

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

84777
p. 3

LIBRARY
COMMERCIAL RECORD
★ JUL 29 1930 ★
U. S. DEPARTMENT OF AGRICULTURE

RESEARCH IN RETAIL MERCHANDISING OF FARM PRODUCTS--

Appraisal
of
Methods
and
Annotated
Bibliography

Marketing Research Report No. 416
Market Development
Research Division
Agricultural Marketing Service
U.S. Department of Agriculture

PREFACE

This report was prepared as part of a broad program of research designed to expand markets and reduce the cost of marketing farm products. It covers published research in retail merchandising of food from 1946, virtually the beginning of this kind of research, to 1958.

The term "merchandising," as used here, refers to the manner in which a product is offered for sale in retail stores. The publications listed are mainly reports of experimental tests and observations of the effects on sales of various methods of display, types and sizes of packages, methods of pricing, in-store promotional materials, and quality of products.

The bibliography includes almost all publications by public agencies, and some studies by private organizations, on retail merchandising of food during the period covered. It does not include articles in trade magazines reporting on merchandising tests, many of which were made by private firms. It includes certain opinion, attitude, and preference studies that were directly related to merchandising methods under test. Studies on marketing charges which contain merchandising data are excluded, since such studies are not oriented primarily toward retail merchandising methods.

Retail-store merchandising research, whether conducted under private or public auspices, is designed to aid management (a) in increasing the dollar volume of sales with respect to a commodity or group of commodities, and (b) in increasing department or store traffic, thereby enhancing the opportunity for greater sales per square foot of space and per store employee. Greater efficiency in retailing is achieved, and under competitive conditions savings in costs are shared with producers and consumers.

Many large retail organizations have the financial resources to conduct retail-store merchandising research. The extent of this research is not known because the results are not always published. The many thousands of smaller chains and independent retail establishments, however, are rarely in a position to carry on comprehensive research in merchandising. Therefore, there is a distinct place for merchandising research by public agencies such as State agricultural experiment stations, schools of commerce and business, and Federal research agencies. The results of the research are published and disseminated as widely as possible, so that not only retailers but producers' organizations and consumer groups can put useful findings to work.

This report was prepared under the general direction of George H. Goldsborough, with some assistance from Peter L. Henderson, Wendell Clement, and Mardy Myers, of the Market Development Research Division, Agricultural Marketing Service.

CONTENTS

	<u>Page</u>
Summary.....	5
Introduction.....	5
Nature and scope of published research.....	6
Objectives, methodology, and findings of published research.....	7
Retail store surveys.....	7
Consumer surveys.....	8
Matched-lot experiments.....	8
Test-versus-control-store experiments.....	9
Test-store experiments.....	10
Controlled experiments utilizing the latin square design.....	11
Other experiments using randomized designs.....	13
Conclusions.....	15
Annotated bibliography.....	17

July 1960

Appraisal of Methods and Annotated Bibliography

By Bennett A. Dominick, Jr. ^{1/}
Market Development Research Division
Agricultural Marketing Service

SUMMARY

Research on the retail merchandising of agricultural products was greatly accelerated after the Congress passed the Agricultural Marketing Act of 1946. This report constitutes an appraisal and summary of the published research directly related to methods employed in the retail merchandising of agricultural products from August 1946 to September 1958. During that period, over 200 published reports have given results of research in this area. These studies have had the general objective of determining the relative effectiveness of specific merchandising methods in increasing the sales of and demand for farm products. An annotated bibliography of the publications reviewed in the course of this study is included.

The research techniques most commonly used in conducting retail-store merchandising research were: (1) Surveys using observation of existing practices, interviews, or mail questionnaires; (2) matched-lot experiments; (3) test-store experiments; (4) test-versus-control-store experiments; and (5) controlled experiments employing statistical (experimental) designs, such as the latin square, randomized complete blocks, double change-over, and factorial design, to control or measure the influence of nonquantitative factors on the merchandising methods undergoing test.

During the period the studies were conducted, great progress was made in the development of methodology in merchandising research. Progress was most pronounced in the adaptation and refinement of statistical (experimental) designs used in conducting controlled merchandising experiments in retail food stores. These designs permit greater precision than research techniques formerly employed in measuring the effects of merchandising methods and in identifying and measuring other factors affecting sales.

INTRODUCTION

Increasing attention has been paid by researchers in Federal, State, and private agencies to retail-store merchandising research since the Congress of the United States passed the Research and Marketing Act in 1946. Officials of the U. S. Department of Agriculture, feeling that the pioneering phase of this research had matured, directed a survey of this work in terms of products studied, and the research methodology and analysis employed in relation to objectives and

^{1/} Dr. Dominick, associate professor of agricultural economics, Cornell University, was employed by the U. S. Department of Agriculture to prepare this report.

findings. Ways in which the work might be redirected or refined to enlarge its contribution to the efficiency of food marketing were also considered.

Merchandising is one of the key words in present-day marketing terminology. Such adjectives as automatic, controlled, cooperative, mass, modern, promotional, scientific, self-service, and shelf-service have been used with this term to describe the selling of products at retail. Marketing researchers have been active in measuring the relative influence of selected methods of merchandising agricultural products at retail on preference, acceptance, and demand on the part of consumers, shoppers, or customers. In most instances, the volume or value of sales resulting from individual merchandising methods examined was the index by which the relative success of each was measured.

Merchandising is a word of many meanings but, generally, it is thought of as trading--the buying and selling of a given product or products. Often it refers to the manner in which a product is offered for sale in a given retail store, with emphasis on the effectiveness of selected methods in stimulating sales. Research on merchandising methods includes tests on size of unit in which the price is quoted, how the product is displayed, size and location of display, type and size of package, whether the product is advertised or promoted, quality of product, and other factors.

Nature and Scope of Published Research

From August 1946 to September 1958, over 200 publications presented results of research in retail-store merchandising of agricultural products. ^{2/} This group of publications does not include consumer opinion, attitude, or preference studies, unless related to preferences for a particular merchandising method under sales test. Also, this group does not include the many studies on marketing charges which contain merchandising data, since these studies were not oriented primarily toward retail merchandising methods. Likewise, it does not include many articles in trade magazines reporting on merchandising tests, many of which were made by private firms.

A number of research techniques have been used in studying merchandising problems in retail stores. Experimentation has produced usable research tools, which can lead to the development of principles of merchandising as well as to the solution of many practical merchandising problems. As one studies the literature reporting merchandising research results, one is impressed with the fact that accuracy of the findings depends largely on the methods of research and analysis employed. For this reason, the discussion is divided according to research techniques used.

The five techniques most commonly used in determining the influence of selected methods on sales in retail stores are: (1) Surveys using observation of existing practices, and interviews or mail questionnaires; (2) matched-lot experiments; (3) test-versus-control-store experiments; (4) test-store experiments; and (5) controlled experiments employing latin square, randomized complete blocks, and other statistical (experimental) designs to equalize the

^{2/} 229 published reports were reviewed in the course of this study.

effects of uncontrollable factors associated with sales, such as different time periods and stores. In addition, consumer surveys have been used to aid in interpreting effects of specific merchandising techniques on retail-store sales.

The observational method of collecting data on merchandising practices has been used in combination with some of the research techniques listed here, in studies conducted under controlled as well as uncontrolled conditions. The exact magnitude of its use could not be measured. Some reports stated that part of the data was obtained by observation. Others did not mention the use of the observation technique, but there was reason to believe it was employed in collecting some of the data.

The number of published reports on each technique is given in the following section. However, the relative importance of each technique is understated in that each was counted only once, although some publications summarize several tests of one technique or another. This applies particularly to matched lots and latin squares. Many of the publications contain the results of studies using more than one research technique.

OBJECTIVES, METHODOLOGY, AND FINDINGS OF PUBLISHED RESEARCH

Retail Store Surveys

Of the 229 publications reviewed, 91 gave results of retail merchandising research using the store-survey approach. Of these, 87 used interviews and 4 used mail questionnaires to obtain data from the retail stores. The survey technique has proved to be a popular research tool. In general, retail-store surveys were undertaken to determine: (1) Pricing policies, methods of displays used, size of displays, advertising and promotional devices, and other merchandising practices employed by retailers; (2) quality and appearance of products offered; (3) sources of supply; (4) availability of specific commodities; (5) volume of sales of specific commodities; and (6) the extent to which retail stores have accepted methods recommended on the basis of results of controlled experiments. The retail-store survey is a practical method of obtaining research data for such general objectives, and is useful in selecting merchandising practices to be tested in controlled experiments.

In other publications on retail-store surveys, the objective was to explain in whole or in part the source of variation in sales of a given commodity. Here more difficulty was encountered. Usually the sources of variability were determined, but definitive relationships between sources of variation and sales were not generally found. Many of the reports stated that although few if any definitive relationships were uncovered, such relationships may exist. Others stated that there were so many factors involved that the effect of any one could not be isolated.

Consumer Surveys

Consumer surveys using personal interviews and mail questionnaires were reported in 51 of the publications surveyed. Such surveys were used in conjunction with one or more other research techniques. Generally, consumer surveys were used with matched-lot and test-store sales experiments, such as those described below, and with store surveys.

Consumer surveys often provided answers to such questions as: Who were the buyers and nonbuyers? What were their characteristics? Why did they buy or not buy? Such information is valuable in identifying segments of the population where sales might be increased. Additionally, the findings aid the researcher in developing new methods for testing and in improving merchandising methods currently in use. In the absence of this information the researcher, to a large degree, must rely on his own judgment in refining old methods and in selecting new methods for testing. To the extent that the researcher's individual judgment is at variance with actual tastes and preferences of consumers, time, effort, and expenditures will be wasted in experimenting with merchandising methods which offer little promise for stimulating sales.

To realize the advantages which accrue from the use of consumer surveys, great care should be exercised in their execution. Consumers' responses to direct questions are largely subjective. Respondents often cannot explain why they reacted in a given way. Also, some words do not have the same meaning for all respondents. Such problems usually can be minimized by giving careful attention to such phases of the survey as construction of the questionnaire and selection of enumerators to conduct the interviews, as well as the interview itself.

Matched-Lot Experiments

The matched-lot technique has been widely used in studying the influence of selected merchandising methods at retail. The use of this technique is reported in 70 of the publications reviewed. In this approach, two or more lots of an agricultural commodity varying in one or more aspects (such as size or grade, or type of package) are displayed side by side in one or more stores, and records of sales are obtained for each lot. Some have interpreted the findings from such studies as "relative sales effectiveness," or as "acceptance," "reaction," "preference," "response," and "choice" on the part of consumers. Only a few studies stated that the objective was to determine preferences or reactions in terms of relative sales from the merchandising methods tested, but all publications presented intensity of preference in terms of the relative sales levels of each lot.

Available information from a number of studies shows that differences in sales, or in consumer preferences, between two or more matched lots will be overstated when compared with sales in individual displays. When the two items are normally merchandised together, sales of each and total sales have little meaning if the objective is to determine whether one item is better. Substitutability between the two items cannot be measured by offering them at the same time. In this technique, shoppers are forced to make a distinction

they may not otherwise make. The relative sales effectiveness of each lot, or both lots together, cannot be determined unless the displays are offered one at a time. It may well be that the combination will result in increased sales, but this cannot be determined from a matched-lot study.

While the matched lot is an inadequate research techniques for determining the real difference in sales effectiveness of separate displays of two or more lots, it is a working tool normally available to retailers in determining when to drop an item or add another. So far, little research has been conducted to find out by how much the differences in sales are overstated by a side-by-side comparison of matched lots. If the degree of overstatement can be measured, then some definitive statements may be made concerning the conversion from preferences to purchases.

Available evidence bearing on this problem is limited. Data obtained from a few controlled experiments displaying a combination of A and B as matched lots, and then A separately and B separately, offer an example of how the minimum difference may be obtained. In one matched-lot experiment, sales of A were 84 percent greater than B; however, when offered separately sales of A were only 18 percent higher than sales of B. The increase of 18 percent was statistically significant. In several other experiments where the differences in sales between lots offered together were 84 percent or more, significant differences in sales resulted when the lots were offered separately. In another study, sales differences between lots were 52 and 65 percent in matched-lot arrangements. But no significant difference was found when these lots were offered separately.

The amount of increase in sales of one lot over another in a matched-lot test necessary to indicate that sales differences would be significant when the two lots are offered one at a time will no doubt vary among commodities as well as among merchandising methods. Until more information is available, however, additional research techniques should be used with the matched-lot technique to aid in interpreting results.

Retailers or others cannot transform intensity of preference into sales, and yet they need some estimate to guide them in making day-to-day decisions to discontinue or add sizes and types of packages for individual products. At present, the matched-lot technique possibly may be used for filtering or screening merchandising methods for examination, and some tentative statements may be made about the effectiveness of the methods under test. But the most meaningful results will be obtained from realistic tests offering the methods one at a time.

Test-Versus-Control-Store Experiments

Results from test-versus-control-store experiments are summarized in 21 publications reviewed on retail merchandising research. This procedure was first reported in 1949 (see item 12 in the bibliography). In this technique, sales resulting from a test merchandising method in a group of stores are measured against sales in a matched group of stores having a control merchandising method, which may be the method usually employed by retailers. If the

stores are properly matched and the test and control methods are assigned at random to the paired stores in each group, the data obtained from experiments employing this design may be subjected to statistical analysis to determine if differences in sales in the two groups of stores are significant. The first step in selecting stores and assigning test and control treatments is the development of data on sales and other characteristics of a proposed group of experimental stores during a pretest period. Stores are then matched in pairs on the basis of volume of sales of the commodities to be used and other factors affecting sales of the items to be subjected to the experiment. After the stores have been paired in this manner, one store from each pair is selected at random to receive the test treatment. The remaining store in each pair receives the control treatment. The statistical analysis is made by comparing actual sales in the test stores with expected sales, which are based upon the actual sales in the control stores. If the differences between observed sales and expected sales are greater than could arise from sampling errors, such differences are considered to be statistically significant.

Most of the studies reviewed used the same number of test stores as control stores. However, in some studies, only one control store was used with three to five test stores. Since sales data from both groups of stores are equally essential to the experiment, the control group should contain the same number of stores as the test group.

Test-Store Experiments

Some studies have been made with test stores only, and no control stores. Results from experiments employing this method are reported in 24 of the publications reviewed. Generally, they were limited in nature and many were pilot studies in one or two stores to obtain data to plan more comprehensive experiments. Several were referred to as preliminary research.

In most studies using this technique, a new product was tested or a given product tested in a new outlet. Usually the objectives were to obtain some idea of the market for a particular commodity, to test market procedures, or to evaluate a given merchandising method. This technique, involving no controls, often can be used effectively in satisfying such objectives. However, it cannot take the place of controlled experiments. Some studies using test stores have been called "before and after" tests, sales after the method is introduced being compared with sales before the practice is tested. In this kind of test, no correction can be made for the influence of time on sales as in controlled experiments. The sales results are therefore under or overstated by the degree to which sales are influenced by time differences.

Time differences, however, may not greatly affect the sales of all agricultural commodities--particularly where the study period is short. Where factors affecting supply and demand of the product under study remain stable during short periods, the "before and after" tests are quite satisfactory. The number of agricultural products which generally satisfy these conditions probably are few. It would appear that, among others, some dairy, bakery, and canned items might fall in this category. However, for most agricultural

products, factors, affecting demand and supply change over time, so that an experimental design is required in which corrections can be made for these changes.

Controlled Experiments Utilizing the Latin Square Design

One of the major breakthroughs in marketing research methodology came in 1948 when the latin square design was used for the first time in a controlled experiment to obtain merchandising research data at retail (bibliography, item 222). Agronomists, plant breeders, and other physical scientists had used the design for a number of years to measure the influence of varying application rates of fertilizer, or variety and the like on yield. ^{3/} Max E. Brunk and Donald A. Van Waes adapted it for use in marketing research to meet the need for a technique that would largely eliminate or equalize the influence on sales of two important nonquantitative variables--store and time differences. With it, the effectiveness of merchandising methods under test may be accurately measured.

The effects of individual stores and time periods on methods being tested are equalized by the latin square design because each merchandising method (for example A, B, C, and D) is offered in each store and in each time period. A 4 by 4 latin square design is as follows:

Time period	Stores			
	1	2	3	4
1.....	A	C	B	D
2.....	B	D	A	C
3.....	D	A	C	B
4.....	C	B	D	A

Since 1948, the controlled experiment employing the latin square design has become a popular tool in the merchandising researcher's kit. Results from experiments using this technique were summarized in 42 of the publications reviewed.

While marketing researchers have used the same experimental techniques as other scientists, there has been considerable variation in the methods or analysis and presentation of results. Many of the studies present a complete analysis in which the observed variations in sales data were segregated and related

^{3/} See Snedecor, G. W., Statistical Methods, Iowa State College Press, 1946, and Cochran, Wm. G. and Cox, Gertrude M. Experimental Designs, John Wiley and Sons, 1950, for complete description of latin square and other experimental designs.

to specific sources, and a detailed analysis was made of whether the individual merchandising methods differed significantly in their influence on sales.

In some studies the analysis has not been so complete. Some publications give no indication of an analysis to determine whether the sales differences between methods were real or could have resulted from chance or sampling fluctuations. As a result, the probability of making incorrect statements about the results in such cases is unknown. Since the design lends itself to an analysis of the probabilities of these differences occurring from chance, efficiency in use of the design is lost if this analysis is not made. The fact that the methods tested are randomized among stores and time periods and offered one at a time is a decided improvement over some other techniques, but the data should be analyzed completely.

Some have interpreted findings of no statistical differences in sales between the merchandising methods included in an experiment to mean that "negative results" were obtained. This is an erroneous interpretation. The results will not be negative if the experiment is conducted properly. The objective of these experiments is to determine whether or not differences exist among methods tested in their influence on sales. If no differences were noted, that should be reported. It may be that there were, in fact, no differences between the methods or it may be that the experiment was not properly conducted to detect such differences. If real differences among them are present, an effort should be made to isolate their individual influences. Also, there are instances where results showing no differences between methods may be as valuable to the trade as results showing wide differences.

In some publications where selected methods of merchandising are found not to be significantly different in their influence on sales at the widely accepted probability levels of 1 and 5 percent, the lowest probability level at which the differences are significant is shown. (Probability levels of 1 or 5 percent indicate that the chances are 1 or 5 in 100 that the observed sales differences may have been due to sampling errors.) While the probability level chosen is a decision of the researcher, he is much more likely to make wrong statements about the results if the level is higher than 5 percent. Many retail merchandisers may want to know the level where significant differences may be expected to exist, but they also want any recommendations made about a practice to be generally valid under actual operating conditions. Establishing the probability level depends on the cost of drawing incorrect inferences concerning the results. Where there are no differences in costs among the methods under test, a higher probability level can be used than where wide differences in costs exist. Perhaps a cost-probability level index can be constructed. In this way, criteria such as costs as well as differences in sales levels can be considered in arriving at a recommendation. However, such an index will not serve as a substitute for additional tests to aid in arriving at a closer approximation of the true differences between methods.

In a number of studies using the latin square design of experiment, results have been presented only in terms of sales per 100 customers, with no indication of the total amount sold by each method. If the analysis of variance is carried out using the amount (pounds or other units of measure) sold by each method, then sales by method should be presented in the same units of measure.

If the analysis of variance is made on unadjusted sales data, the effect of differences in the number of customers when each treatment is offered is ignored. In effect, it is assumed that differences in sales between methods are no greater than would have occurred from chance, if all methods had been offered to the same number of customers in each store during each time period, or that there is no measurable relationship between number of customers and sales. Therefore, presenting sales results on a customer-unit basis violates these assumptions.

Where the customer count is determined, it can be used as a covariate in the analysis when sales and number of customers are highly correlated. It will increase precision in determining the influence of the methods on sales. 4/

In the covariance analysis, the relationship of customers and sales is determined by the covariance and chance variations of customers and sales in each store and each time period for each method. If a significant relationship exists between number of customers and sales, the magnitude of the error or residual variance (estimate of chance variation) associated with sales data for the test is reduced by the amount of variation in sales directly associated with the variation in number of customers for each store, time period, and method. The magnitude of the reduction in the experimental error depends upon the degree of correlation between the number of customers and sales. The adjustment of total or average sales for the test methods for differences in number of customers in the covariance analysis is in effect an adjustment of the sales of each store during each time period for an equal number of customers.

In some experiments, the data in each cell of the square are converted to sales per customer and then analyzed by the analysis of variance. This is only a simple adjustment, and it assumes a direct linear relationship between customers and sales without chance variation in each cell. If no definitive relationships exist between the number of customers and sales of the test commodity, precision is reduced in the analysis when the simple adjustments are made, since any nonconstant sampling variation associated with customers is added to the chance variation in the sales data.

Other Experiments Using Randomized Designs

Studies reporting the use of other types of randomized experimental designs are summarized in 11 of the publications reviewed. These techniques have ranged in complexity from a randomized complete blocks design (a one-way restriction on randomization compared with two for the latin square design) to balanced factorial designs.

The randomized complete blocks design is similar to the latin square design with the following exceptions:

4/ Customer count is not the only variable that can be used as a covariate. Sales of related product groups such as total store sales, produce department sales, grocery department sales, or other highly correlated variables often can be used as covariates to increase accuracy in measuring differences between methods.

1. The effect of only one nonquantitative variable affecting the test variables is controlled or equalized; therefore,
2. The restriction on the random assignment of treatments is confined only to the nonquantitative variable which is to be controlled; thus,
3. The number of replications over time and number of stores do not have to be equal as in the latin square.

This design may be superior to the latin square design for conducting some tests of merchandising methods. For example, if on the basis of historical evidence the sale of a product is not expected to vary significantly between the time periods selected, then more effective replication of merchandising methods for the product could be obtained by using this design. The following diagram shows a design for testing 3 merchandising methods in 11 stores during 3 time periods:

Time period	Stores (as complete blocks)										
	1	2	3	4	5	6	7	8	9	10	11
1.....	A	A	C	A	B	A	A	B	B	B	C
2.....	B	B	A	B	A	B	B	A	A	A	B
3.....	C	C	B	C	C	C	C	C	C	C	A

Each test method (A, B, and C) appears an equal number of times in each store (complete block) but not in each time period.

In the studies employing the randomized complete blocks design or variations thereof, either stores or time periods were controlled as sources of variation. This design can be used efficiently when only one major source of variation exists other than merchandising methods.

When both stores and time periods are important sources of variation, a design that controls variation from both sources will be more efficient in measuring the sales differences among methods. In some studies that have used the randomized complete blocks design, uncontrolled sources of variation may have limited the precision in measuring differences among merchandising methods. Some reports have stated that a design which allowed for or controlled the variation from more than one source would have been more efficient.

Factorial experiments differ from the simpler experiments and experimental designs discussed previously in that each treatment is tested at two or more levels of one or more factors which may affect sales.

Randomized complete blocks, latin square, or other appropriate experimental designs may be used in factorial experiments to control nonquantitative variables such as store and time differences. A 4 by 4 latin square design, used to control the effects of stores and time periods in a factorial experiment

to test the effect of can size and display location on the sale of a canned item is as follows:

Time period	Stores			
	1	2	3	4
1.....	A ₁	B ₁	A ₂	B ₂
2.....	B ₂	A ₁	B ₁	A ₂
3.....	A ₂	B ₂	A ₁	B ₁
4.....	B ₁	A ₂	B ₂	A ₁

Treatments: A₁ = regular shelf location--small can
 A₂ = regular shelf location--large can
 B₁ = dietetic foods--small can
 B₂ = dietetic foods--large can

The double changeover design has been used in several studies. This design, which is a special arrangement of two or more orthogonal latin square designs, makes it possible to measure the residual or carryover effects of treatments (test methods) on subsequent treatments in rotational experiments. This is accomplished by reversing the treatment sequences in the replicated squares as shown in the following diagram, in which the effects of stores and time periods are equalized as in the latin square design:

Time period	Stores					
	Square I			Square II		
	1	2	3	4	5	6
1.....	A	B	C	A	B	C
2.....	B	C	A	C	A	B
3.....	C	A	B	B	C	A

CONCLUSIONS

Research in the field of retail merchandising is a relatively new but essential area of agricultural marketing research. It involves products and people in the final link of the channel of distribution. Accurately determining what shoppers prefer or will accept as indicated by their purchases can

improve shoppers' satisfaction and increase the efficiency of production and marketing. Retail merchandising research can speed the process of informing producers and food handlers what shoppers want and will buy. It can prevent many costly mistakes of producing new items or changes in old ones that will not sell.

The publications on retail merchandising research issued during 1946-58 provide a wealth of data as to how agricultural products are merchandised in retail stores. Many research projects have been designed to examine and test different merchandising methods for individual commodities. The results of a number of these studies have been incorporated into merchandising programs by the retail trade.

The majority of the merchandising studies conducted involved only one commodity; however, the findings of many such studies have been applicable to related commodities. Merchandising studies of only one commodity have been criticized, chiefly on the ground that if the sale of one commodity is increased, the sale of another declines. This is seemingly substantiated by the fact that per capita consumption of food in the United States has remained unchanged for years at about 1,500 pounds. However, there have been great changes in individual commodities, with a strong tendency toward increased consumption of the so-called protective foods, principally animal products, fruits, and vegetables. Moreover, to the extent that more of a product is sold per square foot of store space or per store employee, savings in costs are effected which can be passed on, in large part, to producers and consumers.

Other criticisms are that the findings of merchandising research are applicable only over short periods and little can be done to develop and establish principles, because of rapid changes in retail food distribution. It is true that changes in merchandising practices are rapid but some consistent relationships between variables have been established. Examples of such relationships are the positive correlations between sales and convenience of purchase, variety in size of packages and pricing unit, visibility of products in consumer packages, and cleanliness for commodities such as fresh fruits, vegetables, eggs, and poultry. While the influence of these factors varies to some degree among different commodities, the relations between them and savings are sufficiently consistent to provide reliable guides to merchandisers.

Research methodology for studying the effects of merchandising methods has been improved greatly. However, considerable variation exists in ways of using these techniques and interpreting the results. Each research technique has its advantages and disadvantages. The particular methodological technique that should be selected depends on the objectives and nature of the project and the sources of variability affecting sales of the test items. If the objective is to determine and describe the merchandising practices being used by retailers, a store survey may be the appropriate technique to use. However, if the objective of a study is to measure the effect of specific merchandising practices, the technique used should control or measure the variation in sales associated with sources other than the merchandising methods being examined. Some designs fulfill these requirements better than others. There are other considerations involved in the selection of an experimental design, such as costs of obtaining and analyzing the data. Statisticians familiar with this area of work should

be consulted before the final design is selected.

Interpretation of the data also needs careful attention. Only variations in sales attributable to the merchandising methods undergoing test should be considered in comparing methods. Variations in sales associated with nontest factors should be measured or eliminated from the results if possible. Variation in sales attributed to the nontest items should be stated in written reports to serve as a basis for improvement in planning future studies. For the same reason, studies in which no differences in the effectiveness of merchandising methods are found should be reported as completely as those in which unusual differences are found. It is often important to retailers to know that no difference exists in the sales effectiveness of specified merchandising methods. In the latter instance the least costly method or the method insuring better quality control can be employed with a minimum risk of loss in sales.

Statistical tables of F, commonly used with analysis of variance for determining the effectiveness of merchandising methods, are available at the 0.005, 0.01, 0.05, 0.10, and 0.25 probability levels. ^{5/} That is, the probability is 5 times in 1,000 and 1, 5, 10, and 25 times in 100, of obtaining a larger value from chance than the values found in the table for specified degrees of freedom when comparing treatment differences. Although the 0.01 and 0.05 probability levels are most commonly used in comparing the effectiveness of different merchandising methods, higher probability levels (0.10 and 0.25) may be appropriate when the risk of possible loss in sales is small and the cost of the most promising method is low. For example, if a comparison of two methods, A and B, showed a sales increase of 5 percent for A over B and the cost of either method is exceptionally low, it would probably be to the advantage of a retailer to use method A even though the difference was significant only at the 0.25 probability level. The risk of loss involved is slight in relation to the possible gain. On the other hand, retailers would probably not wish to adopt an expensive method (for example, changing refrigerated display cases) that produced only 5 percent more sales than methods already in use, even if there were only 5 chances in 100 that the difference arose by chance.

ANNOTATED BIBLIOGRAPHY

The following reports were published by State and Federal agencies, and some private organizations, from August 1946 to September 1958. Reports of the U. S. Department of Agriculture listed here can be found in principal libraries over the country and in most libraries operated by State land-grant colleges. Reports other than those of the Department can be found in libraries of the issuing institutions or agencies, and possibly in certain other principal libraries. Copies of some reports can be obtained by writing to the issuing agencies.

An index of publications, by research techniques employed, appears on page 46. Addresses of agricultural experiment stations in this bibliography are given on page 45.

^{5/} Pearson, E. S., and Hartley, H. O., ed. Biometrika Tables for Statisticians. Vol. 1. Table 18, percentage points of the F distribution, pp. 157-163. Cambridge Univ. Press. 1954.

1. Abrahamsen, M. A. Consumer Preferences for Sweet Potatoes. N. C. Agr. Expt. Sta. Tech. Bul. 82. 24 pp. Feb. 1947.
A matched-lot test and some consumer interviews to determine amount and grade purchased, color and size preferred, and other factors.
2. Alban, E. K., and Scott, R. C. Post Harvest Handling and Marketing of Garden Fresh Sweet Corn. Ohio Agr. Expt. Sta. Res. Cir. 23. 31 pp. Feb. 1954.
A test-versus-control-store study of preference for iced corn over that which had not been iced, carried out in six stores in Columbus, Ohio.
3. Alexander, M. (Ed.). Display Ideas for Super Markets. Progressive Grocer, Butterick Co., Inc., 161 Sixth Ave., New York 13, N. Y. 219 pp. 1958.
Special display ideas used over a period of time by some of the Nation's most progressive retail food organizations, researched in test and control stores.
4. Allee, D. J. Merchandising Dry Beans. Cornell Univ. Agr. Expt. Sta. AE 958. 23 pp. Jan. 1955.
A controlled experiment using the latin square technique and store surveys to determine the effectiveness of several merchandising methods.
5. Allewelt, R. W., and Myers, M. Poultry Availability and Merchandising in Retail Stores. U. S. Dept. Agr. Mktg. Res. Rpt. 265. 49 pp. Sept. 1958.
A mail questionnaire of over 6,000 stores with findings classified by regions, sales volume of store, and density of population at store location.
6. Allred, W. Can Butter Compete with Oleo? Utah Agr. Expt. Sta. Farm & Home Sci. 15(2): 35, 47, 48. June 1954.
A survey of retail stores to determine the effect on sales of lower prices for butter and a smaller price differential between butter and margarine following the price-support reduction for butter of April 1, 1954.
7. American Cranberry Exchange. Cellophane Bags vs. Window Boxes. Amer. Cranberry Exch., 5 South Sixth St., New Bedford, Mass. The Cranberry World 6(11):12-13. March 1953.
A matched-lot test to determine which of the two types of packages for cranberries resulted in greater retail sales.
8. Anderson, R. H. Merchandising Eggs. Utah Agr. Expt. Sta. Farm & Home Sci. 18(2): 38, 39, 47, 48. June 1957.
A test-versus-control-store experiment to determine the effects on sales of various point-of-purchase appeals and of price differentials between grades and sizes of eggs.
9. Anderson, R. H., and Lamborn, E. W. Trading Stamps Boost Sales in Retail Food Stores. Utah Agr. Expt. Sta. Farm & Home Sci. 18(3): 64, 65, 71. Sept. 1957.
A survey of stores and consumers in Salt Lake City to indicate sales before and after introduction of trading stamps and to assess consumer reaction to trading stamps.

10. Aplin, R. D. Consumer Demand for High Quality Eggs. Cornell Univ. Agr. Expt. Sta. A.E. 834. 32 pp. Aug. 1952
A study using the split-plot design during two different time periods to determine consumer demand for eggs with and without advertising, education, or promotion.
11. Applebaum, W. The Super Market Industry Speaks. Super Market Institute, Inc., 500 N. Dearborn St., Chicago 10, Ill. 30 pp. 1949. (See subsequent annual reports.)
A mail questionnaire covering 231 companies to determine the percentage of fruit and vegetables sold by weight and by regions, and also the extent of prepackaging of produce by these companies.
12. Applebaum, W., and Spears, R. F. Controlled Experimentation in Marketing Research. Mktg. Res. Notes from National Workshop held at Center for Continuation Study, Univ. Minn., Minneapolis, Minn., August 29-September 8, 1949, pp. 43-57. U. S. Dept. Agr., Agr. Res. Admin.
Notes pointing up the importance of having control as well as test stores in retail-store experiments designed to indicate the most effective of various merchandising methods.
13. Armentrout, W. W. Some Customers Pay No Attention to Bruises on Apples. W. Va. Agr. Expt. Sta. Science Serves Your Farm, Bul. 357, Pt. I, p. 7. Sept. 1952.
Matched-lot tests to determine consumer preferences for apples, relatively free from bruises, with bruised apples slightly discounted in price.
14. Bailey, J. A., and Anderson, R. H. The Merchandising of Turkeys Through Retail Stores: Five Utah Cities, 1951-52. Utah Agr. Expt. Sta. Mimeo. Ser. 401. 6 pp. Nov. 1953.
A retail-store survey to ascertain the proportion of turkey sales to total sales and factors related to these sales, including seasonality, prices, and promotion.
15. Baker, J. M. Consumer Preferences in Sweet Potatoes. La. Agr. Expt. Sta. Bul. 409. 15 pp. Jan. 1947.
Matched-lot test plus a survey of consumer preferences in Louisiana and in Chicago, Ill.
16. Baker, J. M. Marketing Louisiana Sweet Potatoes in Pittsburgh. La. Agr. Expt. Sta. Bul. 422. 14 pp. Sept. 1947.
A matched-lot test on reactions of dealers and shoppers to quality and grades of Louisiana sweetpotatoes.
17. Baker, J. M. Prepackaging Tree-Ripened Louisiana Peaches. La. Agr. Expt. Sta. Bul. 434. 12 pp. Jan. 1949.
A matched-lot test and observations in retail stores in several different time periods to determine consumer reaction to various merchandising methods and degrees of ripeness in peaches.

18. Baker, J. M. Marketing Field Peas in North Louisiana (Preliminary). La. Agr. Expt. Sta. D.A.E. Mimeo. Cir. 121. 13 pp. April 1951.
A matched-lot study and observations in retail stores to determine effect on sales of new types of packages and displays.
19. Baker, J. M. Effect of Sizing of Sweet Potatoes on Consumer Acceptance. La. Agr. Expt. Sta. D.A.E. Mimeo. Cir. 166. 7 pp. Aug. 1954.
A controlled retail-store experiment utilizing the latin square design.
20. Baker, R. L. Effects of Point of Sale Information on Egg Sales. Pa. Agr. Expt. Sta. Prog. Rpt. 176. 4 pp. Aug. 1957.
A retail-store test using the latin square design.
21. Bakken, H. H., and Kelly, R. A. Color as a Factor in Consumer Preferences for Potatoes. Potato Growers of Wisconsin, Inc., Antigo, Wisc. Common Tater. 15 pp. July 1951.
A matched-lot test and a consumer survey in St. Louis, Mo., to compare sales of white and red potatoes in a market traditionally favoring the red potato.
22. Banks, S. The Measurement of the Effect of a New Packaging Material Upon Preference and Sales. Jour. Business 23(2): 71-80. Univ. Chicago Press, Chicago, Ill. Apr. 1950.
A study using the test-versus-control-store technique in retail stores and a consumer survey to measure the effect of a new packaging material compared to one previously in use.
23. Beattie, J. R., and Demoranville, I. E. A Fresh Cranberry Market Survey. Mass. Agr. Expt. Sta. Bul. 501. 12 pp. (no date)
A survey of 60 stores to find store and produce managers' attitudes and opinions toward fresh cranberries relative to color, size, and related factors.
24. Becker, C. A. Egg Marketing by Retail Stores in Pennsylvania. Pa. Agr. Expt. Sta. Bul. 561. 50 pp. Jan. 1953.
A survey to provide basic information about volume and types of eggs sold and merchandising practices followed.
25. Bere, R. L., and Cravens, M. E. Direct Labor and Material Costs in Retail Apple Merchandising and Actions of Customers in Purchasing Apples, Columbus, Ohio, 1955. Ohio Agr. Expt. Sta. A.E. 257. 13 pp. Oct. 1955.
A study of costs for different methods of moving apples through retail stores, and observations of the time required to buy and the average amount purchased by consumers.
26. Berry, C. R., and Jackson, H. Characteristics of Beef Retailed in Arkansas, January 1956. Ark. Agr. Expt. Sta. Bul. 564. 24 pp. Jan. 1956.
A survey of types of service, methods of purchasing by retailers, grades, and related factors in 100 retail stores in Arkansas.

27. Berry, C. R., and Meenen, J. J. Distributing Dairy Products Through Retail Stores in Arkansas. Ark. Agr. Expt. Sta. Bul. 592. 36 pp. June 1957.
A survey of merchandising practices in 63 retail stores in 2 cities.
28. Bitting, H. W. Produce Department--Space Utilization, Gross Margins and Operating Costs in Selected Retail Stores, Charlotte, N. C. U. S. Dept. Agr. Mktg. Res. Rpt. 36. 38 pp. June 1953.
A survey of the allocation of floor space in retail food stores as related to gross profits per square foot and the extent to which pricing practices affect sales and margins for selected fruits and vegetables.
29. Blum, M. A. Merchandising Apples in Large and Small Stores. N. Y. State Col. Agr., Ithaca, N. Y. Farm Econ. 204, pp. 5406-5407. Mar. 1956.
A study in 64 retail food stores to determine the relationship between size of store and characteristics of apple displays, including size and type of display (bulk versus prepackaged) and size of package.
30. Branson, R. R. The Consumer Market for Beef. Tex. Agr. Expt. Sta. Bul. 856. 28 pp. Apr. 1957.
A matched-lot test and a consumer survey to determine consumer reactions to grades of beef in Houston, Tex.
31. Brown, E. E., Van Blaricom, L. O., and Ferrier, W. T. Frozen Stuffed Peppers, A New Frozen Food? S. C. Agr. Expt. Sta. Agr. Econ. 127. 9 pp. June 1957.
An experiment offering frozen stuffed peppers for sale in two retail test stores to determine market potential.
32. Brunk, M. E., and Federer, W. T. How Marketing Problems of the Apple Industry Were Attacked and the Research Results Applied. Cornell Univ. Agr. Expt. Sta. Methods of Res. in Mktg., Paper No. 4. 15 pp. Jan. 1953.
Description of controlled experiments aimed at aiding the apple industry in its retail marketing problems and the results obtained when findings were applied.
33. Brunk, M. E., and Hampton, R. N. Problems of Selling Prepackaged Roses in Grocery Supermarkets and Variety Stores. Cornell Univ. Agr. Expt. Sta. A.E. 930. 41 pp. Oct. 1953.
Retail-store tests in Syracuse, designed to determine effect of package size, color of package, and color of roses.
34. Buck, J. T. Marketing Poultry Meats in Retail Food Stores in Non-metropolitan Areas in Virginia. Va. Agr. Expt. Sta. Bul. 488. 69 pp. Apr. 1958.
A questionnaire and store survey designed to determine the availability and methods of handling various poultry meats in 46 small towns and cities in Virginia.

35. Cairns, L. E., Carlsen, E. W., and Chapogas, P. G. Consumer Packages for Pacific Northwest Medium and Large Size Apples (A Progress Report 1956-57). Fruit Indus. Res. Found., Yakima, Wash. 8 pp. July 1957.
A series of matched-lot tests to determine the sales effectiveness of various types of wrapping material.
36. Campbell, G. W. Consumer Acceptance of Beef--A Controlled Retail Store Experiment, Phoenix, Arizona, 1956. Ariz. Agr. Expt. Sta. Rpt. 145. 14 pp. Dec. 1956.
Matched-lot tests of consumer preferences for various qualities of beef, and a comparison of actual purchases with opinions and attitudes obtained from a consumer survey.
37. Carlsen, E. W., and Stokes, D. R. Prepackaging Apples at Point of Production. U. S. Dept. Agr., Inf. Bul. 29. 52 pp. Jan. 1951.
Matched-lot tests conducted in retail stores and consumer interviews to determine sales resulting from selected methods of merchandising apples.
38. Casso, H. J., Jr. Meat Consumption in Baton Rouge, Louisiana. La. Agr. Expt. Sta. Mimeo. Cir. 123. 61 pp. May 1951.
A retail-store survey to develop information concerning the distribution of meats with particular emphasis on the agencies and facilities involved.
39. Childress, R. L. Grade Qualities of Potatoes in Retail Stores. Cornell Univ. Agr. Expt. Sta. A.E. 707. 120 pp. Mar. 1950.
A survey including an appraisal of merchandising practices in New York City retail outlets.
40. Christensen, R. A. Merchandising Practices of Retail Food Stores. N. Y. State Col. Agr., Ithaca, N. Y. Farm Econ. 199, pp. 5276-5278. Mar. 1955.
A survey of about 700 retail food stores (chain and independent) to learn the number of products handled and how they are merchandised.
41. Collins, N. R., Greig, J. K., and Tucker, H. Consumer Preference for Sweet Potatoes. Kans. Agr. Expt. Sta. Agr. Econ. Dept. Rpt. 70. 19 pp. May 1956.
A matched-lot test in supermarkets on sales of different varieties of sweetpotatoes in three package sizes and in bulk displays.
42. Cravens, M. E., Jr. Selling Michigan Apples. Mich. Agr. Expt. Sta. Spec. Bul. 382. 30 pp. Oct. 1952.
A survey of retail stores in Detroit to determine which retailing practices for apples and which fruit characteristics were effective in increasing sales.
43. Cray, R. E. Retail Distribution of Eggs in Cleveland, Ohio, 1950. Ohio Agr. Expt. Sta. Res. Bul. 759. 47 pp. Mar. 1955.
A retail-store survey to study relation of display, location in the store, and new merchandising methods to the use of various types of packages.

44. Creek, C. R., Lamborn, E. W., Calhoun, W., Collins, E. C., Nicholson, V. H., and Sanborn, N. Consumer Demand for Peaches of Varying Stages of Maturity, 1949. Utah Agr. Expt. Sta. Bul. 339 (Western Regional Research Publication). 20 pp. June 1950.
A matched-lot test in retail stores using Colorado and Utah Elberta peaches.
45. Crigler, T. P. Merchandising Washed Potatoes. N. Y. State Col. Agr., Ithaca, N. Y. Farm Econ. 199, pp. 5299-5300. Mar. 1955.
A matched-lot test in stores in Syracuse, N. Y., to compare the sales of bulk versus packaged and washed versus unwashed potatoes.
46. Dalrymple, D. G. Marketing Controlled Atmosphere Apples. Cornell Univ. Agr. Expt. Sta. A. E. 1028. 59 pp. Apr. 1956.
A retail-store survey to check quality of apples stored in controlled atmosphere, and the use of test stores to measure the effects of in-store promotion and type of display (bulk versus prepackaged) on sales of apples.
47. Dalrymple, D. G. Merchandising Prepackaged Apples. Cornell Univ. Agr. Expt. Sta. A. E. 1027. 6 pp. Apr. 1956.
A store test using a latin square design to compare sales of prepackaged apples in various package sizes with sales of apples in bulk.
48. Danner, M. J., and Turner, J. L. Consumer Market Study of "Chilco" Jam and Jelly. Ala. Agr. Expt. Sta. Cir. 119. 15 pp. Apr. 1957.
A consumer survey and a matched-lot test in retail stores to measure consumer preference for newly developed jams and jellies made from Alabama blackberries, compared with established brands.
49. Darrah, L. B., and Carpenter, K. S. Egg Merchandising Studies in Supermarkets: III. Windows in Egg Cartons. Cornell Univ. Agr. Expt. Sta. A.E. 955. 10 pp. July 1954.
A consumer survey and store tests using the matched-lot and latin square techniques to measure consumer reactions to a new type of egg carton.
50. Darrah, L. B., and Henderson, P. L. Egg Merchandising Studies in Supermarkets. I. Consumer Response to Egg Quality. Cornell Univ. Agr. Expt. Sta. A. E. 923. 19 pp. Sept. 1953.
Controlled retail-store tests and observations of customers in a retail store to determine consumer response to eggs of four different grades.
51. Darrah, L. B., and Moore, E. M. Egg Merchandising Studies in Supermarkets. V. Transparent Egg Cartons (A Progress Report). Cornell Univ. Agr. Expt. Sta. A.E. 1012. 10 pp. Apr. 1956.
A consumer survey, controlled retail-store tests utilizing the latin square, and a matched-lot test.
52. Davis, L. H. Applying Improved Apple Merchandising Practices in Retail Stores. N. Y. State Col. Agr., Ithaca, N. Y. A.E. 807. 15 pp. Apr. 1952.
A test-versus-control-store study of alternative merchandising practices.

53. Davis, L. H. Merchandising Yellow Onions in Retail Food Stores. N. Y. State Col. Agr., Ithaca, N. Y. A.E. 1014. 15 pp. Dec. 1955.
A controlled retail-store test of several merchandising practices, utilizing the latin square design.
54. Dawson, L. E., and Wood, G. B. Merchandising Turkey Quarters. Ind. Agr. Expt. Sta. Bul. 537. 28 pp. Oct. 1949.
A consumer and test store survey to determine the possibilities of selling turkey quarters on a year-round basis.
55. Diver, D. Consumer Reactions Revealed in Peach Merchandising Experiments. N. Y. State Col. Agr., Ithaca, N. Y. Farm Econ. 204, pp. 5422-5423. Mar. 1956.
Use of the latin square design to measure the effect of size and type of package on sales of peaches.
56. Dominick, B. A., Jr. Merchandising McIntosh Apples in Retail Stores. Cornell Univ. Agr. Expt. Sta. Bul. 895. 22 pp. May 1953.
A study of selected merchandising practices, using the controlled observational method and the latin square design.
57. Downie, E. D., and Rauchschalbe, O. Package and Bulk Selling of Florida Oranges. U. S. Dept. Agr., Prod. & Mktg. Admin. 18 pp. June 1951 (processed).
A consumer survey and matched-lot test in retail stores in two cities in New York to determine consumer reaction to bulk versus prepackaged displays of oranges and consumer preference for a specific size of package.
58. Downie, E. D., and Treinish, H. R. Consumer Buying Practices and Preferences for Purchasing Oranges by Weight or Count in Selected Cities. U. S. Dept. Agr., Prod. and Mktg. Admin. 13 pp. June 1950 (processed).
A consumer survey and retail-store tests using matched-lot and test-versus-control-store techniques in four cities.
59. Eberhard, M. F., and Eke, P. A. Consumer Preference for Sized Idaho Russet Burbank Potatoes. Idaho Agr. Expt. Sta. Bul. 282. 19 pp. Mar. 1951.
A matched-lot test of sized potatoes versus mixed sizes in Kansas City, Mo., and Los Angeles.
60. Edinger, A. T., Mewis, B. H., Mumford, H. D., Bryan, J. E., and Stokes, D. R. Retailing Prepackaged Meats. U. S. Dept. Agr., Prod. and Mktg. Admin. 28 pp. Dec. 1949.
A survey of stores in 80 cities on the amount of promotion, manner of display, methods of wrapping, and related factors.

61. Ellsworth, H. M. Broadening the Market for California Early Apples. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. 3. 36 pp. 1949.
A survey of handling and merchandising practices in almost 300 stores.
62. Ellsworth, H. M. Problems and Possibilities of Expanding the Sale and Consumption of Turkeys in California. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. 5. 36 pp. 1951.
A store survey to determine the market potential.
63. Ellsworth, H. M. Expanding the Sale of Lemon Juice Products for Home Use. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. No. 7. 27 pp. 1952.
A store survey plus retailers' opinions on what the California lemon products industry might do to broaden the market.
64. Ellsworth, H. M. Expanding the Consumption of California Honey. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. 9. 36 pp. 1953.
A survey of merchandising practices and retailers' opinions about factors such as size of displays, location of display, and point-of-sale aids for honey in retail food stores.
65. Ellsworth, H. M. Expanding the Consumption of California Standard (Large) Lima Beans. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. 10. 27 pp. 1954.
Interviews with retailers.
66. Ellsworth, H. M. Expanding the Market for Processed Boysenberries. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. 12. 29 pp. 1956.
A survey of merchandising practices for processed California boysenberries in over 300 retail food stores.
67. Ellsworth, H. M. Expanding the Market for California Long White Potatoes. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. 14. 28 pp. 1957.
A retail-store survey.
68. Englund, W. J. Processed Asparagus Marketing Survey. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. 11. 71 pp. 1955.
A study of merchandising practices in over 300 retail stores.
69. Englund, W. J. Survey on Merchandising California Prunes in Retail Food Stores. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. 13. 51 pp. 1956.
A retail-store survey, including observations and interviews.
70. Englund, W. J. Increasing the Sale of Fresh Peaches in California. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. 15. 94 pp. June 1958.
A survey of retail stores in California.

71. Evans, H. C., and Hutson, W. S. Consumers' Reaction to Tree-Ripe Peaches. W. Va. Agr. Expt. Sta. Cir. 94. 7 pp. June 1954.
A test-versus-control-store experiment designed to determine consumer demand for hard-mature versus tree-ripened peaches at the same price.
72. Evans, H. C., and Marsh, R. S. Consumers' Reaction to Price of Tree-Ripe Peaches. W. Va. Agr. Expt. Sta. Cir. 95. 7 pp. May 1955.
A controlled experiment in retail stores utilizing the latin square design to learn whether consumers would pay a premium for tree-ripened peaches.
73. Evans, H. C., and Marsh, R. S. Apple Color--Its Development and Sales Appeal. W. Va. Agr. Expt. Sta. Bul. 396. 7 pp. Mar. 1957.
A retail-store experiment utilizing the latin square design to measure the effect of redness in apples on sales volume and consumer willingness to pay a premium for highly colored apples.
74. Farstad, E., Cox, C. B., Kramer, R. C., and Phillips, C. D. Retailing Meat in the North Central States. Ind. Agr. Expt. Sta. Bul. 622 (North Central Regional Pub. 55). 32 pp. Mar. 1955.
Survey and interviews with managers and meat merchandisers in over 1,300 stores to obtain a general description of meat retailing practices in the North Central area.
75. Fawcett, K. I., Gaylord, F. C., and Burkholder, C. L. Handling "Firm-Ripe" Peaches in the Lafayette Area. Ind. Agr. Expt. Sta. Bul. 653. 4 pp. Sept. 1957.
A store test designed to show whether consumers will pay higher prices for ripe peaches and whether offering firm-ripe peaches would result in larger total sales.
76. Fischer, C. M. Selling Turkey by the Piece in Portland, Oregon, November-December 1950. Ore. Agr. Expt. Sta. Cir. of Inf. 14 pp. Nov. 1951.
A study using test stores and a mail interview of store managers, to find a method of moving large quantities of bronze turkeys into consumption channels in the form of pieces.
77. Fischer, C. M., and De Loach, D. B. Consumer Response to the Marketing of Cut-Up Turkey. Ore. Agr. Expt. Sta. Bul. 457. 32 pp. Aug. 1948.
A study using test stores and a consumer mail questionnaire to determine whether the total demand for large tom turkeys could be increased by marketing them in cut-up form.
78. Franzman, J. R., Judge, G. G., and Newell, G. W. An Experimental Approach to the Estimation of Short-Run Price-Consumption Relationships for Eggs. Okla. Agr. Expt. Sta. Bul. T-73. 32 pp. April 1958.
A controlled experiment in 11 stores utilizing 9 treatments to obtain estimates of the relationships.

79. Gaarder, R. O., and Kline, E. A. What Do Consumers Want From Pork? Iowa Agr. Expt. Sta. Iowa Farm Sci. 11(6): 6-8. Dec. 1956.
Three separate matched-lot tests in retail stores to determine consumers' preference for various cuts and sizes of pork chops as related to carcass grade.
80. Gaarder, R. O., and Kline, E. A. What Kind of Ham Do People Want? Iowa Agr. Expt. Sta. Iowa Farm Sci. 12(9): 9-721, 10-722. Mar. 1958.
A matched-lot test in three retail stores to learn consumers' reactions to hams and center slices of ham from U. S. No. 1 and No. 3 hog carcasses.
81. Gaylord, F. C., Fawcett, K. I., Doty, D. M., Hivon, K., Redfield, G. M., and White, R. V. Packaging Fruits and Vegetables--Cost, Palatability and Consumer Acceptance. Ind. Agr. Expt. Sta. Bul. 530. 23 pp. 1948.
A retail-store study, including shopper interviews, to find out consumer acceptance of bulk versus prepackaged produce and the need for refrigeration in merchandising packaged produce.
82. Godwin, M. R. Consumer Packaging as a Method of Retailing Fruits and Vegetables Produced in the Northeast: I. Consumer Acceptance and Retailing Losses. Cornell Univ. Agr. Expt. Sta. Bul. 870. 35 pp. July 1951.
A matched-lot test of consumer reaction to bulk and package displays in retail stores during summer months.
83. Godwin, M. R. Customer Response to Varying Prices for Florida Oranges. Fla. Agr. Expt. Sta. Bul. 508. 24 pp. Dec. 1952.
A seven-store study of demand for fresh oranges, using the latin square design.
84. Godwin, M. R., and Manley, W. T. Preference for Sizes of Florida Tomatoes. Fla. Agr. Expt. Sta., Agr. Econ. Rpt. 58-5. 13 pp. Dec. 1957.
An exploratory study in retail stores, using the matched-lot technique.
85. Godwin, M. R., and Powell, L. A., Sr. Consumer Reaction to Varying Prices for Frozen Orange Concentrate. Fla. Agr. Expt. Sta. Bul. 589. 27 pp. Aug. 1957.
Customer response to five prices in retail stores, tested by a randomized, balanced design.
86. Goodrich, D. C., Jr. Egg and Poultry Merchandising Practices in New York State Supermarkets, 1957. Cornell Univ. Agr. Expt. Sta. A.E. 1089. 21 pp. Jan. 1958.
A store survey to measure the use of certain egg and poultry merchandising practices developed and recommended by Cornell University Agricultural Experiment Station.
87. Grasberger, F. M. Marketing Sweet Corn. N. Y. State Col. Agr., Ithaca, N. Y. Farm Econ. 199, pp. 5274-5276. Mar. 1955.
Tests in retail stores, latin square design and test-versus-control-stores, to determine consumer response to packaged and bulk corn and the sales effect of icing corn in the display case.

88. Greene, R. E. L. Consumer Acceptance of Waxed and Colored Potatoes. Fla. Agr. Expt. Sta. Southern Coop. Ser. Bul. 22. 27 pp. Feb. 1952.
Two studies, one using the matched-lot technique and the other test-versus-control-stores, to determine sales effect of displays of waxed and colored new red potatoes versus displays of new red potatoes not waxed or colored.
89. Greene, R. E. L., Johnson, J. M., and Barnes, R. C. Grade Qualities of Potatoes in Selected Retail Stores in Pittsburgh, Pennsylvania, 1950. Fla. Agr. Expt. Sta. Southern Coop. Ser. Bul. 24. 79 pp. June 1952.
Survey of 50 stores to ascertain variation in grade of potatoes offered for sale and related merchandising practices for the product.
90. Greig, W. S. Grading Potatoes for Mealiness and Its Effect on Retail Sales. Cornell Univ. Agr. Expt. Sta. A. E. 762. 28 pp. Nov. 1950.
A matched-lot test in two retail stores.
91. Gunn, T. I., and Carpenter, K. S. Merchandising Fryers in Self-Service Supermarkets. Cornell Univ. Agr. Expt. Sta. A.E. 992. 16 pp. July 1955.
A controlled experiment utilizing the latin square design in four stores to test alternative methods of displaying and packaging fryers.
92. Gunn, T. I. Merchandising Poultry--A Case Study of Three Supermarkets. Wash. Agr. Expt. Sta. Cir. 315. 13 pp. Oct. 1957.
A survey of poultry selling practices.
93. Hampton, R. N. Merchandising Flowers in Retail Florist Shops. Cornell Univ. Agr. Expt. Sta. A.E. 1004. 22 pp. Oct. 1955.
An evaluation of the possibilities for profitable merchandising of flowers in various city locations in test stores only.
94. Hampton, R. N., and Kupka, J. L. Problems in Retail Pricing and Packaging of Flowers for Sale in Self-Service Outlets. Cornell Univ. Agr. Expt. Sta. A.E. 1003. 38 pp. Oct. 1955.
Effects of changes in pricing and packaging, investigated by the latin square (double change-over) technique, matched lots, and test-versus-control stores.
95. Harrington, A. H., and Powell, J. V. Consumer Acceptance of Packaged Apples in Spokane, Washington (Preliminary Report). Wash. Agr. Expt. Sta. Cir. 56. 14 pp. Oct. 1947.
Consumer interviews and sales audits in retail stores to ascertain consumer acceptance of packaged versus bulk apples.
96. Hartmans, E. H., and Cravens, M. E., Jr. Factors Affecting Retail Peach Sales. Mich. Agr. Expt. Sta. Quarterly Bul. 32(1): 1-11. Aug. 1949.
Store surveys and observations in selected retail stores in the Detroit area to evaluate effects of factors such as quality and selling price on sales of peaches.

97. Hauck, C. W. New Practices in Marketing Sweet Corn. Ohio Agr. Expt. Sta. Bimonthly Bul. 31(242): 131-135. Sept.-Oct. 1946.
Matched-lot tests and the use of test control stores to determine sales effectiveness of prepackaged sweet corn offered at a premium price over loose (bulk) corn.
98. Hauck, C. W. Strawberry Packaging Tests. Ohio Agr. Expt. Sta. Bimonthly Bul. 32(248): 182-186. Sept.-Oct. 1947.
Matched-lot tests in retail stores to determine the effect of various types of wood and paper baskets on strawberry sales.
99. Hauck, J. F. Selling Sweet Corn That's Really Sweet. Market Growers Jour. 76(5): 9, 38-40. Louisville, Ky. May 1947.
A consumer interview and matched-lot test to determine sales differences between fresh cut corn and 2-day old corn and also effect of varying prices on sales of fresh corn.
100. Hauck, J. F. Some Aspects of Advertising and Merchandising New Jersey Sweet Potatoes. N. J. Agr. Expt. Sta. 20 pp. Nov. 1954.
A survey of merchandising and promotional (in-and-out-of-store) practices in stores in two New Jersey cities.
101. Hawes, R., and Stokes, D. R. Prepackaging Lettuce Is Preferred, But--. U. S. Dept. Agr. Marketing Activities, pp. 8-10. Feb.-Mar. 1954.
Interviews with produce merchandisers in retail stores and matched-lot tests to determine retailer and consumer reaction to prepackaged lettuce at the same and slightly higher prices than bulk lettuce.
102. Hawes, R. L., McGaha, M. E., and Stokes, D. R. Prepackaging Thompson Seedless Grapes in Cellophane Bags in Retail Stores. U. S. Dept. Agr., Prod. & Mktg. Admin. 8 pp. Jan. 1953.
A controlled retail-store experiment using the modified chain block design to ascertain the sales effectiveness of cellophane bags for packaged grapes compared with bulk and combination bulk and packaged displays.
103. Heckman, J. H. Marketing Colorado Boxed Peaches in the Twin Cities--1947. U. S. Dept. Agr., Farm Cred. Admin. Misc. Rpt. 111. 21 pp. Dec. 1947.
A matched-lot test in retail stores and consumer interviews to ascertain consumer acceptance for peaches at varying stages of maturity and also to appraise the impact of an industry advertising program.
104. Henderson, P. L. Merchandising Apples. Fruit 43(5): 34-36. Va. Hort. Soc., Staunton, Va. May 1955.
A retail-store survey utilizing the latin square design to determine the best pricing unit for selling apples, and the effects of uniform grading and proper identification of displays on sales of apples.
105. Henderson, P. L. The Effect of Advertising and Point-of-Sales Aids on Apple Sales. Fruit 43(6): 30-34. Va. Hort. Soc., Staunton, Va. June 1955.
Controlled experiments in retail stores, using the latin square design.

106. Henderson, P. L. Measurement of the Rate of Movement of Apples into Consumption and Factors Associated with the Movement of Apples in Retail Food Stores. Va. Agr. Expt. Sta. Tech. Bul. 129 (Northeast Regional Publication No. 28). 74 pp. Jan. 1957.
A study using a balanced factorial design to investigate various techniques of reporting the movement of apples into consumption and of relating specific merchandising practices to changes in apple movement.
107. Henning, R. G. and Cravens, M. E., Jr. Retail Tomato Sales: Greenhouse vs. Repacked Tomatoes, Cleveland, Cincinnati, Toledo, and Columbus, Ohio, Stores, Oct.-Dec. 1953. Ohio Agr. Expt. Sta. A.E. 252 27 pp. May 1955.
A store survey and observations, including interviews with retailers, to ascertain retail merchandising practices and the relation of these practices to sales.
108. Hinkle, W. B. Merchandising Fresh Fruits and Vegetables in Retail Stores: I. Store Characteristics and Produce Operations. Cornell Univ. Agr. Expt. Sta. A.E. 818. 82 pp. May 1952.
A descriptive store survey to classify various methods of merchandising fruits and vegetables in a representative northeast city.
109. Hinkle, W. B. Merchandising Fresh Fruits and Vegetables in Retail Stores: II. Practices Affecting Sales and Spoilage. Cornell Univ. Dept. Agr. Expt. Sta. A.E. 819 60 pp. June 1952.
A descriptive store survey to appraise the use of various merchandising practices and their influence on sales and spoilage of selected fruits and vegetables.
110. Huelskamp, H. J. Evaluation of Retail Merchandising Practices for Pears, Peanut Butter, and Creamery Butter. U. S. Dept. Agr. Mktg. Res. Rpt. 180. 16 pp. June 1957.
Controlled tests in retail stores, using the latin square design to evaluate several merchandising methods.
111. Huelskamp, H. J., Hoofnagle, W.S., and Myers, M. Effect of Specific Merchandising Practices on Retail Sales of Butter. U. S. Dept. Agr. Mktg. Res. Rpt. 117. 9 pp. May 1956.
A retail-store study using the incomplete block design to measure the effect of location and size of display, and pictorial versus non-pictorial carton, on sales of butter.
112. Jasper, A. W. Increasing Sales of Fresh Fryers Through Improved Merchandising Practices. Cornell Univ. Agr. Expt. Sta. A.E. 954. 40 pp. July 1954.
Use of the latin square technique in supermarkets in testing the effects of different merchandising methods and price changes on sales of fresh fryers.

113. Kantner, A. H. Marketing Eggs in Retail Stores. Cornell Univ. Agr. Expt. Sta. Bul. 894. 32 pp. June 1953.
A store survey including observations of the kind and quality of eggs that were handled in retail food stores and how they were being merchandised.
114. Kelly, R. A., Werner, H. O., Krantz, F. A., Hemphill, P., and Cravens, M. E. Relationship of Price and Quality of Potatoes. Minn. Agr. Expt. Sta. Bul. 406 (North Central Regional Publication No. 16). 28 pp. June 1950.
Matched-lot tests and test versus control stores plus interviews with store customers to determine consumer acceptance and preference for potatoes of different qualities, sizes, and cleanliness.
115. Kirkwood, E. K., and Blackstone, J. H. Merchandising Dairy Products in Alabama Retail Food Stores. Ala. Agr. Expt. Sta. Bul. 294. 62 pp. May 1955.
A store survey of methods of handling and selling dairy products, with some attention to the cost and efficiency of these factors.
116. Kirtley, M. B. Consumer Acceptance of Lean Pork Chops. Univ. Ill., Col. Agr., Champaign, Ill. Farm Econ. 223. pp. 1580-1582. June 1955.
A matched-lot test in retail stores on consumer preferences regarding ratio in fat to lean pork cuts, with the leaner cuts sold at varying price premiums.
117. Kline, G. E. A New Look at Fresh Fruits and Vegetables. Progressive Grocer 34(8): 49-55. Butterick Co., Inc., 161 6th Ave., New York 13, N. Y. Aug. 1955.
A survey of store operators throughout the country to ascertain merchandising practices.
118. Knight, W. R. An Attempt to Determine the Effects of Advertising and Other Factors on Florists Sales. Mich. Agr. Expt. Sta. Agr. Econ. 508. 52 pp. July 1952.
A survey of retail florist shops.
119. Lamborn, E. W. How Good Are Utah Apples. Utah Agr. Expt. Sta. Farm & Home Sci. 17(3): 53, 68, 69. Sept. 1956.
A controlled experiment in retail stores using the latin square design to determine the competitive relationships between Utah apples and those from other regions at the same price per pound.
120. Lamborn, E. W., and Anderson, R. H. Like Everything Else They Buy, Consumers Pick Up the Check for Trading Stamps. Utah Agr. Expt. Sta. Farm & Home Sci. 19(1): 14, 15. Mar. 1958.
A study of retail food prices in eight supermarkets to determine price changes following the introduction of trading stamps.

121. Lamborn, E. W., Creek, C. R., Jorgensen, C., and Calhoun, W. Consumer Preferences for Peaches of Varying Maturities from Colorado and Utah, 1948. Utah Agr. Expt. Sta. 13 pp. Dec. 1948. (U. S. Dept. Agr. cooperating.)
A matched-lot test of consumer preferences for peaches varying in maturity but offered at the same price.
122. Larson, A. B. Sale of Eggs in Minneapolis Retail Stores. Minn. Agr. Ext. Serv., St. Paul, Minn. Farm Bus. Notes 329, p. 4. Mar. 30, 1951.
A store survey including interviews with operators to ascertain methods of merchandising and packaging eggs of different sizes and grades.
123. Law, J. M. Consumer Reaction to Sized Sweet Potatoes. La. State Univ. Press., Univ. Station, Baton Rouge, La. La. Rural Econ. 17(3): 2, 3. August 1955.
A consumer-preference test using the latin square design.
124. Law, J. M., and Hames, J. K. Consumer Reaction to Prepackaged Louisiana Sweet Potatoes. La. Agr. Expt. Sta. D.A.E. Cir. 220. 8 pp. Mar. 1958.
A controlled experiment in retail stores, using the latin square design.
125. Law, J. M., and Hawthorne, P. L. Further Studies in Prepackaging Riper Peaches. La. Agr. Expt. Sta. D.A.E. Cir. 199. 4 pp. Feb. 1957.
Matched-lot test to compare sales of tree-ripened peaches in open bins (bulk) with sales of prepackaged peaches at the same price.
126. Law, J. M., Newson, D. W., and Christain, P. Research on Consumer Preferences for Certain Characteristics in Irish Potatoes. La. State Univ. Press., Univ. Station, Baton Rouge, La. La. Rural Econ. 20(3): 3, 5, 6. Aug. 1958.
A matched-lot test and consumer surveys to determine consumer preference for color and size of Irish potatoes.
127. Lebrun, E. J. Consumer Purchase and Use of Poultry Meat--Portland, Maine, 1950. Maine Agr. Expt. Sta. Bul. 524. 22 pp. Jan. 1954.
Consumer interviews to ascertain the use of poultry meat in the home and a descriptive store survey on availability and merchandising methods for different kinds of poultry in retail stores.
128. Lee, W. A. Preliminary Report on the Quality of Potatoes in Retail Stores, Philadelphia, Jan. 21-Feb. 27, 1948. Pa. Agr. Expt. Sta. Jour. Ser. Paper 1449. 17 pp. June 1948.
Store survey to determine the quality of potatoes available in retail stores and the effect of quality on price and sales of potatoes.
129. Lee, W. A. Merchandising Potatoes in Retail Stores. Pa. Agr. Expt. Sta. Prog. Rpt. 142. 7 pp. Feb. 1956.
A matched-lot test and use of the latin square design to determine consumer response to washed versus unwashed potatoes.

130. Lee, W. A. Merchandising Fresh Mushrooms in Retail Stores. Pa. Agr. Expt. Sta. Prog. Rpt. 144. 4 pp. Feb. 1956. (Agr. Mktg. Serv. cooperating.)
A controlled retail-store experiment using the latin square design to test different methods of packaging and displaying mushrooms.
131. Luke, G. W. Expects Increase in Chain Store Sales of Horticultural Products. N. J. Agr. Expt. Sta. N. J. Agr. 39(2): 5-9. Mar.-Apr. 1957.
A pilot study in one store to determine the effect on sales of floricultural products of varying the location of the display.
132. McAllister, W. T., and Bausman, R. O. The Retail Marketing of Frying Chickens in Philadelphia. Del. Agr. Expt. Sta. Bul. 275. 18 pp. July 1948.
Interviews with store managers and store surveys to determine methods of marketing fryers.
133. Meat and Food Merchandising. Where Shall I Display My Packaged Lard? Meat and Food Merchandising Magazine, pp. 28-29. Meat Merchandising, Inc., St. Louis 2, Mo. June 1955.
Comparison of sales of lard in three stores from displays located in the meat, dairy, and grocery departments.
134. Merchant, C. H. Consumer Acceptance of Sized Potatoes. Maine Agr. Expt. Sta. Bul. 465. 15 pp. Dec. 1948.
A matched-lot test and consumer interviews in the store to determine consumer acceptance for sized potatoes in 15-pound packages.
135. Merchant, C. H., and Gavett, E. E. Consumer Acceptance of Specific Gravity Separated Potatoes. Maine Agr. Expt. Sta. Bul. 559. 19 pp. May 1957.
Matched-lot tests in supermarkets plus consumer surveys to determine consumer preferences for potatoes separated by specific gravity and identified as best for different uses such as boiling, baking, or frying.
136. Merchant, C. H., and Woodward, H. C. Quality of Potatoes in Retail Stores in Boston, Massachusetts and Maine Markets, 1948. Maine Agr. Expt. Sta. Bul. 466. 62 pp. Feb. 1949.
A store survey on grades of potatoes offered for sale and the relation between size of potatoes and prices to consumers.
137. Merchant, C. H., Gavett, E. E., Underwood, J. W., and McDonald, F. J. Consumer Packages for Maine McIntosh Apples. Maine Agr. Expt. Sta., Bul. 553. 20 pp. Dec. 1956.
A controlled experiment using the latin square design to determine consumer acceptance of new types of packages.

138. Merchant, C. H., Underwood, J., and McDonald, F. Increasing Maine McIntosh Apple Sales in Retail Stores. Maine Agr. Expt. Sta. Bul. 534. 15 pp. Sept. 1954.
Matched-lot tests plus the latin square design to measure the sales effect of displays using two different kinds of consumer packages for apples along with a bulk display.
139. Meyers, T. O., and Ensminger, M. E. Consumer Preference and Knowledge of Quality in Retail Beef Cuts. Wash. Agr. Expt. Sta. Cir. 168 (revised). 11 pp. Sept. 1952.
Matched-lot tests in retail stores and consumer mail questionnaires to determine consumer knowledge of and reaction to beef quality as indicated by Federal standards.
140. Meyers, T., and Samuels, J. K. Buyer Preference for Cranberry Packaging in Boston and Topeka. U. S. Dept. Agr. Mktg. Res. Rpt. 34. 14 pp. May 1953.
Consumer interviews in retail stores and a matched-lot test to determine customers' preference for cranberries in bags versus window boxes.
141. Miles, J. F., and Thomas, W. H. Marketing Poultry Meats in Retail Food Stores. S. C. Agr. Expt. Sta. Bul. 455. 23 pp. Apr. 1958.
A descriptive store survey plus interviews with retailers to determine availability and merchandising practices for poultry.
142. Miller, J. E., and Cox, C. B. Retailing Meats in Indiana Towns. Ind. Agr. Expt. Sta. Bul. 586. 27 pp. Mar. 1953.
Interviews with retailers and a survey of stores to ascertain methods of handling meat, including markup and losses from shrinkages and spoilage.
143. Moore, C. A. Market Preferences for Fresh Tomatoes at St. Louis, Missouri. Ark. Agr. Expt. Sta. Bul. 494. 16 pp. May 1950.
Store surveys including interviews with retailers to determine quality, price, and grades of tomatoes offered, and the relation of these to consumer purchases.
144. Moore, E. M., and Darrah, L. B. Egg Merchandising Studies in Supermarkets: VI. Marketing Cracked Eggs (progress report). Cornell Univ. Agr. Expt. Sta. A.E. 1030. 18 pp. Apr. 1956.
Matched-lot tests, test-versus-control-store and consumer mail surveys to determine the feasibility of marketing cracked eggs.
145. Mueller, R. W., Kline, G. E., and Trout, J. J. Consumers Buy More When Shelves Are Well Stocked. Progressive Grocer 32(6): 40-48. The Butterick Co., Inc. 161 6th Ave., New York 13, N. Y. June 1953.
A study conducted in test stores in seven leading markets.

146. Naden, K. D., and Jackson, G. A., Jr. Some Economic Aspects of Retailing Chicken Meat. Calif. Agr. Expt. Sta., Berkeley. Bul. 734. 129 pp. May 1953.
Store surveys, test versus control stores, and matched-lot experiments to find the sales effects of offering uniformly graded and labeled chickens.
147. National Association of Food Chains. Trends in Frozen Foods Distribution in Food Chains. Nat. Assoc. Food Chains, 726 Jackson Place, N. W., Washington 6, D. C. 6 pp. July 1951.
A mail survey of chain store operators to gather information on display location, number of items stocked, number of brands stocked, and other factors.
148. National Canners Association. Canned Corn Multiple Packaging Test. The Philadelphia Project. Natl. Cannery Assoc., 1133 20th Street, N.W., Washington 6, D. C. Rpt. 2. 12 pp. (No date)
A controlled experiment using the latin square design to measure the effect of multiple packaging on sales of canned corn.
149. National Canners Association. Canned Vegetables Retail Sales Analysis. The Philadelphia Project. Natl. Cannery Assoc., 1133 20th Street, N.W., Washington 6, D. C. Rpt. 1. 51 pp. (No date)
A store survey to measure the rates of sale of various styles and container sizes of canned vegetables.
150. National Canners Association. Retail Sales Analysis of Canned Fruits and Juices. The Philadelphia Project. Natl. Cannery Assoc., 1133 20th Street, N.W., Washington 6, D. C. Rpt. 4. 62 pp. (No date)
A store survey to measure the rates of sale of various styles and container sizes of canned fruits and juices.
151. Nevada Agricultural Experiment Station. Consumer Demand for Turkey Parts in Retail Markets in Reno, Nevada, Nov. 15, 1948 to Jan. 15, 1949. Mimeo. 8 pp. Dec. 1949. (U. S. Dept. Agr. cooperating.)
A mail questionnaire to consumers and test-store experiments to measure consumer reaction to turkeys cut into halves, quarters, and smaller pieces.
152. Nybroten, N. Pricing Piece Chicken for Kept-Up Displays. W. Va. Agr. Expt. Sta., Bul. 385. 13 pp. Jan. 1956.
Store surveys to study a technique for pricing individual fryer parts while maintaining a specified average price per pound for fryers.
153. Nybroten, N. Behavior and Opinion Studies of Homemakers' Preferences for Hen Eggs. W. Va. Agr. Expt. Sta. Bul. 400T. 30 pp. May 1957.
Consumer surveys, matched-lot tests, and the use of the latin square designed to learn consumer preferences for certain grades, sizes, and other characteristics, and attitudes toward selected services.

154. Nybrotten, N. Transparent Egg Cartons vs. Paper Cartons. W. Va. Agr. Expt. Sta. Bul. 413. 8 pp. June 1958.
A matched-lot test and consumer surveys to determine consumer reaction to two types of egg cartons.
155. Nybrotten, N. Consumer Preferences for Poultry Meat. W. Va. Agr. Expt. Sta. Bul. 389. 19 pp. May 1956.
Consumer interviews, matched-lot tests, and a survey of retail stores to study the influence of weight of birds and related factors on consumer preferences for poultry meat.
156. Nybrotten, N. Retailing Eggs in West Virginia Stores. W. Va. Agr. Expt. Sta. Bul. 354. 16 pp. June 1952.
A descriptive store survey to determine the quality of eggs available to consumers during the summer and also to learn whether merchandising methods have any effect on the demand for or the cost of handling eggs.
157. Owens, A. L. Egg Quality in Rhode Island. R. I. Agr. Expt. Sta. Bul. 317. 30 pp. May 1952
A store survey to determine egg quality available to consumers and also to relate this factor to merchandising practices followed by various types of stores.
158. Pauli, H., and Hoecker, R. W. Do Small Cans of Food Sell Best on the Top Shelf? U. S. Dept. Agr. Mktg. Activities, pp. 8-10. Jan. 1952.
A test-versus-control-store study to determine the sales effect of offering small cans of selected fruits and vegetables on the top shelf compared to the three lower shelves.
159. Pauli, H., and Hoecker, R. W. Better Utilization of Selling Space in Food Stores: I. Relation of Size of Shelf Display to Sales of Canned Fruits and Vegetables. U. S. Dept. Agr. Mktg. Res. Rpt. 30. 29 pp. Nov. 1952.
Tests using the latin square design.
160. Perry, A. L. Plastic Bags for Potato Packages. Maine Agr. Expt. Sta. Bul. 514. 8 pp. May 1953.
A matched-lot test to determine effects of various types of bags on sales of potatoes, and also to compare sales of washed versus unwashed potatoes.
161. Perry, A. L. Developing the Fall Market for Maine Potatoes. Maine Agr. Expt. Sta. Bul. 556. 15 pp. April 1957.
Matched-lot tests and the use of the latin square design to determine whether consumers would buy high-quality Maine potatoes early in the marketing season at premium prices.
162. Perry, A. L. Effect of Point-of-Sale Advertising on Retail Sales of Potatoes. Maine Agr. Expt. Sta. Mimeo. Rpt. 72. 4 pp. Dec. 1957.
A test-versus-control-store study.

163. Perry, A. L., and Merchant, C. H. Consumer Acceptance of Washed Maine Potatoes. Maine Agr. Expt. Sta. Bul. 493. 17 pp. Aug. 1951
A matched-lot test with varying prices.
164. Phillips, C. D. Buying Practices of Louisville Consumers for Sweet Potatoes. Sweet Corn and Potatoes. Ky. Agr. Expt. Sta. Bul. 574. 31 pp. Dec. 1951.
A matched-lot test plus consumer interviews to ascertain the effects of various merchandising methods and advertising on consumer buying practices.
165. Plum, C., and Webster, F. Increasing the Consumption of Milk Through Volume Discounts. Vt. Agr. Expt. Sta. Misc. Pub. 6. 14 pp. Oct. 1956.
A store survey including interviews with managers plus household interviews to determine consumer reaction to price discounts for milk in single or multiple-quart containers.
166. Pope, F. Jr., Beal, G. M., and Harrison, R. L. Prepackaging Spinach and Kale. Md. Agr. Expt. Sta. Bul. A-63. 19 pp. Aug. 1951.
A matched-lot test and consumer surveys to evaluate consumer reaction to plain versus printed bags.
167. Progressive Grocer Magazine. Super Valu Study--A Comprehensive Study of Super Market Sales and Margins. Butterick Co., Inc., 161 Sixth Ave., New York 13, N. Y. 13 pp. June 1958.
The use of test stores to study the role of special displays in expanding sales.
168. Quick Frozen Foods. Frozen Foods Now Account for 6 Percent of Sales, Super Markets Report. Quick Frozen Foods. 18: 259-262. Feb. 1956.
A mail survey of retailers to determine the effect of store location and other merchandising factors on sales of frozen foods.
169. Randolph, J. Date Marketing Survey (A Study of Practices and Problems in the Distribution of California Dates.) Calif. Dept. Agr., Sacramento, Calif. 58 pp. 1951.
A store survey in the United States and Canada to aid growers and processors of California dates to improve the marketing of their product.
170. Randolph, J. P. Food Trade Marketing Survey for Canned Ripe Olives. Calif. Dept. Agr., Sacramento, Calif. Mktg. Survey Rpt. 8. 70 pp. 1953.
A survey of retail merchandising practices for canned ripe olives to determine retailers' opinions and ideas for improving the merchandising of the product.
171. Rasmussen, M. P., and Childress, R. L. Grade Qualities of Potatoes in Retail Stores, New York City, 1948 (Preliminary Report). Cornell Univ. Agr. Expt. Sta. A.E. 675. 59 pp. Aug. 1948.
A store survey to find retail availability and prices paid for various grades and qualities of potatoes.

172. Rasmussen, M. P., and Johnson, J. R. The Effect on Retail Sales of Sorting Potatoes by Specific Gravity, 1952-53 Season (A Progress Report). Cornell Univ. Agr. Expt. Sta. A.E. 925. 34 pp. Sept. 1953.
The use of the latin square design and matched-lot tests to ascertain consumer reactions to premium prices for potatoes sorted for various uses by specific gravity.
173. Rasmussen, M. P., and Thomas, I. Merchandising Potatoes Sorted by Specific Gravity, 1953-54 Season (A Progress Report). Cornell Univ. Agr. Expt. Sta. A.E. 968. 29 pp. Dec. 1954.
A matched-lot test and mail questionnaire to consumers to determine their reactions to potatoes sorted by specific gravity.
174. Rasmussen, M. P., Smith, O., and Johnson, J. R. An Economic Study of Retail Marketing of Potatoes Graded by Specific Gravity. Cornell Univ. Agr. Expt. Sta. A.E. 841. 28 pp. Sept. 1952.
The use of the latin square design to ascertain consumer acceptance of potatoes sorted by degree of mealiness and also consumers' reaction to paying premium prices for this service.
175. Rice, T. S. Egg Quality in Delaware Retail Stores, Summer 1949. Del. Agr. Expt. Sta. Bul. 285. 15 pp. Apr. 1950.
A store survey to determine quality of eggs sold and retailing practices which aid in quality maintenance.
176. Riley, H. M., Brensike, V. J., and Wilson, C. P. Retail Meat Distribution in Topeka, Kansas. Kans. Agr. Expt. Sta. Bul. 360. 35 pp. Sept. 1953.
A store survey with interviews of store personnel to study retailing methods and costs related to scale of operation.
177. Roberts, J. B., Williams, S. W., and Whitted, S. F. Merchandising Milk and Dairy Products in Retail Grocery Stores. Ky. Agr. Expt. Sta. Cir. 551. 52 pp. June 1957.
Store surveys and retailers' opinions of merchandising and promotional practices used by retail food stores.
178. Saunders, R. F. Egg Merchandising Studies in Supermarkets: II. Premiums for High Quality Eggs. Cornell Univ. Agr. Expt. Sta. A.E. 924. 30 pp. Sept. 1953.
Controlled retail-store experiments using the split plot and latin square designs to ascertain consumer response to displays of high-quality eggs and willingness to pay premium prices for such eggs.
179. Saunders, R. F. Supermarket Sales of Poultry Meat. Maine Agr. Expt. Sta. Bul. 537. 18 pp. Feb. 1955.
A survey of consumer purchases as a basis for recommending improved merchandising practices.
180. Saunders, R. F. What Homemakers and Retailers Think About Egg Shell Color. Maine Agr. Expt. Sta. Bul. 544. 12 pp. Jan. 1956.
Matched-lot tests, interviews with consumers, and surveys of store practices.

181. Saunders, R. F. Transparent Plastic Cartons Boost Egg Sales. Maine Agr. Expt. Sta. Bul. 547. 15 pp. Mar. 1956.
Interviews with homemakers, matched-lot tests, and controlled experiments in retail stores.
182. Saunders, R. F., and Jordan, M. P. Fryers in Plastic Baskets. Maine Agr. Expt. Sta. Maine Farm Res. (4): 3-7. Jan. 1957.
Interviews with consumers and matched-lot tests in supermarkets to ascertain consumer preference for plastic baskets over fiberboard packages at varying price differentials between the two types of packages.
183. Savage, W. E. Quality and Marketing of Eggs in Maine Retail Stores. Maine Agr. Expt. Sta. Bul. 492. 43 pp. Aug. 1951.
A descriptive survey covering almost 600 stores.
184. Scott, F. S., Jr. Frozen Passion Fruit Juice, An Appraisal of the Mainland Market Potential. Hawaii Agr. Expt. Sta. Agr. Econ. Rpt. 25. 21 pp. Dec. 1955.
An investigation of consumer acceptance of frozen passion fruit juice in 6-ounce cans, using test stores, demonstrations in selected stores, and interviews with consumers.
185. Scott, R. C. Marketing Apples in the Canton-Youngstown Area of Ohio--1949-50 Marketing Season. Ohio Agr. Expt. Sta. Mimeo. Bul. 218. 20 pp. Aug. 1950
Store surveys and interviews with retailers to evaluate merchandising practices, particularly for Ohio apples.
186. Scott, R. C., and Hardenburg, R. E. Handling and Merchandising Sweet Corn. N. Y. State Col. Agr., Ithaca, N. Y. A.E. 699. 19 pp. Apr. 1949.
The use of test stores to measure sales of high-quality, iced sweet corn.
187. Scott, R. C. and Higgins, R. A. Marketing Peaches (Canton-Youngstown Area). Ohio Agr. Expt. Sta. Res. Cir. 7. 26 pp. Oct. 1950.
Store surveys to find ways of improving the market of and expanding the market for Ohio peaches.
188. Scott, R. C. and Leed, T. W. Marketing Apples Through Retail Stores in Cleveland and the Canton-Youngstown Area. Ohio Agr. Expt. Sta. Res. Bul. 719. 31 pp. Feb. 1953
Store surveys and attitudes of retailers on merchandising practices used in marketing apples.
189. Scott, R. C., Leed T. W., and Havas, N. Consumer Acceptance of Washed and Unwashed Potatoes as Influenced by Type of Container. Ohio Agr. Expt. Sta. Mimeo. A.E. 242. 18 pp. Aug. 1953.
Matched-lot tests including premium prices for mesh bags.

190. Seaver, S. K., and King, R. A. Competitive Position of the Connecticut Poultry Industry: 2. Marketing Eggs Through Retail Stores. Storrs Agr. Expt. Sta., Conn. Bul. 268. 31 pp. Oct. 1950.
A store survey to determine quality of eggs sold and relationships between services offered in marketing eggs and margins taken by retailers.
191. Seltzer, R. E., Rowell, J. D., and Sherburne, R. A. Retailing Grapefruit and Grapefruit Products in Los Angeles. Ariz. Agr. Expt. Sta. Rpt. 96. 12 pp. Mar. 1950.
Surveys of retailing as a cost item in the marketing of grapefruit.
192. Sharfer, P., and Wischkaemper, P. Cost and Sales Results of Alternative Methods of Handling Bananas at Retail. U. S. Dept. Agr. AMS-149. 10 pp. Oct. 1956.
The use of test versus control stores to select the lowest-cost method of handling bananas without impairing sales volume.
193. Sherman, R. W., and Mitchell, G. H. Study Points New Way in Marketing Asparagus. Ohio Agr. Expt. Sta. Ohio Farm and Home Res. 40(296):82-83. Sept.-Oct. 1955.
A matched-lot test of sales of asparagus in plain polyethylene bags in three different sizes.
194. Sherman, R. W., and Sharp, J. W. The Use of Frozen Foods in Ohio. Ohio Agr. Expt. Sta. Res. Bul. 714. 43 pp. Apr. 1953.
Consumer opinions and store surveys to gather comparisons between consumer preferences for merchandising frozen foods and store practices.
195. Sherman, R. W., Sharp, J. W., and Mitchell, G. H. Prepackaging of Ohio Apples on the Farm and the Effect of Various Bag Sizes on Their Acceptance by Consumers. Ohio Agr. Expt. Sta. Mimeo. Bul. 245. 24 pp. Feb. 1954.
Test-versus-control-store experiments and the use of a randomized block design.
196. Sherman, R. W., Sharp, J. W., and Mitchell, G. H. Prepackaging of Ohio Apples on the Farm and Their Marketing. Ohio Agr. Expt. Sta. Mimeo. Bul. 230. 8 pp. Nov. 1951.
Store survey and consumers' opinions.
197. Sjo, J., and Manuel, M. L. The Marketability of Kansas-Grown Apples at the Retail Level as Compared to Apples Grown in Areas Other Than Kansas. Kans. Agr. Expt. Sta. Agr. Econ. Rpt. 51. 16 pp. Feb. 1952.
Store surveys and retailers' opinions to explore causes affecting consumer choices for out-of-State apples in preference to Kansas grown apples.
198. Slater, L. E. Apple Handling and Merchandising in Retail Stores. Cornell Univ. Agr. Expt. Sta. A.E. 733. 39 pp. Aug. 1950.
Observations of in-store handling and merchandising practices.

199. Smith, C. N. Citrus and Competing Products Sales in 20 Meridian, Mississippi Grocery Stores, Four Monthly Periods, 1950-51. Fla. Agr. Expt. Sta. Bul. 561. 40 pp. May 1955.
Store surveys concerned with rate of turnover, sales patterns, and extent of competition among various fresh and processed citrus products.
200. Smith, H. C. Factors Affecting Consumer Purchases of Frying Chickens. Del. Agr. Expt. Sta. Tech. Bul. 298. 33 pp. July 1953.
Consumer interviews and store surveys on factors such as price of competing meats and family characteristics of buyer.
201. Smith, H., and Dallavalle, F. A Study of the Merchandising of Poultry and Eggs in Retail Stores. Md. Agr. Expt. Sta. Misc. Pub. 144. 33 pp. July 1952.
A case study of various merchandising methods in two stores.
202. Smith, H. D., and Horne, J. B. Retail Practices Followed by Supermarkets in the Merchandising of Poultry Products. Md. Agr. Expt. Sta. Misc. Pub. 229. 21 pp. Apr. 1955.
A store survey to ascertain retail practices which offered possibilities of expanding the market.
203. Smith, H. M. Merchandising Studies in Supermarkets--Apples, Lettuce, and Tomatoes (A Preliminary Report). U. S. Dept. Agr. AMS-18. 9 pp. Mar. 1955. (Cornell Univ. Agr. Expt. Sta. and Pa. Agr. Expt. Sta. cooperating.)
A controlled experiment using the latin square design to measure the effectiveness of alternative merchandising methods.
204. Smith, H. M., Clement, W. E., and Hoofnagle, W. S. Merchandising Winter Pears in Retail Food Stores. U. S. Dept. of Agr. Mktg. Res. Rpt. 102. 17 pp. Sept. 1955.
Use of the latin square design to evaluate consumer response to large, medium and small pears when offered in various combinations of sizes and packages.
205. Smith, H. M., Clement, W. E., and Hoofnagle, W. S. Merchandising Selected Food Items in Grocery Stores--Canned Red Sour Cherries, Carrots and Bananas. U. S. Dept. Agr. Mktg. Res. Rpt. 111. 21 pp. Feb. 1956. (Pa. State Univ. cooperating.)
Use of the latin square design and matched-lot tests to determine consumer preferences for commodities displayed in various ways and in various sizes of cans and bags.
206. Smith, H. M., Clement, W. E., and Hoofnagle, W. S. Merchandising Natural Cheddar Cheese in Retail Food Stores. U. S. Dept. Agr. Mktg. Res. Rpt. 115. 11 pp. Apr. 1956.
A controlled experiment in supermarkets, using the latin square design to test four methods of displaying natural cheddar cheese.

207. Sorensen, H. B., De Werth, A. F., and Jensen, E. R. Production Methods and New Markets for Texas Florist Crops. Tex. Agr. Expt. Sta. Bul. 900. 20 pp. Apr. 1958.
Consumer interviews and observations to determine the potential market and to gather information about handling and merchandising procedures.
208. Sorensen, H. B., Denman, T. E., and Brown, C. W. Marketing Studies on Texas-Grown Peaches, 1957. Tex. Agr. Expt. Sta. Prog. Rpt. 2039. 3 pp. Apr. 1958.
A matched-lot test to compare sales of Texas-grown peaches at the same price and at a lower price than California peaches.
209. Sorensen, H. B., Ward, J. M., and Hammond, L. H. Consumer Acceptance of Tomatoes Offered in Bulk, in Cartons and at Varying Prices. Tex. Agr. Expt. Sta. Prog. Rpt. 1847. 3 pp. Feb. 1956.
Use of the latin square design, with varying price premiums for the cartoned tomatoes.
210. Sorensen, H. B., Ward, J. M., and Hammond, L. H. Sales Response of Pink and White Grapefruit Offered in Bulk and Bags at Varying Prices. Tex. Agr. Expt. Sta. Prog. Rpt. 1871. 5 pp. May 9, 1956.
Use of the latin square design.
211. Spindler, H. G. Retail Sales of Milk in Multiple-Quart Units in the Springfield Area. Mass. Agr. Expt. Sta. Bul. 495. 19 pp. June 1957.
A store survey to determine the extent of acceptance of multiple-quart units of milk and the effect of the multiple-quart units on per capita consumption.
212. Spurlock, A. H., and Stokes, D. R. Marketing Florida Prepackaged Sweet Corn. Fla. Agr. Expt. Sta. and U. S. Dept. Agr., Prod. & Mktg. Admin. 27 pp. Apr. 1949.
Mail questionnaires and matched-lot tests to ascertain consumer response to prepackaged corn when priced at a premium over bulk corn.
213. Stallings, D. G. Dry Milk Sales Boom in Minnesota Stores. Univ. of Minn. Agr. Ext. Serv., St. Paul, Minn. Minn. Farm Bus. Notes 345, pp. 2-3. Mar. 31, 1953.
A store survey to determine availability of nonfat dry milk and related information such as number of brands offered and selling price.
214. Stevenson, J., and Smith, N. Will the Meat-Type Hog Pay Its Way? Purdue Univ. Agr. Ext. Serv., Lafayette, Ind. Econ. & Mktg. Inf. for Indiana Farmers, pp. 1, 3. June 27, 1958.
Matched-lot tests and test-versus-control stores experiments to obtain reaction to meat-type pork compared with regular pork at the same price and at a higher price for the meat-type product.

215. Stokes, D. R. Retailing Prepackaged Fresh Produce by Self-Service Food Stores. U. S. Dept. Agr. Mktg. & Transportation Situation, April-May 1948, pp. 6-19. May 27, 1948.
The use of test versus control stores to measure consumer acceptance of prepackaged produce when offered with bulk.
216. Stokes, D. R., and Barry, G. Development of Carrot Prepackaging. U. S. Dept. Agr. Mktg. Res. Rpt. 185. 36 pp. June 1957.
A matched-lot test and interviews with retailers to evaluate the salability of prepackaged versus bunched carrots.
217. Traylor, H. D. Consumer Purchases of Potatoes in Paper versus Film Bags. N. Y. State Col. Agr., Ithaca, N. Y. Farm Econ. 206, pp. 5454-5456. Oct. 1956.
Use of the latin square design to compare sales of potatoes in open window paper bags and in transparent film packages.
218. Trotter, C. E., and Engelman, G. Consumers Fail to Recognize Differences in Pork Grades. Pa. Agr. Expt. Sta. Sci. for the Farmer 5(1): 3. Summer 1957.
Consumer surveys and matched-lot tests.
219. Trout, J. J. Foodtown Study Reveals: How \$10,000 Volume Breaks Down in Case and Unit Sales. Butterick Co., Inc. 161 Sixth Ave., New York 13, N. Y. Progressive Grocer Mag. 34(2): 47-56. Feb. 1955.
A survey by product groups.
220. Van Syckle, C., and Brough, O. L., Jr. Consumer Acceptance of Fat Characteristics of Beef--A Study of Household Buying Spokane, Washington, 1955. Wash. Agr. Expt. Sta. Tech. Bul. 27. 28 pp. July 1958.
Consumer interviews and matched-lot tests to ascertain consumer response to fat-lean ratio, fat marbeling, and color of fat for beef.
221. Van Waes, D. A. Retail Distribution of Fresh Peaches in Syracuse, N. Y. Cornell Univ. Agr. Expt. Sta. A.E. 676. 48 pp. Sept. 1948.
Consumer interviews and a store survey to gather information on methods of merchandising peaches, including extent of advertising.
222. Van Waes, D. A. Bruising of McIntosh Apples and Its Effect on Sales. Cornell Univ. Agr. Expt. Sta. A.E. 704. 18 pp. June 1949.
The use of the latin square design to determine the effect of bruising and price on the volume of apples sold at retail.
223. Von Oppenfeld, H., Schwartz, J. F., and Krone, P. R. Merchandising in Retail Flower Shops. Mich. Agr. Expt. Sta. Spec. Bul. 412. 28 pp. Apr. 1957.
Consumer surveys and use of the latin square design to investigate possibilities for market expansion for cut flowers.
224. Waite, W. C. Sale of Eggs by Retail Stores in Minneapolis, Minn. Minn. Agr. Ext. Serv., St. Paul, Minn. Farm Bus. Notes 304, pp. 1-2. May 31, 1948.
A store survey to determine relation of sales to quality and price of eggs.

225. Waite, W. C., and Larson, A. B. Sales of Butter and Margarine in Minneapolis Retail Stores. Minn. Agr. Ext. Serv., St. Paul, Minn. Farm Bus. Notes 327, p. 4. Nov. 30, 1950.
A retail store survey to determine quantities sold and the relation of certain merchandising practices to sales.
226. Walkup, H. G. Consumer Response to the Sale of Frozen Turkey Quarters. Wash. Agr. Expt. Sta. Cir. 101. 26 pp. May 1950.
The use of test stores and mail questionnaires to find ways to increase sales of turkey during the season in which consumption is low.
227. Williams, R. J., Carpenter, K. S., and Darrah, L. B. Egg Merchandising Studies in Supermarkets: VI. Effect of a Special Case on Egg Sales. Cornell Univ. Agr. Expt. Sta. A.E. 995. 17 pp. Aug. 1955.
The use of test versus control stores to determine differences in two methods of merchandising eggs.
228. Winter, J. D., Nylund, R. E., Cox, R. W., and Vandemark, J. S. Marketing Fresh Sweet Corn in the Midwest. Minn. Agr. Expt. Sta. (North Central Regional Publ. 45.) Bul. 427. 28 pp. June 1954.
Matched-lot tests to compare sales of precooled corn offered in bulk and in packages.
229. Wright, R., Sherman, R. W., Williams, H. C. Nelson, K. S., and Kiplinger, D. C. Marketing Trials Reveal Vast Sales Potential. Southern Florist Publishing Co., Fort Worth, Tex. Southern Florist and Nurseryman 68(24): 12, 13, 28-31. Aug. 26, 1955.
The use of test stores to obtain information on the potential market for cut flowers and potted plants.

AGRICULTURAL EXPERIMENT STATIONS

Alabama: Ala. Polytechnic Inst., Auburn.
 Alaska: Palmer.
 Arizona: Univ. Ariz., Tucson.
 Arkansas: Univ. Ark., Fayetteville.
 California: Univ. Calif., Berkeley 4.
 Colorado: Fort Collins.
 Connecticut: Univ. Conn., Storrs.
 Delaware: Univ. Del., Newark.
 Florida: Univ. Fla., Gainesville.
 Georgia: Univ. Ga., Athens.
 Hawaii: Honolulu 14.
 Idaho: Univ. Idaho, Moscow.
 Illinois: Univ. Ill., Urbana.
 Indiana: Purdue Univ., Lafayette.
 Iowa: Iowa State Coll. Agr. & Mech. Arts, Ames.
 Kansas: Manhattan
 Kentucky: Univ. Ky., Lexington.
 Louisiana: University Station, Baton Rouge 3.
 Maine: Univ. Maine, Orono.
 Maryland: Univ. Md., College Park.
 Massachusetts: Univ. Mass., Amherst.
 Michigan: East Lansing.
 Minnesota: Univ. Minn., St. Paul 1.
 Mississippi: State College.
 Missouri: Univ. Mo., Columbia.
 Montana: Bozeman.
 Nebraska: Univ. Nebr., Lincoln.
 Nevada: Univ. Nev., Reno.
 New Hampshire: Univ. N. H., Durham.
 New Jersey: New Brunswick.
 New Mexico: State College.
 New York: Cornell Univ., Ithaca.
 North Carolina: Univ. N. C., Raleigh.
 North Dakota: State College Station, Fargo.
 Ohio: Ohio State Univ., Columbus 10.
 Oklahoma: Stillwater.
 Oregon: Oreg. State Coll., Corvallis.
 Pennsylvania: Pa. State Univ., University Park.
 Puerto Rico: Univ. P. R., Rio Piedras.
 Rhode Island: Univ. R. I., Kingston.
 South Carolina: Clemson.
 South Dakota: College Station.
 Tennessee: Univ. Tenn., Knoxville 16.
 Texas: College Station.
 Utah: Logan.
 Vermont: Univ. Vt., Burlington.
 Virginia: Va. Polytechnic Inst., Blacksburg.
 Washington: Pullman.
 West Virginia: W. Va. Univ., Morgantown.
 Wisconsin: Univ. Wis., Madison 6.
 Wyoming: Univ. Wyo., Laramie.

INDEX

Principal research techniques used and item number

Surveys, using audit or observation method:

4, 6, 9, 14, 17, 18, 24-29, 34, 38-40, 42, 43, 46, 50, 60-64, 66-70, 74, 86, 89, 92, 96, 100, 107-109, 113, 115, 117, 118, 120, 122, 125, 127, 128, 132, 136, 141-143, 146, 149, 150, 152, 155-157, 165, 169-171, 175-177, 179, 180, 183, 185, 187, 188, 190, 191, 194, 196-202, 207, 211, 213, 219, 221, 224, 225.

Interviews or mail questionnaires:

1, 5, 9, 11, 15, 21-23, 30, 34, 36, 37, 48, 49, 51, 54, 57, 58, 63-65, 69, 74, 76, 77, 81, 95, 99, 101, 103, 107, 114, 126, 127, 132, 134, 135, 139-144, 147, 151, 153-155, 164-166, 168, 170, 173, 177, 180-182, 184, 185, 188, 194, 196, 197, 199, 200, 207, 212, 216, 218, 220, 221, 223, 226.

Matched lot:

1, 7, 13, 15-18, 21, 30, 33, 35-37, 41, 44, 45, 48, 49, 51, 57-59, 79, 80, 82, 84, 88, 90, 94, 97-99, 101, 103, 114, 116, 121, 126, 129, 134, 135, 138-140, 144, 153-155, 160, 161, 163, 164, 166, 172, 173, 180-182, 189, 193, 205, 208, 212, 214, 216, 218, 220, 228.

Test versus control stores:

2, 3, 8, 12, 22, 50, 52, 58, 71, 87, 88, 94, 97, 114, 146, 158, 162, 192, 195, 214, 215, 227.

Test stores:

31, 33, 46, 54, 75-77, 81, 93, 95, 131, 133, 145, 151, 167, 184, 186, 226, 229.

Controlled experiments using the latin square or other randomized designs:

4, 10, 19, 20, 32, 47, 49-51, 53, 55, 56, 72, 73, 78, 83, 85, 87, 91, 94, 102, 104-106, 110-112, 119, 123, 124, 129, 130, 137, 138, 148, 153, 159, 161, 172, 174, 178, 181, 195, 203-206, 209, 210, 217, 222, 223.

