SOME ADVANTAGES OF PRE-PACKAGING PRODUCE AT THE FOOD CHAIN DISTRIBUTION CENTER LEVEL

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by

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CHAPTER I

INTRODUCTION

Purpose of the Study

Presently, produce pre-packaging is being done at four places in the marketing process: at the retail store, the food chain distribution center, the terminal market, and the growing or shipping point. Each distribution level packaging point has both advantages and disadvantages. The purpose of this thesis is to examine one of these packaging points--the food distribution center--and to determine the advantages which will accrue to a food chain by instituting this mode of produce pre-packaging.

Chapter Plan

The contents will be presented in the following order.

Attention will first be directed toward the history and present status of the pre-packaging industry to serve as a background for the study.

The function of Chapter III will be to discuss the needs for packaging at the food distribution center level.

In the remaining chapters the advantages and some of the problems encountered in pre-packaging at the food distribution center will be discussed. The case study method will be used to present portions of this section.

Importance of the Study

Since the early 1940's, the chief executives of most food chains have been greatly concerned with expansion possibilities. They have concentrated their efforts on building more and bigger stores and on entering new markets. Areas not serviced by supermarkets have been greatly reduced and sales have shown tremendous increases.

The industry is now emerging from the expansion phase and is entering a new era--the stage of increasing productivity and efficiency. In many cases, today's major problems are no longer ones of expansion but ones of obtaining a reasonable profit on existing or only slightly expanding volume.

Labor costs are rising constantly. But competition in the food industry is so severe that the increased costs cannot always be added to the selling price. So management, rightly enough, is now concentrating on means of lowering operating costs through greater efficiency and productivity.

Today, "the produce department has the highest direct labor costs per dollar of sales and the lowest dollar sales per man hour of any major department in the store."[1]

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[1]R. W. Byerly, "Product Prepackaging Today and Tomorrow," Super Market Merchandising, Vol. 20 (May, 1955), 166.

Obviously, here then is a logical place to start in the search to increase efficiency and productivity.

While much has been written about the advantages and economics of pre-packaging, very little has been written on the advantages to be gained from transferring the packaging operation from the retail store to a centralized location at the food distribution center. At the present time in order to find out information on the subject, it is necessary to look for the information scattered throughout a myriad of trade publications and agricultural bulletins. It is hoped that this paper will present, to any interested party, a relatively complete picture of the advantages and problems involved in this process, plus a source of reference for future work in this area.

Methodology

The subject for this paper was chosen in conference with this writer's advisor. Several men, interested in the field of produce pre-packaging were then consulted as to their views regarding the proposed study. The information obtained from these sources served as the initial reference leads for the study.

A few references were found by consulting the Reader's Guide to Periodical Literature, the Industrial Arts Index, The Agricultural Index, the United States Department of Agriculture Bibliography of Agriculture, The

Monthly Catalog of United States Government Publications, and Super Market Institute's Index of Super Market Articles.

The public card catalogs of books and periodicals in the Michigan State University Library were also consulted.

All references to pre-packaging listed under the following subject headings, if available or obtainable, were examined: "fruit," "vegetables," "salads," "super markets," "grocery trade," "chain stores," "packaging," "pre-packaging," "packaging machinery," "packaged foods," and "food containers."

The majority of references were found by reading indexes and tables in volumes which the various card and reference indexes had directed this student. Also, various trade journals, periodicals, and books containing no composite index were examined.

No foreign language sources were included in this study.

Most of the data for this paper were obtained from the various sources listed above, however, much valuable information was procurred through personal correspondence with men active in the produce industry. These men plus various manufacturing concerns, and several State Agricultural Experiment Stations supplied many pamphlets and letters which were beneficial in writing this thesis.

Limitations

Some members of the food industry are still not firmly convinced of the merits of pre-packaged produce. To belabor the issue of whether or not produce should be pre-packaged in a central location at the food distribution center to a person not convinced of the merits of pre-packaging, is somewhat meaningless. However, many individuals firmly believe that in the future most produce will be sold on a one hundred per cent pre-packaged, self-service basis, and they would like to know the answer to this question.

Definitions of Terms Used

Produce pre-packaging. Produce pre-packaging is the process by which fresh fruits and vegetables are prepared and packaged into consumer units adopted to self-service retailing. The process includes whatever grading, sorting, washing, and trimming is necessary to properly condition the item, plus packaging and labeling. The definition is extended to include the unitizing and packaging of merchandise not sold by weight.

Centralized produce pre-packaging. This is the process of pre-packaging in one location most of the produce needed for a group of stores. The definition implies that the conditioning and packaging services formerly

performed at the retail store have been transferred to an earlier stage of the marketing process.

Hard produce items. These are the more durable items carried in retail produce departments. Included in this category are: potatoes, carrots, citrus fruits, apples, onions, radishes, beets, turnips, cranberries, and parsnips.

Soft produce items. These are the more perishable items carried in retail produce departments. Included in this category are: grapes, plums, peaches, lettuce, pears, berries, et cetera.

Food chain. A food chain is an operator of eleven or more retail food stores.[2]

Food chain distribution center. The complete warehousing facilities of a food chain.

Service wholesaler. A service wholesaler is a commission merchant located in a terminal market who may act both as a merchant middleman or as an agent middleman. A service wholesaler may or may not take title to the produce handled and sold.

Terminal market. This is a large wholesale market for fresh fruit and vegetables located in or near a major

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[2]Facts in Grocery Distribution, Twenty-fourth Annual Survey, Progressive Grocer (New York: Progressive Grocer, 1957), p. 6.

city, well situated to serve as a dispersion point for the surrounding area. Produce is generally shipped in carload lots to terminal markets where it is broken up for sale to buyers for institutions, large retail organizations, and service wholesalers.[3]

Shelf life. Shelf life is "that period of time during which the merchandise received by the retailer remains fresh, attractive and sufficiently appealing to patrons as to be readily salable without a price reduction."[4]

Other terms used in this study not defined here, will be explained, when necessary, as they appear.

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[3]Charles F. Phillips and Delbert J. Duncan, Marketing Principles and Methods (Homewood, Illinois: Richard B. Irwin, Inc., 1955), p. 343.

[4]A. L. Martin, "Packaging Produce at the Point of Origin," Super Market Merchandising, Vol. 11, No. 11 (November, 1946), 178.

CHAPTER II

PRODUCE PACKAGING, PAST, AND PRESENT

Past History

Consumer pre-packaging of fresh fruits and vegetables is not a new method of marketing produce. In 1035 A. D., for example, a Persian traveler visiting Cairo, Egypt reported seeing "sellers of vegetables, spices and hardware, provided with paper in which they wrapped all they sold immediately, if it were not already wrapped."[1] The widespread use of this process, however, has occurred mostly during the last century.

Hovey's Garden Magazine reported the use of paper in the wrapping and packaging of fruit in 1856.[2] Vegetable parchment, now almost universally employed in fruit wrapping, was originally manufactured in 1895 and heralded the beginning of fruit wrapping by commercial apple growers.[3]

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[1]Glen H. Mitchell and Ralph W. Sherman, History of Prepackaging Fresh Fruits and Vegetables, Department of Agricultural Economics and Rural Sociology, Department Mimeograph Series No. A. E. 254 (Wooster, Ohio: Ohio Agricultural Experiment Station, June, 1955), pp. 18-19.

[2]Ibid., p. 19.

[3]Fruit wrapping is used primarily to help control scald and prevent bruising, not for customer convenience.

Samuel Frazer, now vice-president of the International Apple Association, is credited with making one of the first American attempts at marketing fruit in consumer units. In 1907, Frazer, at that time an upstate New York apple grower, started marketing apples in cardboard boxes holding either six or twelve fruit. The apples were merchandised through W. W. Hart of New York City.[4] Reception of these consumer units was poor since a premium charge was made for the packaging and only the higher income groups could afford the high quality fruit.

Potatoes, the largest tonnage pre-packaged item sold in produce departments, were first packaged in 1910 by a Rochester, New York co-operative. The potatoes pre-packaged in ten pound bags and half pecks, were shipped to market in carload quantities. The operation was discontinued within a very short time due to market resistance.[5]

In 1915, oranges and mushrooms were pre-packaged and marketed in specialty shops and department stores. These items enjoyed limited success during the holiday period but did not receive general acceptance among produce dealers.

The first known use of transparent film to pre-package fruit occurred at the end of World War I when Sidney B. Hutton, manager for Miss Elizabeth White, a Whitsburg, New Jersey blueberry grower, used a transparent film to cover

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[4]Mitchell and Sherman, op. cit., p. 22. [5]Ibid., p.24.

pint boxes of blueberries.[6] The package was an immediate success and although there have been many packaging improvements since that time, blueberries are still being pre-packaged in the same manner today.

A number of significant developments in pre-packaging occurred during the 1930's. Pre-packaged brussels sprouts, spinach, and tomatoes were successfully marketed. Large quantities of pre-packaged potatoes and onions began to appear on the produce markets throughout the country. Graded Idaho potatoes in cloth bags and Maine potatoes in paper bags began to develop general acceptance about 1935. Florida oranges were pre-packaged and shipped North in consumer size mesh bags in 1932. The Great Atlantic and Pacific Tea Company is reported to have been pre-packaging celery, in vegetable parchment, as early as 1931.[7]

One of the pioneers in the development and use of cellophane for pre-packaging, was J. Duncan Rankin of the E. I. duPont deNemours Company of Wilmington, Delaware. In 1924 duPont obtained the North American rights to the French process for manufacturing cellophane.[8] Rankin, an employee of the company's cellophane division, was assigned the responsibility of developing new uses for the product.

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[6] Ibid., p. 24.

[7] Ibid., p. 28.

[8] Ibid.

Rankin's first attempt at using the new film for pre-packaging purposes occurred in 1932 when he tried to interest some Florida citrus growers in shipping point packaging. The study produced inconclusive results and little or on interest by growers and shippers developed.[9]

Rankin's next attempt was to develop some terminal pre-packers nearer the large eastern markets. One firm, The Freeman Produce Company of New York City, did develop a pre-packaging operation to supply large retail stores but was forced to discontinue it because of high costs and the wide fluctuations in produce prices.[10]

During this same period of time Rankin also worked with several eastern celery growers to develop a celery wrapping program. This celery program was the forerunner of the large scale self-wrap of celery used by the Harry Becker Company of Detroit in 1937.[11]

After several attempts at developing grower level and terminal pre-packaging, Rankin decided in 1935 that the only group capable of supplying the outlets, financial support and personnel needed to develop a successful pre-packaging operation would be a food chain. The First National Stores, Boston, Massachusetts agreed to go along with the study. In 1935 First National established a

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[9] Ibid., p. 29.

[10] Ibid.

[11] Ibid., p. 28.

centralized pre-packaging operation to supply their Boston stores. Later this operation was extended to include stores in Hartford, Connecticut and White Plains, New York.[12]

The stores used in these tests were small service type stores. Since the stores were not self-service the results were not too favorable from the company's point of view.

All produce used in the First National test was packaged in either cellophane bags or overwrapped trays. To aid in the tests the company set up six control stores with self-service produce departments but since self-service produce was a new merchandising concept in 1935, the test results were not considered as being conclusive. The company did conclude, however, that pre-packaged produce was satisfactory for self-service stores but not service type operations. The tests also indicated that refrigeration was necessary for the successful operation of a pre-packaged produce department.[13]

One of the first milestones in produce pre-packaging occurred in 1938 when the American Stores Company, South Kearney, New Jersey, in conjunction with the United States Department of Agriculture, decided to conduct extensive studies to determine the economic possibilities in retailing pre-packaged produce. The American Stores program was under the direction of Paul Cupp (now president of the

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[12] Ibid., p. 29.

[13] Ibid.

company), and dealt with all phases of the pre-packaging operation.

The American Stores study came to three main conclusions:

> 1. Prepackaging is not going to revolutionize the produce industry, although there are many indications that more and more items will be consumer packaged either at source of production or in the terminal markets. Consumers in general seem to like pre-packaged foods; consequently, many retailers are interested in extending the principles of self service to their fresh fruit and vegetable departments.
>
> 2. Pre-packaging and refrigeration appear to be effective in reducing losses due to waste and spoilage and in lowering the costs of servicing customers. They often contribute toward increasing the quality of the product that reaches the consumers.
>
> 3. The ultimate solutions of such problems as the most efficient means of distributing pre-packaged produce, the best point of packaging and the trade and consumer acceptance of various pre-packaged commodities will be generally developed by broader industry experience.[14]

From 1938 to the start of World War II many advances were made in produce pre-packaging. Spinach, cole slaw, tossed salad, kale, and cranberries joined the consumer packaging parade during this period. About this time, firms like Farmer Brown in Springfield, Massachusetts, Sun Sally in Los Angeles and Aunt Mid in Chicago, also were establishing themselves as leaders in the young pre-packaging industry. None of these firms packaged a complete

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[14]Donald R. Stokes, "Pre-Packaging Conclusions," Modern Packaging, July, 1948, p. 7 [a reprint].

line of products but they all aided in developing public acceptance for pre-packaged produce.

The start of World War II brought virtually all progress in pre-packaging to a standstill. Most packaging materials although produced in greater quantities than ever before, were limited to military uses. In spite of this fact, in 1944 a group of companies joined with the Ohio State University Agricultural Experiment Station in what is now the historic "Columbus Experiment."[15]

The companies involved in the experiment were, The Great Atlantic and Pacific Tea Company, The Atlantic Commission Company, Hussman Refrigeration Company, duPont, the Ohio Boxboard Company, The Food Machinery Corporation, and The Oliver Machine Company. The Columbus produce warehouse and stores of the Great Atlantic and Pacific Tea Company were used during the experiment. Out of this operation came many of the answers to problems concerning packaging, shelf life, and the refrigeration equipment necessary to successfully operate a pre-packaged, self-service produce department. The Columbus Experiment stimulated interest in pre-packaging more than any previous attempt, and may rightfully be called one of the turning points in pre-packaging history.

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[15]"Columbus Experiment," Modern Packaging, Vol. 18 (July, 1945), 89-91.

Following the success of the Columbus Experiment, interest and activity in the pre-pack industry increased rapidly. The passage of the Hope-Flanigan Research and Marketing Act of 1946 stimulated research in consumer packaging. During this same period machinery and packaging material manufacturers designed and developed the many new products necessary for high speed, low cost, packaging operations.

On September 9, 1947 the research department of the Western Growers Association successfully shipped a carload of six commercial fresh vegetables (carrots, cauliflower, celery, lettuce, Brussels sprouts, and broccoli) from Molus Station, California to Columbus, Ohio. Part of the carload consisted of consumer packaged vegetables and part was in conventional form. Both portions were packed in special shipping containers designed to keep mechanical damage to a minimum. In addition, the entire shipment was pre-cooled, washed, dried, and treated with germicides and fungicides to inhibit the development of decay organisims. Upon arrival the consumer-packaged vegetables in this shipment were judged to be somewhat superior to the unpackaged vegetables.[16]

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[16] A. L. Martin, "Packaging Produce at the Point of Origin," Super Market Merchandising, Vol. 11, No 11 (November 1946), 178.

This experiment climaxed several years of research by the Western Growers Association and proved that some pre-packaged vegetables can be maintained in good condition during a ten day shipping period, by using proper refrigeration and handling procedures. The experiment also revealed that if such products are properly displayed under refrigeration by the retailer, they can be expected to possess at least a normal shelf life and to enjoy good customer acceptance.

The spectacular growth of the frozen food industry during the late 1940's contributed greatly to the rise of produce pre-packaging. Frozen foods offered the consumer a partially prepared food product plus the convenience of fast shopping. If produce departments and the fresh produce business were to obtain their share of the consumer's dollar for products competing directly with frozen foods, a change in produce marketing methods was needed. With this in mind produce pre-packers attempted to develop better methods of packaging and handling the product. Many advancements in packaging technology and handling techniques were made during this era.

In September, 1947 the first industry-wide publication, Pre-Pack-Age was published.[17] This magazine,

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[17]Mitchell and Sherman, op., cit., p. 36.

designed to deal exclusively with matters of interest to the pre-packaging industry, was instrumental in helping to form the Produce Packaging Association in 1952.[18]

So much has happened in this fledgling industry since 1952 that it is virtually impossible to record all of the advancements within this limited study. Presently, most of the leading agricultural colleges and experiment stations are conducting research on some phase of the economic and technological aspects of produce pre-packaging. The United States Government through the Department of Agriculture and the Department of Commerce is also doing work in this area. In addition, commercial film and machinery manufacturers are now beginning to solve many of the mechanical problems faced by the industry. Thus, it can be said, the pioneering stage of pre-packaging has passed into history.

The Growth of Self-Service and Specialization in Food Retailing

Produce pre-packaging is a direct outgrowth of the trend toward self-service retailing. In the period that produce pre-packaging was developing through its various stages, self-service retailing was following a parallel course of development.

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[18] Ibid., p. 36.

During World War II more women were gainfully employed than at any previous time in history. As the housewife left home to become an employee, she had less time to spend in shopping and preparing meals. The American housewife became more interested in foods with built-in convenience factors which would allow her more leisure time.

During this same period food retailers were faced with a severe shortage of manpower to serve the consumer. To help eliminate this problem food stores were rapidly converted to self-service merchandising systems. Most of the items carried in the grocery and dairy departments could be easily adapted to self-service retailing methods, but because of its highly perishable nature, produce was more difficult than the other major departments to convert to this basis. Supermarket operators soon discovered, however, that during peak traffic periods service type produce departments were serious bottlenecks which greatly inhibited traffic flow. Self-service seemed to be the logical answer to this problem and thus this method slowly gained acceptance among the nation's food retailers.

Immediately following World War II supermarket operators faced with larger stores and rising costs of doing business, recognized the need to utilize equipment and work methods systems to increase productivity and reduce the operating costs of their produce departments. Since one hundred per cent pre-packaging of produce was more readily

adaptable to the use of machinery, it gradually gained acceptance by many supermarket operators.

Present Status of Produce Pre-Packaging

Donald R. Stokes of the United States Department of Agriculture estimates that approximately eleven billion pounds of produce is being pre-packaged annually.[19] This is approximately twenty-two per cent of the fifty-six billion pounds of produce that could conceivablely be pre-packaged.[20]

A few commodities are currently being sold one hundred per cent pre-packaged. These items include cranberries and the various fresh berry crops such as raspberries, strawberries, and blueberries. In addition, some specialty items like cole slaw, salad mix, and soup mixes are also one hundred per cent pre-packaged. Table I lists the five-year (1948-1953) average annual supply of the forty leading produce items and the amounts of these commodities pre-packaged prior to the retail level.

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[19]Donald R. Stokes, Produce Packaging Potential, United States Department of Agriculture, Agricultural Marketing Service (Washington, D. C.: United States Department of Agriculture, April 19, 1955), p. 1.

[20]These estimates are compiled by the United Fruit and Vegetable Association, Washington, D. C. and represent quantities of fresh fruit and vegetables marketed through commercial channels, including imported produce but excluding the quantities sold at roadside stands and processed or frozen.

TABLE I

FIVE YEAR AVERAGE ANNUAL SUPPLY OF FRESH FRUIT AND VEGETABLES AND ESTIMATED PERCENTAGE PRE-PACKAGED PRIOR TO THE RETAIL LEVEL, UNITED STATES, 1955
(5 Year Average for the Period 1948-1953)[1]

Commodity	Annual Supply 1,000,000 lbs.	Per Cent Pre-Packaged Prior to Retail Level	Commodity	Annual Supply 1,000,000 lbs.	Per Cent Pre-Packaged Prior to Retail Level
Apples	3,790	25	Kale	32	75
Asparagus	127	5	Lemons	600	15
Bananas	2,555	1	Lettuce	2,700	5
Beans, Snap	556	5	Limes	16	5
Beets	127	20	Mushrooms	57	50
Blueberries	39	100	Onions,dry	1,570	20
Broccoli	166	5	Onions,green	39	5
Brussels sprouts	27	75	Oranges	4,260	20
Cabbage	1,830	5	Peaches	1,495	5
Cantaloupes	1,357	-	Pears	732	5
Carrots	1,749	80	Peppers, sweet	340	5
Cauliflower	500	5	Pineapples	96	-
Celery	1,192	10	Plums-prunes	238	5
Cherries	111	5	Potatoes	14,920	35
Corn	1,113	5	Radishes	162	50
Cranberries	78	100	Spinach	343	75
Cucumbers	640	-	Strawberries	375	100
Dates(Domestic)	32	-	Sweetpotatoes	890	1
Eggplant	64	-	Tangerines	281	5
Garlic	32	90	Tomatoes	3,806	60
Grapefruit	1,556	10	Turnips-rutabagas	218	25
Grapes	1,200	3	Watermelons	2,210	-
Honeydews	250	-	Yams	2	-

[1]Donald R. Stokes, Produce Packaging Potential, U.S. Department of Agriculture, Agricultural Marketing Service (Washington, D.C.: U. S. Department of Agriculture, April 19, 1955), pp. 2-4.

Accurate up-to-date information on the amount of produce pre-packaged at the retail level is not available. The Produce Pre-Packaging Association estimates that in 1952 approximately 4.2 billion pounds of fresh produce was packaged annually in retail stores.[21] Mitchell and Sherman of the Ohio Agriculture Experiment Station estimate that this amount had increased to 16.9 billion pounds by 1953.[22] While more recent figures are not available it is safe to assume that there has been a substantial increase in pre-packaging at the store level since that time.

In a survey of 3,816 supermarkets owned by 349 companies, Supermarket Institute found that 78 per cent of all companies and 71 per cent of all stores had 100 per cent self-service produce departments in 1957.[23] Of the stores featuring self-service produce departments 37 per cent were 100 per cent pre-packaged, a 7 per cent increase over 1956. Of the 78 per cent of the companies with self-service produce departments, 69 per cent did their pre-packaging at the retail store while 9 per cent had a centralized pre-packaging operation.

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[21]"Current Pre-Packaging Trends," Modern Packaging, Vol. 27 (August, 1954), 180.

[22]Mitchell and Sherman, op. cit., p. 37.

[23]The Super Market Industry Speaks, Super Market Institute, Inc., Ninth Annual Report (Chicago, Illinois: Super Market Institute, 1957), pp. 18-19.

According to the Super Market Institute Survey, complete self-service is most firmly established in the Western and New England regions of the United States while one hundred per cent pre-packaged produce is most common in the New England and West North Central sections of the nation. The geographic difference in complete self-service and the percentage of self-service stores with one hundred per cent pre-packaged produce is shown in Table II.

Customer's Attitude Toward Pre-Packaged Produce

The final judge of the merits of any marketing technique is the ultimate consumer. To fully understand the present status of produce pre-packaging it is therefore necessary to establish consumer acceptance of this method of marketing fresh fruits and vegetables.

An investigation of the available literature known to the author reveals that the only recent study of consumer likes and dislikes of pre-packaged produce was conducted by the Film Department of The E. I. duPont deNemours and Company in 1956.[24]

In this study a questionnaire was mailed to a national panel of 2,000 homemakers who had shopped in stores where 50 per cent or more of the produce was pre-packaged and ready for self-service. A total of 1,892 questionnaires, or 95 per cent of the mailing was returned to the company.

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[24] If You Ask Me (Wilmington, Delaware: E. I. duPont deNemours and Co., Inc., 1957). [Pamphlet]

TABLE II

THE GEOGRAPHIC DIFFERENCE IN COMPLETE SELF-SERVICE AND THE PERCENTAGE OF SELF-SERVICE DEPARTMENTS 100 PER CENT PRE-PACKAGED AMONG MEMBERS OF SUPERMARKET INSTITUTE IN 1957[1]

Region	100% Self-Service	Percentage of Self-Service Stores With 100% Pre-Packaged Produce
New England	91	91
Middle Atlantic	47	48
East North Central	57	28
Southeast	70	27
West North Central	79	72
West South Central	100	8
Mountain	92	9
Pacific	98	11
Canada	53	56

[1]The Super Market Industry Speaks, Super Market Institute, Inc., Ninth Annual Report (Chicago, Illinois: Super Market Institute, 1957).

The panel distribution for this study followed the nine United States geographical divisions, and within each division by population density, family income, and age of homemaker, to conform closely with the latest available United States Census data.

The panel survey findings reveal that 52 per cent of the housewives preferred pre-packaged produce and 25 per cent preferred bulk produce. The other 22 per cent of the respondents had no preference.

Of the 52 per cent of the respondents who preferred pre-packaged produce, 56 per cent cited convenience and time-saving as the reason for their selection while 54 per cent felt the product was cleaner and more sanitary. The fact that package produce keeps the product fresher was cited by 22 per cent of the respondents.[25]

Although the majority of the respondents in the survey reacted favorably toward pre-packaging many were not satisfied with it. Of the 25 per cent of the respondents who prefered to buy fruits and vegetables in bulk form, 60 per cent cited a desire to make their own selection as the reason for not preferring pre-packaged merchandise. A belief that quality in the package is inferior to bulk merchandise was cited by 29 per cent of the respondents,

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[25] Ibid., p. 4.

while 26 per cent cited package quantity as their chief reason for not preferring pre-packaged merchandise.[26]

According to this survey the reluctance on the part of most consumers to accept pre-packaged produce can be attributed mainly to a lack of confidence in the quality of the product offered for sale. Thus it becomes essential that supermarket operators engaged in one hundred per cent pre-packaged produce operations, institute exacting quality controls and continuing consumer education if the operation is to be successful. In brief, if a customer's perogative to hand-pick her own produce is eliminated, it must be replaced with more than promises of freshness. When this occurs, pre-packaged produce can expect to enjoy an even higher degree of consumer acceptance.

It is entirely possible that more credence and reliability could be attached to the duPont survey if an agency independent of the company had conducted the research analysis. A persual of current literature, however, fails to reveal any other research of this nature, thus, the du-Pont survey must be accepted as the best available information. The writer hopes that in the future an independent survey will be conducted to substantiate or reject the duPont findings.

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[26] Ibid., p. 5.

CHAPTER III

THE NEED FOR PRE-PACKAGING AT THE DISTRIBUTION CENTER

Produce Packaging at the Grower Level

As previously stated produce pre-packaging is currently being done at the following places in the marketing process: the retail store, the food chain distribution center, the terminal market, and the growing or shipping point. The most logical, and advantageous place for pre-packaging to occur would seem to be at the grower level, since control of quality and freshness starts with the harvesting process.

Under ideal conditions the grower could harvest, pre-cool, wash and package the product in virtually one operation. After the product was packaged it could be refrigerated and transported to the retail stores. The procedures used in this type of operation would be similar to the system used in handling frozen foods with the exception that the refrigeration requirements being less severe would reduce the costs of the operation.[1]

Agricultural specialists estimates that over twenty-five per cent of the weight of all produce is wasted before

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[1]"Breaking Through the Pre-Pack Barrier," Super Market Merchandising, Vol. 22, No. 9 (September, 1957), 58.

it reaches the ultimate consumer. For example, studies made on the preparation, trimming, sorting, and reconditioning of produce at the retail store, reveal that losses as high as 36.1 pounds of bunched beets, 32.3 pounds of cauliflower, 20.4 pounds of head lettuce are wasted for each 100 pounds of the product received.[2] Not only must this waste be accounted for by the retailer, but he must pay increased charges for container, shipping space and weight, drayage, freight, icing charges, and labor for transporting this waste from the growing area.[3]

Another reason why grower level packaging would seem to be ideal is that rural labor costs are usually less expensive than corresponding costs in an urban area. In many cases this factor alone may be large enough to pay for the entire packaging costs of the operation.

In spite of the two obvious advantages found in grower level pre-packaging, at the present time it is not the answer to a supermarket's produce packaging problems for at least two reasons. First, only a limited number of grower packaged items are available to retail produce buyers, today. An examination of the July 17, 1958 merchandise offerings on the Detroit Union Produce Terminal market

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[2]Charles W. Hauck, New Opportunities in Packaged Perishable Foods, The American Mamagement Association, Packaging Series No. 27 (New York: American Management Association, 1948), p. 32.

[3]Ibid., p. 36.

reveals that only nine of the sixty-three items offered for sale on that date were available in grower packaged form.[4]

Growers as a rule have confined themselves mainly to hard produce items such as carrots, potatoes, apples, cranberried, et cetera. Very few growers package any of the hundreds of soft produce items necessary to operate a one hundred per cent pre-packaged product department.

A second reason why grower pre-packaging does not answer the needs of a one hundred per cent pre-packaged produce program at the retail level is that growers have not adopted enough machinery to gain maximum efficiency in their packaging operation. If growers are to compete successfully with the other segments of the marketing process for the packaging franchise, it will be necessary for them to utilize production line machinery and methods. At the present time the size of farms and the seasonal nature of crop production in many of the major growing areas, makes it expensive and risky to purchase equipment which can be utilized only during short harvesting periods. For this reason grower level packaging currently is limited mainly to the largest growers and grower co-operatives. Another reason why growers are reluctant to purchase

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[4]L. B. Barbee, Daily Fruit and Vegetable Report, the United States Department of Agriculture, Agricultural Marketing Service, XLIV, No. 139 (Detroit Union Produce Terminal: United States Department of Agriculture, July 17, 1958).

machinery is that they must compete with terminal packers and retail stores who package a variety of items and thus can obtain more efficient use of machinery and labor.[5]

Many of the large growing areas in the United States are located far from the major retail markets. Produce packaged and shipped from the grower level is frequently ruined or deteriorates in quality due to imperfect transportation and handling facilities. This results in not only the loss of the product but also in the loss of the packaging material. Because of this transportation loss and the extra effort necessary to package the products, growers demand a premium price for pre-packaged merchandise. Retail produce buyers often feel that the price differential between bulk and packaged merchandise is unwarranted since bulk merchandise can be packaged more efficiently with their own facilities and yield a higher profit margin.

Although pre-packaging at the grower level may improve the efficiency of the entire marketing process, without a premium charge for packaging the savings to the grower do not always cover the costs involved. Unless some of the packaging costs are to be absorbed by the balance of the distribution channel growers will continue to ship produce in bulk form. Presently growers and grower associations have been unable to convince the

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[5]"Breaking Through the Pre-Pack Barrier," op. cit., p. 58.

retailer and wholesaler of this fact. Until this occurs it is doubtful that any great increase in grower level pre-packaging will occur.

The final and most important reason why grower level pre-packaging has been unable to solve the produce packaging problem for the retailer is that grower packaged produce often does not reach the retail store in an acceptable condition. Success in a pre-packaged produce operation depends upon quality control at the packaging point, since the customer is less able to judge the quality and freshness of the merchandise at the time of purchase. In a one hundred per cent pre-packaged program the consumer no longer relies entirely on her own power of selection but rather must substitute the seller's integrity for part of the selection process. With the present state of packaging technology, handling, and transportation facilities grower packaged produce is often not up to quality standards upon arrival at its destination. When this occurs the retailer assumes a greater risk than is necessary. In addition, under present conditions in the produce industry, careless or unscrupulous packers occasionally attempt to hide inferior or poor quality merchandise in the packages. Until packaging techniques and transportation methods improve, and a greater degree of self-discipline is imposed by the produce industry, food retailers will of necessity be forced to keep packaging control under their direct

supervision by packaging at the retail store or in a central location.

Some authorities contend that the full advantages of this merchandising innovation will not be reached until all pre-packaging is done at the source.[6] Eventually, the pressure for savings may prompt the industry to shift the pre-packaging job to the shipping point no matter how distant from the retail market. Before this can occur, however, many changes and improvements in transportation, handling, and packaging will be needed. Great strides have been made in this direction but under present conditions food retailers cannot expect to obtain one hundred per cent pre-packaged produce from growers within the immediate future.

Terminal Level Packaging of Produce

The second place in the marketing channel where pre-packaging occurs is at the terminal markets. Here service wholesalers and other terminal packers supplement grower packages with their own, to supply retail food outlets with pre-packaged merchandise.

Packaging at the terminal level has been increasing rapidly. According to a January, 1957 survey of the Service Wholesalers Division of the United Fresh Fruit and Vegetable Association, about 55 per cent of the members

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[6] Hauck, op. cit., p. 36.

were in some phase of pre-packaging. Another 17 per cent expected to start within the next year.[7]

Packaging at the terminal level has three major advantages over grower level packaging. These advantages are as follows:

1. Can have greater efficiency due to larger volume, mechanization, specialization, skilled personnel, and year around operation.

2. Can maintain a more complete line throughout the year by drawing from various parts of the country for various commodities.

3. Has a more strategic position in regard to the market both local and national. Can adjust better to change.[8]

In spite of the advantages attributed to terminal level packaging it does not answer the retailer's problem as a source of supply for one hundred per cent pre-packaged produce.

As in the case of the grower, terminal packers are currently confining their packaging operations mainly to hard produce items. The United States Agricultural Marketing Service is presently conducting a nationwide survey of fresh produce packaging plants to obtain information on the present status of fruit and vegetable pre-packaging. A preliminary report for the Northeastern Region shows that thirty-nine different commodities are packaged by

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[7]"Breaking Through the Pre-Pack Barrier," op. cit., p. 59.

[8]Mitchell and Sherman, op. cit., p. 12.

commercial packers in this area.[9] Eleven of the commodities packaged by the terminal packer are also regularly packaged by growers in the same area. If the terminal packers are to solve the supply problem for the retailer they must first expand the number of items being packaged.

How much of the packaging function the terminal packers will perform depends entirely on how efficient an operation they are capable of developing. Basically, terminal packaging is the same as a volume packaging operation conducted at a chain distribution center. If a retail group is large enough to do packaging on a volume basis, it should be able to package with the same amount of economy as the terminal packer while retaining control over quality, pricing, and package size.[10] At the present time, very few terminal packers have demonstrated their ability to perform the packaging function more economically than the retailer.

In addition to the cost factor, poor quality merchandise in the packages and the lack of a sufficient quantity of merchandise to satisfy the retailer's needs are two other reasons cited by retailers for not transferring the packaging function to terminal packers. In a recent survey

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[9] Fresh Fruit and Vegetable Pre-Packaging, Northeastern Region--Operating Season, 1954-1955, United States Department of Agriculture, Agricultural Marketing Service, Marketing Research Division, Market Research Report 154 (Washington, D. C.: Government Printing Office, 1957), p. 16.

[10] "Breaking Through the Pre-Pack Barrier," op. cit., p. 60.

of ninety food companies by Super Market Merchandising, 23.3 per cent of the companies were dissatisfied with terminal packed items.[11]

Most of the companies in the survey cited poor quality merchandise in the package as their chief source of dissatisfaction with terminal packaging. Several chains, however, were unhappy with the reliability of the packer in supplying enough merchandise. Alpha Beta, La Habra, California, for example, stated that only recently it had to discontinue the sale of nine major items because the commercial packer could not furnish an ample supply of products.[12] If terminal packers are to become a factor in supplying pre-packaged produce to the retail trade, they will need to demonstrate not only their ability to package a complete line of items, but also their ability to deliver a quality product in ample supply to satisfy the retailers' needs. Very few can do this at the present time.

Labor union resistance is a third reason why terminal packers may not be able to supply food retailers with one hundred per cent pre-packaged produce. For example, in the negotiation proceedings for a new two year contract between the Warehousemen's Local 169, Philadelphia,

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[11]"The Figures on Prepackaging Trends and What They Mean," Super Market Merchandising, Vol. 22, No. 9 (September, 1957), 63-64.

[12]"Breaking Through the Pre-Pack Barrier," op. cit., p. 61.

Pennsylvania and the Food Distributions Association, bargaining agent for firms which include Food Fair Stores, American Stores, The Great Atlantic and Pacific Tea Company, Frankford Grocery Company, and Best Markets in the Philadelphia area, the union has demanded the continuation of "all packaging jobs currently performed by union members."[13] In this case the bargaining was designed to prevent the retailers from contracting with commercial packers to do pre-packaging. A logical assumption seems to be that in the future this type of resistance can be expected to increase.

Conclusion

Ideally, packaging is not a function to be performed by the retailer since his efforts can be better utilized in merchandising and selling. Grower level packaging seems to be the most logical point for packaging to occur since freshness and quality start with the harvesting process. Presently, however, due to technological and transportation difficulties only a limited amount of grower packaged merchandise is available to the retailer.

Pre-packaging at the terminal level also has advantages. Presently, however, terminal packers confine their activities mainly to hard items and thus are not equipped to supply a full line of packaged merchandise.

In the future, the need to reduce costs may force pre-packaging back to the grower level, but before this can occur, drastic packaging and handling changes will be needed. If a retailer is desirous of operating a one hundred per cent pre-packaged produce department the majority of the packaging must occur either in retail stores or in a central location at the food distribution center.

CHAPTER IV

THE ADVANTAGES OF CENTRALIZED PACKAGING AT THE FOOD DISTRIBUTION CENTER

Because the central focus of this thesis bears upon the advantages of pre-packaging at the food distribution center, it seems necessary that several of these programs be examined in actual operation. Though some ten such programs now exist, the selection of two somewhat differentiated operations will allow us to compare and contrast the relative merits of this system. The two companies chosen for this analysis are Publix Super Markets, Incorporated, Lakeland, Florida and Alexander's Markets, Los Angeles, California.

The Publix operation has been selected for analysis due to the size and complexity of its physical plant, and the number and geographic distribution of its stores. Alexander's was selected because it offers insight into a pre-packaging system operating on a smaller scale.

With ten known operations from which to select examples for case histories, it might appear that this is an opportune selection, or that it was exercising expediency over prudent sampling. Due to the lack of available information on this type of operation, however, choices were definitely limited.

The sharp contrast evident between these two institutions will represent the polar extremes of pre-packaging operations so far as the degree of mechanization is concerned, and it is this factor which stirs up most controversy when the centralized pre-packaging issue is discussed.

The Publix Operation

Publix Super Markets, Incorporated, is a thirty-nine store chain of supermarkets serving the Tampa--Lakeland and Central Florida areas. Headquarters for the chain is located in Lakeland, Florida. Publix's 1957 total sales were approximately seventy-eight million dollars. Of this gross income an estimated eight million dollars, or approximately ten per cent, was earned by the sale of fresh produce.[1]

Publix began pre-packaging produce at the store level about eight or ten years ago, gradually shifting the operation to its central warehouse. A $1,000,000 central packaging plant was put into operation in November, 1956 and currently packages eighty per cent of all merchandise sold in Publix stores.[2]

Some of the items packaged centrally include: all citrus fruits, apples, cucumbers, peaches, pears, egg plant, peppers, squash, peas, spinach, plums, tomatoes, grapes, rhubarb, green onions, beans, lettuce, artichokes, potatoes,

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[1]N. F. Lavigne, "Assembly-Line Efficiency and Quality Control are Advantages of Centralized Packaging at Publix," Produce Marketing, Vol. 1, No. 5 (May, 1958), 11.

[2]Personal correspondence, Talmadge S. Melvin, Publix Super Markets, Lakeland, Florida, June, 1958.

onions, cabbage, and melons. A few items like carrots, radishes, and some leafy greens are purchased in grower packaged form.[3] The only items packaged at the retail level are specialty items and miscellaneous produce items with too little volume to warrant assembly line packaging.

The packaging process at Publix is highly mechanized. Everything is wrapped and sealed on three U-6 automatic wrapping machines made by Package Machinery Company. One line is used entirely for running unitized items like cucumbers, lemons, et cetera. This line has a top label attachment which automatically puts a label, bearing all necessary information, on the package. The two other lines are used for items that must be weighed. All packages are weighed on two Hobart-2000 scale systems which have printing attachments made by The National Cash Register Company. These scale systems electronically compute the various weights and then automatically eject the labels with the following information printed: weight, price per pound, price per package, brand name, company name, and code date.[4]

Talmadge S. Melvin, produce director for Publix, estimates that the three lines are capable of turning out

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[3]Talmadge S. Melvin, "Is Central Pre-Packaging Feasable at the Present Stage of Development?," Super Market Merchandising, Vol. 22, No. 9 (September, 1957), 68.

[4]Melvin, personal correspondence.

approximately 120,000 packages per week.[5] A fourth line for packaging corn was recently installed. This line alone is capable of trimming, packaging, sealing, and labeling 35 packages, of 5-ears each, per minute.[6]

Each packaging line at Publix is set up on an assembly-line basis. Trays are filled and placed on a conveyor leading to one of the packaging machines which automatically applies a cellophane overwrap to the trays. The operation requires eight different sizes of cardboard trays. The trays used are purchased from Standard Folding Trays Company, and are of white patent coated stock, with the legend "Fresh Fruit and Vegetables" printed in dark green in all four sides. All trays are of a uniform shape to permit easier stocking and building of displays.[7]

In addition to the cellophane wrapping machines, Publix's pre-packaging facilities include several automatic bagging machines used in bagging potatoes, onions, and other hard produce items. The bagging line includes both an onion husking machine, and potato grading equipment. Hard produce items bagged on this line are weighed, when necessary, on the scales used in the wrapping operation.[8]

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[5]Lavigne, op. cit., p. 12.

[6]Melvin, personal correspondence.

[7]Lavigne, op. cit., p. 12-13.

[8]Talmadge S. Melvin, "We Like Central Produce Packaging Because...," Nargus Bulletin, April, 1958, pp. 38-39.

Immediately following the weighing operation, produce requiring refrigeration is moved by conveyor directly to a cooler where it is packed in two layer, shipping crates, ready for delivery to stores.

Pre-packaged merchandise is delivered to the stores five times a week in re-usable, wire-bound crates measuring 31-3/4 by 20-3/8 inches.[9] Each crate costs $1.55 delivered, and is good for approximately 40 round trips. The crates are equipped with horizontal dividers to give protection to the items, and are tapered to permit nesting on returns.[10] In the stores the crates can be placed on carts and transported to the sales area for easy stocking.

Publix's packaging facilities are housed in an extension of its Lakeland distribution center. The packaging equipment includes seven 24 by 107 foot refrigerated holding rooms,[11] the equipment previously mentioned, and a quantity of miscellaneous smaller machinery.

Advantages Gained by Publix

Talmadge S. Melvin, who pioneered the centralized system at Publix, lists the advantages of the operation as follows:

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[9]"Wirebound Container's Role in Consumer Packaging," Pre-Pack Age, Vol. 10, No. 7 (April, 1957), 12.

[10]Lavigne, op. cit., pp. 13-14. [11]Ibid., p. 12.

1. Better quality control. "Pre-packaging is seldom standardized when done on the store premises. It is difficult to enforce a concept which dictates the kind of quality to be packaged in every item sold."[12] In a store level packaging operation supplying forty stores, the packaging decisions are based on the experience, skill, and judgment of forty different produce managers. In a centralized operation one highly trained expert makes all the decisions on what will (or will not) be packaged.[13] Constant supervision by a representative of top management at the central packaging plant helps to insure that the customer gets a consistent product no matter what store she visits.

2. Labor costs are reduced. Through the use of machinery and assembly line methods, Publix has reduced produce labor costs approximately 50 per cent. Prior to the start of the centralized operation at Publix, labor costs in the produce department averaged ten per cent of net produce sales. This has now been cut down to five per cent.[14]

Melvin estimates that a produce department doing $6,000 weekly volume and packaging on the premises, would

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[12]Melvin, "Is Central Pre-Packaging Feasable at the Present State of Development?," op. cit., p. 65.

[13]Lavigne, op. cit., p. 14.

[14]Melvin, "Is Central Pre-Packaging Feasable at the Present Stage of Development?," op. cit, p. 68.

need approximately eight full-time employees, based on a five day work week. This same operation using centralized packaging would require only four such employees.[15]

Store packaging costs at Publix were computed at about four cents per package (with a range of plus or minus one cent) for materials and labor only. In the centralized operation, packaging costs have been determined as being two and one-half cents, of which one and one-half cents is for material. The latter figure does not include overhead charges.[16]

Presently, 25 employees do the packaging that formerly required 125 workers when handled by the individual stores.[17]

3. Better inventory control and fresher merchandise. Formerly, when bulk merchandise was packaged at the retail store, merchandise was delivered well in advance of the packaging period. Frequently, due to business pressures, store packaging schedules were disrupted with the result that merchandise often was not packaged until later in the week.[18]

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[15]Melvin, personal correspondence.

[16]Lavigne, op. cit., p. 14.

[17]Ibid., p. 12.

[18]Melvin, "Is Central Pre-Packaging Feasable at the Present Stage of Development?," op. cit., p. 68.

Under the centralized operation, stores receive a complete line of merchandise ready for display. Deliveries are made five times a week, with orders placed one morning being delivered the following morning. This allows closer ordering by the individual produce manager and eliminates the need for large reserve stocks.

4. Increased sales of impulse items. A considerable increase in the sale of impulse items has been noted since the start of the centralized packaging operation. For example, Bartlett pears have increased three hundred per cent with similar increases made by other items.[19]

When the produce was packaged at the individual store, the produce manager would package and set up displays of standard or demand merchandise first. Impulse items were, of necessity packaged last, resulting in the subsequent loss of sales to the first shoppers coming through the produce department. With centralized pre-packaging, the merchandise is delivered ready for display and the stores are able to offer a complete line of merchandise for sale at all times.[20]

5. Better control of losses. Another advantage gained by the Publix operation is the ease of obtaining

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[19]Talmadge S. Melvin, Preparing Produce for Sale, National Association of Food Chains, NAFC Management Clinic on Operating Efficiency and Production (St. Louis, Missouri: AFC, 1957), p. 18. [Summary report]

[20]Lavigne, op. cit., p. 12.

full credit for poor quality merchandise delivered to the packaging point. In support of this claim, Melvin cites the following example:

> Recently we received a load of corn which had not been properly pre-cooled. The quality varied in every crate. If it had been delivered to the stores in bulk, we would not have known how much claim to file with the shipper, but with centralized packaging at our warehouse we knew the exact amount of the loss. As a result, our bargaining power with the supplier was greatly increased.[21]

6. Uniform pricing. Since a centralized operation is the responsibility of one man, strict control of the company's pricing program is more easily maintained.[22]

The Alexander's Operation

Alexander's is a Los Angeles based, eight-unit supermarket operation serving the greater Los Angeles area.

In contrast to the Publix operation, Alexander's specializes primarily in the trimming and preparation of fresh green produce. Presently, lettuce, celery, corn, and cabbage as well as all bunch goods, including green onions, radishes, turnips, spinach, and beets are centrally trimmed. Packaging is limited to potatoes, citrus, onions, and several other hard produce items.[23]

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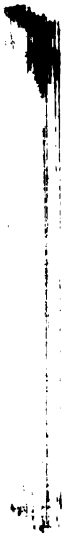
[21]Melvin, personal correspondence.

[22]Melvin, "Is Central Pre-Packaging Feasable at the Present Stage of Development?." op. cit., p. 65.

[23]"Centralized Pre-Packaging, Cost, Time, Labor Saver," Food Topics, Vol. 11, No. 16 (August 20, 1956), 18.



The trimming and packaging process at Alexander's is partially mechanized. All trimming is done at a galvanized trim container with all waste dropped into the container being carried by trough conveyor to a water-tank-shaped container at the rear of the warehouse. This container which is raised off the ground, permits a receiving truck to drive directly under the tank for loading purposes and thus completely eliminates any handling of garbage.[24]

A special mesh conveyor belt is used to carry the trimmed merchandise through a washing operation consisting of a series of water jets with adjustable nozzles ranging from sharp washing stresses to simple spray.[25]

Following the washing process all green merchandise is packed in 14 by 28 inch collapsable aluminum crates used to transport the merchandise to the stores.[26]

All hard merchandise packaged in the central location is packaged on a bagging line consisting of a series of individually placed bagging machines connected by a conveyor system.

The entire packaging and trimming operations are housed in a new 13,800 square foot warehouse, equipped with a conditioning room for pears and avacados, and two

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[24] Ibid., p. 18.

[25] Ibid., p. 19.

[26] Ibid., p. 18.

giant coolers each capable of holding ten carloads of merchandise.[27]

Alexander's trimming and packaging crew works from 11:00 P.M. to early morning thus enabling produce deliveries to be made prior to the 9:00 A.M. store openings.[28]

Advantages Gained by Alexander's

John R. Zuna, produce buyer and supervisor, lists the advantages of the operation as follows:

1. Better quality control. Uniform trimming is assured at all stores. Good supervision at one place is capable of controlling the quality of merchandise packaged and trimmed.[29]

2. Cost savings. Trimming costs have been reduced from two per cent of net produce sales to one and one-half per cent of net produce sales, a twenty-five per cent savings on trimming labor costs.[30] No figures are available on packaging costs.

3. Reduces backroom space requirements. The produce preparation area in stores can be reduced by approximately one-third, thus allowing more selling area. In the two newest Alexander's supermarkets this factor has already been taken into account.[31]

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[27] Ibid., p. 19. [28] Ibid., p. 18. [29] Ibid., p. 19.

[30] Ibid. [31] Ibid.

4. Better control of losses. Centralized trimming does away with the necessity of returning to the warehouse, merchandise not up to the company's quality standards. Under this system the firm is able to detect poor merchandise before it is sent to the store, thus allowing the company to obtain credit for the unsalable product.[32]

Analysis of Two Operations

At this juncture it would seem beneficial to bring together the material presented, noting similarities and differences, and inducing those generalities which seem reasonable.

Relative to the case histories outlined above it is noted that agreement is held between Publix and Alexander's regarding: (1) better quality control, (2) reduction in labor costs, and (3) control of losses. Disagreement is manifest, however, concerning the amount of labor savings effected. It would seem the determining factor here is the extent of mechanization.

The labor savings cited by Alexander's were limited to those obtained through the centralization of the trimming function only, while at Publix the savings represented the entire packaging and merchandising functions. Since trimming is predominately a hand operation, the reduced amount of savings is understandable.

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[32] Ibid., p. 19.

In comparing the advantages listed by the two parties, four advantages were cited by one but not substantiated by the other. These advantages were as follows: (1) reduces backroom space requirements, (2) increases sales of impulse items, (3) uniform pricing, and (4) better inventory control.

Leonard J. Gerweck, manager of store planning for Grand Union Company, East Patterson, New Jersey, estimates that with centralized pre-packaging the produce preparation area of a supermarket could be reduced 75 per cent.[33] Currently, Grand Union allows approximately four per cent of total store area for produce preparation. According to Gerweck, with centralized packaging this area could be reduced to one per cent and still allow enough space for reserve stocks and limited packaging facilities for re-wraps and specialty items.[34]

In view of Gerweck's observations, Alexander's chains concerning the reduction of backroom space appears to be conservative. However, since their packaging operation is not completely centralized, the estimate seems reasonable.

Other Advantages

The following advantages are submitted not as findings gained from an analysis of the two operations alone, but

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[33]Leonard J. Gerweck, personal interview, June, 1958.

[34]Ibid.

as hypotheses supported, where possible, by information gleaned from various sources during the research phase of this paper.

1. Reduces equipment costs. Based on his experience in developing the Publix operation, Melvin estimates that automatic equipment capable of washing, wrapping, weighing, and labeling enough product for a fifty store operation, doing $250,000 weekly produce volume, would cost approximately $100,000, based on 1958 prices.[35]

Ezera Lapides, an independent packaging consultant estimates that retail store equipment costs in a produce department doing up to $1500 a week volume would be approximately $1000. In a store operation with $3000 weekly produce volume, equipment costs including a bagging machine would run approximately $2400 based on 1955 prices.[36]

Assuming each of the fifty stores cited above has a weekly produce volume of $5000, and using Lapides' cost figures on a $3000 volume store as the equipment cost per installation, a $20,000 savings could be effected in equipment costs by packaging in a central location.

2. Increases salvage returns. The re-sale of bushel baskets, crates and other bulk produce packaging material

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[35]Melvin, personal correspondence.

[36]Ezera Lapides, "The Latest Know-How in Store Production," Super Market Merchandising, Vol. 21, No. 5 (May, 1955), 170-171.

is often a substantial factor in the profit picture of a company. Since all merchandise sent to the stores from a central point can be shipped in re-usable master containers, designed specifically for this purpose, all of the salvage remains in one location and can be disposed of more profitably.

3. Allows packaging on a regional basis. Publix has been successfully transporting centralized pre-packaged produce within an eighty mile radius of its packaging plant.[37]

In the more populated areas of the United States large chains by using this system could conceivably service two or more divisions from one location. For example, a plant located in Baltimore, Maryland could easily service all of Washington, D. C., plus large areas in Maryland, Virginia, Delaware, and Pennsylvania while still being within the proven eighty mile limit established by Publix. With strategically placed packaging plants a national chain could serve nearly all of the United States with twenty-five packaging installations.

4. Allows development of produce brand names. The United States Department of Agriculture recently announced that the per capita consumption of fresh fruits and vegetables has shown a steady decline for the past ten years.[38]

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[37]Melvin, "We Like Central Produce Packaging Because," op. cit., p. 39.

[38]Robert H. Weait, "Statistical Surveys on Fresh Produce," Pre-Pack Age, Vol. 10, No. 10 (July, 1957), 3-4.

Some authorities attribute this decline to the lack of brand promotion throughout the entire produce industry.[39]

Through the adoption of centralized packaging and the better control over quality which it offers, retailers should be able to develop private label brands for produce, similar to those found in bread, dairy products, and other perishable merchandise. When this occurs a retailer will have gained a differential advantage not available to other competitors.

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[39]"How Food Money Is Spent," Pre-Pack Age, Vol. 10, No. 7 (April, 1957), 10-23.

CHAPTER V

PROBLEMS ENCOUNTERED IN CENTRALIZED PRE-PACKAGING

It is generally considered trite to observe that thorns abound in a bed of roses, but this does not deny the truth of the observation. Similarly, this paper has attempted to draw in sharp relief the many advantages proceeding from centralized pre-packaging. Understanding the recent appearance of this operation, the relatively few chains that have included the operation in their distribution systems, and the realization that change is usually accompanied by disorganization, it is only natural that shortcomings may be readily seen at this time.

Problems which appear most likely to arise may emanate from the areas of labor relations, distribution, training, disposal of inferior quality merchandise, packaging, and the coordination of the production and merchandising functions.

Labor Relations

Labor unions have frequently shown opposition to attempts by food chains to centralize perishable packaging functions. Any technique which tends to reduce the number of employees necessary to perform an existing operation is

generally opposed by union leadership, as it almost automatically reduces union membership. Publix reports that centralized pre-packaging has reduced the number of employees by one hundred in their produce operation.[1] It would seem logical therefore that if a highly unionized company were to adopt this method of packaging, union opposition could be expected.

It is not uncommon to find the stores in large chains manned by employees who are members of one union group, while the employees at the distribution center are represented by a second union. Where this situation exists the transfer of the major portion of the packaging operation to the distribution center could conceivably result in an inter-union jurisdictional dispute.

Certainly, proper planning and induction should lessen union opposition to the program, but notwithstanding this fact, the possibilities of encountering union relations problems in adopting this system, do exist.

A second labor problem which may occur is that of maintaining positive morale. Ideally, a centralized packaging operation is a highly mechanized assembly line system, the employees tending toward individual specialization. One man, for example, may trim or operate a bagging machine for the duration of the work period. In this type of

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[1]Lavigne, op. cit., p. 12.

situation, a high degree of boredom and restlessness may occur which could increase turnover and morale problems. This situation is less likely to occur in a retail store due to the diversity of tasks and the customer contact available in the job. The individual ideally suited for store employment, therefore, may not be successful if transferred to a centralized packaging operation. Proper selection of employees suited to assembly line operations and frequent job rotation seems essential if morale problems are to be avoided.

Distribution

In both examples cited as case studies, the greatest distance pre-packaged produce was regularly transported was eighty miles.[2] How far some of the more perishable products can be shipped in pre-packaged form is not established in the cases. The Alexander's study did indicate, however, that the time lapse that occurred when lettuce was trimmed late at night, and delivered the following morning, resulted in some discoloration of the butts, necessitating shaving the butts at the retail store.[3] It should be recalled, however, that the lettuce was trimmed only, and not pre-packaged at the central location.

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[2]Melvin, "We Like Central Produce Packaging Because..," op. cit., p. 39.

[3]"Centralized Prepackaging Cost, Time Labor-Saver," op. cit., p. 18.

Obviously, some pre-packaged produce can be shipped great distances. Martin, for example, reports success with shipments of pre-packaged mixed vegetables, including lettuce, from California to Columbus, Ohio.[4] Some grower pre-packaged hard items are regularly shipped to the eastern markets from western and southern growing areas. Any chain operating in an extended area and considering the adoption of centralized pre-packaging, however, will need to determine the maximum shipping distance of the more perishable items since this factor will limit the number of products to be packaged.

A second problem found in the distribution of pre-packaged produce from a central location is that of properly packaging the merchandise for transportation from the packaging point to the retail store. According to Melvin, the development of proper shipping crates that would adequately protect the merchandise during transportation was one of the most difficult problems encountered in pioneering the system at Publix.[5]

Training

The most obvious training need in a centralized pre-packaging operation is that of developing a general manager for the plant. As the number of stores supplied

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[4]Martin, op. cit., p. 178.

[5]Melvin, personal correspondence.

and the variety of commodities packaged increases, production, buying and delivery problems become more complex. Complete and thorough training of the general manager will be necessary if the benefits inherent in the technique are to be obtained.

Naturally, training cannot stop at the supervisory level. Some of the equipment installed by the companies discussed in this paper was designed specifically for the operation where it is being used. Much of the machinery is foreign to general supermarket operations and requires trained operators to gain the maximum benefit from the investment.

A firm adopting this mode of produce pre-packaging, therefore, should be prepared to invest both time and money in training the personnel at all levels of the packaging operation.

A second place where training problems may occur is at the retail store. The problem of training store personnel to display only fresh merchandise at all times, is not limited to a centralized or indeed even a pre-packaged operation. When the responsibility for packaging passes from the retail outlet to a central location, however, the problem may become more severe due to a feeling that since the product was received in a package, it must be fresh. Moving the packaging operation out of the store does not remove store management's responsibility for inspecting and maintaining displays of fresh merchandise.

Inferior Quality Merchandise

One of the chief problems found in the system is that of disposing of the merchandise of non-packagable quality. When packaging occurs on the store premises this merchandise can often be sold at reduced prices. In a large volume centralized operation the quantity of merchandise is often too large to dispose of in this manner. The most logical answer to the problem seems to lie in the areas of more selective buying, the development of an institutional type market (restaurant, etc.) or converting the edible portions into salads, soup mixes, et cetera.

Packaging

Centralized packaging is ideally a highly automated process, and many mechanical problems, peculiar to each installation, can be expected. The selection of proper equipment and packaging materials depends of course upon the needs and resources of the individual firm. In pioneering the first complete packaging plant, Publix found it necessary to design special trays to fit the merchandise rather than trying to fit the merchandise to standard-size trays.[6]

Concerning the need for special packaging materials brought about by the transfer of the operation to the distribution center, Melvin said:

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[6]Ibid.

> I can't think of any necessary material changes other than a special label, which is automatically ejected and glued onto the packages. The labels we used in store level packaging were pressure sensitive labels, which were glued on by applying heat from a hand iron.[7]

The selection of the proper package size and weight to satisfy customer's demands is a problem in any pre-packaging operation. With packaging removed from direct customer contact in a centralized operation, a special effort toward solving this problem is required.

Coordinating the Production and Merchandising Functions

A centralized pre-packaging system is of necessity a volume operation. Because of this it will require advance merchandising information if planning and scheduling for maximum efficiency is to be obtained. Sales plans and special promotions will need to be set up in advance to allow the packaging operation to meet the necessary schedules and adjust work loads.

At Publix, promotions are scheduled ten days in advance.[8] The packaging operation, however, usually requires only a one day notice since everything is packaged and shipped within a twenty-four period. Special situations and unusually heavy peak supply periods are handled on an over-time basis at Publix.

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[7] Ibid. [8] Ibid.

If a large chain were to adopt this system for regional use, co-operative pricing, promotions, and buying arrangements between the divisions or branches involved, would be needed to reduce the complexity of the packaging operation. The capacity of the available packaging facilities could be a limiting factor in determining the number and types of promotions available to the merchandise staff of each division.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

A purpose of this study has been to determine some of the advantages which will accrue to a food chain by centralizing the produce pre-packaging operation at the food distribution center.

Materials for the study were obtained by personal correspondence with managerial personnel directing such operations, and referring directly to pertinent information published in trade magazines and other literature.

The centralized pre-packaging systems of Publix Super Markets and Alexander's Markets were examined in some depth to illustrate two typical operations and compare the advantages derived by each company. The justification for such an approach was the assumption that these two organizations could serve as representatives of the whole, while still revealing the differences found in individual companies. This treatment of the material established a basis for industry wide generalizations as well as for consideration of the advantages found in each case.

The study has been descriptive in content and has been reported with the hope it shall stimulate further investigations and interest in this important area.

Conclusions

With the limited amount of information available on this type operation, it would be prudent to hesitate before listing a series of unqualified advantages obtained by centralizing the produce pre-packaging operations at the food chain distribution center. It would seem, however, that several advantages do exist. These advantages are as follows:

1. By centralizing the produce pre-packaging operation, labor costs should be reduced. This could be accomplished by use of more expensive and highly efficient machinery and the gains which result from the use of assembly line methods.

2. Equipment costs can be reduced by avoiding duplications and a better utilization of each piece of machinery. When pre-packaging occurs at the store level, it is necessary to have duplicate sets of equipment in each store. None of these is operated on a full time basis. In a centralized operation the intensive use of equipment reduces the amount of capital investment needed.

3. The quality standards of all packaged produce can be improved and a more uniform package obtained. In a

centralized operation the same employees are performing the same jobs on a regular basis. When specialization of this nature occurs, the employees soom become efficient in the handling of the products. Because the entire wrapping operation is under the direct supervision of one produce expert, the quality is maintained in a more uniform manner.

4. The removal of the packaging function from the store will increase the selling area available for an equal amount of investment.

5. Store produce managers will be able to spend more time merchandising produce and training their employees, since the packaging functions will be removed from their scope of supervision.

6. Large chains may be able to package produce on a regional basis, thus further reducing equipment and packaging costs.

7. More uniform pricing may be obtained thru the use of electronic weighing equipment and stricter control.

8. Losses caused by the receipt of poor quality merchandise from the producer can be reduced. In a centralized operation the merchandise remains in one location and, therefore, it is easier to file and support claims.

9. Inventory control over both produce and packaging supplies are improved because virtually no reserve stock is required.

10. The consistent quality of the packaged produce processed in a central location will allow for the development of private produce brands by the individual retail organization.

Like all other areas of business endeavor problems occur in centralized pre-packaging. The majority of these problems are frequently noted in any complex organization and they involve labor relations, training, assembly line techniques, et cetera. Others are strictly peculiar to pre-packaging such as labeling, weighing, and transporting packaged produce. Each problem arising within the problem areas of labeling, weighing, and transporting must be solved on an individual basis according to the equipment used, and the commodities packaged.

Finally, centralized pre-packaging of produce at the food distribution center is not a panacea for the many ills which plague the produce industry. Nothwithstanding the several advantages which centralized pre-packaging has to offer the retailer, it is doubtful that it will revolutionize the marketing process. Rather, it seems to be another logical step in the evolution of produce marketing.

Parenthetically, if it were the perogative of this writer to project his analysis into the future he would predict that produce packaging will occur first at the chain branch distribution centers and later, when radiation

and antibiotics prolong the shelf life of the individual products it will be transferred to large regional facilities at the terminal markets.

The author foresees the time when it will be possible to purchase packaged produce, packed in chain-owned facilities at the major producing areas of the nation and shipped to the individual stores through a distribution system similar to that currently being used for coffee, dairy products, and other perishable and semi-perishable products.

Recommendations

The purpose of this thesis would not be complete without the development of a list of areas which need further investigation to expand the scope of knowledge in this field. As a result of this study, the author believes that research in the following areas should prove significant:

1. Studies to determine how far pre-packaged produce can be transported under current conditions.
2. Thorough cost analyses of the relative costs of packaging at the various stages of the marketing channel.
3. Studies of various methods for disposing of merchandise which is not of packageable quality.
4. An investigation of the personnel and labor relations problems related to the area of centralized packaging.

5. An examination of the problems which could develop if the pre-packaging operation were based on a regional basis by a food chain.

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