103	5,004,169	10,173	240

APPENDIX C --- PER CENT BASE, EXCESS, AND CLASS USE IS OF TOTAL DELIVERIES, DETROIT MARKET, 1934-48.

1934	PER CENT BASE	PER CENT EXCESS	PER CENT SOLD AS CLASS I	PER CENT SOLD AS CLASS II	PER CENT SOLD AS CLASS III	PER CENT BASE USED AS CLASS I
Jan.	89.27	10.73	69.28	10.39	3.46	77.60
Feb.	90.31	9.69	71.81	10.77	3.59	79.51
Mar.	90.00	10.00	70.97	10.65	3.55	78.85
Apr.	89.52	10.48	69.69	9.06	21.25	77.85
May	81.97	18.03	61.52	3.51	34.97	75.06
June	79.13	20.87	57.11	3.27	39.62	72.17
July	86.01	13.99	62.82	2.96	34.22	73.04
Aug.	85.85	14.15	62.31	5.47	32.22	72.58
Sept.	87.36	12.64	65.38	7.17	27.45	74.84
Oct.	88.15	11.85	64.77	4.50	30.73	73.47
Nov.	90.54	9.46	69.50	4.89	25.61	76.77
Dec.	90.52	9.48	68.08	4.99	26.93	75.21
1935						
Jan.	88.98	11.02	67.81	5.46	26.73	76.21
Feb.	92.15	7.85	66.82	5.06	28.12	72.51
Mar.	90.20	9.80	64.10	4.30	31.60	71.08
Apr.	88.86	11.14	61.27	4.15	34.58	68.93
May	82.17	17.83	51.96	3.80	44.26	63.23
June	76.54	23.46	45.71	3.60	50.69	59.72
July	82.72	17.28	52.90	2.90	44.20	63.96
Aug.	86.16	13.84	56.39	2.63	40.98	65.44
Sept.	88.13	11.87	59.97	2.63	37.40	68.05
Oct.	91.65	8.35	66.77	2.82	30.41	72.85
Nov.	92.71	7.29	67.85	2.88	29.27	73.19
Dec.	91.19	8.81	62.55	4.06	33.39	68.59

APPENDIX C --- PER CENT BASE, EXCESS, AND CLASS USE IS OF TOTAL DELIVERIES, DETROIT MARKET, 1934-48. (Continued)

1936	PER CENT BASE	PER CENT EXCESS	PER CENT SOLD AS CLASS I	PER CENT SOLD AS CLASS II	PER CENT SOLD AS CLASS III	PER CENT BASE USED AS CLASS I
Jan.	89.87	10.13	59.46	4.53	36.01	66.16
Feb.	90.84	9.16	59.58	4.62	35.79	65.59
Mar.	88.02	11.98	55.86	4.32	39.82	63.46
Apr.	85.68	14.32	53.12	4.19	42.69	61.99
May	77.37	22.63	46.07	3.54	50.39	59.54
June	74.60	25.40	43.53	3.49	52.98	58.35
July	82.83	17.17	50.26	2.54	47.21	60.67
Aug.	85.38	14.62	51.11	3.56	45.32	59.86
Sept.	85.96	14.04	53.97	4.28	41.75	62.79
Oct.	88.46	11.54	56.86	4.99	38.15	64.28
Nov.	91.65	8.35	62.01	5.85	32.14	67.66
Dec.	90.00	10.00	59.00	5.00	36.00	67.79
1937						
Jan.	88.96	11.04	59.86	15.71	24.43	67.29
Feb.	90.39	9.61	59.39	14.69	25.92	65.70
Mar.	88.80	11.20	56.86	15.47	27.67	64.04
Apr.	86.70	13.30	54.03	16.76	29.21	62.32
May	81.50	18.50	49.72	18.33	31.95	61.00
June	78.68	21.32	48.70	18.70	32.61	61.89
July	85.55	14.45	53.31	17.39	29.30	62.32
Aug.	88.62	11.38	57.41	15.92	26.67	64.78
Sept.	90.39	9.61	62.22	14.07	23.71	68.82
Oct.	93.91	6.09	70.24	29.76		74.80
Nov.	95.75	4.25	72.86	27.14		76.91
Dec.	93.96	6.04	64.52	35.48		68.67

APPENDIX C --- PER CENT BASE, EXCESS, AND CLASS USE IS OF TOTAL DELIVERIES, DETROIT MARKET, 1934-48. (Continued)

1938	PER CENT BASE	PER CENT EXCESS	PER CENT SOLD AS CLASS I	PER CENT SOLD AS CLASS II	PER CENT SOLD AS CLASS III	PER CENT BASE USED AS CLASS I
Jan.	92.06	7.94	58.83	41.17		63.91
Feb.	92.18	7.82	56.62	43.38		61.43
Mar.	91.45	8.55	56.66	43.34		61.96
Apr.	89.94	10.06	53.34	46.66		59.30
May	81.30	18.70	44.79	55.21		54.70
June	80.85	19.15	46.74	53.25		57.61
July	87.04	12.96	45.29	54.71		56.93
Aug.	87.02	12.98	52.66	47.34		60.44
Sept.	87.63	12.37	55.30	44.70		63.11
Oct.	90.79	9.21	61.47	38.53		67.70
Nov.	91.67	8.33	62.47	37.53		70.12
Dec.	91.28	8.72	63.48	36.52		69.55
1939						
Jan.	93.16	6.84	61.98	38.02		66.54
Feb.	91.96	8.04	61.31	38.69		66.68
Mar.	91.21	8.79	59.95	40.05		65.74
Apr.	90.46	9.54	58.82	41.18		64.83
May	85.80	14.20	54.40	45.60		63.39
June	84.37	15.63	54.13	45.87		64.64
July	90.22	9.78	58.51	41.49		64.79
Aug.	89.76	10.24	57.38	42.62		65.76
Sept.	91.62	8.38	59.50	40.50		68.88
Oct.	92.75	7.25	65.12	34.88		70.44
Nov.	92.59	7.41	65.86	34.14		71.24
Dec.	91.99	8.01	66.88	33.12		71.17

APPENDIX C --- PER CENT BASE, EXCESS, AND CLASS USE IS OF TOTAL DELIVERIES, DETROIT MARKET, 1934-48. (Continued)

1940	PER CENT BASE	PER CENT EXCESS	PER CENT SOLD AS CLASS I	PER CENT SOLD AS CLASS II	PER CENT BASE USED AS CLASS I
Jan.	93.12	6.88	66.22	33.78	71.11
Feb.	90.82	8.18	65.81	34.19	71.67
Mar.	90.48	9.52	63.30	36.70	69.97
Apr.	89.22	10.78	61.16	38.84	70.58
May	84.72	15.28	57.00	42.78	67.54
June	80.98	19.02	53.54	46.46	66.11
July	87.27	12.73	57.37	42.63	65.73
Aug.	87.96	12.04	58.31	41.69	66.31
Sept.	87.92	12.08	60.95	39.05	68.50
Oct.	89.10	10.90	62.36	37.64	69.98
Nov.	91.96	8.04	67.57	32.43	73.48
Dec.	91.32	8.68	66.80	33.20	73.22
1941					
Jan.	93.42	6.58	66.59	33.41	71.28
Feb.	92.16	7.84	66.49	33.51	72.14
Mar.	91.22	8.78	64.90	35.10	71.15
Apr.	88.99	11.01	62.76	37.24	70.52
May	81.58	18.42	55.32	44.68	67.81
June	81.28	18.72	54.46	45.54	67.01
July	87.48	12.52	60.35	39.65	68.99
Aug.	85.89	14.11	57.29	42.71	66.70
Sept.	87.61	12.39	61.85	38.15	70.59
Oct.	90.86	9.14	65.41	34.59	72.00
Nov.	91.71	8.29	67.18	32.82	73.25
Dec.	90.33	9.67	69.81	30.19	77.29

APPENDIX C --- PER CENT BASE, EXCESS, AND CLASS USE IS OF TOTAL DELIVERIES, DETROIT MARKET, 1934-48. (Continued)

1942	PER CENT BASE	PER CENT EXCESS	PER CENT SOLD AS CLASS I	PER CENT SOLD AS CLASS II-A	PER CENT SOLD AS CLASS II-B	PER CENT BASE USED AS CLASS I
Jan.	93.26	6.74	66.00	34.00)		70.78
Feb.	91.90	8.10	64.96	35.04)	CLASS II	70.68
Mar.	90.23	9.77	62.65	37.35)		69.43
Apr.	88.21	11.79	61.63	38.37)		69.87
May	81.39	18.61	53.79	11.37	34.84	66.09
June	81.86	18.14	56.86	12.00	31.14	69.46
July	86.89	13.11	62.26	13.36	24.38	71.66
Aug.	86.77	13.23	59.77	12.92	27.31	68.88
Sept.	87.90	12.10	63.42	13.67	22.91	72.16
Oct.	91.08	8.92	70.14	14.77	15.09	77.01
Nov.	93.31	6.69	77.78	15.94	6.28	83.35
Dec.	92.04	7.96	86.77	12.14	1.09	90.15
1943						
Jan.	93.42	6.58	87.55	11.07	1.38	93.7
Feb.	91.83	8.17	88.89	10.17	.94	96.8
Mar.	89.95	10.05	86.54	12.26	1.20	96.1
Apr.	87.85	12.15	81.98	14.03	3.99	93.3
May	84.19	15.81	75.32	13.97	10.71	89.4
June	81.30	18.70	76.14	14.18	9.68	93.7
July	87.42	12.58	82.45	13.59	3.96	94.3
Aug.	95.00	5.00	82.25	14.69	3.06	86.6
Sept.	95.98	4.02	86.05	11.74	2.21	89.6
Oct.	97.68	2.32	94.21	5.77	.02	96.5
Nov.	97.86	2.14	101.4	4.80		100
Dec.	96.97	3.03	94.46	5.54		100

APPENDIX C --- PER CENT BASE, EXCESS, AND CLASS USE IS OF TOTAL DELIVERIES, DETROIT MARKET, 1934-48. (Continued)

1944	PER CENT BASE	PER CENT EXCESS	PER CENT SOLD AS CLASS I	PER CENT SOLD AS CLASS II-A	PER CENT SOLD AS CLASS II-B	PER CENT SOLD AS CLASS II-C	PER CENT BASE USED AS CLASS I
Jan.	97.39	2.61	91.50	8.50			100
Feb.	96.22	3.78	92.94	6.19	.87		100
Mar.	95.41	4.59	89.35	6.53	4.12		94.2
Apr.	87.97	12.03	82.95	5.35	11.70		94.3
May	82.12	17.88	81.71	5.45	12.84		89.4
June	79.22	20.78	68.93	4.66	5.73	20.71	87.0
July	85.99	14.01	72.43	4.92	6.30	16.35	72.4
Aug.	88.96	11.04	79.43	5.35	15.22		89.3
Sept.	90.41	9.59	81.77	5.29	12.94		90.7
Oct.	92.88	7.12	88.86	5.99	5.15		95.7
Nov.	93.09	6.91	90.77	1.30	.67		99.3
Dec.	90.62	9.38	86.45	5.80	7.75		95.5
1945							
Jan.	88.81	11.19	86.16	5.76	8.08		97.0
Feb.	89.75	10.25	84.82	5.63	9.55		94.5
Mar.	87.26	12.74	79.76	5.32	14.92		91.3
Apr.	82.16	17.84	71.16	4.83	24.01		87.3
May	78.68	21.32	68.28	4.66	5.21	21.85	66.7
June	75.38	24.62	64.11	4.35	5.14	26.40	64.1
July	80.65	19.35	66.71	4.56	5.80	22.93	66.7
Aug.	83.67	16.33	70.72	4.79	5.89	18.60	70.7
Sept.	86.10	13.90	73.07	4.99	6.14	15.80	73.0
Oct.	91.82	8.18	85.18	5.84	8.98		86.4
Nov.	93.67	6.33	92.51	6.05	1.44		92.5
Dec.	92.45	7.55	89.96	5.91	4.13		97.31

APPENDIX C --- PER CENT BASE, EXCESS, AND CLASS USE IS OF TOTAL DELIVERIES, DETROIT MARKET, 1934-48. (Continued)

1946	PER CENT BASE	PER CENT EXCESS	PER CENT SOLD AS CLASS I	PER CENT SOLD AS CLASS II-A	PER CENT SOLD AS CLASS II-B	PER CENT SOLD AS CLASS II-C	PER CENT BASE USED AS CLASS I
Jan.	90.29	9.71	90.70	5.93	3.37		90.29
Feb.	91.91	8.09	80.00	5.04	14.96		87.04
Mar.	89.91	10.09	84.19	5.29	10.52		93.64
Apr.	86.48	13.52	80.53	5.44	14.03		93.12
May	80.38	19.62	71.76	4.89	23.35		89.28
June 1-17	75.33	24.67	66.55	4.35	29.10		87.43
18-30	77.21	22.79					
July	83.13	16.87	72.22	4.86	22.92		86.88
Aug.	86.17	13.83	72.05	4.87	23.08		86.17
Sept.	89.83	10.17	78.81	5.33	15.86		89.82
Oct.	92.41	7.59	88.35	5.77	5.88		95.60
Nov.	93.09	6.91	88.66	5.81	5.53		95.26
Dec.	91.18	8.82	87.57	5.47	11.96		90.55
1947							
Jan.	89.86	10.14	81.14	5.25	13.61		90.30
Feb.	91.64	8.36	79.59	5.30	15.11		86.85
Mar.	89.04	10.96	84.19	5.29	10.52		83.90
Apr.	85.38	14.62	70.42	4.74	24.84		82.47
May	81.93	18.07	66.25	4.50	9.45	19.80	80.86
June	78.80	21.20	62.53	4.31	9.52	23.64	79.35
July	85.48	14.52	67.31	4.58	9.95	18.16	78.75
Aug.	89.08	10.92	74.61	5.08	20.31		83.76
Sept.	90.38	9.62	78.74	5.34	15.92		87.12
Oct.	92.37	7.63	83.26	5.59	11.15		90.03
Nov.	95.44	4.56	91.40	5.55	3.05		96.98
Dec.	94.75	5.25	93.17	4.91	1.92		98.33

APPENDIX C --- PER CENT BASE, EXCESS, AND CLASS USE IS OF TOTAL DELIVERIES, DETROIT MARKET, 1934-48. (Continued)

1948	PER CENT BASE	PER CENT EXCESS	PER CENT SOLD AS CLASS I	PER CENT SOLD AS CLASS II-A	PER CENT SOLD AS CLASS II-B	PER CENT SOLD AS CLASS II-C	PER CENT BASE USED AS CLASS I
Jan.	93.28	6.72	91.76	5.38	2.86		98.37
Feb.	92.84	7.16	89.80	5.23	4.97		96.72
Mar.	90.87	9.13	85.72	5.63	8.65		94.34
Apr.	87.98	12.02	79.91	5.45	14.64		90.83
May	81.51	18.49	67.95	4.64	27.41		83.36
June	77.81	22.19	64.75	4.37	30.88		83.21
July	85.84	14.16	71.18	4.87	23.95		82.93
Aug.	88.18	11.82	72.40	4.93	22.67		82.10
Sept.	90.80	9.20	79.62	5.44	14.94		87.68
Oct.	93.40	6.60	84.66	5.70	9.64		90.03

APPENDIX D --- DAILY AVERAGES OF MILK DELIVERIES, CLASS USES, BASE AND EXCESS MILK (BY MONTHS), DETROIT MARKET, 1934-48.

1934	DAILY AVG. DELIVERIES	DAILY AVG. BASE MILK	DAILY AVG. EXCESS MILK	DAILY AVG. CLASS I	DAILY AVG. CLASS II	DAILY AVG. CLASS III
Jan.	1,594,584	1,423,483	171,101	1,104,690	165,704	55,235
Feb.	1,577,425	1,424,648	152,777	1,132,716	169,907	56,636
Mar.	1,641,105	1,477,134	163,971	1,164,749	174,711	58,237
Apr.	1,605,190	1,436,979	168,211	1,118,693	145,477	341,019
May	1,984,738	1,626,793	357,945	1,221,051	69,626	694,061
June	2,098,780	1,660,767	438,013	1,198,559	68,721	831,500
July	1,731,942	1,489,652	242,290	1,087,981	51,357	592,604
Aug.	1,729,905	1,485,178	244,727	1,077,922	94,659	557,324
Sept.	1,651,234	1,442,542	208,692	1,079,541	118,445	453,248
Oct.	1,689,271	1,489,114	200,157	1,094,058	76,054	519,158
Nov.	1,549,624	1,403,064	146,560	1,076,977	75,720	396,927
Dec.	1,548,676	1,401,917	146,759	1,054,410	77,280	416,987
1935						
Jan.	1,636,947	1,456,586	180,361	1,110,028	89,327	437,593
Feb.	1,679,504	1,547,630	131,874	1,122,242	84,990	472,271
Mar.	1,771,686	1,598,468	173,218	1,136,269	76,176	559,241
Apr.	1,793,565	1,593,773	199,792	1,098,560	74,510	620,195
May	2,147,706	1,764,792	382,914	1,115,907	81,511	950,248
June	2,357,922	1,804,754	553,168	1,077,806	84,885	195,231
July	2,041,273	1,688,479	352,794	1,079,868	59,224	902,181
Aug.	1,904,439	1,640,861	263,578	1,073,849	50,152	780,439
Sept.	1,851,021	1,631,231	219,790	1,110,117	48,687	692,217
Oct.	1,687,246	1,546,376	140,870	1,126,597	47,533	513,116
Nov.	1,630,432	1,511,593	118,839	1,106,260	46,911	477,261
Dec.	1,715,008	1,563,994	151,014	1,072,670	69,608	572,730

APPENDIX D --- DAILY AVERAGES OF MILK DELIVERIES, CLASS USES, BASE AND EXCESS MILK (BY MONTHS), DETROIT MARKET, 1934-48.

1936	DAILY AVG. DELIVERIES	DAILY AVG. BASE MILK	DAILY AVG. EXCESS MILK	DAILY AVG. CLASS I	DAILY AVG. CLASS II	DAILY AVG. CLASS III
Jan.	1,846,855	1,659,816	187,039	1,098,210	83,681	664,963
Feb.	1,815,115	1,648,799	166,316	1,081,517	86,908	672,889
Mar.	1,963,553	1,728,290	236,263	1,096,845	84,761	781,948
Apr.	2,083,687	1,785,293	298,394	1,106,764	87,476	889,447
May	2,362,684	1,828,121	534,563	1,088,461	83,534	1,190,689
June	2,512,174	1,874,193	637,981	1,093,622	87,639	1,330,913
July	2,183,653	1,808,821	374,832	1,097,436	55,391	1,030,827
Aug.	2,095,588	1,789,217	306,371	1,071,084	74,699	949,805
Sept.	2,048,064	1,760,542	287,522	1,105,376	87,659	855,030
Oct.	1,941,301	1,717,252	224,049	1,103,907	96,828	740,567
Nov.	1,789,370	1,639,957	149,413	1,109,618	104,643	575,109
Dec.	1,800,839	1,629,043	171,796	1,104,354	108,760	587,724
1937						
Jan.	1,860,758	1,655,355	205,403	1,113,808	292,360	469,743
Feb.	1,872,056	1,692,092	179,964	1,111,773	275,046	485,237
Mar.	2,002,560	1,778,191	224,369	1,138,677	309,721	554,162
Apr.	2,061,552	1,787,386	274,166	1,113,854	345,605	602,093
May	2,255,188	1,838,017	417,171	1,121,259	413,321	720,609
June	2,314,284	1,820,879	493,407	1,126,967	432,663	754,636
July	1,999,913	1,710,925	288,988	1,066,235	347,731	585,947
Aug.	1,874,828	1,661,473	213,355	1,076,333	298,483	500,012
Sept.	1,791,346	1,619,345	172,001	1,114,494	251,957	424,895
Oct.	1,608,972	1,510,985	97,987	1,130,156	436,567	
Nov.	1,524,668	1,459,839	64,829	1,110,815	413,852	
Dec.	1,631,560	1,530,058	101,502	1,057,680	574,064	

APPENDIX D --- DAILY AVERAGES OF MILK DELIVERIES, CLASS USES, BASE AND EXCESS MILK (BY MONTHS), DETROIT MARKET, 1934-48.

1938	DAILY AVG. DELIVERIES	DAILY AVG. BASE MILK	DAILY AVG. EXCESS MILK	DAILY AVG. CLASS I	DAILY AVG. CLASS II	DAILY AVG. CLASS III
Jan.	1,715,935	1,579,619	136,316	1,009,595	706,340	
Feb.	1,767,638	1,629,333	138,305	1,000,927	766,711	
Mar.	1,790,500	1,637,463	153,037	1,014,643	775,857	
Apr.	1,859,094	1,672,156	186,938	991,602	867,491	
May	2,201,117	1,789,548	411,569	985,929	1,215,187	
June	2,188,201	1,769,735	418,466	1,022,776	1,165,424	
July	1,935,726	1,684,799	250,927	959,162	976,563	
Aug.	1,890,065	1,646,670	243,395	995,307	894,757	
Sept.	1,857,474	1,627,710	229,764	1,027,199	830,275	
Oct.	1,720,370	1,561,904	158,466	1,057,482	658,178	
Nov.	1,664,544	1,528,893	138,651	1,069,887	594,657	
Dec.	1,670,995	1,525,253	145,742	1,060,826	610,170	
1939						
Jan.	1,721,985	1,604,265	117,720	1,067,427	654,559	
Feb.	1,777,798	1,634,810	142,988	1,090,064	687,734	
Mar.	1,815,989	1,656,295	159,694	1,088,778	727,211	
Apr.	1,851,610	1,674,941	176,669	1,085,809	765,801	
May	2,040,258	1,750,512	289,746	1,109,230	930,293	
June	2,090,914	1,764,007	326,907	1,140,292	949,696	
July	1,870,076	1,687,113	182,963	1,093,003	775,828	
Aug.	1,855,711	1,665,617	190,094	1,095,259	763,325	
Sept.	1,815,583	1,663,407	152,176	1,145,679	671,611	
Oct.	1,764,856	1,636,941	127,915	1,153,000	611,777	
Nov.	1,735,750	1,607,081	128,669	1,144,839	590,910	
Dec.	1,721,257	1,583,381	137,876	1,126,869	594,388	

APPENDIX D --- DAILY AVERAGES OF MILK DELIVERIES, CLASS USES, BASE AND EXCESS MILK (BY MONTHS), DETROIT MARKET, 1934-48. (Continued)

1940	DAILY AVG. DELIVERIES	DAILY AVG. BASE MILK	DAILY AVG. EXCESS MILK	DAILY AVG. CLASS I	DAILY AVG. CLASS II
Jan.	1,738,586	1,619,018	119,568	1,151,266	587,320
Feb.	1,783,439	1,637,573	145,866	1,173,567	631,488
Mar.	1,836,110	1,661,227	174,883	1,162,328	673,782
Apr.	1,894,484	1,690,272	204,212	1,192,987	735,874
May	2,075,392	1,758,293	217,099	1,187,570	887,822
June	2,195,364	1,777,793	417,571	1,175,246	1,019,880
July	1,971,834	1,720,850	250,984	1,131,128	840,646
Aug.	1,972,625	1,735,127	237,498	1,150,591	822,527
Sept.	2,004,922	1,762,833	242,089	1,207,587	782,949
Oct.	1,958,352	1,744,914	213,438	1,221,120	737,103
Nov.	1,796,078	1,651,645	144,433	1,213,680	582,398
Dec.	1,785,362	1,630,508	154,854	1,193,848	592,789
1941					
Jan.	1,843,197	1,721,884	121,313	1,227,359	325,516
Feb.	1,880,183	1,732,834	147,349	1,250,140	630,043
Mar.	1,943,175	1,772,576	170,599	1,261,125	682,050
Apr.	2,033,803	1,809,951	223,852	1,276,428	757,375
May	2,322,038	1,894,304	427,734	1,284,532	1,037,506
June	2,346,216	1,906,931	439,285	1,277,776	1,068,440
July	2,098,802	1,836,128	262,674	1,266,729	832,073
Aug.	2,183,164	1,875,163	308,001	1,250,771	932,393
Sept.	2,117,079	1,854,819	262,260	1,309,398	807,681
Oct.	1,960,219	1,781,004	179,215	1,282,236	677,983
Nov.	1,865,491	1,710,895	154,596	1,253,315	612,176
Dec.	1,800,001	1,624,915	173,922	1,255,838	542,999

APPENDIX D --- DAILY AVERAGES OF MILK DELIVERIES, CLASS USES, BASE AND EXCESS MILK (BY MONTHS), DETROIT MARKET, 1934-48. (Continued)

1942	DAILY AVG. DELIVERIES	DAILY AVG. BASE MILK	DAILY AVG. EXCESS MILK	DAILY AVG. CLASS I	DAILY AVG. CLASS II-A	DAILY AVG. CLASS II-B
Jan.	1,870,103	1,744,012	126,091	1,234,351	635,752)	
Feb.	1,912,753	1,757,790	154,963	1,242,487	670,266)	CLASS II
Mar.	1,992,031	1,797,494	194,537	1,248,059	743,972)	
Apr.	2,081,220	1,835,770	245,450	1,282,685	798,535)	
May	2,375,898	1,933,777	442,121	1,278,028	270,135	827,735
June	2,345,345	1,919,856	425,489	1,333,457	281,454	730,434
July	2,160,440	1,877,268	283,172	1,345,173	288,621	526,646
Aug.	2,218,598	1,925,125	293,473	1,325,962	286,553	606,083
Sept.	2,186,179	1,921,555	264,624	1,386,517	298,733	500,929
Oct.	2,023,299	1,841,672	180,397	1,418,275	298,631	305,163
Nov.	1,836,848	1,713,990	122,858	1,428,688	292,880	115,280
Dec.	1,874,321	1,696,011	145,755	1,529,760	227,453	20,531
1943						
Jan.	1,912,353	1,786,559	125,794	1,674,238	211,633	26,481
Feb.	1,995,734	1,832,741	162,993	1,774,072	203,022	18,640
Mar.	2,112,419	1,900,264	212,378	1,827,981	259,326	25,335
Apr.	2,201,732	1,934,247	267,488	1,805,046	308,804	87,885
May	2,353,594	1,981,439	372,156	1,772,633	328,834	252,127
June	2,429,214	1,974,864	454,350	1,849,598	344,509	235,107
July	2,198,033	1,921,596	276,437	1,812,464	298,580	86,999
Aug.	2,224,166	2,112,883	111,283	1,829,482	326,694	67,989
Sept.	2,164,070	2,077,151	86,919	1,862,152	254,042	47,875
Oct.	1,915,845	1,871,468	44,377	1,805,001	110,611	233
Nov.	1,743,548	1,706,300	37,247	1,768,773	83,632	
Dec.	1,771,548	1,717,899	53,649	1,849,824	108,571	

APPENDIX D --- DAILY AVERAGES OF MILK DELIVERIES, CLASS USES, BASE AND EXCESS MILK (BY MONTHS), DETROIT MARKET, 1934-48. (Continued)

1944	DAILY AVG. DELIVERIES	DAILY AVG. BASE MILK	DAILY AVG. EXCESS MILK	DAILY AVG. CLASS I	DAILY AVG. CLASS II-A	DAILY AVG. CLASS II-B
Jan.	1,862,729	1,874,624	48,577	1,867,621	173,601	
Feb.	1,965,378	1,891,032	74,346	1,998,836	133,187	18,708
Mar.	2,081,254	1,985,637	95,617	1,870,064	136,830	86,133
Apr.	2,257,682	1,986,179	271,503	1,872,803	120,792	264,086
May	2,589,351	2,126,351	463,000	1,901,469	126,868	298,888
June	2,781,822	2,203,886	577,936	1,917,378	129,652	158,682
July	2,484,252	2,136,155	348,097	1,799,362	122,105	156,517
Aug.	2,401,610	2,136,592	265,018	1,907,684	128,416	365,510
Sept.	2,348,026	2,122,581	225,991	1,926,816	124,645	304,798
Oct.	2,186,996	2,031,208	155,788	1,943,329	131,054	112,612
Nov.	2,113,055	1,967,012	146,043	1,953,469	27,927	114,393
Dec.	2,182,123	1,977,446	204,677	1,889,316	126,696	169,322
1945						
Jan.	2,272,071	2,017,793	254,278	1,957,638	130,808	183,626
Feb.	2,361,886	2,119,792	242,094	2,003,456	132,981	225,449
Mar.	2,552,401	2,227,201	325,200	2,035,774	135,692	380,935
Apr.	2,762,275	2,269,413	492,862	1,982,172	134,599	645,504
May	2,922,001	2,304,744	617,257	1,995,016	136,131	160,012
June	3,112,484	2,346,196	766,288	1,995,521	135,337	160,077
July	2,812,244	2,268,089	544,155	1,876,115	128,096	163,141
Aug.	2,719,662	2,275,650	444,012	1,924,973	130,310	158,491
Sept.	2,617,177	2,253,285	363,892	1,912,460	130,547	160,753
Oct.	2,303,141	2,114,659	188,482	1,961,714	134,612	206,815
Nov.	2,126,755	1,992,097	134,658	1,967,590	128,647	30,518
Dec.	2,127,567	1,966,853	160,714	1,921,894	126,362	79,317

APPENDIX D --- DAILY AVERAGES OF MILK DELIVERIES, CLASS USES, BASE AND EXCESS MILK (BY MONTHS), DETROIT MARKET, 1934-48. (Continued)

1946	DAILY AVG. DELIVERIES	DAILY AVG. BASE MILK	DAILY AVG. EXCESS MILK	DAILY AVG. CLASS I	DAILY AVG. CLASS II-A	DAILY AVG. CLASS II-B
Jan.	2,184,566	1,972,433	212,133	1,981,369	129,620	73,577
Feb.	2,241,304	2,059,878	181,426	1,792,912	113,008	335,384
Mar.	2,380,855	2,140,554	240,301	1,990,238	132,885	257,732
Apr.	2,549,012	2,204,305	344,707	2,051,923	138,752	357,670
May	2,841,163	2,283,639	557,524	2,038,795	138,933	663,435
June 1-17	3,051,353	2,322,638	728,715	2,039,345	134,945	939,292
18-30		2,305,578	467,877	2,019,374	130,102	820,501
July 1-15	2,773,455	2,300,781	369,226	2,018,183	137,296	689,993
16-31				1,989,031	132,311	584,596
Aug.	2,670,007	2,283,853	258,718	1,929,239	130,440	618,394
Sept.	2,542,571	2,172,178	178,300	2,005,274	135,562	403,740
Oct.	2,350,478	2,090,065	155,665	2,076,658	135,513	138,307
Nov.	2,245,730	2,118,168	204,816	2,006,214	130,857	124,085
Dec.	2,322,984	2,171,720	245,194	1,918,034	127,166	277,784
1947						
Jan.	2,416,914	2,171,720	245,194	1,961,070	126,893	328,951
Feb.	2,507,291	2,297,582	209,709	1,995,498	132,988	378,806
Mar.	2,639,105	2,349,985	289,120	2,004,500	126,047	250,308
Apr.	2,833,510	2,419,226	414,284	1,995,194	138,287	704,029
May	2,996,431	2,455,080	541,351	1,985,189	134,773	283,299
June	3,148,214	2,480,849	667,364	1,968,603	135,562	299,762
July	2,834,743	2,423,140	411,603	1,908,154	129,795	281,915
Aug.	2,640,808	2,352,309	288,499	1,970,253	134,054	536,501
Sept.	2,633,485	2,380,230	253,255	2,073,633	140,689	419,163
Oct.	2,516,661	2,324,652	192,009	2,092,998	140,587	283,076
Nov.	2,232,068	2,130,364	101,704	2,040,098	123,783	68,187
Dec.	2,197,220	2,081,942	115,278	2,047,135	107,922	42,163

APPENDIX D --- DAILY AVERAGES OF MILK DELIVERIES, CLASS USES, BASE AND EXCESS MILK (BY MONTHS), DETROIT MARKET, 1934-48. (Continued)

1948	DAILY AVG. DELIVERIES	DAILY AVG. BASE MILK	DAILY AVG. EXCESS MILK	DAILY AVG. CLASS I	DAILY AVG. CLASS II-A	DAILY AVG. CLASS II-B
Jan.	2,416,914	2,171,720	245,194	2,059,797	120,763	64,208
Feb.	2,297,994	2,297,583	209,709	2,063,628	120,146	114,220
Mar.	2,414,049	2,193,679	220,370	2,069,427	135,936	208,685
Apr.	2,639,105	2,349,985	289,120	2,074,422	141,479	380,120
May	2,949,553	2,404,169	545,384	2,004,120	136,807	808,626
June	3,132,083	2,437,218	694,865	2,028,000	136,923	967,160
July	2,773,877	2,381,001	392,876	1,974,472	135,062	664,343
Aug.	2,714,613	2,393,821	320,792	1,965,292	133,878	615,443
Sept.	2,589,344	2,351,083	238,261	2,061,515	140,746	387,083
Oct.	2,445,106	2,283,681	161,425	2,070,069	139,340	235,697

APPENDIX E --- DETROIT MARKET MILK PRICES, 1934-48.

1934	CLASS I	CLASS II	CLASS III	BASE	EXCESS	BLEND
Jan.	1.85	1.25	.68	1.70	.68	1.617
Feb.	1.85	1.25	.85	1.70	.85	1.673
Mar.	1.85	1.25	.86	1.70	.86	1.672
Apr.	2.02	1.25	.95	1.85	.78	1.723
May	2.02	1.28	.93	1.82	.81	1.613
June	2.13	1.33	1.00	1.92	.85	1.656
July	2.25	1.30	1.05	2.02	.83	1.811
Aug.	2.25	1.43	1.10	2.03	.92	1.835
Sept.	2.25	1.36	1.05	2.03	.87	1.857
Oct.	2.25	1.41	1.05	2.01	.91	1.843
Nov.	2.38	1.55	1.20	2.17	1.02	2.037
Dec.	2.37	1.58	1.22	2.08	1.03	2.021
1935						
Jan.	2.25	1.72	1.35	2.11	1.14	1.980
Feb.	2.40	1.83	1.44	2.22	1.22	2.101
Mar.	2.48	1.64	1.27	2.20	1.08	2.062
Apr.	2.48	1.73	1.35	2.21	1.15	2.058
May	2.48	1.41	1.07	2.07	.91	1.816
June	2.48	1.30	.97	1.99	.82	1.672
July	2.48	1.30	.97	2.02	.83	1.778
Aug.	2.48	1.34	1.01	2.05	.85	1.848
Sept.	2.48	1.38	1.05	2.09	.89	1.916
Oct.	2.48	1.47	1.12	2.16	.95	2.038
Nov.	2.48	1.67	1.30	2.21	1.10	2.111
Dec.	2.48	1.74	1.37	2.20	1.16	2.079
1936						
Jan.	2.48	1.77	1.39	2.20	1.18	2.055
Feb.	2.48	1.86	1.47	2.21	1.25	2.090
Mar.	2.48	1.49	1.29	2.12	1.09	1.963
Apr.	2.48	1.23	1.23	2.09	1.04	1.894
May	2.48	1.29	1.09	2.03	.92	1.737
June	2.48	1.19	1.19	2.07	1.01	1.752
July	2.48	1.38	1.38	2.15	1.17	1.933
Aug.	2.48	1.44	1.44	2.16	1.22	1.971
Sept.	2.48	1.40	1.40	2.18	1.19	1.983
Oct.	2.48	1.30	1.30	2.15	1.10	1.970
Nov.	2.48	1.34	1.34	2.18	1.14	2.047
Dec.	2.48	1.37	1.37	2.19	1.16	2.025

APPENDIX E --- DETROIT MARKET MILK PRICES, 1934-48.

1937	CLASS I	CLASS II	CLASS III	BASE	EXCESS	BLEND
Jan.	2.48	1.37	1.50	2.20	1.37	2.066
Feb.	2.48	1.38	1.52	2.19	1.38	2.070
Mar.	2.48	1.45	1.59	2.21	1.45	2.074
Apr.	2.56	1.29	1.42	2.19	1.29	2.014
May	2.48	1.25	1.38	2.11	1.25	1.903
June	2.48	1.24	1.37	2.12	1.24	1.886
July	2.48	1.27	1.40	2.11	1.27	1.953
Aug.	2.48	1.32	1.45	2.15	1.32	2.021
Sept.	2.48	1.41	1.55	2.23	1.41	2.109
Oct.				2.30	1.83	2.26
Nov.				2.30	1.83	2.28
Dec.	2.48	1.92		2.30	1.92	2.28
1938						
Jan.	2.33	1.71		2.09	1.71	2.04
Feb.	2.25	1.60		2.01	1.60	1.96
Mar.	2.25	1.56		1.98	1.56	1.91
Apr.	2.25	1.45		1.93	1.45	1.83
May	2.05	1.34		1.73	1.34	1.61
June	1.90	1.32		1.65	1.32	1.55
July	1.90	1.33		1.65	1.33	1.57
Aug.	1.90	1.31		1.67	1.31	1.58
Sept.	1.90	1.31		1.68	1.31	1.60
Oct.	1.90	1.33		1.71	1.33	1.64
Nov.	1.90	1.36		1.74	1.36	1.67
Dec.	1.90	1.46		1.75	1.42	1.68
1939						
Jan.	1.90	1.33		1.71	1.33	1.64
Feb.	1.90	1.33		1.71	1.33	1.64
Mar.	1.90	1.25		1.68	1.25	1.59
Apr.	1.90	1.18		1.65	1.18	1.55
May	1.90	1.22		1.65	1.22	1.51
June	1.90	1.27		1.68	1.27	1.53
July	1.90	1.24		1.67	1.24	1.57
Aug.	1.90	1.26		1.68	1.26	1.61
Sept.	2.08	1.44		1.89	1.44	1.85
Oct.	2.08	1.49		1.92	1.49	1.89
Nov.	2.08	1.535		1.93	1.535	1.90
Dec.	2.08	1.54		1.93	1.54	1.90

APPENDIX E --- DETROIT MARKET MILK PRICES, 1934-48.

1940	CLASS I	CLASS II-A	CLASS II-B	BASE	EXCESS	BLEND
Jan.	2.08	1.59		1.94	1.59	1.92
Feb.	2.08	1.52		1.92	1.52	1.89
Mar.	2.08	1.45		1.90	1.45	1.86
Apr.	2.08	1.41		1.89	1.41	1.84
May	2.08	1.38		1.85	1.38	1.78
June	2.08	1.38		1.83	1.38	1.74
July	2.08	1.40		1.85	1.40	1.79
Aug.	2.08	1.41		1.86	1.41	1.81
Sept.	2.08	1.44		1.88	1.44	1.83
Oct.	2.08	1.53		1.92	1.53	1.88
Nov.	2.08	1.66		1.98	1.66	1.95
Dec.	2.08	1.74		1.99	1.74	1.97
1941						
Jan.	2.08	1.57		1.93	1.57	1.91
Feb.	2.08	1.55		1.93	1.55	1.90
Mar.	2.08	1.58		1.93	1.58	1.90
Apr.	2.08	1.68		1.96	1.68	1.93
May 1-19	2.08	1.78		1.96	1.78	
21-31	2.40	1.84		2.24	1.84	2.02
June	2.40	1.87		2.24	1.87	2.16
July	2.40	1.86		2.24	1.86	2.19
Aug.	2.40	1.90		2.24	1.90	2.19
Sept.	2.69	2.05		2.50	2.05	2.45
Oct.	2.69	2.00		2.51	2.00	2.47
Nov.	2.69	2.03		2.52	2.03	2.49
Dec.	2.67	1.96		2.52	1.96	2.46
1942						
Jan.	3.00	2.25)		2.79	2.25	2.75
Feb.	3.00	2.21)	CLASS II	2.77	2.21	2.73
Mar.	3.00	2.19)		2.75	2.19	2.70
Apr.	3.00	2.29)		2.79	2.29	2.73
May	3.00	2.12	1.97	2.68	1.97	2.55
June	3.00	2.08	1.93	2.70	1.93	2.56
July	3.00	2.11	1.96	2.74	1.96	2.64
Aug.	3.00	2.25	2.10	2.74	2.10	2.66
Sept.	3.00	2.37	2.22	2.81	2.22	2.74
Oct.	3.00	2.54	2.39	2.89	2.39	2.85
Nov.	3.00	2.56	2.41	2.95	2.41	2.90
Dec.	3.00	2.73	2.58	3.00	2.58	2.97

APPENDIX E --- DETROIT MARKET MILK PRICES, 1934-48.

1943	CLASS I	CLASS II-A	CLASS II-B	CLASS II-C	BASE	EXCESS	BLEND
Jan.	3.00	2.81	2.66		3.00	2.66	2.97
Feb.	3.39	2.82	2.67		3.38	2.67	3.32
Mar.	3.38	2.81	2.66		3.36	2.66	3.30
Apr.	3.38	2.82	2.67		3.35	2.67	3.27
May	3.38	2.83	2.68		3.32	2.73	3.23
June	3.38	2.83	2.68		3.34	2.78	3.23
July	3.38	2.83	2.68		3.34	2.78	3.27
Aug.	3.38*	2.84	2.69		3.30	2.79	3.28
Sept.	3.38*	2.88	2.73		3.32	2.83	3.30
Oct.	3.38*	2.93	2.78		3.36	3.36	3.35
Nov.	3.46*	3.46			3.46	3.46	3.46
Dec.	3.46*	3.46			3.46	3.46	3.46
1944							
Jan.	3.57	3.46			3.46-	3.46	3.56
Feb. 1-14	3.57	3.46	3.71		3.46-	3.46	3.62
15-29	3.69				3.67	3.67	
Mar.	3.69	3.46	2.835		3.63	3.63	3.64
Apr.	3.69	3.46	2.73		3.68	2.75	3.57
May 1-18	3.69	3.46	2.65	2.43	3.61	2.51	3.51
19-31	3.69	2.93	2.53				
June	3.69	2.92	2.52	2.42	3.55	2.42	3.32
July	3.69	2.94	2.60	2.44	3.53	2.44	3.38
Aug.	3.69	3.01	2.67		3.60	2.67	3.50
Sept.	3.69	3.02	2.68		3.61	2.68	3.52
Oct.	3.69	3.03	2.69		3.66	2.78	3.60
Nov.	3.69	3.03	2.69		3.64	3.64	3.64
Dec.	3.69	3.03	2.69		3.66	2.75	3.57
1945							
Jan.	3.69	3.05	2.71		3.67	2.79	3.57
Feb.	3.69	3.05	2.71		3.66	2.74	3.56
Mar.	3.69	3.03	2.69		3.62	2.69	3.51
Apr.	3.69	2.96	2.62		3.57	2.62	3.40
May	3.69	2.95	2.61	2.45	3.56	2.45	3.33
June	3.69	2.93	2.59	2.43	3.54	2.43	3.27
July	3.69	2.93	2.59	2.43	3.51	2.43	3.30
Aug.	3.69	2.95	2.61	2.45	3.54	2.45	3.36
Sept.	3.69	2.89	2.55	2.39	3.53	2.39	3.37
Oct.	3.69	2.93	2.59		3.62	2.59	3.55
Nov.	3.69	2.89	2.64		3.67	2.90	3.63
Dec.	3.69	3.01	2.67		3.66	2.82	3.61

* Premium 50¢ per cwt. between 90% and 120% of base. November and December 70¢ per cwt. on all milk over 90%.

\- -61¢ premium for milk delivered from 90% of base and 120% of base--January, February.

APPENDIX E --- DETROIT MARKET MILK PRICES, 1934-48.

1946	CLASS I	CLASS II-A	CLASS II-B	CLASS II-C	BASE	EXCESS	BLEND
Jan.	3.69	3.04	2.70		3.69	2.95	3.62
Feb.	3.69	3.12	2.78		3.59	2.78	3.53
Mar.	3.69	3.15	2.81		3.65	2.81	3.57
Apr.	3.69	3.21	2.87		3.65	2.87	3.55
May	3.69	3.33	2.99		3.63	2.99	3.51
June 1-17	3.69	3.41	3.07		3.62	3.07	3.61
18-30	4.04	3.52	3.18		3.95	3.18	
July 1-15	4.04	4.00	3.66		4.31	3.72	4.22
16-31	4.71	4.12	3.78				
Aug.	4.71	4.20	3.86		4.59	3.86	4.49
Sept.	4.71	4.44	4.10		4.65	4.10	4.60
Oct.	4.71	4.63	4.29		4.69	4.37	4.68
Nov.	4.86	4.63	4.29		4.79	4.79	4.82
Dec.	5.00	4.63	4.29		4.88	4.88	4.89
1947							
Jan.	5.00	4.26	3.92		4.91	3.92	4.814
Feb.	4.71	4.00	3.66		4.58	3.66	4.514
Mar.	4.71	3.90	3.56		4.54	3.56	4.546
Apr.	4.66	3.73	3.39		4.45	3.39	4.300
May	4.60	3.39	3.05	2.89	4.32	2.89	4.060
June	4.60	3.34	3.00	2.84	4.28	2.84	3.977
July	4.60	3.48	3.14	2.98	4.30	2.98	4.109
Aug.	4.60	3.72	3.38		4.42	3.38	4.308
Sept.	4.75	3.95	3.61		4.61	3.61	4.526
Oct.	4.90	3.97	3.64		4.79	3.64	4.708
Nov.	4.90	4.16	3.83		4.82	4.82	4.82
Dec.	4.90	4.44	4.11		4.86	4.86	4.862
1948							
Jan.	4.89	4.52	4.19		4.85	4.85	4.850
Feb.	4.89	4.50	4.17		4.84	4.84	4.834
Mar.	4.89	4.48	4.15		4.87	4.17	4.803
Apr.	4.90	4.43	4.10		4.84	4.10	4.757
May	4.90	4.44	4.11		4.78	4.11	4.66
June 1-9	4.90	4.50	4.17		4.98	4.17	4.79
10-30	5.22						
July	5.22	4.61	4.28		5.09	4.28	4.96
Aug. 1-4	5.22	4.65	4.32		5.32	4.32	5.18
5-31	5.54						
Sept.	5.54	4.49	4.16		5.38	4.16	5.26
Oct.	5.54	3.95	3.62		5.37	3.62	5.26

APPENDIX F --- HISTORY OF THE BASE REGULATIONS[1]

When the base and excess plan was introduced for the second time in the Detroit market on May 1, 1930, the producer's base was determined as follows:

1. The producer having shipped during the last three or more years will have as his base the average daily amount of milk shipped during October, November and December of 1927, 1928 and 1929. However, if it be to his advantage to have a base on the amount shipped in 1928 and 1929 or only during 1929, he will be given a base on the amount shipped in the two or the one year period.

2. The producer having shipped only during 1928 and 1929 will have as his base the average daily amount shipped during October, November and December of these two years. However, if it be to his advantage, he will be given a base on his shipments in 1929.

3. The producer having shipped only in 1929 will have as his base the average daily amount of milk shipped during October, November and December of that year.

4. The producer starting shipments during January--April 1930 will be given a base of 50 per cent of his first 30 days' shipments. If he starts during May he will be given 40 per cent of the first 30 days' shipments. These bases will continue until after the new base forming period, October--December 1930.

No provisions were given for new shippers in June and July.

1/ Data for this history came from the Michigan Milk Messenger.

1931

These provisions were extended August 29, 1930 by allowing new shippers to enter in August and September with 50% and October and November with 60% of the daily average of their first 30 days' shipments as their base, for the remainder of the year. Those beginning to ship in October and November were allowed 70% of their average October-December shipments as their new 1931 base.

For old shippers the 1931 base was established by a choice of 2 times the 1930 base plus the daily average shipments for October, November and December, 1930 divided by three; or by 70% of the October, November and December production for 1930.

Shippers beginning after December 1, 1930 would have a base equal to 50% of their daily average December shipments for the remainder of 1931, and a 1931 base as determined above. Beginning with March, 1931, shippers were paid base prices for only 80% of their base deliveries.

1932

The 1932 base was equal to 2/3 of the present base plus 1/3 of the average daily shipments during October, November and December, 1931, or by 70% of the average daily shipments during October, November and December, 1931. The 1932 bases were decreased by using only 80% of the 1931 bases in computing market bases during the base forming period, October, November and December, 1931. However, members could retain their 1931 base provided they shipped at least 70% of their base during the base-forming period. In January and February

base price was paid for only 65% of the producer's base deliveries, after which base price was paid for 80% of the base deliveries.

1933

The 1933 plan allowed producers to maintain their 1932 base provided they shipped at least 70% of their base during the base forming period in 1932. Shippers who delivered less than 70% of their base after August, 1932 were penalized by a reduction in his base of 1/12 the difference between his average daily deliveries and the amount of base called for September--December, 1932 (except that a 10% leeway was allowed for September). The lost base was given to those producers who delivered more than 70% of their base. Base prices were paid for only 80% of the base deliveries until August 1, 1933.

1934

Producers eligible to participate in the allocation of base for 1934 were those producers who delivered within 10% of the call for 11 months[1/] during 1933, and those producers who failed to deliver the base called had their bases reduced by an amount equal to 1/12 of the difference between their deliveries and 10% of the call. Thus there were no deductions from 1934 base for the first month any producer failed to deliver within 10% of base called. Each month was calculated separately. Extra delivery for one month could not make up for under delivery in another month.

1/ Later amended to provide that month of January, 1933 not to be considered in computing base ratings for 1934. This did not affect leeway of one month.

1935

The 1935 base of a producer was made equal to the daily average production delivered during the four low months for each producer during 1934, after excluding the lowest month.

Or, if it made a higher base, a producer could retain his 1934 base for 1935, providing he delivered with 10% of base called for each month of 1934 except January, and further providing that any producer who failed to deliver within 10% of base called for in any month would have his base reduced by 1/11th of the amount his deliveries were below 90% of base called for.[1/]

New shipper bases under the amended license of November 5, 1934 were to be allotted on the basis of the following percentages of shipments of the first delivery month: 50% for January, February, March, April, July, August and September; 40% for May and June; and 60% for October, November and December; the producer accepting surplus prices for one full delivery month (90 days for shippers starting between April 1 and November 1). After delivery for 10 full months, the new base was the average of the 4 high of the 5 lowest months. Old shippers could relinquish their base at any time and adopt the position of a new producer. These new shipper rules percentages remained in effect until 1939.

1/ Due to drought conditions, the Sales Committee ruled that the period for selection of low months was to end August 1, 1934, and that required delivery was to be 70% of 1934 base after August 1, 1934, rather than 90%.

1936

A producer had two options for establishment of his 1936 base. He could retain his old 1935 base, provided he delivered 70% of base called for during each month of 1935 except January. Any producer who delivered less than 70% of his called base in any month of 1935 except January would have his rating reduced by 1/11 of the amount his deliveries were below 70%.

A producer could establish his 1936 base as the daily average of the 4 low months delivery in 1935, after discarding the lowest month.

This base plan continued for the 1937 base.

1938

Rules for 1938 base were the same except that a producer was not required to ship 70% of his base during May and June to retain his base, and thus penalties for shipping less than 70% of base in other months caused him to lose 1/9 of the daily average amount below 70%. Similarly, he could establish his 1938 base as the daily average of the four low months, after discarding January, May and June and the remaining lowest month.

1939

Producers could retain their 1938 bases for 1939 provided his daily average deliveries during the period of August, September, October and November, 1938 was not less than 90% of his 1938 base. Delivery of less than 90% of his 1938 base as a daily average during this period would

cause his 1938 base to be reduced for 1939 by the difference between his daily average delivery and 90% of his 1938 daily base. Alternatively, he could establish a new base for 1939 on 100% of his daily average deliveries during August, September, October and November, 1938.

New shippers in 1939 were allowed to sell the following percentages of their milk shipments as base during the first three months:

60% of shipments during January, February, March, April or July.

40% of May or June.

75% of August, September, October, November or December.

The average daily deliveries sold as base during the first three months became his base for 1939.

Provisions for establishing or retaining bases of old shippers have not changed materially since 1939 except that December was added to the base-forming period. Since that time the base-forming months have been August, September, October, November and December.

Rules governing the entrance of new shippers into the market have changed considerably during the period 1937-48, in that the percentages of deliveries which the new shipper could sell as base milk for the first three months and which determined his base for the next year have changed as in Table I.

TABLE I OF APPENDIX F --- PERCENTAGE OF SHIPMENTS ALLOWED NEW PRODUCERS IN ESTABLISHING BASE, DETROIT MARKET, 1930-48.

	1930	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
Jan.	50	50	50	50	50	60	60	60	60	70	70	85	75	90	85
Feb.	50	50	50	50	50	60	60	60	60	70	70	85	75	90	80
Mar.	50	50	50	50	50	60	60	60	60	70	70	85	75	80	75
Apr.	50	50	50	50	50	60	60	60	60	70	70	65	70	70	70
May	40	40	40	40	40	40	40	40	40	50	50	50	50	50	50
June	--	40	40	40	40	40	40	40	40	50	50	50	40	40	40
July	--	50	50	50	50	60	60	60	60	60	70	65	70	70	80
Aug.	50	50	50	50	50	75	75	75	75	75	85	80	80	80	90
Sept.	50	50	50	50	50	75	75	75	75	75	85	80	90	90	90
Oct.	60	60	60	60	60	75	75	75	75	75	85	80	90	90	90
Nov.	60	60	60	60	60	75	75	75	75	75	85	80	90	90	90
Dec.	70	60	60	60	60	75	75	75	75	75	85	80	90	90	90

Source: Michigan Milk Messenger

APPENDIX G --- NEW PRODUCER RULES FOR ESTABLISHING 1948 BASE AND RULES FOR ESTABLISHING 1949 BASE

BASE PLAN

A. Base. The base of each producer shall be a quantity of milk for each month calculated in the following manner: MULTIPLY the established base calculated pursuant to Section B of this Article by the number of days on which such producer delivered milk during the month.

B. New Producers.

(a) New producers shall sell their milk at part base price and part excess price until they have sold during three full calendar months. The percentage of shipments allowed at base price shall be as follows:

85 per cent of shipments during January, 1948.

80 per cent of shipments during February, 1948.

75 per cent of shipments during March, 1948.

70 per cent of shipments during April and July, 1948.[1/]

50 per cent of shipments during May, 1948.

40 per cent of shipments during June, 1948.

80 per cent of shipments during August, 1948.[1/]

90 per cent of shipments during September, October, November and December, 1948.

(b) At the conclusion of the first three months delivery a base shall be established in the following manner: Multiply the deliveries during the first three months of

---

1/ In June, 1948, percentages allowed in July were increased to 80 per cent and August to 90 per cent.

shipment by the percentage listed above for same. From this determine daily average base delivery which average shall be producer's base until February 1, 1949. (Note exception under (c).)

(c) - (1) A producer whose first full delivery period is September, 1948, shall receive a 1949 base, beginning February 1, 1949, computed on the daily average of 100 per cent of his delivery during September, October, November and December, 1948.

(2) A producer whose first full delivery period is October, 1948, shall receive a 1949 base, beginning February 1, 1949, computed on the daily average of 100 per cent of his delivery in October, November and December.

C. Rules Governing Ownership of Base

1. A landlord who rents to a tenant is entitled to the entire base if the landlord owns the entire herd.

2. A tenant who rents a farm is entitled to the entire base if the tenant owns the entire herd.

3. In the event both landlord and tenant have ownership in a herd and such landlord-tenant relation ceases, division of base shall be made according to the number of cows owned during the last base-forming period regardless of the name under which the landlord-tenant business is conducted.

4. Special provisions for base ownership and division may be made between landlord and tenant through a legal contract entered into by both parties.

5. A producer with an active base, whether landlord or tenant, may retain his base when moving his entire herd from one farm to another.

6. A tenant or landlord having a herd with no base, who joins same with the herd of a landlord or tenant having a base, may earn a base under the new-shipper rules, provided, however, such base shall be established on the shipments made from said farm in excess of existing base on same.

7. A producer who voluntarily remains off the market more than 45 days loses his base and upon resuming shipments does so under the terms provided for new shippers.

D. Rules Governing Transfer of Base

1. A producer owning a herd with an established base, who sells his entire herd to one purchaser at one time, may transfer his base to the purchaser of same, provided the purchaser of the herd retains possession of all cows so purchased on his farm for a period of at least 30 days.

2. Base transfer in connection with the disposal of herd may not exceed a maximum of twenty-five (25) pounds for each cow in the herd at the time such disposal is made.

3. No base may be transferred which has not been in active use 20 out of the 30 days immediately prior to the date of sale of herd.

4. A producer who sells his herd and transfers his base to another party shall, if he re-enters the market, receive only the excess price for a period of six (6) months following such sale and transfer, except in the

event he purchases a herd with an active base as provided in paragraphs 1, 2 and 3 of this section.

5. The required notification forms transferring base from a producer to the purchaser of a herd must be properly notarized.

E. Rules to Establish 1949 Bases

1. A producer with an established 1948 base may retain same for 1949, provided his daily average delivery during the period of August, September, October, November and December, 1948, is not less than 90 per cent of his 1948 daily base. Delivery of less than 90 per cent of his 1948 base, as a daily average, during this period will cause his 1948 base to be reduced for 1949 by the difference between his daily average delivery and 90 per cent of his 1948 daily base.

2. A producer with an established 1948 base may establish a new base for 1949 on 100 per cent of his daily average delivery during August, September, October, November and December, 1948.

3. A producer shall be given the highest base available under the above rules. Bases so established shall become effective February 1, 1949.

F. Exclusions. Any producer who suffers a quality exclusion by the department of health of the municipality to which his milk is delivered shall, for the purpose of computing base, receive pro rata credit for the excluded period.

G. Base Adjustment Committee. A Base Adjustment Committee shall be appointed to review bases and to recommend adjustments when bases of individual shippers seem inequitable when compared to other shippers similarly circumstanced.