A STUDY OF QUALITY AND RETAIL PRICES
OF
OHIO-PACKED VEGETABLES

Chas. W. Hauck

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Ohio State University
and
Ohio Agricultural Experiment Station

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by
Chas. W. Hauck
Department of Rural Economics
Ohio Agricultural Experiment Station

At the suggestion of the Ohio Canners Association, and with the financial support and full cooperation of that organization, this study was undertaken. Its purpose is to measure the quality of Ohio packed corn and tomatoes, as purchased at random in representative retail grocery stores in three large Ohio cities, to ascertain the prices at which these brands are sold to consumers, and to determine the relationships existing between quality and price.

During the early part of November, 1939, almost 200 stores were visited in Cincinnati, Cleveland and Columbus. These stores were selected at random. They were located in various parts of these cities, some in good neighborhood shopping districts, some in poor neighborhoods, a few in downtown business districts, and a few in suburban areas. Some were corporate chain stores, some voluntary chains, and some independents.

As many brands of Ohio packed corn and tomatoes as possible were bought in these stores.[1] Duplications of brands were avoided as much as possible, and no cans were purchased which did not bear the identifying label of some Ohio packer. One can of each Ohio brand in stock was bought at the current retail price.

In many of the stores visited no purchases were made, either because all the corn and tomatoes stocked bore distributor's labels which did not permit identification of the source of the merchandise, or because the Ohio brands in stock already had been purchased elsewhere in sufficient quantity for the purposes of the study. As a matter of fact, sample cans of corn were purchased in only 35 of these stores, and tomatoes in only 45 stores. Owing to the preponderance of merchandise bearing distributors' labels, some difficulty was encountered in assembling the samples.

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[1] For purposes of equitable comparison purchases were restricted to No. 2 cans.

Sixty-five No. 2 cans of each commodity were bought, representing 43 brands of corn packed by 23 packers, and 35 brands of tomatoes packed by 25 packers. Of these brands of corn, 26 were represented among the samples by 1 can each, 13 by 2 each, 3 by 3 each, and 1 by 4. Of these brands of tomatoes, 20 were represented by 1 can each, 8 by 2 each, 4 by 3 each, 1 by 4, 1 by 5, and 1 by 7.

One of the cans labeled "tomatoes" and purchased as such was found upon examination of the contents to consist entirely of juice (no solids) and since, therefore, no grade or quality score could be determined for this sample it was rejected, and all computations and conclusions hereinafter described were based (for tomatoes) on the remaining 64 samples.

The price paid for each can and the place of purchase were recorded. The label then was removed from the can and a code symbol attached for identification, after which all cans were submitted to the Columbus laboratory of the Canned Foods Grading Service of the United States Department of Agriculture for scoring as to quality. The official graders had no knowledge of the brands being scored.

Following determination of the quality scores for all samples, averages of quality and of price were computed for each commodity, each packer, each city, and each type of store. Measures of relationship between quality and price were calculated. These are recorded in the following pages, together with certain conclusions which were indicated.

Origin of the Samples

Of the 65 sample cans of corn, 26 representing 13 packers were purchased in Cleveland; 20, representing 11 packers, in Cincinnati; and 19, representing 9 packers, in Columbus. Of the 64 sample cans of tomatoes 18, representing 7 packers were purchased in Cleveland; 29, representing 12 packers, in Cincinnati; and 17, representing 10 packers, in Columbus. See Table I.

Purchases of corn were made in 22 independent stores (including voluntary chains) and in 13 corporate chain stores. Tomatoes were purchased in 26 independent stores and in 19 chain stores. The cities in which these stores are located are shown in Table II.

As stated heretofore, these stores were selected at random, no attempt being made to distribute the purchases among the various types of stores nor among types of locations in exactly the same proportions as those existing among all the stores in these cities. Though for this reason it cannot be stated with certainty that the stores visited represented an exact cross-section of the retail market in those cities, yet enough stores were visited in the course of assembling the samples to insure that these samples do typify accurately if they do not reflect completely the brands of Ohio packers available in those cities at the time.

Prices

Corn prices averaged a bit under $8\frac{1}{2}$ cents a can, and tomato prices about 8 1/4 cents a can. See Tables III and IV.

Yet wide variations were found in the prices charged. Prices of corn varied from 5.5 cents to 15 cents a can, the highest quotation being almost 3 times as high as the lowest. Prices of tomatoes, varied from 5.5 cents to 14 cents a can, the highest price being about $2\frac{1}{2}$ times the lowest. In several cases where duplicate purchases were made of a given brand, substantial differences were found in the prices at which that brand was offered in different stores and in different cities. Obviously there was little uniformity in the pricing practices followed in these stores. Variations in prices charged for the goods of each packer are revealed in Tables V and VI.

Prices of both corn and tomatoes averaged lower in Cincinnati than in Cleveland or Columbus. See Tables VII and VIII. This may have been due to a disproportionately larger number of corporate chain stores having been included there than in either of the other two cities, in view of the fact that prices were found to be lower in that type of store than in other types.

In the corporate chain stores corn prices averaged $6\frac{1}{2}$ cents a can, while in the independent stores (including voluntary chains) prices averaged almost 10 cents, or 50 per cent more than in the chains. Tomato prices in the chain stores averaged 6 1/3 cents as compared with 9 3/4 cents in the independents. Here again the independents charged about 50 per cent more than the chains. See Tables IX and X.

Quality Scores

The quality of these samples likewise varied widely. When subjected to examination and comparison with standard specifications of the U. S. Department of Agriculture, it was found that the scores of the corn samples ranged from 61 to 95, averaging 75.4, and the scores of the tomato samples ranged from 43 to 93, averaging 76.2. See Tables III and IV.

Caution must be exercised in interpreting these average scores. It is quite likely that the brands included in these samples do not represent in proper proportion the grades of these products packed by these Ohio packers. Very few of the labels disclosed whether the contents of the can was represented to be "Fancy", "Extra Standard", or "Standard" merchandise. If, for example, these brands largely are employed to identify "Standard" goods, then doubtless the average quality score attained by grading these samples is lower than the average of the pack in Ohio. If, on the other hand, they largely are used to identify "Fancy" goods, the average is too high. In any event, these indexes of the quality of the samples should not be understood as a measure of the quality of the corn and tomatoes packed in Ohio, or even by these packers.

Some considerable differences in quality showed up between the poorest and best samples packed by certain of these packers, even under the same label. To illustrate, one brand of tomatoes of which 7 cans were purchased, 4 in Cleveland, 1 in Cincinnati, and 2 in Columbus, ranged in quality from 60 to 85, a range of 25 points and an average of 74.9. The variations in quality scores and the average score of the corn and tomatoes packed by each packer are shown in Tables V and VI.

The average quality of the corn bought in the three cities was almost identical, being 74.6 in Cleveland, 75.6 in Cincinnati and 76.3 in Columbus. Tomato quality varied somewhat more, though the differences have slight significance. The quality scores of the tomatoes bought in Columbus averaged 73.8, in Cincinnati 76.4, and in Cleveland 78.1. See Tables VII and VIII.

No real differences in quality may be observed when the chain store samples are compared with those bought in independent stores. The average quality of the chain store samples of corn was 76.1 and of the independent store samples

74.9. The average quality of the tomatoes bought in these two groups of stores was practically identical - 76.3 in the chain stores, and 76.4 in the independents. See Tables IX and X.

Price-Quality Relationships

It is generally believed by consumers, and doubtless by most producers and distributors as well, that retail prices and quality are closely associated, that is, that in the main high prices accompany high quality and low prices low quality. All advertising, all selling practices, and much of the literature in the field of merchandising serve to confirm this conviction.

The normal expectation of the housewife when purchasing canned vegetables, as when buying other consumers' goods, is that she shall receive premium quality if she pays a premium price, and that she shall, on the other hand, get correspondingly lower quality if the price is low. Though she may have encountered many experiences which do not tally with this expectation, nevertheless she is inclined to regard these as exceptional instances and to continue without seriously doubting the infallibility of the rule.

It is probably safe to assume also that the average canner has faith that in the long run retail prices and quality of his brands of merchandise are closely associated. Despite certain wholesale transactions which he knows have violated this rule, his belief is unshaken. Sales of top quality merchandise which he has been obliged to make at too low a price because of an emergency need for funds or a depressed market frequently are offset by other transactions wherein by some advantageous circumstances he is able to exact a higher price than warranted by the quality of the goods. Because of these experiences he may doubt his own ability or even the ability of the industry to keep wholesale prices in line with quality, yet he does not question the "law" that retail prices and quality march hand in hand. His entire business philosophy is predicated upon this belief.

Yet the quality scores and retail prices of the samples employed in this study raise a very considerable doubt about the reality of the assumed tendency of these factors to vary together.

In Tables III and IV it will be noted that the samples are arrayed in the order of magnitude of the quality scores, that is, ranging from the highest score at the top to the lowest score at the bottom. It is apparent at once that the corresponding prices do not vary in the same proportion. There is no obvious order among these prices. Some of the higher prices accompany the higher scores, and some of them the lower scores. Likewise, some of the lower prices are found both at the top and at the bottom of the table of quality scores. An especially noteworthy illustration is to be found among the tomato samples (Table IV) where the 5 samples scoring highest averaged 92.4 and sold at an average price of 7.75 cents, while the 5 poorest averaged only 56.2 and sold at an average price of 8.25 cents.

The relationships of quality to price have been measured statistically. The series of paired variables have been plotted in Figures 1 and 2 with quality dependent upon price. In each of these figures the line of best fit, in the least squares sense, has been imposed upon the scatter diagram, accompanied by respective zones of estimate./2

A glance at the figures will reveal that approximately two-thirds of the actual observations fell within ± one standard error about the regression line. This, of course, conforms well with theory, that the distribution of the residuals about the line is normal.

To interpret these diagrams somewhat more realistically, it may be said that if one were to have attempted to predict the quality of a given can of corn, let us say, from the retail price, he would have found it pretty difficult to come close. At any given price, his chances would have been about 2 to 1 that the quality would fall within a range of 18.4 points about the quality score shown on the regression line at that price. For example, if the price were 10 cents, the chances are 2 to 1 that the quality would score somewhere between 68.2 and 86.6. To put it another way, of all the cans of corn bought at 10 cents, about two-thirds

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/2 The equations of the line of best fit are as follows:
Corn, $Y = 68.03 + .87X$; Tomatoes, $Y = 71.09 + .62X$.
The standard errors of estimate (S_y) are as follows:
Corn, 8.93; Tomatoes, 9.23.

might be expected to score somewhere within that range and about one-third somewhere above or below those limits.

Prediction of quality from a known price would be about as difficult with tomatoes as with corn, except that the range included within the zones of estimate is slightly smaller. It is clear that in both commodities price alone was wholly unreliable as a useful index to quality.

A further measure of the relationship of quality to price is the coefficient of correlation. This coefficient (conventionally symbolized by "r") is an abstract number indicating the extent of the association between the paired variables, in these cases quality and retail price.

The correlation coefficient may vary potentially between +1.00, indicating perfect positive correlation, and -1.00, indicating perfect negative correlation. Values of $\pm$ .50 are regarded as indicating no more than a moderate degree of association, and smaller values are considered as being almost or wholly without significance.

In the present instances the coefficients are extremely small, revealing very slight (if any) real association between these two factors. The coefficient of the 65 corn samples is + .22 and that of the 64 tomato samples is + .10.

It will be noted that both these values are positive, as indicated by the upward slope to the right of the line of regression. That is to say, as prices increased there was a slight tendency for quality also to increase. A negative relationship, with quality declining as prices advanced, would be represented by a line sloping downward to the right.

Figures 1 and 2 reveal a further fact which should be noted. A strong tendency is apparent for the prices of both commodities to cluster at various traditional levels. For example, 5 corn samples were priced at 4 for 23 cents, 12 at 4 for 25 cents, 5 at 2 for 15 cents, 7 at 3 for 25 cents, 20 at 10 cents, and 5 at 2 for 25 cents. Thus 54 (83%) of the 65 samples were quoted at these 6 prices, while the remaining 11 were distributed among 7 separate prices.

This traditional pricing practice tended to disguise and to lessen the relationships between quality and price. A number of different quality scores are

likely to be associated with a given price.

A comparison was made between the chain store samples and the independent store samples, in the hope of determining which group showed the closer association between quality and price. It was found that the number of observations in each group was too small to give reliability to the coefficients, and therefore, these measures are not included here. The attempted comparison was found to be impossible with so small a number of observations. It would be of interest to secure enough additional samples to give stability to the coefficients, and by this means to ascertain which type of stores maintain the closer relationships between their prices and the quality of their merchandise.

Summary and Conclusions

Certain observations resulting from this inquiry appear to have enough significance to warrant repetition here:

(1) In both commodities studied the quality varied widely. Quality scores of the corn samples ranged from 61 to 95, and of the tomato samples from 43 to 93.

(2) Prices likewise varied widely, from 5.5 to 15 cents in the corn samples, and from 5.5 to 14 cents in the tomato samples.

(3) Prices showed only a very slight tendency to vary with quality, and therefore, were almost wholly unreliable as guides to quality.

(4) Independent stores charged 50 per cent more than chain stores, for the same quality. This should not be interpreted necessarily to mean that all items in chain stores are cheaper, nor that the canning trade should for this reason refuse to book chain store business. It is quite possible that these low prices stimulate consumption to the point that the additional volume moved by the chains compensates to some extent for the lower price per unit.

This lack of association between quality and prices is partly traceable to "sticky prices," that is, to the retailers' tendency to quote goods at certain habitual prices. At identical prices quality varied widely; for example, at 6.25 cents per can the quality scores of the corn samples varied from 67 to 92, and at

10 cents from 64 to 92. It is evident that a number of factors other than quality exercise more or less influence jointly in determining the retail price.

In addition to this habitual pricing practice, perhaps the more obvious of these factors are brand preferences, type of store, and character of the neighborhood or patronage. No attempt was made here to measure or even to record these factors, though it should be pointed out that as buying guides brand names in many instances failed about as badly as prices.

The wide variations in quality found in the contents of two or more cans bearing identical labels have been illustrated on page 4. Other evidences appeared that brand names and quality claims on labels were not always dependable buying guides. One can of tomatoes, for example, carried this statement: "This can is packed entirely by hand with tomatoes solid from bottom to top. Prepared from fully ripe fine flavored Ohio-grown tomatoes. Eat them raw or cooked. You will find this can of good tomatoes is worth twice as much as a poor one." The can contained only tomato juice - no solids.

Of 64 tomato samples, 19 cans bore on the labels such claims for high quality as "Fancy," "Selected Hand Packed," "Best Buy," "Quality Supreme," "High Quality Pure Food," "Distinctively Different," and "Extra Hand Packed - Rich in Vitamins." The quality scores of these 19 samples averaged 76.8. The quality scores of the 45 samples bearing no such claims averaged 75.9, or so nearly the same as to represent no significant different. Of 65 corn samples, 6 bore designations like "Fancy," "Finest Quality," "Extra Standard," and "Packed Fresh from Fields - Retains All of Nature's Vitamins." The quality scores of these 6 samples averaged 75.2. The quality scores of the 59 samples bearing no such claims averaged 75.4, again almost identically the same.

All these terms tend to convey to the layman, by positive claim or by implication, an impression of high quality. Though certain of these designations are commonly understood in the trade to describe lower quality ("Extra Standard" = second grade), nevertheless the consumer who is unfamiliar with trade terminology is pretty certain to attach to these terms the usual dictionary definition and to interpret all of them as indications of the highest quality. It is obvious that

these designations as used on these cans of corn and tomatoes were of no value whatever to consumers in identifying the quality of the contents.

The significance of these results to the consumer doubtless is apparent. A closer relationship between prices and quality would enable the consumer to select merchandise more intelligently and more economically.

Consumers are notoriously uninformed and unskilled in recognizing any but extreme distinctions in quality even of unpackaged, unprocessed fruits and vegetables before purchase, though the goods be displayed in bulk and readily available for examination. When the goods are enclosed in cans that are sealed, rigid and opaque, her uncertainty about the utility of the contents is even further increased. As a consequence she has come to rely upon the price as a buying guide.

But we have seen that price alone merits no confi ence as a basis for predicting quality. We have observed also that brand names frequently cannot be depended upon - that a given brand sometimes varies both in quality and in price. Moreover, personal familiarity with the actual quality of all competing goods is out of the question for the average consumer. Even granting complete freedom from inaccuracies and misrepresentations in vendors' claims and on labels, the multiplicity of brands offered even in a limited market precludes familiarity with all by any one individual.

Therefore, the conclusion is inevitable that some other more dependable means must be adopted to indicate quality to the buyer if she is to buy intelligently and avoid wasteful and uneconomic expenditures, and if a closer relationship between quality and price is to be fostered. A reliable statement of quality and other pertinent factors on every label would satisfy these requirements.

Fully informative labeling, now being urged with increasing vigor by organized consumer groups and also by many producers and distributors, holds promise of real benefits to sellers as well as to buyers. Though consumers would profit immediately by being enabled to select their purchases with fuller knowledge of what they are buying, producers and processors and distributors likewise would gain in the long run. Transactions would be more equitable. Business relationships

would be improved. Efficiency would be encouraged through payment of premiums in the form of higher prices for high quality and imposition of penalties in the form of lower prices for low quality. Discouragements and losses and litigation caused by unfair competition would be reduced. All transactions in a given lot of merchandise could be conducted in the same language, and all parties concerned could be equally well informed about the value of the goods.

In short, it is recommended that measures be initiated which would encourage vendors to sell at prices corresponding to the quality of the merchandise. It is believed that this would be accomplished effectively and more or less automatically by complete adoption of truly informative labeling.

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APPENDIX

Tables I to X, inclusive

Figures 1 and 2

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Table I

Number of Samples of Corn and Tomatoes Purchased
by Packers and by Cities

	Corn					Tomatoes			
Packers Code Symbol	Number of Samples Purchased				Packers Code Symbol	Number of Samples Purchased			
	Cleveland (no.)	Cincinnati (no.)	Columbus (no.)	Total (no.)		Cleveland (no.)	Cincinnati (no.)	Columbus (no.)	Total (no.)
CA	1	1	-	2.	TA	-	1	-	1
CB	-	3	-	3	TB	-	2	-	2
CC	2	1	-	3	TC	-	4	-	4
CD	-	-	3	3	TD	4	1	4	9
CE	-	3	4	7	TE	4	-	-	4
CF	3	-	-	3	TF	1	-	-	1
CG	-	-	1	1	TG	-	1	-	1
CH	3	-	-	3	TH	5	-	-	5
CI	1	-	-	1	TI	-	-	1	1
CJ	-	-	2	2	TJ	2	-	-	2
CK	1	-	2	3	TK	1	-	-	1
CL	-	4	-	4	TL	1	-	-	1
CM	-	1	-	1	TM	-	-	2	2
CN	-	2	-	2	TN	-	4	1	5
CO	1	-	1	2	TO	-	-	1	1
CP	2	1	-	3	TP	-	4	-	4
CQ	1	-	-	1	TQ	-	-	1	1
CR	2	1	1	4	TR	-	1	-	1
CS	4	2	-	6	TS	-	-	3	3
CT	3	-	-	3	TT	-	2	-	2
CU	2	-	-	2	TU	-	2	1	3
CV	-	-	1	1	TV	-	2	-	2
CW	-	1	4	5	TW	-	5	-	5
					TX	-	-	1	1
					TY	-	-	2	2
Total	26	20	19	65	Total	18	29	17	64

Table II

Number of Retail Grocery Stores in Which 65 No. 2 Cans of Corn
and 64 No. 2 Cans of Tomatoes were Purchased
by Types of Ownership of Stores

City	Corn			Tomatoes		
	Independent Stores (inc. Vol. chains)	Corporate Chain Stores	Total	Independent Stores (inc. Vol. chains)	Corporate Chain Stores	Total
Cleveland	9	5	14	10	4	14
Cincinnati	6	6	12	8	13	21
Columbus	7	2	9	8	2	10
Total	22	13	35	26	19	45

Table III

Quality Scores and Retail Prices of 65 No. 2 Cans of Corn,
Purchased in 35 Retail Grocery Stores in Cincinnati,
Cleveland and Columbus
(Arrayed in order of magnitude of quality scores.)

Sample Number	Quality Score*	Retail Price (cents)	Sample Number	Quality Score*	Retail Price (cents)
C 1	95	7.5	C 29	72	10.
C 63	94	15.	C 52	72	6.25
C 54	94	11.5	C 36	72	5.5
C 2	92	10.	C 45	71	10.
C 5	92	10.	C 11	71	5.75
C 37	92	6.25	C 59	70	8.33
C 49	91	10.	C 60	70	8.33
C 30	91	8.5	C 61	70	8.33
C 56	91	8.33	C 47	70	6.25
C 55	90	9.	C 13	69	10.
C 26	90	6.25	C 25	69	6.25
C 20	88	10.	C 42	69	6.25
C 51	82	10.	C 57	69	6.25
C 33	81	6.25	C 31	69	5.5
C 35	80	12.5	C 58	68	6.25
C 16	80	10.	C 9	68	5.75
C 65	80	7.5	C 64	67	12.5
C 41	79	7.5	C 14	67	10.
C 38	79	6.25	C 43	67	8.33
C 28	78	12.5	C 40	67	6.25
C 21	78	12.5	C 10	67	5.75
C 50	78	10.	C 24	66	10.
C 39	78	6.25	C 27	66	7.5
C 7	78	5.75	C 62	65	8.33
C 34	77	5.5	C 48	64	10.
C 32	76	5.5	C 53	64	10.
C 15	75	10.	C 6	64	10.
C 18	75	10.	C 19	64	10.
C 44	75	10.	C 3	64	6.5
C 17	75	8.33	C 23	61	6.67
C 4	75	6.5	Average	75.4	8.43
C 22	73	12.5			
C 46	73	7.5			
C 8	73	5.75			
C 12	72	10.			

* Determined by official grading by U. S. Department of Agriculture.

Table IV

Quality Scores and Retail Prices of 64 No. 2 Cans of Tomatoes,
Purchased in 45 Retail Grocery Stores in Cincinnati,
Cleveland and Columbus
(Arrayed in order of magnitude of quality scores.)

Sample Number	Quality Score*	Retail Price (cents)	Sample Number	Quality Score*	Retail Price (cents)
T 51	93	10.	T 24	76	6.25
T 55	93	6.25	T 21	76	5.5
T 45	92	10.	T 4	75	10.
T 26	92	6.25	T 30	75	10.
T 34	92	6.25	T 22	75	6.25
T 10	91	14.	T 23	75	6.25
T 59	90	13.5	T 42	75	6.25
T 58	85	11.	T 25	75	5.75
T 16	85	7.5	T 6	74	10.
T 38	85	6.25	T 1	74	7.5
T 36	83	6.25	T 62	72	6.25
T 13	82	13.7	T 20	72	5.5
T 12	82	10.	T 33	71	6.25
T 35	82	10.	T 41	71	6.
T 64	82	8.33	T 65	70	10.
T 48	82	6.25	T 57	70	7.25
T 32	81	8.33	T 44	69	6.25
T 19	81	6.25	T 54	69	6.25
T 37	81	6.25	T 52	68	10.
T 28	80	10.	T 39	67	12.
T 29	80	8.	T 53	67	6.25
T 46	80	6.25	T 40	65	8.33
T 63	80	6.25	T 2	65	7.5
T 17	79	9.	T 50	63	10.
T 31	79	7.5	T 49	62	10.
T 47	79	6.25	T 43	62	8.33
T 14	78	11.7	T 56	60	8.33
T 9	78	10.	T 61	54	8.33
T 15	78	8.3	T 27	43	6.25
T 5	78	6.25			
T 7	77	10.	Average	76.2	8.2
T 60	77	10.			
T 3	77	7.5			
T 11	76	10.			
T 8	76	8.33			

* Determined by official grading by U. S. Department of Agriculture.

Table V

Lowest, Highest and Average Quality Scores and Retail Prices,
of 65 No. 2 Cans of Corn, by Packers

Packers Code Symbol	Number of Sample Cans Purchased	Quality Scores*			Retail Prices		
		Lowest	Highest	Average**	Lowest (cents)	Highest (cents)	Average** (cents)
CA	2	71	76	73.5	5.5	5.75	5.62
CB	3	66	72	68.3	7.5	10.	9.2
CC	3	67	95	83.3	6.25	10.	7.92
CD	3	64	70	66.	8.33	10.	9.44
CE	7	68	82	75.3	6.25	12.5	9.04
CF	3	75	90	81.	6.25	12.5	9.03
CG	1	91	91	91.	8.33	8.33	8.33
CH	3	64	92	76.3	10.	12.5	10.8
CI	1	66	66	66.	10.	10.	10.
CJ	2	70	80	75.	6.25	7.5	6.8
CK	3	65	69	67.7	6.25	8.33	6.94
CL	4	69	91	78.5	6.25	8.5	7.64
CM	1	92	92	92.	6.25	6.25	6.25
CN	2	69	73	71.	5.5	7.5	6.5
CO	2	80	90	85.	9.	10.	9.5
CP	3	64	77	72.	5.5	10.	7.3
CQ	1	69	69	69.	10.	10.	10.
CR	4	68	81	73.5	5.75	6.25	6.
CS	6	61	79	70.2	5.5	6.67	6.03
CT	3	67	92	78.	10.	10.	10.
CU	2	72	75	73.5	10.	10.	10.
CV	1	70	70	70.	8.33	8.33	8.33
CW	5	67	94	84.8	10.	15.	12.3
Total or Average	65	xx	xx	75.4	xx	xx	8.43

* Determined by official grading by U. S. Department of Agriculture.
** Weighted arithmetic mean.

Table VI

Lowest, Highest and Average Quality Scores and Retail Prices of 64 No. 2 Cans of Tomatoes, by Packers

Packers Code Symbol	Number of Sample Cans Purchased	Quality Scores*			Retail Prices		
		Lowest	Highest	Average**	Lowest (cents)	Highest (cents)	Average** (cents)
TA	1	80	80	80.	6.25	6.25	6.25
TB	2	65	67	66.	8.33	12.	10.2
TC	4	69	92	79.3	6.25	6.25	6.25
TD	9	60	93	76.3	6.25	8.33	7.24
TE	4	65	81	74.8	6.25	10.	8.02
TF	1	82	82	82.	10.	10.	10.
TG	1	82	82	82.	10.	10.	10.
TH	5	78	91	81.4	8.33	14.	11.55
TI	1	54	54	54.	8.33	8.33	8.33
TJ	2	74	75	74.5	10.	10.	10.
TK	1	76	76	76.	10.	10.	10.
TL	1	79	79	79.	9.	9.	9.
TM	2	63	77	70.	10.	10.	10.
TN	5	72	92	77.2	5.5	6.25	6.
TO	1	67	67	67.	6.25	6.25	6.25
TP	4	43	83	65.8	6.25	8.33	6.77
TQ	1	68	68	68.	10.	10.	10.
TR	1	79	79	79.	6.25	6.25	6.25
TS	3	62	85	72.3	10.	11.	10.33
TT	2	76	85	80.5	6.25	6.25	6.25
TU	3	75	80	78.3	6.25	10.	8.08
TV	2	79	80	79.5	7.5	10.	8.75
TW	5	71	92	78.4	5.5	10.	6.78
TX	1	82	82	82.	8.33	8.33	8.33
TY	2	90	93	91.5	10.	12.5	11.25
Total or Average	64	xx	xx	76.2	xx	xx	8.19

* Determined by official grading by U. S. Department of Agriculture.
** Weighted arithmetic mean.

Table VII

Quality Scores and Retail Prices of 65 No. 2 Cans of Corn,
by Cities where Purchased

Cleveland (26 samples)			Cincinnati (20 samples)			Columbus (19 samples)		
Sample Number	Quality Score*	Retail Price (cents)	Sample Number	Quality Score*	Retail Price (cents)	Sample Number	Quality Score*	Retail Price (cents)
C 1	95	7.5	C 37	92	6.25	C 63	94	15.
C 2	92	10.	C 30	91	8.5	C 54	94	11.5
C 5	92	10.	C 33	81	6.25	C 49	91	10.
C 29	90	6.25	C 35	80	12.5	C 56	91	8.33
C 20	88	10.	C 41	79	7.5	C 55	90	9.
C 16	80	10.	C 38	79	6.25	C 51	82	10.
C 21	78	12.5	C 28	78	12.5	C 65	80	7.5
C 7	78	5.75	C 39	78	6.25	C 50	78	10.
T 15	75	10.	C 34	77	5.5	C 52	72	6.25
C 18	75	10.	C 32	76	5.5	C 59	70	8.33
C 17	75	8.33	C 44	75	10.	C 60	70	8.33
C 4	75	6.5	C 46	73	7.5	C 61	70	8.33
C 22	73	12.5	C 29	72	10.	C 47	70	6.25
C 8	73	5.75	C 36	72	5.5	C 57	69	6.25
C 12	72	10.	C 45	71	10.	C 58	68	6.25
C 11	71	5.75	C 42	69	6.25	C 64	67	12.5
C 13	69	10.	C 31	69	5.5	C 62	65	8.33
C 25	69	6.25	C 43	67	8.33	C 48	64	10.
C 9	68	5.75	C 40	67	6.25	C 53	64	10.
C 14	67	10.	C 27	66	7.5			
C 10	67	5.75						
C 24	66	10.						
C 6	64	10.						
C 19	64	10.						
C 3	64	6.5						
C 23	61	6.67						
Average	74.6	8.53		75.6	7.69		76.3	9.06

* Determined by official grading by U. S. Department of Agriculture.

Table VIII

Quality Scores and Retail Prices of 64 No. 2 Cans of Tomatoes, by Cities where Purchased

Cleveland (18 samples)			Cincinnati (29 samples)			Columbus (17 samples)		
Sample Number	Quality Score*	Retail Price (cents)	Sample Number	Quality Score*	Retail Price (cents)	Sample Number	Quality Score*	Retail Price (cents)
T 10	91	14.	T 45	92	10.	T 51	93	10.
T 16	85	7.5	T 26	92	6.25	T 55	93	6.25
T 13	82	13.7	T 34	92	6.25	T 59	90	13.5
T 12	82	10.	T 38	85	6.25	T 58	85	11.
T 19	81	6.25	T 36	83	6.25	T 64	82	8.33
T 17	79	9.	T 35	82	10.	T 63	80	6.25
T 14	78	11.7	T 48	82	6.25	T 60	77	10.
T 9	78	10.	T 32	81	8.33	T 62	72	6.25
T 15	78	8.33	T 37	81	6.25	T 65	70	10.
T 5	78	6.25	T 28	80	10.	T 57	70	7.25
T 7	77	10.	T 29	80	8.	T 54	69	6.25
T 3	77	7.5	T 46	80	6.25	T 52	68	10.
T 11	76	10.	T 31	79	7.5	T 53	67	6.25
T 8	76	8.33	T 47	79	6.25	T 50	63	10.
T 4	75	10.	T 24	76	6.25	T 49	62	10.
T 6	74	10.	T 21	76	5.5	T 56	60	8.33
T 1	74	7.5	T 30	75	10.	T 61	54	8.33
T 2	65	7.5	T 22	75	6.25			
			T 23	75	6.25			
			T 42	75	6.25			
			T 25	75	5.75			
			T 20	72	5.5			
			T 33	71	6.25			
			T 41	71	6.			
			T 44	69	6.25			
			T 39	67	12.			
			T 40	65	8.33			
			T 43	62	8.33			
			T 27	43	6.25			
Average	78.1	9.31		76.4	7.21		73.8	8.71

* Determined by official grading by U. S. Department of Agriculture.

Table IX

Quality Scores and Retail Prices of 65 No. 2 Cans of Corn
by Types of Ownership of Stores where Purchased

Independent Stores (inc. Voluntary Chains)			Corporate Chain Stores		
Sample Number	Quality Score*	Retail Price (cents)	Sample Number	Quality Score*	Retail Price (cents)
C 1	95	7.5	C 2	92	10.
C 63	94	15.	C 37	92	6.25
C 54	94	11.5	C 30	91	8.5
C 5	92	10.	C 56	91	8.33
C 49	91	10.	C 55	90	9.
C 20	88	10.	C 26	90	6.25
C 51	82	10.	C 33	81	6.25
C 35	80	12.5	C 41	79	7.5
C 16	80	10.	C 38	79	6.25
C 65	80	7.5	C 39	78	6.25
C 21	78	12.5	C 7	78	5.75
C 28	78	12.5	C 34	77	5.5
C 56	78	10.	C 32	76	5.5
C 15	75	10.	C 4	75	6.5
C 18	75	10.	C 8	73	5.75
C 44	75	10.	C 52	72	6.25
C 17	75	8.33	C 36	72	5.5
C 22	73	12.5	C 11	71	5.75
C 46	73	7.5	C 25	69	6.25
C 12	72	10.	C 42	69	6.25
C 29	72	10.	C 57	69	6.25
C 45	71	10.	C 31	69	5.5
C 59	70	8.33	C 58	68	6.25
C 60	70	8.33	C 9	68	5.75
C 61	70	8.33	C 40	67	6.25
C 47	70	6.25	C 10	67	5.75
C 13	69	10.	C 3	64	6.5
C 64	67	12.5	C 23	61	6.67
C 14	67	10.			
C 43	67	8.33			
C 24	66	10.			
C 27	66	7.5			
C 32	65	8.33			
C 6	64	10.			
C 19	64	10.			
C 48	64	10.			
C 53	64	10.			
Average (37 samples)	74.9	9.87	Average (28 samples)	76.1	6.52

* Determined by official grading by U. S. Department of Agriculture.

Table X

Quality Scores and Retail Prices of 64 No. 2 Cans of Tomatoes
by Types of Ownership of Stores where Purchased

Independent Stores (inc. Voluntary Chains)			Corporate Chain Stores		
Sample Number	Quality Score*	Retail Price (cents)	Sample Number	Quality Score*	Retail Price (cents)
T 51	93	10.	T 55	93	6.25
T 45	92	10.	T 26	92	6.25
T 10	91	14.	T 34	92	6.25
T 59	90	12.5	T 16	85	7.5
T 28	86	10.	T 38	85	6.25
T 29	86	8.	T 36	83	6.25
T 58	85	11.	T 48	82	6.25
T 13	82	13.7	T 19	81	6.25
T 12	82	10.	T 37	81	6.25
T 35	82	10.	T 46	80	6.25
T 64	82	8.33	T 63	80	6.25
T 32	81	8.33	T 47	79	6.25
T 17	79	9.	T 5	78	6.25
T 31	79	7.5	T 3	77	7.5
T 14	78	11.7	T 24	76	6.25
T 9	78	10.	T 21	76	5.5
T 15	78	8.33	T 22	75	6.25
T 7	77	10.	T 23	75	6.25
T 60	77	10.	T 42	75	6.25
T 11	76	10.	T 25	75	5.75
T 8	76	8.33	T 1	74	7.5
T 4	75	10.	T 62	72	6.25
T 30	75	10.	T 20	72	5.5
T 6	74	10.	T 33	71	6.25
T 65	70	10.	T 41	71	6.
T 57	70	7.25	T 44	69	6.25
T 52	68	10.	T 54	69	6.25
T 39	67	12.	T 53	67	6.25
T 2	65	7.5	T 43	62	8.33
T 40	65	8.33	T 27	43	6.25
T 50	63	10.			
T 49	62	10.			
T 56	60	8.33			
T 61	54	8.33			
Average (34 samples)	76.4	9.77	Average (30 samples)	76.3	6.36

* Determined by official grading by U. S. Department of Agriculture.

Figure 1. Quality Scores and Retail Prices of 65 No. 2 Cans of Corn
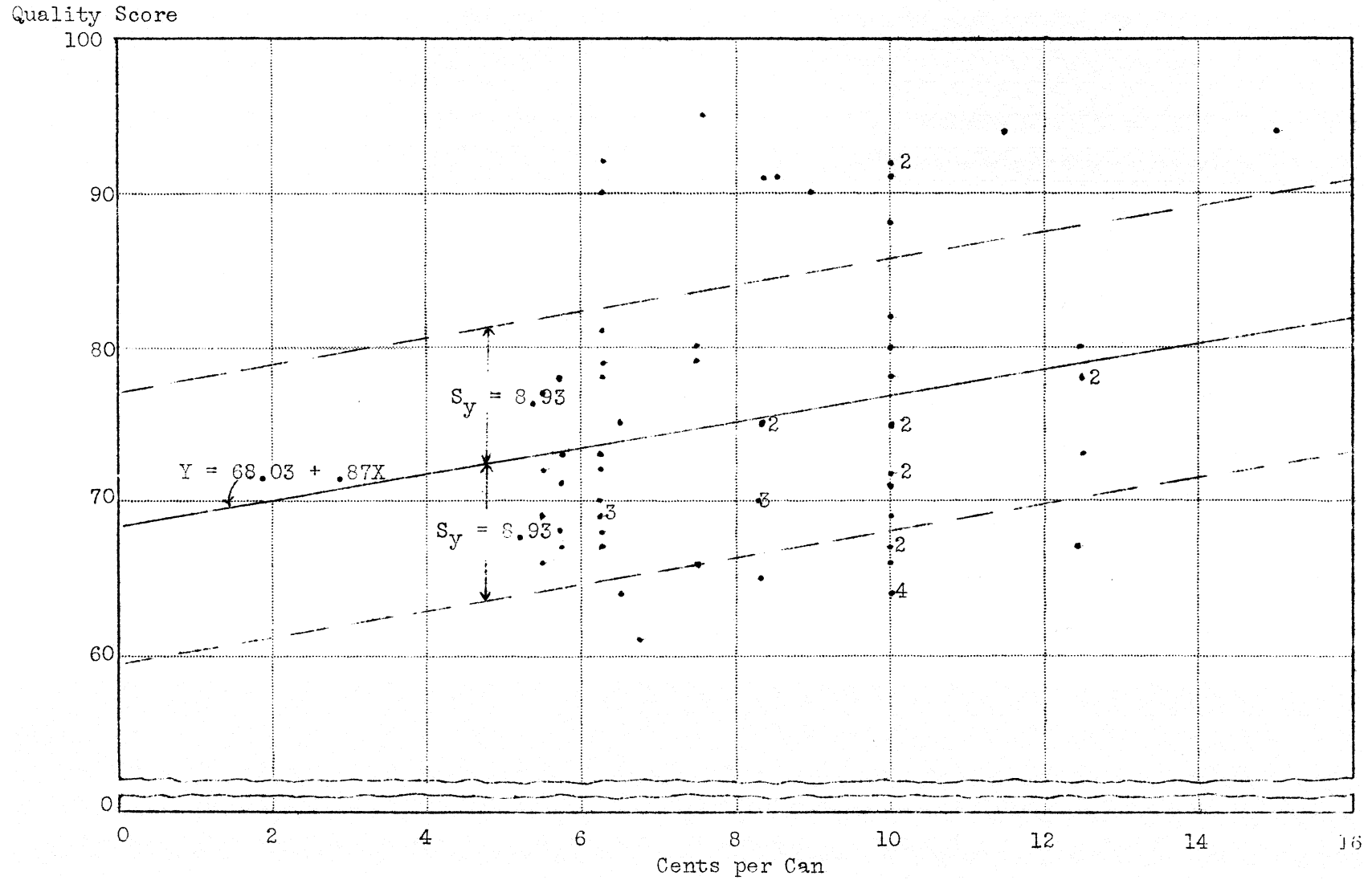Purchased in Cincinnati, Cleveland and Columbus, November, 1939

Figure 2. Quality Scores and Retail Prices of 64 No. 2 Cans of Tomatoes Purchased in Cincinnati, Cleveland and Columbus, November, 1939