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OBTAINING RETAIL FLOWER SALES INFORMATION
BY MEANS OF AN "IN-SHOP" SYSTEMATIC
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ABSTRACT

OBTAINING RETAIL FLOWER SALES INFORMATION BY MEANS OF AN "IN-SHOP" SYSTEMATIC SAMPLING METHOD

by Earl H. New

Statistical validation of a frequency sampling method became a prerequisite for further retail flower sales investigation in 1957. The sampling method was designed to reduce the tremendous volume of individual sales data that were being collected from 12 selected Michigan flower shops. The validation of the sampling method was imperative for continuing and more efficient and effective study of the effect of alternative managerial decisions and methods on retail florists' business.

To do this a factorial design was used. Records of 50,582 individual retail sales made over a period of seven months in the 12 shops were arranged into 58 categories. They were recorded on mark sense International Business Machine cards, and sampled by three methods.

The methods, based on 10 per cent frequency sampling, were:

(a) "In-Shop" systematic, in which the systematic samples were identified as the population was recorded in the shops.

(b) Stratified random, selected on a 407 IBM machine from the complete deck of cards.

(c) Systematic, selected in the same manner as (b).

Only two of the 58 categories were selected for statistical validation of the sampling method. They were "all retail sales" and "arrangement

sales." These two categories were the only ones which provided a wide range of frequency of occurrence and value data for each shop each month. Within these two classifications, each sampling method was compared statistically with the others and the population. This was done to determine the sample size and sample method that is most efficient for identification and estimation of the variation within the population.

Data from the 12 shops, when arranged into two areas of six shops each, showed extremely high F values for variation among shops. There were lesser F values for variation between the two areas and among the seven months. "All retail sales" showed a greater amount of variation among months than did "arrangement sales."

Analysis for differences among the three sampling methods showed no significant differences.

Further analysis for frequency level confidence using 10, 20, 30, 40 and 50 frequencies replicated five times showed no sampling method differences. The "In-Shop" systematic method, therefore, was selected for individual sales analysis of each of these levels.

This analysis yielded high significance at the 40 and 50 frequency levels. Further comparison with the population values for these same frequencies, yielded significance at 40 and high significance at 50 frequencies. These frequency levels are higher than those indicated in the literature to be necessary for validation in the case of a normal frequency distribution. Skewness of distribution is the probable reason for the higher frequency level needed for significance in these data.

In order to obtain reliable information about retail flower sales, these recommendations can be made:

(a) At least 40 to 50 frequencies of occurrence need to be recorded in each category, such as the frequency of sales for birthdays for any month.

(b) About 5,000 total orders or items need to be recorded per area or unit under observation per year. This sample number will need to be increased with each segmentation if greater detail is desired.

(c) The data from flower shops being investigated should have a similar skewness of distribution of sales to use these standards.

Other intervals of sampling probably can be used, provided the above precautions are met. Raising the total number in the sample or combining some categories may be necessary in order to meet the requirements for minimum frequencies for reliability.

Percentage fluctuations from the population by the "In-Shop" systematic samples in general follow a pattern of low frequency-higher fluctuation, high frequency-lower fluctuation.

Organizations in the florist and allied industries with punched card equipment can also avail themselves of such sampling techniques provided they observe the proper precautions of minimum frequencies in each classification where information is desired.

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INFORMATION BY MEANS OF AN
"IN-SHOP" SYSTEMATIC
SAMPLING METHOD

By

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Obtaining Retail Flower Sales Information by Means of an "In-Shop"
Systematic Sampling Method

BY

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INTRODUCTION

Statistical validation of a frequency sampling method became a prerequisite for further retail flower sales investigation in 1957. The sampling method was designed to reduce the tremendous volume of individual sales data that were being collected from 12 selected Michigan flower shops. The validation of the sampling method was imperative for continuing and more efficient and effective study of the effect of alternative managerial decisions and methods on retail florists' business.

It was recognized that validation of any frequency sampling method would require a determination of the minimum frequency of occurrence necessary in each component part of the desired transaction, occasion and merchandise categories of this census-type sales data. The establishment of this minimum was believed to be a necessary bench mark to provide confidence in the sampling method under consideration.

The consensus of the investigators was that the selected method must (a) above all meet the requirements for statistical acceptance, (b) have, in order to minimize bias, a minimum of response to the various means by which retail florists arrange their records, and (c) be simple in the recording procedure to avoid all possible errors. The first of these two requirements were determined by the investigators to be a matter for

statistical analysis. The third requirement strongly indicated the desirability of using systematic frequency samples of the population to be taken concurrently with the population records. Under the conditions that had been experienced in recording data in flower shop work rooms and offices, equally spaced systematic sampling intervals were deemed to be easier to remember and check than a series of random numbers would be.

It was perceived that a sampling method designed to meet all of the above requirements for this retail florist merchandise sales study could also be used by the larger retail florist, cooperative florist groups, allied industries and other marketing investigators.

REVIEW OF LITERATURE

Statistical techniques designed for use in marketing studies have undergone considerable refinement in recent years. This brings them much closer in accuracy of results obtained to the accuracy obtained by the techniques employed in biological research where statistical methods were first introduced (17, 18, 36). As evidence is accumulated and new computing machines make it possible to analyze more massive and more complicated data, confidence increases in the accuracy of the results obtained.

While there is an abundance of literature in support of these observations, that which is in direct reference to floriculture marketing is limited. The limited amount of research reported in floriculture marketing is mostly due to the lack of development of specialized study in that segment of the broad field of marketing until recently.

Direct references about refined sampling techniques that are specifically adapted to this study are lacking in retail floriculture literature. Most of the studies in this area have borrowed standard techniques with little adaptation.

In perusing the retail floriculture marketing research reports for sampling technique references, it impressed the writer that this literature reflects some of the controversy and uncertainty that was found during the early years of the agricultural economic and marketing disciplines. This is amply illustrated in regards to those disciplines by innumerable articles in the Journal of Farm Economics and Journal of Marketing.

Floriculture marketing literature of chief concern to the writer was that which pertained to investigations about merchandise sales and the sampling methods by which results were obtained. This included Yocum's (47) report in 1949 on the seasonal sales pattern of Ohio florists. The exact form of the reports which were mailed in monthly by cooperators over a period of 13 years was not revealed. The data were indexed and presented in chart form. Similar sales data were recorded by Tolle and New(38), 1959, from sales slips and cash register tapes of six selected Michigan retail flower shops in 1956. These data were indexed and charted. The pattern of these charts closely followed the sales pattern presented by Yocum for the years when most of the Easter sales-period falls in March. This chart shows a bicornate peak in the spring followed by a summer low and a single peak again for the Christmas period.

Yocum(47), 1949, also showed that the typical sales pattern for the

years when most of the Easter sales-period falls in April produces a chart with a single peak in the spring followed by the same summer low and single peak for the Christmas period. New, Tolle and Parvin(28) reported in 1959 that retail merchandise sales for 12 selected Michigan retail flower shops in 1957, followed this same pattern when they also were indexed and charted. These sales were recorded on mark sense cards from the sales slips and register tapes of those shops.

Trotter(39) in 1955, used retail florists' opinions for a base on which to estimate the percentage that funeral and wedding business were in relation to florists' total business. Also based on florists' opinions, Rada's(31), 1952, and von Oppenfeld's(43), 1951, estimates varied considerably from Trotter's. Actual relationship of funeral and wedding business to total business was reported by New, Tolle and Parvin(28) in 1959. The actual percentage figures for the 12 selected Michigan flower shops in the study were lower than the estimates given by Trotter, or Rada or von Oppenfeld. Whether the lower figures were due to more precision from gathering data from the sales slips and register tapes of the florists or due to other factors is unknown. It must be recognized, also, that the demand for flowers for funerals and weddings is by no means uniform throughout the United States. Great variations occur in the relative positions of funeral and wedding flowers to other flower and merchandise uses, even among florists within the same city. However, the latter report(28) showed remarkably little seasonal variation in funeral flower sales.

Tolle and New(38), 1959, reported a similar stability in seasonal variation of sales of arrangements. Arrangements were defined as being

composed of flowers assembled in containers in contrast to sprays, set designs, casket pieces, corsages, wedding bouquets and loose cut flowers. The containers usually provide a source of water for the flowers. Arrangements compose the greater percentage of flowers sent to funerals in Michigan. Many arrangements sold by Michigan florists are for funeral purposes. However, many are also used for other occasions, illness, new arrivals, births, anniversaries, birthdays, dinners, and so on. The seasonal sales pattern for four other classes of merchandise——corsages, flowering plants, foliage plants and cut flowers——were also presented. These latter classes contributed greatly to the seasonal variation in total sales.

The use of opinions on which to base estimates of florists' sales is crude and inaccurate. On the other hand, too few florists keep their records in a manner which will allow them to provide more accurate information to marketing investigators, so the temptation is to use the easier method. For greater accuracy and detail the investigator must go directly to the individual sales records——the sales slips, register tapes and account books.

In order to produce meaningful, reliable results the marketing investigator must consider the marketing research sampling techniques which relate to (a) the conditions under which it is better to use samples than the whole population, (b) experimental design, (c) types of sampling methods, (d) limitations on validity, (e) methods of validation, (f) achieving representativeness, (g) reduction of error, and (h) the frequency needed for the entire sample and each breakdown. These or any considerations, however, are of little value when crude

and inaccurate methods are used to obtain information. The techniques mentioned here are the heart and core of modern marketing research and should be adopted and adapted to floriculture marketing if useful and valid results are to be obtained either by means of well structured questionnaires or by direct access to retail florists' records.

There is an abundance of comprehensive discussions in marketing research books which cover adequately and thoroughly the sampling techniques that have just been mentioned. A few of the authors are Cochran(10), Ferber(16), Hansen, Hurwitz and Madow(21), Hyman(24), Luck and Wales(25), Smith and Duncan(35), Villars(42), Wales and Ferber(44), and Yates(46). The materials range from elementary to advanced presentations of methods of sampling, analysis and mathematical derivations of formulas. Wales and Ferber(44, 45), 1952, 1956, are recommended as first references for the person who desires a broad background before starting his research.

Stephan(37) in 1936 and Cassady(8) in 1945 pointed up the usual criteria used by most researchers in considering the use of samples. Researchers are in general agreement on employing samples when (a) a complete count is impossible or infeasible, (b) a complete canvass may be impracticable, or (c) a complete enumeration may be unnecessary because measurements can be held within limits of error that are tolerable for the purpose at hand.

There is an abundance of literature on experimental design that extends back to Fisher(17), 1925. Brunk(7) in 1958 brought most of the thinking up-to-date in a discussion on the use of adequate experimental design in marketing research. In his discussion he deplored to use of data from

secondary sources or uncontrolled environments because of the difficulty encountered in statistical inferences where the computation of confidence limits and tests of significance are of questionable value.

Brunk recognized the difficulty encountered in adapting the experimental theory of statistics, that has been highly developed in the biological sciences(17, 18, 36), to the gross, dynamic nature of marketing analysis. As a result marketing investigators are looking for solutions to experimental design problems which are widely applicable.

Brunk further drew attention to the consumer preference experimental designs used by Abrahamson¹ and Godwin² from which have evolved the "matched-lot" or "paired comparison" design in use in this work at present.

Brunk also pointed out that experimental designs have reached their highest degree of development in marketing research in those cases where the investigators are interested in determining the effect of certain practices on the volume of sales. Rotational designs are usually employed to maximize control. Latin-square designs were first used in apple sales experiments about 1948, according to Brunk. Factorial designs have been little used, but properly employed they could explore a much wider range of test variables with limited resources.

Other types of designs in common use in biological science include paired plot, split plot, randomized plot and randomized block among

1. Abrahamson, M. A. Consumer Preferences for Sweet Potatoes. N. Car. Expt. Sta. Tech. Bul. 82. Feb. 1947.
2. Godwin, M. R. Some Economic Aspects of Consumer Packaging as a Method of Retailing Fruits and Vegetables. Ph.D. Thesis, Cornell U. Sept. 1949.

others(36). Many of these can be and are being specifically adapted to marketing research(10, 16, 21, 24, 25, 35, 42, 44, 46).

All research workers have not agreed in the past on the classifications of sampling methods that can be used within the various designs.

Cassady(8) in 1945 pointed out that some researchers placed sampling methods under three general headings, (a) haphazard, which includes opportunistic and pseudo-random, (b) random, which includes pure random and systematic, and (c) stratified, which includes quota and area.

Cassady stressed that the haphazard method has no statistical basis and should not be used. He said, however, that the sampling technique should depend to some extent on circumstances. This would allow for some flexibility.

Most researchers agree with Brown's(5), 1947, classification of all sampling methods as either randomized or stratified. This is characteristic of present practice. Actually many methods used today are a combination of these two classifications in varying degrees. This is in agreement with Politz(30), 1946, who also pointed out that any time an area is selected or segmentation is carried out, to that extent stratification is done. Madow(26), 1946, compared random, stratified random and systematic methods of sampling and found each successive method more efficient statistically than the preceding method. The systematic method is not as stable in efficiency as either of the other two methods. Showel(32), 1951, supported the use of stratification for the purpose of reducing the size of samples needed.

Randomness may be accomplished by means of using an uncontrolled array

of the population from which systematic samples are drawn, or on the other extreme by using a rigidly controlled group from which random samples are drawn by means of a chance drawing or use of a random number table. Systematic sample numbers usually are determined by an initial random drawing(10, 16, 21, 24, 25, 35, 42, 44, 46).

Hansen and Hurwitz(20) in 1949, in discussing probability sampling, gave an example which combined stratification and randomization in sampling. Called stratified random sampling, this type is in common use for obtaining information from a certain percentage of blocks in a city. A random number is used to determine the first numbered block to be designated with the subsequent blocks selected at systematic intervals. Hauser and Hansen(23), 1944, supported this type of sampling as the successor to "chunk" sampling a la "Literary Digest." Cochran, Mosteller and Tukey(11), 1954, were extremely critical of samples which were obtained "by grabbing a handful." Vickery(41) as early as 1939 presented a method for drawing a random sample from a set of punched cards.

At present, probability samples are the recognized standard for sampling procedures in marketing research. Deming(15) in 1947 condemned judgment sampling as having undecided statistical reliability. Peterson and O'Dell(29), 1950, could see an end to judgment sampling when samples became less costly. Stephan(37), 1936, earlier had set forth some general rules in this regard in a complete discussion.

Baten(1, 2, 3, 4) in a series of articles in 1956, 1957 and 1958, gave some interesting details of minor modifications when he compared

various techniques in regards to random sampling. All of the methods discussed yielded comparable results. They were:

(a) The use of random numbers in sampling by means of 10 per cent random samples taken from each township in a county.

(b) A comparison of random sampling from the entire county and stratified random sampling from each township.

(c) A comparison of stratified random sampling and optimum stratified random sampling.

(d) A comparison of two-stage or sub-sampling to the above methods of sampling.

Even with the best designs and recognized sampling methods, there are still limitations on obtaining valid results by sampling. Cassady(8), 1945, enumerated several, three of which apply here. They are (a) lack of precision due to random errors, (b) lack of representativeness, and (c) lack of arithmetical accuracy. Research workers and statisticians are in accord that full precautions must be taken to minimize invalid results from these causes(10, 16, 21, 24, 25, 35, 36, 42, 44, 46).

Validation may be achieved by many methods. Analysis of variance is a tool that has been used by biological scientists since Fisher(17) discovered the distribution of the ratio of two estimates of variance. This was later designated as the variance ratio by Fisher and Yates(18). Snedecor(36) called this variance ratio "F" in Fisher's honor. The designation has been accepted in most statistical work. A comprehensive discussion of the use of analysis of variance in enumeration sampling was given by Cochran(9) in 1939. Analysis of variance is usually employed by marketing researchers in validating the rotational, latin-

square and factorial design experiments discussed by Brunk(7).

Randomized plot, randomized block, split plot, paired plot and various other designs of a similar nature are usually analyzed by analysis of variance(10, 16, 21, 24, 25, 35, 36, 42, 44, 46).

Fiske and Dunlap(19), 1945, presented a graphical test for the significance of differences between frequencies from different samples. This test is of limited use.

Miner(27) in 1956, was severely critical of the cumulative frequency method of testing stability of sample results for validation. He said that the cumulative frequency method cannot be a test of stability of sample results because operation of the method itself insures stability within the sample. He stressed that the method is a tool of rather hazardous propensities in the hands of some researchers. Charitably it can only be regarded as furnishing window dressing for a sample survey.

In most experiments the population is unknown. For this reason the samples which are taken are analyzed and used for the purpose of estimating the population. Validation methods that are to be used with a known population-sample situation are lacking in the literature. The population in the experiment reported here, was known and the sampling methods were validated directly against it percentagewise and by analysis of variance. This unique situation made these two tools the only necessary mathematical ones to use. Even with the population available as an aid to validation, variance analysis only provides unbiased estimates within an experiment and generalities cannot be made beyond the limitations of the conditions of the experiment(7, 10, 16,

17, 21, 24, 25, 35, 36, 42, 44, 46).

Representativeness is always one of the goals of a sampling method(10, 16, 21, 24, 25, 35, 36, 42, 44, 46). Most forms of analysis depend upon this factor for confidence in any attempt at validation. Plainly, any sample that is not representative of the population cannot be an estimate of that population. Many means for arriving at representativeness are used. Stratification to the point of homogeneous units can be employed provided the definition of homogeneous is not drawn too fine.

Cassady(8), 1945, was greatly impressed by the need for representativeness, and stressed the lack of it as one of the limitations on obtaining valid results. He pointed out that sample sizes could be greatly reduced where representativeness is achieved. Craig(13), 1939, reported on the mathematics of the representative method of sampling.

Smith, et al(34), 1946, stressed that the method by which representativeness of a population may be obtained by sampling, differs with the characteristics of the population. They concluded that randomness within a good design is best but that in some cases the design must be so precise as to preclude all randomness. Heterogeneous populations may be stratified into a few homogeneous categories to assure representativeness and allow the use of smaller total samples.

Again, seldom is a population available against which samples and their analyses may be checked and by this checking determine the accuracy of representativeness. The possibility of direct comparison between

population and samples is seldom a part of any experiment and therefore reliance on recognized methods for reducing error is the usual course (10, 16, 21, 24, 25, 35, 36, 42, 44, 46).

Cassady(8), 1945, Smith, et al(34), 1946, and Colley(12), 1946, among others have drawn attention to the fact that the percentage of sample error varies inversely with the square root of the number of cases in a probability sample. To increase accuracy from four per cent error to two per cent error, or by one-half, would require four times as many cases in a sample.

The frequencies needed in a sample to provide accuracy, validation and representativeness has long been recognized in marketing research and apply where the frequency distribution is normal(10, 16, 21, 24, 25, 35, 42, 44, 46). Vernon(40), 1937, suggested a table which is useful only when the frequency of samples is over 30 and where the data are not skewed nor erratic. The accuracy depends much on the size of the units studied.

Harris, Horvitz and Mood(22), 1948, discussed determination of sample size in an experiment design when (a) the population is normal, and (b) an estimate of s_1^2 of the variance is available.

Smith(33), 1939, proposed the formula $n = \frac{(t^2 pq)}{e^2}$ where p is the proportion of desired answers, q is the proportion of all other answers, e is the total percentage of error to be allowed in the proportion of desired answers and t is the standard deviate multiplier for any level of probability. His sampling tables were used to determine (a) accuracy of results, (b) the sample size required for a certain accuracy and

given response, (c) the most economical sample size, (d) whether there is a real difference among several unlimited consumer choices, (e) the validity of differences among choices when the selection is limited, and (f) the secular differences in consumer preferences for temporal market studies. This and other similar formulas may be widely found (10, 16, 21, 24, 25, 35, 36, 42, 44, 46).

Crossley(14), 1941, proposed that sampling adequacy is affected by two types of breakdowns, (a) the number of ways that we classify and (b) the number of different answers. He said that the smallest number as an answer to any question in its smallest breakdown, assuming a normal distribution of frequencies, should never be less than 25 or 1/10 of one per cent of all there is in a group that is being studied. When numbers are large and there are few variable, it is sometimes possible to go as low as 1/100 of one per cent. Usually the most reliable samples, if carefully distributed, appear to be obtained with 1/10 to 3/10 of one per cent, except for small groups where the rule of 25 should be used.

Smith, et al(34), 1946, drew attention to the complexity that often accompanies the determination of sample sizes. In general, the more complex the basic design of the experiment, the larger will be the sample size needed. Using stabilization of returns as an indication of the proper sample size to employ may be misleading. It can as often indicate a lack of representativeness of a sample. The more homogeneous the population, the smaller will be the size of sample needed(10, 16, 21, 24, 25, 35, 42, 44, 46).

The table on sample sizes by Brown(6) has been in use since 1935.

Colley(12), 1946, devised a pocket calculator for determining sample sizes. He also stressed that the number of samples (total yes and no answers) in a breakdown should be the same as though the breakdown was a complete survey in itself.

METHODS AND MATERIALS

This sampling method validation experiment was set up in a factorial design. It contained 12 selected Michigan flower shops which were equally divided between two areas. Individual sales were collected from these shops for a period of seven months. Three sampling methods were imposed on the individual sales data. Three replicates were obtained of two of the sampling methods and two replicates of the third which was the one to be validated.

The 12 shops were the same ones which were cooperating in the parent study concerning the effects of alternative managerial decisions and methods on retail florists' business. Six of these shops were located in Jackson and six in four other communities, Flint, Durand, Grand Ledge and Grand Rapids. This provided two areas for comparison. The first area will be referred to as "In-Jackson" and the other as "Out-of-Jackson" throughout the paper. Both high and low volume shops were found in both areas and can be identified in Tables I and II.

Recording for the overall program started with orders that were filled on February 1, 1957 and continued through January 31, 1958. In order to evaluate the effect of consumer demand on supply channels and the retailer, the date of filling the order was used. The data employed in this sampling technique study, were from orders filled on July 1, 1957

through January 31, 1958, a seven month period.

Three types of mark sense International Business Machines cards³ had been devised for recording the data for the overall program and were also used for this segment. Each of the completed IBM cards represented a separate commodity sale. In some cases it took several cards to record the different commodities found on one sales slip. For example, several corsages or boutonnières might have been recorded on the same sales slip, or several arrangements for a funeral, or green plants with flowering plants, or bedding plants with vegetable plants.

Most of the recording was done in the shops by the investigators. All of the information used came from sales slips and register tapes as interpreted by the investigators and shop operators. The shop operators furnished access to the records and an occasional interpretation of the handwriting on the sales slips or symbols used to key the cash register tapes. Identification of some categories was nearly perfect; notably sales for funerals and sales of arrangements.

The sales slips were filed by various means in the cooperating shops. In some cases each month's slips were kept in alphabetical order with charge, cash and wire orders kept separated. In other cases the slips were filed under the date on which the orders was filled, or in exact numerical order of the receipt of each order, or in no set pattern.

The sales recorded on the register tapes were, of course, in the order in which they were registered.

3. Samples of these cards are available on request.

The mark sense cards were processed by machine punching, thus a key punch operator was eliminated. The codes for the shops were composed of the county number followed by the shop number. They were punched into the mark sense cards from master cards during the initial processing. The yearly code was added from the same master cards.

Following verification, the cards were sorted first chronologically starting with February 1, 1957 and continuing on to the end. Then each month was sorted into shop order starting with the "Out-of-Jackson" shops and ending with the "In-Jackson" shops. The details of the shop order arrangement are found in Table I. The shops are kept in the same order in all tables where individual shops appear. Only those cards representing individual sales filled on July 1, 1957 through January 31, 1958 were used to continue with the analysis for statistical validation of a sampling method.

Total frequencies and monetary values of the total sales and of several categories for each shop per month were obtained on a 407 IBM Accounting (Tabulating) machine. These with shop, month and seven-month (the total period) totals are recorded in Table I for "all retail sales" and in Table II for "arrangement sales," one of the merchandise categories. Totals for the full year and the rest of the 58 categories, with "interactions," are programmed on the Michigan State Digital Computer, MISTIC, for a later report. Part of the latter totals were used in the report by New, Tolle and Parvin(28) in 1959.

Recording of the two 10 per cent frequency samples directly from the sales slips and register tapes began with orders filled on July 1, 1957.

It was accomplished by alternately marking the X and Y (11 and 12) positions in mark sense column 26 of every fifth card. This represented every fifth commodity purchased. The first card to be marked for each shop was determined by a random drawing. This method resulted in two 10 per cent frequency samples, each of which was five cards from the other. This method will be referred to throughout the paper as the "In-Shop" systematic sampling method. This term is used to differentiate between this method and the systematic and stratified random samples obtained on the IBM tabulator as described below.

The stratified random 10 per cent frequency samples were selected on a 407 IBM machine. A control board for this machine and a coupled summary punch, was wired⁴ by the research division of the tabulating department. This board controlled the selection of 10 specified cards from every 100 cards (a strata) and the reproduction of them on the summary punch as they passed through the tabulator. The specified cards within the 100 card strata were designated by a master card punched with 10 random numbers that ranged between 1 and 100. These numbers were selected from Snedecor's(36) random number table. Three such cards were used to select three different stratified random samples (replicates) from the 50,582 cards which represented the retail sales from July 1, 1957 through January 31, 1958. Machine cycle restrictions required that any series of random numbers selected must have intervals of three or greater. Numbers closer than three interfere with the cycle of operation of the machine. This causes selection of every card through the tabulator after the cycle is broken. It was assumed after

⁴. The wiring diagram is available from the tabulating department.

appropriate consultation⁵ that so long as a recognized random number table was used for selecting numbers, the results should be unbiased.

Three systematic sample master cards were also prepared for use with the machine. They started with three, six and nine, respectively, and proceeded at intervals of 10 cards through each 100 cards in order. Thus 3, 13, 23 on up to and including 93 were selected for the first card. The master cards had to be adjusted to the machine reading cycle and thus actually 1, 11, 21 on up to and including 91 were punched on the first systematic sample card.

All cards were kept in the same place in the total deck throughout the selection of the three systematic and three stratified random samples.

The categories of "all retail sales" and "arrangement sales" were selected for detailed analyses from the summaries (totals) produced on the tabulator. These were selected because they were the only categories that did not have a zero value for some month for some shop among the three types of 10 per cent frequency samples. Frequencies of occurrence of "all retail sales" ranged from 341 down to 2 per shop per month among the samples. Frequencies of occurrence of "arrangement sales" ranged from 76 down to 1 per shop per month among the samples. This was considered to be an adequate range of frequency to provide reliability tests which would reach any limits involved.

The last seven months of the overall program data recorded on the previously described IBM cards were selected for analysis because specific identification of the two 10 per cent "In-Shop" systematic

5. With Dr. W. D. Baten, Experiment Station Statistician.

frequency samples was begun with orders filled on July 1, 1957.

Analysis of variance was the analysis method used throughout this validation experiment, except for the final comparisons in Tables LVII and LVIII, where percentage relationship was used.

Analyses of variances were first scheduled within both of the three-replicate sampling methods in both selected sales categories to obtain F values for variances among shops, among months and between the "In-Jackson" and "Out-of-Jackson" shops in Tables III through XIV.

Analyses of variances were then scheduled with the two-replicate "In-Shop" systematic sampling method and the first two replicates of the stratified random and systematic sampling methods in Tables XV through XXXVI. This provided equal replicate numbers. These analyses were used to determine F values for variances among sampling methods in addition to F values for variance among shops, among months and between areas. The first two replicates were used under the theory that if only two had been selected, these two would have been the ones.

The data then were arranged and examined for sampling method differences at frequency levels of 10, 20, 30, 40 and 50 frequencies in Tables XXXVII through XLVI. The first five cases of each frequency level from each sampling method regardless of sales category were subjected to analyses of variances for this determination. The corresponding population values were also subjected to analyses of variances and then compared to these 10 per cent frequency samples after dividing the population values by 10.

Two frequencies from other than the same shop (viz. not two from

Jackson shop number one for August) were added together when there were not enough cases of frequency level numbers to complete the needs for a certain level within a sampling method. For example, the 30 frequency level was seriously lacking in all three sampling methods. To make 30 frequencies, 15 and 15, or 14 and 16, or 8 and 22 or other combinations of two frequencies were added together and the combined monetary values used for the analyses. Ten and 20 were not added to make 30 because they were already incorporated into the analyses of those levels.

Following completion of the analyses designed to compare the three sampling methods, the frequency level data from the "In-Shop" systematic sampling method were further analyzed to show variances within each frequency level. This sampling method was selected for analysis of the individual sales values because of the results of previous analyses and other desirable characteristics. This sampling method was the one previously described as a systematic marking of the cards in the flower shops directly from sales slips and register tapes.

The values from each of the individual IBM cards in the previously selected five lots (cases) of the five frequency levels of the "In-Shop" systematic samples were then subjected to analyses of variances. These analyses were designed to furnish evidence of the frequency level at which reliability begins, the main objective of this experiment. Again, comparisons were made with the corresponding population value for each lot (not individual) for verification. These were set up in Tables XLVII through LVI.

Finally the frequencies and monetary values of both the X and Y "In-Shop" systematic frequency samples were multiplied by 10 to provide an estimate of the population from each replicate, shop average, month average, area average and total average. This estimate was then divided by the frequencies and monetary values of the real population of each replicate, shop average, month average, area average, and total average of both the "all retail sales" and "arrangement sales" categories. This manipulation was for the purpose of establishing the percentage relationship of each of the above to the corresponding real frequencies and monetary values. They are presented in Tables LVII and LVIII.

RESULTS

The frequency (number) of "all retail sales" for all of the 12 selected Michigan retail flower shops for the seven-month period under study was 50,582; the value was \$307,943.76. These are shown in Table I. The frequency of "arrangement sales" was 20,887 and the value was \$115,813.71 as shown in Table II. These two tables represent the whole population or parameter against which the sampling methods, frequency of occurrence and monetary values were measured for validation.

There were 15,179 IBM cards selected for the three stratified random samples (replicates) for an average of 5,060. There were 15,171 IBM cards selected for the three systematic samples for an average of 5,057 cards per sample. Both of these averages were very close to 10 per cent of the frequencies of the "all retail sales" population.

The total value of the stratified random samples was \$93,159.57 for

an average of \$31,053.19. The total value for the systematic samples was \$92,921.00 and the average was \$30,973.67. Both of these average values were slightly greater than 10 per cent of the "all retail sales" population value.

Similar accuracy was obtained with the two samples (replicates) per sampling method. Frequency of occurrence for series X of the "In-Shop" systematic method was 98.97 per cent of the "all retail sales" population frequency for the "Out-of-Jackson" shops and 99.15 per cent for the "In-Jackson" shops. The monetary values were 101.09 per cent and 97.31 per cent respectively. Frequency for all shops was 99.07 per cent and monetary value was 99.39 per cent of the "all retail sales" population. The Y series showed a similar behavior. The discrepancy in frequency percentage in the "In-Shop" systematic sampling method was slightly larger than that for the other two methods. Part of this small discrepancy was due to the fact that each shop's total frequencies were not an exact multiple of 10. The other part was due to losing the identity of a few of the cards during the processing procedure. These "lost" cards were a part of the total deck from which the "machine" samples were drawn.

Analyses of variances of Tables III through XIV, which are based on three samples from each of the IBM machine selected stratified random and systematic sampling methods, show that most of the variance in the data is among the shops. This is shown by the extremely high F values for shops in both the "all retail sales" and "arrangement sales" categories. There also was a large variance among months in the "all retail sales" category. There were only slight fluctuations among

months in "arrangement sales." The F values for months were consistently lower than for shops in both categories and lower in the case of "arrangement sales" than in the case of "all retail sales."

When the two areas, "Out-of-Jackson" and "In-Jackson," were compared, the two areas showed a statistical difference that was highly significant in most cases.

Similar results were obtained when all three sampling methods were analyzed using two samples per method. This was true except for some non-significant F values (a) in the area of comparison analysis of stratified random samples for "arrangement sales," and (b) in the "Out-of-Jackson" "In-Shop" systematic samples for "arrangement sales" as recorded in Tables XV through XXII.

The sampling method analyses in Table XXIII through XXVI show no statistically significant differences among sampling methods for either areas, sales categories, frequencies or monetary values.

The analyses of the 10, 20, 30, 40 and 50 frequency levels represented in Tables XXVII through XLV show no statistically significant differences (a) among the various sampling methods, nor (b) between samples and the whole population which each represented, for the first four frequency levels tested. At the 50 frequency level highly significant sample differences were obtained. This difference corresponded to a similar highly significant population difference. This can be expected when the sample is a good estimate of the population. Great differences were not expected among the various levels with this analysis because five samples of 10 frequencies each

were additive. They in effect became 50 frequencies. Only by using individual values of each sale or order within these five samples could the variances within each frequency level be determined.

These two series of analyses confirmed the proposition that any one of the three sampling methods was valid for obtaining retail sales data from flower shops. Using this as a basis, the balance of the analyses were made with the "In-Shop" systematic sampling method. It was also the method of main interest for statistical validation.

The analyses of the individual order values from each of the frequency level selections for this sampling method, represented in Tables XLVII through LVI, show that there was more variation within the five selected lots for each frequency level than among them, until 40 frequencies of occurrence was reached. Results were highly significant for both the 40 and 50 frequency levels, indicating that an actual difference at these levels could be determined.

When each lot in each level was compared to its corresponding population value, a similar result was obtained. There were no significant differences at any level between sample and population. However, significance was obtained among the lots at the 40 frequency level and high significance among the lots at the 50 frequency level. This is the second indication that actual differences can be determined at these levels.

At the 40 frequency level the five lots selected averaged at 98.37 per cent of the monetary value of the population. At the 50 frequency level the average was 97.83 per cent of the whole population.

The percentage relationship of each sample to the population or real values is shown in Tables LVII and LVIII for the "In-Shop" systematic samples. The sample frequencies and values were multiplied by 10 to obtain an estimate of the population represented by them. These estimates were then divided by the population frequencies and values to arrive at the percentage figures presented. These figures show an interesting relationship of frequency and values. By referring back to Tables XXI and XXII for "all retail sales" and Tables XXV and XXXI for "arrangement sales," the low volume shops and months can be seen to often correspond with erratic frequency and value percentages.

DISCUSSION

It seems reasonable to state, from the 10 per cent frequency sampling data presented, that the "In-Shop" systematic sampling method used here is as accurate as either machine selected stratified random or systematic frequency sampling methods. On the same basis, it can be concluded that each component part of each desired transaction, occasion and merchandise category of this particular census-type data must have at least 40 frequencies of occurrence to give statistically highly significant results. In case of doubt as to the similarity of character of data from a proposed area, it would appear desirable to use 50 frequencies of occurrence. This is partially supported by the appearance of statistical significance at the 40 frequency level sample-population comparison in Table LIV while high significance appears in Table LVI for the 50 frequency level.

It seems reasonable to assume, from the experience of the writer, that retail flower sales data in another area often might assume a pattern

of distribution of individual order values that is similar to the pattern from these 12 selected Michigan shops. If this is so, the above frequency assumption could then be useful in obtaining 10 per cent frequency samples elsewhere if precaution was used to gather a total of about 5,000 frequency samples per year per area or unit under study. This number would need to be doubled to provide adequate samples for a test and control area as part of a verification process for statistical confidence. Any shops involved in a test should show a range in volume that is about the same as the 12 selected Michigan shops to further fulfill the requirements. Because of the ever present unknown factors in the distribution pattern of frequencies and monetary values, it is probably safer to use the figure of 50 frequencies for these shops and also for other shops and areas.

It was brought to the writer's attention⁶ that skewness of distribution of this data most likely is the greatest reason for the discrepancy between this higher figure of 40 to 50 minimum frequencies and that of 30 proposed by Vernon(40) and 25 proposed by Crossley(14). Both Vernon and Crossley assumed a normal distribution. To investigate this, Tables LIII and LV were examined. Table LIII shows individual orders varying from 10 cents to \$30.00 with an average of \$7.21. Table LV shows a variation of from \$1.35 to \$34.40 with an average of \$8.01. Neither of these averages is close to the median which is a requirement of normal distribution. This divergence of median and mean strongly suggests skewness.

In addition, while recording the population data, several sales of less

6. Private conversation with Dr. Harold Ecker, Short Course Department.

than 10 cents were noted. On the other hand, another sale of around \$1,000 was recorded. There were several in the \$50.00 to \$75.00 range, but the average of the seven-month population data presented in Table I was \$6.09. This is certainly not the median between the low and high sales values for this period. From this it can easily be understood why distribution skewness is suggested as the probable reason for the higher (40, 14) frequency level needed in this data for confidence at the 99 per cent level. In some cases this might approach a Poisson distribution. This could be the case with orders sent by wire.

While these data do not positively show it, it can be postulated that data on florist merchandise sales that show frequencies of 40 or 50 or more occurrences in the desired categories should produce satisfactory answers at any sampling percentage which can produce these levels, when about 5,000 samples per area or unit per year are taken. In these data samples of 40 frequencies showed less than four per cent of error and samples of 50 frequencies showed only slightly over two per cent of error at the one per cent level. Therefore, useful conclusions at the one per cent level probably can be obtained at no greater error from any category in which 40 or 50 or more frequencies occur if the sample size is a reasonable percentage of the population.

It can be postulated further that categories that do not have sufficient frequencies of occurrence can be combined until 40 or 50 frequencies are reached. Thus two or more categories could be combined to obtain a better picture than if they were not combined. For instance in the related population data from which the data for this study were taken, casket pieces, companion pieces, sprays and set designs, all similar

funeral "pieces," were placed in four separate "commodity" classes. A 10 per cent frequency sample of any one by itself would not meet the requirements of confidence on a shop per month or area per month basis. When they are combined into one category and used on an area basis per month, it is possible that a 10 per cent frequency sample may be feasible.

It is reasonable to believe that a 10 per cent frequency sample or any other percentage sample would not be reliable in finding when the first Christmas or Easter order was taken and/or filled in a certain year. This is due to the low frequencies early in the season. On the other hand, it is feasible to estimate the total number and value of such orders for one season with a 10 per cent frequency sampling method provided a minimum of 40 to 50 frequencies of occurrence are obtained.

If for some reason it is not feasible to combine classifications because the information desired concerns one classification alone, then it may become necessary to record the population of that particular category while taking the balance of the records on a sample basis. For instance, information on the effect of an allied (cooperative) florists advertising effort concentrated on a desirable year-around-appeal occasion such as birthdays, would be useful in measuring the promotional effect of such an effort. Unfortunately, there are not enough birthday sales, as indicated by the records obtained from the 12 cooperating shops, to obtain statistical significance in a 10 per cent frequency sample.

Using the areas under study as an example, total sales for birthdays

recorded in June and July "In-Jackson" only totaled 36 and 33, respectively, and 48 for July "Out-of-Jackson." On such a volume it is impossible to obtain a 10 per cent sample with a minimum of 40 to 50 frequencies per area for all months throughout the year.

If a test of allied advertising effort became possible and birthdays were selected as the occasion because of their universal appeal and even distribution, it would be necessary to record the "birthday sales" population. This would be required, although a 10 per cent frequency sample would be feasible for the balance of the data. If the total frequencies in the 10 per cent sample was increased to about 100,000 per year divided between the test and control areas, accuracy would return, but so would massive data and expense.

It would seem simpler to confine the 10 per cent frequency sample to "all retail sales" with a goal of recording 10,000 orders or items per year between the test and control areas. All of the "birthday sales" would need to be recorded additionally and kept separate from the 10 per cent sample. From the records of the 12 cooperating shops, this would mean a duplication of the nearly 200 "birthday sales" recordings in the 10 per cent samples. It would also mean making out a separate complete set of records for the nearly 2000 "birthday sales" for the year.

It is, therefore, reasonable to conclude that this information about the reliability of various frequency levels in this type of data is of value to the marketing investigator. Such information has been lacking to this time in the field of floriculture marketing. This is especially

valuable to the marketing investigator who is confronted with limited funds, yet wishes to draw his information from a broad base..

It is true that this frequency level suggestion of 40 to 50 frequencies may not be accurate for other floriculture marketing investigations, where the frequency distribution pattern differs greatly, but it provides a point from which to start. This point was not previously known. The method of analysis used in Tables XLVII, XLIX, LI, LIII and LV provides a relatively easy means of checking on the reliability of similar data to determine the data's own unique frequency level where reliability is achieved.

Larger retail florists operating with a single unit or multiple units, and with a yearly volume of about 50,000 orders, could use every tenth order for a month, season or the entire year, as a sample. This could give a close approximation of the character of that part of their business which concerns merchandise sales, provided that they did not detail the data into categories which would have less than 40 to 50 frequencies. For instance, the proportion of sales of arrangements to total sales, a comparison of monthly sales of arrangements, the occasions for which arrangements are sold and/or the transactions involved in the sale of arrangements or other merchandise could be determined. Those florists with a greater total frequency could reduce their frequency sample percentage to provide the same restrictions or take data on a 10 per cent basis and increase the details. Available punched card equipment would be desirable.

Cooperative florist groups or those subscribing to a service where

punched card equipment is available could find information about their collective market. Wire order services have such equipment and could obtain information at a reduced cost by means of 10 per cent systematic frequency samples properly stratified into areas of the country.

It might be more feasible for a wire order service organization to use populations of 50,000 frequencies of occurrence of all "wire sales" per year as units for study for the detail desired rather than to use geographical units. Fewer population frequencies per year might be used if classifications could be grouped for less detail. This is possible with a 10 per cent frequency sample as long as each desired category has at least 40 to 50 frequencies of occurrence.

Wire services sampling wire orders could conceivably benefit from lower frequency levels. This would be under the assumptions that with minimum order limits, and elimination of certain types of very large orders on the other extreme, such data will have a less skewed distribution than all florists' sales would have. Minimum order limits eliminate nearly all orders of a value of less than \$5.00. Wire services could determine their own best frequency levels by using the method of analysis given in Tables XLVII, XLIX, LI, LIII and LV.

Related industries that must consider the seasonal variation of florists sales in scheduling the fabrication of their products for florist use, could benefit from data gathered by systematic frequency samples to aid in projecting their schedules. Included in this group are the producers of advertising "stuffers" to be inclosed with monthly statements, of supplies, and of holiday items.

As a further argument in support of setting such limits as have been set throughout this discussion, a study of the results obtained by the "In-Shop" sampling method expressed as percentages of the population are presented in Tables LVII and LVIII. The data in these tables show increasing accuracy as one moves progressively from the smaller volume shops to the higher volume shops. Tables I and II will help to identify the various shops according to volume. Increased accuracy or fit is also shown as one progresses on to the area-monthly averages, total sample averages, and total shop averages and finally to the grand total averages found at the bottom right corner of each table. There is a fairly great increase in accuracy as one progresses upward from the lower frequency levels. This accuracy increases at a decreasing rate as the frequencies become higher. These tables also illustrate the erratic nature of systematic sampling efficiency which was pointed out by Madow(26) in 1946.

At the same time one must not lose sight of the fact that accuracy of results expressed as percentages is a mathematical play on increasing sample numbers in relation to the population and does not guarantee representativeness. It can be easily shown that in calculating percentages, a difference of one means 50 per cent when the total is two, but a difference of only 0.05 per cent when the total is 2000. Economy in experiments usually dictates a compromise at some point in between.

SUMMARY

1. High statistical significance can be obtained with retail flower shop sales data gathered by a systematic sampling method whereby every tenth order or item sold is recorded, provided:

- (a) At least 40 to 50 frequencies of occurrence are recorded in each category, such as the frequency of sales for birthdays for any month for a shop or other unit of observation.
- (b) About 5,000 total orders or items are recorded per area or unit under observation per year. Greater detail can be obtained with each segmentation of the data by increasing the sample numbers.
- (c) The data from the flower shops being investigated show a similar skewness of distribution of monetary values.

2. Other intervals of sampling retail flower shop sales probably can be used provided these same precautions are met.

3. There were no differences among the three sampling methods used.

4. Differences among shops were greater than differences among months or between areas.

5. "Arrangement sales" showed only slight monthly fluctuations.

6. "All retail sales" showed great monthly fluctuations.

7. Percentage fluctuations from the population by the "In-Shop" systematic samples in general follow the pattern of low frequency-higher fluctuations, high frequency-lower fluctuations.

8. Organizations with punched card equipment can avail themselves of such sampling techniques provided they observe the proper precautions.
9. Frequency level requirements for a floral organization's "unique" data may be easily determined by analysis of variance if the individual sales values at the 10, 20, 30, 40 and 50 frequency levels are analyzed.

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TABLE I. Mary 1958.

		SHOP AVERAGE	
O U T	23-1	Freq	Value
		622.3	3240.67
O S	25-1	843.4	7890.53
F H			
O	25-2	633.3	6016.51
J P			
A S	25-3	237.9	1501.26
C			
K	41-1	572.7	3428.30
S			
O	78-1	476.6	2187.86
N AREA			
TOTAL			
AREA			
AVERAGE		564.4	4044.19
I	38-1	1559.1	8232.49
N			
	38-2	1041.6	5797.90
J			
A S	38-3	166.3	750.38
C H			
K O	38-4	138.9	559.23
S P			
O S	38-5	691.6	2821.15
N			
	38-6	242.4	1565.70
AREA			
TOTAL			
AREA			
AVERAGE		640.0	3287.81
GRAND			
TOTAL			
GRAND			
AVERAGE		602.2	3666.00

TABLE I. Frequency and value of all retail sales from the 12 selected Michigan retail flower shops for the months of July 1957 through January 1958.

		M O N T H S																	
		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		JANUARY		SHOP TOTAL		SHOP AVERAGE	
O		Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value
U	23-1	378	2328.80	459	2571.53	425	2095.74	604	2711.88	640	3409.94	1240	5643.87	610	3922.93	4356	22684.69	622.3	3240.67
S	25-1	676	6870.97	771	6921.16	668	6452.32	817	8283.16	770	7660.85	1466	11829.69	736	7260.57	5904	55233.72	843.4	7890.53
H	25-2	452	4175.63	649	6244.52	498	4524.80	582	5811.60	672	6689.55	972	8752.18	608	5917.26	4433	42115.54	633.3	6016.51
O	25-3	175	1049.91	203	1392.73	179	1297.50	217	1619.64	258	1387.39	449	2576.12	184	1185.55	1665	10508.84	237.9	1501.26
F	41-1	373	2499.70	444	2967.40	466	2463.35	553	3485.50	549	3534.07	1095	5688.60	529	3359.48	4009	23998.10	572.7	3428.30
J	78-1	373	1902.38	494	2190.41	481	2568.39	579	2281.86	426	1747.69	587	2395.20	396	2229.08	3336	15315.01	476.6	2187.86
P	TOTAL	2427	18827.39	3020	22287.75	2717	19402.10	3352	24448.64	3315	24429.49	5809	36885.66	3063	23874.87	23703	169855.90		
A	AREA																		
C	AVERAGE	404.5	3137.90	503.3	3714.63	452.8	3233.68	558.7	4024.77	552.5	4071.58	968.2	6147.61	510.5	3979.15			564.4	4044.19
S	38-1	837	5132.36	1084	6718.50	1224	6687.69	1497	8159.53	1490	7552.20	3315	15604.79	1467	7772.37	10914	57627.44	1559.1	8232.49
N	38-2	693	4001.58	739	4601.89	821	4822.80	975	5490.12	1094	5736.17	1911	10172.02	1058	5760.70	7291	40585.28	1041.6	5797.90
J	38-3	67	667.68	82	390.37	88	769.07	199	747.26	186	538.62	375	1433.80	167	705.83	1164	5252.63	166.3	750.38
A	38-4	82	422.68	80	432.40	114	493.55	144	561.10	110	444.00	208	1139.31	234	424.55	972	3914.59	138.9	559.23
C	38-5	430	2174.94	428	2038.16	528	2204.36	694	2715.57	685	2745.87	1328	4864.75	748	3004.37	4841	19748.02	691.6	2821.15
H	38-6	183	1356.85	151	1183.50	222	1378.57	260	2011.65	226	1452.40	426	2198.23	229	1378.70	1697	10959.90	242.4	1565.70
O	TOTAL	2292	13756.09	2564	15364.82	2997	16356.04	3769	19685.23	3791	18466.26	7563	35412.90	3903	19046.52	26879	138087.86		
S	AREA																		
P	AVERAGE	382.0	2292.68	427.3	2560.80	499.5	2726.01	628.2	3280.87	631.8	3077.71	1260.5	5902.15	650.5	3174.42			640.0	3287.81
A	GRAND																		
C	TOTAL	4719	32583.48	5584	37652.57	5714	37578.14	7121	43833.87	7106	42895.75	13372	72298.56	6966	42921.39	50582	307943.76		
S	GRAND																		
P	AVERAGE	393.3	2715.29	465.3	3137.71	476.2	2979.85	593.4	3652.82	592.2	3574.65	1114.3	6024.88	580.5	3576.78			602.2	3666.00

TABLE II. Frequency and value of arrangement sales from the 12 selected Michigan retail flower shops for the months of July 1957 through January 1958.

		M O N T H S																	
		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		JANUARY		SHOP TOTAL		SHOP AVERAGE	
O U T		Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value
	23-1 :	162	1196.58	198	1454.43	115	813.19	117	1312.76	225	1817.06	179	1539.91	264	2291.77	1315	10425.70	187.9	1489.39
	25-1 :	478	4549.20	500	4293.87	433	4034.87	535	4969.31	481	4646.18	414	3633.46	450	4372.14	3291	30499.13	470.1	4357.02
	25-2 :	306	2544.75	369	3056.31	315	2555.14	339	2819.76	400	3404.36	322	2758.13	303	2728.18	2354	19866.63	336.3	2838.09
	25-3 :	96	583.61	118	737.86	101	640.89	102	733.60	108	711.36	108	728.24	86	667.94	719	4803.50	102.7	686.21
O S F H O J P A C K S O N	41-1 :	215	1503.15	264	1893.60	216	1442.70	304	2020.11	272	1999.36	326	2359.33	297	2072.93	1894	13291.18	270.6	1898.74
	78-1 :	157	1135.77	194	1295.64	179	1390.75	149	1145.79	140	984.25	91	594.00	194	1456.13	1104	8002.33	157.7	1143.19
	AREA TOTAL	1414	11513.06	1638	12731.81	1359	10877.54	1606	13001.33	1626	13562.57	1440	11613.07	1594	13589.09	10677	86888.47		
	AREA AVERAGE	235.7	1918.84	273.0	2121.97	226.5	1812.92	267.7	2166.89	271.0	2260.43	240.0	1935.51	265.7	2264.85			254.2	2068.77
I N J A S C H O S P O S O N	38-1 :	465	3367.59	595	4292.97	537	3860.77	607	4490.47	592	4102.86	622	4420.17	639	4571.09	4057	29105.92	579.6	4157.99
	38-2 :	400	2702.09	443	3007.57	392	2805.68	452	2999.20	444	2806.05	464	3194.86	452	3165.10	3047	20680.55	435.3	2954.36
	38-3 :	36	214.31	41	185.80	47	246.69	74	372.88	51	213.55	74	327.28	58	255.90	381	1816.41	54.4	259.49
	38-4 :	51	239.65	50	250.00	44	261.00	43	225.50	40	225.95	37	191.23	39	206.25	304	1599.58	43.4	228.51
	38-5 :	203	1320.67	166	1101.45	175	1063.95	227	1340.41	229	1383.78	295	1693.08	320	1865.07	1615	9768.41	230.7	1395.49
	38-6 :	135	1036.50	91	618.50	132	930.57	129	984.25	119	910.35	88	687.20	112	787.00	806	5954.37	115.1	850.62
	AREA TOTAL	1290	8880.81	1386	9456.29	1327	9168.66	1532	10412.71	1475	9642.54	1580	10513.82	1620	10850.41	10210	68925.24		
AREA AVERAGE	215.0	1480.14	231.0	1576.05	221.2	1528.11	255.3	1735.45	245.8	1607.09	263.3	1752.30	270.0	1808.40			243.1	1641.08	
GRAND TOTAL		2704	20393.87	3024	22188.10	2686	20046.20	3138	23444.04	3101	23205.11	3030	22126.89	3214	24439.50	20887	155813.71		
GRAND AVERAGE		225.3	1699.49	252.0	1849.01	223.8	1670.52	261.5	1951.17	258.4	1933.76	251.7	1843.91	267.8	2036.63			248.7	1854.93

TABLE III. Average frequency and value of three 10 per cent stratified random samples of all retail sales in the six "Out-of-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

M O N T H S								:SHOP	
								:AVERAGE	
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.		
S	23-1 :	41.67	44.33	41.00	66.00	60.00	125.33	60.00	62.62
H	25-1 :	64.67	74.33	65.00	80.67	70.00	148.67	74.00	82.48
O	25-2 :	45.00	64.67	53.00	56.67	65.33	94.67	65.33	63.38
P	25-3 :	16.00	24.33	19.00	20.67	24.00	46.33	18.60	24.05
S	41-1 :	38.33	45.00	39.33	59.00	56.00	109.00	49.33	56.57
	78-1 :	37.00	38.33	39.67	52.33	43.00	55.00	40.67	46.57
MONTHLY									
AVERAGE									
	40.44	50.17	44.33	55.89	53.06	96.50	51.22	55.94	

LSD MONTHS 5% 2.39 1% 3.14 LSD SHOPS 5% 2.20 1% 2.90

VALUE OF ALL RETAIL SALES IN DOLLARS

M O N T H S								:SHOP	
								:AVERAGE	
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.		
S	23-1 :	224.79	241.32	216.17	316.57	334.17	574.07	365.06	324.59
H	25-1 :	640.12	725.74	683.24	895.32	655.15	1022.06	848.44	781.44
O	25-2 :	439.01	657.66	511.19	543.58	626.83	786.06	703.66	609.71
P	25-3 :	96.66	172.37	125.11	178.00	134.97	254.58	105.19	152.41
S	41-1 :	277.73	333.45	176.77	414.55	393.64	587.19	356.48	362.83
	78-1 :	214.55	199.42	298.08	216.32	165.85	206.48	234.10	219.26
MONTHLY									
AVERAGE									
		315.48	388.33	335.09	427.39	385.10	571.74	435.49	408.37

LSD MONTHS 5% 55.02 1% 72.72 LSD SHOPS 5% 51.28 1% 67.78

TABLE IV. Average frequency and value of three 10 per cent stratified random samples of all retail sales in the six "In-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
38-1 :	80.00	108.33	121.00	149.00	152.00	328.67	145.00	154.86
38-2 :	72.67	73.33	86.67	101.00	113.33	188.33	103.00	105.48
38-3 :	6.00	7.00	13.00	18.33	24.00	34.33	15.67	16.90
38-4 :	8.00	9.67	12.33	15.67	11.33	18.67	25.00	14.38
38-5 :	43.67	44.33	54.00	69.67	67.67	148.33	75.33	71.86
38-6 :	19.33	14.67	17.67	25.33	24.00	39.67	25.00	23.67
MONTHLY								
AVERAGE	38.28	42.89	50.78	63.17	65.39	126.33	64.83	64.52

LSD MONTHS 5% 2.24 1% 2.96 LSD SHOPS 5% 2.08 1% 2.75

VALUE OF ALL RETAIL SALES IN DOLLARS

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
38-1 :	458.17	663.17	618.61	774.76	746.70	1568.67	796.02	803.73
38-2 :	400.17	468.24	559.95	548.17	566.10	1020.54	563.83	589.57
38-3 :	68.21	46.94	107.84	59.68	68.25	126.68	80.11	79.67
38-4 :	34.88	42.25	66.65	70.17	49.42	93.97	48.02	57.91
38-5 :	214.77	167.78	227.10	240.72	266.02	584.59	309.42	287.20
38-6 :	124.25	159.00	127.75	262.08	155.23	213.13	133.50	167.85
MONTHLY								
AVERAGE	216.74	257.90	284.65	325.93	308.62	601.27	321.82	330.99

LSD MONTHS 5% 22.82 1% 30.16 LSD SHOPS 5% 21.14 1% 27.94

ANALYSIS OF VARIANCE FOR TABLE III.

F R E Q U E N C Y					V A L U E			
	DF	SS	MS	F	:	SS	MS	F
TOTAL	125	91699				8540910		
MONTHS	6	37510	6252	240.46 **		769101	128184	9.22 **
SHOPS	5	43417	8683	333.96 **		6091894	1218379	87.60 **
M X S	30	8559	285	10.96 **		511620	17054	1.23 NS
ERROR	84	2183	26			1168295	13908	

* Significant at the 5% level.

** Significant at the 1% level.

ANALYSIS OF VARIANCE FOR TABLE IV.

F R E Q U E N C Y					V A L U E			
	DF	SS	MS	F	:	SS	MS	F
TOTAL	125	518035				13211813		
MONTHS	6	93041	15507	674.22 **		1695634	282606	118.00 **
SHOPS	5	343185	70637	3071.17 **		9588880	1917776	800.74 **
M X S	30	79850	2662	115.74 **		1726147	57538	24.02 **
ERROR	84	1959	23			201152	2395	

TABLE V. "Out-of-Jackson"-"In-Jackson" area comparison based on three 10 per cent stratified random samples of all retail sales whose averages are recorded in Tables III and IV.

FREQUENCY OF ALL RETAIL SALES (NUMBER)											
	M	O	N	T	H	S					
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AREA	AREA	AVERAGE
OUT-OF-JACKSON	728	903	798	1006	955	1737	922	7049	55.94		
IN-JACKSON	689	772	914	1137	1177	2274	1167	8130	64.52		
MONTHLY TOTAL	1417	1675	1712	2143	2132	4011	2089	15179			
MONTHLY AVERAGE	39.36	46.53	47.56	59.53	59.22	111.42	58.03				
LSD MONTHS	5% 1.62	1% 2.15			LSD AREAS	5% 0.89	1% 1.18				
VALUE OF ALL RETAIL SALES IN DOLLARS											
	M	O	N	T	H	S					
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AREA	AREA	AVERAGE
OUT-OF-JACKSON	5678.61	6989.89	6031.67	7693.00	6931.80	10291.28	7838.80	51155.05	408.37		
IN-JACKSON	3901.35	4642.14	5123.69	5866.71	5555.15	10822.78	5792.70	41704.52	330.99		
MONTHLY TOTAL	9579.96	11632.03	11155.36	13559.71	12486.95	21114.06	13631.50	93159.57			
MONTHLY AVERAGE	266.11	322.11	309.87	376.66	246.86	586.50	378.65				
LSD MONTHS	5% 29.78	1% 39.37			LSD AREAS	5% 15.91	1% 21.03				

ANALYSIS OF VARIANCE FOR TABLE V. This analysis is derived from the analysis of variances for Tables III and IV and data presented in Table V.

F R E Q U E N C Y				V A L U E			
DF	SS	MS	F	SS	MS	F	F
GROUP I							
TOTAL	13	135,188		2,812,007			
AREAS	1	4,637	4,637	377,274	377,274	14.52 **	
MONTHS	6	122,772	20,462	2,308,826	384,804	14.81 **	
A X M	6	7,779	1,297	155,907	25,985		
GROUP II							
TOTAL	251	614,341		22,129,996			
SHOPS	10	386,602	38,660	15,680,774	1,568,077	192.38 **	
MONTHS	6	122,772	20,462	2,308,826	384,804	47.21 **	
AREAS	1	4,637	4,637	377,274	377,274	46.29 **	
A X M	6	7,779	1,297	155,907	25,985	3.19 **	
S X M	60	88,409	1,473	2,237,767	37,296	4.58 **	
ERROR	168	4,142	24.65	1,369,447	8,151		

TABLE VI. Average frequency and value of three 10 per cent systematic samples of all retail sales in the six "Out-of-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	<u>M O N T H S</u>							<u>:SHOP</u>
	<u>JULY</u>	<u>AUG.</u>	<u>SEPT.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>	<u>JAN.</u>	<u>:AVERAGE</u>
23-1 :	36.33	45.33	44.33	60.33	65.33	121.67	63.33	62.38
25-1 :	69.67	79.67	65.00	85.67	76.67	146.00	73.67	85.19
25-2 :	44.33	65.33	50.00	57.00	61.67	95.00	61.67	62.14
25-3 :	14.00	18.67	17.67	22.67	27.67	47.00	20.33	24.00
41-1 :	36.67	44.67	47.33	55.00	53.67	108.33	50.33	56.57
78-1 :	35.00	49.67	47.33	55.33	48.33	58.33	40.67	47.81
<u>MONTHLY</u>								
<u>AVERAGE</u>	39.33	50.56	45.28	56.00	55.56	96.06	51.67	56.35

LSD MONTHS 5% 2.63 1% 3.48 LSD SHOPS 5% 2.43 1% 3.22

VALUE OF ALL RETAIL SALES IN DOLLARS

	<u>M O N T H S</u>							<u>:SHOP</u>
	<u>JULY</u>	<u>AUG.</u>	<u>SEPT.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>	<u>JAN.</u>	<u>:AVERAGE</u>
23-1 :	212.52	236.44	258.61	252.18	377.22	602.82	397.60	333.91
25-1 :	820.44	665.11	626.90	961.11	793.53	1138.37	638.55	806.29
25-2 :	425.13	782.97	450.55	555.59	518.99	800.21	620.32	593.39
25-3 :	71.61	130.21	126.37	127.37	148.78	265.93	149.85	145.44
41-1 :	243.83	280.12	237.42	333.68	391.52	584.36	365.15	348.01
78-1 :	162.82	235.74	243.91	202.80	195.80	275.73	243.17	222.71
<u>MONTHLY</u>								
<u>AVERAGE</u>	322.73	388.43	323.63	405.45	404.31	611.23	402.27	408.29

LSD MONTHS 5% 45.58 1% 60.25 LSD SHOPS 5% 42.19 1% 55.77

TABLE VII. Average frequency and value of three 10 per cent systematic samples of all retail sales in the six "In-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	M O N T H S							: SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: AVERAGE
S 38-1 :	89.00	108.00	122.00	158.33	149.33	333.67	146.00	158.05
H 38-2 :	71.00	76.67	78.67	93.00	109.33	194.00	107.33	103.81
O 38-3 :	3.67	7.67	8.33	18.00	16.67	36.67	15.00	15.10
P 38-4 :	9.67	6.67	10.67	11.33	9.67	23.33	23.00	13.48
S 38-5 :	45.00	43.67	56.67	66.67	69.00	132.67	73.67	69.57
S 38-6 :	17.67	16.33	23.67	28.33	23.00	40.33	21.00	24.33
MONTHLY								
AVERAGE	39.33	42.56	49.94	62.61	62.83	126.78	64.33	64.06
LSD MONTHS	5% 1.68	1% 2.22			LSD SHOPS	5% 1.56	1% 2.07	

VALUE OF ALL RETAIL SALES IN DOLLARS

	M O N T H S							: SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: AVERAGE
S 38-1 :	493.97	679.55	695.85	850.86	762.11	1540.83	772.36	827.93
H 38-2 :	410.32	445.87	458.75	529.50	510.33	1046.95	577.45	568.45
O 38-3 :	43.50	39.06	99.31	79.78	47.82	162.37	69.52	77.34
P 38-4 :	66.73	42.38	54.49	41.95	34.33	128.13	32.77	57.25
S 38-5 :	231.38	209.30	244.26	272.89	325.14	488.61	285.77	293.91
S 38-6 :	117.62	105.42	158.11	186.02	158.00	189.23	136.83	150.17
MONTHLY								
AVERAGE	227.25	253.60	285.13	326.83	306.29	592.68	312.45	329.18
LSD MONTHS	5% 26.22	1% 34.66			LSD SHOPS	5% 24.26	1% 32.07	

ANALYSIS OF VARIANCE FOR TABLE VI.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	125	90151				8831370		
MONTHS	6	36810	6135	191.72 **		1010343	168391	17.64 **
SHOPS	5	42446	8489	265.28 **		6412580	1282516	134.32 **
M X S	30	8217	274	8.56 **		606397	20213	2.12 **
ERROR	84	2678	32			802050	9548	

ANALYSIS OF VARIANCE FOR TABLE VII.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	125	529867				13365984		
MONTHS	6	93786	15631	1202.38 **		1589168	264861	83.84 **
SHOPS	5	356550	71310	5485.38 **		10009902	2001980	633.74 **
M X S	30	78430	2614	201.08 **		1501518	50051	15.84 **
ERROR	84	1101	13			265396	3159	

ANALYSIS OF VARIANCE FOR TABLE VIII. This analysis is derived from the analysis of variances for Tables VI and VII and data presented in Table VIII.

F R E Q U E N C Y				V A L U E			
	DF	SS	MS	F	SS	MS	F
GROUP I							
TOTAL	13	134,336			2,993,857		
AREAS	1	3,742	3,742	2.87 NS	394,345	394,345	28.69 **
MONTHS	6	122,756	20,459	15.67 **	2,517,050	419,508	30.52 **
A X M	6	7,838	1,306		82,462	13,744	
GROUP II							
TOTAL	251	623,759			22,591,699		
SHOPS	10	398,996	39,900	1,774.10 **	16,422,482	1,642,248	258.46 **
MONTHS	6	122,756	20,459	909.69 **	2,517,050	419,508	66.02 **
AREAS	1	3,742	3,742	166.39 **	394,345	394,345	62.06 **
A X M	6	7,838	1,306	58.07 **	82,462	13,744	2.16 *
S X M	60	86,647	1,444	64.21 **	2,107,905	35,132	5.52 **
ERROR	168	3,779	22.49		1,067,446	6,354	

TABLE IX. Average frequency and value of three 10 per cent stratified random samples of arrangement sales in the six "Out-of-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

M O N T H S								:SHOP
								:AVERAGE
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	
S 23-1 :	15.00	17.00	9.00	19.33	18.67	21.00	29.00	17.95
H 25-1 :	45.33	47.33	42.00	53.67	42.67	39.33	48.67	45.57
O 25-2 :	30.67	41.00	36.33	33.67	39.67	33.00	33.67	35.43
P 25-3 :	10.33	13.33	11.00	10.33	9.67	10.33	8.67	10.52
S 41-1 :	19.00	26.00	18.00	30.67	29.33	24.33	31.00	26.43
78-1 :	16.67	16.67	18.67	15.33	14.33	11.33	19.33	16.05
MONTHLY AVERAGE	22.83	26.89	22.50	27.17	25.17	24.89	27.83	25.33

LSD MONTHS 5% 1.56 1% 2.07 LSD SHOPS 5% 1.44 1% 1.91

VALUE OF ARRANGEMENT SALES IN DOLLARS

M O N T H S								:SHOP
								:AVERAGE
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	
S 23-1 :	100.23	116.92	58.00	162.89	153.80	168.74	209.00	138.46
H 25-1 :	455.06	396.71	409.63	481.77	408.23	328.67	511.96	427.43
O 25-2 :	251.92	315.96	294.73	283.06	345.40	270.36	299.72	294.45
P 25-3 :	55.67	78.64	64.99	81.79	74.92	77.33	59.33	70.38
S 41-1 :	135.25	182.42	119.17	197.13	145.56	243.36	222.37	182.17
78-1 :	123.38	113.08	146.67	126.43	100.00	76.17	147.10	118.98
MONTHLY AVERAGE	186.92	200.62	182.20	222.18	209.65	194.05	241.58	205.31

LSD MONTHS 5% 15.97 1% 21.11 LSD SHOPS 5% 14.78 1% 19.54

		M O N T H S							:SHOP
		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
S H O P S	38-1 :	42.00	65.33	53.00	58.00	60.00	61.00	62.67	57.43
	38-2 :	43.67	44.67	40.33	50.00	44.00	44.00	44.33	44.43
	38-3 :	2.33	3.67	7.00	5.67	8.33	6.33	6.00	5.62
	38-4 :	3.67	6.67	4.33	5.33	5.33	4.67	3.33	4.81
	38-5 :	19.67	14.67	17.67	22.33	21.67	33.33	31.67	23.00
	38-6 :	15.00	8.33	10.33	13.33	15.33	8.00	10.00	11.48
MONTHLY AVERAGE		21.06	23.89	22.17	25.78	25.78	26.22	26.33	24.46

VALUE OF ARRANGEMENT SALES IN DOLLARS

		M O N T H S							:SHOP
		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
S	38-1 :	290.41	440.98	376.47	416.20	390.46	419.64	477.17	401.66
H	38-2 :	285.27	319.62	283.95	329.77	275.52	321.80	307.80	302.92
O	38-3 :	13.81	15.75	36.81	37.02	35.42	34.90	24.28	28.28
P	38-4 :	17.50	34.17	25.17	29.42	32.17	17.58	17.42	25.06
S	38-5 :	112.25	90.25	102.45	128.57	120.16	197.77	178.00	132.78
	38-6 :	104.33	55.33	71.83	87.75	120.67	61.00	67.33	81.18
MONTHLY AVERAGE		137.59	159.35	149.45	170.90	162.40	175.45	178.72	161.98

LSD MONTHS 5% ~~13.00~~ 1% ~~17.19~~ **LSD SHOPS** 5% ~~12.05~~ 1% ~~15.93~~

ANALYSIS OF VARIANCE FOR TABLE IX.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	125	21280				2123091		
MONTHS	6	478	79.67	7.07 **		47521	7920	6.17 **
SHOPS	5	13827	3665.40	325.24 **		1846890	369378	315.17 **
M X S	30	1528	50.93	4.52 **		130222	4341	3.70 **
ERROR	84	947	11.27			98458	1172	

ANALYSIS OF VARIANCE FOR TABLE X.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	125	53971				2725791		
MONTHS	6	490	81.67	5.57 **		23398	3900	5.01 **
SHOPS	5	50347	10069.40	687.33 **		2547577	509515	654.90 **
M X S	30	1903	63.43	4.33 **		89438	2981	3.83 **
ERROR	84	1231	14.65			65378	778	

TABLE XI. "Out-of-Jackson" -- "In-Jackson" area comparison based on three 10 per cent stratified random

samples of arrangement sales whose averages are recorded in Tables IX and X.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

	M	O	N	T	H	S			
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE
OUT-OF-JACKSON	411	484	405	489	453	448	501	3191	25.33
IN-JACKSON	379	430	399	464	464	472	474	3082	24.46
MONTHLY TOTAL	790	914	804	953	917	920	975	6273	
MONTHLY AVERAGE	21.94	25.39	22.33	26.47	25.47	25.56	27.08		24.89
LSD MONTHS	5% 1.19	1% 1.57			LSD AREAS	5% 0.63	1% 0.84		

VALUE OF ARRANGEMENT SALES IN DOLLARS

	M	O	N	T	H	S			
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE
OUT-OF-JACKSON	3364.51	3611.18	3279.56	3999.17	3773.72	3492.89	4348.43	25869.46	205.31
IN-JACKSON	2476.69	2868.32	2690.02	3076.18	2923.17	3158.05	3216.90	20409.33	161.98
MONTHLY TOTAL	5841.20	6479.50	5969.58	7075.35	6696.89	6650.94	7565.33	46278.79	
MONTHLY AVERAGE	161.26	179.99	165.82	196.54	186.02	184.75	210.15		183.65
LSD MONTHS	5% 10.29	1% 13.60			LSD AREAS	5% 5.50	1% 7.27		

ANALYSIS OF VARIANCE FOR TABLE XI. This analysis is derived from the analysis of variances for Tables IX

and X and data presented in Table XI.

F R E Q U E N C Y				V A L U E			
DF	SS	MS	F	SS	MS	F	F
GROUP I							
TOTAL	13	1,015		189,225			
AREAS	1	47	2.35 NS	118,306	118,306	75.93 **	
MONTHS	6	848	7.07 *	61,574	10,262	6.59 *	
A X M	6	120	20.00	9,345	1,558		
GROUP II							
TOTAL	251	75,298		4,967,188			
SHOPS	10	68,674	529.89 **	4,394,467	439,447	450.71 **	
MONTHS	6	848	10.91 **	61,574	10,262	10.53 **	
AREAS	1	47	3.63 NS	118,306	118,306	121.34 **	
A X M	6	120	1.54 NS	9,345	1,558	1.60 NS	
S X M	60	3,431	4.41 **	219,660	3,661	3.75 **	
ERROR	168	2,178	12.96	163,836	975		

TABLE XII. Average frequency and value of three 10 per cent systematic samples of arrangement sales in the six "Out-of-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

M O N T H S								:SHOP	
								:AVERAGE	
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.		
S H O P S	23-1 :	16.67	17.33	13.33	18.33	22.67	19.00	25.33	18.95
	25-1 :	48.00	51.33	41.33	52.67	48.00	41.33	44.00	46.67
	25-2 :	28.67	37.00	31.00	30.67	36.33	31.33	29.00	32.00
	25-3 :	8.00	10.67	10.00	9.33	12.33	12.33	9.00	10.24
	41-1 :	22.00	29.67	23.33	31.33	28.00	32.33	29.33	28.00
	78-1 :	15.00	20.00	14.67	13.00	15.67	11.00	19.67	15.57
MONTHLY									
AVERAGE									
	23.06	27.67	22.28	25.89	27.17	24.56	26.06	25.24	

LSD MONTHS ~~5%~~ 1.62 ~~1%~~ 2.15 LSD SHOPS ~~5%~~ 1.48 ~~1%~~ 1.96

VALUE OF ARRANGEMENT SALES IN DOLLARS

M O N T H S								:SHOP	
								:AVERAGE	
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.		
S H O P S	23-1 :	125.41	133.56	98.88	136.03	188.15	168.53	214.83	152.20
	25-1 :	486.08	443.70	382.38	524.18	476.24	363.75	422.29	442.66
	25-2 :	230.00	304.64	250.97	263.21	285.21	280.05	238.31	264.63
	25-3 :	46.05	63.16	67.66	63.67	85.42	78.83	82.76	69.65
	41-1 :	152.33	215.17	158.17	211.69	203.23	241.41	221.27	200.47
	78-1 :	110.46	139.50	121.42	103.83	104.67	77.89	161.70	117.07
MONTHLY									
AVERAGE	191.72	216.62	179.91	217.10	223.82	201.75	223.53	207.78	

LSD MONTHS ~~5%~~ 13.14 ~~1%~~ 17.37 LSD SHOPS ~~5%~~ 12.17 ~~1%~~ 16.09

TABLE XIII. Average frequency and value of three 10 per cent systematic samples of arrangement sales in the six "In-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

		M O N T H S							:SHOP
		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
S H O P S	38-1 :	52.00	63.67	54.33	67.33	56.67	63.00	63.33	60.05
	38-2 :	42.67	46.33	35.00	38.00	45.00	42.00	46.67	42.24
	38-3 :	2.67	3.33	4.00	6.67	4.00	5.00	4.67	4.33
	38-4 :	6.33	4.67	2.67	5.00	4.00	4.33	3.00	4.29
	38-5 :	19.67	14.67	15.33	22.00	22.33	27.33	32.00	21.90
	38-6 :	12.67	10.33	14.67	15.00	10.33	9.33	10.00	11.76
MONTHLY									
AVERAGE		22.67	23.83	21.00	25.67	23.72	25.17	26.61	24.10

LSD MONTHS ~~5%~~ 1.62 ~~1%~~ 2.12 LSD SHOPS ~~5%~~ 1.48 ~~1%~~ 1.96

VALUE OF ARRANGEMENT SALES IN DOLLARS

		M O N T H S							:SHOP
		JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
S H O P S	38-1 :	365.54	439.19	377.32	507.67	387.05	439.46	455.19	424.49
	38-2 :	290.33	293.95	249.14	266.27	288.60	282.66	326.03	285.28
	38-3 :	18.64	19.83	20.17	35.03	16.08	19.73	20.42	21.42
	38-4 :	28.72	26.00	17.83	27.67	19.33	22.33	14.83	22.39
	38-5 :	124.92	98.03	117.62	132.18	156.30	137.68	186.12	136.12
	38-6 :	100.33	69.83	110.52	99.42	75.83	62.67	73.83	84.63
MONTHLY									
AVERAGE		154.75	157.81	148.77	178.04	157.20	160.76	179.40	162.39

LSD MONTHS ~~5%~~ 12.13 ~~1%~~ 16.04 LSD SHOPS ~~5%~~ 11.24 ~~1%~~ 14.86

ANALYSIS OF VARIANCE FOR TABLE XII.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	125	20671				2070873		
MONTHS	6	445	74.17	6.18 **		31412	5235	6.59 **
SHOPS	5	18280	3656.00	304.41 **		1865960	373192	470.02 **
M X S	30	937	312.33	26.01 **		106765	3559	4.48 **
ERROR	84	1009	12.01			66736	794	

ANALYSIS OF VARIANCE FOR TABLE XIII.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	125	56565				2865412		
MONTHS	6	392	65.33	5.54 **		14923	2487	3.67 **
SHOPS	5	53794	10758.80	911.76 **		2730183	546037	806.55 **
M X S	30	1388	46.27	3.92 **		63443	2115	3.12 **
ERROR	84	991	11.80			56863	677	

TABLE XIV. "Out-of-Jackson"-"In-Jackson" area comparison based on three 10 per cent systematic samples of arrangement sales whose averages are recorded in Tables XII and XIII.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)										
	M	O	N	T	H	S			AREA	AREA
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE	
OUT-OF-JACKSON	415	498	401	466	489	442	469	3180	25.34	
IN-JACKSON	408	429	378	462	427	453	479	3036	24.10	
MONTHLY TOTAL	823	927	779	928	916	895	948	6216		
MONTHLY AVERAGE	22.86	25.75	21.64	25.78	25.44	24.86	26.33		24.67	
LSD MONTHS	5 1/2	1.13	1 1/2	1.49	LSD AREAS 5 1/2- 0.59 1 1/2- 0.78					

VALUE OF ARRANGEMENT SALES IN DOLLARS										
	M	O	N	T	H	S			AREA	AREA
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE	
OUT-OF-JACKSON	3451.00	3899.17	3238.43	3907.85	4028.75	3631.42	4023.49	26180.11	207.78	
IN-JACKSON	2785.43	2840.53	2677.80	3204.70	2829.62	2893.59	3229.26	20460.93	162.39	
MONTHLY TOTAL	6236.43	6739.70	5916.23	7112.55	6858.37	6525.01	7252.75	46641.04		
MONTHLY AVERAGE	173.23	187.21	164.34	197.57	190.51	181.25	201.47		185.08	
LSD MONTHS	5 1/2	8.95	1 1/2	11.82	LSD AREAS 5 1/2- 4.80 1 1/2- 6.33					

ANALYSIS OF VARIANCE FOR TABLE XIV. This analysis is derived from the analysis of variance s for Tables XII and XIII and data presented in Table XIV.

F R E Q U E N C Y				V A L U E		
DF	SS	MS	F	SS	MS	F
GROUP I						
TOTAL	13	919		176,059		
AREAS	1	82	2.73 NS	129,797	129,797	89.64 **
MONTHS	6	657	3.65 NS	37,572	6,262	4.32 *
A X M	6	180		8,690	1,448	
GROUP II						
TOTAL	251	77,318		5,060,011		
SHOPS	10	72,074	605.66 **	4,596,143	459,613	624.47 **
MONTHS	6	657	9.20 **	37,572	6,262	8.51 **
AREAS	1	82	6.89 **	129,797	129,797	176.35 **
A X M	6	180	2.52 *	8,690	1,448	1.97 NS
S X M	60	2,325	3.26 **	170,208	2,837	3.85 **
ERROR	168	2,000		123,599	736	

TABLE XV. Average frequency and value of two 10 per cent stratified random samples of all retail sales in the six "Out-of-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	M O N T H S							: :SHOP :
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
23-1 :	38.50	44.50	36.00	72.00	61.00	123.00	56.00	61.57
25-1 :	60.50	72.50	68.00	84.00	68.50	151.50	71.50	82.35
25-2 :	47.50	66.00	52.50	56.50	62.50	95.00	69.00	64.14
25-3 :	17.00	23.50	18.00	19.50	20.00	45.50	18.50	23.14
41-1 :	39.50	45.00	36.00	62.50	54.50	108.00	50.50	56.57
78-1 :	37.00	50.50	51.00	50.50	44.50	53.50	40.00	46.71
MONTHLY AVERAGE	40.00	50.33	43.58	57.50	51.83	96.08	50.92	55.75

LSD MONTHS 5% 6.67 1% 8.82 LSD SHOPS 5% 6.17 1% 8.16

VALUE OF ALL RETAIL SALES IN DOLLARS

	M O N T H S							: :SHOPS :
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
23-1 :	218.17	237.57	138.02	359.98	333.38	547.59	310.04	306.39
25-1 :	616.50	702.59	744.84	1042.63	689.85	1079.47	771.06	806.76
25-2 :	484.53	431.31	522.42	571.47	657.32	843.04	750.41	608.64
25-3 :	92.24	143.13	95.15	168.01	130.18	252.48	106.63	141.11
41-1 :	319.35	338.60	164.78	488.76	379.58	555.77	383.98	375.83
78-1 :	229.44	204.15	296.03	186.85	170.32	213.61	208.00	215.48
MONTHLY AVERAGE	326.70	342.95	326.87	469.62	393.44	581.99	421.68	409.03

LSD MONTHS 5% 52.52 1% 69.43 LSD SHOPS 5% 48.62 1% 64.28

TABLE XVI. Average frequency and value of two 10 per cent stratified random samples of all retail sales in the six "In-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	M O N T H S							: :SHOP :
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: :AVERAGE :
S	38-1 :	81.00	107.00	121.00	141.50	155.00	332.00	140.00 153.93
H	38-2 :	74.00	72.50	90.00	98.50	115.00	190.50	106.50 106.71
O	38-3 :	5.50	6.50	12.00	19.50	24.50	29.00	13.50 15.79
P	38-4 :	8.50	10.00	14.50	16.00	11.00	19.50	26.50 15.14
S	38-5 :	44.00	45.50	56.00	70.00	68.50	150.50	79.00 73.36
	38-6 :	20.00	14.50	15.50	25.00	26.00	38.50	25.00 23.50
	MONTHLY							
	AVERAGE	38.83	42.67	51.50	61.75	66.67	126.67	65.08 64.74

LSD MONTHS 5% 2.20 1% 2.90 LSD SHOPS 5% 2.02 1% 2.67

VALUE OF ALL RETAIL SALES IN DOLLARS

	M O N T H S							: :SHOP :
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: :AVERAGE :
S	38-1 :	458.94	650.32	639.13	737.07	759.37	1602.42	759.37 800.94
H	38-2 :	398.70	451.28	624.05	536.79	560.28	1019.68	608.58 599.91
O	38-3 :	53.03	24.16	132.01	64.35	57.78	91.79	48.45 67.36
P	38-4 :	39.20	45.13	49.85	52.88	52.13	102.22	57.28 56.95
S	38-5 :	231.10	169.95	208.89	222.40	262.76	567.94	314.06 282.44
	38-6 :	126.63	200.25	126.63	326.75	170.68	205.70	129.75 183.77
	MONTHLY							
	AVERAGE	217.93	256.85	296.76	323.37	310.50	598.29	319.58 331.89

LSD MONTHS 5% 21.79 1% 28.80 LSD SHOPS 5% 20.19 1% 26.68

ANALYSIS OF VARIANCE FOR TABLE XV.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	62386				5928698		
MONTHS	6	25128	4188	30.79 **		622605	103768	12.28 **
SHOPS	5	27410	5482	40.31 **		4464691	892938	105.64 **
M X S	30	4141	138	1.01 NS		486379	16213	1.92 *
ERROR	42	5707	136			355023	8453	

ANALYSIS OF VARIANCE FOR TABLE XVI.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	348296				8943566		
MONTHS	6	62176	10363	701.42 **		1098035	183006	125.69 **
SHOPS	5	228869	45774	3101.22 **		6465103	1293021	888.06 **
M X S	30	56631	1888	127.91 **		1319271	43976	30.20 **
ERROR	42	620	14.76			61157	1456	

TABLE XVII. "Out-of-Jackson"--"In-Jackson" area comparison based on two 10 per cent stratified random samples of all retail sales whose averages are recorded in Tables XV and XVI.

FREQUENCY OF ALL RETAIL SALES (NUMBER)											
	M	O	N	T	H	S				AREA	AREA
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE		
OUT-OF-JACKSON	480	604	523	690	622	1153	611	4683	55.75		
IN-JACKSON	466	512	618	741	800	1520	781	5438	64.74		
MONTHLY TOTAL	946	1116	1141	1431	1422	2673	1392	10121			
MONTHLY AVERAGE	39.42	46.50	47.54	59.63	59.25	111.38	58.00		60.24		
LSD MONTHS	5% 3.50	1% 4.63	LSD AREAS					5% 1.88	1% 2.49		
VALUE OF ALL RETAIL SALES IN DOLLARS											
	M	O	N	T	H	S				AREA	AREA
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE		
OUT-OF-JACKSON	3920.42	4115.39	3922.43	5635.38	4721.23	6983.87	5060.19	34358.91	409.03		
IN-JACKSON	2615.16	3082.14	3561.08	3880.44	3725.94	7179.46	3834.95	27879.17	331.89		
MONTHLY TOTAL	6535.58	7179.53	7483.51	9516.82	8447.17	14163.33	8895.14	62238.08			
MONTHLY AVERAGE	272.32	299.90	311.81	396.53	351.97	590.14	370.63		370.46		
LSD MONTHS	5% 28.44	1% 37.59	LSD AREAS					5% 15.20	1% 20.09		

ANALYSIS OF VARIANCE FOR TABLE XVII. This analysis is derived from the analysis of variances for Tables XV and XVI and data presented in Table XVII.

F R E Q U E N C Y			V A L U E			
DF	SS	MS	F	SS	MS	F
GROUP I						
TOTAL	13	90,697		1,970,563		
AREAS	1	3,393	3.64 NS	249,923	249,923	14.43 **
MONTHS	6	81,715	14.61 **	1,616,699	269,449	15.55 **
A X M	6	5,589	932	103,941	17,324	
GROUP II						
TOTAL	167	444,075		15,122,187		
SHOPS	10	256,279	340.25 **	10,929,794	1,092,979	220.58 **
MONTHS	6	81,715	180.82 **	1,616,699	269,449	54.38 **
AREAS	1	3,393	45.05 **	249,923	249,923	50.44 **
A X M	6	5,589	12.37 **	103,941	17,324	3.50 **
S X M	60	60,772	134.48 **	1,805,650	30,094	6.07 **
ERROR	84	6,327	75.32	416,180	4,955	

TABLE XVIII. Average frequency and value of two 10 per cent systematic samples of all retail sales in the six "Out-of-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
23-1 :	36.00	46.00	44.00	62.00	65.00	119.00	64.00	62.29
S 25-1 :	70.00	82.00	63.00	86.50	74.00	150.50	74.00	86.71
H 25-2 :	43.00	63.50	52.50	57.00	64.00	95.00	63.00	62.57
O 25-3 :	11.50	16.00	16.50	24.00	27.00	46.50	19.50	23.00
P 41-1 :	35.50	45.00	47.00	55.50	51.50	111.00	50.00	56.60
S 78-1 :	34.00	52.00	47.00	52.50	47.50	57.50	40.50	47.29
MONTHLY								
AVERAGE	38.33	50.75	45.00	56.25	54.83	96.58	51.83	56.22
LSD MONTHS	5% 3.13	1% 4.13			LSD SHOPS	5% 2.89	1% 3.82	

VALUE OF ALL RETAIL SALES IN DOLLARS

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
23-1 :	220.89	263.79	297.84	257.51	284.19	580.99	401.25	343.78
S 25-1 :	783.89	708.12	642.07	856.12	820.30	1263.58	651.17	817.89
H 25-2 :	427.57	851.27	485.30	569.39	521.17	833.98	678.81	623.93
O 25-3 :	61.48	115.79	123.81	140.75	146.99	248.99	142.18	139.92
P 41-1 :	246.75	280.05	238.00	312.74	284.71	623.79	386.60	338.95
S 78-1 :	161.77	237.03	247.99	182.33	169.69	209.86	221.25	204.27
MONTHLY								
AVERAGE	317.06	409.33	339.17	386.47	387.76	626.86	413.54	411.46
LSD MONTHS	5% 47.32	1% 62.55			LSD SHOPS	5% 43.82	1% 59.72	

TABLE XIX. Average frequency and value of two 10 per cent systematic samples of all retail sales in the six "In-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
38-1 :	93.50	110.50	118.00	161.00	151.50	330.00	145.50	158.57
38-2 :	70.50	72.50	80.00	89.50	108.50	195.50	108.00	103.50
38-3 :	3.00	7.00	8.50	19.00	17.50	37.00	14.00	15.14
38-4 :	10.00	7.00	11.50	10.50	9.50	23.00	23.50	13.57
38-5 :	47.00	42.50	57.50	68.50	70.50	133.50	73.50	70.44
38-6 :	18.00	15.00	25.50	25.50	24.00	38.00	20.50	23.79
MONTHLY								
AVERAGE	40.33	42.42	50.17	62.33	63.58	126.17	64.17	64.17

LSD MONTHS ~~5%~~ 4.91 ~~1%~~ 6.49 LSD SHOPS ~~5%~~ 4.55 ~~1%~~ 6.02

VALUE OF ALL RETAIL SALES IN DOLLARS

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
38-1 :	516.61	705.49	684.07	889.91	777.58	1423.54	745.45	820.38
38-2 :	435.73	385.05	418.20	467.13	487.18	1056.29	572.59	546.01
38-3 :	41.07	45.80	134.99	90.95	51.05	152.53	66.50	83.27
38-4 :	85.34	36.50	65.00	36.80	34.88	139.32	37.13	62.14
38-5 :	246.19	228.40	248.95	301.89	330.63	440.34	291.73	298.30
38-6 :	123.68	69.63	171.66	142.23	140.25	188.75	126.00	137.46
MONTHLY								
AVERAGE	241.43	245.14	287.14	321.48	303.59	566.79	306.56	324.59

LSD MONTHS ~~5%~~ 22.40 ~~1%~~ 29.61 LSD SHOPS ~~5%~~ 20.74 ~~1%~~ 27.42

ANALYSIS OF VARIANCE FOR TABLE XVIII.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	62386				6341285		
MONTHS	6	25514	4252	142.06 **		740783	123464	17.99 **
SHOPS	5	29828	5966	199.33 **		4715602	943120	137.44 **
M X S	30	6326	211	7.05 **		596716	19891	2.90 **
ERROR	42	1257	29.93			288184	6862	

ANALYSIS OF VARIANCE FOR TABLE XIX.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	354312				8245092		
MONTHS	6	61018	10170	137.91 **		888807	148135	96.25 **
SHOPS	5	239294	47859	649.29 **		6407254	1281451	832.65 **
M X S	30	50904	1697	23.02 **		884385	29480	19.16 **
ERROR	42	3096	73.71			64646	1539	

TABLE XX. "Out-of-Jackson"---"In-Jackson" area comparison based on two 10 per cent systematic samples of all retail sales whose averages are recorded in Tables XVIII and XIX.

[illegible]

VALUE OF ALL RETAIL SALES IN DOLLARS									
	M	O	N	T	H	S			
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE
OUT-OF-JACKSON	3804.68	4911.98	4070.00	4637.68	4653.08	7522.36	4962.51	34562.29	411.46
IN-JACKSON	2897.21	2941.71	3445.73	3857.78	3643.11	6801.52	3678.66	27265.72	324.59
MONTHLY TOTAL	6701.89	7853.69	7515.73	8495.46	8296.19	14323.88	8641.17	61828.01	
MONTHLY AVERAGE	279.25	327.24	313.16	353.98	345.67	596.83	360.95		368.02
12 MONTHS	54- 26.18	14- 34.61				15- 13.99	14- 18.50		

ANALYSIS OF VARIANCE FOR TABLE XX. This analysis is derived from the analysis of variance for Tables XVIII and XIX and data presented in Table XX.

F R E Q U E N C Y			V A L U E			
DF	SS	MS	F	SS	MS	F
GROUP I						
TOTAL	13	89,179		1,946,495		
AREAS	1	2,649	3.31 NS	316,905	316,905	35.50 **
MONTHS	6	81,733	13,622	1,576,023	262,671	29.42 **
A X M	6	4,797	800	53,567	8,928	
GROUP II						
TOTAL	167	419,885		14,903,282		
SHOPS	10	269,122	26,912	11,122,855	1,112,286	264.83 **
MONTHS	6	81,733	13,622	1,576,023	262,671	62.54 **
AREAS	1	2,649	2,649	316,905	316,905	75.45 **
A X M	6	4,797	800	53,567	8,928	2.13 NS
S X M	60	57,230	954	1,481,101	24,685	5.88 **
ERROR	84	4,353	51.82	352,830	4,200	

TABLE XXI. Average frequency and value of two 10 per cent "In-Shop" systematic samples of all retail sales in the six "Out-of-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
S	23-1 :	37.00	46.50	41.00	60.50	64.00	123.00	61.50 61.93
H	25-1 :	67.00	77.00	66.50	80.50	76.50	146.50	73.50 83.93
O	25-2 :	45.00	63.00	50.50	58.00	67.00	97.50	60.50 63.07
P	25-3 :	17.00	19.00	18.00	21.50	26.00	44.50	18.50 23.50
S	41-1 :	37.00	44.00	47.00	54.50	55.00	111.00	50.00 56.93
	78-1 :	36.00	49.50	47.00	57.50	43.00	59.50	39.50 47.43
	MONTHLY							
	AVERAGE	39.83	49.83	45.00	55.42	55.25	97.00	50.58 56.13

LSD MONTHS 5% 0.81 1% 1.07 LSD SHOPS 5% 0.73 1% 0.97

VALUE OF ALL RETAIL SALES IN DOLLARS

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
S	23-1 :	230.01	242.48	198.99	259.32	300.18	549.14	381.04 308.73
H	25-1 :	754.47	664.80	591.35	772.26	727.12	1161.37	708.46 768.55
O	25-2 :	409.87	634.12	437.48	533.29	662.37	907.54	586.33 595.86
P	25-3 :	89.44	120.33	150.90	146.85	134.21	242.52	120.15 143.48
S	41-1 :	264.85	290.48	280.40	334.50	389.87	625.18	334.52 359.97
	78-1 :	182.22	188.92	254.11	233.10	171.27	285.49	209.63 217.82
	MONTHLY							
	AVERAGE	321.81	356.85	318.87	379.89	397.50	628.53	390.02 399.07

LSD MONTHS 5% 43.68 1% 57.74 LSD SHOPS 5% 40.43 1% 53.44

TABLE XXII. Average frequency and value of two 10 per cent "In-Shop" systematic samples of all retail sales in the six "In-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	M O N T H S							: SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: AVERAGE
S 38-1 :	83.50	108.50	122.50	150.00	149.00	329.50	146.50	155.64
H 38-2 :	69.00	74.00	82.00	97.00	109.00	189.50	106.00	103.79
O 38-3 :	6.50	8.00	9.00	19.50	19.00	37.00	17.00	16.57
P 38-4 :	7.50	8.00	12.00	15.00	10.50	21.00	23.00	13.86
S 38-5 :	42.50	36.00	53.00	69.00	68.50	129.00	75.00	57.57
38-6 :	18.00	15.50	22.00	25.50	23.00	37.50	23.00	23.50
MONTHLY								
AVERAGE	37.83	41.67	50.08	62.67	63.17	123.92	65.08	63.49
LSD MONTHS	5% 0.40	1% 0.52			LSD SHOPS	5% 0.38	1% 0.50	

VALUE OF ALL RETAIL SALES IN DOLLARS

	M O N T H S							: SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: AVERAGE
S 38-1 :	505.15	675.56	656.68	793.00	795.95	1478.99	790.45	813.68
H 38-2 :	374.70	458.43	473.30	631.73	545.85	962.01	618.38	580.63
O 38-3 :	127.42	29.06	42.30	86.90	47.48	118.21	67.09	74.06
P 38-4 :	29.75	40.50	65.95	47.25	39.00	106.70	42.63	53.11
S 38-5 :	204.66	184.86	191.42	258.98	291.00	474.05	291.66	270.95
38-6 :	135.50	213.13	118.00	170.50	135.68	215.50	117.75	158.01
MONTHLY								
AVERAGE	229.53	266.92	257.94	331.39	309.16	559.24	321.33	325.07
LSD MONTHS	5% 21.21	1% 28.04			LSD SHOPS	5% 19.63	1% 25.95	

ANALYSIS OF VARIANCE FOR TABLE XXI.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	60334				5356957		
MONTHS	6	25579	4263	2131.50 **		807477	134580	23.03 **
SHOPS	5	27939	5588	2794.00 **		3963439	792688	135.64 **
M X S	30	6739	225	112.50 **		340604	11353	1.94 **
ERROR	42	77	2			245437	5844	

ANALYSIS OF VARIANCE FOR TABLE XXII.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	341101				8436415		
MONTHS	6	59628	9938	19876 **		865901	144317	104.73 **
SHOPS	5	229551	45910	91820 **		6605951	1321190	958.77 **
M X S	30	51901	1730	3460 **		906698	30223	21.93 **
ERROR	42	21	0.50			57865	1378	

TABLE XXIII. "Out-of-Jackson"---"In-Jackson" area comparison based on two 10 per cent "In-Shop" systematic samples of all retail sales whose averages are recorded in Tables XXI and XXII.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	M	O	N	T	H	S						
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE	AREA	AREA	AREA
OUT-OF-JACKSON	478	598	540	665	663	1164	607	4715	56.13			
IN-JACKSON	454	500	601	752	758	1487	781	5333	63.49			
MONTHLY TOTAL	932	1098	1141	1417	1421	2651	1388	10048				
MONTHLY AVERAGE	38.83	45.75	47.54	59.04	59.21	110.46	57.83		59.81			
LSD MONTHS	54- 0.44	14- 0.58			LSD AREAS	54- 0.20	14- 0.26					

VALUE OF ALL RETAIL SALES IN DOLLARS

	M	O	N	T	H	S						
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE	AREA	AREA	AREA
OUT-OF-JACKSON	3861.70	4282.25	3826.42	4558.62	4770.01	7542.40	4680.23	33521.63	399.07			
IN-JACKSON	2754.36	3203.06	3095.28	3976.69	3709.88	6710.88	3855.90	27306.05	325.07			
MONTHLY TOTAL	6616.06	7485.31	6921.70	8535.31	8479.89	14253.28	8536.13	60827.68				
MONTHLY AVERAGE	275.67	311.89	289.40	355.64	353.33	593.89	355.67		362.07			
LSD MONTHS	54- 24.28	14- 32.10			LSD AREAS	54- 12.98	14- 17.16					

ANALYSIS OF VARIANCE FOR TABLE XXIII. This analysis is derived from the analysis of variances for Tables XXI and XXII and data presented in table XXIII.

F R E Q U E N C Y			V A L U E			
DF	SS	MS	F	SS	MS	F
GROUP I						
TOTAL	13	87,479		1,903,338		
AREAS	1	2,273	2.96 NS	229,961	229,961	138.11 **
MONTHS	6	80,600	13,433	1,663,385	277,231	166.51 **
A X M	6	4,606	768	9,992	1,665	
GROUP II						
TOTAL	167	403,708		14,023,332		
SHOPS	10	257,490	22,007.69 **	10,569,390	1,056,939	292.70 **
MONTHS	6	80,600	13,433	1,663,385	277,231	76.77 **
AREAS	1	2,273	2,273	229,961	229,961	63.68 **
A X M	6	4,606	768	9,992	1,665	0.46 NS
S X M	60	58,640	977	1,247,302	20,788	5.76 **
ERROR	84	98	1.17	303,302	3,611	

TABLE XXIV. Average frequency and value of two 10 per cent stratified random samples of arrangement sales in the six "Out-of-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

	M O N T H S							:
								:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
23-1 :	15.00	18.00	8.00	20.00	18.50	21.50	24.50	17.93
25-1 :	41.50	46.50	46.50	56.00	42.00	38.00	46.00	45.21
25-2 :	33.50	40.50	38.00	33.50	38.50	32.00	37.50	36.21
25-3 :	10.50	14.50	11.50	9.00	9.00	11.50	8.00	10.57
41-1 :	19.50	28.50	17.00	32.00	23.00	35.50	32.50	26.86
78-1 :	16.00	16.00	19.50	14.00	14.00	11.50	18.50	15.64
MONTHLY								
AVERAGE	22.67	27.33	23.42	27.42	24.17	25.00	27.83	25.40

LSD MONTHS 5% 1.76 1% 2.33 LSD SHOPS 5% 1.62 1% 2.15

VALUE OF ARRANGEMENT SALES IN DOLLARS

	M O N T H S							:
								:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
23-1 :	96.22	126.63	45.00	176.11	152.66	170.52	198.25	137.91
25-1 :	421.13	397.87	458.70	502.64	394.10	305.50	496.69	425.23
25-2 :	290.50	277.36	296.27	288.23	339.81	254.43	315.83	294.63
25-3 :	50.00	79.21	66.49	69.43	73.63	82.25	53.50	57.79
41-1 :	142.63	205.88	115.25	207.57	158.08	231.13	223.38	183.41
78-1 :	125.07	103.38	154.25	109.38	103.00	83.25	125.50	114.83
MONTHLY								
AVERAGE	187.59	198.39	189.33	225.56	203.55	187.85	235.52	203.97

LSD MONTHS 5% 15.14 1% 20.01 LSD SHOPS 5% 14.01 1% 18.52

TABLE XXV. Average frequency and value of two 10 per cent stratified random samples of arrangement sales in the six "In-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
38-1 :	44.50	69.00	55.00	54.50	62.50	63.50	64.00	59.00
38-2 :	44.00	45.00	43.50	50.50	46.50	42.50	47.50	45.64
38-3 :	2.50	4.00	7.00	6.50	8.50	5.50	4.00	5.43
38-4 :	4.50	7.50	6.50	5.50	5.50	5.50	3.50	5.50
38-5 :	19.50	14.00	19.00	22.00	23.00	35.50	34.00	23.86
38-6 :	15.00	8.00	9.50	12.00	17.50	7.00	8.50	11.07
MONTHLY AVERAGE	21.67	24.58	23.42	25.17	27.25	26.58	26.92	25.08

LSD MONTHS ~~5%~~ 2.04 ~~1%~~ 2.69 LSD SHOPS ~~5%~~ 1.90 ~~1%~~ 2.51

VALUE OF ARRANGEMENT SALES IN DOLLARS

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
38-1 :	304.36	467.35	401.83	383.33	396.06	428.92	474.86	408.10
38-2 :	280.20	296.03	325.80	330.60	279.58	310.70	322.53	306.49
38-3 :	12.50	18.50	41.81	42.94	32.13	33.50	14.40	27.97
38-4 :	21.25	38.75	39.75	29.13	34.25	29.62	18.13	27.98
38-5 :	105.06	86.00	93.55	117.36	124.63	213.53	180.72	131.55
38-6 :	102.25	55.00	61.75	84.00	138.25	51.00	56.00	78.32
MONTHLY AVERAGE	137.60	160.27	159.91	164.56	167.48	176.21	177.77	163.40

LSD MONTHS ~~5%~~ 13.56 ~~1%~~ 17.92 LSD SHOPS ~~5%~~ 12.55 ~~1%~~ 16.59

ANALYSIS OF VARIANCE FOR TABLE XXIV.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	14360				1398856		
MONTHS	6	322	53.67	5.62 **		26830	4472	6.37 **
SHOPS	5	12356	2471.20	258.76 **		1238353	247671	352.80 **
M X S	30	1281	42.70	4.47 **		104200	3473	4.95 **
ERROR	42	401	9.55			29473	702	

ANALYSIS OF VARIANCE FOR TABLE XXV.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	38030				1865574		
MONTHS	6	300	50	3.89 **		12912	2152	3.82 **
SHOPS	5	35569	7114	553.19 **		1753999	350800	623.09 **
M X S	30	1621	54	4.20 **		75034	2501	4.44 **
ERROR	42	540	12.86			23629	563	

TABLE XXVI. "Out-of-Jackson"-"In-Jackson" area comparison based on two 10 per cent stratified random samples of arrangement sales whose averages are recorded in Tables XXIV and XXV.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)												
	M	O	N	T	H	S						
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE			
OUT-OF-JACKSON	272	328	281	329	290	300	334	2134	25.40			
IN-JACKSON	260	295	281	302	327	319	323	2107	25.08			
MONTHLY TOTAL	532	623	562	631	617	619	657	4241				
MONTHLY AVERAGE	22.17	25.96	23.42	26.29	25.71	25.79	27.38		25.24			

LSD MONTHS 5% 1.37 1% 1.81

LSD AREAS 5% 0.71 1% 0.94

VALUE OF ARRANGEMENT SALES IN DOLLARS

	M	O	N	T	H	S						
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE			
OUT-OF-JACKSON	2251.08	2380.62	2271.91	2706.69	2442.55	2254.14	2826.28	17133.27	203.97			
IN-JACKSON	1651.24	1923.25	1918.97	1974.68	2009.77	2114.52	2133.25	13725.68	163.40			
MONTHLY TOTAL	3902.32	4303.87	4190.88	4681.37	4452.32	4368.66	4959.53	30858.95				
MONTHLY AVERAGE	162.60	179.33	174.62	195.06	185.51	182.03	206.65		183.68			

LSD MONTHS 5% 10.15 1% 13.42

LSD AREAS 5% 5.42 1% 7.17

ANALYSIS OF VARIANCE FOR TABLE XXVI. This analysis is derived from the analysis of variances for Tables XXIV and XXV and data presented in Table XXVI.

F R E Q U E N C Y			V A L U E			
DF	SS	MS	F	SS	MS	F
GROUP I						
TOTAL	13	733		108,859		
AREAS	1	111	13.88 **	39,117	39,117	5.88 NS
MONTHS	6	574	11.96 **	30,800	5,133	0.77 NS
A X M	6	48	8.00	39,942	6,657	
GROUP II						
TOTAL	167	52,502		3,333,547		
SHOPS	10	47,925	427.90 **	2,992,352	299,235	473.47 **
MONTHS	6	574	8.54 **	30,800	5,133	8.12 **
AREAS	1	111	9.91 **	39,117	39,117	61.89 **
A X M	6	48	0.71 NS	39,942	6,657	10.53 **
S X M	60	2,902	4.32 **	179,234	2,987	4.73 **
ERROR	84	941	11.20	53,102	632	

TABLE XXVII. Average frequency and value of two 10 per cent systematic samples of arrangement sales in the six "Out-of-Jackson" retail flower shops for the months of July 1957 and January 1958.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

	M O N T H S							: SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: AVERAGE
23-1 :	17.50	17.50	14.00	19.50	21.50	16.50	25.50	19.14
25-1 :	50.50	52.00	40.50	52.50	45.00	40.00	44.00	46.36
25-2 :	29.50	36.50	32.00	30.00	39.00	30.50	28.50	32.29
25-3 :	6.00	7.50	9.50	11.50	12.50	11.50	9.00	9.64
41-1 :	21.00	28.00	22.00	29.50	27.50	34.00	31.00	27.57
78-1 :	16.00	21.00	14.50	12.00	14.50	12.00	19.50	15.64
MONTHLY								
AVERAGE	23.42	27.08	22.03	25.83	26.67	24.42	26.25	25.11
LSD MONTHS	5% 2.12	1% 2.80						
LSD SHOPS	5% 1.94	1% 2.56						

VALUE OF ARRANGEMENT SALES IN DOLLARS

	M O N T H S							: SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: AVERAGE
23-1 :	122.25	147.46	108.07	148.33	173.66	166.38	216.80	154.71
25-1 :	496.13	458.75	381.00	509.02	472.38	364.38	418.57	442.89
25-2 :	228.75	300.93	274.10	264.00	291.40	167.30	213.79	262.90
25-3 :	34.95	48.00	71.00	78.50	85.00	82.75	86.50	69.67
41-1 :	142.50	212.88	154.75	186.22	293.21	254.62	235.90	197.15
78-1 :	105.94	152.50	121.50	82.00	94.00	78.25	155.55	112.82
MONTHLY								
AVERAGE	188.42	220.09	185.07	211.51	218.27	202.28	221.18	206.69
LSD MONTHS	5% 16.82	1% 22.24						
LSD SHOPS	5% 15.57	1% 20.59						

TABLE XXVIII. Average frequency and value of two 10 per cent systematic samples of arrangement sales in the six "In-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

M O N T H S								:	
								:SHOP	
								:	
								:AVERAGE	
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.		
S H O P S M O N T H L Y A V E R A G E	38-1 :	53.00	62.50	54.00	68.00	57.00	63.00	61.50	59.86
	38-2 :	41.00	49.50	36.00	34.50	46.00	42.00	45.50	42.07
	38-3 :	2.50	3.50	4.00	6.00	4.50	5.50	3.50	4.21
	38-4 :	7.00	5.50	2.00	5.00	4.00	4.50	3.00	4.43
	38-5 :	18.50	18.00	17.50	25.00	21.50	26.50	33.50	22.93
	38-6 :	13.00	9.00	15.50	13.50	11.00	10.50	10.50	11.86
MONTHLY									
AVERAGE		22.50	24.67	21.50	25.33	24.00	25.33	26.25	24.23

LSD MONTHS 5% 2.04 1% 2.69 LSD SHOPS 5% 1.90 1% 2.51

VALUE OF ARRANGEMENT SALES IN DOLLARS

M O N T H S								:	
								:SHOP	
								:	
								:AVERAGE	
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.		
S	38-1 :	372.46	418.07	387.80	515.90	394.00	437.99	431.92	422.60
H	38-2 :	299.25	305.18	259.38	240.78	297.78	299.63	312.09	287.73
O	38-3 :	25.87	22.25	20.03	32.67	19.50	25.98	15.75	21.72
P	38-4 :	33.33	32.75	14.57	25.13	20.00	23.74	17.00	23.81
S	38-5 :	116.50	103.80	119.93	157.15	168.83	130.53	199.63	142.34
	38-6 :	105.75	51.50	112.54	88.38	81.00	74.75	68.25	83.17
MONTHLY									
AVERAGE									
	157.19	155.59	152.41	176.67	163.52	165.43	174.11	163.56	

LSD MONTHS 5% 22.94 1% 30.32 LSD SHOPS 5% 21.23 1% 28.07

ANALYSIS OF VARIANCE FOR TABLE XXVII.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	13958				1389101		
MONTHS	6	248	41.33	3.03 *		16411	2735	3.15 *
SHOPS	5	12228	2445.60	179.30 **		1250581	250116	288.15 **
M X S	30	909	30.30	2.22 **		85641	2855	3.29 **
ERROR	42	573	13.64			36468	868	

ANALYSIS OF VARIANCE FOR TABLE XXVIII.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	37255				1930954		
MONTHS	6	207	34.50	2.69 *		6179	1030	0.64 NS
SHOPS	5	35492	7098.40	554.13 **		1807100	361420	224.35 **
M X S	30	1018	33.93	2.65 **		50019	1667	1.03 NS
ERROR	42	535	12.81			67656	1611	

TABLE XXIX. "Out-of-Jackson"—"In-Jackson" area comparison based on two 10 per cent systematic samples of arrangement sales whose averages are recorded in Tables XXVII and XXVIII.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)											
	M	O	N	T	H	S					
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AREA	AREA	AVERAGE
OUT-OF-JACKSON	281	325	265	310	320	293	315	2109	25.11		
IN-JACKSON	270	296	258	304	288	304	315	2035	24.23		
MONTHLY TOTAL	551	621	523	614	608	597	630	4144			
MONTHLY AVERAGE	22.96	25.88	21.79	25.58	25.33	24.88	26.25		24.67		
LSD MONTHS	5% 1.46	1% 1.94				5% 0.79	1% 1.05				
VALUE OF ARRANGEMENT SALES IN DOLLARS											
	M	O	N	T	H	S					
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AREA	AREA	AVERAGE
OUT-OF-JACKSON	2261.03	2641.03	2220.84	2538.12	2619.27	2427.34	2654.21	17361.84	206.69		
IN-JACKSON	1886.31	1867.08	1828.93	2120.00	1962.20	1985.21	2089.27	13739.00	163.56		
MONTHLY TOTAL	4147.34	4508.11	4049.77	4658.12	4581.47	4412.55	4743.48	31100.84			
MONTHLY AVERAGE	172.81	187.84	168.74	194.09	190.89	183.86	197.65		185.12		
LSD MONTHS	5% 14.23	1% 18.81				5% 7.60	1% 10.05				

ANALYSIS OF VARIANCE FOR TABLE XXIX. This analysis is derived from the analysis of variances for Tables XXVII and XXVIII and data presented in Table XXIX.

F R E Q U E N C Y				V A L U E			
	DF	SS	MS	F	SS	MS	F
GROUP I							
TOTAL	13	487			100,715		
AREAS	1	32	32.00	3.20 NS	78,125	78,125	80.79 **
MONTHS	6	395	65.83	6.58 *	16,790	2,798	2.89 NS
A X M	6	60	10.00		5,800	967	
GROUP II							
TOTAL	167	51,245			3,398,180		
SHOPS	10	47,720	4,772.00	360.70 **	3,057,681	305,768	246.59 **
MONTHS	6	395	65.83	4.98 **	16,790	2,798	2.26 *
AREAS	1	32	32.00	2.42 NS	78,125	78,125	63.00 **
A X M	6	60	10.00	0.76 NS	5,800	967	0.78 NS
S X M	60	1,927	32.12	2.43 **	135,660	2,261	1.82 **
ERROR	84	1,111	13.23		104,124	1,240	

TABLE XXX. Average frequency and value of two 10 per cent "In-Shop" systematic samples of arrangement sales in the six "Out-of-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

	M O N T H S							: :SHOP :
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: :AVERAGE :
S	23-1 :	16.00	17.50	11.00	19.00	21.00	18.00	18.36
H	25-1 :	48.50	49.00	46.50	55.00	47.00	41.00	47.43
O	25-2 :	29.50	34.50	34.50	37.00	38.00	29.50	34.00
P	25-3 :	8.50	12.00	11.00	9.00	12.00	8.00	10.43
S	41-1 :	24.00	31.00	18.00	29.50	32.00	30.00	28.29
	78-1 :	17.00	19.50	19.00	12.00	13.00	20.50	15.79
	MONTHLY							
	AVERAGE	23.91	27.25	23.33	26.92	27.17	24.92	25.71

LSD MONTHS 5% 2.10 1% 2.77 LSD SHOPS 5% 1.94 1% 2.56

VALUE OF ARRANGEMENT SALES IN DOLLARS

	M O N T H S							: :SHOP :
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: :AVERAGE :
S	23-1 :	131.75	143.89	79.38	140.79	148.44	156.44	142.26
H	25-1 :	473.75	399.08	406.95	484.14	448.50	377.93	457.60
O	25-2 :	273.57	289.63	273.56	331.40	288.74	302.88	262.97
P	25-3 :	45.48	74.80	64.23	52.42	74.25	87.75	63.75
S	41-1 :	176.13	232.00	121.75	210.25	235.85	243.08	222.80
	78-1 :	131.75	118.00	142.25	87.88	80.63	56.50	145.00
	MONTHLY							
	AVERAGE	205.40	209.57	181.35	217.81	212.73	204.07	232.40

LSD MONTHS 5% 25.13 1% 33.22 LSD SHOPS 5% 23.25 1% 30.74

TABLE XXXI. Average frequency and value of two 10 per cent "In-Shop" systematic samples of arrangement sales in the six "In-Jackson" retail flower shops for the months of July 1957 through January 1958.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
38-1 :	42.50	53.00	55.50	62.50	58.50	61.00	68.50	57.36
38-2 :	42.50	46.00	38.50	48.00	39.50	44.00	43.50	43.14
38-3 :	3.00	4.50	4.50	6.00	4.00	7.50	4.50	4.86
38-4 :	4.50	5.00	6.00	4.00	3.00	4.00	3.00	4.21
38-5 :	20.00	14.00	15.00	21.50	22.50	29.00	30.50	21.79
38-6 :	15.50	10.50	13.00	13.50	13.00	7.00	10.50	11.86
MONTHLY AVERAGE	21.33	22.17	22.08	25.92	23.42	25.42	26.75	23.87

LSD MONTHS 5% 1.86 1% 2.46 LSD SHOPS 5% 1.72 1% 2.28

VALUE OF ARRANGEMENT SALES IN DOLLARS

	M O N T H S							:SHOP
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	:AVERAGE
38-1 :	318.70	407.57	362.83	438.36	411.95	442.30	486.78	411.20
38-2 :	276.63	297.80	266.83	314.23	233.30	287.23	309.06	283.58
38-3 :	20.50	19.65	24.35	31.35	15.63	37.13	23.75	24.62
38-4 :	22.00	32.50	43.00	22.63	17.38	19.74	19.25	25.21
38-5 :	109.38	100.13	100.63	122.63	71.98	164.80	177.29	135.26
38-6 :	124.25	72.25	86.00	102.00	98.75	56.50	73.50	87.61
MONTHLY AVERAGE	145.24	154.98	147.27	171.86	158.16	167.95	183.27	161.25

LSD MONTHS 5% 16.58 1% 21.92 LSD SHOPS 5% 15.34 1% 20.27

ANALYSIS OF VARIANCE FOR TABLE XXX.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	14855				1458373		
MONTHS	6	193	32.17	2.37 *		17289	2882	1.49 NS
SHOPS	5	13064	2612.80	192.12 **		1284058	257012	132.89 **
M X S	30	1027	34.23	2.51 **		75819	2527	1.31 NS
ERROR	42	571	13.60			81207	1934	

ANALYSIS OF VARIANCE FOR TABLE XXXI.

	F R E Q U E N C Y				:	V A L U E		
	DF	SS	MS	F		SS	MS	F
TOTAL	83	35456				1796871		
MONTHS	6	332	55.33	5.23 **		13716	2286	2.71 *
SHOPS	5	33451	6690.20	632.94 **		1689992	337998	401.42 **
M X S	30	1229	40.97	3.88 **		57819	1927	2.92 **
ERROR	42	444	10.57			35344	842	

ANALYSIS OF VARIANCE FOR TABLE XXXII. This analysis is derived from the analysis of variances for Tables XXX and XXXI and data presented in Table XXXII.

F R E Q U E N C Y			V A L U E			
	DF	SS	MS	F	SS	F
GROUP I						
TOTAL	13	667			126,977	
AREAS	1	143	143.00	5.61 NS	95,972	167.20 **
MONTHS	6	371	61.83	2.42 NS	27,562	4,594 8.00 *
A X M	6	153	25.50		3,443	574
GROUP II						
TOTAL	167	50,454			3,351,216	
SHOPS	10	46,515	4,651.50	385.06 **	2,974,050	297,405 214.27 **
MONTHS	6	371	61.83	5.12 **	27,562	4,594 3.31 **
AREAS	1	143	143.00	11.84 **	95,972	69.14 **
A X M	6	153	25.50	2.11 NS	3,443	574 0.41 NS
S X M	60	2,256	37.60	3.11 **	133,638	4,455 3.21 **
ERROR	84	1,015	12.08		116,551	1,388

TABLE XXXIII. Sampling method comparison based on two 10 per cent samples per method for all retail sales for the "Out-of-Jackson" area. Averages are recorded in Tables XV, XVIII and XXI.

FREQUENCY OF ALL RETAIL SALES (NUMBER)

	M O N T H S					: SAMPLE : SAMPLE		
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: METHOD : METHOD : AVERAGE
STRATIFIED								
RANDOM	480	604	523	690	622	1153	611	4683 55.75
SYSTEMATIC	460	609	540	675	658	1159	622	4723 56.22
"IN-SHOP"								
SYSTEMATIC	478	598	540	665	663	1164	607	4715 56.13
MONTHLY TOTAL	1418	1811	1603	2030	1943	3476	1840	14121
MONTHLY AVERAGE	39.39	50.31	44.53	56.39	53.97	96.56	51.11	56.04

VALUE OF ALL RETAIL SALES IN DOLLARS

STRATIFIED								
RANDOM	3020.42	4115.39	3922.43	5635.38	4721.23	6983.87	5060.19	34358.91 409.03
SYSTEMATIC	3804.68	4911.98	4070.00	4637.68	4653.08	7522.36	4962.51	34562.29 411.46
"IN-SHOP"								
SYSTEMATIC	3861.70	4282.25	3826.42	4558.62	4770.01	7542.40	4680.23	33521.63 399.07
MONTHLY TOTAL	11586.80	13309.62	11818.85	14831.68	14144.32	22048.63	14702.93	102442.83
MONTHLY AVERAGE	321.86	369.71	328.30	411.99	392.90	612.46	408.41	406.52

FREQUENCY LSD - MONTHS 5% 2.45 1% 3.24 SAMPLING METHODS 5% 1.62 1% 2.15

VALUE LSD - MONTHS 5% 27.71 1% 36.62 SAMPLING METHODS 5% 18.13 1% 23.96

ANALYSIS OF VARIANCE FOR TABLE XXIII. This analysis is derived from the analysis of variances from Tables XV, XVIII and XXI and data presented in Table XXIII.

F R E Q U E N C Y			V A L U E			
DF	SS	MS	F	SS	MS	F
GROUP I						
TOTAL	20	76,230		2,184,775		
SAMPLE METH	2	11	5.50	7,243	3,621.50	0.38 NS
MONTHS	6	76,064	12,677.33	2,061,801	343,633.50	35.63 **
Sm X M	12	155	12.92	115,731	9,644.25	
GROUP II						
TOTAL	251	185,655		17,640,850		
SHOPS	15	85,177	5,678.47	13,143,732	876,248.80	124.24 **
MONTHS	6	76,064	12,677.33	2,061,801	343,633.50	48.72 **
SAMPLE METH	2	11	5.50	7,243	3,621.50	0.51 NS
Sm X M	12	155	12.92	115,731	9,644.25	1.37 NS
Sh X M	90	17,206	191.18	1,423,699	15,818.88	2.24 **
ERROR	126	7,041	55.88	888,644	7,052.73	

TABLE XXIV. Sampling method comparison based on two 10 per cent samples per method for all retail sales for the "In-Jackson" area. Averages are recorded in Tables XVI, XIX and XXII.

FREQUENCY OF ALL RETAIL SALES (NUMBER)										: SAMPLE : SAMPLE		: METHOD : METHOD	
	M	O	N	T	H	S							
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	TOTAL	AVERAGE				
STRATIFIED													
RANDOM	466	512	618	741	800	1520	781	5438	64.74				
SYSTEMATIC	484	509	602	748	763	1514	770	5390	64.17				
"IN-SHOP"													
SYSTEMATIC	454	500	601	752	758	1487	781	5333	63.50				
MONTHLY TOTAL	1404	1521	1821	2241	2321	4521	2332	16161					
MONTHLY AVERAGE	39.00	42.25	50.58	62.25	64.47	125.58	64.78		64.13				
VALUE OF ALL RETAIL SALES IN DOLLARS													
STRATIFIED													
RANDOM	2615.16	3082.14	3561.08	3880.44	3725.94	7179.46	3834.95	27879.17	331.89				
SYSTEMATIC	2897.21	2941.71	3445.73	3857.78	3643.11	6801.52	3678.66	27265.72	324.59				
"IN-SHOP"													
SYSTEMATIC	2754.36	3203.06	3095.28	3976.69	3709.88	6710.88	3855.90	27306.05	325.07				
MONTHLY TOTAL	8266.73	9226.91	10102.09	11714.91	11078.93	20691.86	11369.51	82450.94					
MONTHLY AVERAGE	229.63	256.30	280.61	325.41	307.75	574.77	315.82		327.19				

FREQUENCY LSD - MONTHS 5% 1.80 1% 2.38 SAMPLING METHODS 5% 1.17 1% 1.54

VALUE LSD - MONTHS 5% 12.59 1% 16.64 SAMPLING METHODS 5% 12.19 1% 16.11

ANALYSIS OF VARIANCE FOR TABLE XXIV. This analysis is derived from the analysis of variances from Tables XVI, XIX and XXII and data presented in Table XXXIV.

F R E Q U E N C Y				V A L U E			
DF	SS	MS	F	SS	MS	F	
GROUP I							
TOTAL	20	182,888		2,855,546			
SAMPLE METH	2	66	2.73 NS	2,803	1,401.50	0.65 NS	
MONTHS	6	182,677	2,520.36 **	2,826,727	471,121.00	217.31 **	
Sm X M	12	145	12.08	26,016	2,168.00		
GROUP II							
TOTAL	251	1,043,775		25,627,875			
SHOPS	15	697,714	1,572.48 **	19,478,308	1,298,554.00	890.64 **	
MONTHS	6	182,677	1,029.28 **	2,826,727	471,121.00	323.13 **	
SAMPLE METH	2	66	1.12 NS	2,803	1,401.50	0.96 NS	
Sm X M	12	145	0.41 NS	26,016	2,168.00	1.49 NS	
Sh X M	90	159,436	59.91 **	3,110,354	34,559.00	23.70 **	
ERROR	126	3,737	29.58	183,668	1,458.00		

TABLE XXV. Sampling method comparison based on two 10 per cent samples per method for arrangement sales for the "Out-of-Jackson" area. Averages are recorded in Tables XXIV, XXVII and XX.

FREQUENCY OF ARRANGEMENT SALES (NUMBER)

	M O N T H S					: SAMPLE : SAMPLE		: METHOD : METHOD	
	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	: TOTAL	: AVERAGE
STRATIFIED									
RANDOM	272	328	281	329	290	300	334	2134	25.40
SYSTEMATIC	281	325	265	310	320	293	315	2109	25.11
"IN-SHOP"									
SYSTEMATIC	287	327	280	323	326	299	318	2160	25.71
MONTHLY TOTAL	840	980	826	962	936	892	967	6403	
MONTHLY AVERAGE	23.33	27.22	22.94	26.72	26.00	24.78	26.86		25.42

VALUE OF ARRANGEMENT SALES IN DOLLARS

STRATIFIED									
RANDOM	2251.08	2380.62	2271.91	2706.69	2442.55	2254.14	2826.28	17133.27	203.97
SYSTEMATIC	2261.03	2641.03	2220.84	2538.12	2619.27	2427.34	2654.21	17361.84	206.69
"IN-SHOP"									
SYSTEMATIC	2464.74	2514.79	2176.22	2613.73	2552.80	2449.13	2788.75	17560.16	209.05
MONTHLY TOTAL	6976.85	7536.44	6668.97	7858.54	7614.62	7130.61	8269.24	52055.27	
MONTHLY AVERAGE	193.80	209.35	185.25	218.29	211.52	198.07	229.70		206.57

FREQUENCY LSD - MONTHS 5% 1.15 1% 1.52 SAMPLING METHODS 5% 0.77 1% 1.02

VALUE LSD - MONTHS 5% 11.28 1% 14.91 SAMPLING METHODS 5% 7.38 1% 9.76

ANALYSIS OF VARIANCE FOR TABLE XXIV. This analysis is derived from the analysis of variances from Tables XXIV, XXVII and XXX and data presented in Table XXV.

F R E Q U E N C Y				V A L U E			
	DF	SS	MS	F	SS	MS	F
GROUP I							
TOTAL	20	778			61,616		
SAMPLE METH	2	16	8.00	0.19 NS	1,205	602.50	0.71 NS
MONTHS	6	657	109.50	12.51 **	50,201	8,367.83	9.83 **
Sm X M	12	105	8.75		10,210	850.83	
GROUP II							
TOTAL	251	43,189			4,247,416		
SHOPS	15	37,648	2,509.86	204.72 **	3,772,992	251,532.80	215.38 **
MONTHS	6	657	109.50	8.93 **	50,201	8,367.83	7.17 **
SAMPLE METH	2	16	8.00	0.65 NS	1,205	602.50	0.52 NS
Sm X M	12	105	8.75	0.71 NS	10,210	850.83	0.73 NS
Sh X M	90	3,217	35.74	2.92 **	265,660	2,951.78	2.53 **
ERROR	126	1,545	12.26		147,148	1,167.84	

ANALYSIS OF VARIANCE FOR TABLE XXXVI. This analysis is derived from the analysis of variances from Tables XXV, XXVIII and XXXI and data presented in Table XXVI.

F R E Q U E N C Y			V A L U E			
DF	SS	MS	F	SS	MS	F
GROUP I						
TOTAL	20	903		33,088		
SAMPLE METH	2	65	32.50	281	140.50	0.28 NS
MONTHS	6	702	117.00	26,885	4,480.50	9.08 **
Sm X M	12	136	11.33	5,922	493.50	
GROUP II						
TOTAL	251	110,806		5,593,679		
SHOPS	15	104,512	6,967.47	5,251,091	350,073.00	348.33 **
MONTHS	6	702	117.00	26,885	4,480.50	4.46 **
SAMPLE METH	2	65	32.50	281	140.50	0.14 NS
Sm X M	12	136	11.33	5,922	493.50	0.19 NS
Sh X M	90	3,868	42.98	182,872	2,031.91	2.02 **
ERROR	126	1,522	12.08	126,629	1,004.99	

TABLE XXXVII. Comparison of sample and population values in five cases of frequencies of 10 in each of the three 10 per cent sampling methods.

10 PER CENT SAMPLES VALUES

	S A M P L I N G M E T H O D S			: LOT	: LOT
	STRATIFIED	"IN-SHOP"			
	RANDOM	SYSTEMATIC	SYSTEMATIC	TOTAL	AVERAGE
1	62.00	52.50	71.50	186.00	62.00
L					
2	67.00	80.50	52.46	199.96	66.65
O					
3	71.00	70.00	63.25	204.25	68.08
T					
4	44.05	77.50	79.00	200.55	66.85
S					
5	76.50	80.50	68.00	225.00	75.00
SAMPLE					
TOTAL	320.55	361.00	334.21	1015.76	
SAMPLE					
AVERAGE	64.11	72.20	66.84		67.72

LSD SAMPLING METHODS 5% 10.96 1% 15.21

POPULATION VALUES*

	S A M P L I N G M E T H O D S			: LOT	: LOT
	STRATIFIED	"IN-SHOP"			
	RANDOM	SYSTEMATIC	SYSTEMATIC	TOTAL	AVERAGE
1	640.89	737.86	813.19	2191.94	730.65
L					
2	728.24	640.89	583.61	1952.74	650.91
O					
3	667.94	733.60	1145.79	2547.33	849.11
T					
4	255.90	711.36	910.35	1877.61	625.87
S					
5	984.25	687.20	787.00	2458.45	819.48
SAMPLE					
TOTAL	3277.22	3510.91	4239.94	11028.07	
SAMPLE					
AVERAGE	655.44	702.18	847.99		735.20

LSD SAMPLING METHODS 5% 185.18 1% 257.00

* Each corresponds to the sample value in the same position above.

ANALYSIS OF VARIANCE FOR TABLE XXXVII.

10 PER CENT SAMPLE VALUES

	DF	SS	MS	F
TOTAL	14	1735		
SAMPLES	2	169	84.5	0.65 NS
ERROR	12	1566	130.5	

POPULATION VALUES

	DF	SS	MS	F
TOTAL	14	548005		
SAMPLES	2	100862	50431	1.35 NS
ERROR	12	447143	37262	

ANALYSIS OF VARIANCE FOR TABLE XXXIX.

10 PER CENT SAMPLE VALUES

	DF	SS	MS	F
TOTAL	14	3969		
SAMPLES	2	371	185.50	0.62 NS
ERROR	12	3598	299.83	

POPULATION VALUES

	DF	SS	MS	F
TOTAL	14	612134		
SAMPLES	2	119660	59830.0	1.46 NS
ERROR	12	492474	41039.5	

TABLE XXXVIII. Comparison of population values divided by 10 and sample values of the three 10 per cent sampling methods at a frequency level of 10. These values are taken from Table XXXVII.

	S A M P L I N G M E T H O D S			: SAMPLE-POPULATION	: SAMPLE-POPULATION
	STRATIFIED	"IN-SHOP"	SYSTEMATIC	:	:
	RANDOM	SYSTEMATIC	SYSTEMATIC	: TOTALS	: AVERAGES
SAMPLE	320.55	361.00	334.21	1015.76	67.72
POP/10	327.72	351.09	423.99	1102.80	73.52
SAMPLE TOTAL	648.27	712.09	758.20	2118.56	
SAMPLE AVERAGE	64.82	71.21	75.82		70.62
LSD SAMPLE-POP	5% 8.38	1% 11.30	LSD SAMPLE	5% 10.27	1% 13.84

ANALYSIS OF VARIANCE FOR TABLE XXXVIII.

	DF	SS	MS	F
TOTAL	29	7469		
SAMPLE-POPULATION	1	253	253	1.00 NS
SAMPLES	2	609	305	1.21 NS
S-P X S	2	570	285	1.13 NS
ERROR	24	6037	252	

TABLE XXXIX. Comparison of sample and population values in five cases of frequencies of 20 in each of the three 10 per cent sampling methods.

10 PER CENT SAMPLES VALUES

	S A M P L I N G M E T H O D S			:	:
	STRATIFIED	"IN-SHOP"		LOT	LOT
	RANDOM	SYSTEMATIC	SYSTEMATIC	TOTAL	AVERAGE
1	127.00	126.04	142.00	395.0	131.68
L					
2	154.00	172.84	127.00	453.84	151.28
O					
3	115.75	150.50	153.50	419.75	139.92
T					
4	143.42	140.75	111.50	395.67	131.89
S					
5	119.83	125.48	132.25	377.56	125.85
SAMPLE					
TOTAL	660.00	715.61	666.25	2041.86	
SAMPLE					
AVERAGE	132.00	143.12	133.25		136.13

LSD SAMPLING METHODS 5% 16.60 1% 23.04

POPULATION VALUES*

	S A M P L I N G M E T H O D S			:	:
	STRATIFIED	"IN-SHOP"		LOT	LOT
	RANDOM	SYSTEMATIC	SYSTEMATIC	TOTAL	AVERAGE
1	1442.70	1312.76	1442.70	4198.16	1399.39
L					
2	1456.13	1539.91	1390.75	4386.79	1462.26
O					
3	1185.55	1295.64	1456.13	3937.32	1312.44
T					
4	705.83	1063.95	1340.41	3110.19	1036.73
S					
5	1139.31	1297.50	1392.73	3829.54	1276.51
SAMPLE					
TOTAL	5929.52	6509.76	7022.72	19462.00	
SAMPLE					
AVERAGE	1185.90	1301.95	1404.54		1297.47

LSD SAMPLING METHODS 5% 194.34 1% 269.72

* Each corresponds to the sample value in the same position above.

TABLE XL. Comparison of population values divided by 10 and sample values of the three 10 per cent sampling methods at a frequency level of 20. These values are taken from Table XXXIX.

	S A M P L I N G M E T H O D S			: SAMPLE- : POPULATION	: SAMPLE- : POPULATION
	STRATIFIED RANDOM	SYSTEMATIC	"IN-SHOP" SYSTEMATIC	: TOTALS	: AVERAGES
SAMPLE	660.00	715.61	666.25	2011.86	136.13
POP/10	592.95	650.98	702.27	1946.20	129.75
SAMPLE TOTAL	1252.95	1366.59	1368.52	3988.06	
SAMPLE AVERAGE	125.30	136.66	136.85		132.94
LSD SAMPLE-POP	5%- 9.94	1%- 13.39	LSD SAMPLE	5%- 7.26	1%- 16.43

ANALYSIS OF VARIANCE FOR TABLE XL.

	DF	SS	MS	F
TOTAL	29	10395		
SAMPLE-POPULATION	1	305	305	0.86 NS
SAMPLES	2	876	438	1.23 NS
S-P X S	2	692	346	0.97 NS
ERROR	24	8522	355	

TABLE XLI. Comparison of sample and population values in five cases of frequencies of 30 in each of the three 10 per cent sampling methods.

10 PER CENT SAMPLES VALUES

	S A M P L I N G M E T H O D S			: LOT	: LOT
	STRATIFIED	"IN-SHOP"			
	RANDOM	SYSTEMATIC	SYSTEMATIC	TOTAL	AVERAGE
1	119.38	225.00	243.20	587.58	195.86
2	156.13	275.60	221.00	652.73	217.58
3	226.71	287.34	213.00	727.05	242.35
4	205.75	238.50	232.60	676.85	225.62
5	211.00	146.75	246.50	604.25	201.42
SAMPLE TOTAL	918.97	1173.19	1156.30	3248.46	
SAMPLE AVERAGE	183.79	234.64	231.26		216.56

LSD SAMPLING METHODS 5% 40.09 1% 55.64

POPULATION VALUES*

	S A M P L I N G M E T H O D S			: LOT	: LOT
	STRATIFIED	"IN-SHOP"			
	RANDOM	SYSTEMATIC	SYSTEMATIC	TOTAL	AVERAGE
1	2020.11	2544.75	2555.14	7120.00	2373.33
2	2347.41	2758.13	1893.60	6999.14	2333.05
3	2669.55	2728.18	2072.93	7470.66	2490.22
4	2651.01	2072.93	2072.93	6796.87	2265.62
5	2588.49	1693.08	2281.56	6563.13	2187.71
SAMPLE TOTAL	12276.57	11797.07	10876.16	34949.80	
SAMPLE AVERAGE	2455.31	2359.41	2175.23		2329.99

LSD SAMPLING METHODS 5% 329.32 1% 457.06

* Each corresponds to the sample value in the same position above.

ANALYSIS OF VARIANCE FOR TABLE XLI.

10 PER CENT SAMPLE VALUES

	DF	SS	MS	F
TOTAL	14	29164		
SAMPLES	2	8116	4058	2.31 NS
ERROR	12	21048	1754	

POPULATION VALUES

	DF	SS	MS	F
TOTAL	14	1616855		
SAMPLES	2	202610	101305	0.86 NS
ERROR	12	1414245	117854	

ANALYSIS OF VARIANCE FOR TABLE XLIII.

10 PER CENT SAMPLE VALUES

	DF	SS	MS	F
TOTAL	14	30177		
SAMPLES	2	3869	1935	0.88 NS
ERROR	12	26248	2187	

POPULATION VALUES

	DF	SS	MS	F
TOTAL	14	5196379		
SAMPLES	2	276040	138020	0.34 NS
ERROR	12	4920339	410028	

TABLE XLII. Comparison of population values divided by 10 and sample values of the three 10 per cent sampling methods at a frequency level of 30. These values are taken from Table XLI.

S A M P L I N G M E T H O D S				: SAMPLE- : POPULATION	: SAMPLE- : POPULATION
STRATIFIED		"IN-SHOP"		:	:
RANDOM	SYSTEMATIC	SYSTEMATIC		: TOTALS	: AVERAGES
SAMPLE	918.97	1173.19	1156.30	3248.46	216.56
POP/10	1227.66	1179.70	1087.62	3494.98	233.00
SAMPLE					
TOTAL	2146.63	2352.89	2243.92	6743.44	
SAMPLE					
AVERAGE	214.66	235.29	224.39		224.78
LSD SAMPLE-POP 5% 20.23 1% 27.26 LSD SAMPLE 5% 24.74 1% 33.35					

ANALYSIS OF VARIANCE FOR TABLE XLII.

	DF	SS	MS	F
TOTAL	29	47358		
SAMPLE-POPULATION	1	2026	2026	1.38 NS
SAMPLES	2	2130	1065	0.73 NS
S-P X S	2	8012	4006	2.73 NS
ERROR	24	35190	1466	

TABLE XLIII. Comparison of sample and population values in five cases of frequencies of 40 in each of the three 10 per cent sampling methods.

10 PER CENT SAMPLES VALUES

	S A M P L I N G M E T H O D S			:	:
	STRATIFIED	"IN-SHOP"			
	RANDOM	SYSTEMATIC	SYSTEMATIC	TOTAL	AVERAGE
1	319.53	336.70	387.50	1043.73	347.91
2	361.39	314.00	271.18	946.57	315.52
3	332.83	271.50	224.69	829.02	276.34
4	262.35	300.95	257.07	820.37	273.46
5	347.99	246.22	301.08	895.29	298.43
SAMPLE TOTAL	1624.09	1469.37	1441.52	4534.98	
SAMPLE AVERAGE	324.82	293.87	288.30		302.33

LSD SAMPLING METHODS 5% 44.85 1% 62.25

POPULATION VALUES*

	S A M P L I N G M E T H O D S			:	:
	STRATIFIED	"IN-SHOP"			
	RANDOM	SYSTEMATIC	SYSTEMATIC	TOTAL	AVERAGE
1	2555.14	2555.14	3633.46	8743.74	2914.58
2	3404.36	2702.09	3165.10	9271.55	3090.52
3	2728.18	3007.57	2229.08	7964.83	2654.94
4	3367.59	4175.63	2917.14	10460.36	3486.79
5	4175.63	2229.08	3013.64	9418.35	3139.45
SAMPLE TOTAL	16230.90	14669.51	14958.42	45858.83	
SAMPLE AVERAGE	3246.18	2933.90	2991.68		3057.26

LSD SAMPLING METHODS 5% 614.26 1% 852.52

* Each corresponds to the sample value in the same position above.

TABLE XLIV. Comparison of population values divided by 10 and sample values of the three 10 per cent sampling methods at a frequency level of 40. These values are taken from Table XLIII.

	S A M P L I N G M E T H O D S			: SAMPLE- : POPULATION	: SAMPLE- : POPULATION
	STRATIFIED RANDOM	SYSTEMATIC	"IN-SHOP" SYSTEMATIC	: : TOTALS	: : AVERAGES
SAMPLE	1624.09	1469.37	1441.52	4534.98	302.33
POP/10	1623.09	1466.95	1495.84	4585.88	305.73
SAMPLE TOTAL	3247.18	2936.32	2937.36	9120.86	
SAMPLE AVERAGE	324.72	293.63	293.74		304.03
LSD SAMPLE-POP	5% 33.99	1% 45.80	LSD SAMPLE	5% 41.64	1% 56.11

ANALYSIS OF VARIANCE FOR TABLE XLIV.

	DF	SS	MS	F
TOTAL	29	82169		
SAMPLE-POPULATION	1	88	88	0.02 NS
SAMPLES	2	6421	3211	0.77 NS
S-P X S	2	209	105	0.03 NS
ERROR	24	75451	4144	

TABLE XLV. Comparison of sample and population values in five cases of frequencies of 50 in each of the three 10 per cent sampling methods.

10 PER CENT SAMPLES VALUES

	S A M P L I N G M E T H O D S			: LOT	: LOT
	STRATIFIED	"IN-SHOP"			
	RANDOM	SYSTEMATIC	SYSTEMATIC	TOTAL	AVERAGE
1	284.12	413.59	470.50	1168.21	389.40
2	177.46	478.84	307.95	964.25	321.42
3	182.48	351.69	409.05	943.22	314.41
4	263.53	377.80	410.15	1051.48	350.49
5	381.50	306.35	405.17	1093.02	364.34
SAMPLE TOTAL	1289.09	1928.27	2002.82	5220.18	
SAMPLE AVERAGE	257.82	385.65	400.56		348.01

LSD SAMPLING METHODS 5% 67.14 1% 93.18

POPULATION VALUES*

	S A M P L I N G M E T H O D S			: LOT	: LOT
	STRATIFIED	"IN-SHOP"			
	RANDOM	SYSTEMATIC	SYSTEMATIC	TOTAL	AVERAGE
1	2576.12	4293.97	4549.20	11419.29	3806.43
2	2395.20	4969.31	2999.20	10363.71	3454.57
3	2204.36	3367.59	4524.80	10096.75	3365.58
4	2204.36	3860.77	4108.83	10173.96	3391.32
5	3604.53	3007.57	4291.13	10903.23	3634.41
SAMPLE TOTAL	12984.57	19499.21	20473.16	52956.94	
SAMPLE AVERAGE	2596.91	3899.84	4094.63		3530.46

LSD SAMPLING METHODS 5% 642.02 1% 891.05

* Each corresponds to the sample value in the same position above.

ANALYSIS OF VARIANCE FOR TABLE XLV.

10 PER CENT SAMPLE VALUES

	DF	SS	MS	F
TOTAL	14	120345		
SAMPLES	2	61658	30829	6.29 *
ERROR	12	58777	4898	

POPULATION VALUES

	DF	SS	MS	F
TOTAL	14	12006342		
SAMPLES	2	6631206	3315603	7.40 **
ERROR	12	5375136	447928	

TABLE XLVI. Comparison of population values divided by 10 and sample values of the three 10 per cent sampling methods at a frequency level of 50. These values are taken from Table XLV.

	S A M P L I N G M E T H O D S			: SAMPLE- : POPULATION	: SAMPLE- : POPULATION
	STRATIFIED RANDOM	SYSTEMATIC	"IN-SHOP" SYSTEMATIC	: TOTALS	: AVERAGES
SAMPLE	1289.09	1928.27	2002.82	5220.18	384.01
POP/10	1298.46	1949.92	2047.31	5295.69	353.05
SAMPLE TOTAL	2587.55	3878.19	4050.13	10515.87	
SAMPLE AVERAGE	258.76	387.82	405.01		350.53
LSD SAMPLE-POP	5% 36.16	1% 48.73	LSD SAMPLE	5% 44.27	1% 59.67

ANALYSIS OF VARIANCE FOR TABLE XLVI.

	DF	SS	MS	F
TOTAL	29	240601		
SAMPLE-POPULATION	1	193	193	0.04 NS
SAMPLES	2	127816	63908	13.63 **
S-P X S	2	64	32	0.007 NS
ERROR	24	112528	4689	

TABLE XLVII. Analysis of the five cases of a frequency of 10 which appear in the "In-Shop" systematic sampling method column in Table XXXVII.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
I	7.00	7.00	5.50	7.00	8.50	35.00	7.00
N	6.50	6.00	6.00	3.50	5.00	27.00	5.40
D	5.00	4.00	3.50	6.00	5.00	23.50	4.70
O							
I	10.00	2.46	5.00	5.00	5.00	27.46	5.49
R							
V	3.00	3.00	10.00	10.00	8.00	34.00	6.80
D							
I	5.00	4.00	2.00	20.00	5.00	36.00	7.20
E							
D	9.00	7.00	10.00	7.50	4.00	37.50	7.50
R							
U	10.00	7.50	5.00	10.00	7.50	40.00	8.00
S							
A	5.00	6.00	6.00	5.00	5.00	27.00	5.40
L	11.00	5.50	10.25	5.00	15.00	46.75	9.35
LOT TOTAL	71.50	52.46	63.25	79.00	68.00	334.21	
LOT							
AVERAGE	7.15	5.25	6.33	7.90	6.80		6.68

LSD LOTS ~~5%~~ 2.05 ~~1%~~ 2.73

ANALYSIS OF VARIANCE FOR TABLE XLVII.

	DF	SS	MS	F
TOTAL	49	507		
LOTS	4	39	9.75	0.94 NS
INDIVIDUALS	9	93	1.03	0.10 NS
ERROR	36	375	10.42	

TABLE XLVIII. Comparison of the five cases of a frequency of 10 which appear in the "In-Shop" systematic sampling column in Table XXXVII with the corresponding population values divided by 10.

	L O T S					: SAMPLE- : POPUL.	: SAMPLE- : POPUL.
	1	2	3	4	5	: TOTAL	: AVERAGE
SAMPLE	71.50	52.46	63.25	79.00	68.00	334.21	66.84
POP/10	81.32	58.36	114.58	91.04	78.70	424.00	84.80
LOT TOTAL	152.82	110.82	177.83	170.04	146.70	758.21	
LOT AVERAGE	76.41	55.41	88.92	85.02	73.35		75.81
LSD SAMPLE-POP	5% 13.46	1% 19.34	LSD LOTS	5% 21.29	1% 30.58		

ANALYSIS OF VARIANCE FOR TABLE XLVIII

	DF	SS	MS	F
TOTAL	9	2871		
SAMPLE-POPULATION	1	806	806	4.55 NS
LOTS	4	1359	340	1.92 NS
ERROR	4	706	177	

TABLE XLIX. Analysis of the five cases of a frequency of 20 which appear in the "In-Shop" systematic sampling method column in Table XXXIX.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
I	10.00	1.00	4.00	5.00	11.00	31.00	6.20
O	15.00	5.00	1.00	5.00	5.00	31.00	6.20
N	3.50	10.00	5.00	3.00	5.00	26.50	5.30
R							
D							

Table continued on next page.

TABLE XLIX. Continued.

L O T S						: INDIV.	: INDIV.
1	2	3	4	5	: TOTAL	: AVERAGE	
	7.50	6.00	7.00	5.00	4.00	29.50	5.90
	10.00	10.00	5.00	6.00	1.98	32.98	6.60
	10.00	6.00	10.00	8.00	1.00	35.00	7.00
I	4.50	5.50	7.50	7.50	4.00	29.00	5.80
N	7.50	13.75	3.50	10.00	5.00	39.75	7.95
D	8.00	8.00	12.00	10.00	3.00	41.00	8.20
O	10.00	8.00	10.00	3.00	27.80	58.80	11.76
I	5.00	6.00	6.00	6.00	4.00	27.00	5.40
R	9.00	3.00	10.00	3.00	12.50	37.50	7.50
V	3.50	5.00	8.00	2.50	10.00	29.00	5.80
D	7.50	10.00	5.00	5.00	3.00	30.50	6.10
I	4.00	8.25	7.00	1.50	10.00	30.75	6.15
E	5.00	6.00	15.00	8.00	2.30	36.30	7.26
D	5.00	3.50	7.50	12.50	5.00	33.50	6.70
R	6.00	1.50	6.00	1.00	5.00	19.50	3.90
U	4.00	7.50	14.00	4.50	6.00	36.00	7.20
S	7.00	3.00	10.00	5.00	6.67	31.67	6.33
A	LOT TOTAL	142.00	127.00	153.50	111.50	132.25	666.25
L	LOT						
	AVERAGE	7.10	6.35	7.68	5.58	6.61	6.66

LSD LOTS 5% 1.77 1% 2.34

ANALYSIS OF VARIANCE FOR TABLE XLIX.

	DF	SS	MS	F
TOTAL	99	1477		
LOTS	4	50	12.50	0.80 NS
INDIVIDUALS	19	233	12.26	0.64 NS
ERROR	76	1194	15.71	

TABLE L. Comparison of the five cases of a frequency of 20 which appear in the "In-Shop" systematic sampling column in Table XXIX and the corresponding population values divided by 10.

	L O T S					:SAMPLE- :POPUL.	:SAMPLE- :POPUL.
	1	2	3	4	5	: TOTAL	: AVERAGE
SAMPLE	142.00	127.00	153.50	111.50	132.25	666.25	133.25
POP/10	144.27	139.08	145.61	134.04	139.27	702.27	140.45
LOT TOTAL	286.27	266.08	299.11	245.54	271.52	1368.52	
LOT AVERAGE	143.14	133.04	148.56	122.77	135.76		136.85
LSD SAMPLE-POP	5% 8.10	1% 11.64	LSD LOTS	5% 12.80	1% 18.40		

ANALYSIS OF VARIANCE FOR TABLE L.

	DF	SS	MS	F
TOTAL	9	1215		
SAMPLE-POPULATION	1	129	129	2.02 NS
LOTS	4	830	208	3.25 NS
ERROR	4	256	64	

TABLE LI. Analysis of the five cases of a frequency of 30 which appear in the "In-Shop" systematic sampling method column in Table XLI.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
	6.00	5.00	15.00	5.85	1.50	33.35	6.67
	8.00	6.00	7.50	10.00	5.00	36.50	7.30
I	15.00	3.50	3.50	6.50	6.00	34.50	6.90
N	6.00	7.00	7.50	5.00	10.00	35.50	7.10
D	6.00	10.00	7.50	2.00	20.00	45.50	9.10
I	15.00	7.00	10.00	15.00	10.00	57.00	11.40
V	5.00	5.00	4.50	15.00	6.00	35.50	7.10
I	8.00	3.50	4.00	7.50	2.50	25.50	5.10
D	9.70	5.00	6.25	7.50	5.00	33.45	6.69
U	5.00	4.50	7.00	3.50	4.00	24.00	4.80
A	10.00	17.00	6.00	4.00	6.00	43.00	8.60
L	9.00	4.00	10.00	10.00	6.00	39.00	7.80
	5.00	6.00	3.50	1.25	17.00	32.75	6.55
O	10.00	3.00	3.50	11.00	10.00	37.50	7.50
R	15.00	5.00	10.00	3.50	10.00	43.50	8.70
D	8.00	5.00	4.50	7.50	15.00	40.00	8.00
E	7.50	5.00	3.75	10.00	10.00	36.25	7.25
R	4.00	15.00	4.00	12.00	21.00	56.00	11.20
S	5.00	4.00	3.00	6.00	3.00	21.00	4.20
	15.00	8.50	7.50	10.00	10.00	51.00	10.20
	15.00	5.50	7.50	4.50	5.00	37.50	7.50

Table continued on next page.

TABLE LI. Continued.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
I	5.00	4.00	5.00	10.00	12.00	36.00	7.20
O	4.00	5.00	10.00	7.50	9.50	36.00	7.20
N	5.00	10.00	12.00	7.50	5.00	39.50	7.90
R	7.50	8.00	4.50	10.00	7.50	37.50	7.50
D	5.00	12.50	5.00	2.00	7.00	31.50	6.30
I	5.00	25.00	10.00	14.50	7.00	61.50	12.30
E	10.00	10.00	8.00	10.00	8.00	46.00	9.20
V	7.50	5.00	7.50	3.50	4.00	27.50	5.50
R	7.00	7.00	15.00	10.00	3.50	42.50	8.50
S	243.20	221.00	213.00	232.60	246.50	1156.30	
D	8.11	7.37	7.10	7.75	8.22		7.71
U							
A							
LOT TOTAL							
LOT AVERAGE							

LSD LOTS 5% 1.48 1% 1.96

ANALYSIS OF VARIANCE FOR TABLE LI.

	DF	SS	MS	F
TOTAL	149	2480		
LOTS	4	27	6.75	0.40 NS
INDIVIDUALS	29	500	17.24	1.02 NS
ERROR	116	1953	16.83	

TABLE LII. Comparison of the five cases of a frequency of 30 which appear in the "In-Shop" systematic sampling column in Table XLI and the corresponding population values divided by 10.

	L O T S					:SAMPLE- :POPUL.	:SAMPLE- :POPUL.
	1	2	3	4	5	: TOTAL	: AVERAGE
SAMPLE	243.20	221.00	213.00	232.60	246.50	1156.30	231.26
POP/10	255.51	189.36	207.29	207.29	228.16	1087.61	217.52
LOT TOTAL	498.71	410.36	420.29	439.89	474.66	2243.91	
LOT AVERAGE	249.36	205.18	210.15	219.95	237.33		224.39
LSD SAMPLE-POP	5% 12.46	1% 17.91	LSD LOTS	5% 19.72	1% 28.34		

ANALYSIS OF VARIANCE FOR TABLE LII.

	DF	SS	MS	F
TOTAL	9	3846		
SAMPLE-POPULATION	1	472	472	3.11 NS
LOTS	4	2765	691	4.55 NS
ERROR	4	609	152	

TABLE LIII. Analysis of the five cases of the frequency of 40 which appear in the "In-Shop" systematic sampling method column in Table XLIII.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
I	12.00	5.00	8.00	3.50	9.00	37.50	7.50
O							
N	15.00	20.38	1.00	5.00	5.00	46.38	9.28
R							
D	5.00	5.00	1.00	3.00	7.50	21.50	4.30
D							
I	5.00	5.00	0.10	5.00	8.00	23.10	4.62

Table continued on next page.

TABLE LIII. Continued.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
	5.00	4.00	10.00	5.25	5.00	29.25	5.85
	12.50	7.00	3.00	7.50	9.25	39.25	7.85
I	8.00	6.00	3.00	2.89	20.50	40.39	8.08
N	5.00	7.50	10.00	4.00	10.00	36.50	7.30
D	5.00	10.00	8.50	2.98	6.00	32.48	6.50
I	10.00	7.50	20.00	5.00	10.00	52.50	10.50
V	7.50	5.00	5.00	12.50	5.00	35.00	7.00
I	10.00	4.00	20.00	5.00	7.00	46.00	9.20
D	10.00	5.00	7.50	8.14	5.00	35.64	7.13
U	7.50	8.00	1.49	6.00	3.75	26.74	5.35
A	10.00	5.00	10.00	5.00	7.50	37.50	7.50
L	8.00	8.00	7.50	3.00	6.00	32.50	6.50
	10.00	3.00	10.00	4.00	11.00	38.00	7.60
O	25.00	2.00	6.00	2.98	6.00	41.98	8.40
R	15.00	10.00	5.00	6.00	6.00	42.00	8.40
D	10.00	10.00	2.50	9.10	7.50	39.10	7.82
E	15.00	10.00	5.00	2.98	4.75	37.73	7.55
R	10.00	1.55	1.00	6.00	7.00	25.55	5.11
S	7.50	5.00	10.00	7.00	9.71	39.21	7.84
	10.00	12.00	3.00	6.00	6.00	37.00	7.40
	5.00	7.50	5.00	3.00	5.00	25.50	5.10
	7.50	6.25	5.00	4.00	6.50	29.25	5.85

Table continued on next page.

TABLE LIII. Continued.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
	7.50	2.00	4.00	5.00	5.00	23.50	4.70
I	10.00	5.00	10.00	1.05	10.00	36.05	7.21
N	6.00	8.00	3.48	5.00	7.00	29.48	5.90
D	10.00	1.50	7.00	0.50	5.00	24.00	4.80
O	7.50	5.00	5.00	4.00	6.00	27.50	5.50
I	6.00	1.50	0.63	7.50	12.62	28.25	5.65
R	15.00	1.00	2.00	5.00	5.00	28.00	5.60
V	12.50	12.50	2.33	4.00	7.50	38.83	7.77
D	10.00	10.00	5.00	10.00	4.00	39.00	7.80
I	7.50	5.00	1.18	18.00	6.00	37.68	7.54
E	7.50	10.00	3.98	23.70	6.00	51.18	10.24
D	7.50	10.00	5.00	7.50	10.00	40.00	8.00
R	10.00	15.00	3.50	30.00	20.00	78.50	15.70
U	20.00	5.00	3.00	1.00	3.00	32.00	6.40
S	LOT TOTAL	387.50	271.13	224.69	257.07	301.08	1441.52
A	LOT						
L	AVERAGE	9.69	6.78	5.62	6.43	7.53	7.21

LSD LOTS 5% 1.40 1% 1.85

ANALYSIS OF VARIANCE FOR TABLE LIII.

	DF	SS	MS	F
TOTAL	199	4280		
LOTS	4	383	95.75	4.84 **
INDIVIDUALS	39	808	20.72	1.05 NS
ERROR	156	3089	19.80	

TABLE LIV. Comparison of the five cases of a frequency of 40 which appear in the "In-Shop" systematic sampling column in Table XLIII and the corresponding population values divided by 10.

	L O T S					:SAMPLE- :POPUL.	:SAMPLE- :POPUL.
	1	2	3	4	5	: TOTAL	: AVERAGE
SAMPLE	387.50	271.18	224.69	257.07	301.08	1441.52	288.30
POP/10	363.35	316.51	222.91	291.71	301.36	1495.84	299.17
LOT TOTAL	750.85	587.69	447.60	548.78	602.44	2937.36	
LOT AVERAGE	375.43	293.85	223.80	274.39	301.22		293.74
LSD SAMPLE-POP	5% 20.40	1% 29.32	LSD LOTS	5% 32.26	1% 46.35		

ANALYSIS OF VARIANCE FOR TABLE LIV

	DF	SS	MS	F
TOTAL	9	25910		
SAMPLE-POPULATION	1	295	295	0.72 NS
LOTS	4	23989	5997	14.73 *
ERROR	4	1626	407	

TABLE LV. Analysis of the five cases of the frequency of 50 which appear in the "In-Shop" systematic sampling method column in Table XLV.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
I	7.50	5.00	6.00	11.90	6.00	39.40	7.88
O							
N	10.00	8.00	8.00	2.00	9.00	37.00	7.40
R							
D	10.00	5.00	15.00	12.50	10.00	52.50	10.50
D							
I	7.50	8.00	15.00	7.50	10.00	48.00	9.60

Table continued on next page.

TABLE LV. Continued.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
	20.00	10.00	6.00	5.00	12.00	53.00	10.60
	10.00	15.00	3.00	5.00	10.00	43.00	8.60
I	12.00	5.00	10.95	8.00	10.00	45.95	9.19
N	7.50	2.50	6.00	5.50	12.00	33.50	6.70
D	15.00	1.35	15.00	7.50	15.00	53.85	10.77
I	20.00	7.50	5.00	5.00	15.00	52.50	10.50
V	10.00	5.00	7.00	8.00	10.00	40.00	8.00
I	10.00	5.00	8.00	9.00	9.67	41.67	8.33
D	15.00	5.00	9.70	5.00	10.00	44.70	8.94
U	5.00	7.00	4.00	4.40	6.00	26.40	5.28
A	7.50	4.35	5.00	5.00	10.00	31.85	6.37
L	10.00	10.00	34.40	2.00	10.00	66.40	13.28
	5.00	5.00	5.00	6.00	10.00	31.00	6.20
O	7.50	5.00	3.00	10.00	4.00	29.50	5.90
R	10.00	4.00	5.00	10.00	10.00	39.00	7.80
D	9.00	5.00	10.00	5.00	5.00	34.00	6.80
E	5.00	14.00	9.00	6.00	9.00	43.00	8.60
R	7.50	6.00	3.50	7.50	5.00	29.50	5.90
S	5.00	5.00	3.00	7.00	10.00	30.00	6.00
	4.00	6.00	5.00	7.50	3.50	26.00	5.20
	10.00	3.50	10.00	11.00	6.00	40.50	8.10
	3.00	14.00	5.00	12.50	5.00	39.50	7.90

Table continued on next page.

TABLE LV. Continued.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
	15.00	4.00	5.00	12.00	5.00	41.00	8.20
	4.00	3.00	15.00	6.00	5.00	33.00	6.60
I	8.00	5.00	6.00	15.00	10.00	44.00	8.80
N	5.00	12.00	8.00	6.00	10.00	41.00	8.20
D	10.00	2.50	7.50	5.00	4.50	29.50	5.90
I	7.50	7.50	4.00	10.00	3.50	32.50	6.50
V	5.00	2.50	5.00	6.00	7.00	25.50	5.10
I	20.00	7.50	15.00	5.00	2.50	50.00	10.00
D	15.00	9.25	15.00	8.00	5.00	52.25	10.45
U	8.00	4.00	4.00	5.00	5.00	26.00	5.20
A	7.50	2.50	15.00	4.00	5.00	34.00	6.80
L	5.00	9.15	5.00	10.00	15.00	44.15	8.83
	5.00	7.50	20.00	12.00	6.50	51.00	10.20
O	10.00	6.00	4.00	9.00	12.50	41.50	8.30
R	7.50	10.00	5.00	10.00	5.50	38.00	7.60
D	5.00	7.00	7.50	15.00	7.50	42.00	8.40
E	12.00	6.00	5.00	8.00	10.00	41.00	8.20
R	20.00	5.00	6.00	10.00	12.00	53.00	10.60
S	9.00	5.00	5.00	15.00	7.00	41.00	8.20
	6.00	1.35	10.00	6.00	5.00	28.35	5.67
	6.00	5.00	7.50	15.00	5.50	39.00	7.80
	17.50	5.00	5.00	6.00	6.50	40.00	8.00

Table continued on next page.

TABLE LV. Continued.

	L O T S					: INDIV.	: INDIV.
	1	2	3	4	5	: TOTAL	: AVERAGE
I							
O	7.50	5.00	6.00	8.35	10.00	36.85	7.37
N							
R	12.00	5.00	7.00	15.00	7.50	46.50	9.30
D							
LOT TOTAL	470.50	307.95	409.05	410.15	405.17	2002.82	
LOT							
AVERAGE	9.41	6.16	8.18	8.20	8.10		8.01

LSD LOTS 5% 1.14 1% 1.51

ANALYSIS OF VARIANCE FOR TABLE LV.

	DF	SS	MS	F
TOTAL	249	4362		
LOTS	4	273	68.25	4.04 **
INDIVIDUALS	49	777	15.86	0.94 NS
ERROR	196	3312	16.90	

TABLE LVI. Comparison of the five cases of a frequency of 50 which appear in the "In-Shop" systematic sampling column in Table XLV and the corresponding population values divided by 10.

	L O T S					: SAMPLE- : POPUL.	: SAMPLE- : POPUL.
	1	2	3	4	5	: TOTAL	: AVERAGE
SAMPLE	470.50	307.95	409.05	410.15	405.17	2002.82	400.56
POP/10	454.92	299.92	452.48	410.88	429.11	2047.31	409.46
LOT TOTAL	925.42	607.87	861.53	821.03	834.28	4050.13	
LOT							
AVERAGE	462.71	303.94	430.77	410.52	417.14		405.01

LSD SAMPLE-POP 5% 17.39 1% 24.99 LSD LOTS 5% 27.53 1% 39.55

ANALYSIS OF VARIANCE FOR TABLE LVI.

	DF	SS	MS	F
TOTAL	9	30156		
SAMPLE-POPULATION	1	198	198	0.67 NS
LOTS	4	28773	7194	24.30 **
ERROR	4	1185	296	

TABLE LVII. Percentage relationship of the "In-Shop" systematic samples multiplied by 10, to the population in the case of all retail sales.

		M		O		N		T		H		S					
		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		JANUARY		:SAMPLE AVERAGE:	:SHOP AVERAGE
		Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value
O U T	25-1 : X	97.88	100.28	100.22	94.52	96.47	83.13	100.99	102.98	100.00	87.25	99.19	97.10	101.64	89.19	99.63	93.70
	Y	97.88	97.25	102.40	94.07	96.47	106.77	99.34	88.26	100.00	88.81	99.19	97.49	100.00	105.07	99.41	96.84
	AVERAGE	97.88	98.77	101.31	94.29	96.47	94.95	100.17	95.62	100.00	88.03	99.19	97.29	100.82	97.13		99.52 95.27
J A C	25-1 : X	97.63	107.10	101.17	100.68	97.31	91.42	99.14	94.15	98.70	104.67	99.59	116.07	100.54	104.93	99.25	103.91
	Y	100.59	112.51	98.57	91.42	101.80	91.88	97.92	92.31	100.00	85.16	100.27	80.28	99.18	90.22	99.76	90.90
	AVERAGE	99.11	109.81	99.87	96.05	99.55	91.65	98.53	93.23	99.35	94.91	99.93	98.17	99.86	97.58		99.51 97.40
K S O	25-2 : X	97.35	90.88	95.53	130.79	100.40	90.40	101.37	87.81	96.73	86.82	99.79	107.89	98.68	92.47	98.58	99.43
	Y	101.77	105.43	98.61	72.30	102.41	102.97	97.94	95.72	102.68	111.21	100.82	99.50	100.33	105.71	100.60	98.64
	AVERAGE	99.56	98.16	97.07	101.55	101.41	96.68	99.66	91.76	99.70	99.02	100.31	103.69	99.51	99.09		99.59 99.04
N S H	25-3 : X	97.14	68.36	88.67	77.84	100.56	162.66	96.77	78.63	104.65	110.35	98.00	94.37	103.26	108.43	98.49	99.28
	Y	97.14	102.02	98.52	94.96	100.56	65.93	101.38	102.70	96.90	83.12	100.22	93.92	97.83	94.26	99.08	91.87
	AVERAGE	97.14	85.19	93.60	86.40	100.56	116.30	99.08	90.67	100.78	96.74	99.11	94.14	100.54	101.35		98.78 95.57
P S	41-1 : X	99.20	108.81	101.35	97.88	98.71	138.98	97.65	95.11	100.18	101.21	100.46	109.48	90.74	98.39	98.53	106.15
	Y	99.20	103.09	96.85	97.90	102.00	88.68	99.46	96.83	100.18	119.42	102.28	110.32	98.30	100.76	100.28	103.85
	AVERAGE	99.20	105.95	99.10	97.89	100.85	113.93	98.55	95.97	100.18	110.32	101.37	109.90	94.52	99.57		99.41 105.00
	78-1 : X	96.51	97.88	97.17	79.08	99.79	95.47	98.45	85.04	100.94	96.14	98.81	110.25	101.01	100.80	98.91	99.73
	Y	96.51	93.69	103.24	93.24	95.63	102.40	100.17	119.27	100.94	99.85	103.92	98.14	98.48	87.29	100.10	99.39
	AVERAGE	96.51	95.79	100.20	86.25	97.71	98.94	99.31	102.15	100.94	98.00	101.36	119.19	99.75	94.04		99.52 99.56
AREA-MONTHLY AVERAGE		98.47	102.56	99.01	96.07	99.38	98.61	99.19	94.39	100.00	97.63	100.19	102.24	99.08	98.02		AREA AVERAGE 99.45 98.68

Table continued on next page.

TABLE LVIII. Continued.

		M O N T H S																	
		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		JANUARY		SAMPLE AVERAGE		SHOP AVERAGE	
		Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value
38-1 :	X	97.97	98.59	100.55	100.36	99.67	88.87	100.20	90.80	100.00	104.35	99.25	93.47	100.20	96.30	99.69	95.63		
I	Y	101.55	98.26	99.63	100.74	100.49	107.51	100.20	103.57	100.00	106.43	99.25	96.08	99.52	107.10	99.97	102.05		
N	AVERAGE	99.76	98.42	100.09	100.55	100.08	98.19	100.20	97.19	100.00	105.39	99.40	94.78	99.86	101.70			99.83	98.84
38-2 :	X	101.01	92.26	100.14	103.64	99.88	109.15	99.49	120.82	99.63	90.91	98.90	88.74	100.19	104.10	99.71	100.03		
J	Y	98.12	95.01	100.14	95.60	99.88	87.12	99.49	109.31	99.63	99.40	99.42	100.41	100.19	110.59	99.57	100.26		
A	AVERAGE	99.58	93.64	100.14	99.62	99.88	98.14	99.49	115.07	99.63	95.16	99.16	94.57	100.19	107.34			99.64	100.14
C																			
K 38-3 :	X	89.55	110.08	97.56	80.87	102.27	60.59	100.50	80.28	102.15	100.26	96.00	81.02	101.80	97.64	98.80	85.81		
S	Y	104.48	271.60	97.56	68.01	102.27	49.41	95.48	152.29	102.15	76.03	101.33	83.87	101.80	92.44	100.48	111.58		
O	AVERAGE	97.01	190.84	97.56	74.44	102.27	55.00	97.99	116.29	102.15	88.15	98.67	82.45	101.80	95.05			99.64	98.70
N																			
38-4 :	X	85.37	70.98	87.50	87.88	114.40	163.91	104.17	94.90	100.00	93.54	100.96	89.48	98.29	94.81	99.78	99.85		
S	Y	97.56	69.79	112.50	99.44	96.49	103.33	104.17	73.52	90.91	83.33	100.96	97.82	98.29	105.99	99.78	91.45		
H	AVERAGE	91.46	70.38	100.00	93.66	105.26	133.62	104.17	84.21	95.45	88.44	100.96	93.65	98.29	100.41			99.78	94.97
O																			
38-5 :	X	97.67	108.21	84.11	106.37	100.38	92.63	99.42	88.32	100.73	102.77	97.89	95.88	100.27	86.79	97.90	96.49		
P	Y	100.00	79.99	84.11	75.03	100.38	81.05	99.42	102.42	99.27	109.18	96.39	99.01	100.27	107.37	97.50	95.59		
S	AVERAGE	98.84	94.10	84.11	90.70	100.38	86.84	99.42	95.37	100.00	105.98	97.44	97.45	100.27	97.08			97.70	96.04
38-6 :	X	98.36	110.92	105.96	224.97	99.10	82.69	96.15	72.33	101.77	86.31	86.85	95.53	100.44	81.96	96.66	102.61		
	Y	98.36	88.81	99.34	135.19	99.10	88.50	100.00	97.18	101.77	100.52	89.20	100.54	100.44	88.85	97.24	99.23		
	AVERAGE	98.36	99.86	102.65	180.08	99.10	85.60	98.08	84.76	101.77	93.42	88.03	98.03	100.44	85.41			96.95	100.92
AREA-MONTHLY																			
AVERAGE		99.03	100.11	97.52	104.23	100.26	94.62	99.76	101.01	99.98	100.45	98.31	94.75	100.05	101.22			AREA AVERAGE	
GRAND AVER.		98.73	101.53	98.32	99.40	99.83	97.12	99.49	97.36	99.98	98.84	99.13	98.57	99.62	99.44			99.32	98.76

TABLE LVIII. Percentage relationship of the "In-Shop" systematic samples multiplied by 10, to the population in the case of arrangement sales

		M		O		N		T		H		S			
		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		JANUARY	
		Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value
														:SAMPLE AVERAGE	
														:SHOP AVERAGE	
O	23-1 : X	80.25	96.94	82.90	90.83	86.96	87.93	205.13	126.37	93.33	78.86	100.56	107.40	87.12	94.98
	Y	117.28	123.27	98.45	107.03	104.35	107.29	119.66	88.11	93.33	84.52	100.56	95.78	109.85	116.44
	AVERAGE	98.77	110.11	90.67	98.93	95.65	97.52	162.39	107.25	93.33	81.69	100.56	101.59	98.48	105.71
U	25-1 : X	98.33	104.85	92.00	81.25	110.85	107.56	95.33	92.97	93.56	98.25	96.62	106.65	95.56	98.20
	Y	104.60	103.42	104.00	104.62	103.93	94.15	110.28	101.88	101.87	94.81	101.45	101.38	104.45	111.13
	AVERAGE	101.46	104.14	98.00	92.94	107.39	100.86	102.80	97.43	97.71	96.53	99.03	104.01	100.00	104.66
J	25-2 : X	88.24	102.17	92.14	91.37	95.24	95.18	106.19	109.55	85.00	78.76	108.70	110.67	92.44	87.82
	Y	104.58	112.79	94.85	98.16	123.81	118.94	112.09	125.50	105.00	90.87	108.70	108.95	102.31	104.95
	AVERAGE	96.41	107.50	93.50	94.76	109.52	107.06	109.14	117.57	95.00	84.81	108.70	109.81	97.36	96.39
A	25-3 : X	72.92	65.97	93.22	99.54	108.91	110.00	68.63	62.51	120.37	106.84	138.89	131.14	116.28	117.53
	Y	104.17	89.89	110.17	103.20	108.91	90.44	107.84	80.40	101.85	101.92	92.59	109.85	69.77	73.36
	AVERAGE	88.54	77.93	101.69	101.37	108.91	100.22	88.24	71.46	111.11	104.38	115.74	120.50	93.02	95.44
S	41-1 : X	120.93	117.25	121.21	128.33	74.07	70.35	111.84	114.35	136.03	142.15	79.75	79.85	101.01	112.21
	Y	102.33	117.09	113.64	116.71	92.59	98.43	82.24	93.81	99.26	93.78	125.77	126.20	101.01	102.75
	AVERAGE	111.63	117.17	117.42	122.52	83.33	84.39	97.04	104.08	117.65	117.96	102.76	103.03	101.01	107.48
H	78-1 : X	101.91	117.98	87.63	76.80	100.56	113.25	67.11	55.20	100.00	84.07	65.93	56.40	108.25	93.74
	Y	111.45	114.02	113.40	105.35	111.73	91.32	93.96	98.19	85.71	79.76	142.86	133.84	103.09	105.42
	AVERAGE	108.28	116.00	100.52	91.07	106.15	102.28	80.54	76.70	92.86	81.92	104.40	95.12	105.67	99.58
AREA-MONTHLY AVERAGE		101.44	107.04	99.82	98.76	103.00	100.03	100.56	100.52	100.26	94.11	103.83	105.45	99.74	102.61
		AREA AVERAGE 101.14 101.05													

Table continued on next page.

TABLE LVIII. Continued.

		M O N T H S																	
		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		JANUARY		:SAMPLE AVERAGE:		:SHOP AVERAGE	
		Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value
I	38-1 : X	81.72	91.46	82.35	90.15	106.15	93.15	102.14	95.50	99.66	99.60	90.03	86.51	100.16	93.30	94.89	92.70		
	Y	101.08	97.81	95.80	99.70	100.56	94.80	103.97	100.41	97.97	101.21	106.11	113.62	114.24	124.05	103.02	105.09		
	AVERAGE	91.40	94.64	89.08	94.94	103.35	93.98	102.97	97.62	98.82	100.41	98.07	100.06	107.20	106.49			98.96	98.89
J	38-2 : X	107.50	104.46	99.32	96.67	99.49	96.38	110.62	102.68	74.32	73.06	92.67	85.89	103.98	109.61	98.12	95.63		
	Y	105.00	100.29	108.35	101.36	96.94	93.83	101.77	106.86	103.60	93.23	96.98	93.92	88.50	85.68	100.09	96.34		
	AVERAGE	106.25	102.38	103.84	98.85	98.21	95.10	106.19	104.77	88.96	83.14	94.83	89.90	96.24	97.65			99.10	95.99
K	38-3 : X	83.33	121.32	121.95	134.55	85.11	75.80	67.57	60.18	98.04	107.70	108.11	144.37	86.21	100.03	91.91	103.59		
	Y	83.33	69.99	97.56	76.96	106.38	121.61	94.59	107.94	58.82	38.63	94.59	82.50	68.97	84.99	86.58	86.21		
	AVERAGE	83.33	95.66	109.76	105.76	95.74	98.71	81.08	84.08	78.43	73.39	101.35	113.45	77.59	92.81			89.34	94.88
L	38-4 : X	78.43	91.80	100.00	128.00	204.55	258.62	93.02	126.39	100.00	109.54	162.16	116.32	51.28	43.64	111.98	132.38		
	Y	98.04	91.80	100.00	132.00	68.18	70.88	93.02	74.28	50.00	44.26	54.05	60.34	102.56	143.03	82.26	83.31		
	AVERAGE	88.24	91.80	100.00	130.00	136.36	164.75	93.02	100.35	75.00	76.92	108.11	103.23	76.92	93.33			97.00	110.32
M	38-5 : X	98.52	86.32	84.34	78.76	74.29	90.93	101.32	99.78	104.80	101.68	98.31	111.93	78.13	73.53	91.63	91.99		
	Y	98.52	79.32	84.34	103.05	97.11	98.22	88.11	83.18	91.70	116.88	98.31	82.75	112.50	116.59	97.23	101.86		
	AVERAGE	98.52	82.82	84.34	90.91	85.71	94.58	94.71	91.49	93.89	124.28	98.31	97.34	95.31	95.06			94.45	96.93
N	38-6 : X	125.93	141.34	98.90	95.39	90.91	87.04	116.28	104.14	84.03	86.78	79.55	72.03	89.29	86.40	99.30	98.33		
	Y	103.70	98.41	131.87	138.24	106.06	97.79	93.02	103.12	134.45	130.17	79.55	92.40	98.21	100.38	106.78	107.65		
	AVERAGE	114.81	119.87	115.38	116.81	98.48	92.42	104.65	103.63	109.24	108.47	79.55	82.22	93.75	93.39			103.04	103.00
AREA-MONTHLY																		AREA AVERAGE	
AVERAGE		99.21	98.13	95.97	98.33	99.82	96.37	101.53	99.03	95.28	98.41	96.54	95.85	99.07	101.34			98.19	98.26
GRAND AVER.		100.43	103.16	98.06	98.58	101.46	98.36	101.03	99.86	97.86	95.90	100.01	100.88	99.43	102.05			99.70	99.82

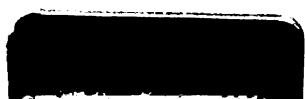
TABLE LVIII. Percentage relationship of the "In-Shop" systematic samples multiplied by 10, to the population in the case of arrangement sales

		M		O		N		T		H		S			
		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		JANUARY	
		Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value
														:SAMPLE AVERAGE	
														:SHOP AVERAGE	
O	23-1 : X	80.25	96.94	82.90	90.83	86.96	87.93	205.13	126.37	93.33	78.86	100.56	107.40	87.12	94.98
	Y	117.28	123.27	98.45	107.03	104.35	107.29	119.66	88.11	93.33	84.52	100.56	95.78	109.85	116.44
	AVERAGE	98.77	110.11	90.67	98.93	95.65	97.52	162.39	107.25	93.33	81.69	100.56	101.59	98.48	105.71
U	25-1 : X	98.33	104.85	92.00	81.25	110.85	107.56	95.33	92.97	93.56	98.25	96.62	106.65	95.56	98.20
	Y	104.60	103.42	104.00	104.62	103.93	94.15	110.28	101.88	101.87	94.81	101.45	101.38	104.45	111.13
	AVERAGE	101.46	104.14	98.00	92.94	107.39	100.86	102.80	97.43	97.71	96.53	99.03	104.01	100.00	104.66
J	25-2 : X	88.24	102.17	92.14	91.37	95.24	95.18	106.19	109.55	85.00	78.76	108.70	110.67	92.44	87.82
	Y	104.58	112.79	94.85	98.16	123.81	118.94	112.09	125.50	105.00	90.87	108.70	108.95	102.31	104.95
	AVERAGE	96.41	107.50	93.50	94.76	109.52	107.06	109.14	117.57	95.00	84.81	108.70	109.81	97.36	96.39
A	25-3 : X	72.92	65.97	93.22	99.54	108.91	110.00	68.63	62.51	120.37	106.84	138.89	131.14	116.28	117.53
	Y	104.17	89.89	110.17	103.20	108.91	90.44	107.84	80.40	101.85	101.92	92.59	109.85	69.77	73.36
	AVERAGE	88.54	77.93	101.69	101.37	108.91	100.22	88.24	71.46	111.11	104.38	115.74	120.50	93.02	95.44
S	41-1 : X	120.93	117.25	121.21	128.33	74.07	70.35	111.84	114.35	136.03	142.15	79.75	79.85	101.01	112.21
	Y	102.33	117.09	113.64	116.71	92.59	98.43	82.24	93.81	99.26	93.78	125.77	126.20	101.01	102.75
	AVERAGE	111.63	117.17	117.42	122.52	83.33	84.39	97.04	104.08	117.65	117.96	102.76	103.03	101.01	107.48
H	78-1 : X	101.91	117.98	87.63	76.80	100.56	113.25	67.11	55.20	100.00	84.07	65.93	56.40	108.25	93.74
	Y	111.45	114.02	113.40	105.35	111.73	91.32	93.96	98.19	85.71	79.76	142.86	133.84	103.09	105.42
	AVERAGE	108.28	116.00	100.52	91.07	106.15	102.28	80.54	76.70	92.86	81.92	104.40	95.12	105.67	99.58
AREA-MONTHLY AVERAGE		101.44	107.04	99.82	98.76	103.00	100.03	100.56	100.52	100.26	94.11	103.83	105.45	99.74	102.61
		AREA AVERAGE 101.14 101.05													

Table continued on next page.

TABLE LVIII. Continued.

		M		O		N		T		H		S					
		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		JANUARY		:SAMPLE AVERAGE:SHOP AVERAGE	
		Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value	Freq	Value
I N	38-1 : X	81.72	91.46	82.35	90.15	106.15	93.15	102.14	95.50	99.66	99.60	90.03	86.51	100.16	93.30	94.89	92.70
	Y	101.08	97.81	95.80	99.70	100.56	94.80	103.97	100.41	97.97	101.21	106.11	113.62	114.24	124.05	103.02	105.09
	AVERAGE	91.40	94.64	89.08	94.94	103.35	93.98	102.97	97.62	98.82	100.41	98.07	100.06	107.20	106.49		98.96 98.89
J A C	38-2 : X	107.50	104.46	99.32	96.67	99.49	96.38	110.62	102.68	74.32	73.06	92.67	85.89	103.98	109.61	98.12	95.63
	Y	105.00	100.29	108.35	101.36	96.94	93.83	101.77	106.86	103.60	93.23	96.98	93.92	88.50	85.68	100.09	96.34
	AVERAGE	106.25	102.38	103.84	98.85	98.21	95.10	106.19	104.77	88.96	83.14	94.83	89.90	96.24	97.65		99.10 95.99
K S O N	38-3 : X	83.33	121.32	121.95	134.55	85.11	75.80	67.57	60.18	98.04	107.70	108.11	144.37	86.21	100.03	91.91	103.59
	Y	83.33	69.99	97.56	76.96	106.38	121.61	94.59	107.94	58.82	38.63	94.59	82.50	68.97	84.99	86.58	86.21
	AVERAGE	83.33	95.66	109.76	105.76	95.74	98.71	81.08	84.08	78.43	73.39	101.35	113.45	77.59	92.81		89.34 94.88
S H	38-4 : X	78.43	91.80	100.00	128.00	204.55	258.62	93.02	126.39	100.00	109.54	162.16	116.32	51.28	43.64	111.98	132.38
	Y	98.04	91.80	100.00	132.00	68.18	70.88	93.02	74.28	50.00	44.26	54.05	60.34	102.56	143.03	82.26	83.31
	AVERAGE	88.24	91.80	100.00	130.00	136.36	164.75	93.02	100.35	75.00	76.92	108.11	103.23	76.92	93.33		97.00 110.32
O P S	38-5 : X	98.52	86.32	84.34	78.76	74.29	90.93	101.32	99.78	104.80	101.68	98.31	111.93	78.13	73.53	91.63	91.99
	Y	98.52	79.32	84.34	103.05	97.11	98.22	88.11	83.18	91.70	116.88	98.31	82.75	112.50	116.59	97.23	101.86
	AVERAGE	98.52	82.82	84.34	90.91	85.71	94.58	94.71	91.49	93.89	124.28	98.31	97.34	95.31	95.06		94.45 96.93
	38-6 : X	125.93	141.34	98.90	95.39	90.91	87.04	116.28	104.14	84.03	86.78	79.55	72.03	89.29	86.40	99.30	98.33
	Y	103.70	98.41	131.87	138.24	106.06	97.79	93.02	103.12	134.45	130.17	79.55	92.40	98.21	100.36	106.78	107.65
	AVERAGE	114.81	119.87	115.38	116.81	98.48	92.42	104.65	103.63	109.24	108.47	79.55	82.22	93.75	93.39		103.04 103.00
AREA-MONTHLY AVERAGE		99.21	98.13	95.97	98.33	99.82	96.37	101.53	99.03	95.28	98.41	96.54	95.85	99.07	101.34		AREA AVERAGE 98.19 98.26
GRAND AVER.		100.43	103.16	98.06	98.58	101.46	98.36	101.03	99.86	97.86	95.90	100.01	100.88	99.43	102.05		99.70 99.82



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