A STUDY OF AGRICULTURAL PRICE STATISTICS IN NORTH CAROLINA

F. E. McVay and Henry Tucker

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Foreword

This is the final report on the "Price Project", carried out by the Institute of Statistics of the University of North Carolina at the invitation of the Bureau of Agricultural Economics, under the Research and Marketing Act. This report supersedes all previously issued progress reports, except the report on the preliminary survey of marketing channels. Some minor changes between mean prices, numbers of reports, etc., will be observed in a comparison of this with previous reports. Such changes are due to (i) changes in methods of computation, e.g., from weighted to unweighted price means, and (ii) corrections of errors.

Detailed discussion and/or analysis are presented for items specifically mentioned in the table of contents. Remaining items for which price data were collected are shown in the principal tables, listed on page vi.

Raleigh, N. C.
June 1951

F. E. McVay
and
Henry Tucker

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Errata Sheet

Page	Paragraph or Table (Counting part paragraphs at page tops as first paragraphs).	Line	Corrected Form
i	2	4	. . . listed on page v.
6	2	last	. . . without regard to County or CRD.
8	3	entire paragraph	Chain Stores were of importance only in the sale of food, furniture and furnishings, and clothing, among the commodity groups considered here. Selection of one food, one furniture-furnishings and one clothing chain, was made in B, C, and D towns in the manner described for cooperatives.
9	2	last	. . . allocations were made to each town-size stratum.
26	1	4	. . . by weight classes, are shown
27	7	3	. . . shelled corn than ear corn.
41	Table 20	stub	Grade and Place of Sale
45	4	3	. . . variety and pack.
78	3	last	. . . survey prices given in Table 49.14/ .
113	8	7	. . . presently used length . . .
114	4	7	Studies of the individual commodities . . .
135	Table 105: September	last	Number of reports, under 4 towns, should be 85, instead of 8.5 which is shown.
149	Table 114: June	last	Number of stores, under General Store, should be 73, instead of .73 which is shown.
163	3	12	. . . that adequate specifications of furniture might be so . . .

Errata Sheet

167	2	1	Delete the word, Analysis:
196	2	2	. . . from less than $10 to more than $200.
207	1	1	. . . method of selection of dealers is small . . .

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A STUDY OF AGRICULTURAL PRICE STATISTICS IN NORTH CAROLINA

I. INTRODUCTION

A. General Preface - In American agricultural price statistics the word "statistics" has retained much of its original meaning, i.e., a compilation of data useful in the administration of the state. The government, probably the largest consumer as well as the largest producer of agricultural price data, has been confronted with the continuing task of testing its procedures in the light of advances in statistical methodology. In one of the early evaluation studies, published over twenty years ago, Sarle observed, "The data published by the United States Department of Agriculture are too often taken for granted by the research worker, largely because the reliability and adequacy of the data have never been fully analyzed."[1] While this situation is less serious today than it was when Sarle wrote, there is still truth in his words.

The study described here was undertaken by the Institute of Statistics of the University of North Carolina under Research and Marketing Act funds at the invitation of the Bureau of Agricultural Economics for the purpose of securing an objective evaluation of certain price data and of the methodology by which they have been collected historically. Such an evaluation seems particularly appropriate in view of the increasing importance of the administrative decisions which public programs have placed upon these data.

Since 1867, when price data were first collected by the Department of Agriculture, the program has expanded until today prices received by farmers are periodically estimated on over 200 commodities sold, and prices paid by farmers are estimated on nearly 500 items bought. Some of the price estimates are made monthly; others are on a quarterly, semi-annual, or annual basis. Data are provided mainly by several thousand voluntary reporters via mail questionnaires. Reporters of prices paid by farmers are retail merchants; reporters of prices received include men in the trades, rural bankers, and well-informed farmers. Prices obtained from the reporters are averaged for Crop Reporting Districts within states; these Crop Reporting District averages are then combined into state averages by weighting the average CRD prices for commodities or commodity groups in proportion to importance to farmers in the respective Crop Reporting Districts. The state averages for each commodity or commodity group are then weighted according to the importance of the commodity in the respective states to obtain a national average.[2]

Until 1933, the price data collected as described above were used as basic research tools, as a basis for business judgments, and in a general way as an aid in the formulation of government policy. Since 1933, and the passage of the Agricultural Adjustment Act, however, the data have become, as Stauber, et al., observe, more than merely

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[1] Sarle, Charles F., Reliability and Adequacy of Farm-Price Data, Department Bulletin No. 1480, U. S. Department of Agriculture, Washington, March, 1927, page 2.

[2] The Agricultural Estimating and Reporting Services of the United States Department of Agriculture, Miscellaneous Publication No. 703, U. S. Department of Agriculture, December, 1949, Chapter 15.

interesting statistics.[3] The BAE price estimates are now the explicitly designated bases for a far-reaching agricultural policy, for they are the figures from which parity is computed.

In the Agricultural Adjustment Act of 1933, Congress declared its intent to establish and maintain prices received by farmers at a level which would give farm commodities a purchasing power at least equal to that which these commodities commanded in a base period, which was, with some exceptions for particular farm products, designated at 1910-14. Since 1933, several changes have been made, by Congress' giving BAE responsibility for providing basic data for wartime price supports for example, but the basic responsibility of BAE has not undergone major change: basic price data used in the administration of the legislation is still supplied by BAE. Obviously, with the administration of such an important segment of public policy dependent on the data it releases, BAE is vitally concerned with the necessity for the highest possible degree of accuracy. This is the general framework within which are set evaluation studies of the kind described in this report.

As observed above, the major portion of the BAE data are obtained from mail questionnaires submitted by several thousand voluntary reporters. These reporters are from a list which has been built up over several years by continually adding new dealers and dropping those who refuse to respond. The response rate from this selected list is good in North Carolina; the BAE representatives believe that the non-response bias on prices is considerably below that encountered on some other items, like acreage for example. The BAE data, however, not arising from a probability sample, are not susceptible to statistical evaluation. They are also subject to non-response bias and to insensitivity to changes in buying and selling practices of farmers.

The purposes of this study were:

(i) to determine the marketing channels through which farmers in North Carolina market their produce and purchase their supplies.

(ii) to determine how closely the BAE mean prices of several commodities sold by farmers and several other commodities bought by farmers in North Carolina agreed with mean prices of the same items based on a probability sample of agencies through which farmers buy and sell.

(iii) to measure the effect on farmers' prices of (a) location of product at time of sale, (b) services performed or to be performed on the product, the cost of which was included in the price.

(iv) to analyze the data to determine the influence of various factors (e.g. geographic, type of dealer) on price.

(v) to provide an analysis of the costs of estimating mean prices by interview.

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[3] Stauber, B. Ralph, Koffsky, Nathan M., and Randall, C. Kyle, "The Revised Price Indexes," Agricultural Economics Research, Vol. II, No. 2, April 1950, pp. 33 ff.

The first of these objectives, the definition of marketing channels, was accomplished in a survey conducted for that purpose in the fall of 1949. The marketing channels used by farmers in selling their products were in some respects different for every product, but, with a few exceptions, the most frequently-used outlet was in the small towns. For only hogs and pecans was the most frequently reported outlet in a town of over 5,000 population. The concentration of business in small towns was also characteristic among commodities bought by farmers. The frequently-purchased, standardized, and small-cost-per-unit items, including food, feed, seed, fuel, and fertilizer, were purchased chiefly in towns of less than 1,000 population. Others of the items studied were bought more often in larger towns, but in no case was the modal size of town larger than the 1,000-5,000 class. The commodities most reported from larger towns were clothing, furniture, and farm machinery.

A full report on this preliminary survey was prepared as the first progress report on the project; since no additions have been made to that phase of the work, that progress report will serve as a final report on definition of marketing channels. Attention will be directed in this report to project objectives (ii) through (v). The sampling scheme used in the collection of the data, and the general outline of the analysis, will be given first.

B. Selection of the Sample - The basic sampling problem could have been stated as follows: To draw a single sample of farmers and/or dealers to provide the basis for (i) an unbiased and efficient estimate of the average price of each of the commodities included in the study, and (ii) an analysis of some major sources of price variation. In deciding on the sample plan, two alternative approaches were available: (i) Select a single sample of dealers and/or farmers from which all the desired price information could be collected, thus keeping travel costs low; or (ii) Select an independent sample for each commodity, or at least for each group of commodities, thus increasing travel cost as a proportion of the total cost. In the absence of detailed cost data, the first alternative was chosen.

Information on prices paid and received by farmers was collected mostly from dealers with whom farmers did business rather than from the farmers themselves because: (i) to maintain comparability with regular BAE price releases, it was necessary to consider only prices in transactions which occurred within the five-day period used by BAE[4]; (ii) with the funds available it would have been impossible to interview a sufficiently large number of farmers to provide a basis for an acceptable estimate on all commodities, since the purchases or sales by farmers would, in most cases, have been small within the brief survey period, especially for durable, expensive, or seasonal items.

a. Preliminary survey of farmers to define marketing channels: The decision to interview dealers raised the related question of what dealers to interview: i.e., how should the sample be distributed

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[4] BAE releases most of its price quotations as of the 15th of the month, based on data collected between the 13th and 17th.

among independent stores, chains, mail order houses, farm cooperatives, and other agencies patronized by farmers. Up-to-date detailed information on buying and selling channels used by farmers in North Carolina was not available, so it was necessary to make a preliminary study to define these channels. Such information would then be useful in drawing the sample to be used in the price surveys, or to weight the quotations received from dealers representing the various marketing channels in proportion to their importance. The sampling plan and results of this preliminary survey (hereinafter referred to as Survey I) have been described in detail in the progress report to which reference was made above.

In the preliminary study of marketing channels, as well as in the price reporting phase of the project, data were collected through personal interviews. In the preliminary survey, a pretest of a mailed questionnaire gave such a low response that the cost of interviewing a sample of non-respondents (of 600 schedules mailed out, 39 were returned, of which 18 were usable), when added to the cost of compiling lists, mailing and processing the mailed questionnaires, would have been almost as high as the cost of doing the work entirely by interview. The high non-response compared to that experienced by BAE in its mail questionnaire work was attributed to the complexity of the schedules. BAE asks only for prices, while in this study the respondents were asked to give some details of commodity specification, and data on volume of business, as well as prices. Since the complexity of the schedules to be used in the price surveys was even greater than that of the preliminary survey, it was obvious that the mail questionnaire approach would not be practical.

b. Price survey: The data collected in the preliminary study (Survey I) were utilized in the selection of the sources of price data in the subsequent surveys. From Survey I, for example, it was possible to determine the extent to which certain commodities sold by farmers failed to move entirely through organized marketing channels or at least through channels which could conveniently be investigated by an interviewer. Peaches, for example, moved from the farm directly to consumers, and also to out-of-state points via out-of-state truckers. To the extent that such conditions prevailed, the interviewing of men in the trade did not appear to be a practical way of getting the desired information. Hence, for such commodities, it was necessary to interview some farmers as well as dealers.

Survey I also showed the extent to which farmers' purchases and sales were concentrated in small towns. Only about 5% of the farm business was reported to be transacted in towns of 40,000 or more. In a rural state like North Carolina, such a situation would be expected, since, according to the 1940 Census, there were 485 incorporated places, of which only 45 were of 5000 or more persons; there were 6 cities of 40,000 or more. These distributions of towns and farmer business suggested that stratification by size of town as well as by type of dealer could be used to advantage in drawing the sample for the price surveys.

It was indicated above that farmers were asked in Survey I to report the dealer from whom they customarily made the largest part of their purchases of a given item. The list of dealers thus mentioned by farmers was a primary source of dealers' names from which the sample of dealers was to be selected. If only the mentioned dealers had been included, however, it would have been theoretically possible for a situation of the following kind to arise: if several farmers did their entire business with two dealers, and each farmer did over one-half of his business with the first dealer and less than one-half of his business with the second dealer, the latter, although an important contributor to the price pattern, would never be mentioned by any farmer as a major source of purchases. To avoid the possibility of excluding all firms which had little or no chance of coming into the "mentioned" group, non-mentioned firms were also included, as will be described below.

Problems considered in drawing the sample for the price surveys were:

(a) Maximum total number of interviews possible within budget limitations.

(b) Allocation of interviews to different town-size strata.

(c) Selection of individual towns to be entered in each stratum.

(d) Allocation of interviews to various types of dealers.

(e) Allocation of interviews to dealers mentioned and not mentioned in Survey I.

(f) Selection of individual dealers to be interviewed, giving consideration to: (i) size of town, (ii) kind of dealer, and (iii) "mention" status in Survey I.

(g) Selection of farmers to be interviewed.

(h) Selection of block samples from maps of large cities.

Budget considerations put the upper limit of number of interviews in Survey II at about 1500.

(i) Selection of sample towns. The plan had been, as indicated above, to use the results of Survey I to provide a basis for allocating enumeration effort among towns of different sizes, proportional to the importance of the town-size groups in North Carolina farm marketing. Results of Survey I indicated, however, that both purchases and sales by farmers were so concentrated in the small towns that a proportional allocation would have resulted in the collection of very little information from the larger towns. Since one of the important sources of price variation to be examined was that due to town-size, increasing the size of sample sufficiently to insure the attainment of minimum numbers in the large-town strata would have meant the collection of an unnecessarily large number of quotations in the small towns. It therefore appeared that greatest efficiency, in terms of data per unit cost, would be attained by sampling for minimum acceptable

numbers of records per town-size stratum and using Survey I results as town-size weights in developing mean prices. The sample plan on this basis was as follows:

The towns were classified into groups as follows: A - towns of population less than 1,000; B - from 1,000 to 4,999; C - from 5,000 to 39,999; and D - 40,000 or more, as given in the 1940 Census of Population. One A town was taken from each of the twenty-seven sample counties[5], plus one additional A town at large from each of the state's eight Crop Reporting Districts, (CRD's), a total of 35 A towns[6]; sixteen B towns were selected, 2 being taken at large in each CRD, subject to the restriction that in no CRD should the two B towns fall within the same county; seven C towns, one per CRD, were selected (CRD 1 contained no town large enough to fall into the C stratum); and three D towns were selected without regard to country or CRD.

The 35 A towns were selected in the 27 sample counties at random from those mentioned in Survey I, with equal probabilities; each of the 16 B towns was selected with probability proportional to its frequency of mention as a farm marketing center in Survey I, whether it fell in one of the 27 sample counties or not, and similarly for the 7 C towns; three D towns were selected, one town at random from each of the three geographic strata, as follows: Asheville from the west, Greensboro from the northern Piedmont and Charlotte from the southern Piedmont. No cities in size stratum D occur in eastern North Carolina.

In the separate problem of selection of establishments to be visited within selected towns, the goal was to provide a single list of establishments to be visited, such that an average price could be obtained for each important type of dealer in each town-size stratum for every one of the commodities studied. Although an establiehment had been selected on the basis of mention for one commodity group, data on <u>all</u> its farm business were taken when the interviewer called.

<u>(ii) Complete enumeration (hence exclusion from sampling problem) of all buyers from farmers and sellers in small towns:</u> The small towns, i.e. the A towns, were completely enumerated with respect to both buyers from and sellers to farmers, as the total number of establishments per town was small. Buyers from farmers, relatively few in comparison to sellers to farmers, were completely enumerated in all town-size strata. The buyers were completely enumerated because of the characteristic concentration of most farm production and the consequent location of large numbers of buyers of a given commodity in an area of concentration of that commodity, and a virtual absence of buyers elsewhere. Complete enumeration of A towns and all buyers thus reduced the population of establishments to be sampled to the remainder, consisting of those selling to farmers in B, C, and D towns.

<u>(iii) Selection of sellers to be interviewed in selected B, C, and D towns:</u> From Survey I it had been found that the main types of

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5/One of the original 28 counties in Survey I could not, because of personnel difficulties among the field enumerators, be completed within the allotted time, and was therefore dropped from the sample.

6/Two A towns were added to CRD I following the March survey, to bring the number of reports in line with those obtained from other CRD's.

sellers to be included in the sample were Independent Stores, Farm Cooperatives, Chain Stores, and Mail Order Houses. These were sampled separately for each commodity group in the three largest town-size strata, B, C, and D.7/

In the selected towns, the establishments fell into two groups: those mentioned by farmers in Survey I, and those not mentioned. A check against telephone directories and Dun and Bradstreet listings showed that in A towns virtually every establishment had been mentioned, and in the B towns over one-half of all establishments had been mentioned. The proportion of establishments mentioned declined as town size increased. It was thus necessary to give the "non-mentions" a chance to be represented in the sample, particularly in the large towns.

For Independent Stores, the sample for each commodity group consisted of the following:

Size of town	No. of towns selected	Number of independent establishments selected per town for each commodity group. Mentioned in Survey I	Not mentioned in Survey I	Total	Total independent establishments per commodity group, all B, C & D towns
B	16	2	1	3	48
C	7	2	2	4	28
D	3	2	2	4	12
All towns	26	X	X	X	88

The total number of establishments per town in the B, C, and D towns was set at 3 and 4 because (i) approximately equal numbers were desired per town in each town-size stratum, and an average of about four were expected from the complete enumeration of an A town; and (ii) it was estimated that this figure would provide the desired minimum of 100 quotations in each commodity group. The 2-1 division between mentions and non-mentions in B towns, giving a minimum representation to non-mentions, was made because so large a part of all establishments had been mentioned; in C and D towns, the division was equal because, within the limits of the fixed total of four establishments, it was felt that the mentions could not be reduced below 2 per town. The mentions, it is to be remembered, were known to be places at which farm business was conducted, while the non-mentions were unknown in this characteristic. To weight the non-mentions too heavily was thus to run the risk of finding little farm business and hence few useable quotations.

Having decided on numbers of establishments needed within selected towns, the selection of individual independent stores remained. From Survey I, all mentioned dealers, with the frequency of mention of each,

7/Commodity groups were groups of related items, like Feed, which included several individual feed items.

had been tabulated for each commodity group in each town mentioned. From these tabulations for the selected towns, the required number of independent stores was drawn, with the probability of selection proportional to the frequency of their mention by farmers on Survey I. If it is assumed (as was done in the following analysis) that the frequency of mention is a measure of size of an establishment, then the prices obtained from dealers selected in the manner described will provide an only slightly biased estimate of the average price paid by farmers for a given commodity.[8/] The proof of this statement is given in the appendix of this report.

The selection of Cooperatives was simplified by the fact that most towns having a cooperative had only one. In such towns, of course, that one was selected. When more than one cooperative was found in a selected town, those mentioned were assigned probabilities of selection proportional to frequency of mention, and non-mentions were added to the list, with probabilities of selection equal to that assigned the least frequently mentioned cooperative on the mentioned list. One cooperative was then drawn from this combined list.

Chain Stores were of importance only in the sale of furniture and furnishings and clothing, among the commodity groups considered in the part of the study which is reported here. Selection of one furniture-furnishings and one clothing chain was made in B, C, and D strata in the manner described for cooperatives.

Only in the sale of clothing were Mail Order Houses of importance, and virtually all purchases by farmers were reported through one firm. That firm was contacted at its one mail order plant in the state.

(iv) Selection of farmers to supplement dealer sample: It was indicated above that Prices Received by farmers were taken from all the dealers the interviewer could reach in sample towns, whether the dealers had been mentioned in Survey I or not. There were, however, certain commodities of which farmers sold important amounts to consumers, truckers, other farmers, or other agencies not obtainable in a sample of business establishments. Of the commodities marketed in this way by farmers, only eggs were being sold in March. A sample of farmers was drawn to provide information on eggs moving through non-business channels to supplement the information from business establishments.

The sample of farmers was drawn at random from those interviewed in Survey I. Sixty farmers were selected, allocated to the sample counties in proportion to the quantities of eggs farmers reported sold through non-business channels, with not less than two farmers selected in any county.[9/]

8/ Another treatment of a problem of selecting a sample of buyers has been given by Earl Houseman in Agricultural Economics Research (4).

9/ In counties where less than two were indicated on a proportional basis, none were selected.

(v) City block sample selected from maps: Although farmers tended to do most of their business for a particular commodity in one store, as had been shown in Survey I, it was nonetheless necessary to represent the non-mentions in the price surveys. They were, however, given the arbitrarily chosen probability of selection described above. Additional representation, on a purely random basis, was given to the non-mentions by the enumeration of establishments from a randomly selected sample of 25 city blocks in each of the three selected D cities.

c. Selection of supplementary towns for June survey: Since several commodities (peaches, potatoes, and wheat) sold by farmers would be close to their harvest peaks in the June survey period, it was deemed advisable to increase the number of sample towns in the heavy production areas of these crops. On the basis of cost data obtained in the March survey, it appeared that the budget would permit the addition of four towns in each area. Using Survey I data, the following allocations were made to each town size strata.

Crop	Percentage of Marketings, Survey I a/ Town Size Strata					Allocation of Additional Survey Towns for June Town Size Strata			
	A	B	C	D	Total	A	B	C	Total b/
Peaches	59	15	10	16	100	2	1	1	4
Potatoes	86	10	4		100	4			4
Wheat	40	48	10	2	100	2	2		4
All crops	-	-	-	-	-	8	3	1	12

a/ Based on volume of sales reported for these strata only.

b/ No D towns were added because a sufficient number were being sampled under the regular plan.

The additional towns were selected for the study of peaches, potatoes and wheat from a list of towns in the major production areas of the state, with probability proportional to the number of sales of the particular commodity reported in Survey I. The additional towns were sampled and enumerated in accordance with the standard plan previously described for the various town-size strata in the regular surveys.

C. Analysis Techniques - The general approach to the study of commodities upon which there was sufficient information to support analysis was, in accordance with the general terms of the contract under which the study was made, as follows:

(i) frequency distribution of price quotations;

(ii) tabulation of mean prices, by town-size, type of dealer, service performed by farmer, etc.;

(iii) analyses of variance, in which (a) Crop Reporting District, county, and town, were examined as sources of price variation, and (b) town-size, type of dealer, etc. were similarly analyzed.

Variance analysis was made only on commodities for which sufficient quotations were available to permit a reasonable amount of subclassification. The general-purpose sample used in the surveys produced several cases in which too few reports were available for the necessary groupings; no analysis of variance were done in such cases. In some other cases, it appeared that the full analysis was not warranted for all items within a commodity group, say, clothing, because the same general situations appeared to prevail among commodities in the groups. The most frequently-quoted item in each group was fully examined, and usually some others, the selection depending on the characteristics of the data, as will be described below in the discussions of the individual commodity groups.

In the analyses of variance, every price quotation was given equal weight. In the first analyses, the quotations were weighted by the quantities reported, but the extremely disproportionate frequencies complicated the computations and the more refined analysis appeared to add little or nothing to the value of the results. Furthermore, the method of selecting the sample was such that, "..... one can advance as good an argument for unweighted averages and unweighted analyses of variance as for weighted ones." 10/ It was accordingly decided to do all the analyses on an unweighted basis.

One of the questions which always arises in price analyses is with regard to the form in which the data should be analyzed, i.e., should they be transformed, and, if so, what transformation would be most appropriate? A preliminary examination of the data from this study suggested that transformation would not materially change the nature of the conclusions; hence the untransformed data was used in all analyses. The effect of transformations, however, is being investigated further.11/ Results to date indicate that little is to be gained by transformation in the kind of data studied here.

The preliminary survey was undertaken both for its intrinsic value and for use in determining the relative importance of various farm marketing channels in the selection of the price survey sample. It clearly showed that a very small proportion of the North Carolina farmer's business was done in large towns. This proportion was, in fact, so small that to allocate effort to different sizes of towns proportional to the importance of the various town-size groups would have resulted in allocating almost nothing to the large towns. This, as has been discussed in the section on sampling, above, suggested that preliminary survey data could be more effectively used for weighting the price data, after sufficient data had been collected to permit a reasonable estimate of prices in each town-size class.

10/ Anderson, R. L., letter to W. A. Hendricks, dated June 26, 1950. In his reply, dated July 5, 1950, Hendricks stated, "The unweighted analysis seems to be satisfactory for our purposes and we recommend that that method be used."

11/ Tucker, Henry, is using the price data as the basis for a Ph. D. dissertation, in which he will compare several analyses of transformed data with analyses of the kind given below.

When the weighting of the prices by preliminary survey indications of town-size importance was undertaken, however, it soon became apparent that few appreciable differences existed between the overall prices so weighted and simple unweighted prices. From the March price survey, a comparison for several items is given below.

Item	Unit	Number of Reports	Average Price a/ Using preliminary survey weights	Average Price a/ Unweighted
Corn, all	Bu.	60	$1.20	$1.32
Sweet potatoes	Bu.	53	2.25	3.33 b/
Chickens, all	Lb.	53	.290	.293
Hens, live	Lb.	41	.235	.228
Eggs	Doz.	259	.316	.317

a/ These figures are computed on the basis of reports weighted by quantities. The "unweighted" averages, above, are unweighted for town-size weights, while the weighted averages are weighted both for quantities and town-size weights. These are the same figures originally presented in the second Progress Report, covering the period February 1 to May 31st, 1950. They are not comparable with the figures in the price report following, as the figures given there are not weighted by quantity except in the few cases in which such weighting is specifically mentioned.

b/ See the Sweet Potato section below. One quotation was responsible for most of the discrepancy between the two figures given here.

On the basis of such figures as these, it was decided to use simple unweighted average prices in almost all cases. Any departures from this practice are specifically noted in the text which follows.

II. PRICES RECEIVED BY NORTH CAROLINA FARMERS FOR SELECTED COMMODITIES

The eighteen farm commodities studied in the surveys were, with the exceptions of a few highly seasonal items, all quoted on each of the four quarterly surveys. In addition, a special study of peaches and potatoes was made in July, and another study of certain fall-harvested items was made in November. Summaries of the prices received quotations, both from the regular quarterly surveys and from the two special surveys, are given in Table 1.

The commodities sold by farmers are, of course, mainly seasonal items; a result of this fact, insofar as obtaining price data is concerned, is apparent in the widely varying numbers of quotations received in the different months, as shown in Table 1. In a general price survey of a large number of items including both prices received and prices paid by farmers, in which a single sample of respondents provides all the data, it appears inevitable that wide disparities in numbers of quotations per commodity will exist. Under such conditions, if more than a few scattered reports on the scarce or out-of-season items are to be obtained, a separate sample for each of such items would seem to be necessary. Separate commodity samples, however, would increase total costs, as compared with the cost of a smaller number of general purpose samples. The question is thus, as in most sampling problems, finally a question of costs. The budget of this study permitted only a very limited use of special single-commodity samples.[12/] Consequently, the prices received data on some of the infrequently reported commodities are not amenable to statistical analysis because the very small numbers of available quotations do not permit the necessary subclassifications. Discussions of those items which were often enough reported to support analysis are given in the following sections.

Commodity analyses are given in the following general form: (i) frequency distributions of quotations, (ii) tabulations of mean prices, (iii) analyses of variance, (iv) trade practice differences, (v) general comments. An attempt is made to isolate the contributions of several factors to the total variation of prices received by farmers. The factors considered include geographic variation (location within the state), trade channels through which farmers sold items, size of town in which items were sold by farmers, services performed by the farmer, and location of the sale, i.e., at the farm, at the buyer's place of business, etc.

Eggs. By far the most widely and consistently reported of the prices received items studied was eggs. The frequency distributions of the quotations received were as shown in Table 2.

The survey period was a time of increasing prices. This effect, coupled with the seasonal effect, resulted in an increasingly wide ranges of quotations; the observed relation between price means and variances is the characteristic increase in dispersion which in

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12/ For a fuller discussion of costs, see the discussion of costs in a separate section, below.

price data ordinarily accompanies rising means. The mean prices for the four surveys are shown in Table 3.

In September packed eggs appeared to have brought less than loose eggs. This unexpected relationship could not be explained on the basis of the available data. On the other hand, the retail-wholesale relation was about what would have been expected. The "other" category is understandably variable because of its "catchall" nature.

The analyses of variance are shown in Table 4.

There appeared to be geographic differences in egg prices, although the analyses were not entirely consistent from survey to survey. The main source of the Between-CRD variance was a difference between CRD 1 and the rest of the state; CRD 1, a mountain area, reported in every survey the lowest egg price of any CRD, the difference between it and the average of all others being 5 cents per dozen in June, 7 cents in September, and 10 cents in December. No quotations were obtained from CRD 1 in March, and the CRD variance in March was consequently much lower than in any other month.

The inconsistency of the between-dealer relationship has been indicated previously and appears again in Table 4.

The most consistent relationships appearing from the egg price analyses were those between price and (i) town-size, and (ii) grade-size characteristics of eggs. The tabulations shown in Tables 5 & 6 indicate the nature of these relations.

It is apparent that there was a tendency for prices to be higher in the larger towns. Except for September, each survey showed a roughly similar level of prices in strata A and B, and another higher level in strata C and D. The price reported by farmers was not consistent. The September data, as has been previously indicated, did not follow the pattern of the other surveys; reasons for its divergence are not discernible from the data.

The majority of eggs reported sold were neither sized nor graded by the farmers. Within the not-sized-or-graded category, there was about a one-cent-per-dozen price differential in favor of packed eggs. The remaining categories had so few observations that no stable relationship could be observed.

It is sometimes said that important quantities of eggs are traded for groceries, or move in other non-cash channels in North Carolina. That statement apparently is true only to a limited extent. In the March survey, 28% (72) of the enumerated establishments reported receiving non-cash eggs, but only 6% of the eggs were reported to have been purchased on a non-cash basis. Three-fourths of these eggs moved in the A towns. As regards influence of non-cash trading on price, the effect was even less than the figures above indicate, because only about one-fourth of non-cash eggs were traded by farmers for a price different from the cash price. In these cases, a premium of from two to five cents per

dozen was paid, but the relatively small premium, applied to only 1.5% of the total number of eggs, had no appreciable effect on prices received by farmers. The situation was approximately the same in the other surveys.

Practically all reports were on transactions at the buyer's place of business. In March only four of the quotations, representing 1,320 dozens, were reported as prices at a place other than the buyers' places of business. Average price per dozen for these eggs, which the farmer sold at the farm, packed in 30 dozen cases, was 31.1 cents per dozen, but the quantity was so small (3%) that, like non-cash eggs, it exerted no important effect on the general average price.

Strictly speaking, no tests of significance can be made from the analyses of variance of geographic differences presented above because they include an assortment of random, e.g. county, and fixed, e.g. crop reporting district, effects. While the last line gives an estimate of the error after all the above effects have been removed, no unbiased estimate of error is available for testing.

The only entirely adequate analysis would probably have been a complete least squares solution, in which adjustment for the fixed effects could have been made, and the importance of the random effects evaluated. With the highly disproportionate frequencies, and the necessity for weighting each observation by the number of dozens sold, the least squares analysis would, however, have been a long and expensive one. The results to be anticipated did not appear to be a sufficient improvement over those presented to warrant the added time which would have been required.

Hatching eggs. Nine reports were received in the March survey on hatching eggs. These have not been included in the analysis above. Although the number of reports was small, they were for large quantities of eggs, the total being over fourteen thousand dozens, at an average price of 62.9 cents per dozen. If the reports were weighted by dozens of eggs, and if hatching eggs were averaged in with non-hatching eggs, the result was to increase the composite average price for all eggs to 40 cents per dozen.

Table 1. Prices Received by North Carolina Farmers for Selected Farm Commodities, 1950.

March

Item	SURVEY Unit in which price is quoted	Number reports	High	Low	Mean	BAE Price
Corn: all	Bu.	95	$1.80	$ .80	$1.25	$1.23
Yellow: ear	"	20	1.40	.80	1.18	
" shelled	"	32	1.50	1.00	1.31	
White: ear	"	21	1.80	.80	1.14	
" shelled	"	22	1.65	1.00	1.30	
Wheat	"	14	2.50	1.75	2.09	2.10
Oats	"	14	1.50	.80	1.03	.92
Cotton	Lb.	14	.33	.26	.30	.29
Soybeans	Bu.	12	4.00	1.75	2.28	1.96
Peanuts	Cwt.	5	13.50	3.00	9.35	11.40
Cowpeas	Bu.	6	4.50	4.00	4.08	3.90
Lespedeza Hay	Ton	14	45.00	25.00	28.61	29.60
Lespedeza Seed:						
Korean	Cwt.	14	10.00	5.00	6.04	6.00
Kobe	Cwt.	17	14.50	5.50	9.94	9.90
Irish Potatoes	Bu.	11	2.10	1.20	1.71	1.72
Sweet Potatoes	"	50	4.50	1.25	2.44	2.35
Broilers:						
alive	Lb.	20	.34	.30	.314	.30
dressed	"	4	.50	.41	.452	
Hens:						
alive	"	41	.26	.19	.222	.227[a]
dressed	"	7	.50	.40	.450	
Roosters:						
alive	"	11	.20	.11	.144	
Eggs	Doz.	259	.45	.25	.321	.328
Turkeys: all	Lb.	2	.50	.30	.40	.400
alive	"	1	.30	.30	.30	
dressed	"	1	.50	.50	.50	
Hogs	Cwt.	18	22.00	10.00	15.69	15.40

[a] Liveweight price of all chickens except broilers and fryers; the most nearly comparable survey price would be the mean price of live hens and live roosters, which was $.206 per pound.

Table 1. (continued)

June

Item	Unit in which price is quoted	SURVEY Number reports	High	Low	Mean	BAE Price
Corn: all	Bu.	77	$1.80	$1.40	$1.56	$1.54
Yellow: ear	"	12	1.65	1.40	1.55	
" shelled	"	27	1.80	1.40	1.58	
White: ear	"	20	1.60	1.40	1.50	
" shelled	"	18	1.75	1.40	1.55	
Wheat	"	39	2.65	1.75	2.06	2.15
Oats	"	39	1.25	.25	.79	.87
Cotton	Lb.	3	.34	.31	.32	.32
Soybeans	Bu.	7	4.50	2.10	3.04	2.40
Cowpeas	"	7	6.00	3.50	4.64	4.80
Lespedeza Hay	Ton	8	35.00	25.00	30.00	27.20
Irish Potatoes	Bu.	16	2.75	.61	1.65	1.59
Sweet Potatoes	"	16	2.50	1.75	2.33	2.30
Broilers: alive	Lb.	40	.50	.24	.28	.26
dressed	"	16	.60	.40	.47	
Hens: alive	"	50	.25	.14	.19	.21[a/]
dressed	"	12	.46	.37	.42	
Roosters: alive	"	24	.18	.08	.13	
Eggs	Doz.	290	.50	.22	.359	.359
Turkeys: alive	Lb.	4	.55	.28	.38	.37
Hogs	Cwt.	27	20.70	10.00	17.74	18.00

a/ Most nearly comparable with average of survey prices for live hens and live roosters, which was $.171 per pound.

Table 1. (continued)

Special July Survey

Item	Unit in which price is quoted	SURVEY Number reports	High	Low	Mean[a/]	BAE Price
Peaches:						
Golden Jubilee	Bu.	8	$7.00	$3.00	$4.89	
Early Hiley	"	1	6.50	6.50	6.50	
Hiley	"	1	8.00	8.00	8.00	$4.70
Carmen	"	1	3.00	3.00	3.00	
Mixed	"	8	7.50	3.25	5.49	
All Varieties	"	19	8.00	3.00	5.18	
Potatoes:						
U. S. No. 1	Bu.	17	2.00	1.45	1.09	
Lower Grade, ungraded, and unspecified	"	6	1.30	.52	.56	
All potatoes	"	23	2.00	.52	.90	.80

[a/] Price estimates given here are based on averages of reports, weighted by quantity sold at each price.

Table 1. (continued)

September

Item	Unit in which price is quoted	SURVEY Number reports	High	Low	Mean	BAE Price
Corn: all	Bu.	51	$2.25	$1.25	$1.72	$1.70
Yellow: ear	"	19	2.00	1.30	1.73	
" shelled	"	5	1.80	1.75	1.78	
White: ear	"	10	1.85	1.45	1.72	
" shelled	"	6	2.00	1.50	1.81	
Unspecified:						
Yellow	"	5	1.95	1.25	1.57	
White	"	6	2.25	1.25	1.70	
Wheat	"	26	4.00	1.70	2.19	2.15
Oats	"	26	1.50	.70	.93	.92
Cotton	Lb.	8	.425	.405	.416	.40
Soybeans	Bu.	0				2.13
Peanuts	Cwt.	1	11.50	11.50	11.50	11.80
Cowpeas	Bu.	0				4.40
Lespedeza Hay	Ton	7	40.00	20.00	28.43	30.20
Irish Potatoes	Bu.	18	2.75	1.25	1.88	1.55
Sweet Potatoes	"	32	3.00	.50	2.22	2.20
Apples	"	48	4.00	.75	1.87	1.84 a/
Broilers:						
alive	Lb.	40	.40	.24	.30	.30
dressed	"	5	.52	.49	.51	
Hens: alive	"	48	.38	.17	.22	.23 b/
dressed	"	0				
Roosters: alive	"	25	.30	.10	.14	
Eggs	Doz.	228	.25	.60	.476	.494
Turkeys:						
alive	Lb.	7	.40	.30	.34	.37
dressed	"	1	.50	.50	.50	
Hogs	Cwt.	22	25.00	17.00	22.17	21.40

a/ Average of N. C. reports; Board adoption figures not available.

b/ Most nearly comparable to mean survey price of live hens and live roosters, which was $.192 per pound.

Table 1. (continued)

November Special Survey

Item	Unit in which price is quoted	SURVEY Number reports	High	Low	Mean[a/]	BAE Price
Soybeans	Bu.	40	$2.60	$2.00	$2.53	$2.44
Peanuts	Cwt.	28	25.00	11.00	11.31	12.60
Lespedeza Seed: Kobe	Lb.	5	.12	.11	.11	.086
Sweet Potatoes	Bu.	103	3.00	.75	1.74	1.60
Turkeys:						
alive	Lb.	19	.40	.29	.38	.38
dressed	"	9	.61	.47	.55	
Hogs (All)	Cwt.	30	49.45	15.00	18.11	18.40
Pecans	Lb.	42	.40	.12	.29	N.A.[b/]
Cowpeas	Bu.	3	4.50	4.00	4.06	4.15

a/ Price quotations weighted by quantities reported.

b/ N.A. means not available.

Table 1. (Concluded).

December

Item	Unit in which price is quoted	SURVEY Number reports	High	Low	Mean	BAE Price
Corn: all	Bu.	84	$1.67	$1.00	$1.31	$1.38
Yellow: ear	"	20	1.50	1.20	1.34	
" shelled	"	10	1.67	1.12	1.38	
White: ear	"	16	1.50	1.00	1.28	
" shelled	"	3	1.60	1.35	1.43	
Unspecified: Yellow	"	19	1.50	1.12	1.30	
White	"	16	1.45	1.10	1.25	
Wheat	"	14	2.50	1.90	2.16	2.20
Oats	"	14	1.25	.80	.99	.97
Cotton	Lb.	20	.44	.39	.41	.417
Soybeans	Bu.	19	2.75	2.25	2.48	2.52
Peanuts	Cwt.	19	13.00	8.00	11.43	12.80
Apples	Bu.	2	3.00	1.25	2.12	1.87[a]
Cowpeas	"	5	5.00	4.00	4.40	4.35
Lespedeza Hay	Ton	4	38.00	30.00	33.50	30.70
Lespedesa Seed: All	Lb.	8	.12	.07	.10	.092
Korean	"	4	.08	.07	.07	
Kobe	"	4	.12	.12	.12	
Irish Potatoes	Bu.	12	2.50	1.50	1.86	1.50
Sweet Potatoes	"	46	3.75	1.00	2.05	1.85
Pecans	Lb.	26	.40	.22	.29	
Broilers: alive	"	23	.32	.16	.23	.245[a]
dressed	"	1	.44	.44	.44	
Hens: alive	"	36	.29	.20	.25	.233[b]
dressed	"	1	.42	.42	.42	
Roosters: alive	"	21	.32	.10	.15	
Eggs	Doz.	186	.86	.50	.723	.705
Turkeys: alive	Lb.	18	.53	.30	.40	.39
dressed	"	5	.65	.57	.62	
Hogs	Cwt.	19	27.00	15.25	18.30	18.10

a/ Average of N. C. reports; Board adoption not available.

b/ Most nearly comparable to average survey price of live hens and roosters, which was $.213 per pound.

Table 2. Frequency Distributions of Prices Received by North Carolina Farmers for Eggs. 1950.

Price (cents per dozen)	Number of reports			
	March	June	September	December
$.18 - .22	0	1	0	0
.23 - .27	6	21	1	0
.28 - .32	153	41	4	0
.33 - .37	85	108	16	0
.38 - .42	13	96	34	0
.43 - .47	2	20	31	0
.48 - .52	0	3	100	3
.53 - .57	0	0	27	3
.58 - .62	0	0	15	9
.63 - .67	0	0	0	25
.68 - .72	0	0	0	43
.73 - .77	0	0	0	62
.78 - .82	0	0	0	35
.83 - .87	0	0	0	6
All reports	259	290	228	186
Average survey price per dozen	$.321	$.359	$.476	$.723
Average BAE price per dozen	.328	.359	.494	.705

Table 3. Prices Received by North Carolina Farmers for Loose and Packed Eggs Sold to Different Kinds of Buyers. 1950.

Kind of Buyer	Loose eggs		Packed eggs[a]		All eggs	
	No. of reports	Av. price per dozen (cents)	No. of reports	Av. price per dozen (cents)	No. of reports	Av. price per dozen (cents)
March						
Retail[b]	169	31.8	17	33.2	186	31.9
Wholesale[c]	25	31.2	22	32.1	47	31.6
Other[d]	19	34.9	7	34.0	26	34.7
All buyers	213	32.0	46	32.8	259	32.1
June						
Retail[b]	202	35.4	35	38.7	237	35.9
Wholesale[c]	20	35.6	16	34.7	36	35.2
Other[d]	11	36.9	6	39.2	17	37.7
All buyers	233	35.5	57	37.6	290	35.9
September						
Retail[b]	148	51.7	35	46.9	183	48.3
Wholesale[c]	12	47.5	12	42.3	36	44.1
Other[d]	7	48.3	2	46.0	9	47.8
All buyers	167	48.5	61	45.1	228	47.6
December						
Retail[b]	109	72.2	38	73.6	147	72.6
Wholesale[c]	22	71.0	12	72.1	34	71.3
Other[d]	3	66.7	2	73.5	5	69.4
All buyers	134	71.9	52	73.2	186	72.3

a/ Includes both one-dozen boxes and thirty-dozen cases.

b/ Includes mainly grocery and general stores.

c/ Includes feed dealers, poultry produce dealers, cooperatives, etc.

d/ Includes sales to cafes, bakeries, and direct sales to consumers.

Table 4. Analyses of Variance of Prices Received by North Carolina Farmers for Eggs. 1950. (All price data were in cents per dozen).

Geographic differences

Source	March		June		September		December	
	d.f.	M.S.	d.f.	M.S.	d.f.	M.S.	d.f.	M.S.
Between Crop Reporting Districts	6	41	7	243	7	198	7	329
Between county in CRD's	24	36	27	89	23	186	25	44
Between towns in counties	29	23	32	23	26	35	20	92
Within towns	199	5	223	15	171	26	133	22
Total	258	-	289	-	227	-	185	-

Other economic differences

(i) Types of dealers a/

Source	March		June		September		December	
	d.f.	M.S.	d.f.	M.S.	d.f.	M.S.	d.f.	M.S.
Between types of dealers	2	95	2	35	2	265	2	43
Within types	256	10	287	28	225	47	183	44
Total	258	-	289	-	227	-	185	-

a/ Retail, wholesale, other.

(ii) Mention status (March only)

Source	d.f.	M.S.
Between mentioned and non-mentioned	1	7
Within mention groups	257	11
Total	258	-

(iii) Types of services (March only) a/

Source	d.f.	M.S.
Between services	3	74
Within services	255	10
Total	258	-

a/ Four groups were: nest run (no services performed by farmer), packed, sized and/or graded, and packed-sized-graded. For later surveys, services were sub-divided into packaging and grading-sizing, as shown on the following page.

(iv) Packaging

Source	June d.f.	June M.S.	September d.f.	September M.S.	December d.f.	December M.S.
Between packaged and not packaged	1	201	1	517	1	65
Within packaging	288	28	226	47	184	44
Total	289	-	227	-	185	-

(v) Grading-Sizing[a/]

Source	June d.f.	June M.S.	September d.f.	September M.S.	December d.f.	December M.S.
Between grade-size groups	3	74	3	213	3	297
Within groups	286	28	224	47	182	40
Total	289	-	227	-	185	-

a/ Graded and sized, graded not sized, sized not graded, not sized not graded.

(vi) Town-size strata[a/]

Source	March d.f.	March M.S.	June d.f.	June M.S.	September d.f.	September M.S.	December d.f.	December M.S.
Between strata	4	93	4	187	4	134	3	327
Within strata	254	9	285	26	223	47	182	40
Total	258	-	289	-	227	-	185	-

a/ March, June, September: strata were A, B, C, D, and farmers who sold direct to consumers who were neighbors, other farmers, etc.; in December the two farmer quotations available were not considered separately, but were included in Stratum A.

Table 5. Prices Received by North Carolina Farmers for Eggs in Towns of Different Sizes. 1950.

Town-size strata	March		June		September		December	
	No. of reports	Average price	No. of reports	Average price	No. of reports	Average price	No. of reports	Average price
A	140	31.6	138	34.4	140	47.9	89	70.8
B	68	31.8	81	36.6	54	48.5	50	71.4
C	29	32.6	44	38.5	16	46.4	34	76.8
D	11	35.6	13	38.6	14	42.0	13	74.1
Farmers	11	35.5	14	36.3	4	50.0	-	-
All strata	259	32.1	290	35.9	228	47.6	186	72.3

Table 6. Prices Received by North Carolina Farmers for Eggs Sold with Different Services Performed by the Farmer. 1950a/

Grade-size service	March		June		September		December	
	Loose	Packed	Loose	Packed	Loose	Packed	Loose	Packed
Ungraded: Sized	35.0 (1)	. (0)	32.4 (14)	48.0 (1)	48.9 (22)	43.5(15)	75.5(19)	69.0 (7)
Not Sized	31.6(182)	32.8(46)	35.7(200)	36.6(37)	48.6(133)	48.8(21)	70.7(99)	71.4(16)
Graded : Sized	34.3 (22)	33.5 (7)	32.2 (12)	40.0 (8)	46.5 (8)	42.6(20)	77.6(10)	77.0(13)
Not Sized	30.0 (1)	(0)	36.7 (7)	38.4(11)	47.5 (4)	44.0 (5)	70.8 (6)	73.9(16)

a/ Each cell contains the average price in cents per dozen and, in parentheses, the number of reports upon which the average is based.

Hogs. Although not reported as extensively as eggs, hogs were the next best reported of the prices received items. They were reported in each of the quarterly general surveys, and in the November special survey as well. The distribution of reports, by weight classes, are shown in Table 7.

There is a fairly well-defined tendency for prices to rise from the lightest hogs to a maximum in the 180-239-pound class and then drop off to a minimum figure for the heaviest class, which includes sows.

The data provide an interesting example of the degree of consistency of reporting by respondents. The interviewers asked first for the "average live-weight price paid yesterday" for hogs; then at a later point in the interview they asked for the quantities bought in different weight classes and the average prices in each class. From the March data, in the cases of the six buyers from whom weight-class data were obtained, it was thus possible to compute an average price from the individual weight-class prices, to be compared with the reported overall average price. In these six cases, where the information necessary for the computations was available, the computed average could reasonably be assumed to be the better estimate of the "true" price. The comparison of quoted and computed prices is shown in Table 8.

Of the fifteen hog buyers interviewed in March, only six could give separate data on different weight-classes, and only one (a packing plant) had actually computed its overall average price based on weight-class prices.13/ The average size of operations of buyers who gave weight-class distributions was notably higher than the size of those who did not give such data. The latter group was exceedingly variable, including the largest and smallest buyers as well as the buyers who paid the highest and lowest prices.

For the six who gave data upon which to base a comparison, there was considerable difference between quoted and computed average prices of individual buyers; yet the two averages compared for all buyers were not significantly different.

There appeared to be a large difference in March between prices paid per hundredweight for hogs bought by the head ($11.43) and for those bought by weight ($15.60). One of the four buyers reporting accounted for 1,200 of the 1,304 cwt. bought by the head. The same situation was found to exist in the other surveys: practically no hogs moved on the basis of price per head and the distinction, while important in individual cases where it applied, was so rarely applicable that it was of no importance in the general price picture.

13/ The fifteen hog records are said to have been taken from hog "buyers". They include, however, agencies like auction markets, which do not buy, but which constitute a channel through which farmers sell. For convenience they are referred to as buyers.

Place of sale was similarly unimportant in the hog price situation; practically all hogs were sold at places other than on the farm, usually at the buyer's place of business.

The discounting of soft pork has practically disappeared from North Carolina hog marketing practices. Several buyers reported that because of the virtual impossibility of identifying soft pork in a live animal, they paid slightly lower prices for all hogs bought in a peanut area. There were insufficient reports available from the surveys to permit comparisons between areas which might have thrown light on this matter.

It appears from an examination of the data that a major source of price variance in hogs is weight at which the animals are marketed. Another important source of variation was, of course, the seasonal effect, but this would not affect a single-survey analysis.

Grains. Quotations were obtained in the four general surveys on three grain items: corn, wheat, and oats. As would be expected, corn quotations were most numerous in December and March, while wheat and oats were concentrated most heavily in June, these months corresponding most closely to the respective harvest seasons. Each of these grains will be considered separately below, showing frequency distributions of prices, and average prices in various categories like town-size strata, type of dealer, etc. No variance analyses are presented because the small numbers of quotations available in any one survey were not considered adequate to support them.

Corn. The specification problem in corn is typical of that encountered frequently. Although 95 quotations - a number which appears sufficiently large to support analysis - were received in March, these were divided among yellow and white corn, and ear and shelled corn. Each of these sub-groups was essentially a separate commodity.

The data on corn from the four surveys is shown in Tables 9, 10, 11 and 12.

From these data, it appears that white and yellow corn were handled by approximately equal numbers of buyers, while a few more buyers reported handling shelled corn and ear corn. The fact that so many buyers reported ear corn may be misleading, since the legal bushel, according to North Carolina law, refers only to shelled corn. The major portion of the "ear" corn reported here was probably actually on the ear when first seen by the buyers; common practice in such cases is, however, for the buyer to shell the corn and pay for it on the basis of the shelled corn.

There was a tendency for buyers in large towns to pay farmers more than was paid by small-town buyers, while farmers who reported selling to other farmers generally received less than the average price from small-town buyers.

The most frequently encountered class of corn buyers were feed mills. No consistently important relations were apparent regarding prices paid by the various classes of buyers.

Practically no non-cash trading in corn was found. The sale of corn on the farm was similarly of little importance. Of the 77 June reports, for example, only five specified sales at the farm. The average reported price for the five was $1.50 per bushel, six cents below the mean of all reports.

A regional tabulation was made on the June data, with the following result:

Crop Reporting District	Average prices per bushel and number of reports, in parentheses	
	Yellow	White
1	(0)	$1.60(1)
2	$1.57(3)	1.50(1)
3	(0)	1.65(1)
4	1.60(1)	1.53(3)
5	1.53(5)	1.49(8)
6	1.60(11)	1.52(9)
8	1.60(14)	1.53(12)
9	1.50(5)	1.56(3)
All CRD's	1.58(39)	1.53(38)

There obviously were not important regional price differences within the state which could be shown by these data. There was no reason to believe that a different situation existed in the other survey months, and the small numbers of reports in several CRD's would not have inspired much confidence in whatever indications were present. The fact that there was only one report from CRD 3 is worthy of note. This CRD includes commercial corn producing counties, but only one important marketing center, Elizabeth City. The sample of towns selected for the surveys did not include Elizabeth City. The omission, and its effect, are typical of what is to be expected when a single sample must be drawn to represent a wide range of commodities.

Wheat. Although quoted much less frequently than corn, the wheat which was quoted represented a more homogeneous commodity, and the data were about as useful as those reported on corn. Wheat data, presented in a form similar to that followed for corn, are given in Tables 13, 14, 15, and 16.

Differences in grade were clearly important contributions to price variance, although the major portion of the wheat reported was sold ungraded by farmers. Negligible quantities were reported sold either on an "at-the-farm" basis, or for other than cash payment.

Mean prices quoted in this report were not weighted by quantities of wheat reported. Most of the crop appeared from the survey to be moving in medium-sized towns, and in CRD 8, the Southern Piedmont. This concentration in the Southern Piedmont was in large part a result of the way in which the June sample for wheat was selected, in an attempt more accurately to reflect the concentrated production of the crop. (See Sampling Section for further discussion of special aspects of the June sample.) In June, the survey month closest to harvest, 14 of the 39 reports were from CRD 8, and 140,912 bushels out of a total of 166,527 reported were from that District. The tabulation above shows 16 of the 39 June reports from B towns; these 16 reports, however, represented over 90% of the wheat reported.

Oats. The situation described for wheat was fairly closely duplicated for oats, except that there was not so much geographical concentration of oats in one CRD. Grade appeared to be an important contributor to price variation, but the number of reports within grades were, as in the case of wheat, very low. The frequency distributions of oats prices were as shown in Table 17.

Summary of Grain Price Analysis. Grain prices were reported by a small number of buyers, but mean prices nontheless appeared to be in reasonable agreement with those released by BAE. Although few farmers sold graded grain, one of the biggest contributors to price variance appeared to be grade differences. A typical result of general purpose sampling of groups of commodities, some of which are marketed in concentrated areas, appeared in the case of corn. The general purpose sample failed to include Elizabeth City, the biggest corn market in CRD 3, one of the commercial corn areas, with the result that CRD 3 was badly under-represented. This kind of difficulty is to be expected in individual cases, however, when a general purpose sample is used.

Table 7. Prices Received by North Carolina Farmers for Hogs Marketed at Various Weights.[a] 1950.

Month of Survey	Item	WEIGHT Less than 140 lbs.	140-179 lbs.	180-239 lbs.	240-299 lbs.	300 lbs. or more	All weights
March	No. of reports	6	9	8	7	5	35
	Ave. price per cwt.	$13.62	$14.85	$16.02	$13.94	$13.74	$14.57
June	No. of reports	4	7	23	7	6	47
	Ave. price per cwt.	14.62	17.62	18.34	18.06	14.56	17.39
September	No. of reports	1	6	11	4	0	22
	Ave. price per cwt.	20.50	22.79	21.46	21.75	-	21.83
November	No. of reports	6	8	19	4	3	40
	Ave. price per cwt.	20.82	21.56	19.16	21.00	16.79	19.89
December	No. of reports	4	4	14	6	5	33
	Ave. price per cwt.	16.70	16.75	19.43	17.96	15.65	17.93
All Surveys	No. of reports	21	34	75	23	19	177
	Ave. price per cwt.	16.78	18.62	18.96	17.26	14.98	18.05

a/ The number of quotations shown in the table above is larger than the number of schedules reported because, of course, several dealers reported purchasing hogs in several weight classes, subclassified in some cases by breed. The average prices shown here are averages of reports within lots, while the general averages given elsewhere are averages of dealers' reports, considering one price for each dealer.

Table 8. Comparison of "Average Liveweight Price" for Hogs with a Computed Average Price, Based on Prices and Quantities Reported for Individual Weight Classes. March, 1950.

	Quantity reported bought (cwt.)	Quoted average price	Computed average price	Quoted minus computed
Buyers who gave data on weight-class distributions of purchases				
A	10.8	$13.50	$13.63	- .13
B	239.9	14.50	15.74	- 1.24
C	228.2	14.75	15.26	- .51
D	246.0	15.00	14.72	.28
E	60.3	15.75	14.91	.84
F	865.3	15.84	15.84	0
Average	275.1	15.35	15.53	- .18
Buyers who did not give data on weight-class distributions of purchases				
G	6.5	10.00	X	X
H	1,200.0	11.25	X	X
I	75.0	14.00	X	X
J	5.0	15.00	X	X
K	386.4	16.00	X	X
L	24.0	16.00	X	X
M	2.8	20.00	X	X
N	2.5	20.00	X	X
O	1.3	22.00	X	X
Average	189.3	12.57	X	X

Table 9. Frequency Distributions of Prices Received by North Carolina Farmers for Yellow and White Corn. 1950.

Price per bushel	Number of Reports							
	March		June		September		December	
	Yellow	White	Yellow	White	Yellow	White	Yellow	White
Less than $1.00	3	4	0	0	0	0	0	0
$1.00 - 1.25	22	28	0	0	1	1	18	20
$1.26 - 1.50	27	8	5	10	7	3	29	14
$1.51 - 1.75	0	1	33	28	6	9	2	1
$1.76 - 1.95	0	1	1	0	12	5	0	0
$1.96 - 2.10	0	0	0	0	3	2	0	0
$2.11 - 2.35	0	0	0	0	0	2	0	0
All Reports	52	43	39	38	29	22	49	35

Table 10. Prices Received by North Carolina Farmers for Yellow and White Corn in Different Conditions at Time of Sale. 1950.

Condition	Average prices per bushel and numbers of reports, in parentheses							
	March		June		September		December	
	Yellow	White	Yellow	White	Yellow	White	Yellow	White
Ear	$1.18(20)	$1.14(20)	$1.55(12)	$1.50(20)	$1.73(19)	$1.72(10)	$1.34(20)	$1.28(16)
Shelled:								
No. 2	1.31 (4)	1.45 (1)	1.69 (5)	1.62 (3)	1.78 (5)	1.81 (6)	1.59(13)	- (0)
Lower grades & ungraded	1.31(28)	1.29(22)	1.56(22)	1.54(15)	1.57 (5)	1.70 (6)	1.30(26)	1.28(19)
All Reports	1.26(52)	1.22(43)	1.58(39)	1.53(39)	1.71(29)	1.74(22)	1.33(49)	1.28(35)

Table 11. Prices Received by North Carolina Farmers for Yellow and White Corn in Towns of Different Sizes. 1950.

Town-Size Stratum	Average prices per bushel and number of reports, in parentheses							
	March		June		September		December	
	Yellow	White	Yellow	White	Yellow	White	Yellow	White
A	$1.21(20)	$1.17(17)	$1.54(13)	$1.50(13)	$1.68(14)	$1.78(11)	$1.30(20)	$1.22(10)
B	1.32(14)	1.26(14)	1.61(14)	1.58(13)	1.74 (7)	1.72 (7)	1.32(12)	1.29 (8)
C	1.23 (9)	1.24 (7)	1.57 (8)	1.50 (8)	1.70 (7)	1.45 (2)	1.33(14)	1.29(16)
D	1.45 (4)	1.35 (2)	1.62 (2)	1.50 (2)	1.95 (1)	- (0)	1.59 (3)	1.60 (1)
Farmers	1.18 (5)	1.20 (3)	1.55 (2)	1.50 (2)	- (0)	1.85 (2)	- (0)	- (0)
All strata	1.26(52)	1.22(43)	1.58(39)	1.53(38)	1.71(29)	1.74(22)	1.33(49)	1.28(35)

Table 12. Prices Received by North Carolina Farmers for White and Yellow Corn from Different Classes of Buyers. 1950.

Buyer	Average prices per bushel and number of reports, in parentheses							
	March		June		September		December	
	Yellow	White	Yellow	White	Yellow	White	Yellow	White
Feed Mill	$1.32(16)	$1.28(16)	$1.58(22)	$1.53(26)	$1.78(13)	$1.82(10)	$1.38(21)	$1.28(13)
Cooperative	1.35(10)	1.21 (4)	1.59(12)	1.54 (6)	1.75 (7)	1.62 (3)	1.38 (6)	1.28 (4)
Feed-fertilizer dealer	1.32(19)	1.26(10)	1.40 (1)	1.50 (1)	1.51 (5)	1.45 (4)	1.31 (8)	1.29(10)
General store	1.12(10)	1.13(11)	1.50 (4)	1.50 (5)	1.65 (4)	1.92 (3)	1.26 (9)	1.27 (5)
Farmers and others	1.13 (7)	1.80 (2)	- (0)	- (0)	- (0)	1.85 (2)	1.26 (5)	1.27 (3)
All buyers	1.26(52)	1.22(43)	1.58(39)	1.53(38)	1.71(29)	1.74(22)	1.33(49)	1.28(35)

Table 13. Frequency Distribution of Prices Received by North Carolina Farmers for Wheat. 1950.

Price per bushel	Number of Reports			
	March	June	September	December
$1.80 or less	3	9	3	0
1.81 - 2.00	4	11	6	3
2.01 - 2.20	5	12	11	8
2.21 - 2.40	1	5	4	1
2.41 or more	1	2	2	2
All reports	14	39	26	14

Table 14. Prices Received by North Carolina Farmers for Wheat of Different Grades. 1950.

Grade	Average price per bu. & no. of reports, in ( )			
	March[a]	June	September	December
No. 1	$2.50 (1)	$2.48 (4)	$2.11 (5)	$2.15 (1)
No. 2	2.05 (2)	2.11 (9)	2.49 (4)	2.23 (2)
Not Graded	2.03 (9)	2.00(21)	2.14(17)	2.15(11)
Other Unspecified	1.92 (2)	1.86 (5)	- (0)	- (0)
All reports	2.05(14)[a]	2.06(39)	2.19(26)	2.16(14)

a/ March prices only are weighted by quantities reported bought by each buyer. The unweighted price was $2.09 per bushel for all reports.

Table 15. Prices Received by North Carolina Farmers for Wheat Sold in Towns of Different Sizes. 1950.

Town-Size Stratum	Average price per bu. & no. of reports, in ( )			
	March	June	September	December
A	$2.01 (4)	$2.08 (9)	$2.16(11)	$2.18 (6)
B	2.11 (5)	2.03(16)	2.38 (7)	2.13 (3)
C	2.15 (2)	2.02 (7)	2.10 (3)	2.22 (3)
D	1.95 (3)	2.32 (3)	2.06 (4)	2.10 (2)
Farmers	- (0)	1.94 (4)	1.90 (1)	- (0)
All Strata	2.05(14)	2.06(39)	2.19(26)	2.16(14)

Table 16. Prices Received by North Carolina Farmers for Wheat from Different Classes of Buyers. 1950.

Buyer	Average prices per bu. & No. of reports, in ( )			
	March	June	September	December
Feed mill	$2.05 (8)	$2.10(25)	$2.10(19)	$2.11 (5)
Cooperative	2.02 (2)	1.91 (5)	2.08 (4)	2.00 (1)
Feed-fertilizer dealer	2.08 (4)	1.91 (3)	4.00 (1)	2.22 (4)
General store	- (0)	2.25 (2)	2.25 (1)	- (0)
Farmers and others	- (0)	1.94 (4)	1.90 (1)	2.50 (1)
All buyers	2.05(14)	2.06(39)	2.19(26)	2.16(14)

Table 17. Frequency Distributions of Prices Received by North Carolina Farmers for Oats. 1950.

Price per bushel	Number of Reports			
	March	June	September	December
$1.80 or less	3	9	3	0
1.81 - 2.00	4	11	6	3
2.01 - 2.20	5	12	11	8
2.21 - 2.40	1	5	4	1
2.41 or more	1	2	2	2
All reports	14	39	26	14
Average prices	$1.03	$.79	$.93	$.99

Soybeans. This was one of the items which was reported fairly infrequently, the maximum number of quotations in any one of the general quarterly surveys being the nineteen obtained in December. In the November special survey, however, the only one given special attention in this report, 40 were obtained, the frequency distribution of which is shown in Table 18.

By size of town and type of buyer, the mean prices per bushel were:

Town Size Stratum	Number of Reports	Ave. price per bushel[a]	Type of Buyer	Number of Reports	Ave. price per bushel[a]
A	6	$2.52	Feed, seed,	15	$2.45
B	6	2.36	fertilizer		
C	27	2.46	dealer		
D	1	2.40	Oil Mill	10	2.45
All Towns	40	2.45	General Store	8	2.43
			Other	7	2.49
			All Buyers	40	2.45

[a] Unweighted prices; the weighted price (quantities per report being used for weights) appears in the general tabulation of mean prices from the November survey.

Despite the small numbers of reports, the overall mean price appeared to be estimated better for soybeans than for many prices-received items. Prices were fairly stable, as is indicated by the narrow range, which, except for one report at $2.00, was from $2.25 to $2.60; the standard error of the mean price was $.0167, and the coefficient of variation was 4.3%.

Only three reports averaging $2.48 were received on beans sold at the farm; five reports averaging $2.46 were of graded beans. Nineteen buyers reported buying both bagged and unbagged soybeans, but only one reported a price difference ($.05 per bushel) due to bagging.

Table 18. Frequency Distribution of Prices Received by North Carolina Farmers for Soybeans. November, 1950.

Exact price per bushel	Number of Reports		
	Graded	Ungraded	All Reports
$2.00		1	1
2.25		1	1
2.35		3	3
2.40	1	4	5
2.45	2	13	14 a/
2.50	2	5	7
2.52		1	1
2.55		4	4
2.60		4	4
All Reports	5	36	40 a/

a/ Does not add across because one buyer reported both graded and ungraded soybeans.

Irish Potatoes. Price quotations obtained on Irish potatoes in the regular quarterly surveys and in the special July survey tended to be higher than BAE quotations, particularly in the latter months. In the March, September, and December surveys, quotations were obtained from grovery stores and produce dealers primarily, while primary emphasis in the June and July surveys was on the commercial potato areas. Unweighted average prices were computed for all surveys; for June and July, the weighted average price was also computed using quantities sold as weights. These weighted figures are most nearly comparable with BAE figures, which give heavy weight to the commercial areas during these months. Since the July survey data came entirely from the commercial potato area, weighting did not materially change the overall average price for July, although the prices for several individual classes of potatoes were effected. In June, when survey quotations included both commercial and non-commercial agencies, however, there was a larger difference between the weighted and unweighted figures, as indicated in Table 19.

The largest number of reports (23) was obtained in the special July survey. Attention is given in Table 20 only to the July data.

On the basis of so few quotations it was not possible to determine with any worthwhile degree of assurance whether the differences in prices paid to farmers for potatoes at various stages in the marketing process were significant. Some purchases of potatoes reported at produce markets and packing sheds were probably in reality purchases at the buyer's place of business, since many potatoes are shipped directly to the consumer markets from producer-owned facilities of these kinds. The pooling of all potatoes other than U. S. No. 1 into one group also affects the differences between these places of sale. It should be noted that almost all of the potatoes bought at buyers place of business were U. S. No. 1, while the bulk bought elsewhere were the lower grade potatoes.

The average bushel price for all U. S. No. 1 potatoes was $1.09 as compared with $.56 for all other potatoes. The latter group, however, included a range of from $.76 for Commercial Grade to $.31 for B Grade potatoes. There was a large differential ($.41 per bushel) between field run potatoes and potatoes that were graded and sacked, with a smaller differential ($.16 per bushel) between the latter group and potatoes that were graded, washed and sacked. With the small number of quotations however, no estimate of the degree of reliability of these differentials can be made. Since commercial potatoes in North Carolina are marketed through a relatively small number of buyers, it appears reasonable to suggest that a census of these buyers might be necessary (and not so difficult or costly as to be outside the realm of feasibility) to get entirely satisfactory data.

Table 19. Prices Received by North Carolina Farmers for Irish Potatoes, 1950.

Month	Number of Reports from Surveys	Mean Price per Bushel	
		Survey	BAE
March	11	$1.71	$1.72
June[a/]	16	(1.65 (.91	(1.59 (.95
July[a/]	23	(.91 (.90	(1.48 (.80
September	18	1.88	1.55
December	12	1.86	1.50

a/ The two figures shown are unweighted and weighted averages, respectively. The survey weights were quantities reported; BAE weights, those customarily used by BAE.

Table 20. Prices Received by North Carolina Farmers for Irish Potatoes of Different Grades, Sold with Varying Services Performed on Them. July 1950.

Graded and Place of Sale [a]	Service Performed: Field run (no services) Cwt. Sold [b]	Field run (no services) Price per bu.	Graded and sacked Cwt. Sold	Graded and sacked Price per bu.	Graded, washed and sacked Cwt. Sold	Graded, washed and sacked Price per bu.	All Potatoes: No. of Reports	All Potatoes: Cwt. Sold	All Potatoes: Unweighted price per bushel	All Potatoes: Weighted price per bushel
U. S. No. 1										
Delivered to buyer			29675	.96	9000	1.13	11	38675	.97	1.09
Elsewhere			3392	1.06	900	1.11	6	4290	1.05	1.07
Lower grades, ungraded, & Unspecified										
Delivered to buyer	139	.70	161	.82			4	300	.75	.71
Elsewhere	13324	.56					2	13324	.47	.56
All Potatoes										
Delivered to buyer	139	.70	29836	.96	9000	1.13	15	38975	.91	1.00
Elsewhere	13324	.56	3392	1.06	900	1.11	8	17614	.91	.68
Total	13463	.56	31620	.97	9900	1.13	23	56589	.91	.90

[a] Places of sale mentioned were buyers place of business, farm produce markets, and packing sheds. All except the first were grouped under "Elsewhere".

[b] Potatoes in the commercial areas of North Carolina generally move in hundred-pound sacks, but prices are frequently quoted in bushels. Hence, the difference in units in which quantity and price are quoted above.

Sweet Potatoes. There was considerable variation in numbers of quotations obtained on sweet potatoes in the various surveys, resulting mainly from the seasonal nature of the crop. Frequency distributions of reports for all surveys were as shown in Table 21. Special attention will be given only to the March and November data.

One of the noteworthy aspects of the sweet potato data was the very small quantities involved in most of the transactions, as indicated below.

Size of sale by farmers (Number of bushels)	Number of Sales	
	March	November
Less than 5	38	52
5 - 9	9	28
10 - 24	2	14
25 - 99	0	4
100 or more	1	5
All sales	50	103

This distribution of sales suggests that most of the farmers whose sales were reported were non-commercial producers. The fact that these were so numerous reflects one of the expected results of the kind of general-purpose sample used in this study. Sweet potatoes are widely distributed, but commercial production is centered in a few areas. Thus the sample picked up a widely scattered group of reports, only a few of which were of commercially produced sweet potatoes. This is probably a partial explanation of the consistent (but slight) excess of the unweighted survey prices over comparable BAE prices.

By town-size strata and type of buyer, the mean prices were as shown in Table 22.

The March data showed an odd relation between retail and wholesale prices, but the fact that the price at wholesale outlets was higher than that at retail outlets was chiefly the result of one wholesale quotation at $4.50 per bushel, far out of line with any other prices. There was no specific reason for editing this report out, but it was suspect, especially as it was for ungraded, unwashed and unsacked potatoes.

The price differentials associated with services performed on sweet potatoes by the farmer are shown in Table 23, and the March data again appear in a strange light because of the one atypical report mentioned above. Removal of that report would bring the averages "into line", but it is difficult to justify such editing when no specific reason exists except that certain items appear to the editor to be atypical.

No decided price movement could be discerned from town-size to town-size; the sources of variation appearing most important were the different services performed by the farmer, and the outlet he used to dispose of his produce.

Table 21. Frequency Distributions of Prices Received by North Carolina Farmers for Sweet Potatoes, 1950.

Price per bushel	Number of Reports				
	March	June	September	November	December
Less than $1.50	1	1	1	20	2
1.50 - 1.99	0	0	1	34	11
2.00 - 2.49	22	5	14	42	23
2.50 - 2.99	19	10	13	4	6
3.00 - 3.49	7	0	3	3	3
3.50 - or more	1	0	0	0	1
All reports	50	16	32	103	46

Table 22. Prices Received by North Carolina Farmers for Sweet Potatoes in Towns of Different Sizes from Different Types of Dealers, 1950.

March

Type of Dealer	Item	Size of Town				All Farmers	All Reports
		A	B	C	D		
Retail[a]	Price per bushel	$2.43	$2.36	$2.00			$2.40
	Number of reports	28	9	1			38
Wholesale[b]	Price per bushel	2.09	2.50	2.25	$4.34[d]		2.87
	Number of reports	2	2	1	2		7
Other[c]	Price per bushel	2.21					2.21
	Number of reports	4					4
Farmer	Price per bushel					$2.25	2.25
	Number of reports					1	1
All reports	Price per bushel	2.38	2.39	2.13	4.34	2.25	2.44
	Number of reports	34	11	2	2	1	50

a/ Includes grocery stores, general stores, fruit stands.

b/ Includes produce shippers and/or buyers, cooperatives, and truckers.

c/ Includes cafes, service stations, and other miscellaneous buyers.

d/ Includes one report of 300 bushels at $4.50.

Table 22. (concluded)

November Type of Dealer	Item	Size of Town A	B	C	D	All reports
Retail[a]	Average price per bushel received by farmers	$1.83	$2.00	$1.76	$1.65	$1.81
	Number of reports	12	13	56	1	82
Wholesale[b]	Average price per bushel received by farmers			1.58	1.25	1.45
	Number of reports			3	2	5
Other[c]	Average price per bushel received by farmers	1.53	1.38	1.54		1.49
	Number of reports	8	4	4		16
All reports	Average price per bushel received by farmers	1.71	1.85	1.74	1.38	1.74
	Number of reports	20	17	63	3	103

a/ Includes grocery stores, general stores, fruit stands.
b/ Includes produce shippers and/or buyers, cooperatives, and truckers.
c/ Includes cafes, service stations, and other miscellaneous buyers.

Table 23. Prices Received by North Carolina Farmers for Sweet Potatoes Sold with Different Services, 1950.

Service performed prior to sale	March Number of reports	March Average price	November Number of reports	November Average price
No services	28	$2.47	66	$1.70
Washing and/or sacking	22	2.40	37	1.82
All sweet potatoes	50	2.44	103	1.74

Fruits. Three fruit items, apples, peaches, and pecans, were included in the surveys. All of them were, of course, highly seasonal, and all were characterized in North Carolina by geographically concentrated production. The result was that relatively few reports were obtained on fruits, and significant generalizations are not possible from the data. Peaches were included only on a special survey in July; most of the pecan quotations came from another special survey in November; apples were quoted in volume only in the September survey. Brief discussions of the peach and apple data are given below.

Peaches. The peach data were less valuable than they would have been in a more "normal" year. In 1950 there was a severe freeze in North Carolina which reduced the crop to 10-20% of normal, and resulted in a July 15 price (estimated from the special survey) of $5.15 per bushel. This survey, however, was too early to include the Elberta crop. On the basis of the 19 quotations, from 17 peach growers, it appeared that most of the peaches were sold packed in half bushels and graded, and that there were substantial price differences not only between different-sized peaches but also between varieties in all but the smaller sizes. Quotations on peaches were obtained from growers themselves, because so much of the crop did not move through channels which could conveniently be investigated. The New York market was the most commonly reported sale point, with only two reports of sales at the farm. Like several other of the prices-received items, peaches were not reported in sufficient volume, or with sufficient numbers of reports, to warrant many generalizations from the data.

Apples. Twenty-eight growers were contacted, and a total of 48 apple price quotations were obtained from them on the September survey. The list of 28 growers consisted of 10 from the regular survey sample and 18 from a special sample for apples drawn from Wilkes and Alexander counties. The special sample consisted of 76 names drawn from lists of growers reporting 100 or more trees in the 1949 North Carolina farm census. Two separate samples were selected, consisting of every tenth name, beginning at randomly selected starting points, from the lists of large growers; it was hoped that at least 30 quotations could be obtained from one of these sample lists of 38 names, but the second list was provided for use if fewer than 30 from the first list were eligible. Only 18 of the entire 76 proved eligible. The chief reason for ineligibility was that many farmers had not sold apples within the period specified in the survey. It is thus once again, in the case of apples, necessary to limit severely the generality of the inferences to be drawn from the scanty data.

The overall mean price per bushel was $1.87, but there appeared to be important departures from this figure in subgroups based on variety and packed.

The distribution of reports by variety is shown in Table 24.

By pack, the relationship is shown in Table 25.

Cross-classification obviously is not feasible, but it is interesting to note the preponderance of packed apples, and the substantial price advantage resulting from packing. It is thought that several of the "unspecified" packs were not specified because the grower packed in miscellaneous smaller containers. This is consistent with the higher price indicated.

Table 24. Prices Received by North Carolina Farmers for Apples of Different Varieties. September, 1950.

Variety	Number of reports	Average price per bushel
Stark's Delicious	14	$1.91
Stayman	7	2.07
Golden Delicious	5	1.46
Red Delicious	2	1.38
Winesap	2	3.00
Unspecified	15	1.80
All varieties	48	1.87

Table 25. Prices Received by North Carolina Farmers for Packed and Loose Apples. September, 1950.

Pack	Number of reports	Average price per bushel
Bushel boxes or baskets	28	$1.99
Not packed	8	1.11
Unspecified	12	2.10
All reports	48	1.87

Chickens. The quotations on chickens were subdivided as follows:

Classification of Chickens	Number of Quotations			
	March	June	September	December
Broilers-fryers				
live	20	40	40	23
dressed	4	16	5	1
Hens				
live	41	50	48	36
dressed	7	12	0	1
Roosters				
live	11	24	25	21

The BAE issues separate liveweight price estimates for (i) broilers and fryers, and (ii) all chickens except broilers and fryers. The survey data suggested that by far the largest volume of sales was of broilers. In March, for example the 20 broiler reports covered 346,000 pounds, while the 41 live hens reports covered 119,000 pounds. The 11 rooster reports were on only 6,000 pounds. On the basis of general knowledge, substantiated by these survey data, it appeared that the item of major importance was live broilers. Detailed attention was accordingly given to that item. Table 26 shows for each survey the number of reports and pounds of broilers reported bought from farmers in the four town-size strata, classified according to the prices the farmers received. For the March survey, the comparable price distribution of BAE reports in North Carolina is shown in Table 26.

It isobvious that there was no appreciable or consistent price difference associated with town-size, but it is noteworthy that so large a proportion of the reported broilers came from large towns, especially when that proportion is compared with the negligible proportions reported in large towns in the preliminary survey of farmers. The disparity apparently arises from the difference in ways of drawing the two samples: (i) in the preliminary farmer survey a sample of farmers was drawn without regard to what they produced, and few commercial producers were included; (ii) in the price surveys, reported above, all broiler buyers in the selected towns were interviewed. There thus an implicit weighting of the price survey data in favor of the commercial broiler trade which was not present in the sample of farmers in the preliminary survey. Furthermore, as previously described in the sampling section, the large towns in the price surveys were deliberately over-represented compared to their importance as indicated in the preliminary survey.

Practically all broilers were reported sold at the farm. A few scattered small sales were reported elsewhere; in the March survey, for example, there were three reports, for a total of 292 pounds, of sales by farmers to cafes and grocery stores. The major volume of sales, however, was to large-scale buyers, including feed dealers, hatcheries, dressing-plants, and cooperatives.

The broiler data gave price estimates in close agreement with those by BAE, because the broiler price was so standardized and because the commodity was homogeneous. For this item, the modal price on all surveys was practically identical with the BAE price, and mean prices were in only slightly less close agreement.

Table 26. Prices Received by Farmers, and Quantities of Live Broilers Reported Bought in Towns of Different Sizes. 1950

March

Price (cents per pound)	Item	Price Survey: Size of towns A	B	C	D	All towns	BAE price report
18	Number of reports						2
19	"						0
20	"						1
21	"						0
22	"	(No prices below 30 cents were reported in the March survey.)					4
23	"						3
24	"						2
25	"						4
26	"						0
27	"						3
28	"						5
29	"						2
30	Number of reports	0	0	0	1	1	16
	Number of pounds	-	-	-	10,000	10,000	-
31	Number of reports	4	5	1	3	13	2
	Number of pounds	35,950	133,600	30,000	83,550	283,100	-
32	Number of reports	0	2	0	2	4	4
	Number of pounds	-	10,500	-	39,283	49,783	-
33	Number of reports	0	1	0	0	1	0
	Number of pounds	-	70	-	-	70	-
34	Number of reports	0	0	1	0	1	0
	Number of pounds	-	-	2,600	-	2,600	-
35	Number of reports	(No prices above 34 cents were reported in the March survey.)					6
36	Number of reports						0
37	Number of reports						1
All live broilers	Number of reports	4	8	2	6	20	55
	Number of pounds	35,950	144,170	32,600	132,833	345,553	-
Average price (cents per pound) a/		31.0	31.1	31.2	31.2	31.1	30.0

a/ Weighted by quantities bought at each price. The unweighted price, 31.4 cents per pound, is shown in Table 1 for March.

Table 26. (continued)

June

Price (cents per pound)	Item	Price Survey Size of town A	B	C	D	All Towns
24	Number of reports	1	-	-	-	1
	Number of pounds	150	-	-	-	150
25	Number of reports	5	1	2	-	8
	Number of pounds	4,339	14	10,450	-	14,803
26	Number of reports	-	4	6	3	13
	Number of pounds	-	247,320	44,174	78,500	369,994
27	Number of reports	2	5	-	2	9
	Number of pounds	17,500	115,291	-	15,860	148,651
28	Number of reports	1	-	1	-	2
	Number of pounds	30	-	4,988	-	5,018
30	Number of reports	1	1	1	-	3
	Number of pounds	50	22	50	-	122
35	Number of reports	1	-	-	-	1
	Number of pounds	15	-	-	-	15
40	Number of reports	1	-	-	-	1
	Number of pounds	45	-	-	-	45
45	Number of reports	-	-	1	-	1
	Number of pounds	-	-	100	-	100
50	Number of reports	-	1	-	-	1
	Number of pounds	-	35	-	-	35
All live broilers	Number of reports	12	12	11	5	40
	Number of pounds	22,129	362,682	59,762	94,360	538,933
Average price (cents per pound)		28.0	28.7	28.1	26.4	28.0

Table 26. (continued)

September

Price (cents per pound)	Item	Price Survey Size of town A	B	C	D	All Towns
24	Number of reports	3	-	-	-	3
	Number of pounds	82	-	-	-	82
25	Number of reports	2	1	1	-	4
	Number of pounds	33	2,500	15	-	2,548
28	Number of reports	-	1	-	-	1
	Number of pounds	-	153	-	-	153
29	Number of reports	1	1	-	-	2
	Number of pounds	62	4,077	-	-	4,139
30	Number of reports	6	8	4	4	22
	Number of pounds	53,813	330,676	26,029	56,550	467,068
31	Number of reports	-	-	-	2	2
	Number of pounds	-	-	-	134,557	134,557
32	Number of reports	-	-	3	-	3
	Number of pounds	-	-	7,816	-	7,816
35	Number of reports	-	1	1	-	2
	Number of pounds	-	75	167	-	242
40	Number of reports	1	-	-	-	1
	Number of pounds	25	-	-	-	25
All live broilers	Number of reports	13	12	9	6	40
	Number of pounds	54,015	337,481	34,027	191,107	616,630
Average price (cents per pound)		28.5	29.8	30.7	30.3	29.6

Table 26. (concluded)

December

Price (cents per pound)	Item	Price Survey Size of town A	B	C	D	All Towns
16	Number of reports	1	-	-	-	1
	Number of pounds	50	-	-	-	50
17	Number of reports	1	-	-	-	1
	Number of pounds	50	-	-	-	50
18	Number of reports	-	1	-	-	1
	Number of pounds	-	2,550	-	-	2,550
22	Number of reports	1	2	-	1	4
	Number of pounds	20,000	21,500	-	23,000	64,500
23	Number of reports	2	-	2	2	6
	Number of pounds	41,000	-	2,320	40,000	83,320
24	Number of pounds	1	2	-	3	6
	Number of pounds	600	100,096	-	90,005	190,701
26	Number of reports	1	-	-	-	1
	Number of pounds	1,040	-	-	-	1,040
30	Number of reports	1	-	1	-	2
	Number of pounds	126	-	732	-	858
32	Number of reports	-	-	1	-	1
	Number of pounds	-	-	135	-	135
All live broilers	Number of reports	8	5	4	6	23
	Number of pounds	62,866	124,146	3,187	153,005	343,204
Average price (cents per pound)		22.6	22.0	27.0	23.3	23.4

III. PRICES PAID BY NORTH CAROLINA FARMERS FOR SELECTED COMMODITIES

Feed. A total of 31 quotations were obtained on the four surveys, not counting subclasses within feed items, e.g. different protein contents of mixed dairy feeds. The feed category was thus the biggest group of commodities included in the study. One-half (16) of the quotations were obtained on four items, mixed dairy feed, laying mash, scratch grain, and cottonseed meal, which were all included in each of the quarterly surveys. Summaries of the feed data are given in Table 27; in these summaries the prices are all cash prices at the store.

The small amount of the differences between survey and BAE estimates is at once apparent from these comparisons. It is further apparent that the differences are usually in the form of higher prices on the surveys: of the 43 comparisons available on feed, the survey price is higher in 33, lower in 8, and the same as the BAE in 2. The explanation for the consistence of these small differences in one direction is not possible from the data, but the situation appears to warrant further study of the possibility that bias exists in the reporting. The magnitude of whatever bias may be present is, however, small, as is indicated by the fact that the average percentage difference between Survey and BAE prices for the 43 feed comparisons was only 2.5%.

Specification of feed items was more nearly adequate than that of many other commodities included in the study, but there was nontheless considerable unexplained price heterogeneity, which appeared to be a result of quality differences. These unexplained differences could have come from three sources: (i) differences in total digestible nutrients, (ii) differences between ready-mixed feeds and those mixed by the dealer himself, and (iii) brand differences in ready-mixed feeds. Each of these possibilities was investigated, with the following results: (i) North Carolina does not require that T.D.N. be printed on feed labels, so data could not be obtained; (ii) practically all dealers interviewed sold only ready-mixed feeds, so little could be learned about these differences; (iii) feeds (like flour) were reported under so many brand names, with so few reports on each brand, that the brand analysis was of no value. Hence, it appears that these sources of variation will, for the present, have to be tolerated. To examine them adequately would require more intensive work on this one item, feed, than is practicable in a multiple-commodity study.

The only questionable quotations among the feed items were those on (i) corn meal in small bags, and (ii) stock salt. The corn meal quotations in 5-pound, 10-pound, and even 25-pound bags could probably have been more appropriately classified under food, i.e., for human consumption. The stock salt quotations in 100 pound bags appeared to give a somewhat less accurate representation of what North Carolina farmers most often bought than would quotations of 50-pound salt blocks. Since price per pound was considerably higher for block salt, this would be of some importance for this particular item.

Trade practices in the sale of feed were dominated by those reported by small independent general stores. In the very few cases reporting a delivery charge, the charge was most often a flat 10 cents per bag, ranging up to 30 cents. Quantity discounts were reported most often at 2 percent for a ton or more, but the reports were generally vague and appeared to be of little value. The retail dealers who sold directly to farmers apparently looked no farther than their own suppliers and their profit markups for a basis upon which to set their prices. Without exception, the sellers interviewed reported basing their prices on one of both of these factors.

The extension of credit was the only one of the trade practices for which there was sufficient definitely-reported variability to warrant analysis. The average cash prices for the four feed items studied in each of the surveys, as reported from stores offering different credit services, are given in Table 28.

Credit was reported by somewhat less than one-half of the feed suppliers, but only a few of these made a specific charge for credit. Consistent price differences at stores offering different credit services did not appear in these data.

The feeds for which the largest numbers of quotations were received were mixed dairy feed and laying mash. These items were also quoted on every one of the four surveys. Since the data on these are fuller than those available on any of the other items, these two feeds were selected for detailed analysis.

Mixed dairy feed. The frequency distributions of price quotations, the price means by town size and type of dealer, and the analyses of variance for the four surveys, are given in Tables 29-31 for mixed dairy feed of 16% protein content. This is the only dairy feed studied, because, in order to eliminate as much of the quality effect as possible, it was necessary to consider separately feeds at each protein level; the largest number of reports were available on the 16% feed, and the type of variation in this feed appeared to be not unlike that found in the feeds at other protein levels.

The only geographic difference that appeared to be of any significance was that between counties, and this was not entirely consistent. Both town-size differences and store-type differences appeared consistently important.

Although the cooperative-chain prices were based on few quotations, the consistency with which they exceeded those in independent stores is noteworthy. Examination of the mean prices indicates that independents increased their prices steadily from survey to survey, but that the coop-chain stores increased theirs considerably faster. The amounts by which non-independents exceeded independents were: 3 cents in March, 18 cents in June, 24 cents in September, and 28 cents in December. Although the data do not bear directly on the point, it appears that turnover

rate may have been a factor in the explanation for this situation. Most of the independent sellers were small, and probably did not reflect the rising prices of the period as quickly as did the larger coops and chain stores.

Laying Mash. Frequency distributions, mean prices, and variance analyses, appear in Tables 32-34.

The geographic differences which appeared to be of greatest importance were those between crop reporting districts, but, like the county differences in mixed dairy feed, these were not entirely consistent. Town-size stratum did not appear to be related to price. There were practically no differences between prices at independent and non-independent stores, although the small existing differences were, as in mixed dairy feed, in the form of lower prices in independent stores.

Summary of feed analysis. The problem of specification, with the exceptions noted above, was not serious in feed price quotations. Survey prices generally agreed closely with those of BAE, although there was a tendency for survey prices to be slightly above BAE estimates. The coefficients of variation from survey to survey showed a high degree of consistency (for the two items studied in detail), as follows:

Feed	Coefficient of Variation			
	March	June	September	December
Mixed dairy feed 16% protein	11.9%	11.8%	11.3%	11.8%
Laying mash	7.4%	6.8%	7.6%	8.1%

The difference in level of the C.V.'s for the two feeds was due almost entirely to the difference in mean prices, since their variances were of approximately the same magnitudes.

On the basis of the foregoing evidence, it appears that feed, a relatively homogeneous commodity, offers no particular difficulties in price estimation; when compared with the difficulties encountered in other commodities, feed ranks low on a priority list of items for which improvements are needed.

Table 27. Prices Paid by North Carolina Farmers for Feed, 1950.[a]

March

Item	Survey: Number of reports	Survey: High	Survey: Low	Survey: Mean	BAE Price
Mixed dairy feed					
16% protein	121	$4.65	$2.50	$3.43	$3.30
20% protein	84	5.60	3.05	3.89	3.75
24% protein	52	4.95	3.20	3.88	3.80
Laying Mash	198	5.88	3.75	4.73	4.60
Scratch grain	161	5.60	3.00	4.17	4.00
Cottonseed meal	84	3.90	3.20	3.49	3.40
Bran	90	4.40	2.40	3.35	3.20
Meat scrap	14	10.25	3.30	7.08	6.10
Alfalfa hay, per ton, baled	13	56.00	40.00	47.60	44.00
Corn, per bushel wh					
whole	40	2.10	1.00	1.47	N.A.
ground	4	4.00	3.00	3.52	N.A.
Corn meal	47	6.00	3.25	4.60	3.75

a/ All quotations are "per cwt.", unless otherwise noted.

Table 27. (continued) a/

June

Item	Survey				BAE Price
	Number of reports	High	Low	Mean	
Mixed dairy feed					
16% protein	157	$5.25	$2.35	$3.61	$3.50
20% protein	83	4.90	2.90	4.04	3.95
24% protein	45	4.65	3.15	3.92	4.00
Laying mash	233	6.40	4.00	4.92	4.85
Scratch grain	177	6.00	2.75	4.43	4.30
Cottonseed meal	98	4.50	2.95	3.83	3.75
Soybean meal	13	5.00	4.15	4.50	4.50
Peanut meal	3	4.60	4.00	4.40	4.35
Stock salt					
100 lb. bag	36	2.10	.50	1.44	1.60
50 lb. block	38	1.25	.65	.91	N.A.
50 lb. block medicated	14	1.25	.85	.98	N.A.

a/ All prices are "per cwt.", except as otherwise noted.

Table 27. (continued) a/

September

Item	Survey: Number of reports	Survey: High	Survey: Low	Survey: Mean	BAE Price
Mixed dairy feed					
Under 16% protein	4	$4.25	$3.35	$3.67	$3.60
16% protein	140	5.10	3.10	3.73	3.70
18% protein	12	5.40	3.65	4.15	3.80
20% protein	68	4.90	3.50	4.13	4.05
24% protein	60	5.95	2.70	4.20	4.20
32% protein	12	5.20	4.30	4.86	4.60
Laying mash					
100 pounds	178	6.00	3.45	5.02	5.00
25 pounds	34	1.55	1.20	1.36	N.A.
Scratch grain					
100 pounds	146	6.00	3.80	4.59	4.45
25 pounds	65	1.45	1.05	1.25	N.A.
Cottonseed meal	54	4.50	3.10	3.98	3.95
Meat scrap	5	7.50	3.90	6.35	6.60
Bran	89	5.00	2.00	3.81	3.55
Alfalfa hay, per ton	7	60.00	24.00	44.60	42.00
Corn, ground, per bu.	25	5.00	3.50	4.23	N.A.
Corn meal, 100 lb.	22	5.60	3.00	4.55	4.65
25 lb.	18	1.65	1.30	1.46	N.A.
10 lb.	39	.77	.50	.61	N.A.
5 lb.	18	.48	.30	.35	N.A.

a/ All quotations are "per cwt.", unless otherwise noted.

Table 27. (concluded) a/

December

Item	Survey: Number of reports	Survey: High	Survey: Low	Survey: Mean	BAE Price
Mixed dairy feed					
Under 16% protein	1	$ -	$ -	$3.35	$3.50
16% protein	128	5.30	3.10	3.80	3.75
18% protein	14	4.95	3.50	4.29	3.85
20% protein	83	5.00	3.50	4.24	4.15
24% protein	57	5.35	3.50	4.27	4.20
32% protein	17	5.45	4.50	4.97	5.00
Laying mash					
100 pounds	170	6.40	3.55	4.98	4.90
25 pounds	34	1.65	1.20	1.36	N.A.
Scratch grain					
100 pounds	133	5.40	3.25	4.41	4.30
25 pounds	48	1.50	1.05	1.25	N.A.
Cottonseed meal	79	5.75	3.25	4.34	4.35
Peanut meal	18	5.25	4.00	4.34	4.40
Soybean meal	4	4.75	3.75	4.32	4.30

a/ All quotations are "per cwt.", unless otherwise noted.

Table 28. Prices Paid by North Carolina Farmers for Four Feed Items at Stores Offering Different Credit Services. 1950.

Feed Item	Months of Surveys a/	Credit service offered by seller: No credit — No. of Reports	No credit — Price per cwt.	Credit, no specific charge — No. of Reports	Credit, no specific charge — Price per cwt.	Credit with specific charge — No. of Reports	Credit with specific charge — Price per cwt.	All reports — No. of Reports	All reports — Price per cwt.
16% mixed dairy feed	June	71	3.60	72	3.57	14	3.63	157	3.61
Laying mash	June	112	4.90	100	4.94	21	4.95	233	4.92
Scratch grain	June	84	4.30	79	4.54	14	4.66	177	4.43
Cottonseed meal	June	52	3.82	40	3.85	6	3.77	98	3.83
16% mixed dairy feed	Sept.	74	3.73	61	3.73	5	3.70	140	3.73
Laying mash	Sept.	96	5.03	73	4.99	9	5.02	178	5.02
Scratch grain	Sept.	78	4.51	58	4.66	10	4.82	146	4.59
Cottonseed meal	Sept.	28	3.98	25	3.97	1	4.25	54	3.98
16% mixed dairy feed	Dec.	87	3.83	36	3.76	5	3.66	128	3.80
Laying mash	Dec.	102	4.94	60	5.06	8	4.87	170	4.98
Scratch grain	Dec.	80	4.41	46	4.42	7	4.29	133	4.41
Cottonseed meal	Dec.	53	4.36	25	4.30	1	4.50	79	4.34

a/ Not tabulated from March data.

Table 29. Frequency Distributions of Prices Paid by North Carolina Farmers for Mixed Dairy Feed, 16% Protein. 1950.

Price per cwt.	Number of reports			
	March	June	September	December
Less than $2.88	4	3	0	0
2.88 - 3.12	18	11	5	1
3.13 - 3.37	43	36	17	20
3.38 - 3.62	28	52	45	35
3.63 - 3.87	10	20	38	27
3.88 - 4.12	6	15	10	16
4.13 - 4.37	10	11	12	8
4.38 - 4.62	1	7	8	15
4.63 or more	1	2	5	6
All reports	121	157	140	128

Table 30. Prices Paid by North Carolina Farmers for Mixed Dairy Feed, 16% Protein, in Different Town-size Strata and from Different Types of Dealers. 1950.

In Different Town-size Strata

Town-size Stratum	March		June		September		December	
	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.
A	65	$3.39	79	$3.56	78	$3.66	60	$3.65
B	30	3.55	44	3.67	34	3.75	33	3.96
C	14	3.49	21	3.80	18	3.95	23	3.92
D	12	3.29	13	3.41	10	3.85	12	3.90
All towns	121	3.43	157	3.61	140	3.73	128	3.80

From Stores of Different Organization

Type of Dealer	March		June		September		December	
	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.
Independent	103	$3.43	145	$3.60	126	$3.71	112	$3.77
Other[a/]	18	3.46	12	3.78	14	3.95	16	4.05
All dealers	121	3.43	157	3.61	140	3.73	128	3.80

a/ Mainly chains and cooperatives; there were too few reports to warrant further subclassification.

Table 30. (concluded)

From Different Kinds of Stores

Kind of Store	March[a] Number of Reports	March[a] Price per cwt.	June Number of Reports	June Price per cwt.	September Number of Reports	September Price per cwt.	December Number of Reports	December Price per cwt.
General	-	-	59	$3.63	63	$3.73	50	$3.66
Farm	-	-	33	3.43	29	3.85	29	3.94
Feed	-	-	39	3.74	17	3.74	10	3.96
Other[b]	-	-	26	3.61	31	3.64	39	3.84
All stores	-	-	157	3.61	140	3.73	128	3.80

a/ Not available
b/ Feed mills, hatcheries, etc.

Table 31. Analyses of Variance of Prices Paid by North Carolina Farmers for 16% Mixed Dairy Feed. 1950.

Source of Variation	March d.f.	March M.S.	June d.f.	June M.S.	September d.f.	September M.S.	December d.f.	December M.S.
Between Crop Reporting Districts	5	.36	7	.27	7	.34	7	.38
Between counties in CRD's	17	.45	27	.24	20	.23	20	.38
Between towns in counties	15	.08	20	.16	21	.15	21	.10
Within towns	83	.09	102	.16	91	.16	79	.30
Total	120	-	156	-	139	-	127	-
Town-size strata	3	.35	3	.56	3	.47	3	.89
Kind of store[a]	-	-	3	.47	3	.23	3	.51
Organization of store[b]	1	.07	1	.37	1	.73	1	1.09
Mention status[c]	1	.05	-	-	-	-	-	-
Interaction	7	.08	23	.22	18	.24	18	.21
Within	108	.15	126	.15	114	.15	102	.18
Total	120	-	156	-	139	-	127	-

a/ General, farm, feed, other; not analyzed on this factor in March.
b/ Independent, chain-cooperative.
c/ Analysis only of March data.

Table 32. Frequency Distribution of Prices Paid by North Carolina Farmers for Laying Mash. 1950.

Price per cwt.	Number of Reports			
	March	June	September	December
Less than $4.13	4	1	3	1
4.13 - 4.37	21	10	5	3
4.38 - 4.62	49	33	12	24
4.63 - 4.87	59	56	33	37
4.88 - 5.12	41	74	58	51
5.13 - 5.37	16	41	38	26
5.38 - 5.62	6	14	25	20
5.63 or more	2	4	4	9
All reports	198	233	178	170

Table 33. Prices Paid by North Carolina Farmers for Laying Mash in Different Town-Size Strata and from Different Types of Dealers. 1950.

In Different Town-Size Strata

Town-Size Stratum	March		June		September		December	
	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.
A	96	$4.75	109	$4.90	92	$4.97	73	$4.92
B	56	4.74	77	4.93	54	5.06	50	5.04
C	27	4.67	30	5.01	21	5.03	31	5.01
D	19	4.71	17	4.83	11	5.18	16	5.08
All towns	198	4.73	233	4.92	178	5.02	170	4.98

From Stores of Different Organization

Type of Dealer	March		June		September		December	
	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.	Number of Reports	Price per cwt.
Independent	160	$4.73	207	$4.92	155	$5.01	145	$4.98
Other[a/]	38	4.73	26	4.94	23	5.04	25	4.99
All dealers	198	4.73	233	4.92	178	5.02	170	4.98

a/ Mainly chain stores and cooperatives, too few for subclassification.

Table 33. (concluded)

From Different Kinds of Stores

Kind of Store	March[a] Number of Reports	March[a] Price per cwt.	June Number of Reports	June Price per cwt.	September Number of Reports	September Price per cwt.	December Number of Reports	December Price per cwt.
General	--	--	89	$4.97	76	$5.02	64	$4.92
Farm	--	--	60	4.99	19	5.03	34	5.03
Feed	--	--	47	4.86	43	5.11	14	5.10
Other[b]	--	--	37	4.78	40	4.91	58	4.99
All stores	198	$4.73	233	4.92	178	5.02	170	4.98

a/ Tabulation not available.
b/ Feed mills, hatcheries, etc.

Table 34. Analyses of Variance of Prices Paid by North Carolina Farmers for Laying Mash. 1950.

Source of Variation	March d.f.	March M.S.	June d.f.	June M.S.	September d.f.	September M.S.	December d.f.	December M.S.
Between Crop Reporting Districts	6	.19	7	.37	7	.37	7	.46
Between counties in CRD's	23	.17	29	.14	23	.16	22	.15
Between towns in counties	20	.18	26	.23	24	.15	21	.18
Within towns	148	.09	170	.09	123	.13	119	.15
Total	197	-	232	-	177	-	169	-
Town-size strata	3	.04	3	.13	3	.18	3	.21
Kind of store[a]	-	-	3	.47	3	.29	3	.16
Organization of store[b]	1	.001	1	.01	1	.02	1	.01
Mention status[c]	1	.08	-	-	-	-	-	-
Interaction	10	.04	15	.07	18	.20	18	.15
Within	182	.12	210	.11	152	.14	144	.16
Total	197	-	232	-	177	-	169	-

a/ General, farm, feed other; not analyzed on this factor in March.
b/ Independent, chain-cooperative.
c/ Analysis of March data only.

Fertilizer and Seed. Only one item of fertilizer (3-9-6), and one of seed (hybrid seed corn), were considered in the price studies. Quotations on these items were taken only in the March survey.

Fertilizer (3-9-6). This item included two distinctly different products: that which contained no cottonseed, used for small grains and other general uses; and that which contained cottonseed, used almost exclusively for tobacco, and costing about $5 per ton more than the first type. The BAE does not distinguish between these two types in its fertilizer price releases. The bimodal price distribution of all quotations shows the effect of the grouping. (See Table 35).

On the bases of information generally available, and this distribution of prices, fertilizer quotations were divided for analysis into two groups: quotations of $43.50 or less, and quotations of over $43.50, representing 3-9-6 fertilizer without, and 3-9-6 fertilizer with, cottonseed, respectively. Mean prices quoted for the two groups in towns of various sizes by different types of dealers are shown in Table 36, and analyses of variance, in Table 37.

These analyses indicate that the only important price differences measurable are geographic differences. Tobacco fertilizer (with cottonseed) prices appear to be significantly different only between Crop Reporting Districts. In the fertilizer without cottonseed, the county and town differences are as large as the between-CRD differences, the latter therefore appearing to be non-significant. Size of town, type of dealer, and "mention" status from Survey I, do not appear to influence price to a measurable extent.

Of the 111 quotations received, about one-third carried reports of an additional charge for fertilizer sold on credit. (All prices in the analysis were put on a cash basis.) The credit charge increased in larger towns, while the proportion of establishment making a specific charge for credit decreased, as shown in Table 38.

About one-third (34) of the establishments reported a price difference between delivered and "at-the-store" prices, this difference being an almost invariable $1.50 per ton. Discounts offered for quantity purchases, which were reported by two-thirds (68) of the establishments, appeared also to be practically constant for a given quantity, ranging from 2% for 10 tons or more, up to 5% for a carload or more.

There were, of course, several reports of deviations from these general patterns in individual cases. When a fertilizer customer was also a big feed customer, for example, he might get a larger discount than 5% on a smaller quantity than 10 tons, and have the fertilizer delivered as well. To examine in detail the implications of such situations is, however, a separate study in itself for each commodity, and cannot be brought within the scope of this project.

Hybrid seed corn. The distribution of the 85 hybrid seed corn quotations was as shown in Table 39.

Mean prices by size of town and type of dealer, and analyses of variance, were as shown in Tables 40 and 41.

Although about one-half (43) of the reporting establishments offered credit, only 9 of them reported making a charge for it. The charge in these cases was an almost invariable $1.00 per bushel, or about 10%.

All but 2 reports were on an "at-the-store" basis; in the two cases where delivery was reported, the charge was 10 cents per bushel.

Despite the fact that on a commodity like seed corn large sales to farmers were fairly rare, 12 establishments reported giving discounts to large buyers. The discounts ranged from 3% to 10% for quantities in some cases as small as 2 bushels.

These analyses indicate that the prices of hybrid seed corn, a fairly homogeneous product, were fairly well standardized in North Carolina, showing no consistently measurable variations between types of dealers or geographical areas of the state. The only differences that appeared important, those between town-size strata, indicated that prices decreased with size of town in all but the largest sized towns (7 reports). In the largest size stratum, the prices showed an increase.

Summary of Fertilizer and Seed. The analysis of the fertilizer data suggests the urgent need for a sub-classification according to the purpose (tobacco or general purpose) for which the fertilizer is intended to be used. This can be done on the basis of cottonseed content.

Hybrid seed corn needs no further specification; it appears, in fact, that the price of this item can be estimated well with no special efforts beyond those described for this study.

Table 35. Distribution of Prices Paid by North Carolina Farmers for 3-9-6 Fertilizer. March, 1950.

Price per Ton	Number of Reports
$37.50 or less	4
37.51 to 38.50	6
38.51 to 39.50	9
39.51 to 40.50	19
40.51 to 41.50	15
41.51 to 42.50	16
42.51 to 43.50	5
43.51 to 44.50	7
44.51 to 45.50	16
45.51 to 46.50	10
46.51 to 47.50	2
47.51 or more	2
All reports	111
Lowest quotation	37.15
Highest quotation	48.00
Survey mean price, per ton	42.08
BAE price estimate	42.00

Table 36. Prices Paid by North Carolina Farmers for 3-9-6 Fertilizer, with and without Cottonseed Meal, in Various-sized Towns and from Different Type of Dealers. March, 1950.

Type of Dealer	No. of Quotations	Size of Town A	B	C	D	All Towns
I. With Cottonseed Meal						
Fertilizer dealer	11	$45.66	$45.87	$45.12	-	$45.57
General farm stores	12	45.31	44.69	45.75	$46.30	45.42
Cooperatives	4	46.00	44.02	44.60	-	44.66
Other	10	46.80	45.45	45.20	45.50	45.60
All dealers	37	45.65	44.72	45.24	45.90	45.43
II. Without Cottonseed Meal						
Fertilizer dealers	20	38.94	40.78	41.29	41.79	40.27
General farm stores	29	40.42	39.96	39.40	-	40.16
Cooperatives	15	41.50	41.22	41.47	41.79	41.31
Other	10	40.70	40.08	39.66	40.00	40.11
All dealers	74	40.05	40.54	40.58	41.34	40.42
III. All 3-9-6						
Fertilizer dealers	31	41.18	43.32	42.38	41.79	42.15
General farm stores	41	41.98	40.48	41.52	46.30	41.70
Cooperatives	19	43.75	41.84	41.92	41.79	42.02
Other	20	43.75	42.74	42.74	42.75	42.86
All dealers	111	42.00	41.81	42.19	42.86	42.08

Table 37. Analyses of Variance of 3-9-6 Fertilizer Prices. March, 1950.

Source of Variation	3-9-6- with Cottonseed		3-9-6 without Cottonseed	
	D.F.	M.S.	D.F.	M.S.
Between Crop Reporting Districts	7	.9	6	5.0
Between counties in CRD's	10	.3	15	6.4
Between towns in counties	4	3.1	9	2.1
Within towns	15	1.1	43	1.0
Total	36	-	73	-
Townsize-strata	3	.7	3	3.0
Type of dealer	3	1.0	3	5.5
Mention status	1	.1	1	.1
Interaction	11	1.1	14	3.0
Within	18	1.2	52	2.3
Total	36	-	73	-

Table 38. Credit Charge for 3-9-6 Fertilizer. North Carolina, March, 1950.

Town Size	Fertilizer Quotations received	No. of quotations which included a credit charge	Ave. credit charge per ton
A	43	21	$4.17
B	33	11	4.77
C	29	4	5.15
D	6	0	-
All towns	111	36	4.46

Table 39. Distribution of Prices Paid by North Carolina Farmers for Hybrid Seed Corn. March, 1950.

Price per bushel	Number of reports a/
$ 8.25 - 8.74	6
8.75 - 9.24	6
9.25 - 9.74	19
9.75 -10.24	31
10.25 -10.74	17
10.75 -11.24	5
11.25 -11.74	1
All reports	85
Lowest quotation	$ 8.25
Highest quotation	11.45
Survey mean price, per bushel	9.96
BAE price estimate	none available

a/ Excludes 3 quotations given on a per-pound basis; these ranged up to .35 per pound, or to the rate of $19.60 per bushel.

Table 40. Prices Paid by North Carolina Farmers for Hybrid Seed Corn. March, 1950.

Type of dealer	No. of reports	Size of town A	B	C	D	All towns
Seed dealer	19	$ 9.59	$9.93	$10.00	$ 9.67	$ 9.81
Other independent	43	10.40	9.75	9.70	10.50	10.04
Cooperative	18	9.92	9.98	9.70	10.00	9.93
Other	5	10.05	9.75	10.00	-	9.92
All dealers	85	10.17	9.85	9.81	10.01	9.96
Number of reports	--	27	37	14	7	85

Table 41. Analyses of Variance of Prices Paid by North Carolina Farmers for Hybrid Seed Corn. March, 1950.

Source of variation	Degrees of freedom	Mean square
Between Crop Reporting Districts	7	.6
Between counties in CRD's	18	.7
Between towns in counties	12	.7
Within towns	47	.5
Total	84	-
Town-size strata	3	1.8
Type of dealer	3	.9
Mention status	1	.3
Interaction	14	.2
Within	63	.6
Total	84	-

Farm Supplies. Farm Supplies, including milk pails, horse collars, iron pipe, binder twine, lead arsenate, and bushel baskets, were studied in the surveys of June and December. A summary of the data on all farm supplies items studied appears in Table 42; detailed comments on individual items follow.

Milk pails. The survey questionnaire for this item carried separate spaces for reporting galvanized and tinned milk pails, and for recording the size of pail and a few other data. The BAE quotes only "heavy tin-plated, 12 quart capacity" milk pails, but there has been a suspicion that other pails, especially galvanized ones, were being reported. On the basis of the data summarized above, it appears that BAE is getting a good estimate of price for the 12 quart tinned pails.

Another important question appears to be the degree to which the specifications reflect what farmers are currently buying most frequently. The distributions of quotations from the two surveys suggest that the 10 quart pail was as often bought as the 12 quart one, and that galvanized 10 quart pails were bought at least as frequently as were the tinned ones. Although milk pails were specified, the fact that galvanized pails have so many uses compared to tinned pails raises the question of the dealers' ability to say that farmers were buying galvanized pails for any one specified use.

Horse collars. Frequency distributions of prices from both surveys for leather and canvas collars are shown in Table 43.

Material appeared to be the only one of the criteria considered on the questionnaire that affected price. The rather erratic relation between size and price which was found in the survey data is given below. The size data are, however, of questionable value because of the wide and varying limits of the size classes (e.g. 16-24, 17-22, 16-20, etc.) and the lack of information on distributions of sales within classes. For the table below, the maximum size was taken as the basis for classification, i.e. if collars most often bought by farmers were listed by a dealer at $XX for size 16-22, this quotation was put into the "21 to 23" group.

Size of Collar (inches)	June		December	
	Leather	Canvas	Leather	Canvas
20 or less	$7.87 (52)a/	$3.46(46)	$ 7.69(62)	$3.79(62)
21 to 23	7.56 (62)	3.17(37)	8.96(21)	3.00 (2)
24 to 26	8.28 (19)	3.02 (8)	11.00 (2)	-- (0)
All sizes	7.79(133)	3.30(91)	8.08(85)	3.76(64)

a/ Numbers in parentheses indicate number of reports.

Iron pipe. Primary interest in this item was centered on the BAE quoted 1¼ inch pipe, but the survey schedules also provided specifically for entry of other sizes if they were most often bought by farmers. The 1¼ inch pipe was, in fact, the most commonly-bought size.

The distribution of quotations on 1¼ inch pipe was as shown in Table 44.

No further analysis of pipe is presented here. The two items in the Farm Supplies category which were analyzed in more detail are those which were represented by the largest numbers of quotations, i.e. lead arsenate and binder twine. These are given below.

Lead arsenate. Although quotations on this item were obtained for several sizes of container, ranging from 1-pound to 6-pound bags, the size which was by far the most often bought by farmers was the 4-pound bag. Since the 4-pound bag was of such dominant importance, quotations on it were the only lead arsenate quotations considered.

Distributions of the quotations on 4-pound packages of lead arsenate are given in Table 45 and analyses of variance are given in Table 46.

Apparently this commodity, well defined and homogeneous, exhibits no price responses to the factors considered in this study.

Binder twine. Most widely quoted of the farm supplies items studied was binder twine, represented almost entirely by quotations of five-pound and eight-pound balls. The distribution of prices quoted per pound for binder twine and analyses of variance are shown in Tables 47 and 48.

Summary of farm supplies analysis. These data indicated that consistent price differences due to geographic or trade factors did not exist in the farm supplies items studied. Specification of these items was, in general, good, i.e., the products included under a given specification were homogeneous. The only suggestions of important differences were those between crop reporting districts, between town-size strata, and between different types of dealers; none of these differences, however, was consistent from survey to survey.

The only item in this group that caused difficulty in the survey was bushel baskets. These were not specified by type (shape), and they were to be quoted without covers. Most of the baskets in North Carolina appear to be sold with covers. These points may explain in part the small number of quotations received on this item.

Table 42. Prices Paid by North Carolina Farmers for Some Farm Supplies. June and December, 1950.

Item	Unit in which quoted	June Survey: No. of reports	High	Low	Mean	BAE Price
Milk pails						
Tinned	6 qt.	1	$----	$----	$ .49	
	8 qt.	11	1.50	.49	.83	
	10 qt.	35	2.00	.40	.96	
	12 qt.	34	1.75	.50	1.12	$1.10
	14 qt.	9	2.25	.85	1.41	
	16 qt.	2	1.50	1.00	1.25	
	6-20 qt. with spout &/or cover	9	7.50	3.00	5.14	
Galvanized	6 qt.	2	.50	.35	.42	
	8 qt.	5	.55	.45	.50	
	10 qt.	41	.90	.35	.55	
	12 qt. or more	9	.65	.55	.61	
	8-14 qt. w/spout &/or cover	5	3.95	1.25	2.15	
Binder twine	5 lbs.	161	2.50	.70	1.50	
	8 lbs.	12	2.40	2.00	2.25	
	Average price per lb., all reports a/				.298	.31
Horse collars						
Canvas	each	91	6.50	.75	3.30	3.35
Leather	each	133	12.50	1.25	7.79	7.80
Lead arsenate	1 lb.	14	.65	.35	.49	
	2 lb.	2	.85	.60	.72	
	3 lb.	5	1.20	.90	1.01	
	4 lb.	124	1.88	.55	1.25	
	5 lb.	2	1.50	1.20	1.35	
	6 lb.	2	1.60	1.40	1.50	
	Average of all reports				.314/3.7 b/	.32/3.3
Iron pipe, per foot	½ in.	15	.17	.08	.12	
	3/4 in.	28	.20	.12	.15	
	1 in.	4	.22	.17	.20	
	1¼ in.	90	.45	.15	.31	.31
	1½ in.	4	.35	.33	.34	
Bushel baskets	doz.	2	3.96	3.85	3.90	no report

a/ Includes a few scattered reports of other than 5 and 8 pound balls, but the latter were by far the most often bought.

b/ Read: "Average price for all reports was $.314 per pound and the average size of package was 3.7 pounds," etc.

Table 42. (concluded).

Item	Unit in which quoted	December Survey: No. of reports	High	Low	Mean	BAE Price
Milk pails						
Tinned	6 qt.	0	$----	$----	$----	
	8 qt.	4	1.85	1.25	1.45	
	10 qt.	11	1.50	.90	1.18	
	12 qt.	25	1.80	.95	1.20	$1.20
	14 qt.	2	1.50	1.25	1.38	
	16 qt.	0	----	----	----	
	6-20 qt. with spout &/or cover	10	9.75	2.10	5.77	
Galvanized	6 qt.	0	----	----	----	
	8 qt.	5	.65	.35	.53	
	10 qt.	25	.85	.50	.66	
	12 qt. or more	11	.95	.50	.76	
	8-14 qt. w/spout &/or cover	0	----	----	----	
Binder twine	5 lbs.	83	2.70	.60	1.55	N.A.
	8 lbs.	5	2.30	2.15	2.25	
	Average price per lb., all reports a/				.303	
Horse collars						
Canvas	each	64	7.00	1.00	3.76	3.35
Leather	each	85	12.50	2.50	8.08	8.00
Lead arsenate	1 lb.	8	.65	.25	.50	
	2 lb.	1	----	----	.50	
	3 lb.	10	1.35	.75	1.07	
	4 lb.	52	1.80	1.05	1.34	
	5 lb.	7	2.35	1.15	1.51	
	6 lb.	1	----	----	2.18	
	Average of all reports				.338/3.7	N.A.
Iron pipe, per foot	½ in.	12	.38	.35	.31	
	3/4 in.	13	.40	.28	.32	
	1 in.	1	----	----	.29	
	1¼ in.	33	.50	.26	.39	.34
	1½ in.	1	----	----	.45	
Bushel basket	doz.	1	----	----	4.08	N.A.

a/ Includes a few scattered reports of other than 5 and 8 pound balls, but the latter were by far the most often bought.

b/ Read: "Average price for all reports was $.314 per pound and the average size of package was 3.7 pounds," etc.

Table 43. Frequency Distribution of Prices Paid by North Carolina Farmers for Leather and Canvas Horse Collars. June and December, 1950.

Price	Number of reports			
	June		December	
	Leather	Canvas	Leather	Canvas
Less than $1.00	0	1	0	0
$1.00 - 1.99	1	3	0	1
2.00 - 2.99	0	29	1	16
3.00 - 3.99	2	43	3	28
4.00 - 4.99	10	7	3	7
5.00 - 5.99	32	8	12	11
7.00 - 8.99	53	0	42	1
9.00 - 10.99	28	0	20	0
11.00 - 12.99	7	0	4	0
All prices	133	91	85	64

Table 44. Frequency Distribution of Prices Paid by North Carolina Farmers for 1¼ inch Iron Pipe. June and December, 1950.

Price per foot	Number of Reports	
	June	December
Less than $.23	4	0
$.23 - .27	18	3
.28 - .32	31	18
.33 - .37	25	16
.38 - .42	10	13
.43 or more	2	10
All prices	90	60

Table 45. Frequency Distributions of Prices Paid by North Carolina Farmers for 4-pound Packages of Lead Arsenate. June and December, 1950.

Price per 4-lb. package	Number of Reports	
	June	December
Less than $1.03	6	0
$1.03 to 1.13	4	2
1.14 to 1.23	46	11
1.24 to 1.33	33	13
1.34 to 1.43	24	15
1.44 or more	11	11
All prices	124	52

Table 46. Analyses of Variance of Prices Paid by North Carolina Farmers for 4-pound Packages of Lead Arsenate. June and December, 1950.

Source of variation	June		December	
	Degrees of freedom	Mean square	Degrees of freedom	Mean square
Between Crop Reporting Districts	7	.0716	6	.0375
Between counties in CRD's	25	.0354	10	.0368
Between towns in counties	16	.0341	8	.0293
Within	75	.0168	27	.0158
Total	123		51	
Town-size strata	3	.0405	3	.0048
Organization of store[a/]	2	.0228	2	.0036
Interaction	5	.0261	4	.0156
Within	113	.0256	42	.0279
Total	123		51	

a/ Independent, chain and cooperative sellers were the types of store organization considered here.

Table 47. Frequency Distributions of Prices Paid by North Carolina Farmers for 5-pound and 8-pound Balls of Binder Twine. June and December, 1950.

Price per pound	Number of Reports			
	June		December	
	5-lb. ball	8-lb. ball	5-lb. ball	8-lb. ball
Less than $.18	2	0	3	0
$.18 - .22	3	0	0	0
.23 - .27	31	4	15	1
.28 - .32	88	8	35	4
.33 - .37	29	0	24	0
.38 - .42	7	0	2	0
.43 or more	1	0	4	0
All prices	161	12	83	5

Table 48. Analyses of Variance of Prices of 5-pound Balls of Binder Twine Bought by North Carolina Farmers. June and December, 1950.

Source of Variation	June			December		
	D.F.	S.S.	M.S.	D.F.	S.S.	M.S.
Between Crop Reporting Districts	7	.0267	.0038	7	.0775	.0111
Between counties in CRD's	26	.0806	.0031	18	.0697	.0039
Between towns in counties	19	.0208	.0011	11	.0271	.0025
Within towns	108	.1842	.0017	46	.1763	.0038
Total	160	.3123		82	.3506	
Town-size strata	3	.0202	.0067	3	.0282	.0094
Organization of store	2	.0260	.0130	2	.0024	.0012
Interaction	5	.0120	.0024	3	.0001	.0000
Within	150	.2541	.0017	74	.3199	.0043
Total	160	.3123		82	.3506	

Farm Machinery. Twenty-one different items of farm machinery were included in the price surveys; farm machinery was one of the two groups (the other was feed) to which attention was given on every one of the four general price surveys. Not all of the items were, however, included in each survey; a summary of the data is given in Table 49.

Despite reasonable agreement between survey and BAE figures, these data on farm machinery, with their wide ranges and high variances, did not appear to be of high quality. One of the chief reasons was the lack of accuracy in reporting within the product specifications, as evidenced, for example, by the tractor data; another reason was the questionable nature of some of the specifications themselves, evidenced by the manure spreader data. Tractor quotations were to have been made within two size groups: below 20 belt horsepower, and 20-29 horsepower. The smaller group was very poorly quoted, as evidenced by a post-survey check of manufacturers' specifications, which showed that of the 34 reports received, 12 were actually on tractors of 20-29 horsepower. Quotations on manure spreaders were taken on the basis of the BAE specifications, calling for two sub-groups: "60-70 bushel capacity", and "2-wheel rubber tired". These categories did not appear to be mutually exclusive; hence, no separate quotations could be obtained from the survey data.

There were important schedule changes for farm machinery items other than tractors between March and the subsequent surveys. In March the list prices alone were obtained; on later surveys, list prices, freight costs and the prices of extra equipment most often bought with the machinery, were obtained. On tractors this information, with the exception of freight cost, was obtained in March as well. These data, of course together with taxes, are necessary to the computation of a price actually paid by farmers. In most instances, the survey prices of machinery items before taxes were slightly higher than the BAE prices. This seemed to substantiate the BAE suspicion that taxes were not well reported in the BAE data. To present data as nearly comparable as possible therefore, taxes were not added to the survey prices given the table above.14/

It will be noted that numbers of reports on most farm machinery items were small. This was to be expected because of the small numbers of sellers of these items in the population sampled compared, say, to the numbers of sellers of food. The limitations imposed by the small numbers complicated any attempt at variance analysis, but it is doubtful if anything short of a census of farm machinery would provide adequate numbers of quotations.

The effects of differences in trade practices on prices were apparently negligible in the study of overall prices paid by farmers for farm machinery, because there was practically no variation in trade practices, at least as regards credit and trade-ins. Credit was almost universally available, usually at 6%; trade-ins were accepted

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14/ The amount of the N. C. sales tax is 3% or $15 whichever is lower. This is the only tax to be added to farm machinery to give the price actually paid by farmers.

in almost all cases and in only a few cases were trade-in allowances of other than market value reported. There was some very scanty evidence that more trade-in allowances were above market value than below that figure in the early surveys, while the situation was reversed by December. The data, however, provide little support for any statement on this point, although the tendency noted does coincide with a priori expectation.

Optional equipment purchased with farm machinery proved to be a most difficult item to quote. Most dealers were reluctant - many of them refused entirely - to estimate the cost of the optional equipment most often bought by farmers to say nothing of listing the specific items. The reports on "extras" and freight costs are summarized in Table 50.

It appears at first glance that the optional equipment reports in some cases may have included more than "extra" equipment and included other farm machinery items as well. That this was not always the case, however, is suggested by the fact that for ensilage cutters the two reports responsible for the high reported average cost of "extras" were (i) blower, hay and row-crop attachments at $935, and (ii) hay and row-crop attachments at $595. The lowest report of cost of "extras" on ensilage cutters was $8.85 for a deflector. For tractors, on the other hand, there was evidence to suggest that the high figure included quotations on plows and cultivators in a few cases. It then appear impractical, without some careful definition of "extras", which may not be feasible, to attempt a quotation of "extras" purchased with most farm equipment items, both because, (i) few dealers are able to give any information, and (ii) the dealers who do give the data give such widely varying estimates that any average is practically meaningless. It is doubtful that closer definition or specification of items would improve this situation materially.

The data on freight costs for the machinery items themselves appear adequate and not worthy of special comment. An attempt was made, however, to get information on freight costs of the optional extra equipment. The attempt was unsuccessful . The maximum number of reports received was seven, for "extras" on tractor-drawn mowers in June, while the majority of the items were reported by one to three respondents. These data appeared to be of no practical value.

Attention will now be directed to analyses of a few individual farm machinery items, to illustrate some of the detailed characteristics of the data.

Spiketooth harrows. These were the most often quoted of the items studied in the March survey, and are therefore examined first. See Table 51 for a frequency distribution of the prices reported.

Although all reports were supposed to be quotations on single 5-foot sections only, there is a strong suspicion that there was considerable deviation from that specification. There was also variation in numbers of teeth, from 25 to 60. When these types of

variation are added to that introduced by differences between manufacturers, it is apparent that variance analysis cannot reveal the relatively small price differences due to such factors as location and trade practice.

Twenty-two different manufacturers of spike-tooth harrows were represented in the quotations, the most common, represented by four or more quotations, being as follows:

Make	Number of quotations	Average price each
International Harvester Co.	9	$36.25
John Deere	8	40.52
Oliver	6	43.48
King	4	40.32
Case	4	60.52

Unless the individual items were specified in considerably greater detail than was done in this survey, it would not be possible to determine to what the differences between manufacturers were due, to say nothing of evaluating smaller differences like those between types of dealers.

The nature of the variation in prices is shown in the analysis of variance given below. Since so few quotations were available from any single manufacturer, the only analysis made was on the basis of all manufacturers together. The results are shown in Table 52.

The cases of corn-cotton planters, plows, and disk harrows, also included in the March survey, were generally comparable to that described for spiketooth harrows. Disk harrows appeared to be least adequately quoted because the specified 16" disk appeared to be smaller than the size most often bought by North Carolina farmers. Larger disks, especially the 20" size, were widely sold, and, on the basis of the quotations received, one suspects that several quotations for them were incorrectly included under the specified 16" item.

Manure spreaders. Quotations on this item, like those for harrows mentioned above were rather thinly spread over several manufacturers. The distributions of the most often reported makes were as given in Table 53.

The small numbers of quotations does not permit separate treatment of individual makes; the analysis of all makes together is shown in Table 54.

The only difference appearing important was that between types of dealers in December. This was due to the fact that December prices at cooperatives were much lower than those elsewhere, as indicated in

Table 55. Based on such small numbers of observations, however, the results of these analyses cannot be accepted with much confidence, especially in view of the absence of consistent relationships from survey to survey.

Two-row tractor cultivator. This item was quoted in the June survey, with the results given in Table 56.

Differences between prices of these cultivators by different manufacturers were as shown in Table 57.

Analyses of variance of prices of two-row tractor cultivators are shown in Table 58.

There are some aspects of the analysis of variance which warrant mention. It will be noted that no "Between-town" or "Between types of dealers" mean squares are given. This is because in most small towns only one farm machinery dealer was interviewed, and he was most frequently an independent dealer handling only one make of equipment. The "Between manufacturers" mean square is given.

The nearest approach to important differences, based on small numbers within CRD's, appeared to be those between crop reporting districts, as indicated in Table 59.

Tractors. Quotations were obtained on two sizes of tractors, those of less than 20 belt horsepower and those of 20-29 horsepower. Price variation was largely due to differences between manufacturers and models, as is indicated by the following examination of the quotations received for the smaller tractors in March.

Thirty-four respondents reported selling tractors of less than 20 horsepower to farmers. In addition to the price, data on manufacturer and model were obtained from them, and subsequent checking against manufacturers' specifications indicated that several of the respondents had incorrectly reported in this group tractors of over 20 h.p. Removal of these incorrect quotations left 22 quotations on tractors, ranging from 9.3 to 18 h.p. upon which to base an estimate of the price of this item. The distribution of the 22 is given in Table 60.

The wide differences between prices of different models overshadowed the other sources of price variation (e.g. between types of dealers) which were of interest. Insufficient numbers of quotations were available for further analysis. It appears that a virtual census of the relatively small number of farm machinery dealers would be necessary to estimate sources of price variation closely.

In view of the large number of misquotations on tractors, the extent to which better specification would improve price quotations on farm machinery is a matter requiring further study.

Summary of Farm Machinery Analysis. The problem of specification appeared to be especially difficult in the case of farm machinery. In the quotations on harrows, for example, the specifications used by BAE did not appear in all cases to describe the item most often bought by farmers, and, further, the interviewers could not be made to adhere strictly to stated specifications. Interviewers were instructed to obtain quotations on the specified item and, if that were not the most often bought, to obtain quotations on the most often bought item as well. Their failure to do a good job is not to be attributed entirely to their own deficiencies; the tractor data suggest that dealers often did not know exact specifications on items they sold.

In most cases, the major part of the price variation was attributable to differences between manufacturers and/or models, although Crop Reporting District differences appeared to be of some importance.

Numbers of quotations received were, in general, low, because there are not many facm machinery dealers in business, compared to, say, feed dealers. With the between-manufacturers differences assuming such great importance, and the consequent necessity for variance analysis of treating each brand separately, the problem of small numbers became acute.

One of the biggest discrepancies between survey and BAE prices was in the case of gas engines. BAE reported the average capacity at less than 10 h.p., while the survey averages were 29.4 h.p. in September and 22.3 h.p. in December. This apparently explains most of the difference shown in average prices for this item.

Table 49. Prices Paid by North Carolina Farmers for Farm Machinery. March, June, September, and December, 1950.

Item	Date of enumeration	Survey: Number of Reports	Survey: High	Survey: Low	Survey: Mean[a]	BAE price
Plow, 2-bottom tractor	March	51	$ 500	$ 68	$ 211	$ 195
Harrow, disk	March	24	365	84	183	120
Harrow, spike tooth	March	69	95	15	40	24
Corn-cotton planter	March	56	300	24	82	36
Manure spreader	March	55	449	250	356	(350[b]/ 390
	Dec.	36	490	105	351	N.A.
Cultivator, 1-horse walking	June	45	114	8	31	N.A.
Cultivator, 1-row riding	June	29	219	90	150	125
Cultivator, 2-row tractor	June	52	308	150	220	215
Mower, 5-foot horsedrawn	June	39	225	110	192	195
Mower, 7-foot, tractor drawn	June	50	379	159	273	260
Potato digger	June	1	--	--	600	N.A.
Combine, 6-foot, auxiliary engine	June	37	1980	1075	1652	1700
Combine, 5-6 foot, power take off	June	30	1811	867	1238	1150
Grain drill	Sept.	24	519	175	397	460
Ensilage cutter	Sept.	13	2620	368	945	520
Pickup baler, automatic tie	Sept.	21	2500	1028	1806	N.A.
Hay rake	Sept.	32	425	80	150	N.A.
Gas engine	Sept.	13	1467	40	477	N.A.
	Dec.	18	1640	49	434	205
Feed grinder	Sept.	18	285	110	194	N.A.
Farm truck	Sept.	15	251	106	165	195
	Dec.	15	310	113	210	200
Farm wagon	Sept.	15	233	105	150	N.A.
	Dec.	15	250	96	162	155
Cream separater	Sept.	1	--	--	213	125
	Dec.	0	--	--	--	--
Tractor, less than 20 h.p.	March	22	1553	810	1157	1300
	Sept.	25	2327	891	1467	1300
Tractor, 20 to 29 h.p.	March	43	2345	1100	1714	1650
	Sept.	35	3240	1077	1807	1600

a/ Survey prices do not include N. C. state sales tax, which is 3% or a flat $15 whichever is smaller; these prices do include freight on all surveys and attachments most often bought with the items on all but the March survey.

b/ BAE quoted "60-70 bushel" and "2-wheel rubber tired" manure spreaders separately in March. The BAE quotations for these two items are given separately in that order. Survey price is given for all manure spreaders falling in these sub-groups. BAE quoted only "2-wheel rubber tired" in December.

Table 50. Average Cost of Transportation and Optional Extra Equipment Most Often Bought by North Carolina Farmers with Farm Machinery. 1950.

Farm Machinery Item	Date of Survey	No. of price reports on items	Optional extra equipment		Freight	
			Number of reports	Ave. cost for those reporting	Number of reports	Ave. cost for those reporting
One-horse walking cultivator	June	45	9	$ 2	25	$ 3
One-row riding cultivator	June	29	17	30	27	8
Two-row tractor cultivator	June	52	8	22	37	13
Mower, 5-ft., horsedrawn	June	39	4	6	26	12
Mower, 7-ft., tractor drawn	June	50	11	26	34	14
Combine, with auxiliary engine	June	37	3	94	25	67
Combine, with power take off	June	30	2	52	20	51
Grain drill	Sept.	24	6	61	24	20
Ensilage cutter	Sept.	13	6	268[a]	11	34
Pickup baler	Sept.	21	8	45	20	58
Hay rake	Sept.	32	3	29	25	9
Manure spreader[b]	Dec.	36	6	34	24	20
Gas engine	Sept.	13	3	44	9	25
	Dec.	18	5	52		
Feed grinder	Sept.	18	3	29	13	10
Farm wagon	Sept.	15	1	19	11	9
	Dec.	15	4	57		
Farm truck	Sept.	15	0	--	13	11
	Dec.	15	4	47		
Tractor, less than 20 h.p.	March	22	15	265	[c]	[c]
	Sept.	25	14	331	22	41
20-29 h.p.	March	43	26	381	[c]	[c]
	Sept.	35	17	243	29	59

a/ Includes reports at $935 and $595 (see text); removing these reduces the average to $20.

b/ Manure spreader data taken in March did not include separate quotations on freight and "extras". The same was true of other farm machinery items in the March surveys; for that reason none of the March items appear in this table, except for tractors.

c/ Data not available.

Table 51. Frequency Distribution of Prices Paid by North Carolina Farmers for Spiketooth Harrows. March, 1950.

Price	Number of quotations	Number of harrows
Less than $25	17	124
$25 - 44.99	28	261
45 - 64.99	19	177
65 or more	5	75
All prices	69	637

Table 52. Analysis of Variance of Prices Paid by North Carolina Farmers for Spiketooth Harrows. March, 1950.

Source of Variation	Degrees of Freedom	Mean Squares
Between Crop Reporting Districts	6	317
Between counties in CRD's	17	296
Between towns in counties	4	170
Within towns	41	243
Total	68	---
Town-size strata	3	934
Type of dealer	1	21
Mention status	1	11
Interaction	8	208
Within	55	238
Total	68	---

Table 53. Distribution of Quotations and Average Prices of Manure Spreaders of Manufacturers most Frequently Reported. March and December, 1950.

Make	March		December	
	Number of Reports	Average price each	Number of Reports	Average price each
New Idea	11	$370	7	$358
Oliver	7	384	2	342
John Deere	6	374	1	373
International Harvester	6	350	9	357
Case	4	368	4	373

Table 54. Analyses of Variance of Prices Paid by North Carolina Farmers for Manure Spreaders, March and December, 1950

Source of Variation	March			December		
	D.F.	S.S.	M.S.	D.F.	S.S.	M.S.
Between crop reporting districts	6	5458	910	7	61740	8820
Between counties in CRD's	14	21418	1530	10	22843	2284
Between towns in counties	2	10524	5262	0	--	--
Within towns	32	60810	1900	18	65355	3631
Total	54	98210	--	35	149938	--
Town-size strata	3	1789	596	3	4888	1629
Type of dealer	2[a/]	5227	2614	2	40146	20073
Interaction	3	9165	3055	2	4044	2022
Within	46	82029	1783	28	100860	3602
Total	54	98210	--	35	149938	--

a/ Types of dealers considered were independents, cooperatives, and chains.

Table 55. Prices Paid by North Carolina Farmers for Manure Spreaders from Different Types of Dealers. March and December, 1950.

Type of dealer	March		December	
	Number of reports	Average price	Number of reports	Average price
Independent	46	$360	27	$363
Chain	4	357	6	356
Cooperative	5	326	3	241

Table 56. Prices Paid by North Carolina Farmers for Two-row Tractor Cultivators of Different Makes. June, 1950.

Price	Number of quotations
Less than $200	14
200 - 224	15
225 - 249	15
250 or more	8
All prices	52

Table 57. Prices Paid by North Carolina Farmers for Two-row Tractor Cultivators of Different Makes. June, 1950.

Manufacturer	Number of quotations	Average price
International Harvester Co.	11	$228
Dearborn	8	200
Allis Chalmers	8	205
John Deere	7	246
Oliver	4	242
Massey Harris	4	231
Case	3	191
All Others	7	211
All Manufacturers	52	220

Table 58. Analyses of Variance of Prices Paid by North Carolina Farmers for Two-row Tractor Cultivators. June, 1950.

Source of Variation	Degrees of freedom	Mean square
Between Crop Reporting Districts	7	2380
Between counties in CRD's	16	1131
Within counties	28	793
Total	51	
Town-size strata	3	778
Manufacturer	11	1527
Interaction	11	429
Within	26	1274
Total	51	

Table 59. Prices Paid by Farmers for Two-row Tractor Cultivators in the Crop Reporting Districts of North Carolina. June, 1950.

Crop Reporting Districts	Number of quotations	Average price = 2-row tractor cultivators
1	1	$256
2	4	228
3	7	252
4	5	200
5	6	205
6	6	226
8	17	205
9	6	233
All CRD's	52	220

Table 60. Prices Paid by North Carolina Farmers for Tractors of Less than 20 Horsepower, March, 1950.

Manufacturer	Model	Prices Quoted
Allis Chalmers	G	$ 880
		815
		891
		900
		812
Massey-Harris	Pony	845
		985
International Harvester	Cub	985
		935
		940
		925
		950
		900
Allis Chalmers	B	1250
		1135
		1160
		1090
		1300
Avery	V-109	1132
		1198
Gibson	1-Jr.	861
		1215
All reports (average price)		1005

Motor Vehicles. The items in this category, with one exception, were studied in the surveys of June and December, those months representing the survey dates closest to the BAE quotations of motor vehicles in July and January. The exception was pickup trucks, the ½ ton Chevrolet pickup having been quoted in June and December with the passenger cars, and the 3/4 ton Chevrolet pickup having been quoted in March. All prices appearing in the summary, Table 61, are cash prices reported for new cars (or trucks), delivered, with no "extras", but with Federal and State taxes included. With so few reports available, little variance analysis could be attempted. The situation was similar to that encountered in farm machinery, in which the population of dealers was also small, and obtaining a large number of reports would have entailed an enumeration approaching a census in the completeness of its coverage. Since the data available lend themselves to such limited analysis, only the two items for which the largest number of reports were received were studied in detail; these detailed discussions follow.

Chevrolet 3/4 ton pickup truck. This was the only one of the items under Motor Vehicles which was included in the March survey. Table 62 gives the distribution of the 27 reports.

The only factor affecting price appeared to be town-size stratum, the price difference being evidenced by two levels of prices among the reports received: the lower level was found in the A towns and the higher level, in the B, C, and D strata, as indicated in Table 63. These indications, based on so few observations, must of course be viewed with caution.

An average of 65 dollars was reported spent for accessories in addition to the price reported.

Different dealers reported that up to 85 percent of their sales to farmers were for cash, as shown in Table 64.15/

Most dealers did not finance credit sales themselves, and hence in many cases their reports were rather tenuous estimates - as they almost invariably informed the interviewers. The amount of credit charges reported varied from 85 dollars to 165 dollars, with one-half of them between 95 dollars and 105 dollars.

Practices regarding trade-ins were reported to be quite uniform. All dealers interviewed accepted trade-ins, and 16 of the 27 reported allowing market value for trucks so taken. Those allowing other than market value reported allowing from "10 percent" to 100 dollars in excess of market value.

15/ Data in Table 64, although not entirely comparable with figures for the fifth Federal Reserve District agree reasonably well with those figures. FRB data indicate that 69 percent of sales by automobile dealers in 1948 were for cash, and 67 percent were for cash in 1949. (See FRB of Richmond, Monthly Review, May, 1950).

Chevrolet, 2 door sedan, deluxe, standard transmission. Survey data on this item were taken in the middle of June, before the outbreak of the Korean war, while the BAE data were taken in the middle of July; the survey data specifically excluded all "extras", and BAE did not. Both sets of data, as given here, include Federal and State taxes, and are otherwise comparable, as far as is known.

Survey interviewers recorded prices before taxes, taxes, extras most often bought with new cars by farmers, and average financing costs. Considerable difficulty arose in getting some of these items. The Federal excise tax, for instance, was considered a part of the price, and was difficult for the respondent to separate. It was also hard to get dealers to give a figure for the "extras" most often bought by farmers, because of the wide diversity of farmers' purchases of these items, and the fairly small number of sales which any respondent had as a basis for his estimate. Credit costs, likewise, could not be satisfactorily obtained from dealers, mainly because so few dealers did the actual financing themselves.

The sources of price variation investigated did not appear to be of much importance, as indicated in the analyses of variance given in Table 65. There were no towns in which more than one dealer was interviewed, and all dealers were of the same type; these sources of variation were thus necessarily omitted from the analysis. The within-county figures, based on so few degrees of freedom, were also of little value.

The values of "extras" were reported in June by 23 of the 28 respondents who sold Chevrolets, but interviewers noted in several cases that the respondents were reluctant to estimate the figure and felt that it was of little value when they did estimate it. There were two reports of "no extras at all" sold to most farmers, while three respondents reported a figure of over 200 dollars. The mean figure was 113 dollars. The December data on "extras" was almost identical, the mean value of "extras" most often bought by farmers having been 115 dollars.

Average cost of credit was reported in dollars by 12 respondents in June, in amounts ranging from 102 dollars to 280 dollars, around a mean of 157 dollars. The 16 respondents who did not report a dollar figure said that the financing was handled by an outside agency, usually GMAC in the case of Chevrolet, which generally was reported to have charged "6 percent plus insurance". As in the case of "extras", the June data on financing costs were duplicated very closely in December, when the average amount of such costs was 147 dollars.

On the basis of these survey means, with all their short-comings, the components of the total price were as follows:

Item	June	December
Delivered price of car	$1519	$1555
Federal excise tax	82	84
North Carolina sales tax	15	15
Average cost of "extras"	113	115
Total cost price	1729	1769
Average cost of financing	157	147
Total credit price	$1886	$1916

An attempt was made in the March survey to get the proportion of farmers who used credit, but, as respondents appeared unable to give this information satisfactorily, apparently because of the refinancing situation, the question was not included on the later schedules. This information is essential in determining what value between the cash price and the credit price is truly an average price paid by farmers for this model of car. The budget of this study did not permit the detailed work, probably involving the sampling of credit agencies, which would have made this refinement possible.

Summary of Motor Vehicles Analysis. Little consistent variation could be measured in these data, as was probably to have been expected because of the uniform way in which manufacturers recommend prices to dealers. Only new vehicles were included in the studies, so the major sources of variation would probably be in transportation costs and trade-in allowances on old cars taken in trade when the new ones were sold. The differences in transportation costs did not affect total price sufficiently to show in the analysis; trade-in allowances were reported to be highly uniform, but this point would require further investigation before the data on trade-in practices could be accepted at face value. This is, in fact, one of the places where a survey involving a wide range of commodities is almost inevitably weakest; there is usually neither sufficient time nor adequate preparation of the interviewer to permit the detailed probing which alone would provide wholly adequate information on so complex a matter. Of course, the same comments apply with at least equal force to the BAE mailed questionnaires. Thus, to say that the survey and BAE mean prices agree fairly well is only to say that both are probably estimating the same parameters, without defining those parameters completely satisfactorily.

Table 61. Prices Paid by North Carolina Farmers for Motor Vehicles.

Item	1950 a/ June Survey Number of Reports	High	Low	Mean	BAE Price
Two-door sedan					
Chevrolet					
Standard transmission Special	28	$1645	$1496	$1537	$1550
Deluxe	28	1724	1567	1616	1650
Powerglide, deluxe	21	1932	1674	1778	N.A.
Ford					
6-cylinder					
Deluxe	26	1694	1406	1552	N.A.
Custom deluxe	24	1775	1492	1604	N.A.
8-cylinder					
Deluxe	26	1746	1480	1630	1650
Custom deluxe	26	1858	1571	1747	1750
Plymouth, deluxe	24	1701	1495	1639	1650
Club coupe, Plymouth deluxe b/	25	1846	1505	1671	1800
Truck, Chevrolet, ½ ton pickup	26	1567	1297	1382	1350
Truck, Chevrolet 3/4 ton pickup from March survey	27	1540	1383	1487	1500

a/ BAE prices shown in this table under June and December are the nearest quotations available for comparison with survey prices from those months, taken from BAE reports of July and January.

b/ BAE figures refer to Special Deluxe; no Deluxe quotations were available.

Table 61. (concluded)

1950 a/

Item	December Survey: Number of Reports	High	Low	Mean	BAE Price
Two-door sedan					
Chevrolet					
Standard transmission					
Special	20	$1669	$1495	$1579	$1550
Deluxe	20	1763	1573	1654	1650
Powerglide, deluxe	15	1864	1585	1759	N.A.
Ford					
6-cylinder					
Deluxe	15	1795	1543	1611	N.A.
Custom deluxe	14	1920	1629	1707	N.A.
8-cylinder					
Deluxe	15	1879	1616	1698	1700
Custom deluxe	14	2016	1708	1795	1800
Plymouth, deluxe	12	1707	1607	1648	1650
Club coupe, Plymouth Deluxe b/	12	1800	1486	1687	1800
Truck, Chevrolet, ½ ton pickup	18	1492	1340	1410	1450

a/ BAE prices shown in this table under June and December are the nearest quotations available for comparison with survey prices from those months, taken from BAE reports of July and January.

b/ BAE figures refer to Special Deluxe, no Deluxe quotations were available.

Table 62. Prices Paid by North Carolina Farmers for New Chevrolet 3/4 ton Pickup Trucks.

March 1950	
Price	Number of reports
Less than $1400	2
1400 - 1449	1
1450 - 1474	1
1475 - 1499	13
1500 - 1524	8
1525 or more	2
All reports	27

Table 63. Prices Paid by North Carolina Farmers for 3/4 ton Chevrolet Pickups in Towns of Different Sizes.

1950		
Town-size stratum	Number of reports	Average price
A	4	$1429
B	13	1491
C	7	1490
D	3	1494
All strata	27	1487

Table 64. Frequency Distribution of Dealers, by Percent of Sales of 3/4 ton Chevrolet Pickup Trucks to Farmers that were for Cash.

Percent of sales of 3/4 ton Chevrolet pickups to farmers that were cash sales.	Number of dealers reporting
Less than 10 percent	3
10 - 29 percent	6
30 - 49 percent	3
50 - 69 percent	10
70 percent or more	3
Not reported	2
Total	27

Table 65. Analyses of Variance of Prices Paid by North Carolina Farmers for 2-door Chevrolet Sedans, Deluxe, with Standard Transmission

June and December 1950

Source of Variation	June			December		
	D.F.	S.S.	M.S.	D.F.	S.S.	M.S.
Between Crop Reporting Districts	7	30017	4288	7	5902	843
Between counties in CRD's	18	37912	2106	11	50710	4610
Within counties	2	6523	3261	1	3	3
Total	27	74452	--	19	56615	--
Town-size strata	3	2733	911	3	13041	4347
Within	24	71719	2988	16	43574	2723
Total	27	74452	--	19	56615	--

Automotive Supplies. Automotive Supplies, consisting for purposes of this study of motor oil, gasoline, tires, and batteries, were studied in the surveys of September and December. The summary of data appears in Table 66.

Motor oil quotations were subclassified on several factors, as is shown in Table 67.

Retail sales in one-quart cans, the oil placed in the motor, were by far the most common sales reported to farmers. The unexpected relationships indicated between some of the other categories probably resulted from the small numbers of observations and consequent instability of the means.

In September, no quality description of oil was obtained; the wide dispersion of reports suggesting the need for such a description, it was obtained in the December survey. Analysis of motor oil was brief, and was confined to transactions most often reported by farmers, i.e., retail sales in one-quart containers, the oil put into the motor. Distributions of these sales for the two surveys are given in Table 68.

The prices in towns of different sizes were tabulated, but they were not classified by type of dealer because the pattern of dealer suppliers was about the same as that reported for gasoline, which will be analyzed in detail below. By size of town, the mean prices were as shown in Table 69.

A quality specification was included in the December schedule. The prices by brand and quality level from the December survey as shown in Table 70.

A relationship appeared to exist between price and size of town: price increased with town-size until the largest town-size was reached; in the largest town-size, price dipped down again. The main component in price variance, however, appeared to be quality differences, as would have been expected.

Gasoline. The distribution of prices of regular gasoline retail and wholesale bulk, is shown in Table 71.

Although the numbers of reports were about one-tenth as large, the volume of business done directly with farmers through the bulk plants was about the same as that reported through retail outlets. In computing mean prices of all gasoline bought by farmers, it was therefore necessary to weight the price quotations by the number of gallons reported. The differences between weighted and unweighted means were about 2 cents per gallon, representing one of the few cases in the study where weighting proved to be of any importance.

Kind of mean price computed	September			December		
	Retail	Bulk	All	Retail	Bulk	All
	price in cents per gallon					
Unweighted	29.2	24.2	28.6	29.1	24.1	28.6
Weighted	29.1	24.1	26.7	29.0	24.1	26.5

All retail prices of gasoline were quoted as posted pump prices, but information was also taken on truck discounts offered to farmers. From the data summarized in Table 72, it appeared that pump prices were highest where discounts were highest, making the discounts appear larger than they were.

The mean prices by town-size and kind of store, and analyses of variance, are given in Tables 73 and 74. These analyses are highly consistent from survey to survey, and suggest that gasoline prices vary between Crop Reporting Districts, between town-size strata, and between different kinds of suppliers. The table of means shows the kind of variation associated with the latter two factors. The Crop Reporting District differences are as indicated in Table 75.

The classification according to "Type of dealer", which has been given on several of the previously reported commodities was not included in the analysis of gasoline because such a heavy majority of the establishment were independents, as shown below.16/

Type of dealer	September		December	
	No. of reports	Average price cents per gallon	No. of reports	Average price cents per gallon
Independent	193	29.1	183	29.2
Other	14	29.6	6	28.5

Not only are the reports of non-independents few, but their relationship to independents is not consistent.

In the analysis of trade practices, nothing could be done with delivery because that service would have been important only in bulk sales, which were so few that the analysis would have been inconclusive. The scarcity of reports on bulk sales also necessitated limiting the credit analysis to retail quotations. These reports indicated that about two-thirds of the retail sellers did offer credit, most of them without a specific charge for it. See Table 76. There is some

16/ "Ninety-five percent of the service stations in America are operated by dealers who are in business for themselves. They are free, legally and otherwise, to offer (their) products at whatever lawful prices they believe are proper to meet their local competitive conditions." Sun Oil Co. pamphlet, Competition Makes Gasoline Prices, p. 3, February 1950.

tendency for prices to be highest in those establishments where credit is offered and no explicit credit charge is made, but the difference is very small and its importance is questionable.

Tires. Only the 6.00 x 16 size of tire was covered in the surveys. The distributions of prices are shown in Table 77.

Only 4-ply black sidewall tires were included in the above tabulation because farmers' purchases were almost entirely in that category. In September only four reports were received on other tires, as follows: Two reports on 6-ply, black sidewall, with an average price of $21.45, and two reports on white sidewall, one 4-ply at $20.95, and one 6-ply at $20.55. In December, no 6-ply tires were reported, and only one white sidewall at $20.00. This merely provides additional documentation of the well-known fact that the item most often bought by farmers was the black sidewall, 4-ply tire.

The prices for the black sidewall 4-ply tires with cotton and rayon cord were not appreciably different:

	September		December	
Cord Material	Number of reports	Average price	Number of reports	Average price
Cotton	55	$17.24	47	$19.73
Rayon	79	17.68	71	19.77
Not specified	5	17.40	0	--
All reports	139	17.50	118	19.76

By brand, the quotations on all tires were as follows:

	September		December	
Brand	Number of reports	Average price	Number of reports	Average price
Firestone	28	$17.89	17	$19.76
Goodyear	22	17.89	21	18.76
Atlas	13	17.99	17	21.01
U. S. Royal	10	17.46	9	20.20
Davis	9	17.06	12	18.78
Kelly	7	17.89	4	19.17
Dunlop	7	17.79	1	15.00
Gulf	6	18.85	7	20.10
All others	41	16.92	31	20.14
All reports	143	17.57	119	19.76

The price differences between brands of 4-ply black sidewall tires were not sufficiently large and consistent to be of measurable significance:

Source of Variation	September		December	
	Degrees of freedom	Mean square	Degrees of freedom	Mean square
Between brands	26	3.5	21	7.0
Within brands	112	4.4	96	3.3
Total	138		117	

The relation between price and town-size strata apparently reversed itself between the two surveys, as did the relation between price and type of dealer. It is very difficult to evaluate these figures, however, because of the great price uncertainty which existed in the period between the surveys. See Table 78.

The differences between types of dealers were obviously of no significance; the analyses of variance shown in Table 79 show the contributions of geographic factors and town-size strata to the price variance.

None of the sources of variation examined appeared to be of uniformly measurable importance, probably because the period of study was one of the most confused, with respect to price, of recent years.

Like the other sources of price variance, credit practices also appeared to bear different relationships to prices in the two surveys. See Table 80.

The relationship shown by the September data is probably closer to a "normal" relationship, in which price would be higher in establishments offering credit at no additional cost, but here again, in a highly dynamic situation, evaluation is difficult on the basis of such relatively limited data.

Batteries. Prices on all storage batteries for use in passenger automobiles were obtained in the surveys, although B&E quotes prices only on 45-plate batteries with an 18-month guaranty. The distributions of prices of all batteries are given in Table 81.

The classifications of these reports according to the number of plates and the length of the guaranty period indicate that although only about one-fifth of the reports are for the 45-plate, 18-month battery, this battery is the one most often bought by farmers. See Table 82.

It is apparent that number of plates and length of guaranty were major sources of price variance in batteries; it would thus be inadvisable to analyze all--battery data for geographic or trade-practice differences, as any such differences present would be obscured by the big differences arising from variation in plates and guaranties. The alternative is to analyze a particular subclass of the data, but this also is not possible because the largest group, the 18-month guaranty, 45-plate, group contains too few observations. Further complication is introduced by the fact that there is confounding of plate-guarantee effect with the brand effect. When the batteries of over 21-month guarantee and a large number of plates are considered, it is at once evident that the economy brands are those most important; the economy brands are practically unavailable in batteries below this level.

Summary of Automotive Supplies. No specification problems, except in batteries, were encountered in this category. The main sources of variation were quality differences, but measures of quality were readily available. The most consistent of the remaining price effects was that due to town-size, the price having in general been observed to be higher in the larger towns.

Table 66. Prices Paid by North Carolina Farmers for Automotive Supplies. Two Surveys in September and December 1950, Compared with Corresponding BAE Releases.

Item	September Survey: No. of reports	High	Low	Mean	BAE Price
Motor oil, per gallon	281	$1.75	$ .57	$1.22	$1.45
Gasoline, regular, per gallon, including tax					
Retail	207	.33	.24	.29	.29
Bulk	28	.27	.23	.24	----
Auto tires, 6.00 x 16, each	143	23.32	12.00	17.47	18.50
Storage batteries, 15 plates per cell, 18-month guaranty	28	19.95	11.00	16.08	19.50[a]
December					
Motor oil, per gallon	249	2.00	.55	1.23	1.40
Gasoline, regular, per gallon, including tax					
Retail	189	.33	.25	.29	.29
Bulk	22	.25	.24	.24	----
Auto tires, 6.00 x 16, each	119	26.00	14.50	19.76	20.50
Storage batteries, 15 plates per cell, 18-month guaranty	27	26.00	11.15	18.23	20.50[a]

a/ Quotations on 24-month, 17-plate, batteries, the only item quoted by BAE.

Table 67. Prices Paid per Gallon by North Carolina Farmers for Motor Oil. September and December 1950.

Size of Container	Retail: Canned: Put into motor	Retail: Canned: Not put into motor	Retail: Bulk: Put into motor	Retail: Bulk: Not put into motor	Wholesale: Canned	Wholesale: Bulk	All reports: No. of reports	All reports: Average price per gallon
September								
1 quart	$1.28	$1.26	$----	$----	$1.00	$ .89	216	$1.27
2 quart	1.20	----	----	----	----	----	1	1.20
4 quarts	1.25	.78	----	----	.97	----	7	1.14
5 quarts	1.46	1.35	----	----	----	----	9	1.42
2 gallons	1.16	.84	----	----	----	----	16	1.00
5 gallons	1.20	1.03	----	----	.89	.87	19	.95
Barrel	----	----	----	----	----	1.03	1	1.03
Container not specified	---	----	.90	.96	1.08	----	12	.94
All reports	1.28	1.10	.90	.96	.95	.90	----	1.22
Number of reports	216	29	7	4	15	10	281	----
December								
1 quart	$1.31	$1.00	$----	$----	$ .92	$.72	191	$1.27
2 quarts	----	----	----	----	----	----	0	----
4 quarts	1.65	----	----	----	----	----	3	1.65
5 quarts	1.44	----	----	----	----	----	17	1.44
2 gallons	.68	.91	----	----	----	.90	12	.87
5 gallons	----	1.10	----	----	1.03	.87	8	1.01
Barrel	----	----	----	----	1.00	.89	3	.93
Container not specified	1.26	.92	----	----	.81	.87	15	.91
All reports	1.32	.96	----	----	.92	.87	---	1.23
Number of reports	196	16	0	0	23	14	249	----

Table 68. Frequency Distributions of Motor Oil Sales (One-Quart Cans, Put into Motor) to North Carolina Farmers. September and December 1950.

Price per gallon	Number of reports	
	September	December
$1.15 or less	54	40
1.16 - 1.32	50	47
1.33 - 1.49	46	40
1.50 or more	44	45
All reports	194	172

Table 69. Prices Paid by North Carolina Farmers for Motor Oil (One-Quart Cans, Put into Motor). September and December 1950.

Town-size stratum	September		December	
	No. of reports	Average price per gallon	No. of reports	Average price per gallon
A	129	$1.24	109	$1.27
B	41	1.34	40	1.36
C	13	1.47	17	1.47
D	11	1.32	6	1.28
All reports	---	1.28	---	1.31
Number of reports	194	----	172	----

Table 70. Prices Paid per Gallon by North Carolina Farmers for Motor Oil (Quart-Cans, Put into Motor) of Different Brands and Quality. December 1950.

Brand	High quality	Intermediate quality	Low quality	All reports: No. of reports	All reports: Average price per gallon
Esso	$1.53	$1.23	$1.05	36	$1.38
Gulf	1.52	1.20	1.05	24	1.35
Texaco	1.40	1.25	1.20[a]	16	1.29
Amoco	1.56	1.20[a]	1.05	10	1.32
Shell	1.40	1.20	1.40[a]	9	1.31
Sinclair	1.55	1.20	1.20[a]	7	1.40
Koolmotor	1.45			5	1.45
Pure Oil	1.50		1.00[a]	5	1.40
Quaker State	1.60			2	1.60
Atlantic	1.40[a]			1	1.40
Pennsylvania	1.60[a]			1	1.60
Other brands	1.39	1.20	1.04	56	1.20
All brands	1.50	1.22	1.06		1.31
Number of reports	84	50	38	172	

a/ One report

Table 71. Frequency Distributions of Prices Paid by North Carolina Farmers for Regular Gasoline. September and December, 1950.

Price, cents per gallon	September: Retail: No. of reports	September: Retail: No. of gallons	September: Bulk: No. of reports	September: Bulk: No. of gallons	December: Retail: No. of reports	December: Retail: No. of gallons	December: Bulk: No. of reports	December: Bulk: No. of gallons
23	0		1	1059	0		0	
24	1	300	23	72310	0		18	64312
25	0		3	9257	2	1641	4	5686
26	1	250	0		5	1880	0	
27	17	7310	1	400	7	3630	0	
28	36	14810	0		36	9755	0	
29	61	21047	0		69	25353	0	
30	80	37128	0		48	16903	0	
31	7	2350	0		16	4635	0	
32	2	252	0		5	1000	0	
33	2	200	0		1	100	0	
All reports	207	83647	28	83206	189	64897	22	69998

Table 72. Pump Prices of Gasoline at Retail Establishments Reporting Varying Truck Discounts. North Carolina, September and December 1950.

Amount of discount (cents per gallon)	September			December		
	No. of reports	No. of gallons	Average price cents per gallon	No. of reports	No. of gallons	Average price cents per gallon
None	143	52548	29.0	132	47400	29.0
One cent	29	12530	29.3	25	8006	29.1
Two cents	35	18569	29.7	32	9491	29.7

Table 73. Retail Prices Paid by North Carolina Farmers for Regular Gasoline. September and December 1950.

Kind of store	Town-size stratum A	B	C	D	All towns	No. of reports
	-cents per gallon-					
September						
Service station	29.2	29.5	29.9	30.3	29.4	123
General store	28.7	28.2	32.0	---	28.7	63
Garage and other	28.6	29.5	30.0	30.0	28.8	21
All stores	28.9	29.3	30.1	30.3	29.2	
Number of reports	140	42	14	11	----	207
December						
Service station	29.3	29.6	29.6	29.3	29.5	86
General store	28.8	29.0	30.0	----	28.8	71
Garage and other	28.8	28.8	29.5	30.5	29.0	32
All stores	28.9	29.4	29.6	29.8	29.1	--
Number of reports	119	49	16	5	----	189

Table 74. Analyses of Variance of Retail Prices Paid by North Carolina Farmers for Regular Gasoline. September and December 1950.

Source of Variation	September		December	
	D.F.	M.S.	D.F.	M.S.
Between Crop Reporting Districts	7	9.0	7	9.7
Between counties in CRD's	21	4.3	23	3.2
Between towns in counties	27	0.6	28	1.4
Within towns	151	0.8	130	1.0
Total	206		188	
Town-size strata	3	10.7	3	3.7
Kind of store	2	11.0	2	6.5
Interaction	5	0.6	5	0.4
Within	196	1.2	178	1.6
Total	206		188	

Table 75. Retail Prices Paid by Farmers for Regular Gasoline in the Crop Reporting Districts of North Carolina. September and December 1950.

Crop Reporting District	September		December	
	Number of reports	Average price, cents per gallon	Number of reports	Average price, cents per gallon
1	10	28.5	15	28.8
2	29	29.3	27	29.5
3	43	29.0	44	28.9
4	24	30.5	22	30.4
5	29	29.3	14	29.5
6	29	28.6	37	28.8
8	22	28.8	14	28.1
9	21	28.9	16	29.0
All districts	207	29.2	189	29.1

Table 76. Retail Prices Paid by North Carolina Farmers for Regular Gasoline at Outlets Offering Various Credit Services. September and December 1950.

Credit service offered	September			December		
	Number of reports	Number of gallons	Average price cents per gallon	Number of reports	Number of gallons	Average price cents per gallon
No credit offered	48	12540	29.1	48	10280	28.9
Credit offered, no charge	140	62981	29.2	123	49122	29.2
Credit offered, charge made	19	8126	28.7	18	5495	29.1
All reports	207	83647	29.2	189	64897	29.1

Table 77. Frequency Distributions of Prices Paid by North Carolina Farmers for 6.00 x 16 Tires, 4-Ply, Black Sidewalls.

Price	Number of reports	
	September	December
Less than $13.50	3	0
13.50 - 14.49	9	0
14.50 - 15.49	13	4
15.50 - 16.49	20	6
16.50 - 17.49	17	8
17.50 - 18.49	17	14
18.50 - 19.49	30	7
19.50 - 20.49	28	32
20.50 - 21.49	2	27
21.50 - 22.49	0	13
22.50 or more	0	7
All reports	139	118

Table 78. Prices Paid by North Carolina Farmers for Black Sidewall 4-Ply 6.00 x 16 Tires. September and December 1950.

September

Type of dealer	Town-size stratum A	B	C	D	All towns	No. of reports
Independent	$17.58	$17.30	$17.06	$17.85	$17.47	118
Non-independent	-----	18.14	17.72	16.46	17.40	21
All dealers	17.58	17.42	17.37	17.36	17.47	---
Number of reports	57	50	17	15	--	139

December

Independent	$19.57	$19.62	$20.33	$20.54	$19.74	110
Non-independent	-----	20.37	19.94	19.56	20.01	8
All dealers	19.57	19.66	20.25	20.32	19.76	---
Number of reports	41	53	15	9	-----	118

-- No reports

Table 79. Analyses of Variance of Prices Paid by North Carolina Farmers for Black Sidewall 4-Ply 6.00 x 16 Tires. September and December 1950.

Source of Variation	September Degrees of freedom	September Mean Square	December Degrees of freedom	December Mean Square
Between Crop Reporting Districts	7	6.3	7	8.4
Between counties in CRD's	23	4.8	21	5.0
Between towns in counties	20	2.6	21	1.0
Within towns	88	4.2	68	4.4
Total	138		117	
Between town-size strata	3	17.3	3	2.7
Within town-size strata	135	3.9	114	4.1
Total	138		117	

Table 80. Prices Paid by North Carolina Farmers for Black Sidewall 4-Ply 6.00 x 16 Tires at Establishments Offering Different Credit Services. September and December 1950.

Credit Service Offered	September		December	
	No. of reports	Average price	No. of reports	Average price
No credit offered	18	$17.31	14	$19.94
Credit offered, no charge	80	17.90	69	19.74
Credit offered, charge made a/	41	16.70	35	19.72
All reports	139	17.47	118	19.76

a/ Almost uniformly the charge was reported to be 6%.

Table 81. Frequency Distributions of Prices Paid by North Carolina Farmers for Passenger-Car Storage Batteries. September and December 1950.

Price	Number of reports	
	September	December
Less than $11.50	7	1
11.50 - 12.49	13	4
12.50 - 13.49	14	5
13.50 - 14.49	20	9
14.50 - 15.49	31	19
15.50 - 16.49	17	16
16.50 - 17.49	24	18
17.50 - 18.49	13	11
18.50 - 19.49	6	17
19.50 - 20.49	3	17
20.50 or more	0	5
All reports	148	122

Table 82. Prices Paid by North Carolina Farmers for Passenger-Car Storage Batteries with Varying Numbers of Plates and Guaranty Periods. September and December 1950.

September

Guaranty period	Number of plates: 39 — No. of reports	39 — Price each	45 — No. of reports	45 — Price each	51 — No. of reports	51 — Price each	All batteries — No. of reports	All batteries — Price each
12 months or less	11	$13.07	22	$14.45	9	$15.89	42	$14.32
15 months	2	15.42	19	15.04	3	15.98	24	15.20
18 months	2	16.25	28	16.08	20	16.09	50	16.09
21 months or more	1	17.00	16	14.37	6	15.37	23	14.75
All batteries	16	14.01	85	15.10	38	15.85	139[a]	15.18

a/ Nine incomplete quotations were received in addition to these tabulated here. Two of these were for 60-plate batteries at $18.85. Inclusion of the incomplete quotations raised the overall average price, based on 148 reports, to $15.34.

December

Guaranty period	Number of plates: 39 — No. of reports	39 — Price each	45 — No. of reports	45 — Price each	51 — No. of reports	51 — Price each	All batteries — No. of reports	All batteries — Price each
12 months or less	6	$14.74	20	$15.75	5	$16.25	31	$15.64
15 months	0	----	9	16.80	6	18.67	15	17.54
18 months	1	15.00	27	18.23	15	18.26	43	18.16
21 months or more	1	17.00	17	16.50	11	16.96	29	16.69
All batteries	8	15.06	73	16.98	37	17.64	118[a]	17.05

a/ Four additional incomplete quotations were received; when averaged in with these above, the overall average was reduced to $17.03.

Building Materials. Ten items in this category were studied in the surveys of March and September. A summary of the data collected is shown in Table 83.

These data show the familiar pattern of wide ranges of quotations, and means in reasonably close agreement with those released by BAE.

Building material data were gathered in the manner described for other commodity groups i.e., one sample of establishments was drawn for all building material items; if an establishment sold any of the items to farmers, a schedule was taken for all the items sold. As a result of this method of data collection, the numbers of quotations per item varied widely, and were in some cases so small as to make anything more than the simplest analysis impossible. This was especially true when the items were sub-classified as was necessary in the cases of lumber and lift pumps, because of wide quality differences among individual items. The numbers of quotations ranged from 14 for wood shingles to 113 for house paint. The two most frequently quoted items, house paint and cement, were the only ones analyzed in any detail, not only because of the paucity of quotations on most of the other items, but also because these two were judged to exhibit about the same characteristics as would be expected in the other items.

Credit and delivery practices were studied in their relation to price, using specific reports on cement in March as the illustrative commodity, there being no reason to expect these practices to vary from survey to survey or to be different on other items of building materials sold in the same group of stores.

Almost three-fourth (55 of 78) of the cement quotations were from establishments reporting no charge for credit; 32 of these extended credit for only one month, on the usual 30-day net basis. Only 3 of the 78 reporting establishments did not offer credit. (See Table 84).

There appears to be no relation between credit service and price charged for cement, although the number of quotations in most of the subclasses is so small that nothing conclusive can be said. (Table 85). These data are, however, free from most of the quality differences which were confounded with credit practices in the clothing and furniture data previously discussed.

The mean prices for cement, classified by credit charge reported, are shown in Table 86.

Building material sellers offered delivery as invariably as they offered credit; only 2 of the 78, both reporting prices of $1.15 per bag, identical with the overall mean price, reported no delivery service. Of the 76 who did report delivery, 12 reported a charge of some kind; the mean price reported by these 12 sellers was $1.16 per bag. It is thus evident that there were no differences in price associated with differences in delivery service that could be measured in these data.

Attention will now be given to separate analyses of cement and house paint.

Portland cement. The distributions of cement quotations in the two surveys were as shown in Table 87.

Table 88 gives the mean prices of cement, classified by size of town and type of dealer, and Table 89 shows analysis of variance of prices from the two surveys.

The greater variability of the September data is apparent both from the frequency distributions of prices and from the variance analyses. Despite increased variability, however, the September prices show a pattern similar to that found in the March data, characterized by a west-to-east price increase. The observed geographic difference was attributed to differences in freight costs. Except for this factor, there appeared to be relatively little consistent variation in the price of Portland cement associated with the sources of variation studied.

House paint. The other item of building supplies to be given detailed attention was house paint, for which 113 quotations were available in March and 114 in September. Tables 90-92 show for the two surveys the price distributions, mean prices, and analyses of variance of prices of house paint, ready-mixed, per gallon.

The apparent increase in importance of Crop Reporting District differences as a factor associated with paint prices was noteworthy. The prices by CRD's for the two surveys are shown in Table 93. The reasons for the change in the importance of the Crop Reporting Districts effect, and for the substantial decrease in the differences between types of dealers are not clear from the data.

Summary of Building Materials. The items of building materials, cement and paint, examined in detail above, were as far as could be determined, fairly homogeneous with respect to quality. These, as well as the other items for which fewer reports were available, were quoted in reasonably close agreement with the BAE releases, although survey means were more often higher than lower than the BAE estimates.

The most consistent source of variation observed was that due to geographic differences, especially the differences between Crop Reporting Districts. These appeared to be in large measure reflections of transportation cost differentials, although this could not be definitely shown from the data.

Although the underlying idea of BAE is to get price quotations on items most often bought by farmers, certain specific commodity descriptions are used. If the major objective is to be attained, it is obviously essential that the specific description not exclude the particular item most often bought by farmers. For example, in quotations of lumber, 2 x 4's specifically, it appears that the present used length specification of 16 feet either be omitted or be made to coincide with that which is, in fact, most often bought.

The 16-foot length is not only longer than that most often bought by farmers in North Carolina, but even seems to be longer than is generally available from lumber suppliers. In this case, it appears that a good solution would be provided by dropping the 16-foot-length description, and leaving a space for the respondent to enter the length of 2 x 4 which he most often sells to farmers.

A further point with reference to lumber specification concerns the method of drying. The mean prices given above for the lumber items include both air dried and kiln dried, following the BAE procedure of not separating them. There is, however, considerable difference between them, as shown in data from the surveys. See Table 94.

BAE is interested in estimating mean prices of items most often bought by farmers. From the data above, the 2 x 4 most often bought in North Carolina appears to have been air dried. The wide price difference between air and kiln-dried suggests that kiln-dried lumber should be excluded from the BAE estimates. This could easily be done by a simple change in specification.

If any analysis of sources of variation is contemplated, of the kind attempted in this study, such separation is, of course, essential. In the case of 2 x 4's, this source of variation, which was at least as large as that arising from grade differences, could be identified; in the cases of some of the other commodities studied, however, no information could be obtained to indicate what the sources not explicitly recognized by BAE were. Studied of the individual commodities would probably be necessary to establish these points. It is likely that this unidentified variation contributed largely to the high within-group variances on several commodities, and one is again led to the observation that overall mean prices can be reasonably well estimated by a procedure which will be inadequate for analyzing sources of variation.

In addition to 2 x 4's, the other lumber item for which specifications did not appear entirely satisfactory was bevel siding, which appeared in North Carolina to be known as "German siding."

Another item of building materials that gave trouble was lift pumps, specified on BAE schedules as, "Lift pumps, 3-inch iron cylinder, with standard pipe and rod." In the March survey, prices quoted within this specification ranged from $4.50 to $210. These fell into three groups as follows: (i) $4.50 to $7.25, (ii) $18.00 to $34.50, and $165 to $210, which were, in the survey tabulation, treated separately, and tentatively identified as pitcher pumps, deep well stands, and power pumps, respectively. In the September survey, space was left on the survey schedules for the three types to be written in separately,

and the distribution was very close to the ex post distribution of the March data. In both surveys, the hand pitcher pump was most often bought by farmers.

House windows were specified by BAE as complete with frame, weights, etc. A check of building suppliers in Raleigh suggested that the most often bought was considerably larger than the presently specified size, and that the price for the complete window was from $30 to $40. Apparently the quotations received (ranging from $12 to $24) did not cover the complete window, as specified.

Wood shingles were seldom sold, very few quotations having been received for them. Differential fire insurance rates offer an incentive to use fire-proof shingles, and some incorporated places prohibit wooden roof shingles; this item is obsolescent.

Steel roofing is sold widely, but dealers rarely know either the weight of the stock or the size of the corrugations. "V-crimp" roofing is at least as common as corrugated. The specifications of roofing should take these facts into account.

Table 83. Prices Paid by North Carolina Farmers for Selected Items of Building Materials, Two Surveys in March and September, 1950, Compared with Corresponding B/E Price Releases.

Item	March Survey: Units in which price is quoted	Number of reports	High	Low	Mean	B/E price
2"x4"x16', common pine a/						
No. 1	1000 bd.ft.	16	$200.00	$50.00	$84.00	$70.00
No. 2	"	37	150.00	30.00	69.00	66.00
Other	"	20	90.00	40.00	62.00	---
Bevel siding, 6" pine a/						
B & B	"	24	200.00	80.00	139.00	130.00
No. 1 in C	"	28	145.00	65.00	105.00	97.00
Other	"	0	---	---	---	---
House windows	each	29	24.00	12.00	16.86	16.50
Portland cement	94-lb. bag	78	1.40	1.00	1.19	1.15
House paint	gallon	113	6.00	1.94	4.63	4.80
Wood shingles						
100 sq. ft.	square	15	24.00	4.00	13.10	9.80
1000 shingles	thousand	8	24.00	6.50	15.75	14.50
Steel roofing	100 sq. ft.	40	20.00	8.00	9.94	9.70
Wood fence posts	each	28	.80	.25	.57	.55
Barbed wire						
2 point	80-rod spool	14	7.50	4.25	5.81	6.40
4 point	"	76	9.00	6.94	7.83	7.90
Lift pumps b/						
Pitcher, hand	each	26	7.25	4.50	5.51	
Deep well, hand	each	3	34.50	18.00	23.67	22.00
Power	each	4	210.00	165.00	179.50	

a/ Includes both air and kiln-dried.

b/ Lift pumps were grouped in March on the basis of price after the data were taken; in September the three categories were included on the schedules, with the results shown.

Table 83. (concluded)

Item	Units in which price is quoted	September Survey: Number of reports	High	Low	Mean	B/E price
2"x4"x16', common pine a/						
No. 1	1000 bd.ft.	15	$180.00	$60.00	$100.00	$87.00
No. 2	"	33	130.00	68.00	83.00	77.00
Other	"	4	85.00	20.00	56.00	- - -
Bevel siding, 6" pine a/						
B & B	"	18	180.00	70.00	133.00	140.00
No. 1 in C	"	18	170.00	75.00	120.00	105.00
Other	"	7	120.00	75.00	95.00	- - -
House windows	each	35	25.00	4.00	13.42	18.00
Portland cement	94-lb. bag	64	1.60	1.00	1.22	1.25
House paint	gallon	114	6.50	1.94	4.71	4.95
Wood shingles						
100 sq. ft.	square	9	25.00	10.50	14.02	16.50
1000 shingles	thousand	7	25.00	12.00	17.25	- - -
Steel roofing	100 sq. ft.	52	11.00	5.25	9.67	10.00
Wood fence posts	each	21	.93	.32	.60	.62
Barbed wire						
2 point	80-rod spool	15	8.50	4.95	6.48	6.50
4 point	"	81	9.50	6.50	8.08	8.10
Lift pumps b/						
Pitcher, hand	each	33	20.00	4.50	6.94	- - -
Deep well, hand	"	2	19.95	18.00	18.98	- - -
Power	"	2	145.00	98.45	121.72	- - -

a/ Includes both air and kiln-dried.

b/ Lift pumps were grouped in March on the basis of price after the data were taken; in September the three categories were included on the schedules, with the results shown.

Table 84. Credit Services on Building Materials Offered by a Sample of North Carolina Establishments. March 1950.

Term of Credit	Charge for credit						No credit offered	All stores
	None	2%	6%	10%	Flat carrying charge	Credit charge not reported		
	(numbers of stores reporting)							
1 month	32	0	1	1	2	0	-	36
2 months	6	1	2	2	1	0	-	12
3 months a/	13	0	2	0	0	0	-	15
Over 3 months b/	4	0	3	3	0	0	-	10
Term not reported	0	0	0	0	0	0	-	2
No credit offered	-	-	-	-	-	-	3	3
All stores	55	1	8	6	3	2	3	78

a/ Includes those reporting "credit extended until completion of the job," usually (when specified) from 2 to 3 months.

b/ Includes those reporting extension of credit until "fall".

Table 85. Prices Paid by North Carolina Farmers for Cement at a Sample of Establishments Offering Credit for Various Terms. March, 1950.

Term of credit	Number of reports	Price per bag for cement
1 month	36	$1.15
2 months	12	1.14
3 months	15	1.14
Over 3 months	10	1.14
Term not reported	2	1.18
No credit offered	3	1.30
All stores	78	1.15

Table 86. Prices Paid by North Carolina Farmers for Cement at a Sample of Establishments Reporting Various Credit Charges. March, 1950.

Credit charge	Number of reports	Price per bag for cement
No charge	55	$1.15
2%	1	1.10
6%	8	1.12
10%	6	1.16
Flat carrying charge	3	1.08
Charge not reported	2	1.18
Credit not offered	3	1.30
All stores	78	1.15

Table 87. Frequency Distribution of Prices Paid by Farmers in North Carolina for Portland Cement, March and September 1950.

Price per bag	Number of reports	
	March	September
$1.00 to 1.04	5	1
1.05 to 1.09	3	0
1.10 to 1.14	20	8
1.15 to 1.19	25	5
1.20 to 1.24	13	18
1.25 to 1.29	11	25
1.30 to 1.34	0	3
1.35 or more	1	4
All prices	78	64

Table 88. Prices Paid by North Carolina Farmers for Portland Cement. March and September 1950.

Type of dealer	Mention status	Size of town A	B	C	D	All towns	Number of reports
Independent	Mentioned	$1.18	$1.13	$1.13	$1.18	$1.15	33
	Not mentioned	1.18	1.13	1.12	1.17	1.14	34
Other	Mentioned	1.18	1.15	- -	- -	1.17	4
	Not mentioned	1.15	1.10	1.20	- -	1.15	7
All reports		1.18	1.13	1.13	1.17	1.15	--
Number of reports		23	26	17	12	- -	78
September							
Independent		$1.25	$1.19	$1.28	$1.26	$1.23	57
Other		1.18	1.15	1.25	1.20	1.19	7
All reports		1.24	1.19	1.27	1.25	1.22	--
Number of reports		20	29	9	6	- -	64

Table 89. Analyses of Variance of Prices Paid by North Carolina Farmers for Portland Cement. March and September 1950.

Source of Variation	March		September	
	Degrees of freedom	Mean square	Degrees of freedom	Mean square
Between Crop Reporting Districts	6	.006	7	.018
Between counties in CRD's	21	.008	17	.006
Between towns in counties	11	.008	10	.019
Within towns	39	.003	29	.003
Total	77	- -	63	- -
Town-size strata	3	.012	3	.021
Type of dealer	1	.008	1	.010
Mention status	1	.002	--	- -
Interaction	7	.001	3	.004
Within	65	.005	56	.007
Total	77	- -	63	- -

Table 90. Distributions of Prices Paid by North Carolina Farmers for House Paint. March and September 1950.

Price per gallon	Number of reports	
	March	September
$1.75 - 2.24	1	1
2.25 - 2.74	2	1
2.75 - 3.24	0	2
3.25 - 3.74	13	6
3.75 - 4.24	7	8
4.25 - 4.74	29	23
4.75 - 5.24	41	53
5.25 - 5.74	15	16
5.75 - 6.24	5	3
6.25 - 6.74	0	1
All reports	113	114

Table 91. Mean Prices Paid by North Carolina Farmers for House Paints, March and September 1950.

March

Type of dealer	Mention status	Size of town A	B	C	D	All towns	No. of reports
Independent	Mentioned	$4.37	$4.83	$4.63	$5.20	$4.69	36
	Not mentioned	4.73	4.89	4.82	4.28	4.70	58
Other	Mentioned	3.90	4.85	- -	- -	4.14	4
	Not mentioned	3.92	4.00	4.67	4.54	4.36	15
All reports		4.46	4.80	4.74	4.47	4.63	--
Number of reports		33	36	24	20	--	113

- No reports

September

Independent	$4.55	$4.82	$4.83	$4.57	$4.71	99
Other	4.75	4.82	4.60	4.71	4.71	15
All reports	4.56	4.82	4.78	4.61	4.71	--
Number of reports	33	45	20	16	--	114

Table 92. Analyses of Variance of Prices Paid by North Carolina Farmers for House Paint. March and September 1950.

Source of Variation	March		September	
	Degrees of freedom	Mean square	Degrees of freedom	Mean square
Between Crop Reporting Districts	7	.66	7	2.26
Between counties in CRD's	22	.62	20	.46
Between towns in counties	13	.59	10	.44
Within towns	70	.45	76	.30
Total	112	--	113	--
Town-size strata	3	.89	3	.30
Type of dealer	1	2.35	1	0
Mention status	1	.01	--	--
Interaction	8	.64	3	.08
Within	99	.48	106	.48
Total	112	--	113	--

Table 93. Prices Paid by Farmers for House Paint in the Crop Reporting Districts of North Carolina. March and September 1950.

Crop Reporting District	March		September	
	Price per gallon	Number of reports	Price per gallon	Number of reports
1	$5.50	1	$4.86	5
2	4.85	18	4.77	18
3	4.79	10	5.22	13
4	4.64	13	4.82	12
5	4.52	12	4.76	13
6	4.66	10	4.37	11
8	4.39	25	4.46	19
9	4.64	24	4.67	8
All districts	4.63	113	4.71	114

Table 94. Prices Paid by North Carolina Farmers for 16-foot 2 x 4's, Common Pine. March and September 1950.

Drying Method	Item	March No. 1	March No. 2	March Other	March All grades
Air	Price, per M	$ 76	$65	$58	$66
	No. of reports	12	32	10	54
Kiln	Price, per M	107	98	90	101
	No. of reports	4	5	1	10
Other and unspecified	Price, per M	--	--	62	62
	No. of reports	0	0	9	9
All drying methods	Price, per M	84	69	61	70
	No. of reports	16	37	20	73

Drying Method	Item	September No. 1	September No. 2	September Other	September All grades
Air	Price, per M	$ 76	$80	$56	$76
	No. of reports	9	27	4	40
Kiln	Price, per M	136	98	--	119
	No. of reports	6	5	0	11
Other and unspecified	Price, per M	--	68	--	68
	No. of reports	0	1	0	1
All drying methods	Price, per M	100	82	56	85
	No. of reports	15	33	4	52

Household Supplies. One of the smaller commodity groups studied was household supplies, consisting of brooms, laundry soap, and soft coal, which were covered in the surveys of September and December. Table 95 gives a summary of the data.

These data leave little doubt regarding the type of broom most often bought by farmers in North Carolina; their preference for laundry soap, while somewhat less one-sided, also appears to be reasonably clearly defined. The serious problem arises on soft coal, both because of the small total number of quotations and their failure to be concentrated in any one sub-class. Attention will be directed briefly to each of the three commodities.

Brooms. The price distributions, mean prices, and analyses of variance, of broom-corn brooms for September and December were as shown in Tables 96-98.

Geographic differences, with the possible exception of those between counties, did not appear important. The town-size and kind-of-store differences did, however, appear important. The table of mean prices given above showed the familiar pattern of increasing prices as town-size increased. The store-type differences were as indicated in Table 99. Although relatively few department and hardware stores reported sales of this item to farmers, and hence probably did not exert much influence on the prices paid by farmers, these stores reported a higher price for brooms than did other stores.17/

No analysis of brooms by brand was made because of the very large number (71) of brands reported and the existence of confounding between brand and both Crop Reporting Districts and counties.

There was little relation, as indicated in Table 100, between credit service offered and price charged. The magnitudes of even the greatest of these differences are so small that, regardless of their statistical significance on an item like brooms, their practical significance is negligible. It is a very different situation from that encountered in a commodity purchased in large quantities, when small per-unit differences can mean large differences in aggregate expenditures.

Laundry soap. This category, in which detergents were included for purposes of this study was considered under four sub-heads, bar soap, flakes, granules, and detergents. The price distributions for these are given in Table 101.

These distributions take no account of the quality or the quantity of soap quoted; hence the splits into upper and lower segments, which represent different types of soal as well as different bar or package sizes. It appears that farmers most often bought the smaller sized bars and the regular-sized packages, and that bar soap was the form in which farmers most often bought.

17/ Classification by store type was made here because there were sufficient numbers of reports in more than one class; in the cases of furniture and clothing stores, by way of contrast, virtually all reports were from stores specializing in these lines.

Bar soap, most often bought by farmers, is examined first. Interviewers were asked to record brand and bar weight, but weight was not always printed on the wrapper; having to be estimated, it was probably reported with fairly high errors. The estimated weights were distributed as follows in the data from the September survey:

Estimated weight per bar (ounces)	Number of reports	Average price per bar
Less than 6	8	$.091
6-8	176	.099
9-11	55	.140
12-14	2	.100
All bars	241	.108

There was, however, a confounding of size and brand effects, as indicated below in the data from the September survey.

Brand	Color		Number of reports	Average weight per bar (ounces)	Average price per bar	Average price per ounce (cents)
Octagon	Yellow	Laundry	167	7.2	$.098	1.4
P & G	White	"	10	7.0	.098	1.4
Ivory	"	Laundry and face	58	8.8	.140	1.6
Lux	"	Face and Laundry	4	6.2	.112	1.8
Swan	"	"	2	7.0	.135	1.9
All brands	-	-	241	7.6	.108	1.4

Since Octagon soap was the most often reported of bar soaps, an analysis of variance would have been desirable, but the reports were so concentrated, with respect both to size and price, as to make such an analysis of little value. Of the 167 quotations, 146 were in one weight group (6-8 ounces), and of these 121 were reported at 10 cents per bar. The situation is the same in the December data, i.e., of 207 bar soap quotations, 138 are Octagon; of the 138 Octagon reports, 133 were in the 6-8 ounce size class; and, in this size class 122 reports were at one price, 10 cents per bar.

The least frequently quoted of the soap items was flake soap, for which 46 reports were available in September, and 38 in December. Most of these were Lux, in the 12½-ounce package. No analysis is presented on flake soap.

Granular soap was reported by 178 and 147 suppliers, in September and December respectively. Since the distributions in the two surveys as shown previously, were closely similar, specific comment will be made only on the September data. All but 19 of the 178 reports in September were in the 18-24-ounce class, coinciding well with actual package weights, which were, for the most common brands:

Brand	Actual package weight (ounces)
Rinso	23
Super Suds	23
Duz	20.5
Oxydol	24
Silver Dust	18

Table 102 gives no evidence of consistent differences between types of dealers or kinds of stores.

A town-size effect may be present in the data, but too few quotations from larger towns were available to warrant any very positive statements.

The item in the laundry soap category that was analyzed in greatest detail was detergents, to which attention is now directed. Although not the most often bought of the laundry soap items, detergents were widely reported, and appeared to be the most dynamic item in the group. Furthermore, of the 119 quotations in September, 114 were Tide; in December, 124 of 126 were Tide. The majority of Tide quotations were for the regular-sized (19-ounce) package. These data thus appeared most worthy of detailed analysis, both because they described a new and rapidly spreading product, and because they were most amenable to the analysis desired. Table 103 gives the distribution of package weights reported by the survey interviewers, the weights actually on the market, and the groupings made of the survey data for analysis.

The same general situation was evidenced by the December data, in which the only reports of other than the regular-sized package were 2 small-package quotations. Although it seems evident from the tabulation above that interviewers, reporting weights up to 26 ounces for what was actually a 19-ounce package, were not doing an accurate job, they should not be censured too hastily, because (i) the specifications were in most cases supplied by personnel in the respondent store, and (ii) with such a large number of items to investigate, the interviewer could not personally examine each item in every store. This is important because it bears on the feasibility of finer commodity specification.

Tables 104-106 give, for the 19-ounce, medium-sized package of Tide, the price distributions, mean prices by town-size and type of supplier, and analyses of variance.

The only difference appearing significant in these analyses is that between stores in December, but even that, based on one degree of freedom and differing so markedly from the September result, was of limited importance. The overall reduction in variance resulted from the rise in prices between the surveys, this rise taking the form, in many cases, of a jump to the "even figure" of 35 cents per box, as indicated in the frequency distribution of prices.

The effect of trade practice on credit and delivery appeared negligible on the price of Tide, as indicated in Table 107.

Soft coal. As indicated above, nothing could be done with the small numbers of coal quotations. All but one report in each of the surveys was of prepared sizes, scattered thinly among several different sizes. The overall distributions were as shown in Table 108.

Summary of household supplies. Small geographic differences, some tendency for price to be higher in larger towns, no price effect from trade practice differences, suggestions of store-type price differentials: these were some of the general results of analysis of household supplies price data. None of the effects was large, and statistical significance was not accompanied by economic significance.

The economically most important of the household supplies items studied, coal, was reported least adequately of the commodities in that group. Few quotations and widely different sizes of coal reported render conclusions on this item of doubtful value. The wide disparity between survey and BAE price estimates indicates the need for further study of coal.

Table 95. Prices Paid by North Carolina Farm People for Selected Household Supplies. Two Surveys of September and December 1950, Compared with Corresponding BAE Releases.

Item	Survey: Number of reports	Survey: High	Survey: Low	Survey: Mean	BAE price
September					
Brooms, all	252	$1.59	$.75	$1.03	$1.00
Broom-corn	250	1.59	.75	1.03	- -
Synthetic	1	- -	- -	1.03	- -
Not specified	1	- -	- -	1.25	- -
Laundry "soap"					
Bar soap	241	.20	.08	.11	- -
Flake soap	46	.38	.12	.30	
Granular soap	178	.39	.12	.32	- -
Detergent	119	.79	.13	.33	- -
Soft coal					
Run of mine	1	- -	- -	15.50	14.50
All prepared sizes	23	12.50	18.54	15.95	16.50
Stoker	4	- -	- -	15.62	- -
3 x 5	7	- -	- -	15.28	- -
Egg and lump	6	- -	- -	16.32	- -
3 x 6 and 3 x 7	3	- -	- -	16.50	- -
Other	3	- -	- -	16.68	- -
December					
Brooms, all	195	$1.95	$.85	$1.08	N.A.
Broom-corn	190	1.95	.85	1.07	- -
Synthetic	0	- -	- -	- -	- -
Not specified	5	1.69	.98	1.29	- -
Laundry "soap"					
Bar soap	207	.19	.08	.11	
Flake soap	38	.35	.13	.30	.26/lb.
Granular soap	147	.40	.10	.32	- -
Detergent	126	.40	.15	.34	- -
Soft coal					
Run of mine	1	- -	- -	15.95	15.00
All prepared sizes	24	12.50	17.00	15.84	17.00
Stoker	0	- -	- -	- -	- -
3 x 5	10	- -	- -	16.12	- -
Egg and lump	10	- -	- -	15.65	- -
3 x 6 and 3 x 7	2	- -	- -	14.75	- -
Other	2	- -	- -	16.45	- -

Table 96. Frequency Distributions of Prices Paid by North Carolina Farmers for Broom-Corn Brooms. September and December 1950.

Price	Number of reports	
	September	December
$ .78 - $ .92	28	10
.93 - 1.07	173	114
1.08 - 1.22	18	37
1.23 - 1.37	26	21
1.38 - or more	5	8
All prices	250	190

Table 97. Prices Paid by North Carolina Farm People for Broom-Corn Brooms. September and December 1950.

September

Type of dealer	Size of town				All towns	Number of reports
	A	B	C	D		
Independent	$1.00	$1.07	$1.08	$1.12	$1.02	229
Other	1.00	1.09	1.17	1.28	1.10	21
All reports	1.00	1.07	1.10	1.19	1.03	- -
Number of reports	177	51	13	9	- -	250

December

Independent	$1.05	$1.10	$1.14	$1.10	$1.07	176
Other	.98	1.05	.94	1.49	1.04	14
All reports	1.04	1.09	1.12	1.16	1.07	- -
Number of reports	113	46	24	7	- -	190

Table 98. Analyses of Variance of Prices Paid by North Carolina Farm People for Broom-Corn Brooms. September and December 1950.

Source of Variation	September		December	
	D.F.	M.S.	D.F.	M.S.
Between Crop Reporting Districts	7	.06	7	.03
Between counties in CRD's	23	.03	21	.05
Between towns in counties	32	.014	21	.012
Within towns	187	.012	140	.019
Total	249	- -	189	- -
Town-size strata	3	.16	3	.07
Type of dealer a/	1	.05	1	.01
Kind of store b/	2	.08	2	.34
Interaction	13	.003	8	.004
Within	230	.014	175	.018
Total	249	- -	189	- -

a/ Same classification used in analyses given for other commodities, i.e., Independent and Non-independent, the latter including mainly chain stores and cooperatives.

b/ Includes general stores, food stores, and "others", like department stores and hardware stores.

Table 99. Prices Paid by North Carolina Farm People for Broom-Corn Brooms at Different Kinds of Stores. September and December 1950.

Kind of Store	September		December	
	Number of reports	Average price	Number of reports	Average price
General	139	$1.01	97	$1.04
Food	82	1.03	81	1.08
Department, hardware, other	29	1.11	12	1.28
All stores	250	1.03	190	1.07

Table 100. Prices Paid by North Carolina Farm People for Brooms at Stores Offering Varied Credit Services, September and December 1950.

Credit Service Offered	September		December	
	Number of reports	Average price	Number of reports	Average price
No credit offered	57	$1.01	49	$1.06
Credit not specified	33	1.04	19	1.07
Credit offered	160	1.03	122	1.07
No charge	133	1.02	93	1.07
30 days	(98)	1.03	(75)	1.08
90 days	(14)	1.00	(10)	1.06
Over 90 days	(20)	1.00	(7)	1.04
Term not given	(1)	1.00	(1)	1.00
Charge	27	1.08	29	1.06
Interest	(23)	1.08	(25)	1.06
Flat	(4)	1.09	(4)	1.06
All reports	250	1.03	190	1.07

Table 101. Frequency Distributions of Prices Paid by North Carolina Farm People for Laundry Soap: (i) Bar, (ii) Flake, (iii) Granular, and (iv) Detergent. September and December 1950.

(i) Bar Soap

Price per bar	Number of reports	
	Sept.	Dec.
$.08	17	7
.09	15	8
.10	160	142
.11	1	2
.12	4	1
.13	1	1
.14	7	2
.15	23	27
.16	2	5
.17	5	5
.18	5	6
.19	0	1
.20	1	0
All reports	241	207

(ii) Flake Soap

Price per package	Number of reports	
	Sept.	Dec.
Less than $.15	1	2
.15 - .19	4	5
.20 - .24	0	0
.25 - .29	2	0
.30 - .34	28	15
.35 - .39	11	16
All reports	46	38

(iii) Granular Soap

Price per package	Number of reports	
	Sept.	Dec.
Less than $.15	1	6
.15 - .19	5	6
.20 - .24	1	0
.25 - .29	16	1
.30 - .34	97	49
.35 - .39	58	81
.40 - .44	0	4
All reports	178	147

(iv) Detergents

Price per package	Number of reports	
	Sept.	Dec.
Less than $.20	6	2
.20 - .24	0	0
.25 - .29	3	0
.30 - .34	64	38
.35 - .39	44	85
.40 or more	2	1
All reports	119	126

Table 102. Prices Paid by North Carolina Farmers for Granular Laundry Soap. September 1950.

Classifications by (i) Type of dealer (ii) Kind of store	Size of town A	B	C	D	All towns	Number of reports
	-cents per package-					
(i) Independent	32.6	30.7	31.3	31.0	32.2	152
Chain & cooperative	31.0	31.3	30.0	- -	31.0	7
(ii) General	32.9	30.2	30.8	- -	32.2	88
Food	32.1	31.7	30.0	31.0	32.0	68
Other	35.0	- -	34.0	- -	34.3	3
All reports	32.6	30.8	31.2	31.0	32.2	- -
Number of reports	121	27	10	1	- -	159

Table 103. Reported Distribution of Package Weights of Tide, Compared with Distribution According to Actual Package Weights. September 1950.

Reported Weights (ounces)	Number of reports	Allocation of reported weights to actual sizes manufactured: Small 9 oz.	Medium 19 oz.	Large 52 oz.
		-number of reports-		
6-8	1	1		
9-11	2	2		
12-14	2	2		
15-17	1	1		
18-20	78		78	
21-23	14		14	
24-26	15		15	
Over 26	1			1
All reports	114	6	107	1
Price ranges:				
High	- -	.15	.37	.79
Low	- -	.13	.28	.79

Table 104. Frequency Distributions of Prices Paid by North Carolina Farmers for 19-ounce Packages of Tide Detergent. September and December 1950.

Price per package	Number of packages	
	September	December
¢ .28	1	0
.29	2	0
.30	24	5
.31	5	2
.32	17	13
.33	13	9
.34	4	9
.35	39	74
.36	1	1
.37	1	5
.38	0	5
.39	0	0
.40	0	1
All prices	107	124

Table 105. Prices Paid by North Carolina Farmers for 19-ounce Packages of Tide Detergent. September and December 1950.

September a/

Kind of Store	Size of town				All towns	Number of reports
	A	B	C	D		
	-cents per package-					
General	33.0	32.4	32.0	- -	32.9	64
Food	32.3	34.3	30.5	32.0	32.6	43
All reports	32.8	33.3	31.0	32.0	32.8	--
Number of reports	8.5	18	3	1	- -	107

a/ No classification by Type of Dealer was made because all but 2 of the quotations were from Independents. The average price in the 2 non-independents was 31.5 cents.

December b/

	-cents per package-					
General	34.9	35.0	33.3	- -	34.8	62
Food	34.0	33.8	34.4	34.2	34.0	62
All reports	34.6	34.2	34.1	34.2	34.4	--
Number of reports	76	31	13	4	- -	124

b/ Nine reports from Chains and Cooperatives, average price 32.4, compared to 34.6 from 115 Independents.

Table 106. Analyses of Variance of Prices Paid by North Carolina Farmers for 19-ounce Packages of Tide Detergent. September and December 1950.

Source of Variation	September		December	
	D.F.	M.S.	D.F.	M.S.
Between Crop Reporting Districts	7	13.9	7	8.4
Between counties in CRD's	14	7.4	18	5.2
Between towns in counties	17	7.4	21	3.0
Within towns	68	5.5	77	2.0
Total	106	- -	123	- -
Town-size strata	3	4.7	3	1.7
Kind of store	1	2.0	1	22.0
Interaction	2	13.5	2	2.5
Within	100	6.6	117	2.9
Total	106	- -	123	- -

Table 107. Price of Tide Detergent (19-ounce Package) in Stores Offering Various Credit-Delivery Services . September and December 1950.

Service Offered	September		December	
	Number of reports	Average price	Number of reports	Average price
Credit & delivery	28	$.328	28	$.342
Credit, no delivery	45	.328	51	.350
No credit, delivery	8	.328	1	.340
No credit, no delivery	26	.329	29	.337
Service not specified	0	- -	15	.337
All reports	107	.328	121	.344

Table 108. Frequency Distributions of Prices Paid by North Carolina Farmers for Soft Coal. September and December 1950.

Price per Ton	Number of reports	
	September	December
$12.00 - 12.99	1	2
13.00 - 13.99	0	0
14.00 - 14.99	2	1
15.00 - 15.99	7	6
16.00 - 16.99	10	12
17.00 - 17.99	2	4
18.00 - 18.99	2	0
All reports	24	25

Food. The same eight items of food were selected for study on the price surveys of June and December. The data from the two surveys are summarized in Table 109.

Dealer respondents were asked to give quotations on the items most commonly bought by farmers, with respect to brand, size of container, etc.; in the case of flour, for which BAE quotes only the 25-pound bag, respondents were asked for quotations on both the most commonly bought item and the 25-pound bag, to provide a basis for judging the extent to which other than 25-pound bags were most often bought by farmers.

By town-size strata, the mean prices for the food items in the two surveys were as shown in Table 110.

There appears to be a slight tendency for prices to be higher in the larger towns, but the differences are generally too small to be significant, either statistically or economically.

In the case of salt pork, there were regional differences in definition within the state. To people in one area, "salt pork", more commonly called "streak o'lean", included some lean meat, while "fat back" was the term applied to the all-fat product; in other areas, however, "salt pork" was the general term that covered both items. No distinction was made according to degree of fatness in the June survey, but in the December survey this information was obtained. Its importance as far as the "most often bought by farmers" concept was concerned, was small, because more than four-fifths of the quotations were in the "fat" category, but there was of course, an important price difference between the all-fat and part-lean pork, as shown below:

Fatness of Salt Pork	Number of Reports	Average Price Per Pound
Fat	211	$ .24
Mixed	36	.35
Lean	1	.35
All Reports	248	.26

When the data were classified by Crop Reporting Districts, there appeared to be a tendency for prices to be higher in the eastern, and lower in the western parts of the state. (See Table 111.) This, of course, is not independent of the distribution of towns by size; the west is the mountain area, where large towns are fewer than elsewhere in the state. Hence this may be in part another evidence of the town-size effect noted above.

Price differences associated with differences in types of service were small in both surveys. Table 112 refers to list prices in all stores offering specified services, whether or not a specific added charge for the service was reported.

Only about 107 of the establishments offering credit or delivery in June reported specific charges for these services in addition to the listed prices. The numbers of quotations were small, and little confidence could

be placed in the figures relating to price differences associated with different service charges. The numbers of quotations were even smaller in December; because of the inconclusive results from the June data, no tabulation of service charges was made in December. The June tabulation is given in Table 113.

On four items, the stores reporting specific charges had lower prices than those not reporting such charges, while their prices were higher on two items, and the same on two. The small numbers of quotations do not lend confidence to conclusions based on these data, but it would be reasonable to expect the specific-charge stores to report lower prices, since all customers were paying for whatever services they received, either explicitly, as in the specific-charge stores, or in the form of higher prices at the no-specific-charge stores.

The credit charges listed were as follows:

Amount of Credit Charge	Number of Stores Reporting
2%	1
5%	4
6%	13
10%	12
15%	1
20%	1
"Fall Term"[a/]	3
Total	35

[a/] A varying charge which depended on the storekeeper's opinion of the credit risk and other intangibles.

Delivery charges were few and variable, being reported in such terms as, "Free in city limits," or "Free on purchases of over $." Several stores selling feed and fertilizer as well as food reported delivery charges only on feed and fertilizer. The conclusion is that specific delivery charges for food were relatively infrequent and exerted a negligible influence on prices paid by farmers.

Prices quoted by different kinds of food suppliers are shown in Table 114.

The relationship of chain to independent is about what would be expected, while the small number of quotations from cooperatives precludes the drawing of important conclusions regarding their prices for food.

The foregoing general analysis, suggests a high degree of uniformity within almost any classification one might make of food prices. When less uniformity is found, as in the case of the meats, differences in grade

appear to be chiefly responsible. Even with the fairly large numbers of quotations available, however, the concentration into one or two groups is so great that refined statistical analysis is not satisfactory, because cross-classifications result in so many empty or nearly empty cells. Several individual food items will now be examined in greater detail.

Flour. Only the 25-pound bags of flour were considered in the analysis, for this was the item quoted by BAE, and the data presented above indicate that it was by a wide margin the flour item most often bought by farmers. The distributions of all 25-pound bags of flour (including those reported at establishments where the 25-pound bag was quoted but was not most often bought) are given in Table 115 for both surveys.

The large number of brands, many of them locally milled, is the striking feature of this tabulation, and the analyses of variance (Tables 116, 117) suggest that brand differences were major contributors to the price variance.

There were differences between Crop Reporting Districts, as shown in Table 111, which appeared to be significant. Brand differences, although confounded with CRD differences, also appeared to be significant.

The overall price variances of flour on the two surveys were quite similar, but the indications of relationship between stores were inconclusive. No differences of appreciable size were apparent between independent and chain stores in June, for example, although there was some slight tendency for chain store prices to be lower except in D towns, where farmers' business is not heavy; the differences in December, however, were large, as indicated in Table 118 of mean prices. No explanation other than sampling variation can be offered for the differences between surveys.

These data indicate the high degree concentration into one or a few cells of a cross-tabulation, which seems to be a characteristic of much agricultural price data. In this case, the concentration is such that over half of all quotations were in the single cell representing independent stores in the A town-size stratum.

This analysis of flour prices reveals characteristics which have been found in the examination of data on several other commodities: (i) well-estimated mean (the standard error of the mean of prices of 25-pound bags of flour was $.008 in June and $.011 in December); (ii) brand differences a major contributor to price variance; (iii) concentration of data into few cells, which, when taken with high variation between brands, makes analysis difficult or unsatisfactory.

Round Steak. More of the round steak quotations were of Swift and Armour beef than of beef from any other single source. Local beef from a variety of sources, however, was more common than that reported from the major packers. The distribution of reports is shown in Table 119.

The biggest source of price variation was the grade of the beef reported. Grades were reported in what appeared to be a system analagous to the wartime OPA grading system, which divided meat into four classes: AA, corresponding to the Federal Grade of Choice; A, corresponding to Federal Good; B, Common; and C, Utility. OPA had no grades corresponding to Cutter or Canner. By grade, the survey prices were:

Grade	June		December	
	Number of Reports	Price per pound	Number of Reports	Price per pound
A	120	$.86	66	$.90
B	21	.76	11	.83
Utility	2	.75	5	.79
Not Reported	2	.75	22	.84
All Reports	145	.84	104	.89

The only other factor of any importance was the round of the steak, and the differences here were important mainly because they indicated uniformly that top round was most often bought by farmers. The amount of the price difference between top and bottom round varied widely between the two surveys; whether this represented an up-grading of the low-priced item in a period of generally rising prices, which would be a reasonably expected development, is a matter of conjecture which cannot be verified from the data. The prices of the different cuts were as follows:

Cut	June		December	
	Number of Reports	Average Price Per Pound	Number of Reports	Average Price Per Pound
Top Round	92	$.86	41	$.89
Bottom Round	32	.77	5	.87
Both	21	.86	50	.88
Not Specified	0	-	8	.82
All Reports	145	.84	104	.89

No price differences were apparent between frozen and fresh round steak, or between ground and unground. Practically all reports were for fresh meat, not ground.

Bacon. As in the case of round steak, Swift and Armour dominated the bacon market as reported on the surveys. The distribution by packer and grade were as shown in Tables 120 and 121.

The differences between grades and between packers within grades were, of course, major contributors to the price variance, as is further indicated on the following page.

Source of Variation	June D.F.	June S.S.	June M.S.	December D.F.	December S.S.	December M.S.
Between Grades	3[a]	.2264	.075	2[b]	.0824	.041
Between Packers in Grades	45	.2993	.006	52	.2531	.005
Within	195	.4941	.0025	121	.2861	.0024
Total	243	1.0198	-	175	.6216	-

a/ "Not available" here considered as a separate group.

b/ "Not available" group omitted.

The analyses of variance shown in Table 122 suggest that geographic factors and kind of business are statistically significant sources of price variation; Tables 123 and 124, showing mean prices, indicate the magnitudes of these differences in the survey data.

Despite statistical significance, the differences between means are of limited economic importance. The differences are probably sufficiently important, however, to give support to a plan of continued sample stratification by size of town and type of dealer, particularly the latter.

Tea (Orange-Pekoe). Table 109 indicates that about nine-tenths of the tea sales to farmers were reported to be in quarter-pound packages. In view of this connection, only quarter-pound packages are considered in the analysis that follows. The price distributions in the two surveys were as given in Table 125.

Unlike the situation found on many other commodities the overall price farmers paid for tea did not appear to be strongly influenced by brand. The dominant brand, Lipton, accounting for about two-thirds of all reports, was within one or two cents per package of all but one of the frequently-quoted brands. By brand, the prices are shown below.

Brand	June Number of Reports	June Average Price Per Package	December Number of Reports	December Average Price Per Package
Lipton	209	$.35	80	$.35
Vesper	33	.30	18	.30
Maxwell House	17	.34	8	.35
Tetley	16	.35	6	.33
All Others	40	.32	19	.32
All Reports	315	.34	131	.34

Analyses of variance, shown in Table 126, do not reveal any geographic differences of importance with the exception of those between Crop Reporting Districts, and even these were not sufficiently large to be of any appreciable economic significance. The biggest differences were those related to store organization. The magnitudes of these differences were as indicated in Table 127.

Chain stores sold mainly, but not entirely, their own brands of tea, so the price difference between independents and others is confounded with brand difference. Non-independent establishments were so few, however, that further subclassification of the data was not practical.

On the basis of this analysis of tea prices it appeared that differences, except between independent and non-independent stores, were of only limited importance, and that other factors affecting prices were without practical significance.

Summary of Food Analysis. The foregoing analysis of food prices embraces commodities of widely differing degrees of variability, from bread, exhibiting almost no variation from any source, to meats, which vary fairly widely compared with other foods, but less widely than some commodities in the non-food categories. Much of the variability observed was ascribable to quality differences, but certain geographic, store-type, and other differences appeared. To improve the quality of price estimates, it appeared that a first step would be to insure homogeneity with respect to quality of items within a given specification. Quality levels could be differentiated in the field more easily on food than on some of the other commodities included in the surveys; this procedure therefore appears to promise correspondingly greater improvements in food price quotations.

The form in which BAE presents some of its food price quotations, corn meal, bread, and tea, for example, appeared to be open to question. For these commodities, all of which are sold in units of widely varying sizes, an average unit price, say price per pound, is given, along with an average package size. This results in a quotation ($.054 per pound for an average quantity of 9.2 pounds, in the case of corn meal in June, for example) which is not only cumbersome, but which also, by including all reported quotations, violates the "most often bought" principle. It is not clear why this form of the quotation is adopted on some food items and not for others, like flour, which are also sold in a wide range of sizes. A preferable procedure would appear to be the one adopted for flour, i.e., determine the most often bought size and quote the price for that item. On each of the questionable foods, corn meal, bread, and tea, there was one item which was by far the most often bought, so the suggested procedure appears to be practical for field use as well as desirable for the other reasons given.

Table 109. Prices Paid by North Carolina for Selected Food Items. June and December, 1950.

Item	Unit in which price is quoted	June Survey				BAE Prices
		No. of Reports	High	Low	Mean	
Flour[a]	5 lb.	2	$ .74	$ .60	$ .67	$
	10 lb.	49	1.15	.75	.90	
	25 lb.	286	2.59	1.49	1.98	2.00
	50 lb.	46	4.35	3.35	3.90	
	100 lb.	21	8.75	6.85	7.54	
Corn Meal	2 lb.	1	.15	.15	.15	
	5 lb.	108	.39	.25	.30	
	10 lb.	221	.65	.45	.54	
	25 lb.	55	1.50	1.00	1.20	
	50 lb.	2	1.50	1.50	1.50	
	100 lb.	0	-	-	-	
Average of all reports					.053/10.9[b]	.054/9.2
White Bread	12 oz.	2	.15	.13	.14	
	14 oz.	6	.15	.13	.14	
	16 oz.	396	.15	.12	.15	
	18 oz.	2	.18	.18	.18	
	24 oz.	6	.20	.18	.18	
Average of all reports					.150/16.0[c]	.148/15.8
Round Steak	1 lb.	145	1.10	.60	.84	.85
Salt Pork	1 lb.	333	.35	.10	.20	.189
Bacon	1 lb.	244	.78	.40	.56	.54
Apples	1 lb.	125	.18	.08	.13	.125
Tea	5/8 oz.	2	.15	.12	.13[d]	
	1 3/8 oz.	10	.25	.10	.15[d]	
	2 oz.	28	.20	.12	.16	
	4 oz.	315	.40	.25	.34	
	8 oz.	7	.75	.45	.59	
Average of all reports					1.349/3.92[e]	1.25/4.93

[a] All flour quotations given here are those reported "most often bought by farmers"; there were other quotations on the 25-lb. bag from establishments in which some size other than the 25-lb. bag was most often bought. The discussion in the text gives details on this point.

[b] Read: "Average price for all reports was $.053 per lb., and average bag size was 10.9 lbs.", etc.

[c] Read: "Average price for all reports was $.150 per lb., and average loaf size was 16.0 oz.", etc.

[d] These were quotations as tea bags, and were excluded from the average of all reports.

[e] Read: "Average price for all reports was $1.349 per lb., and the average package size was 3.92 oz.", etc.

Table 109. (Concluded).

Item	Unit in which price is quoted	December Survey				BAE Prices
		No. of Reports	High	Low	Mean	
Flour [a]	5 lb.	3	$ .59	$ .52	$ .59	$
	10 lb.	49	1.10	.79	.91	
	25 lb.	232	2.60	1.49	1.98	2.05
	50 lb.	16	4.20	3.50	3.83	
	100 lb.	21	8.25	6.15	7.30	
Corn Meal	2 lb.	4	.20	.15	.17	
	5 lb.	94	.57	.23	.36	
	10 lb.	162	.79	.40	.59	
	25 lb.	41	1.55	.95	1.31	
	50 lb.	1	2.75	2.75	2.75	
	100 lb.	2	5.00	3.60	4.30	
Average of all reports					.057/11.1	.060/7.9
White Bread	12 oz.	16	.16	.15	.15	
	14 oz.	0	-	-	-	
	16 oz.	293	.16	.13	.15	
	18 oz.	2	.16	.15	.15	
	24 oz.	3	.18	.18	.18	
Average of all reports					.151/15.9	.157/15.8
Round Steak	1 lb.	104	1.09	.65	.89	.91
Salt Pork	1 lb.	248	.40	.17	.26	.25
Bacon	1 lb.	176	.78	.43	.62	.61
Apples	1 lb.	198	.15	.05	.11	.109
Tea	5/8 oz.	0	-	-	-	
	1 3/8 oz.	5	.12	.10	.11	
	2 oz.	0	-	-	-	
	4 oz.	131	.39	.25	.34	
	8 oz.	18	.75	.49	.58	
Average of all reports					1.317/4.48	1.30/4.3

[a] All flour quotations given here are those reported "most often bought by farmers"; there were other quotations on the 25-lb. bag from establishments in which some size other than the 25-lb. bag was most often bought. The discussion in the text gives details on this point.

Table 110. Prices Paid by North Carolina Farmers for Selected Food Items in Towns of Different Sizes. June and December, 1950.

June

Town Size Stratum	Flour per 25 lb. Bag	Corn Meal per Bag 5-lb.	Corn Meal per Bag 10-lb.	White Bread 16-oz. Loaf	Round Steak lb.	Salt Pork lb.	Bacon lb.	Apples lb.	Tea 4-oz. Pkg.	Total No. of Reports[a]
A	$1.98	$.30	$.54	$.15	$.80	$.20	$.56	$.12	$.34	258
B	1.99	.29	.54	.15	.87	.20	.54	.13	.33	112
C	1.99	.30	.54	.15	.91	.18	.58	.13	.34	33
D	2.08	.32	.57	.15	.91	.20	.60	.14	.35	10
D(Map)	2.07	.35	.59	.15	.88	.19	.63	.14	.36	13
All Strata	1.99[b]	.30	.54	.15	.84	.20	.56	.13	.34	426

[a] All food items were clipped together into a general food schedule; if an establishment sold any one of the eight items, a schedule was taken. Most establishments sold several of the food items. The number of reports given here is the number of general food schedules, and does not refer to any single commodity.

[b] This figure is based on 396 quotations: 286 reports in which the 25-lb. bag was the most often bought by farmers, plus 110 reports in which another size was most often bought, but the 25-lb. bag was also reported. The figure given in Table 109 refers to the 286 "most commonly bought" reports.

Table 110. (Concluded).

December

Town Size Stratum	Flour per 25 lb. Bag	Corn Meal per Bag 5-lb.	Corn Meal per Bag 10-lb.	White Bread 16-oz. Loaf	Round Steak lb.	Salt Pork lb.	Bacon lb.	Apples lb.	Tea 4-oz. Pkg.	Total No. of Reports[a]
A	$2.02	$.37	$.59	$.15	$.83	$.26	$.63	$.11	$.34	194
B	1.95	.34	.60	.15	.91	.25	.61	.11	.34	86
C	2.04	.33	.56	.16	.91	.26	.60	.11	.33	41
D	2.05	.31	.64	.15	.93	.28	.63	.11	.34	14
D(Map)	2.09	.33	-	.15	.92	x	.65	x	.34	8
All Strata	2.01[b]	.36	.59	.15	.89	.26	.62	.11	.34	343

[a] Same as for June table, on preceding page.

[b] Includes 66 quotations from establishments in which the 25-lb. bag was not the size most often bought by farmers.

Table 111. Prices Paid by North Carolina Farmers for Selected Food Items in the State's Eight Crop Reporting Districts. June and December, 1950.

June

Crop Reporting District	Flour per 25-lb. Bag	Corn Meal per Bag 5-lb.	Corn Meal per Bag 10-lb.	White Bread 16-oz. Loaf	Round Steak lb.	Salt Pork lb.	Bacon lb.	Apples lb.	Tea 4-oz. Pkg.	Total No. of Reports
1	$1.88	$.28	$.50	$.14	$.87	$.19	$.50	$.14	$.35	30
2	2.02	.29	.56	.15	.89	.19	.59	.12	.34	52
3	2.06	.31	.58	.15	.82	.22	.55	.12	.33	54
4	2.02	.32	.51	.14	.85	.21	.55	.12	.34	57
5	1.93	.30	.53	.15	.84	.20	.55	.12	.34	52
6	2.04	.30	.56	.15	.86	.19	.57	.13	.32	62
8	2.02	.28	.51	.15	.85	.20	.57	.13	.34	72
9	1.86	.31	.58	.15	.82	.17	.56	.13	.34	47
All CRD's	1.99	.30	.54	.15	.84	.20	.56	.13	.34	426

December

1	$1.88	$.31	$.54	$.15	$.92	$.25	$.60	$.07	$.35	30
2	1.98	.33	.62	.16	.91	.26	.64	.10	.35	49
3	2.12	.34	.65	.16	.87	.27	.63	.12	.33	68
4	2.06	.29	.57	.15	.84	.29	.63	.09	.34	44
5	1.91	.34	.60	.15	.88	.26	.63	.10	.34	25
6	2.11	.34	.60	.16	.87	.27	.62	.11	.32	59
8	2.02	.32	.52	.15	.91	.26	.65	.10	.35	31
9	1.82	.40	.58	.15	.85	.21	.62	.11	.35	37
All CRD's	2.01	.36	.59	.15	.89	.26	.62	.11	.34	343

Table 112. Prices Paid by North Carolina Farmers for Selected Food Items at Stores Offering Different Services. June and December, 1950.

June

Commodity	Credit and Delivery	Credit, No Delivery	No Credit, Delivery	No Credit, No Delivery	All Reports
Flour (25-lbs.)	$1.99	$1.99	$2.01	$2.00	$1.99
Corn Meal (5-lbs.)	.29	.30	.32	.30	.30
Corn Meal (10-lbs.)	.55	.55	.49	.54	.54
White Bread (16-oz.)	.15	.15	.15	.15	.15
Round Steak (1-lb.)	.83	.81	.89	.91	.84
Salt Pork (1-lb.)	.20	.20	.20	.19	.20
Bacon (1-lb.)	.57	.56	.57	.54	.56
Apples (1-lb.)	.15	.12	.14	.14	.13
Tea (Orange-Pekoe, 4-oz.)	.34	.34	.36	.33	.34
Number of Stores	126	191	13	96	426

December

Flour (25-lbs.)	$2.03	$2.04	$2.06	$1.97	$2.01
Corn Meal (5-lbs.)	.33	.34	.34	.35	.36
Corn Meal (10-lbs.)	.61	.60	.55	.58	.59
White Bread (16-oz.)	.15	.16	.15	.15	.15
Round Steak (1-lb.)	.91	.84	.89	.88	.89
Salt Pork (1-lb.)	.27	.26	.29	.25	.26
Bacon (1-lb.)	.62	.64	.64	.60	.62
Apples (1-lb.)	.11	.11	.12	.11	.11
Tea (Orange Pekoe, 4-oz.)	.35	.33	.34	.33	.34
Number of Stores	67	138	11	85	301[a]

[a] No reports on services offered were received from 42 establishments.

Table 113. Prices Paid by North Carolina Farmers for Selected Food Items at Establishments Making Various Charges for Services. June, 1950.

Commodity	Services offered and charges made			
	Credit and delivery both offered		Credit only offered	
	Charge for both	Charge only for credit	Charge for credit	All Reports
Flour (25-lbs.)	$1.95(6)[a]	$1.83 (7)	$1.95(36)	$1.93(49)
Corn Meal (10-lbs.)	.55(6)	.58 (4)	.56(27)	.56(37)
White Bread (16-oz.)	.15(6)	.15 (7)	.15(36)	.15(49)
Round Steak (1-lb.)	.89(3)	.78 (3)	.79(9)	.81(15)
Salt Pork (1-lb.)	.19(5)	.18 (7)	.19(33)	.19(45)
Bacon (1-lb.)	.59(5)	.56 (4)	.58(16)	.58(25)
Apples (1-lb.)	.13(4)	.125(4)	.13(4)	.13(12)
Tea (Orange-Pekoe, 4-oz.)	.35(4)	.33 (7)	.33(29)	.33(40)

[a] Numbers in parentheses are numbers of reports.

Table 114. Prices Paid by North Carolina Farmers for Selected Food Items at Different Kinds of Establishments. June and December, 1950.

June

Commodity	Kind of Store			Organization of Store		
	Food Store	General Store	Other	Independent	Chain	Cooperative
Flour (25-lbs.)	$2.00	$1.98	$1.98	$1.99	$1.97	$2.06
Corn Meal (5-lbs.)	.29	.30	.32	.30	.28	
Corn Meal (10-lbs.)	.54	.55	.55	.55	.53	.50
White Bread (16-oz.)	.15	.15	.15	.15	.14	.15
Round Steak (1-lb.)	.85	.81	.80	.83	.96	
Salt Pork (1-lb.)	.20	.20	.19	.20	.18	.30
Bacon (1-lb.)	.56	.56	.57	.56	.52	.55
Apples (1-lb.)	.13	.12		.12	.15	
Tea (Orange-Pekoe, 4-oz.)	.34	.34	.34	.34	.31	.35
Number of Stores	226	73	27	396	23	7

December

Flour (25-lbs.)	$1.96	$2.03	$2.18	$2.02	$1.84	$2.15
Corn Meal (5-lbs.)	.35	.37	.33	.36	.32	
Corn Meal (10-lbs.)	.61	.58	.55	.60	.57	.55
White Bread (16-oz.)	.15	.15	.16	.15	.15	.15
Round Steak (1-lb.)	.89	.84	.77	.86	.97	
Salt Pork (1-lb.)	.25	.26	.26	.26	.25	.35
Bacon (1-lb.)	.61	.63	.64	.63	.56	.65
Apples (1-lb.)	.11	.11	.10	.11	.11	
Tea (Orange-Pekoe, 4-oz.)	.34	.33	.33	.34	.30	
Number of Stores	163	155	25	316	22	5

Table 115. Frequency Distributions of Prices Paid by North Carolina Farmers for 25-lb. Bags of Flour. June and December, 1950.

Price	June		December	
	No. of Reports	No. of Brands[a]	No. of Reports	No. of Brands[a]
$1.47-1.56	3	3	7	6
1.57-1.66	2	2	5	2
1.67-1.76	22	8	19	10
1.77-1.86	68	15	38	17
1.87-1.96	91	27	61	28
1.97-2.06	86	30	44	16
2.07-2.16	77	19	66	18
2.17-2.26	34	3	44	18
2.27-2.36	7	2	9	3
2.37-2.46	4	1	3	3
2.47 and Over	2	1	2	1
All Prices	396	115	298	122

[a] The average price was computed for each brand, and brands were then classified in the appropriate price classes.

Table 116. Analyses of Variance of Prices Paid by North Carolina Farmers for 25-lb. Bags of Flour. June and December, 1950.

Source of Variation	June		December	
	Degrees of Freedom	Mean Square	Degrees of Freedom	Mean Square
Between Brands	114	.051	121	.077
Within Brands	281	.014	176	.010
Total	395		297	

Table 117. Analyses of Variance of Prices Paid by North Carolina Farmers for 25-lb. Bags of Flour. June and December, 1950.

Source of Variation	June		December	
	Degrees of Freedom	Mean Square	Degrees of Freedom	Mean Square
Between CRD's	7	.258	7	.478
Counties in CRD's	31	.032	24	.097
Towns in Counties	32	.036	28	.013
Within Towns	325	.018	238	.022
Total	395		297	
Town-Size Strata	3	.046	3	.107
Kind of Store[a]	2	.025	2	.370
Organization of Store[b]	2	.019	2	.450
Interaction	12	.167	11	.054
Within	376	.020	279	.031
Total	397		297	

[a] Food, general, other.

[b] Independent, chain, cooperative.

Table 118. Prices Paid by North Carolina Farmers for 25-lb. Bags of Flour in Different Kinds of Establishments. June and December, 1950.

June

Town-Size Stratum	Organization of Store			All Stores	No. of Quotations
	Independent	Chain	Cooperative		
A	$1.99(242)[a]	$1.89(4)	$2.20(1)	$1.99	247
B	1.99(84)	1.96(13)	2.00(3)	1.99	100
C	1.99(26)	1.98(4)	2.10(1)	1.99	31
D	2.07(17)	2.23(1)	-	2.08	18
All Strata	1.99	1.96	2.06	1.99	-
No. of Quotations	369	22	5	-	396

December

A	$2.03(171)[a]	$1.85(3)	$2.10(1)	$2.02	175
B	1.97(63)	1.80(10)	2.12(3)	1.95	76
C	2.08(25)	1.86(7)	2.30(1)	2.04	33
D	2.05(13)	2.05(1)	-	2.05	14
All Strata	2.02	1.84	2.15	2.01	-
No. of Quotations	272	21	5	-	298

[a] Numbers in parentheses are numbers of reports.

Table 119. Prices Paid by North Carolina Farmers for Round Steak from Various Sources. June and December, 1950.

Packer	June		December	
	Number of Reports	Average Price Per Pound	Number of Reports	Average Price Per Pound
Local	34	$.77	21	$.80
Swift	34	.86	16	.94
Armour	17	.92	9	.92
Rath	4	.88	2	.97
Lowder	4	.76	0	-
Wilson	3	.81	1	.98
Kingan	3	.92	1	.85
White	3	.77	1	.95
Newbern	3	.78	2	.80
Other	14	.82	10	.88
Not Given	26	.89	41	.88
All Reports	145	.84	104	.89

Table 120. Prices Paid by North Carolina Farmers for Bacon from Various Sources. June and December, 1950.

Packer	June		December	
	Number of Reports	Average Price Per Pound	Number of Reports	Average Price Per Pound
Armour	48	$.57	28	$.61
Swift	37	.57	40	.64
Kingan	19	.58	9	.63
Rath	18	.62	18	.67
White	18	.52	13	.59
Hormel	15	.56	7	.63
Cudahy	11	.53	0	-
All Others	67	.58	55	.61
Not Reported	11	.54	6	.57
All Reports	244	.56	176	.62

Table 121. Prices Paid by North Carolina Farmers for Different Grades of Bacon. June and December, 1950.

Grade	June		December	
	Number of Reports	Average Price Per Pound	Number of Reports	Average Price Per Pound
A	176	$.58	107	$.64
B	61	.51	28	.58
C	3	.47	1	.65
Not Available	4	.58	40	.62
All Reports	244	.56	176	.62

Table 122. Analyses of Variance of Grade A and Grade B Bacon Bought by North Carolina Farmers. June and December, 1950.

June

Sources of Variation	Grade A Degrees of Freedom	Grade A Mean Square	Grade B Degrees of Freedom	Grade B Mean Square
Between Crop Reporting Districts	7	.0129	7	.0036
Between Counties in Crop Reporting Districts	31	.0021	16	.0013
Between Towns in Counties	21	.0062	12	.0024
Within Towns	116	.0032	25	.0013
Total	175	-	60	-
Town-Size Strata	3	.0104	3	.0046
Store Organization[a]	1	.0344	1	.0008
Kind of Store[b]	2	.0005	2	.0006
Interaction	7	.0017	4	.0010
Within	162	.0037	50	.0017
Total	175	-	60	-

[a] Independent and Chain-Cooperatives.

[b] Food Store, General Store, and all others.

December

Sources of Variation	Grade A Degrees of Freedom	Grade A Mean Square	Grade B Degrees of Freedom	Grade B Mean Square
Between Crop Reporting Districts	7	.0116		
Between Counties in Crop Reporting Districts	20	.0042		
Between Towns in Counties	12	.0045		
Within Towns	67	.0026		
Total	106	-		
Town-Size Strata	3	.0021		
Store Organization	1	.0266		
Kind of Store	2	.0042		
Interaction	8	.0068		
Within	92	.0032		
Total	106	-		

Note

With only 28 reports, the analysis of Grade B Bacon in December was not considered worth while.

Table 123. Prices Paid by North Carolina Farmers for Grade A Bacon in the State's Eight Crop Reporting Districts. June and December, 1950.

Crop Reporting District	June		December	
	Number of Reports	Average Price Per Pound	Number of Reports	Average Price Per Pound
1	3	$.56	2	$.59
2	14	.63	17	.66
3	20	.55	27	.64
4	33	.56	15	.64
5	32	.56	11	.56
6	16	.59	10	.65
8	38	.59	13	.65
9	20	.60	12	.62
All Reports	176	.58	107	.64

Table 124. Prices Paid by North Carolina Farmers for Grade A Bacon at Different Kinds of Establishments in Different Town-Size Strata. June and December, 1950.

Town-Size Stratum	June				December			
	Independent Stores		Chains and Coops		Independent Stores		Chains and Coops	
	No. of Reports	Average Price Per Pound	No. of Reports	Average Price Per Pound	No. of Reports	Average Price Per Pound	No. of Reports	Average Price Per Pound
A	96	$.57	1	$.60	58	$.64	2	$.64
B	43	.57	8	.53	19	.64	4	.52
C	14	.63	3	.49	7	.65	3	.62
D	11	.63	0	-	13	.64	1	.65
All Reports	164	.58	12	.53	97	.64	10	.59

Table 125. Frequency Distributions of Prices Paid by North Carolina Farmers for Quarter-Pound Packages of Orange-Pekoe Tea. June and December, 1950.

Price Per Package	Number of Reports	
	June	December
$.25	11	4
.26	0	0
.27	1	1
.28	2	2
.29	3	1
.30	45	21
.31	0	0
.32	4	3
.33	35	13
.34	7	1
.35	185	76
.36	5	0
.37	2	3
.38	9	4
.39	2	2
.40	4	0
All Reports	315	131

Table 126. Analyses of Variance of Prices Paid by North Carolina Farmers for Quarter-Pound Packages of Orange-Pekoe Tea. June and December, 1950.

Sources of Variation	June		December	
	Degrees of Freedom	Mean Square	Degrees of Freedom	Mean Square
Between Crop Reporting Districts	7	.0034	7	.0024
Between Counties in Crop Reporting Districts	29	.0012	20	.0009
Between Towns in Counties	28	.0011	17	.0005
Within Towns	250	.0006	86	.0007
Total	314	-	130	-
Town-Size Strata	3	.0024	3	.0000+
Store Organization[a]	1	.0100	1	.0096
Kind of Store[b]	1	.0001	1	.0006
Interaction	9	.0011	6	.0018
Within	300	.0007	119	.0007
Total	314	-	130	-

[a] Independent and others, the latter including chains and cooperatives.
[b] Food stores and others, the latter including general stores and miscellaneous others.

Table 127. Prices Paid by North Carolina Farmers for Quarter-Pound Packages of Orange-Pekoe Tea at Different Types of Establishments in Different Town-Size Strata. June and December, 1950.

Town-Size Strata	June				December			
	Price Per Package				Price Per Package			
	Independent	Others	All Stores	No. of Reports	Independent	Others	All Stores	No. of Reports
A	$.34	$.35	$.34	199	$.34	$.35	$.34	80
B	.34	.31	.33	72	.34	.31	.34	29
C	.34	.32	.34	30	.35	.28	.33	18
D	.36	.33	.35	14	.34	.32	.34	4
All Reports	.34	.32	.34	-	.34	.30	.34	-
Number of Reports	294	18	-	315	122	9	-	131

Clothing. Price quotations on clothing were included in the general surveys of March and September. The same items, men's suits, men's work shoes, women's panties, percale yard goods, house dresses, and women's lightweight coats, were covered on both surveys.

The clothing quotations were among the difficult ones to evaluate because of their above-average heterogeneity. Some indication of the degree of this heterogeneity is provided by the data given in Table 128.

The kind of difficulty encountered when these data were subjected to a variance analysis is suggested by the following situation, which was characteristic of other products than the particular one cited. When respondents were asked to give the prices of men's suits "most often bought by farmers", the range of prices quoted in the different stores was wide, even if, in terms of this specification, the respondents all answered correctly. In the March survey, in addition to "most often bought" items, quotations were taken on "most expensive" and "least expensive" items bought by farmers. The ranges of the least expensive and the most expensive were not greatly different from each other or from the range of the most often bought items. In addition, there was present the possibility of inaccurate reporting, arising from the respondent's difficulty in separating farmers from other purchasers. The seriousness of this latter point could not be here evaluated, but it deserves study.

The item showing greatest variation was women's lightweight coats, probably because the "most often bought" specification there included a wide variety of specific items, such as rain coats and other light winter coats, the latter being but indefinitely distinguishable from heavy coats.

Despite these characteristics of the specifications, however, the survey mean prices, although often slightly above the BAE quotations, agreed fairly well with the prices released by BAE, and showed, as was to have been expected, that the prices had risen between the two surveys.

Data were taken on credit and delivery practices for clothing as a group, but not for clothing items separately.[18/] It was assumed that credit-delivery policies in a store would be applied fairly uniformly to all items of clothing.

Table 129, on credit practices, indicates that nearly one-half of those offering credit did so on a short term basis and made no specific charge for the services.

The most frequently reported clothing item was men's work shoes, reported in March by 135 respondents. This item is used to illustrate the credit situation. The average price per pair in stores offering credit was $6.17, and, in stores not offering credit, $5.75. These differences in mean prices did not appear to be statistically significant, even at the 20% level, because of the high within-group variation.

18/ The "clothing schedule", consisting of a first page of general questions (including those on credit and delivery) followed by a separate page of specific questions for each individual item, was used for any establishment reporting the sale to farmers of one or more of the clothing items under study.

About 15% of the stores reported offering free delivery of clothing within the city. Since this study was of prices paid by farmers, delivery service was of negligible importance.

The credit-delivery data were about the same in September as in March. Since they appeared to be of no measurable importance in the explanation of prices of clothing bought by farmers, no further attention was given to them.

Wide price ranges, and similar price distributions and product characteristics, were evident in all the clothing items. Detailed analyses of one item would probably be duplicated in others. Thus, not all the items were analyzed in detail; men's suits and women's rayon panties were the items examined fully.

Men's Suits. The distribution of prices reported for men's suits in the two surveys was as shown in Table 130; mean prices are given in Table 131, and analyses of variance, in Table 132.

None of the geographic differences appeared to be significant. The differences that did appear significant were those between towns of different sizes and between types of dealers. The table of mean prices (Table 131) indicates the nature of these differences, i.e., farmers paid more for men's suits purchased in larger towns, and they paid more if they bought from an independent seller. Interactions appeared in both months to be insignificant. Correspondence between the analyses in the two months was close.

Mention status appeared significant in the cases of clothing and furniture alone among commodity groups studied. The classification of data on the basis of mention status, it will be recalled, was necessary because of the way in which the sample for this survey was drawn. List of establishments mentioned by farmers as sources of their purchases supplied most of the names, but these lists were supplemented by unmentioned names from other sources, including telephone directories and Dun and Bradstreet listings. Inclusion of mention status as a criterion of classification was for the purpose of ascertaining the extent to which the prices obtained from the two sources (establishments mentioned by farmers vs. those not mentioned) were different. The overall importance of this classification having been ascertained from the analysis of the March data to be negligible, and its importance for the study objectives being limited, the sample for subsequent surveys was so drawn as to give continued representation to the non-mentions, but no further specific attention was given to them in the analysis.

Women's Rayon Panties. Distributions of prices for this item in March and September are shown in Table 133. Mean prices and analyses of variance are given in Tables 134 and 135.

None of the geographic price differences for panties appeared significant in either month. Mention status appeared significant in March, but this analysis was affected by the presence of two reports at

prices far above any of the others ($1.98 and $1.25). The September data indicated important town-size and dealer-type differences, of the same sort as those found in men's suits.

The only measure of quality available for panties was the type of weave, i.e., knit or woven. No significant difference in price could be shown between these sub-groups. It is unlikely that this form of specification is usable in a field survey in North Carolina because many respondents did not know the difference as evidenced by the fact that about 25% of the reports did not specify whether the item was knit or woven.

Summary of Clothing Analysis. Despite a high degree of heterogeneity in quality, and hence in prices, of clothing items quoted as those "most often bought by farmers", the mean prices from the BAE mail questionnaires and those from the surveys agreed fairly closely.

Town-size and dealer-type were the only sources of price variation which appeared significant; interaction between these was negligible. Prices were, in general, higher in larger towns, and higher in independent stores.

In the absence of adequate quality designations of items studied, it was impossible to separate (i) price differences arising from quality differences in the kinds of clothing purchased by farmers, from (ii) differences in price charged for the same item at different establishments.

This study has shown the necessity for a better specification of commodities if statistical analysis of the data is to be satisfactory, but the primary purpose of the BAE work is to estimate mean prices, and not to provide data for detailed analyses. That primary objective appears to be reasonably well attained. Further work needs to be done to determine the best form of the specifications, and the degree of fineness which will be feasible within the BAE framework.

Table 128. Prices Paid by Farmers for Selected Clothing Items in North Carolina: Two Surveys in March and September, 1950, Compared with Corresponding BAE Prices.

Item	March Survey					September Survey				
	Number of Reports	High	Low	Mean	BAE Price	Number of Reports	High	Low	Mean	BAE Price
Men's Suits	84	$60.00	$20.00	$38.15	$34.50	84	$60.00	$19.00	$39.75	$39.50
Men's Work Shoes	135	15.95	3.50	5.93	5.60	136	9.95	3.95	6.16	5.90
Women's Panties	97	1.98	.25	.57	.59	112	1.75	.25	.63	.64
House Dresses	72	8.98	1.94	3.29	2.80	84	5.98	1.98	3.09	2.90
Women's Lightweight Coats	69	55.00	6.00	21.70	18.00	74	50.00	7.00	24.33	19.00
Percale Yard Goods	79	.59	.25	.42	.42	77	.75	.29	.46	.46

Table 129. Credit Services Offered by a Sample of North Carolina Clothing Stores Reporting Sales to Farmers. March, 1950.

Term of Credit	Charge for Credit					No Credit Offered	Credit Status Not Reported	Totals
	None	5%	6%	10%	Flat Carrying Charge			
Up to 2 months	42	0	2	2	0	-	-	46
3 to 8 months	16	0	3	0	1	-	-	20
9 to 14 months	2	3	0	2	0	-	-	7
15 or more months	2	0	0	0	1	-	-	3
"Fall"	2	0	1	9	0	-	-	12
No specified term	2	0	0	0	4	-	-	6
All stores offering credit	66	3	6	13	6	-	-	94
No credit offered	-	-	-	-	-	36	-	36
Credit status not reported	-	-	-	-	-	-	70	70
Totals	66	3	6	13	6	36	70	200

Table 130. Frequency Distribution of Prices Paid by North Carolina Farm People for Men's Suits. March and September, 1950.

Price	Number of Reports	
	March	September
$17.50 - 22.49	4	1
22.50 - 27.49	6	1
27.50 - 32.49	15	11
32.50 - 37.49	17	25
37.50 - 42.49	15	14
42.50 - 47.49	12	16
47.50 - 52.49	9	11
52.50 - 57.49	4	2
57.50 - 62.49	2	3
All Prices	84	84

Table 131. Prices Paid by North Carolina Farmers for Men's Suits. March and September, 1950.

March

Type of Dealer	Mention Status	Size of Town					No. of Reports
		A	B	C	D	All Towns	
Independent	Mentioned	$47.95	$37.77	$40.35	$60.00	$39.57	28
	Not Mentioned	34.99	38.05	43.72	57.50	42.19	23
Chain	Mentioned	27.95	33.11	37.40	31.48	33.97	23
	Not Mentioned	26.23	35.00	55.00	41.20	38.34	10
All Reports		33.06	36.32	41.54	43.22	38.61	-
Number of Reports		6	41	26	11	-	84

September

Independent	$35.38	$40.08	$42.74	$48.83	$41.32	57
Chain	32.22	34.11	39.89	39.49	36.44	27
All Reports	34.74	38.19	42.09	43.80	39.75	-
Number of Reports	8	41	22	13	-	84

Table 132. Analyses of Variance of Prices Paid by North Carolina Farmers for Men's Suits. March and September, 1950.

Source of Variation	June		September	
	Degrees of Freedom	Mean Square	Degrees of Freedom	Mean Square
Between Crop Reporting Districts	7	86	7	56
Between Counties in Crop Reporting Districts	19	145	18	67
Between Towns in Counties	3	31	5	45
Within Towns	54	77	53	70
Total	83	-	83	-
Town-Size Strata	3	285	3	211
Type of Dealer	1	596	1	437
Mention Status	1	317	-	-
Interaction	10	112	3	70
Within	68	69	76	56
Total	83	-	83	-

Table 133. Frequency Distribution of Prices Paid by North Carolina Farm People for Rayon Panties, March and September, 1950.

Price	Number of Reports	
	March	September
$.25 - .34	5	6
.35 - .44	16	14
.45 - .54	36	25
.55 - .64	24	25
.65 - .74	12	15
.75 - .84	10	10
.85 - .94	5	4
.95 or More	12	13
All Prices	120[a]	112

[a] This total, based on the June distribution used in the analyses, includes all price quotations given, including those reporting zero sales during the survey period; the average of these 120 reports was $.61, compared to the $.57 based on the 97 reports from establishments that reported at least one sale during the survey period.

Table 134. Prices Paid by North Carolina Farm People for Women's Rayon Panties. March and September, 1950.

March

Type of Dealer	Mention Status	Size of Town A	B	C	D	All Towns	No. of Reports
Independent	Mentioned	.50	.67	.54	.79	.61	21
	Not Mentioned	.61	.60	.66	-	.62	39
Chain	Mentioned	.50	.48	.58	.57	.52	17
	Not Mentioned	.42	.49	.84	.62	.59	20
All Reports		.52	.53	.63	.61	.57	-
Number of Reports		35	34	14	14	-	97[a]

[a] See footnote [a], Table 133.

September

Independent	.62	.71	.90	.62	.69	70
Chain	.42	.57	.60	.50	.53	42
All Reports	.59	.66	.78	.52	.63	-
Number of Reports	36	39	17	20	-	112

Table 135. Analyses of Variance of Prices Paid by North Carolina Farmers for Women's Rayon Panties. March and September, 1950.

Source of Variation	March Degrees of Freedom	March Mean Square	September Degrees of Freedom	September Mean Square
Between Crop Reporting Districts	7	.06	7	.02
Between Counties in Crop Reporting Districts	22	.06	23	.09
Between Towns in Counties	12	.03	12	.05
Within Towns	78	.06	69	.06
Total	119	-	111	-
Town-Size Strata	3	.06	3	.23
Type of Dealer	1	.03	1	.63
Mention Status	1	.36	*	*
Interaction	9	.06	3	.02
Within	105	.05	104	.05
Total	119	-	111	-

* September data were not analyzed on the basis of mention status.

Furniture and Furnishings. The general price surveys of March and June each included quotations on the same eight items: living room suites, occasional chairs, kitchen ranges, electric washers, dining room suites, kitchen cabinets, bed sheets, and felt-base linoleum rugs.

Furniture quotations, like those on clothing, were subject to a high degree of heterogeneity, some indication of which is provided in Table 136.

This heterogeneity was, in some cases, due to quality differences in the item studied, and would appear to be manageable if quality could be defined. Definition of quality was attempted in the cases of several of the items. On occasional chairs, for example, data were taken on the materials used for upholstery and stuffing, and on the type of springs. Practically all upholstery was described as either tapestry or plastic; stuffing, as cotton, felt, or hair; and springs, as coil, with a few no-sag. No relation was apparent between price and either upholstery or stuffing material; there seemed to be some tendency for no-sag springs to be used in more expensive chairs. There was no evidence that specification of occasional chairs in the terms employed was of any substantial value. It appeared, in fact, that adequate specifications might be so detailed that their use on a large number of items in a single survey would be prohibitively costly, not only in money, but in time and respondent cooperation as well.

Trade practices on credit and delivery were studied. Few establishments offered delivery, and none reported a specific charge for it. Credit practices were examined in detail as they applied to occasional chairs, on the assumption that a uniform credit policy would be likely to apply to all items of furniture sold by a given store.

Of the 92 establishments reporting sales of occasional chairs to farmers in March, only 4 did not offer credit. The distribution of reports by credit services offered is shown in Table 137.

Most of the credit on furniture was carried for 12, 18, or 24 months, and 6% was the most common charge, although for the shorter terms a number of establishments reported no charge.

Without a measure of quality, it is not possible to say anything about the cost of credit. Table 138 shows that the price reported was higher in stores offering longer term credit, but this obviously includes, in addition to differences in credit costs, the differences due to quality and the consequent differences in consumers' financing, i.e., they tend to finance higher quality more expensive merchandise over longer periods of time.

The "cash price" reported in stores reporting varying credit charges was as shown in Table 139. Here again, however, little can be said regarding the relation between price and credit charge because of the unknown but very important quality effect which is included in the figures.

In addition to quality differences, there was another source of variation the effect of which could not be measured satisfactorily. This was the variation due to failure of respondents to report in the same way at different times. The seriousness of this kind of variation was shown by a study of the data on occasional chairs. Of the 92 establishments reporting chair sales to farmers in March, 59 were also included in the June sample and reported sales then. These 59 identical-store quotations from the two surveys provided data for an examination of consistency in reporting.

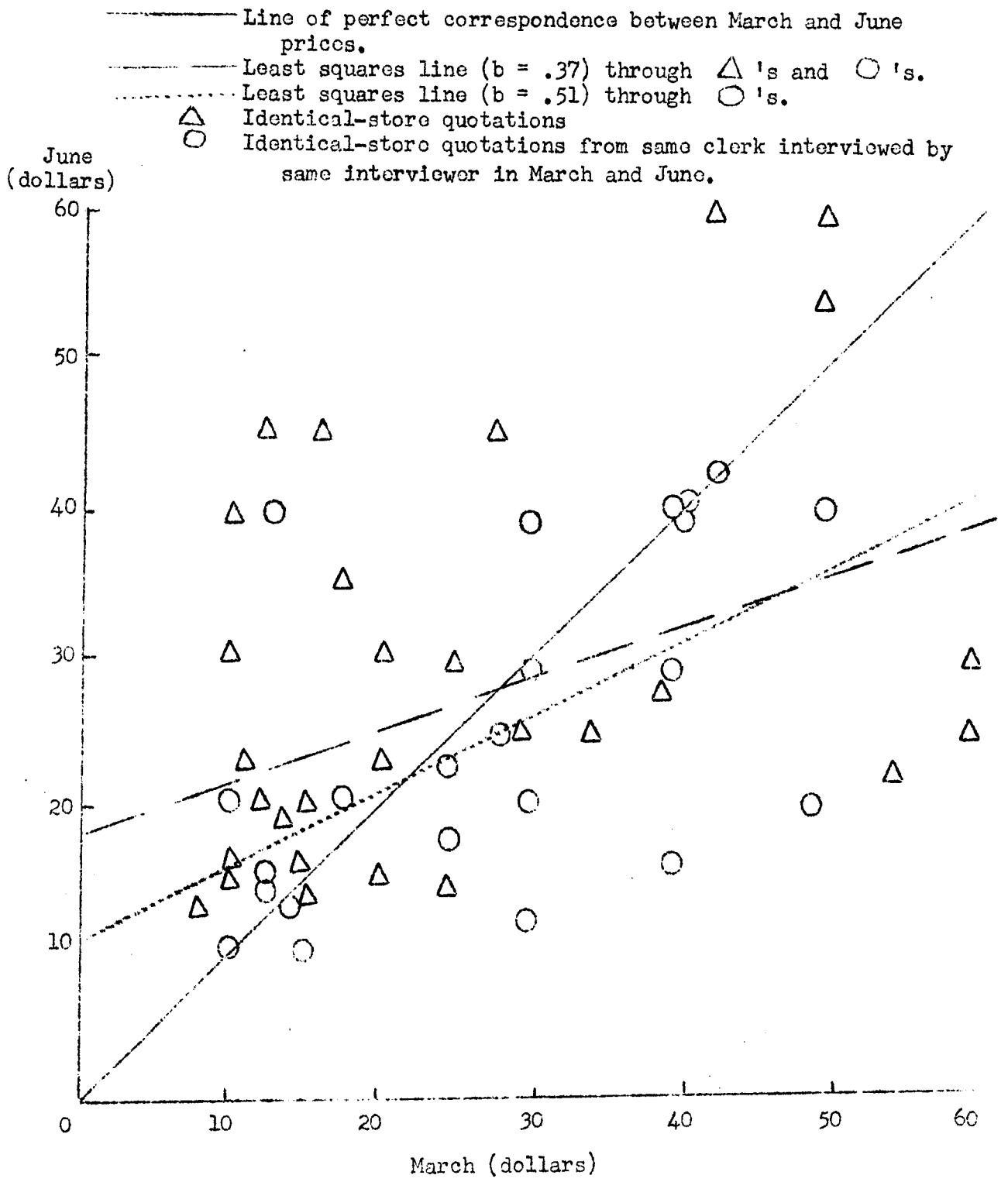
When June quotations were plotted against March quotations in the same stores, it was at once apparent that the correlation between the two sets of data was low. When the same interviewers obtained information from the same individual respondents, as was done in the 22 stores shown separately in parentheses in Table 140, the correspondence between March and June prices was improved only slightly. For the 59 identical stores, the correlation between March and June prices was .43; for the 22 of these stores in which the same interviewer and respondent provided the data in March and June the correlation was .57. A graphic presentation of these data appears as Figure 1.

The disparity between the two sets of prices cannot be attributed entirely to price changes in the same chairs in the three-month interval between surveys. If the nearly identical mean prices at the two dates be taken as indications, none of the disparity can be attributed to that cause. The alternative conclusion is that different chairs are being quoted; if this is the case, it is because: (i) farmers' buying patterns have shifted, or (ii) specifications used in the survey admit of more than one interpretation.

There are no data available in this study which make possible an investigation of the extent to which farmer buying patterns have shifted in the three-month interval between surveys. Respondents were, however, asked to quote the furniture item most often sold to farmers during the past year, so the change would have had to be pronounced to effect an appreciable change over the shorter period of three months. There is no evidence to suggest that such a change occurred. On the other hand, this study has offered considerable evidence that specifications of several commodities, furniture among them, are not sufficiently restrictive to insure the quotation of a highly uniform group of items. Hence it is reasonable to suppose, at least until further evidence is available, that the root of the problem is in commodity specification.

The foregoing discussion of the furniture data, although including frequent reference to particular items, has been intended as a commentary on trade practices and reporting characteristics, which are considered to be generally applicable to all furniture data. Attention will now be directed to two of the furniture items, occasional chairs and felt-base rugs.

Figure 1: Average Prices Reported Paid for Occasional Chairs by North Carolina Farmers at Identical Stores. Two Sample Surveys, March and June, 1950.



Occasional Chairs. The distributions of prices for occasional chairs in the two surveys were as shown in Table 141.

These distributions, despite the inconsistencies in individual store reports from survey to survey, are similar, as are the means from the two surveys. Both survey means, $29 in March and $28 in June, were above the corresponding BAE estimates of $22 and $24 respectively.

The mean prices for occasional chairs were as shown in Table 142, and analyses of variance, as in Table 143.

None of the differences examined, geographic or others, appear from this analysis to be of any significance. This is not to say that no differences exist, but only that with the available data, characterized in some cases by small numbers of quotations (cf. quotations from non-independent stores) and high "within" variances arising from unspecified quality levels and inconsistent reporting, the differences are too small to be detected.

Felt-Base Rugs. The second item of furniture or furnishings chosen for separate study was felt-base linoleum rugs, 9' x 12'. Analysis of this item showed the reduction in variance that could be accomplished when better product specification was obtained.

Distributions of prices in the two surveys were practically identical, as appears in Table 144. Means are given in Table 145.

The two peaks, at $9.95 and $12.95, were supposed to be due to brand differences. One brand, which accounted for about half of all quotations, was analyzed separately in an investigation of that supposition. The results, showing analyses of variance of all rug quotations compared to analyses for the most common brand alone, are shown in Table 146.

In the all-quotations analysis, the only difference that appeared important was that due to town-size strata in June. Consideration of the large within-group variances, however, and the somewhat erratic nature of the relationships, did not inspire confidence in these results. The separate study of the most commonly quoted brand, with its much smaller variance, was more rewarding, although these data also were erratic from survey to survey.

The specific-brand data were erratic for a reason which appeared to be approximately the same as that which underlay the inconsitencies in the chair quotations. The chair data were inconsistent in the fact that many individual respondents did not report prices that were in even approximate agreement in March and in June; changes in the respondents' ideas concerning the chairs most often sold to farmers were said to have been responsible. In the rug data, where brand designation was available, there was specific evidence to support the hypothesis that respondents' ideas changed regarding what farmers most often bought. Fifty-five establishments reported in March that Gold Seal rugs were the brand most often sold to farmers; from the June respondents, about 75% of whom had

also been interviewed in March, only 17 of those who had reported Gold Seal as most often sold to farmers in March again reported Gold Seal. Yet, the total number of reports of Gold Seal declined in June only to 42, from the 55 reported in March, indicating that several respondents who reported another brand in March then switched to Gold Seal in June. The mean prices of all rugs reported most often sold to farmers changed by less than 3% between the surveys. This is an illustration of the stability of mean prices despite high internal variability, to which several references have been made above.

Summary of Furniture and Furnishings

Analysis: In addition to the more general comments, two specific but rather minor changes in specification of furniture can be recommended on the basis of the surveys, as follows: Kitchen Ranges should be specified as wood, coal, or electric; there are enough farms using electric ranges to justify this addition. Electric Washing Machines appear to be more easily described in North Carolina by reference to their capacity in pounds of dry wash than by reference to gallons. Perhaps an "either-or" question could be substituted for the presently-used gallon specification.

As in the case of clothing, the overall mean survey prices of the furniture items studied were in reasonably close agreement with the concurrent estimates by BAE. In view of the very large differences in quotations from survey to survey, arising from changes in the respondents' ideas as to what item was most often sold to farmers, this close agreement was especially noteworthy. Although in close agreement, there was some consistency in the direction of the difference, i.e., the survey means tended to be higher than those of BAE.

Large within-group variation made analysis of sources of variation largely unsatisfactory. It would appear at first glance that a closer product specification would give a better basis for analysis, but the application of this idea must await a detailed separate study of individual commodities to ascertain the optimum degree of specificity to be used in the field. Response to questions designed to specify furniture quality was sufficient to indicate that an a priori approach provides an inadequate balance between what is needed for the analysis and what is feasible in the field. The existence of such a balance is itself a matter of conjecture, and must be given early attention in the specification research that is needed.

These surveys indicated an increase in price as town-size increased, and there was a tendency for independent store prices to be above those charged by non-independents.

Table 136. Prices Paid by North Carolina Farmers for Selected Items of Furniture and Furnishings: Two Surveys in March and June, 1950, Compared with Corresponding BAE Price Releases.

Item	March				BAE price
	Number of reports	High	Low	Mean	
Living room suites	72	$280	$80	$139	$130
Occasional chairs	92	70	8	29	22
Kitchen ranges	82	165	40	96	81
Electric washers	88	190	89	129	120
Dining-room suites	56	375	70	231	210
Kitchen cabinets	84	89	25	52	50
Bed sheets					
81 x 90	4	3.50	1.59	2.28	- -
81 x 99	19	3.00	1.79	2.25	2.25
81 x 108		- -	- -	- -	- -
Felt-base rugs	105	16.95	4.95	10.19	10.50
June					
Living room suites	78	$230	$58	$135	$130
Occasional chairs	96	90	10	28	24
Kitchen ranges	95	325	50	96	82
Electric washers	131	180	70	123	120
Dining-room suites	54	650	100	246	210
Kitchen cabinets	98	80	26	55	53
Bed sheets					
81 x 90	--	- -	--	- -	- -
81 x 99	19	4.25	1.65	2.44	2.25
81 x 108	15	4.00	1.98	2.69	- -
Felt-base rugs	109	15.00	4.95	10.34	10.50

Table 137. Credit Services Offered by a Sample of North Carolina Stores Reporting Furniture Sales to Farmers. March 1950.

Term of Credit	Charge for credit						Credit charge not reported	No credit offered	Total
	None	6%	7½%	10%	15%	Flat carrying charge			
	-number of reports-								
3 to 8 months	3	3	0	2	1	2	1		12
9 to 14 months	11	12	0	7	0	4	3		37
15 to 24 months	2	12	2	6	0	6	1		29
"Fall term"	3	1	0	1	0	1	1		7
Term not reported	0	0	0	0	0	0	3		3
No credit offered	0	0	0	0	0	0	0	4	4
Total	19	28	2	16	1	13	9	4	92

Table 138. Prices Paid by North Carolina Farmers for Occasional Chairs at a Sample of Establishments Offering Credit for Various Terms. March 1950.

Term of Credit	Number of reports	Price paid for chairs most often bought by farmers, excluding credit charge
3 to 8 months	12	$27.30
9 to 14 months	37	28.53
15 to 24 months	29	34.33
"Fall term"	7	24.82
Term not reported	3	28.08
No credit offered	4	9.00
All stores	92	29.16

Table 139. Prices Paid by North Carolina Farmers for Occasional Chairs at a Sample of Establishments Reporting Various Credit Charges. March 1950.

Credit Charge	Number of reports	Price paid for chairs most often bought by farmers, excluding credit charge
No charge	19	$25.81
6%	28	33.02
7½%	2	36.00
10%	16	28.64
15%	1	10.00
Flat carrying charge	13	33.37
Charge not reported	9	27.49
Credit not offered	4	9.00
All stores	92	29.16

Table 140. Cross-tabulation of Quotations on Occasional Chairs from 59 Identical North Carolina Establishments. Two Surveys, March and June, 1950.

March survey quotations	June survey quotations: Less than $10	10-19.99	20-29.99	30-39.99	40-49.99	50-59.99	All reports
	-number of quotations-						
Less than $10	0	4 (1)	0	2	0	0	6 (1)
10-19.99	1	10 (6)	5	2 (1)	2	0	20 (7)
20-29.99	0	5 (3)	4 (1)	1 (1)	2	0	12 (5)
30-39.99	0	1 (1)	4 (2)	5 (3)	0	0	10 (6)
40-49.99	0	1 (1)	1	2 (1)	1 (1)	3	8 (3)
50-59.99	0	0	2	0	0	0	2
60-69.99	0	0	0	0	1	0	1
All reports	1	21(12)	16 (3)	12 (6)	6 (1)	3	59(22)

Note: Numbers in parentheses indicate quotations from same clerk by same interviewer in the two surveys.

Table 141. Frequency Distribution of Prices Paid by North Carolina Farm People for Occasional Chairs. March and June 1950.

Price	Number of reports: March	June
$ 5-14	16	14
15-24	25	29
25-34	17	21
35-44	20	22
45-54	8	6
55-64	5	2
65-74	1	0
75-84	0	1
85-94	0	1
All prices	92	96

Table 142. Prices Paid by North Carolina Farmers for Occasional Chairs. March and June 1950.

March

Type of dealer	Mention status	Size of town A	B	C	D	All towns	No. of reports
Independent	Mentioned	$22.59	$27.25	$25.21	- -	$26.79	30
	Not mentioned	31.12	26.83	23.63	$43.56	30.12	40
Other	Mentioned	28.75	18.50	44.85	39.80	32.02	14
	Not mentioned	39.50	- -	30.50	23.80	28.18	8
All reports		29.06	26.09	28.97	37.05	29.15	
Number of reports		19	34	25	14		92

June

Type of dealer	Size of towns A	B	C	D	All towns	No. of reports
Independent	$27.86	$27.62	$26.60	$27.62	$27.50	80
Other	- -	14.50	32.91	35.77	33.19	16
All reports	27.86	27.18	28.70	30.13	28.45	--
Number of reports	19	30	21	26	--	96

Table 143. Analyses of Variance of Prices Paid by North Carolina Farmers for Occasional Chairs. March and June 1950.

Source of Variation	March		June	
	D.F.	M.S.	D.F.	M.S.
Between Crop Reporting Districts	7	420	7	111
Between counties in CRD's	21	250	22	152
Between towns in counties	8	191	11	156
Within towns	55	195	55	253
Total	91		95	
Town-size strata	3	397	3	43
Type of dealer	1	63	1	443
Mention status	1	41	--	---
Interaction	8	380	2	139
Within	78	206	89	212
Total	91		95	

Table 144. Frequency Distributions of Prices Paid by North Carolina Farmers for Felt-Base Rugs. March and June 1950.

Price	Number of reports	
	March	June
Less than $5.45	2	2
5.45 - 6.44	6	2
6.45 - 7.44	7	5
7.45 - 8.44	9	10
8.45 - 9.44	8	12
9.45 - 10.44	27	30
10.45 - 11.44	12	10
11.45 - 12.44	11	15
12.45 - 13.44	19	19
13.45 or more	4	4
All prices	105	109

Table 145. Prices Paid by North Carolina Farmers for 9' x 12' Felt-Base Rugs. March and June 1950.

March

Type of dealer	Mention status	Size of town A	B	C	D	All towns	No. of reports
Independent	Mentioned	$10.95	$ 9.78	$ 9.12		$ 9.86	36
	Not mentioned	10.01	10.77	10.70	$12.78	10.76	44
Other	Mentioned	6.95	10.15	10.70	10.62	10.18	13
	Not mentioned	7.28	- -	10.28	8.78	8.78	12
All reports		9.78	10.10	10.27	10.75	10.16 a/	--
Number of reports		25	40	25	15	--	105

a/ Based on grouped data; this explains the disparity between this figure and the $10.19 given elsewhere.

June

Type of dealer	Size of town A	B	C	D	All towns	No. of reports
Independent	$ 9.33	$10.46	$10.48	$11.61	$10.34	87
Other	10.66	9.70	10.04	10.88	10.36	22
All reports	9.51	10.38	10.34	11.38	10.34	--
Number of reports	29	36	22	22	--	109

Table 146. Analyses of Variance of Prices Paid by North Carolina Farmers for Felt-Base Rugs: All Quotations, and Quotations on the Most Common Brand Alone. March and June, 1950.

March

Source of Variation	All Rug Quotations		Most Common Brand Quotations	
	D.F.	M.S.	D.F.	M.S.
Between Crop Reporting Districts	7	7.4	7	8.9
Between counties in CRD's	22	5.6	16	3.4
Between towns in counties	11	6.0	6	8.0
Within towns	64	5.1	25	0.6
Total	104		54	
Town-size strata	3	4.3	3	10.7
Type of dealer	1	7.0	1	6.0
Mention status	1	5.0	1	4.0
Interaction	7	8.8	6	0.2
Within	92	5.2	43	3.2
Total	104		54	

June

Between Crop Reporting Districts	7	9.4	7	3.3
Between counties in CRD's	23	4.9	12	1.3
Between towns in counties	14	5.7	5	3.8
Within towns	64	3.1	17	1.6
Total	108		41	
Town-size strata	3	14.3	3	2.0
Type of dealer	1	1.0	1	1.0
Interaction	5	2.4	2	1.0
Within	99	4.1	35	2.2
Total	108		41	

IV. COST ANALYSIS

Introduction

The study of prices paid and received by farmers in North Carolina was carried out through a series of four quarterly surveys (March, June, September, and December) of lists of business establishments, farm produce dealers, and farmers in several towns throughout the state. The sampling plan followed has been described above. In addition to the four quarterly surveys, two special surveys were conducted in July and September to obtain additional information on prices received by farmers for a selected group of farm commodities. A summary of field costs for travel and wages is given in Table 147.

Table 147. Summary of Field Costs for all Surveys, North Carolina Price Study, 1950.

Item	Number of schedules	Travel cost b/	Wage cost c/	Total cost	Cost per schedule
Regular quarterly surveys	6672	$1443.05	$3690.50	$5133.55	$ .77
Supplementary a/ June towns	194	77.70	130.50	208.20	1.07
Block sample a/	206	51.80	261.00	312.80	1.52
Farm sample a/	107	235.90	278.75	514.65	4.81
July survey	30	51.03	77.00	128.03	4.27
November survey	261	189.35	290.00	479.35	1.84
Total field cost	7470	2048.83	4727.75	6776.58	
Training Schools				851.33	
Postage, Telegrams, Miscellaneous Exp.				243.31	
Special Travel Expenses				61.74	
Grand Total				$7932.96	$1.06

a/ As described in Introduction, on Sampling, above.
b/ Computed at 7 cents per mile.
c/ Computed at 1 dollar per hour.

Regular Quarterly Surveys.[19] The regular quarterly surveys consisted of contacting business establishments in a stratified sample of towns, with separate sampling rates for each stratum, the strata having been delineated with respect to sizes of towns. A selected group of commodities was studied in each of the four surveys, and those establishments that dealt in the selected commodities in each sample town were eligible for any particular survey. In the "A" towns, where all establishments were contacted, about two-thirds of the establishments proved to be eligible for the March and September surveys, while almost all were eligible in June and December, since food items were studied in the latter months. On the average, 10 establishments per A town were eligible, each establishment providing information on about 2 commodity groups.

In the larger sized towns, for prices paid by farmers, a sample of stores was drawn from lists compiled from Survey I data on establishments patronized by a sample of farmers, supplemented by a list obtained from classified telephone directories. All buyers from farmers were contacted in the sample of larger towns for prices received data. About 90% of the establishments listed were eligible in the B, C, and D towns. The average number of eligible firms per town was 20 for B towns, and 25 for C and D towns. About 1.5 schedules were obtained per eligible in these larger towns.

There were two main reasons for failure to get data from some establishments: (i) non-cooperation, and (ii) non-availability of responsible personnel. The percent of non-cooperators was about the same for all town-size strata. Information was also not obtained from some stores due to the unavailability of the manager after the required three visits.[20] This difficulty was encountered more frequently in the larger sized towns. Cost data, including data on establishments not providing data, for the regular quarterly surveys are summarized in Table 148.

19/ This does not include block samples or farmer samples which were considered separately.

20/ The enumerators were instructed to contact managers or department heads wherever possible and to interview other employees only as a last resort; other employees were frequently unwilling or unable to provide the necessary information.

Table 148. Costs for Quarterly Surveys. North Carolina Price Study, 1950.[a]

Month[b]	Total Establishments Visited	Number Eligible Establishments	Non Respondents[c]	Number of Schedules: Prices Paid	Number of Schedules: Prices Received	Mileage Cost[d]	Wage Cost[e]	Total Field Cost	Field Cost per Sched.	Cost per Establishment[f]
March (58)	1178	877	40 (5)	1055	449	$435.54	$966.50	$1402.04	$.93	$1.19
June (63)	1073	874	49 (5)	1132	422	315.56	898.50	1214.06	.78	1.13
Sept. (63)	1083	958	49 (5)	1316	399	341.32	876.50	1217.82	.71	1.12
Dec. (60)	1028	931	77 (8)	1440	459	350.63	949.00	1299.63	.68	1.26
Total	4362	3640	215 (6)	4943	1829	$1443.05	$3690.50	$5133.55	$.77	$1.18

a/ Includes field costs only, exclusive of postage and miscellaneous expense. Costs of training enumerators are considered elsewhere.

b/ Figures in parentheses are total number of towns visited. Several towns were not visited in March and December due to adverse weather conditions and personnel difficulties. Towns surveyed in June in the special supplementary sample are not included.

c/ Figures in parentheses are percentage of eligibles who did not provide information after three visits.

d/ Cost based on 7 cents per mile.

e/ Cost based on 1 dollar per hour.

f/ No separate estimate is made for cost of call-backs.

The average field cost per schedule decreased on each successive survey, as the enumerators became more familiar with the schedules, and ineligible establishments were deleted from the sample lists. Under the sampling scheme used in this study, it would not be expected that costs per schedule could be reduced materially below the December level, as is indicated by the decreasing differences in cost between successive surveys.

Since a large number of visits had to be made to stores which were not eligible, the cost per establishment might be considered the more realistic cost. This would be of particular importance in a general purpose survey in which the percentage of eligibles could not be anticipated. The cost per establishment was approximately the same for the first three surveys, with a slight reduction due to increased enumerator efficiency. The higher cost in December was due to the unusually large number of call-backs required during the holiday season.

Average costs per schedule were 55 cents for wages and 22 cents for travel. Mileage costs at the usual 7 cents per mile were divided into costs incurred for travel between towns and costs of within-town travel. These data are presented in Table 149.

Table 149. Cost for Travel, Quarterly Surveys, North Carolina Price Study, 1950.

Item	Month of Survey				All surveys	Cost per schedule
	March	June	Sept.	Dec.		
Between towns	$286.58	$196.00	$202.86	$210.14	$895.58	$.14
Within towns	148.96	119.56	138.46	140.49	547.47	.08
Total	$435.54	$315.56	$341.32	$350.63	$1443.05	
Cost per schedule	.29	.20	.20	.19		.22

Cost of wages necessarily included time spent in travel, which was not kept separately. Using 30 m.p.h. as an average speed between towns, and 15 m.p.h., within towns, an estimate of time spent in travel, both within and between towns, can be made. The residual was considered to have been enumeration time. These costs are given in Table 150.

Table 150. Cost for Wages During Travel and Interviewing, Quarterly Surveys, North Carolina Price Study, 1950.

Item	Month of Survey				All surveys	Cost per schedule
	March	June	Sept.	Dec.		
Travel between towns	$136.47	$ 93.33	$ 96.60	$100.06	$426.46	$.06
Travel within towns	35.46	28.04	32.95	33.45	129.90	.02
Interviewing	794.57	777.13	746.95	815.49	3134.14	.47
Total	$966.50	$898.50	$876.50	$949.00	$3690.50	---
Cost per schedule	.64	.58	.51	.50		.55

Summarizing the average field costs per schedule as shown in Table 151,

Table 151. Costs per Schedule for Travel and Wages, North Carolina Price Study, 1950.

Item	Mileage	Wages	Total
Travel between towns	$.14	$.06	$.20
Travel within towns	.08	.02	.10
Interviewing		.47	.47
Total	$.22	$.55	$.77

provides an estimate of $.57 per schedule ($.10 for travel, plus $.47 for interviewing) as the average total cost within towns. An additional cost of 20 cents per schedule was incurred for travel between towns. Thirteen of the enumerators resided in survey towns, eliminating a portion of the between-town travel cost that might be expected generally.

Since interviewing wages was a major element of cost, it would appear that a smaller number of establishments per town and a larger number of towns would provide a better allocation of funds. However because a minimum of information (an average of 2 schedules per town) was obtained on any single commodity in a given town, a smaller sample of establishments per town seems impractical.

A further analysis of costs for the regular survey towns was made on the stratification of town size. Summary data are presented in Table 152.

Table 152. Field Cost of Quarterly Surveys, by Town Size, North Carolina Price Study. 1950. [a]

Town Size [b]	Total Establishments Visited	Number Eligible Establishments	Non [c] Respondents	Number of Schedules: Prices Paid	Number of Schedules: Prices Received	Mileage [d] Cost	Wage [e] Cost	Total Field Cost	Field Cost per Sched.	Cost [f] per Establishment
Under 1,000 (35)	1679	1344	43 (3)	2275	770	$701.61	$1401.00	$2102.51	$.69	$1.25
1,000 - 4,999 (16)	1524	1315	87 (6)	1562	535	412.65	1212.50	1625.15	.77	1.07
5,000 - 40,000 (7)	798	684	50 (7)	780	311	256.06	703.00	959.06	.88	1.20
Over 40,000 (3)	361	297	35(12)	326	113	72.73	374.00	446.73	1.02	1.24
Total	4367	3640	215 (6)	4943	1729	1443.05	3690.50	5133.55	.77	1.18

a/ Includes field costs only, exclusive of postage and miscellaneous expense. Cost of training enumerators are considered elsewhere.

b/ Figures in parentheses are total number of towns visited. Several towns were not visited in March and December due to adverse weather conditions and personnel difficulties. Towns surveyed in June in the special supplementary sample are not included.

c/ Figures in parentheses are percentage of eligibles who did not provide information after three visits.

d/ Cost based on 7 cents per mile.

e/ Cost based on 1 dollar per hour.

f/ No separate estimate is made for cost of call-backs.

The cost per schedule increased with town size, the amount of the increase becoming greater as the town size increased. The cost per establishment was about the same for the A, C, and D towns; the lower cost in the B towns was accounted for by the fact that 6 of the 16 B towns were covered by interviewers residing in those towns. The costs can be partitioned in the same manner as before, and the principal elements of the cost determined.

Table 153. Costs per Schedules for Travel and Wages. North Carolina Price Study, 1950.

Town Size	Travel between Towns a/		Travel within Towns		Inter-	Total
	Mileage	Wages	Mileage	Wages	viewing	cost
A - Under 1,000	.16	.08	.07	.03	.35	.69
B - 1,000 - 4,999	.12	.05	.08	.04	.48	.77
C - 5,000 - 40,000	.15	.07	.09	.04	.53	.88
D - Over 40,000	---	---	.17	.08	.77	1.02
Average	.14	.06	.08	.04	.45	.77

a/ There was no travel to "D" towns since enumerators resided in the survey towns. Travel cost to one "D" town in the March survey is included as special travel expenses. Table 147.

These data indicate that the biggest element of cost was interviewers wages, and that this cost increased with town size. Costs for travel and wages between towns was about the same for all town-size strata; travel within towns increased slightly as town-size increased.

The cost data again indicate that a more nearly optimum allocation of funds could be made if more towns were surveyed and fewer establishments were selected in each town. This would again be subject to the same restrictions, regarding minimum information desired, which were mentioned previously. It is further indicated that a larger portion of the sample should be concentrated in the smaller towns than was done in the study if a maximum number of records for a given cost is to be obtained. However, once again, the number of records obtained per commodity in each town was too small to be reduced any further. As indicated in the sampling plan, only two B towns and one C town were selected in each CRD, and the three D towns were selected at large throughout the state.

Data from Survey I indicated that farmers did by far the largest percentage of their business in the smaller sized towns for all but a few items. It might then be considered reasonable to obtain the bulk of the sample from the smaller sized towns, with a sample of establishments in the larger sized towns for only a few selected commodities. This would bias only slightly the results on the majority of the items included in this study and give unbiased estimates for a few special commodities, at only a slight additional cost.

Costs of obtaining data for each Crop Reporting District were also investigated to determine whether any important differences in cost could be expected in various sections of the state. These data are presented in Table 154. Since each interviewer worked almost entirely

Table 154. Average Cost per Schedule of Crop Reporting Districts. Quarterly Surveys, North Carolina Price Study, 1950.

	CRD	Survey				All surveys[a]	
		March	June	September	December		
Mountain	1	$2.78	$ .56	$ .88	$ .57	$ .83	.83
	4	.97	.91	.77	.73	.84	
Piedmont	2	1.53	1.26	.77	.76	1.03	.89
	5	1.15	.64	.50	.71	.73	
	8	.86	.95	.97	1.25	.92	
Coastal Plain	3	1.22	1.36	.75	.69	.90	.83
	6	.79	.84	.60	.51	.67	
	9	.87	.94	1.11	.84	.92	

a/ Average cost per schedule is weighted by numbers obtained in each survey.

in one CRD, the differences in costs for each CRD were confounded with interviewer efficiency. There was also the necessity of replacing interviewers in several areas, and hence no good measure of month-to-month variation in each CRD is available. Over all surveys, there appeared to be no real differences in costs for obtaining data in the three principal areas of the state, as compared to the variation in costs within areas.

For future sampling recommendations the relative variability of prices between establishments within towns and between towns should be considered. In the analyses presented for the various commodities, the variation between town-size strata was generally larger than that within town-size strata. The mean squares in the analyses of variance, however, also include differences between CRD's, and are of limited value in obtaining good estimates of true variances. Similarly, differences between towns in counties are frequently measures of town-size strata differences, introducing negative intra-class correlations into the analysis. It would therefore be desirable, from the viewpoint of future sampling investigations, to devise some means of obtaining good estimates of between and within town variances. These estimates would be made for several commodities and then pooled in some manner to give a single estimate of variance to be used for sample allocation for a general purpose survey. While such a composite would not give the minimum variance for any single commodity, it would serve as a guide to obtain minimum variance for the entire survey.

Training School. Training schools for all enumerators were conducted in March and June. For both months, sessions were held in the Eastern and Western portions of the state to minimize travel costs for the enumerators. Training was given to replacement personnel for the September and December surveys.[21] Summary data are presented in Table 155.

Table 155. Training School Costs for Regular Surveys, North Carolina Price Study, 1950.

Month	Number of Enumerators Attending	Cost for travel[a]	Cost for expense[b]	Total cost of training	Cost per enumerator[c]
March	20	$279.02	$51.49	$330.51	$16.52
June	20	233.10	38.09	271.19	13.56
September	8	110.25	25.10	135.35	16.91
December	4	63.21	13.05	76.26	19.06
All	52	685.58	127.73	813.31	15.64

a/ Computed at 7 cents per mile.
b/ Actual costs of hotel, meals, and miscellaneous expenses not to exceed 7 dollars per day.
c/ No wages were paid during training school.

Travel constituted the greater portion of the training costs and varied considerably from month to month. Since the training period lasted only one day and only mileage and subsistence expenses were paid, the cost was small. The average figure of $15.64 per enumerator, therefore, probably represents close to the practically attainable minimum.

Farmer Interviews. Data from Survey I indicated that farmers sold considerable portions of several commodities directly to consumers, and through itinerant truckers who could not be located in the regular surveys. A sample of farmers was taken in each of the four quarterly surveys to obtain some information on prices received. Since the survey period covered commodities sold during a relatively short period of time, only a small percentage of the farmers contacted were eligible. The fact that farmers were selected from the list of Survey I respondents, and hence were widely scattered, increased the cost considerably above that for the town samples. Costs for farm interviews were in line with cost data obtained in Survey I. Summary data are presented in Table 156.

21/ Some enumerators were trained at their homes - these costs were included as supervisory in the general cost summary.

Table 156. Cost of Farmer Interviews, Quarterly Surveys, North Carolina Price Study, 1950.

Month[a]	Number Farmers Contacted[b]	Number Available & Eligible	Number Sched.	Mileage Cost	Wages Cost	Total Cost	Cost per Schedule
March	62	31	31	$78.54	$81.00	$159.54	$5.15
June	68	22	37	75.67	80.75	156.42	4.23
September	55	27	30	42.91	68.50	111.41	3.71
December	34	7	9	38.78	48.50	87.28	9.70
Total	219	87	107	235.90	278.75	514.65	4.81

a/ Includes special list in June for peach growers; includes special list in September for apple growers.
b/ Only a portion of the farmers listed were contacted in December due to time limitation.

Because of (i) the difficulty in locating farmers (with an added call-back problem), (ii) the low eligibility rate of farmers, and (iii) the small number of schedules per farmer, it appears that the farmer segment should be sampled at a lower rate than the other strata. The data which are provided by farmer interviews, however, are essential in the cases where farmers do not use regular channels, as they do not, for example, in marketing apples and peaches. In some cases the farmer data were quite different from those obtained from dealers, e.g. eggs were sold by farmers directly to consumers at prices considerably above dealer prices.

Evaluation of the Block Samples in Large-Cities. In order to supplement the information obtained through list samples in the three "D" cities, a sample of block segments, as shown on city maps, was enumerated.[22] All retail establishments were contacted in the selected blocks and data were obtained from eligible stores.[23] Approximately 20 eligible stores were to be contacted in each city. In the March survey it was necessary to enumerate 11 blocks in Asheville, 13 in Charlotte, and 19 in Greensboro while in June, 23 blocks were enumerated in Asheville, 19 in Charlotte and 25 in Greensboro. Interviewers were provided with two lists, of 12 and 13 blocks respectively. All blocks in the first list were enumerated. If this did not provide the required 20 schedules, additional blocks from the second list were enumerated until the 20 schedules were obtained; hence the difference in number of blocks indicated in the two surveys.

For the September and December surveys, enumerators were provided with the lists of establishments from the two previous surveys, and were ashed to note any changes in these lists. All firms which sold any of the commodities listed for the survey were contacted and data were obtained from eligibles who were available.[24] By use of lists from previous

22/ Asheville, Charlotte, and Greensboro.
23/ Stores which sold any of the listed commodities to farmers were eligible.
24/ For some establishments, eligibility was not determined due to the unavailability of the managers.

surveys, interviewers were able to eliminate a large portion of the work that had been necessary in March and April. City block interviewing was thus accomplished more rapidly and more cheaply in the later months.

Records were kept of the number and type of establishments in each block. The numbers of filling stations and retail and service establishments on the city maps were tabulated in the survey, for comparison with the map counts. A comparison of these counts is given in Table 157.

Table 157. Comparison of Numbers of Establishments in Selected City Blocks: Map Count and Survey Count. North Carolina Price Study 1950.

City	Date of Map	March			June		
		Number[a] Blocks Surveyed	Map Count	Survey Count	Number[a] Blocks Surveyed	Map Count	Survey Count
Asheville	5-47	11	109	145	23	255	326
Charlotte	5-48	13	224	222	19	311	336
Greensboro	6-48	19	253	263	25	347	334
Total		43	586	630	67	913	996

City	September			December		
	Number[a] Blocks Surveyed	Map Count	Survey Count	Number[a] Blocks Surveyed	Map Count	Survey Count
Asheville	23	255	326	23	255	325
Charlotte	23	368	380	23	368	380
Greensboro	25	347	333	25	347	335
Total	71	970	1039	71	970	1040

a/ Two blocks in Asheville were not included since they could not be located. In Charlotte one block was in a residential area and the other had no business establishments.

On the two more recent maps (Charlotte and Greensboro) the correspondence between the two counts is much closer than for the Asheville map, which is a year older. The Asheville blocks showed a general increase throughout the city, with a greater increase in the west Asheville area than in the remainder of the city. The only blocks in which differences in counts were large were in newly developed areas, where the number of stores would tend to increase quite rapidly in a short period of time.

The information obtained from the blocks in the survey as to type of business was as indicated in Table 158.

Table 158. Distribution of Establishments in City Blocks. Block Sample, North Carolina Price Study, 1950.

Type of Establishment	City			Total
	Asheville	Charlotte	Greensboro	
Banks, Insurance, Investment and Real Estate	24	25	25	74
Processing and Distributing	35	42	23	100
Beauty Shops, Barber Shops, Laundry, Dry Cleaning, Shoe Repair, etc.	41	37	24	102
Recreation	7	13	7	27
Jewelry, Florists, Books, Photography, Gifts, Music, etc.	26	33	23	82
Clothing, Shoes, Millinery	23	43	51	117
Furniture and Electrical Appliances	18	32	20	70
Gas Stations, Garage, Parking, Auto Supply, Car Dealers	30	38	38	106
Restaurants and Cafes	34	25	41	100
Newspaper, Radio & Transportation	16	8	9	33
Medical and Burial Service	7	10	8	25
Hardware, Building Supplies, Farm Equipment, Fuel, etc.	14	15	15	44
Storage and Warehouses	3	3	1	7
Groceries, Meat Markets, Fruit Stands, etc.	15	17	20	52
Department Stores	8	8	10	26
Drug Stores & Soda Fountains	7	11	11	29
Offices, Hotels, etc.	18	20	8	46
Total	326	380	334	1040

From eligible establishments, the distribution of schedules shown in Table 159 was obtained.

Table 159. Distribution of Schedules Obtained in Block Sample by Commodity Groups. North Carolina Price Study, 1950.

Commodity Groups	No. Surveys	No. of Schedules			Total
		Asheville	Charlotte	Greensboro	
Clothing	2	27	24	9	60
Furniture	2	17	10	13	40
Food	2	11	12	7	30
Building Material	2	4	7	9	20
Motor Vehicles and Farm Machinery	4	--	--	3	3
Farm Supplies	2	--	3	2	5
Feed	4	2	--	6	8
Household Supplies	2	5	2	2	9
Auto Supplies	2	5	2	11	18
Farm Commodities	4	1	2	10	13
Total		72	62	72	206

Different groups of these commodities were included in each survey. The distribution for the four quarterly surveys is given in Table 160.

Table 160. Distribution of Schedules Obtained in Block Sample by Months. North Carolina Price Study, 1950.

March

Commodity Groups	Asheville	Charlotte	Greensboro	Total
Feed			1	1
Clothing	14	14(2) a/	4(1)	32(3)
Furniture	5	2(2)	6	13(2)
Building Material	2	3	4	9
Farm Machinery			1	1
Farm Commodities		1	4	5
Total	21	20(4)	20(1)	61(5)

June

Feed	1		2	3
Furniture	12(2)	8(3)	7(1)	27(6)
Food	8(2)	8(1)	5	21(3)
Supplies		3	1	4
Motor Vehicles & Farm Machinery			1	1
Farm Commodities		1	4	5
Total	21(4)	29(4)	20(1)	61(9)

September

Feed			1	1
Clothing	13(1)	10(2)	5(3)	28(6)
Building Materials	2	4	5	11
Farm Machinery			(1)	(1)
Household Supplies	2		2	4
Auto Supplies	4	2(1)	7(1)	13(3)
Total	21(1)	16(3)	20(5)	57(10)

December

Feed	1		2	3
Food	3	4	2(1)	9(1)
Farm Supplies			1	1
Farm Machinery			1	1
Household Supplies	3	2		5
Auto Supplies	1(1)		4(1)	5(2)
Farm Commodities	1		2	3
Total	9(1)	6	12(2)	27(3)

a/ Numbers in parentheses are additional eligible firms ~~whose~~ records were obtained on the list survey.

While all of these schedules included prices paid for commodities purchased by farmers, many of the schedules contained little or no information as to the relative proportion of either overall business or sales of a particular commodity to farmers. A comparison of the average percentage business done with farmers as obtained from the schedule, is given in Table 161 for the regular survey stores in the D towns and the block sample.

Table 161. Average Percent of Business done with Farmers by Stores in Regular Survey and Block Sample. North Carolina Price Study, 1950.

	Regular Survey		Block Sample	
Survey	No. of Reports	Percent Business with Farmers	No. of Reports	Percent Business with Farmers
March	19	43	27	38
June	18	38	22	23
September	8	36	12	32
December	12	33	7	12
All	57	38	68	29

Average prices paid by farmers for clothing, furniture, and food, the three groups on which the most information was obtained from the block samples, in the regular survey stores and the block samples are given in Table 162.

Table 162. Average Prices Paid by Farmers for Clothing, Furniture and Food Items. Regular List and Block Sample, North Carolina Price Study, 1950.

	Clothing a/			
	March		September	
Item	Regular List	Block Sample	Regular List	Block Sample
Mens Suits	$40.74(8)	$49.83 (3)	$44.68(8)	$42.40 (5)
Step-ins	.57(6)	.58(14)	.59(6)	.59(14)
Women's Lightweight Coats	22.16(5)	21.71(15)	25.74(6)	24.47(15)
Women's Percale Home Dresses	3.22(4)	3.81 (7)	3.17(5)	2.96 (9)
Percale 36 inches wide	.44(6)	.41 (6)	.44(5)	.42 (5)
Men's Work Shoes	5.77(6)	4.97 (5)	6.11(6)	5.22 (2)

a/ Numbers in parentheses are numbers of reports. The numbers of reports from blocks include all reports, both from establishments reporting some business and those reporting no business with farmers; in the analyses of prices paid by farmers, only reports from establishments reporting some business with farmers were considered.

Table 162. (continued)

Item	Furniture a/			
	March		June	
	Regular List	Block Sample	Regular List	Block Sample
Living Room Suites	$144.50 (8)	$167.50 (5)	$146.36 (9)	$156.66(15)
Occasional Chairs	34.92 (9)	40.57 (6)	30.06(11)	30.18(15)
Dining Room Suites	200.74 (6)	342.83 (3)	259.17 (6)	234.85 (7)
Kitchen Cabinets	60.46(10)	57.15 (3)	60.47 (9)	53.57(13)
Kitchen Ranges	96.69 (6)	127.94 (5)	107.59 (9)	97.73(12)
Electric Washing Machines	126.32(10)	132.02(10)	130.72(10)	145.98(18)
Felt Base Rugs 9' x 12'	10.16(11)	11.95 (5)	11.77 (9)	11.10(13)
Bed Sheets 81" x 90"	2.00 (4)	2.19 (2)	1.87 (2)	2.87 (3)

a/ Numbers in parentheses are numbers of reports. The numbers of reports from blocks include all reports, both from establishments reporting some business and those reporting no business with farmers; in the analyses of prices paid by farmers, only reports from establishments reporting some business with farmers were considered.

Item	Food a/			
	June		December	
	Regular List	Block Sample	Regular List	Block Sample
Flour (25 lb.)	$2.08 (9)	$2.07 (9)	$2.00(10)	$2.16 (4)
Corn Meal (10 lb.)	.57 (5)	.59 (3)	.62 (6)	.79 (1)
White Bread (lb.)	.14 (7)	.15(10)	.15(14)	.15 (6)
Round Steak	.91 (6)	.87 (5)	.95 (6)	.91 (4)
Fat Back	.20 (6)	.19 (5)	.26 (9)	.26 (5)
Bacon	.60 (7)	.63 (6)	.63(11)	.65 (5)
Apples	.11 (5)	.14 (3)	.11 (9)	.10 (2)
Tea (4 oz.)	.35 (5)	.36 (9)	.32 (1)	.35 (2)

a/ Numbers in parentheses are numbers of reports. The numbers of reports from blocks include all reports, both from establishments reporting some business and those reporting no business with farmers; in the analyses of prices paid by farmers, only reports from establishments reporting some business with farmers were considered.

Costs of obtaining block samples are given in Table 163. The average cost per schedule was $1.52 as compared with $1.02 for the regular list sample.

Table 163. Cost Data for Block Segments. Four Quarterly Surveys, North Carolina Price Study, 1950.

City	Total a/ Eligible	Prices Received	Prices Paid	Total b/ Cost	Cost per Schedule
Asheville	75 (8)	1	71	$ 94.83	$1.32
Charlotte	64 (4)	2	60	113.30	1.88
Greensboro	58 (5)	10	62	104.67	1.69
All Cities	197(17)	13	193	$312.80	$1.52

a/ Numbers in parentheses are non-respondents.
b/ Does not include $14.00 travel to Charlotte for one enumerator in March survey.

The bulk of the schedules in the block samples were on furniture, clothing, and food, while the list samples included about as many production items as non-production items.

In summarizing this discussion of the block data, it can be said that the use of block segments is less efficient than list sampling for obtaining information on farm produce and production commodities. The block segments appear to be useful only in obtaining information on such commodities as food, clothing, and furniture, which are purchased by other consumers as well as farmers. On an overall comparison, the list samples appear to be better when compared on a cost-per-schedule basis, since the proportion of eligibles is higher than in the block segments.

Average prices obtained from the two sampling methods appear to be about the same for clothing and food items and considerably different for furniture, with the block segment establishments generally having the higher prices. Since a greater portion of the quotations from block segments were obtained in the downtown areas of the cities, it would appear that the two samples were from different populations. When the relative proportions of business being done with farmers is compared for the block and list stores which have quantity data, it is seen that the list stores do a greater percentage of their business with farmers than do the block segment stores. This percentage varied with commodities: the percentage of business done with farmers in furniture stores was about the same for list and block samples; for food, list stores reported an average of 32% of their business with farmers, compared with 12% for the block sample. It should be recalled that one-half of the stores contacted in the list samples were known to have a farmer business, as they were selected from those stores mentioned by farmers in Survey I as places at which they traded.

Special Surveys. Special surveys were conducted in July to obtain data on peaches and potatoes, and, in November, to obtain data on eight commodities (soybeans, cowpeas, peanuts, sweet potatoes, lespedeza seed, pecans, hogs, and turkeys).

July. Data on peaches were obtained from a sample of growers in the commercial Sandhills area. Since a small crop was anticipated for the 1950 season, growers were stratified into two groups: those who reportedly had peaches for sale, based on information from various state and private agencies, and those who reportedly had no crop. All growers in the former group in the Sandhills were taken, and two 10% samples were taken from the second group. Sixty-six growers were contacted, of whom 17 were eligible (had sold peaches during the survey period), 6 others had peaches, but had not yet sold any, 32 reported no crop, and 11 were listed as "out of business". Cost data are given in Table 164.

Price data for potatoes were obtained from a complete enumeration of potato buyers and dealers in 11 towns, which were selected at random from a list of "potato marketing" towns in the commercial potato areas of Eastern North Carolina. Twenty-seven buyers were contacted, 14 of whom reported no purchases from farmers during the survey period, and 13 of whom reported having bought a total of about 100,000 bushels during the specified period. Cost data are given in Table 164.

Table 164. Field Costs for July Survey of Peaches and Potatoes, North Carolina Price Study, 1950.

Area	Mileage	Wages	Misc. Exp.	Total Cost	Interviews	Schedule	Cost per Schedule
North Potato	$10.85	$25.00	$ .21	$36.06	16	6	$6.01
South Potato	16.73	15.00	.15	31.88	11	7	4.55
Peaches	23.45	37.00	2.52	62.97	66	17	3.70
Training	--	--	--	21.95	--	---	--
Total				$152.86	103	30	$5.10

November. A special survey was conducted in November to obtain information on several commodities, which were being marketed heavily by farmers at that time. The eight commodities were soybeans, peanuts, sweet potatoes, lespedeza seed, cowpeas, turkeys, hogs, and pecans. Because of budget and time limitations, the population from which the sample was drawn consisted of the principal producing counties for the various commodities (See Table 165).

Sixty counties, most of them in the east and south central portions of the state, were included in the list of principal producing counties. Each county was given a "size" equal to the number of commodities among the eight commodities considered for which the county was a principal

producing county. (See Table 165). Contiguous counties were then grouped into strata of equal "size" within each CRD, the number of groups being equal to the number of sample counties which were allocated to each CRD. On the basis of estimated costs, 34 towns could be included in the sample. Two sample towns were selected from each of 17 counties. The number of counties allocated to each of the CRD's concerned was proportional to the number of principal counties in each CRD.

Table 165. Minimum Production Levels for Principal Counties for Eight Selected Commodities, North Carolina Price Study, 1950.

Commodity	State Total 1/ (thousand)	Min. Prod. level for principal counties	Number counties above minimum	% of production in principal counties
Peanuts (picked and threshed)	300,750 lbs.	1,000,000 lb.	18	95
Soybeans (for beans)	3,495 bu.	50,000 bu.	17	84
Sweet potatoes (harvested)	6,875 bu.	100,000 bu.	23	60
Lespedeza Seed (harvested)	33,600 lbs.	500,000 lbs.	13	75
Cowpeas (for peas)	106 bu.	2,000 bu.	16	63
Turkeys (raised)	221 head	2,500 head	20	67
Hogs and Pigs (Sold alive)	562 head	7,500 head	22	50
Pecans (improved and seedlings)	1,997 lbs.	50,000 lbs.	13	60

1/ Based on 1945 census of agriculture and 1947 agricultural statistics for North Carolina.

The selected sample counties included 5 principal producing counties for peanuts, 5 for soybeans, 9 for sweet potatoes, 4 for lespedeza seed, 6 for cowpeas, 6 for turkeys, 7 for pecans, and 9 for hogs.

From Survey I data, the average percent of volume of sales of the selected commodities which moved through the various town-size strata was computed and the 34 sample towns allocated as follows.

Town-Size Strata	Average % of volume of sales of selected commodities	Number of sample towns
A	39	13
B	25	9
C	31	11
D	5	1
All	100	34

A frame was developed consisting of incorporated and unincorporated places over 2,500 for the sample counties.25/ These towns were distributed as follows. A - 94 towns in 16 counties; B - 29 towns in 11 counties; C - 12 towns in 11 counties; D - 1 town in 1 county.

Since 11 C towns were desired, all counties were taken, with the extra town eliminated at random from the county which had two C towns. The D town was selected automatically. For the B towns, two counties out of the 11 were eliminated at random and one town was selected at random within each of the remaining counties. The 4 towns were then selected at random. The number selected varying from zero in those counties in which the two sample towns had been selected from the B and C towns to two in those counties which had no B, C, or D towns.

All dealers and establishments which bought from farmers any of the commodities listed were contacted, and price data were obtained for purchases during the survey period. Costs for the November Survey are given in Table 166.

Table 166. Field Costs for November Survey. North Carolina Price Study, 1950.

Item	Town-Size Strata				
	A	B	C	D	All
No. of Eligible Establishments[a/]	38	39(1)	125(1)	10	212
Total Schedules	45	43	161	12	261
Total Field Cost[b/]	$103.37	$101.42	$264.76	$16.52	$486.07
Training Cost					16.07
					$502.14
Average Cost per Schedule					$ 1.92

a/ Numbers in parentheses are non-cooperators.
b/ Including postage and miscellaneous expense.

The cost per schedule was higher than for the regular surveys due to the smaller number of eligibles per town.

25/ From 1940 population census data and maps.

Summary. This study consisted primarily of a series of four quarterly surveys of business establishments in North Carolina designed to obtain information on prices paid and received by farmers. Approximately 1100 establishments were contacted in 60-odd towns in each survey, of which about 900 were eligible establishments which supplied the data requested. The average cost for obtaining this information was $.77 per schedule, or $1.18 per firm visited. The cost per schedule declined as the survey progressed, because enumerators became more efficient, and ineligible firms were deleted from the sample lists. Costs per schedule increased with size of town, although the average cost per firm visited appeared to be the same for all town sizes.

The highest cost was for interviewing time, accounting for two-thirds of the per-schedule cost. Travel between towns accounted for only about one-fourth of the overall cost per schedule, the remainder being within-town travel. A preliminary investigation of sample allocation based on these costs indicated that a higher percentage of the smaller towns should be contacted than were contacted in this survey. This procedure would, however, provide little or no information on the larger towns unless the total sample size was considerably larger than that used in this study.

Additional data were obtained from a sample of farmers regarding prices received. The cost per schedule for farmers was higher than for the town survey, being more comparable with Survey I costs.

A supplementary sample of blocks was selected to give additional information on the large towns. This included a higher proportion of stores dealing in non-production commodities, and a lower proportion of the production commodities, than the regular list stores. Average commodity prices in the block sample stores were higher than for the list stores, and the cost of obtaining data was approximately 50% higher.

Two special surveys were conducted in July and November to obtain special data on prices received by farmers. Because of the greater selectivity in the commodities, and the lower proportion of eligibles, costs were considerably higher than for the regular surveys.

V. CONCLUSIONS, SUMMARY, RECOMMENDATIONS

Conclusions

(i) BAE estimates of mean prices, based on mail questionnaires and allied methods, were from two to three percent lower than estimates from this study, based on direct interviews of a sample of respondents.

(ii) For research purposes involving analysis of sources of price variability (not one of the primary purposes of the regular BAE price reporting program), BAE specification of commodities, especially those bought by farmers,did not produce data capable of supporting more than the simplest analysis.

(iii) For the periodic multiple-commodity surveys, average overall field cost per schedule was $1.06; per schedule field cost of data taken from dealers was $.77, and, from farmers, $4.81.

Summary

Although BAE price estimates and those from the survey were in reasonably close agreement, an exact identification of the items estimated was not in all cases easy. This was in large measure the consequence of inexact commodity specification.

A proper appreciation of the specification problem requires an understanding and comparison of the objectives of the price work of BAE and the survey. BAE has a single objective in its price reporting, namely, the estimation of price means; the objectives of the survey also included the estimation of means, for comparison with those prepared by BAE; in addition, the survey objectives included analyses of sources of price variability. When the BAE system of commodity specification was used for the analysis of variance, it proved to be inadequate. It was necessary in the survey to use BAE specifications to insure comparability of data and hence relevance of results; the fact that the data did not prove satisfactory for variance analysis is regrettable, but cannot in justice be said to be a shortcoming of the BAE system, which was not designed for that purpose. Criticism does, however, seem justified on the score that identification of the price estimate with the item estimated is sometimes difficult.

Examples have been cited in the foregoing commodity analyses, but some repetition may be justified here. Felt-base rugs provide a good example. When specified only in terms of "most often bought by farmers", this item was quoted over a range in which the highest report was about 100% above the lowest; yet, about half of all reports were of one brand, Gold Seal. If this brand were to be specified as the one to be quoted, it is likely that the number of reports would be reduced very little - certainly by less than one-half, because it is practically certain that many of the dealers who did not report Gold Seal rugs as the most often

bought by farmers did nevertheless sell that rug in addition to the one they reported. Objections to specifying particular brands in B/E questionnaires lose much of their force when it is found that the practice is followed in at least one case (automobiles).

An example even more extreme than felt-base rugs is the case of lift pumps, in which quotations ranged from less than $10 to more than $300. Since this group included three distinct types of pump, hand pitcher pumps, deep well stands, and power pumps (all of which came within the literal interpretation of the specification), it is obviously necessary to make some separation. The pitcher pump is by a wide margin the most commonly bought by farmers in North Carolina, and should be specified.

One further example is provided by 3-9-6 fertilizer. Only 3-9-6 was studied, and it appeared on the surface that this was specified quite adequately. There are, however, two distinctly different kinds of 3-9-6 fertilizer, that which does, and that which does not, contain cottonseed. The price difference between the two is about $5 per ton. When all fertilizer quotations are considered together, their frequency distribution is bimodal, and their mean, falling between the two modes, represents an average of the prices for the two types. There is almost no fertilizer actually selling at the mean price itself. As far as estimating a mean is concerned, there is no problem; the B/E and survey means agree. The problem arises in trying to make an analysis of variance to assess price differences between, say, independent and cooperative stores. So much of the variance is associated with the differences in types of fertilizer that the smaller differences between kinds of stores are overridden to the extent that nothing can be shown from the analysis. In a few cases - fertilizer, lift pumps, felt-base rugs, tractors - it was possible to identify large portions of the within-specification variance, but for most of the other commodities - occasional chairs, women's lightweight coats, farm machinery - this was not possible, and the analyses were comparable in their inconclusiveness to the all-fertilizer analysis.

The degree of agreement between B/E and survey estimates is shown in Table 167. The figures, representing percentages that B/E prices were of survey prices, are averages for commodity groups and for survey months, based on all commodities included in the study.

Table 167. Average Price Relatives: B/E Price Estimates as Percents of Survey Estimates. North Carolina, 1950.

Prices Received

Item	Month of Survey						All Surveys
	March	June	July	September	November	December	
	- B/E price as percent of survey price-						
Corn, all	98.4	98.7		98.8		105.3	100.3
Wheat	100.5	104.4		98.2		101.8	101.2
Oats	89.3	110.1		98.9		98.0	99.1
Cotton	96.7	100.0		96.2		101.7	98.6
Soybeans	86.0	78.9			96.4	101.6	90.7
Peanuts	121.9			102.6	106.7	112.0	110.8
Cowpeas	95.6	103.4			102.2	98.9	100.0
Lespedeza Hay	103.5	90.7		106.2		91.6	98.0
Lespedeza Seed							
Korean	99.3						99.3
Kobe	99.6				78.2		88.9
Irish Potatoes	100.6	96.4	88.9	82.4		80.6	89.8
Sweet Potatoes	96.3	98.7		99.1	92.0	90.2	95.3
Broilers	95.5	92.9		100.0		106.5	98.7
Eggs	102.2	100.0		103.8		97.5	100.9
Turkeys	100.0	97.3		108.8	100.0	97.5	100.7
Hogs	98.2	101.5		96.5	101.6	98.9	99.3
Apples				98.4		88.2	93.3
Peaches			90.7				90.7
All commodities	99.0	97.9	89.8	99.2	96.7	98.0	98.1

Prices Paid

Item	Month of Survey a/				All Surveys
	March	June	September	December	
	-B/E prices as percents of survey prices-				
Clothing	92.7 (6)		94.8 (6)		93.8
Food		97.3 (8)		100.9 (8)	99.1
Furniture	92.2 (8)	92.6 (8)			92.4
Building Material	94.8(14)		103.3(12)		98.7
Motor Vehicles	100.9 (1)	101.5 (7)		102.0 (7)	101.6
Automotive Supplies			111.4 (4)	107.4 (4)	109.4
Household Supplies			98.0 (3)	96.0 (3)	97.0
Fertilizer	99.8 (1)				99.8
Feed	93.7(10)	100.1 (9)	97.7(13)	98.8(11)	97.6
Farm Machinery	78.4 (6)	95.6 (6)	87.5 (6)	79.4 (3)	86.1
Farm Supplies		101.0 (6)		93.8 (4)	98.1
All commodities	91.9(46)	98.0(44)	98.7(44)	98.5(40)	96.7(174)

a/ Numbers in parentheses are the numbers of individual commodity quotations upon which the group averages are based.

There is a definite indication of an overall tendency for survey estimates to exceed BAE figures by about 2% on prices received and 3.3% on prices paid. The prices received commodities in which BAE was farthest below survey figures were soybeans, Kobe lespedeza seed, Irish potatoes, and peaches; the only sizeable overestimate was in the case of peanuts. Irish potatoes and peaches, produced in highly concentrated commercial areas, were both subject to disrupting influences in 1950: the government buying program in potatoes, and a severe freeze in peaches. The magnitudes of the disparities in the other items can probably be attributed largely to sampling errors, and possibly, in part, to the fact that the populations sampled were not identical. Among prices-paid items, the biggest deviations were on clothing, furniture, farm machinery and automotive supplies, the latter, along with motor vehicles being the only groups in which BAE estimates exceeded those from the surveys. The consistency with which the survey estimates exceeded BAE estimates suggests the existence of bias. This bias, in view of the methods used in developing the two sets of estimates, is more likely to reside in the BAE figures than in the survey figures.

One explanation for any bias that exists may be the possible difference in reference point for prices reported from the survey and those reported by BAE. Survey interviewers were specifically instructed to ask, first, whether the respondent had sold (or bought) any of the given commodities during the past, say, week. If none was reported sold (or bought) within the specified period, no price quotation was recorded. Thus, survey price reports reflected insofar as possible only actual transactions. BAE questionnaires, on the other hand, typically asked respondents to, ". . . enter on this questionnaire prices as of the 15th of this month for such of the commodities listed below as are sold by you."[26] The implication is that the respondent is to report on items customarily sold, but not necessarily actually sold recently. It is possible, although not subject to verification from the readily available data, that there is a difference between the survey respondents' actual prices based on recent transactions and the BAE respondents' possibly hypothetical prices based on farther past transactions. If such a difference exists, it would probably have been unusually large in a period of rapidly rising prices like 1950, and the difference would be expected to show BAE prices below survey prices, as in fact they were.

In Table 168, a comparison is shown of BAE and survey mean prices, the latter shown with their L.S.D.'s computed at the 5% level, i.e., the L.S.D. is the difference which would be equalled or exceeded 5% of the time in a large number of samples drawn from the same population. The items for which this information is given include the items for which sufficient numbers of reports were obtained to warrant an analysis of variance. Of the 47 comparisons available, 28 show the actual difference to be larger than the L.S.D., and the remaining 19 show it to be smaller. These figures, however, are perhaps unnecessarily conservative, in that they assume (since no estimate of sampling error of BAE estimates is available) that the BAE means are not subject to sampling error. Obviously

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26/ From Form C.E. 5-99, "AC", 1/1/49, September: Prices Paid by Farmers for Clothing and Dry Goods.

Table 168. Survey and BAE Mean Prices of Selected Commodities and Least Significant Differences Based on Survey Reports. North Carolina Price Study, 1950.

Commodity Group, and Item	Survey Month[a]	Estimate of Average Price[b]: Survey	Board Adoption	Unweighted Average of Reports (BAE)	L.S.D. (Survey)[c]	Observed Difference[d]	Coefficient of Variation of the Mean (%)
Prices received:							
Eggs	1	$ .321	$ .328	$ .327	$ .0039	$ -.007	.61
	2	.359	.359	.356	.0053	0	.75
	3	.476	.494	.493	.0078	-.018	.83
	4	.723	.705	.702	.0090	.018	.63
Corn, all[e]	1	1.26	1.23	1.263	.039	.03	1.5
	2	1.54	1.54	1.547	.030	0	1.0
	3	1.71	1.70	1.748	.068	.01	1.9
	4	1.32	1.38	1.444	.032	-.06	1.2
Prices paid:							
Clothing:							
Men's suits	1	38.15	34.50	34.50	2.17	3.65	2.9
	3	39.75	39.50	39.60	1.87	.25	2.4
Women's rayon pants	1	.61	.59	.59	.043	.02	3.6
	3	.63	.64	.64	.049	-.01	3.9
Furniture & Furnishings:							
Felt-base rugs	1	10.19	10.50	10.40	.46	-.31	2.3
	2	10.34	10.50	10.50	.39	-.16	1.9
Occasional chairs	1	29.00	22.00	21.80	3.10	7.00	5.3
	2	28.00	24.00	23.50	3.10	4.00	5.6
Food:							
Flour	2	1.98	1.99	1.99	.014	-.01	.37
	4	1.98	2.05	2.04	.019	-.07	.49
Round steak	2	.84	.85	.85	.018	-.01	1.1
	4	.89	.91	.91	.020	-.02	1.1
Orange-pekoe tea[f]	2	.34	.31	.32	.003	.03	.44
	4	.34	.33	.33	.005	.01	.70

Table 168. (continued)

Commodity Group, and Item	Survey Month a/	Estimate of Average Price b/ Survey	Board Adoption	Unweighted Average of Reports (BAE)	L.S.D. (Survey) c/	Observed Difference d/	Coefficient of Variation of the Mean (%)
Prices paid:							
Building materials:							
House paint	1	$ 4.63	$ 4.80	$ 4.82	$ .14	$ -.17	1.5
	3	4.71	4.95	4.94	.11	-.24	1.2
Portland cement	1	1.19	1.15	1.16	.017	.04	.71
	3	1.22	1.25	1.25	.022	-.03	.89
Automotive supplies:							
Tires, 6.00x16	3	17.47	18.50	18.50	.35	-1.03	1.0
	4	19.76	20.50	20.30	.37	-.74	.90
Gasoline g/	3	.29	.29	.293	.006	0	.26
	4	.29	.29	.290	.002	0	.30
Motor oil h/	3	1.28	1.45	1.43	.029	-.17	1.2
	4	1.31	1.40	1.40	.033	-.09	1.3
Motor vehicle:							
Chevrolet 2-dr. sedan	2	1616.00	1650.00	1600.00	21.50	-.34	.64
	4	1654.00	1650.00	1650.00	39.26	4	1.1
Farm machinery:							
Spiketooth harrow	1	40.00	24.00	25.50	4.00	16.00	5.0
Manure spreader i/	1	356.00	(370)	(378)	12.62	-14.00	1.8
2-row tractor cultivator	2	220.00	210.00	209.00	9.11	10.00	2.0
Feed:							
Laying mash j/	1	4.72	4.60	4.59	.047	.12	.50
	2	4.92	4.85	4.86	.042	.07	.44
	3	5.02	5.00	4.99	.055	.02	..56
	4	4.98	4.90	4.90	.060	.08	.61
Mixed dairy feed,	1	3.43	3.30	3.33	.070	.13	1.0
16% protein	2	3.61	3.50	3.48	.067	.11	.94
	3	3.73	3.70	3.69	.071	.03	.96
	4	3.80	3.75	3.73	.079	.05	1.0

Table 168. (concluded).

Commodity Group, and Item	Survey Month[a]	Estimate of Average Price[b] Survey	BAE Board Adoption	Unweighted Average of Reports (BAE)	L.S.D. (Survey)[c]	Observed Difference[d]	Coefficient of Variation of the Mean (%)
Prices paid:							
Farm supplies:							
Lead arsenate[k]	2	$ .314	$ .320	$ .329	$ .028	$ -.006	4.5
Binder twine[l]	2	.298	.310	.306	.007	-.012	1.2

a/ 1-March, 2-June, 3-September, 4-December.

b/ Survey prices are unweighted means; an argument can be made for comparing these with either the BAE Board adoptions or the unweighted mean of BAE reports. Both are given here; agreement is slightly closer between the two sets of unweighted means than between survey means and Board adoptions, but the difference is small.

c/ The error mean square used in computing these Least Significant Differences from survey reports was obtained by removing the Crop Reporting District sum of squares from the total sum of squares for each commodity, and dividing the remainder by the corresponding degrees of freedom. The L.S.D.'s represent the differences due to sampling fluctuations which would be equalled or exceeded 5% of the time in a large number of samples drawn from the same population.

d/ Survey mean price minus BAE Board adoption.

e/ Price averages (survey) based on per-dealer averages instead of the per-lot averages used previously.

f/ Survey prices are for quarter-pound packages; BAE figures are reduced to comparable basis.

g/ Regular gasoline, retail, including taxes.

h/ Survey mean is for oil in 1-quart containers, placed in motor; BAE, for all motor oil, per quart.

i/ BAE figures are averages of quotations for "60-70 bu." and "2-wheel rubber tired"; BAE does not issue a single figure for manure spreaders. See Farm Machinery analysis, under Prices Paid.

j/ March survey average probably includes a few 25-lb. bags; these have been removed from data for later surveys.

k/ Prices are quoted per pound, although a large majority of survey reports were for the 4-lb. bag.

l/ Prices are quoted per pound, although most survey reports were for 5-lb. and 8-lb. balls.

this is not true; if it be assumed that the same errors are experienced by B&E as were experienced in the survey, the size of the L.S.D. (this computation is not shown, but can easily be derived from the data of Table 168) is thereby multiplied by $\sqrt{2}$, or by 1.4. By this method, 26 of the comparisons differ by less than the L.S.D., and 21, by more. This, of course, indicates closer agreement between the two sets of figures, and is probably a more realistic approach, although it depends on the assumption that B&E and survey sampling errors are the same. Yet, even with this assumption, many more than the expected 5% (or 21 compared with the expected 3) of the comparisons differ by more than the L.S.D. The conclusion appears to be either that survey and B&E data are from different populations or that bias is present. The latter possibility has been suggested above. The amount of any bias, however, appears small.

Table 168 gives evidence of the stability of the survey estimates, in the column of coefficients of variation of the mean. The coefficients given here do not include Crop Reporting District variability because that effect is fixed, and would presumably be duplicated in other surveys; not being a random effect subject to sampling variation, it cannot appropriately be included in an estimate of error. Except for this exclusion, the figures given are comparable to those prepared by the State Statistician in compliance with B&E's C.E.M. 1388, of October 21, 1949. A frequency distribution of the 47 coefficients of variation of the mean shown in Table 168 is as follows:

Coefficient of Variation of the Survey Mean	Number of Survey Estimates
Less than .75%	14
.75 - 1.49%	18
1.50 - 2.24%	6
2.25 - 2.99%	3
3.00 or more	6
All coefficients	47

The extreme values were .26% for gasoline and 5.6% for occasional chairs. These two items reflect the chief determiner of the differences in stability of estimates, i.e., adequacy of specification. The commodities with low coefficients of variability of the mean were generally the well specified commodities like feed, food, eggs and corn; the high coefficients, conversely, were found on clothing, furniture, and farm machinery, all items known to be loosely specified. The most noticeable exception was the case of lead arsenate which, although appearing to be well specified, exhibited a high coefficient of variation of the mean; no obvious explanation for this appears.

The results of this analysis seem to be that B&E and survey means are in fairly close agreement, part of their failure to agree being attributable to a slight downward bias in the B&E figures.

Two of the sources of variability that have been extensively examined on the commodities for which there was sufficient data are Crop Reporting Districts and town-size strata. Results in both cases have been variable from commodity to commodity, and no clear overall idea of the relation between price and either CRD or town-size has emerged. Summaries of these relations for selected commodities with sufficient reports for subclassification are given in Tables 169 and 170. Each commodity was treated as follows: average price for each Crop Reporting District (and town-size stratum) was expressed as a price relative, in which the state average was set equal to 100. These relatives were the bases for the frequency distributions and "average relatives", the latter computed for all commodities in each CRD and town-size stratum, assuming all relatives to be equally well estimated and hence worth equal weights.

Table 169. Frequency Distribution of Price Relatives (State Average Price = 100) of Selected Commodities, and Averages of Relatives, by Crop Reporting District. North Carolina Price Study, 1950.

Price Relative	Crop Reporting District								All CRD's
	1	4	2	5	8	3	6	9	
	-number of commodities with given price relative-								
Less than 85	12	13	3	5	4	9	8	12	66
85 - 94	23	14	11	16	19	14	12	17	126
95 - 104	44	61	66	79	80	45	59	62	496
105 - 114	8	20	17	10	9	25	23	15	127
115 or more	8	8	19	5	4	13	2	2	61
Total	95	116	116	115	116	106	104	108	876
CRD averages of relatives	97	100	104	100	99	102	100	98	100

The pattern becomes somewhat clearer if the CRD's are grouped according to the three usual geographic divisions of North Carolina, as follows:

Area of State	Component CRD's	Average of Relatives
Mountain	1,4	99
Piedmont	2,5,8	101
Coastal Plain	3,6,9	100

These differences are insignificant; it appears that on an overall basis there are no measurable price differences associated with geographic location within the state. This statement is, of course, subject to exceptions in individual cases.

A tabulation of price relatives by town-size strata, similar to that shown above for CRD's, is given below, in Table 170.

Table 170. Frequency Distribution of Price Relatives (State Average Price = 100) of Selected Commodities and Averages of Relatives, by Town-size Strata. North Carolina Price Study, 1950.

Price Relative	Town-Size Strata				All Strata
	A	B	C	D	
	-number of commodities with given price relative-				
Less than 85	8	2	5	4	19
85 - 94	19	12	11	11	53
95 - 104	77	85	64	58	284
105 - 114	4	14	25	27	70
115 or more	0	2	8	10	20
Total	108	115	113	110	446
Stratum averages of relatives	96	100	101	102	100

There appears a tendency for prices to be lowest in the smallest towns (the A stratum, composed of towns of under 1000 population), to rise fairly rapidly as town-size increases to the next stratum (1000-2500 population), and then to rise slowly through the largest cities of North Carolina. There may be some confounding with quality levels in these figures, i.e., the higher quality merchandise may be more often bought by farmers buying in large towns. No measure of this effect is available in the data, however. These relationships, like those in CRD's, are subject to many exceptions in individual commodities, but they represent the overall average situation that prevailed in the State in 1950.

Summarization of other factors affecting the prices received by farmers, e.g., place of sale, services performed or to be performed prior to sale, grade, etc., does not appear feasible; the importance of the factors is so intimately related to the nature of the particular commodity considered that summarization would be meaningless. The reader is therefore referred back to the individual commodity analyses.

At least one observation of general applicability can, however, be made, to the effect that a large proportion of North Carolina farmers market a given product in practically the same way. That way is most often analagous to "field run", i.e., with little or no grading, or other services performed by the farmer. This uniformity was so widespread, in fact, and so often resulted in a heavy concentration of reports in one subclassification of the tabulation, that analysis of the price-service relationship on many commodities was of no value; the overall mean price was frequently practically identical with the mean of the largest subgroup, and there were insufficient observations available to measure prices in other subgroups.

The final point to be considered in this summary is the question of costs. Costs per schedule declined from survey to survey because of (i) the increasing experience and efficiency of interviewers, some of whom worked on all of the surveys, and several of whom worked on more than one survey, and (ii) the improvement in lists of respondent establishments, as ineligibles were removed. Costs per schedule were higher in larger towns, largely because of the larger proportion of ineligible firms; costs per establishment visited did not appear to be related to town size. Allocation of the sample to towns of different sizes based on these cost data, appears to indicate a need for heavier concentration of effort in smaller towns. Costs of interviewing farmers, and establishments in randomly selected city blocks (where nothing was known in advance of the extent of business done with farmers), were considerably higher than costs of interviewing from lists of establishments known to deal with farmers. The combined effect of the small proportion of eligibles, and the small farmer business reported by those who were eligible, was to render the contribution of the city block data virtually valueless in estimating prices paid (or received) by farmers.

Recommendations

4. On the conduct of preliminary surveys to determine buying and selling practices and channels used by farmers.

   (i) Surveys like the preliminary study in this project are of intrinsic research and administrative value, and could probably be justified on a periodic basis for that reason alone.

   (ii) As an aid in selecting the sample for the kind of price reporting described here, the preliminary survey appears to be an efficient way to provide a list of eligible respondents. Where an important criterion of eligibility is the fact of trading with farmers, this is especially valuable in large towns, where the proportion of eligibles may be small. In small towns, where practically every establishment deals with farmers, and where the total number of establishments is small, the preparation of lists is of much less value.

(iii) As a basis for weighting estimates from dealers of various kinds into a single price estimate, the preliminary survey could be indispensable. In this particular study, the weights proved to be of negligible importance, but there is no assurance that they would be similarly unimportant in other studies. If differences should exist, sufficient to give importance to the marketing channel weights, a preliminary survey appears to be an efficient way to obtain weight data.

(iv) Finally, summing up the recommendations above, it can be said that if a direct-interview price reporting program is contemplated, it appears advisable to make preliminary marketing-channel studies in each new area, at least until sufficient information has been accumulated to indicate whether, and under what conditions, the weight data are useful. If the data do not prove useful as weights, it will be necessary to judge whether the preliminary surveys are justified as sources of lists of eligibles and as research studies valuable in themselves. It appears that the last mentioned consideration alone is entirely sufficient to justify the preliminary surveys.

B. On the conduct of actual price reporting.

(i) Commodity specifications now in use by BAE are in several cases inadequate because of

(a) Age: - The forms in which some items are specified are not the most common forms now in use. Examples are house windows and disk harrows.

(b) Inexactness of description requested on schedules: - Some specifications admit such wide ranges of particular items as to make difficult the identification of the item whose price is estimated by the computed mean. Examples are 3-9-6 fertilizer, occasional chairs, women's lightweight coats, felt-base rugs, lift pumps. Another aspect, that of inadequate descriptions, is found in the case of manure spreaders, which are subdivided into two non-mutually exclusive groups.

(c) Respondents' lack of knowledge: - The specification problem cannot be solved by schedule revision alone. In some cases, e.g., tractors, steel roofing, women's rayon panties, to ask respondents for better specification does not appear to promise much actual improvement, because dealers often simply do not know the necessary details. The need for specification of items in this category is as great as it is elsewhere, but the best way to get improvement is not clear.

The specifications of some items are unnecessarily loose. For example, if the particular brand of felt-base rug (Gold Seal), and the particular type of lift pump (pitcher pumps) were specified, relatively small decreases in numbers of reports would be expected and the precision of the results could be increased. If brands on some items (e.g. Chevrolet) can be specified, no good reason appears for not using similar specification of other items. The general recommendation is that specifications be made uniformly as tight as is practicable within the limitations imposed by respondents' knowledge, the necessity for maintaining comparability over time and space, and the necessity for avoiding insofar as possible periodic surveys to determine relevant specifications.

(ii) Although bias appears to exist in BAE estimates, the evidence of this survey indicates that it is small and fairly consistent over time. Consistency suggests that the bias can be measured and the estimates adjusted for it; smallness suggests that, even if adjustment for the biasis not made, the loss will not be great. Furthermore, when used in an index, the main purpose of which is to reflect relative changes over time, biased data, if the bias is consistent, may be a much less serious problem than it would be in a single study. These considerations, taken in conjunction with the cost data of this study, suggest that the cost of removing the bias may be greater than would be warranted by the improvement to be gained.

(iii) Some reconciliation of objectives must be attained before further price analyses of this kind are attempted. This study has suffered from the dilemma that (a) for comparability with BAE figures and hence direct relevance for BAE, it was necessary to use BAE commodity specifications, and (b) BAE specifications, while acceptable (with the reservations noted above) for estimating mean prices, proved to be generally inadequate for analyzing sources of price variability.

APPENDIX

Proof that the bias resulting from the method of selection is small is given below. This proof was developed by R. L. Anderson of the Institute of Statistics.

Assume the selection of a sample of k farmers out of K; these farmers indicate purchases from n out of N sellers. Since many farmers may report purchases from one seller, n is a random number; k remains practically fixed. Each of the sample farmers indicates only one seller; hence $n \leq k$. The number of times the ith seller is mentioned by the jth farmer is y_{ij} ($y_{ij} = 0$ or 1). The number of times the ith seller is mentioned by all farmers in the sample is $y_i = (1, 2, 3, \cdots, k)$. The price quoted by an interviewed seller is p_i. The total number of farmers who buy from the ith seller is Y_i, ($y_i \leq Y_i$). Then the true average price for all farmers for this group of sellers is

$$p = \frac{\sum_{i=1}^{N} p_i Y_i}{\sum_{i=1}^{N} Y_i}$$

If we select one seller out of the n mentioned, with probability proportional to size, where y_i is the measure of size, then the price, p', for this seller is the estimate of p. For a fixed sample of farmers, the expected value of p' is given by

$$E_n p' = \frac{\sum_{i=1}^{n} p_i y_i}{\sum_{i=1}^{n} y_i}, \quad \text{where} \quad \sum_{i=1}^{n} y_i \text{ is fixed and}$$

$$\frac{y_i}{\sum_{i=1}^{n} y_i}$$

is the probability of selection of the ith seller. Then

$$E \sum y_i = r \sum Y_i$$

where $r = k/K$ is the probability of selection of any farmer. Here the expected value is taken over all possible samples of farmers. Similarly

$$E \sum (py)_i = r \sum p_i Y_i \quad .$$

Then p' is an unbiased estimate of p, except for the usual bias of a ratio estimate (both numerator and denominator are random variables when the expected value of p' is taken over all samples of farmers), i.e.

$$E\left(\frac{\sum (py)_i}{\sum y_i}\right) \neq \frac{E \sum (py)_i}{E \sum y_i} \quad .$$

If we select more than one seller out of n without replacement (a seller can appear only once in the sample), an additional bias is encountered. For this survey n/N was small, hence the extent of this bias is expected to be small.when a farmer buys from only one seller, as was the usual practice.