

AN EXPERIMENT WITH  
RETAIL SALES OF HIGH  
AND LOW GRADES OF  
APPLES

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Mimeograph Bulletin No. 150



The Ohio State University  
and  
Ohio Agricultural Experiment Station

Columbus, Ohio  
June, 1942

The authors wish to acknowledge their indebtedness to those who assisted in the collection of data presented in this manuscript.

Officials of the Cincinnati Retail Grocers and Meat Dealers Association were particularly helpful in assisting in making a discriminating selection of test stores.

We are indebted to those grocers who unselfishly offered their stores as "laboratories" and without whose cooperation this study could not have been made.

Members of the wholesale and jobbing trade of Cincinnati assisted in securing continuous supplies of certain grades and varieties of apples to the test stores.

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## SECTION I - INTRODUCTION



To what extent are low-grade apples competitive with high-grade apples at retail?

It is commonly assumed that whatever amount of low-grade fruit is offered on the markets as fresh fruit merely displaces an approximately equivalent amount of better fruit, and that purchases of these low grades at low prices tend to obstruct the movement of better grades and to depress the prices thereof. It is the belief of many producers and distributors that most of the marketing difficulties current in the apple industry would disappear if all growers could be induced to "leave the culls at home".

Some even go so far as to suggest that perhaps Utility and Combination grades also should be kept off the market - that sales would be much easier and that growers and distributors would actually be better off if they offered only U.S. No. 1 and Fancy grades.

Yet probably not over 60 per cent of the apples grown in Ohio are U.S. No. 1 or better. Approved commercial cultural and handling practices, employed even with the utmost care and expense, will not yield all No. 1 fruit. Facilities for converting lower grades into apple products are limited in Ohio, and only a small part of the apple crop can be manufactured into canned or dried apples, apple butter, apple sauce, jelly, vinegar and the like. Only a small part can be fed to livestock. Should the remainder be allowed to decay unused? Would growers find it more profitable to destroy the poorer fruit instead of selling it? If it were all destroyed, would growers thereby be assured that better grades would sell for enough more to compensate for the loss of income from the lower grades? Aside from the question of returns to producers and distributors, should not waste of nutritious food be discouraged, especially in time of war or other shortages?

The belief that low grade apples should be withheld from the fresh market is predicated upon the assumption that there is but one vast domestic market for apples, every part of which is closely interdependent with every other. It assumes that this domestic market can be completely saturated (in those seasons when commercial supplies are at least normal - that is, at least 70 to 75 millions of bushels) without offering any fruit below U.S. Utility in quality. It assumes that the demand for fancy dessert fruit and the demand for the cheapest of cooking apples are not wholly separate, but are directly related. It assumes that every sale of U.S. Utility grade or culls influences and is influenced by every sale of fancy and U.S. No. 1 apples, and that every sale of premium fruit likewise has an effect upon every sale of low grade fruit.

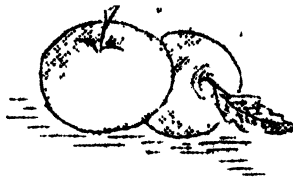
It is conceivable, on the other hand, that the market for apples is stratified, that it is characterized by several, perhaps many, almost wholly separate and distinct demands--at one extreme the demand for perfect fruit from those whose wants are exacting and whose purses are well filled, and at the other extreme the demand for poor (or cheap) fruit from those whose income permits only penurious buying or whose demands are such as to be completely satisfied by lower quality.

It may be that if the offerings of so called culls, available at very low prices, were to be completely withdrawn, buyers of these apples would cease to use fresh apples altogether unless better grades were then offered at cull prices. The very limited purchasing power of a large segment of the consuming public serves to restrict their purchases of fruit to those grades which can be bought very cheaply, and any increase in price quickly eliminates these buyers altogether. Whenever fresh fruits and vegetables and other "protective" foods become unavailable at low prices, the diet of these low-income consumers reverts of necessity to "meat, meal and molasses".

Thus it is possible that the low-grade, cheap apples which supply this low income sector of the market do not compete with better grades. Moreover, even those consumers with greater purchasing power may refuse to substitute high grade dessert apples for those grades which are entirely suitable for cooking, and should the latter be unavailable it may be that sales of the better grades, even to the well-to-do, would not increase correspondingly.

Under such circumstances the total quantity of apples sold would decline if the lower grades were withheld from the market, and the conclusion would be justified that the various grades are not entirely competitive.

Not all the questions raised here can be answered with accuracy without extensive and perhaps long-continued research. So far as known no studies have been made to reveal the true nature of the competition between grades, and therefore some well planned research in this field is needed. Intelligent marketing of apples is dependent in part upon a knowledge of the relationship between the demand for good apples at high prices and the demand for poor apples at low prices.



## SECTION II → PROCEDURE



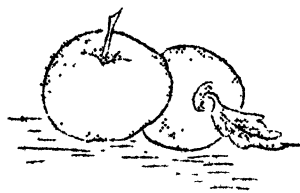
To throw some light on this subject and to explore the possibilities of investigations of this nature, a preliminary study was carried on in 6 selected retail grocery stores in Cincinnati, Ohio for a period of about two months in the fall of 1941 and in 10 stores in the same city for a similar period late in the winter of 1941-42. Under controlled conditions, made possible by the cooperation of these retailers, apples of U.S. No. 1 and lower grades were offered in these stores during these experimental periods and records were kept to reveal quantities of each grade sold. Some study was made also of the competition between fresh apples and apple products in 8 additional stores.

This problem was approached with the conviction that reliable information could be obtained by observation of the movement of apple sales in day to day retailing operations, and that experiences with consumer demand in typical stores could be expected to provide a practical guide to merchandising practices of growers and distributors.

The kinds and amounts of apples displayed in these selected stores were kept under strict control throughout the experimental periods. Stores were selected in pairs, the two in each pair being as nearly identical as possible with respect to size, location and type, and volume of business. In one of the stores in each pair, identified for convenience herein as a Check store, U.S. No. 1 was the only grade of apples offered throughout the experiment. In the other, known as a Test store, both U.S. No. 1 and lower grades were offered for half the experimental period and U.S. No. 1 only, during the other half.

Following an exploratory test period in the fall the experiment was repeated in the winter months and was supplemented with a study of the competition between sales of fresh apples and sales of apple sauces, apple butter, canned apple slices and apple juice where these products are featured prominently in retail stores.

A detailed account of the methods used in planning and conducting the study is to be found in Section V, page 7.



## SECTION III. FACTS REVEALED BY THE STUDY



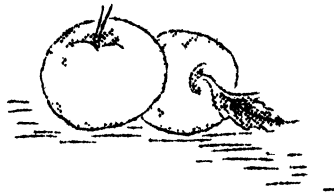
Facts disclosed by this study and observations made during the investigation are as follows:

1. Competition from Utility grade apples offered in 8 Test stores apparently did not diminish sales of U.S. No. 1 grade apples in those stores: when both grades were offered total sales were larger than when U.S. No. 1 was the only grade offered, by approximately the amount of Utility grade sold (See Table 2 and Figure 2.)
2. Withdrawal of Utility grade apples from the Test stores upon expiration of the test periods was accompanied by a decline in total apple sales in those stores approximately equivalent to the volume of Utility sold during the test periods, while in the comparable Check stores offering only U.S. No. 1 throughout the investigation no decline in volume occurred. (See Table 2 and Figure 2).
3. In the Test Stores, during the periods when both Utility and U.S. No. 1 grades were offered, about two thirds of the amount sold was U.S. No. 1 and one third Utility. (See Figure 2 and Table 2).
4. The percentage of waste or spoilage in the hands of those 16 retailers was 5.0 per cent of the amount of Utility grade purchased, about one and one half times as great as in U.S. No. 1 grade (3.3%). As would be expected spoilage in the winter period exceeded that in the fall. (See Table 4).
5. Retailers' margins (mark-ups) on U.S. No. 1 grade apples in these 16 stores averaged 31.2% of sales value, substantially greater than on Utility grade (24.8%) (See Table 2).
6. Volume of apples sold bore a close relationship to the volume displayed. With displays in 8 Test stores in the check periods (U.S. No. 1 grade only) aggregating about 3/5 as large as displays in those stores during the test periods (U.S. No. 1 and Utility) total sales during the check periods were only about 3/5 as large as in the test periods. In the Check stores where the total volume displayed (U.S. No. 1 only) during both test and check periods was practically identical, total apple sales also were practically identical.
7. The addition of Utility grade increased the total volume of apples sold to a greater degree in stores in low income areas than in stores in medium income areas (See Table 3).
8. Retailers were unfamiliar with grade specifications. They were suspicious of ring facing due to their experiences that in most cases the face is not truly representative of the pack. They protested against the wide variation in size frequently encountered in Ohio apples in bushel baskets. These practices tended to place retailers on the defensive against what they considered sharp practices, and to protect themselves they constantly sought to use these devices as arguments to depress their buying prices.
9. Special promotion of apple products for one week was accompanied by an increase in the volume of such products sold and a decline in the volume of fresh apples sold. (See Table 6 and Figure 4).



10. Despite this decline, nevertheless the volume of apples moving into consumption (including both fresh apples and apples used in manufacturing apple products) did not decline, but actually increased slightly.

11. Some increase in the sale of apple products was apparent in the week after special promotion terminated, indicating that effects of such promotion persisted beyond the period of actual promotion (See Table 6 and Figure 4). Though when apple products were featured, sales of products increased and fresh apples declined, there is no evidence that such substitution of products for fresh apples would continue over any very long period nor to what extent it might be followed eventually by compensatory declines in sales of products and increases in sales of fresh apples.



## SECTION IV. CONCLUSIONS AND RECOMMENDATIONS



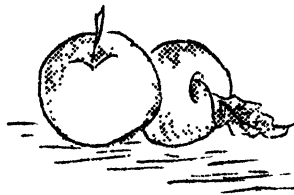
SINCE the apple market investigated in this study appeared to be made up of stratified demands and sales of inferior grades of fruit did not interfere with sales of better grades, it is clear that growers would have sacrificed volume by withholding this low grade fruit from this market.

2. Since there was a distinct market for lower grades in these stores, and these retailers increased their volume and net returns by supplementing their offerings with some supplies of inferior fruit, it probably would be wise for most retailers, at any rate in areas serving consumers of low and medium incomes, to handle some low grade fruit.

3. Further studies are needed to reveal whether similar conditions prevail in other areas, in other cities and towns, at other times.

4. Studies of costs and returns are needed. Growers need to know at what price losses begin to be replaced by profits, in order to determine when it will pay to offer low grades, and to learn what contribution, if any, these low grades make in recapturing costs or losses on other grades.

5. An opportunity exists to promote the sale of apples through improving displays and merchandising practices in many retail stores.



## SECTION V. DETAILED DESCRIPTION OF THE STUDY

Place

These investigations were conducted in Cincinnati for the reason that that city is a typical metropolitan consuming center, conveniently located. Its population, including suburbs, was reported as 789,309 by the Bureau of the Census in 1940. All levels of income are represented among its residents. It serves as an important outlet for fresh fruits and vegetables, much of which is supplied by Ohio producers. Its distributive system for these perishables includes many widely distributed retail stores, permitting a discriminating selection of experimental stores. Both retail and jobbing trade are well organized, and leaders in both groups proffered cooperation.

Selection of Stores

Officials of the Cincinnati Retail Grocers and Meat Dealers Association and of the National League of Wholesale Fresh Fruit and Vegetable Distributors assisted in making arrangements for the study. They suggested the names of retailers whose establishments and trade were suitable and who might be expected to cooperate in a research project of this nature. They helped to explain the plan and to provide entree for the investigators.

Stores were selected in pairs, in order that one might be used as a check against the other. While results of special displays were observed in the one store, normal trading was observed in the other, both under controlled conditions. Thus some measurement could be made of the course of the demand for apples in the neighborhoods represented, as a standard of comparison for evaluating the result of special displays. As a further means of insuring accuracy in appraising these results, check periods were provided in both stores.

Stores of each pair were as nearly identical as possible. They were located in the same general neighborhood, served approximately the same income group, were about the same size and appeared to enjoy about the same volume of business. For comparing sales of U.S. No. 1 and Utility grades of fresh apples, 3 pairs of stores were selected in low income areas, where rentals averaged less than \$25 monthly, and 5 pairs were selected in medium and medium high income areas, where rentals averaged \$25 to \$49 monthly. 4 other pairs of stores were selected in medium income areas for a minor phase of the study in which sales of fresh apples (U.S. No. 1 grade) were compared with sales of apple products (canned apple slices, apple butter, apple sauce and apple juice). These stores are identified in Tables 5 & 6 and Figure 1.

Stores in which only U.S. No. 1 grade was offered are referred to herein as "Check stores", and are identified for convenience by the letter C. Stores in which both U.S. No. 1 and Utility grades were offered are referred to as "Test stores", identified herein by the letter T. In the phase of the inquiry dealing with apple products and "Test stores" are those in which some special promotion was conducted by displays and advertising to focus attention of consumers on the apple products during an experimental period. In "Check stores" apple products were not featured, though they were available upon request.

Results demonstrated the validity of the pairings. Though the volume of apple business was not uniform in both stores of some pairs, yet the aggregate of sales in all the Test Stores in the check periods was approximately the same

as in all the Check stores in the same periods.

The stores used in the experimental period in the fall were all independent groceries. In the winter period all were units of a local corporate chain. All were small or medium size service-type stores.

All the independent stores maintained telephone and delivery service, though the majority of their business came from store traffic. The chain stores were strictly cash and carry.

#### Description of Tests

At all times the Check stores offered U.S. No. 1 grade apples only. During the so-called test periods the Test stores offered both U.S. No. 1 and Utility grades. During the so-called check periods the Test stores likewise offered only U.S. No. 1 grade.

To eliminate the possibility of any varietal change affecting apple sales in these stores and thereby distorting results, it was necessary for each store in any pair to offer identical varieties only, throughout the experimental periods. It was found that most stores customarily stock from two to four leading varieties. The cooperating retailers agreed to handle only the varieties selected.

In the fall experimental period (October 28 to December 23) the selected varieties were Jonathan, Delicious and Wealthy, though one pair of stores (3T and 3C) stocked Stayman in addition to these three. In the winter (February 2 to March 30) the varieties were Rome Beauty, Delicious and Wealthy. In a few stores some apples of other varieties remaining in stores at the beginning of the experiments were sold out and these sales were included in the tabulations.

All of these varieties were offered in U.S. No. 1 or Fancy grade in all stores. For convenience these are identified herein as U.S. No. 1. Delicious, Jonathan and Rome Beauty were offered in the Test stores in lower grades also during the so-called test periods. These lower grades consisted principally of Utility. A few Domestic grade apples were included, but for convenience all the lower grade fruit is identified herein as Utility.

The fall experiment continued for 8 weeks during a period when local apples were moving to market principally from common farm storage and in a period of plentiful supplies of low grade fruit. The winter experiment covered 8 weeks when apples were moving to market principally from cold storage and supplies of low grade fruit were not large.

Each experimental period was divided into a test period and a check period, each 4 weeks long. With one exception (3T and 3C) during the fall the test period preceded the check period.

Display units consisted of about one bushel of each grade of each variety. Thus in each of the Check stores during the entire 8 weeks, and in the corresponding Test stores during the 4 weeks of the check period, 3 bushels of apples were constantly on display. These were U.S. No. 1 only, one bushel of each variety. In each of the Test stores during the 4 weeks of the test period the display consisted of approximately 5 bushels, 3 of these being U.S. No. 1 and 2 Utility. Wealthy of Utility grade was unavailable in quantities sufficient for the test.

In general, apple displays maintained during the experimental periods were better than those employed by the retailers prior to the experiment. Posters furnished by the Ohio Apple Institute, Inc. were displayed in all the stores. Price tags were kept on the apple displays at all times. These tags stated price and variety but did not identify grade.

No special effort was made to sell more of one grade than of another or more apples in one period than in another. Insofar as possible the consumer was given every opportunity to make her own selection of the variety and grade desired.

#### Purchasing

Each retailer purchased his supplies of apples independently through the usual trade channels. Since popular varieties were used little difficulty was experienced in securing necessary supplies through the regular jobbing trade. In a few instances, some assistance was given in locating particular grades.

During the winter, apples were purchased and distributed by the chain company through its warehouse. Utility grades of Delicious and Rome Beauty were scarce and would have been unobtainable had not adequate supplies been procured in advance and earmarked for the experiment by the company. Needed quantities were withdrawn weekly from cold storage and delivered to the stores.

#### Retail Pricing

Retail price policies were left largely within the jurisdiction of the individual retailers. As a consequence retail prices were not uniform. Every effort was made, however, to keep price changes at a minimum and to cause necessary changes to be made at about the same time and in about the same amount in paired stores. Despite a rising wholesale market retail prices were thus kept reasonable uniform throughout both experimental periods.

#### Recording Data

At the beginning of the test an inventory of all apples in stock was taken in each store. Purchases of apples were recorded weekly. Inventories were taken again at the close of the check period and close of the test period. Buying and selling prices and actual or estimated amounts of unsalable fruit due to spoilage were recorded. The stores were visited several times each week to insure compliance with the agreed specifications.

#### Testing competition between fresh apples and apple products

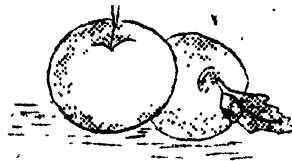
The study described above was supplemented by a smaller test designed to throw some light on the competition between fresh apples and certain products manufactured from apples. Two pairs of stores in the fall and two in the winter cooperated on this project.

In the fall this experiment continued for a total of 44 days (November 3 to December 23). During the 22 day check period sales of fresh apples (U.S. No. 1 grade only) and apple products (apple sauce, apple butter, canned apple slices and apple juice) were recorded in two Test stores and sales of fresh apples only were recorded in two Check stores. No special effort was made to sell either the apples or the products. In the 22 day test period following, apple products were featured prominently through floor, counter and window displays in the two Test stores. The usual displays of fresh apples were maintained in these stores and in the Check stores for the entire period of 44 Days, without special featuring.

During this experiment it became obvious that a special feature display of apple products could not be maintained satisfactorily for so long. Retailers objected that the displays lost much of their consumer appeal after a week or a little longer. For this reason the fall test was considered inconclusive. In the winter period, therefore, the test was modified and conclusions reached herein are based solely on the winter test.

In the winter each test lasted for 3 weeks, March 2 to March 21, in one pair of stores (11T & 11C) and March 12 to April 1 in the other (12T & 12C), thus comprising a test period of one week with a preceding and a following check period. In the middle or test week, Apple sauce in tin was featured in two Test stores by means of store displays, hand bill advertising and especially attractive prices while fresh apples (U.S. No. 1 grade) remained on sale without special featuring. Sales of both fresh apples and apple sauce were recorded by weekly periods in both Test stores and in the corresponding Check stores, where fresh apples and sauce were available but not featured during any part of this 3 week period.

To obtain comparable figures all sales of apple products were converted into terms of the weight of fresh apples required to manufacture these products.



APPENDIX

Tables 1 to 7, inclusive  
Figures 1 to 4, inclusive





- Stores in medium-income areas
- Stores in low-income areas

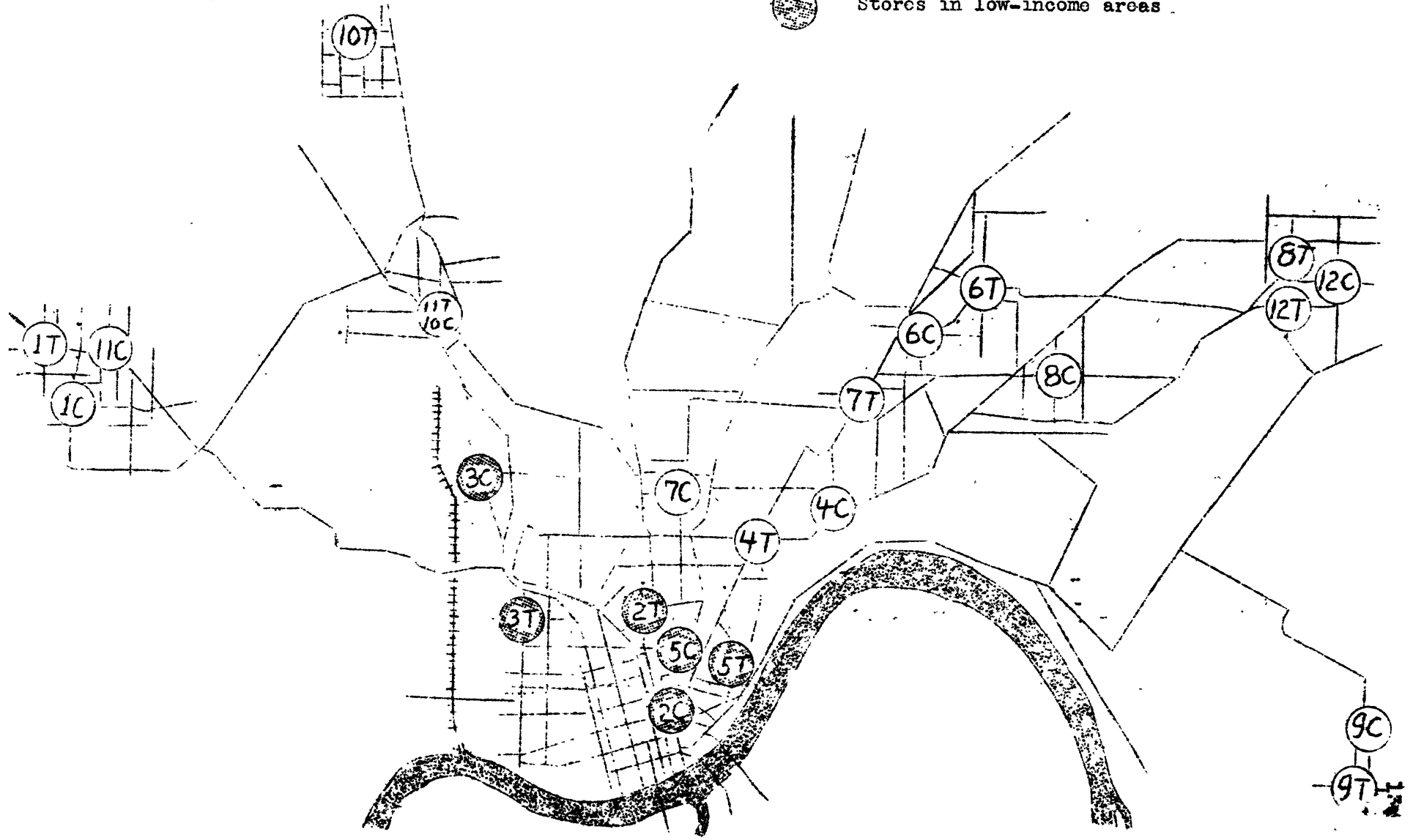


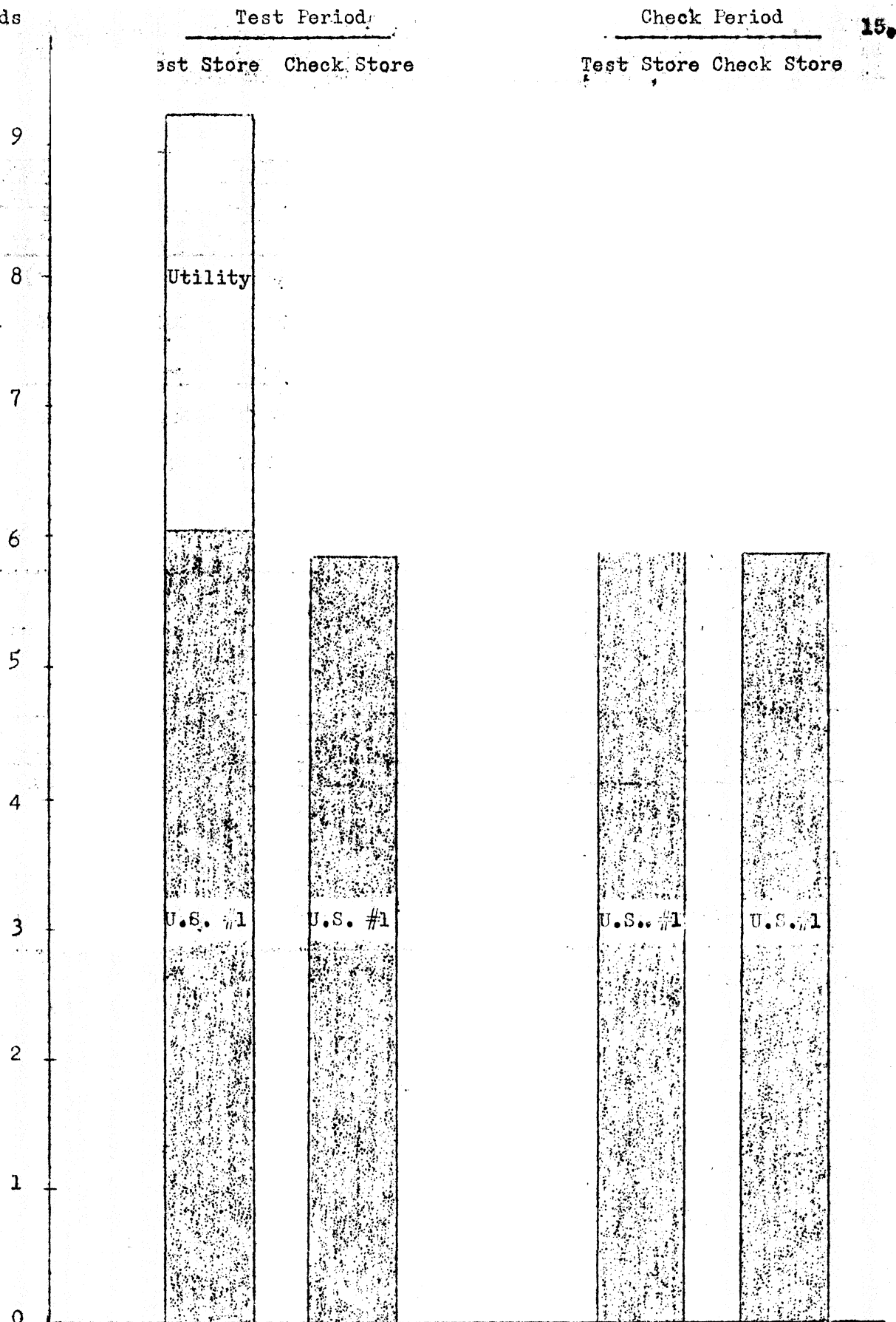
Figure 1: Location of Experimental Stores, Cincinnati, Ohio

Table 2. Summary of Apple Sales in 16 Retail Grocery Stores in Cincinnati, Ohio in Experimental Periods, 1941-42

	Summary of Fall Sales				Summary of Winter Sales				Summary of Fall & Winter Sales			
	3 Test Stores			3 Check Stores	5 Test Stores			5 Check Stores	8 Test Stores			8 Check Stores
	U.S.I	Utility	Total	U.S.I	U.S.I	Utility	Total	U.S.I	U.S.I	Utility	Total	U.S.I
<b>Test Periods</b>												
Quantity bought (lb)	2187	1501	3688	2486	4114	1848	5962	3611	6301	3349	9650	6097
Spoilage (lb)	52	48	100	53	147	120	267	128	199	168	367	181
Quantity sold (lb)	2135	1453	3588	2433	3967	1728	5695	3483	6102	3181	9283	5916
Sales value (\$)	113.54	49.44	162.98	143.68	240.80	64.80	305.60	214.78	354.34	114.24	468.58	358.46
Cost (\$)	77.97	36.02	113.99	100.41	161.29	49.94	211.23	139.54	239.26	85.96	325.22	239.95
Gross margin (\$)	35.57	13.42	48.99	43.27	79.51	14.86	94.37	75.24	115.08	28.28	143.36	118.51
% of sales value	31	27	30	30	33	23	31	35	32	25	30	33
<b>Check Periods</b>												
Quantity bought (lb)	2705	-	2705	2994	3432	-	3432	3124	6137	-	6137	6118
Spoilage (lb)	68	-	68	78	151	-	151	128	219	-	219	206
Quantity sold (lb)	2637	-	2637	2916	3281	-	3281	2996	5918	-	5918	5912
Sales value (\$)	140.10	-	140.10	163.73	197.96	-	197.96	183.61	338.06	-	338.06	347.34
Cost (\$)	105.25	-	105.25	120.82	134.93	-	134.93	121.83	240.18	-	240.18	242.65
Gross margin (\$)	34.85	-	34.85	42.91	63.03	-	63.03	61.78	97.88	-	97.88	104.69
% of sales value	25	-	25	26	32	-	32	34	29	-	29	30

---Indicate no offerings of utility grade

Thousands  
of  
Pounds



Source: Table 2

Figure 2 Grades of Apples Sold in 16 Retail Grocery Stores in Cincinnati, Ohio in Experimental Periods, 1941-42.

Table 3. Comparison of Volume of U.S. No. 1 and Utility Grades of Apples Sold in 6 Retail Grocery Stores in Low Income Areas and in 10 Stores in Medium Income Areas in Cincinnati, Ohio, in Experimental Periods, 1941-42.

(Sales in Check Period = 100%)

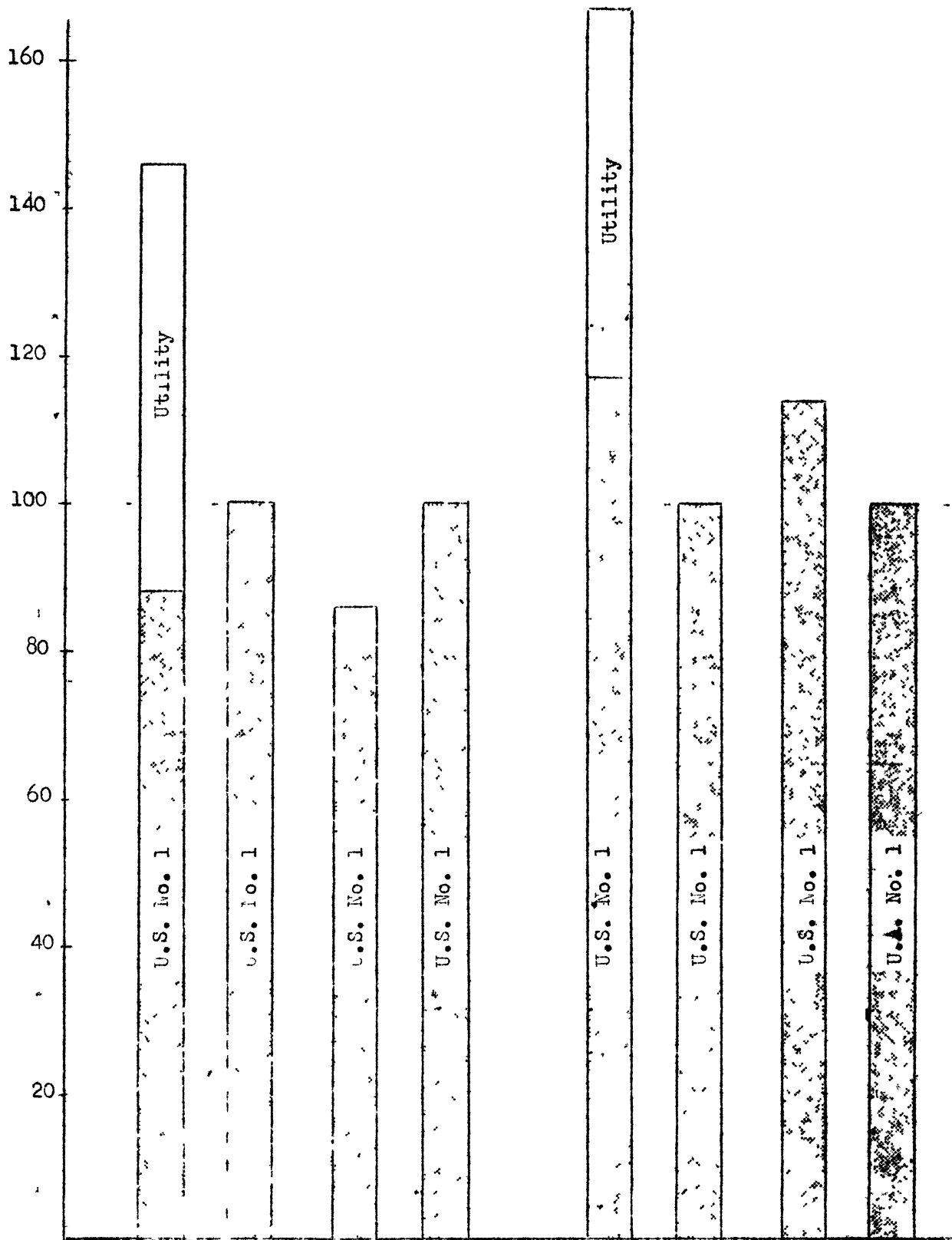
	6 Stores in low income areas				10 Stores in medium income areas			
	3 Test Stores		3 Check Stores		5 Test Stores		5 Check Stores	
	Test period	Check period	Test period	Check period	Test period	Check period	Test period	Check period
	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)
U.S. No. 1	2556	2893	2477	2885	3554	3025	3439	3027
Utility	1675	-	-	-	1506	-	-	-
Total	4231	2893	2477	2885	5060	3025	3439	3027
Percent	146	100	86	100	167	100	114	100
Index of rate of change	170		100		147		100	

Table 4. Spoilage of U.S. No. 1 and Utility Grade Apples in 16 Retail Grocery Stores in Cincinnati, Ohio, in Experimental periods, 1941-42.

	Summary of Fall Sales		Summary of Winter Sales		Summary of Fall & Winter Sales	
	U.S.No.1	Utility	U.S.No. 1	Utility	U.S.No.1	Utility
Quantity purchased(lbs)	10372	1501	14281	1848	24653	3349
Spoilage (lbs)	251	48	554	120	805	168
Percent spoilage	2.4	3.2	3.9	6.5	3.3	5.0

Source - Table 2

	Stores in Low-Income Areas				Stores in Medium-Income Areas			
	Test Stores		Check Stores		Test Stores		Check Stores	
	Test	Check	Test	Check	Test	Check	Test	Check
Percent	Period	Period	Period	Period	Period	Period	Period	Period



Source: Table 3

Figure 3. Volume of U.S. No. 1 and Utility Grades of Apples sold in 6 Retail Grocery Stores in Low-income Areas and 10 Stores in Medium-income Areas in Cincinnati, Ohio, in Experimental Periods, 1941-42. (Volume sold in check periods = 100%.)

18. Table 5. Summary of Sales of Fresh Apples and Apple Products in 4 Retail Grocery Stores, Cincinnati, Ohio, November - December 1941.

	Test Stores #9 & #10		Check Stores #9 & #10	
	Fresh Apples	Apple Products/1	Fresh Apples	Apple Products/1
<u>Check Period/2</u>				
Quantity bought (1b)	1405	68	1718	---
Spoilage (1b)	58	--	62	---
Quantity sold (1b)	<u>1347</u>	<u>68</u>	<u>1656</u>	<u>---</u>
Retail value (\$)	73.83	3.77	93.49	---
<u>Test Period/2</u>				
Quantity bought (1b)	1630	200	2406	---
Spoilage (1b)	63	---	65	---
Quantity sold (1b)	<u>1567</u>	<u>200</u>	<u>2341</u>	<u>---</u>
Retail value (\$)	92.01	9.27	130.30	---

/1 Includes applesauce, sliced apples, and apple juice in tin and apple butter in glass, converted into equivalents of fresh apples. (Table 7)

--- Indicate no offerings of apple products.

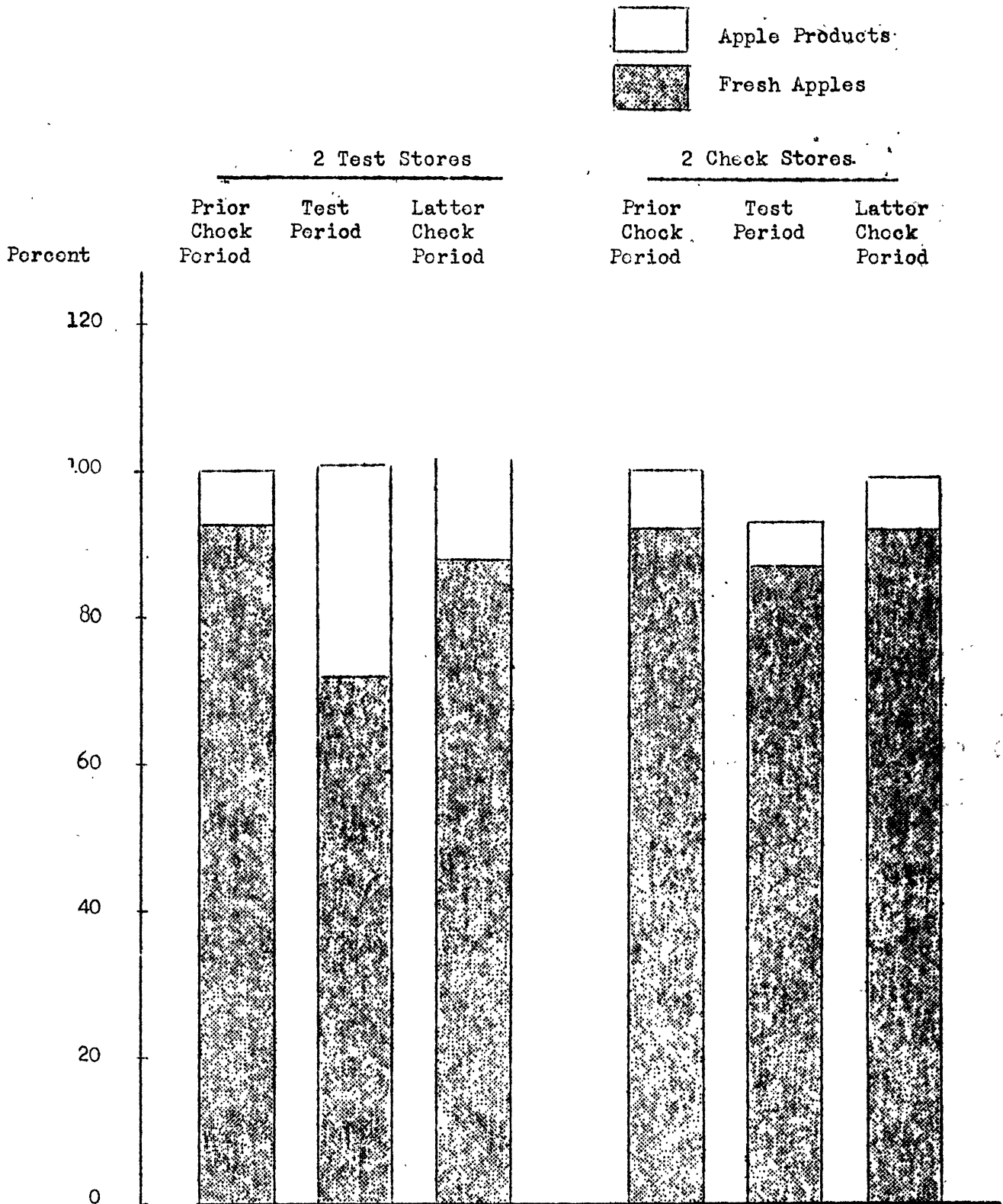
/2 Length of period, 22 days.

Table 6. Summary of Sales of Fresh Apples and Apple Products in 4 Retail Grocery Stores, Cincinnati, Ohio, March - April, 1942.

	Test Stores #11 & #12		Check Stores #11 & #12	
	Fresh Apples	Apple Products/1	Fresh Apples	Apple Products/1
<u>Prior Check Period/2</u>				
Quantity bought (1b)	666	49	407	34
Spoilage (1b)	25	--	18	--
Quantity sold (1b)	<u>641</u>	<u>49</u>	<u>389</u>	<u>34</u>
Retail value (\$)	43.57	3.27	28.24	2.77
<u>Test Period/2</u>				
Quantity bought (1b)	517	202	585	25
Spoilage (1b)	19	---	16	--
Quantity sold (1b)	<u>498</u>	<u>202</u>	<u>569</u>	<u>25</u>
Retail value (\$)	34.96	13.08	25.77	2.06
<u>Letter Check Period/1</u>				
Quantity bought (1b)	632	99	405	28
Spoilage (1b)	25	--	17	--
Quantity sold (1b)	<u>607</u>	<u>99</u>	<u>388</u>	<u>28</u>
Retail value (\$)	41.28	6.97	28.12	2.24

/1 Apple sauce in #2 Cans only, converted into equivalent of fresh apples. See Table 9.

/2 Length of period 1 week.



Source: Table 5

Figure 4. Volume of Fresh Apples and Apple Products sold in 4 Retail Grocery Stores, Cincinnati, Ohio, in Experimental Periods, 1942. (Prior Check Periods = 100%.)

Table 7. Number of containers of Apple Products and Equivalents in terms of Fresh Apples sold in 6 Retail Grocery Stores in Cincinnati, Ohio, in Experimental Periods, 1941-42.

Container <sup>1</sup>	Test Store #9			Test Store #10		
	Check period	Test period	Check period	Check period	Test period	Check period
Apple butter, 2-lb. jar	7	9		2	2	
Apple butter, 1-lb. jar	-	-	<u>3</u>	2	3	<u>3</u>
Applesauce, #2 can	7	21		9	52	
Apple slices, #2 can	-	3		-	-	
Apple juice #2 can	-	2		3	4	
Equivalent in terms of fresh apples - pounds <u>2</u>	36	72		32	128	
	Test Stores #11 and #12			Check Stores #11 and #12		
Applesauce, #2 can	31	136	67	23	17	19
Equivalent in terms of Fresh apples - pounds <u>2</u>	49	202	99	34	25	28

<sup>1</sup> Container weights: Apple butter, 2-lb jar - 2 lbs.; apple butter 1-lb. jar - 1 lb.; Apple sauce, #2 can - 1 lb. 1 oz.; Apple slices, #2 can - 1 lb. 2 oz.; Apple juice, #2 can - 1 lb. 4 oz.

<sup>2</sup> Conversion factors: 1 lb. apples = .55 lb. apple butter  
 1 lb. apples = .715 lb. apple sauce  
 1 lb. apples = .65 lb. apple slices  
 1 lb. apples = .78 lb. apple juice

Source: National Fruit Products Co., Martinsburg,  
 West Virginia

<sup>3</sup> No latter check period in Fall test

--- Indicate no sales in that period.