A STUDY OF MUSKMELON PRICES

Thesis for the Degree of M. S.

Alfred Benjamin Strand

1928

Malone

- Horticulture Vegetables
Economics (338.1)

A STUDY OF MUSKMELON PRICES

Thesis

Submitted to the Faculty of the Michigan State College of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of Master of Science.

by

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June 1928

Approved June 4, 1928
V. R. Gardner

THESIS

INTRODUCTION

The raising of muskmelons is an important horticultural industry in Michigan. According to the United States Department of Agriculture Yearbook for 1925 Michigan ranks fourteenth in commercial muskmelon production. In 1925 a total of 3778 acres were given over to the production of this crop (U.S.Census of Agriculture Michigan Statistics by Counties).

HISTORY

The first production on a commercial scale in Southwestern Michigan was in 1880. Roland Morrill, commonly known as the "Father of the Muskmelon Industry in Michigan," who, with I.R.Pearl, originated the "Hearts of Gold," and J.W.Rose and Murdock Randall, are considered to be the pioneers.

Miller's Cream, Osage, and Netted Gem were the first varieties grown in this state on a commercial scale. According to Mr.A. Randall these varieties were distinct in type and plant characteristics.

The Osage, originally obtained from Osage County, Missouri, by J.W.Rose was early, inferior in quality and productive.

The Miller's Cream was higher in quality and preferred on the market to the Osage. Both varieties were usually shipped under the name Osage.

About 1885 the Hearts of Gold variety, supposedly a cross between Osage and Netted Gem, and Hoodoo, a muskmelon similar in type and presumably a strain of the Hearts of Gold, were developed. These two varieties are now the most popular and constitute the majority of the plantings in Berrien County.

In the early days of the industry little attention was given to methods of handling and shipping. Muskmelons were usually packed in boxes or barrels. The independent shipping of growers led to frequent gluts on the market. Later the severe competition of Western fruits compelled growers to pay more attention to systematic marketing and standardized grading. As a result a great majority of the muskmelons grown in this district are packed and shipped under the cooperative plan. Packing and shipping stations now exist at Millburg, Benton Center and Pearl Grange.

As the industry has gradually developed various problems have forced their attention on the grower. Some of these are production problems; others have to do with marketing and price. Sometimes one seems to be most acute, sometime another. One of the most common complaints of the growers is gradual, or somewhat rapid, decline in price as the shipping season progresses. So important has this question become in the minds of a large percentage of those engaged in the industry that it seems desirable to make a somewhat detailed study of the situation.

Fig. 1.- Distribution of muskmelons in Michigan. Number of acres in each county given over to the production of the crop. (U.S.Census of Agriculture, Michigan Statistics by Counties, 1925).

YEARLY PRICE TRENDS (1920 to 1927 Inclusive).

The detailed information, upon which this study is based was secured from the daily sales record of the Benton Center Fruit Association, Benton Center, Michigan, and Millburg Fruit Association, Millburg, Michigan. In a good year the two exchanges ship in the neighborhood of 30,000 crates of Hoodoo muskmelons, which constitute approximately one half of the total Hoodoo variety marketed from Berrien County, Michigan. The prices are gross returns per crate as sold by the Associations on the Chicago Market.

Figure 2 shows that though prices slumped during the period August 29 to September 1, 1920 and again from September 10 to 15, though the general seasonal price trend was upward. Michigan fruits were high in quality and brought high prices that year, while Western fruits were low in quality and brought low prices.

The graph in Figure 3 shows a downward price trend for 1921. Heavy shipments from the west, 1995 cars as compared to 885 for the same period of the previous season, and early appearance and increasing shipments from Berrien County, Michigan, offer an

Figure 2.- Price Trend for 1920.

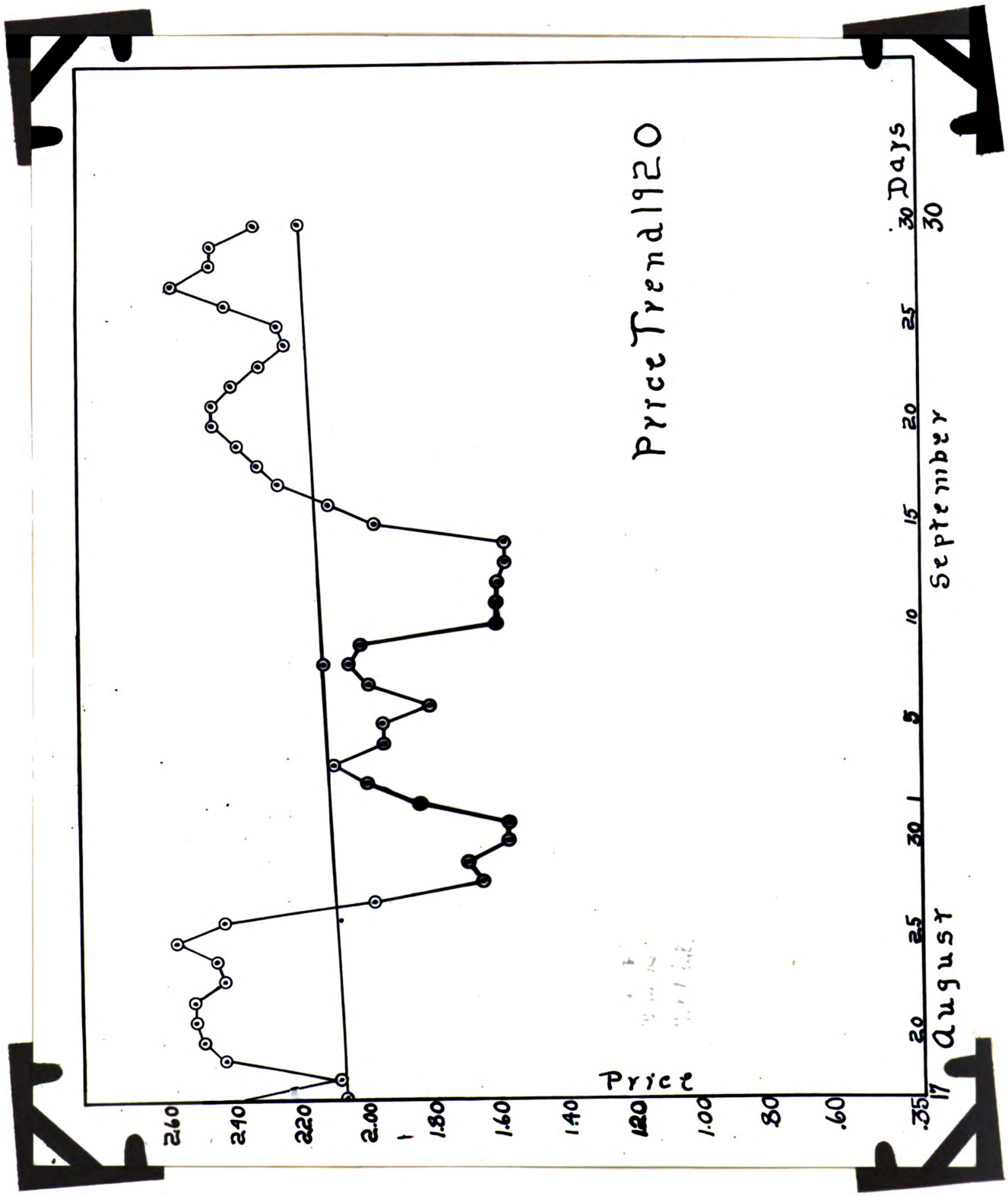
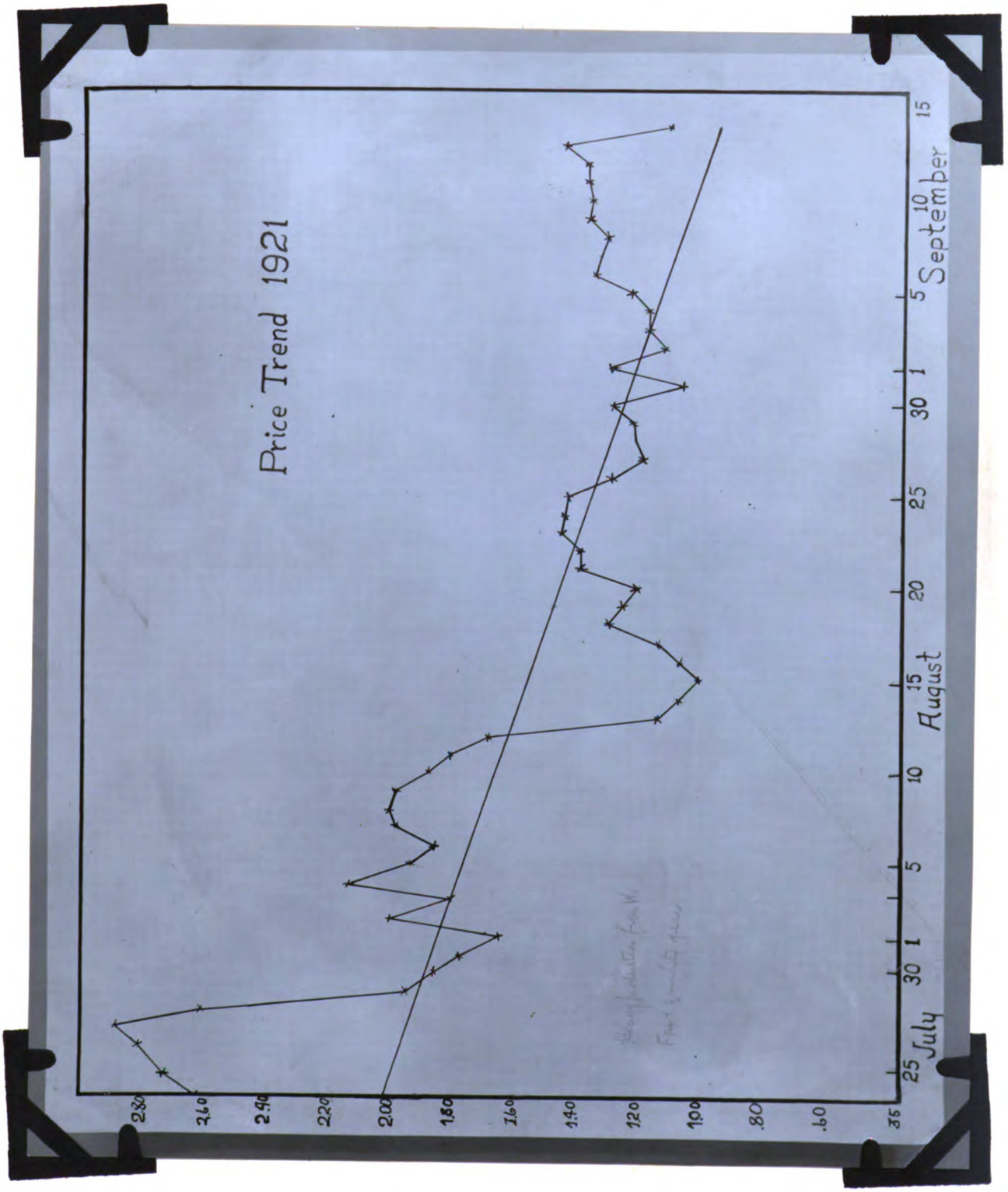


Figure 3.- Price Trend for 1921.



explanation of the rapid drop in price from July 27 to August 2 and again from August 11 to 15. The peak of the western shipments occurred on August 31 followed by a rapid decline.After that date prices of Michigan muskmelons increased.

The graph in Figure 4 clearly shows that the price trend was sharply downward, with no wide fluctuation in 1922. Low prices throughout that season doubtless can be attributed to over production. Yields were especially high and quality good.

The graph in Figure 5 shows a downward price trend similar to that for 1922 (the preceeding year). Extremely low prices were realized on August 31 and September 1. Though shipments from Michigan were normal, shipments from the west were light, only 2073 cars originating in Colorado, as compared to 4420 for 1922. This condition is in sharp contrast to that of 1922 when receipts were heavy and quality good.

A gradual downward trend is observed for 1924 (Figure 6). Shipments from the west throughout this season were heavy and quality was good. Shipments from Michigan began simultaneously with the highest peak of those from Colorado (August 17 to 23). This severe competition from the west, occurring at the

Figure 4.- Price Trend for 1922.

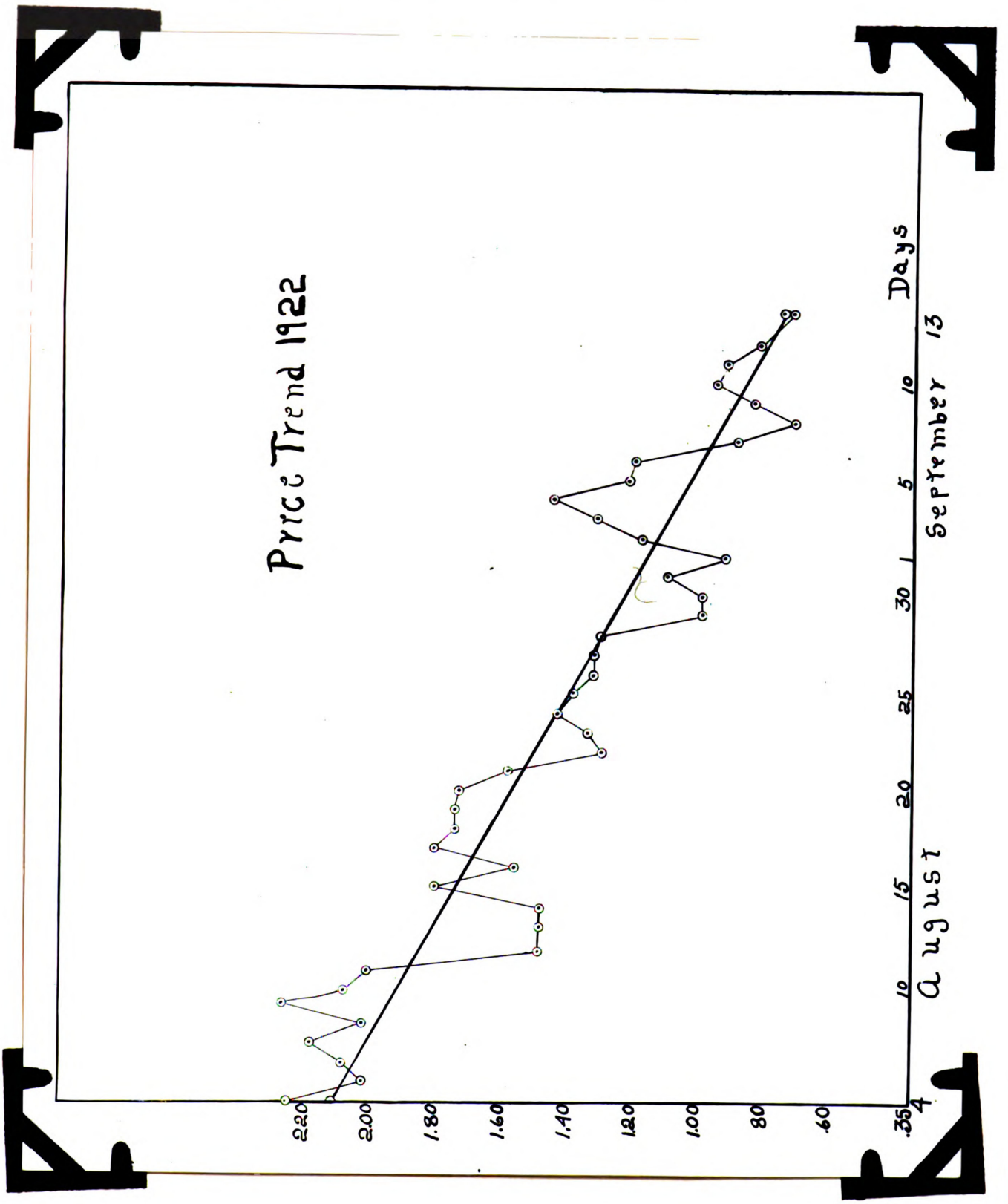


Figure 5.- Price Trend for 1923.

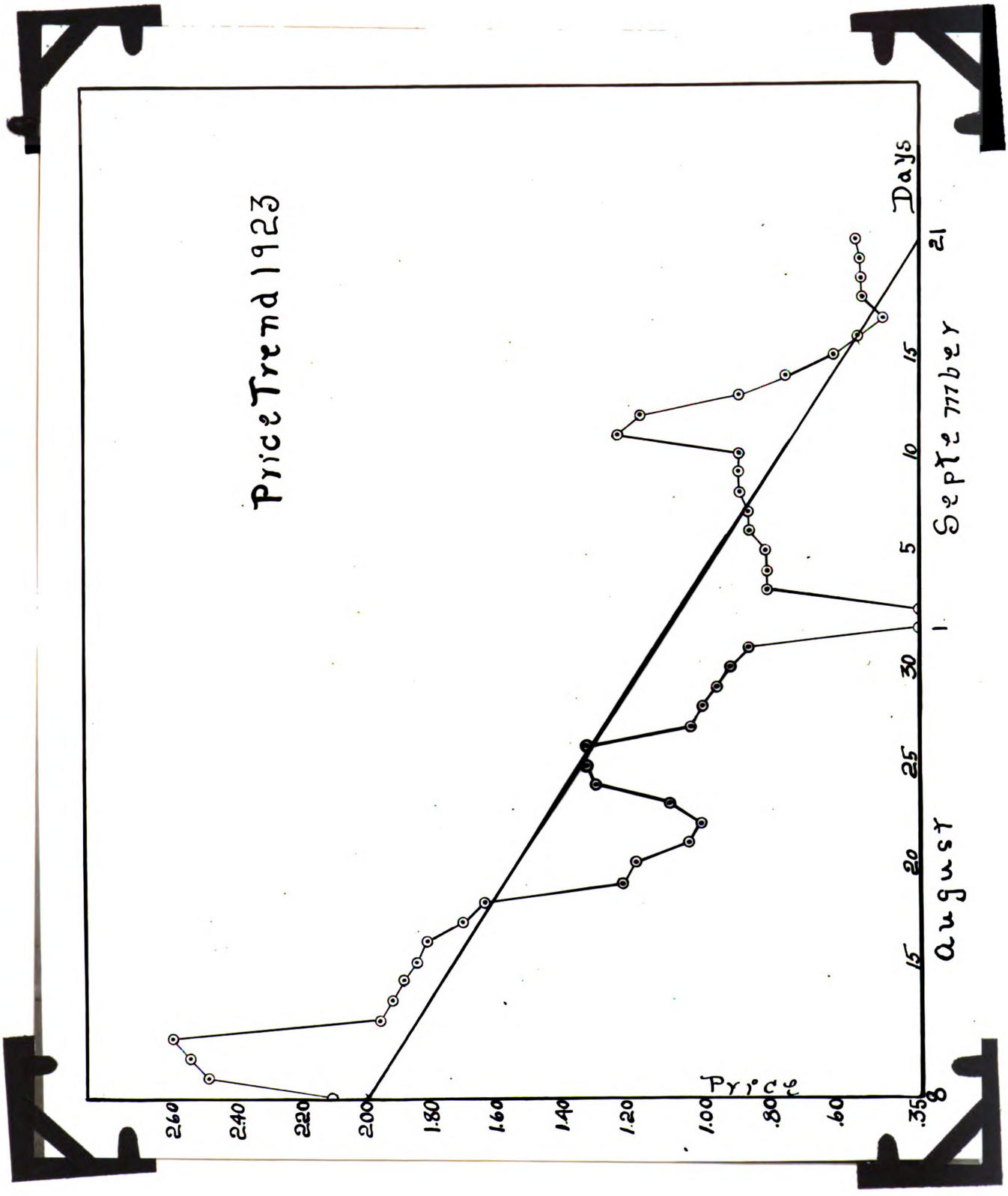
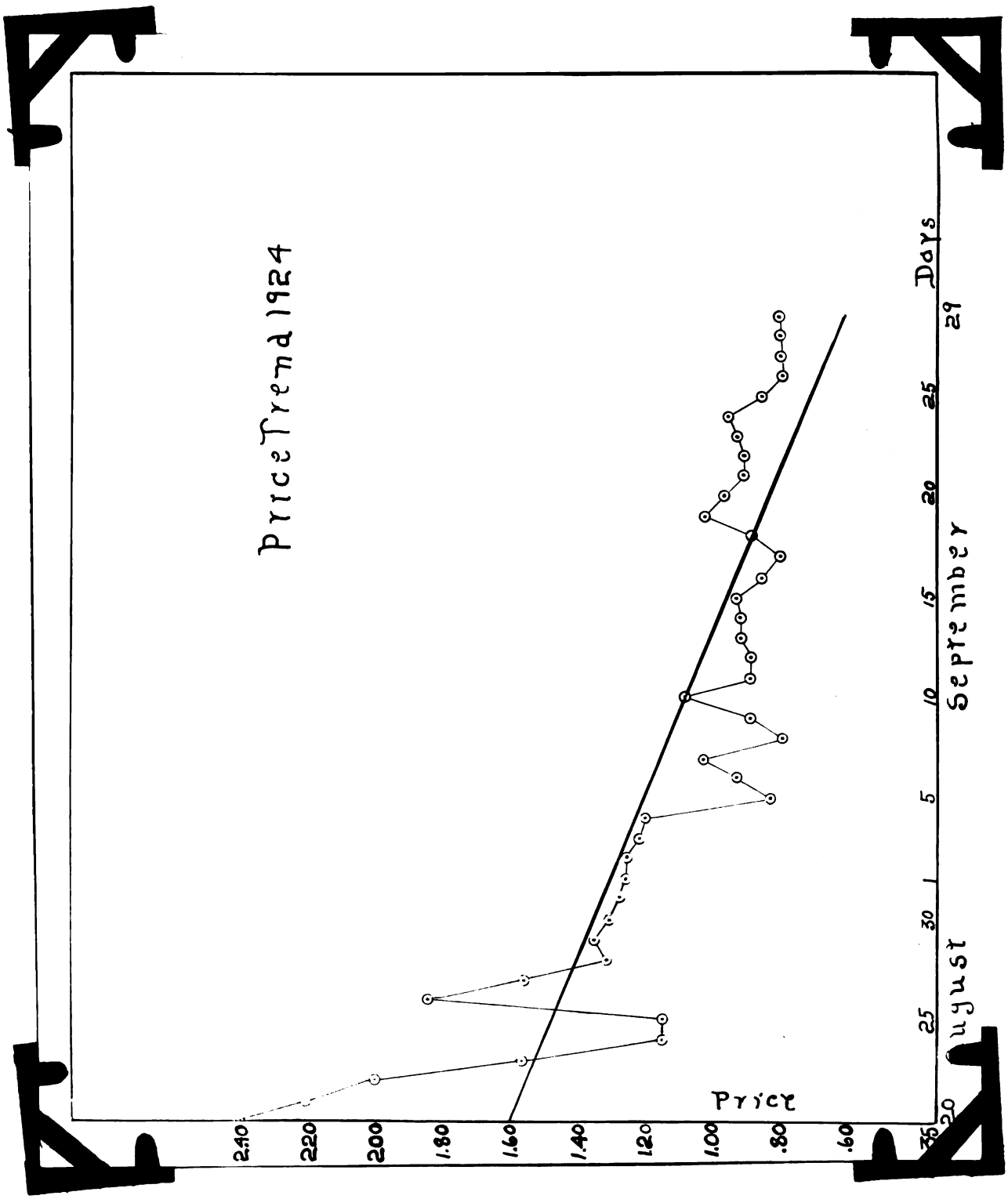


Figure 6.- Price Trend For 1924.



same time as shipments from Indiana, held prices at a low level. During the latter part of the season shipments from the west gradually decreased and prices for Michigan muskmelons increased.

Figure 7 shows that a comparatively slow decline in price occurred in 1925. Heavy crops of poor quality reported from Rocky Ford, Colorado, and many other western states, shipped simultaneously with heavy shipments from Indiana, lowered prices considerably and demoralized the market. After August 29 prices for Michigan muskmelons recovered somewhat.

The graph in Figure 8 shows a very marked downward price trend in 1926. The average seasonal returns that year were the lowest, and the shipping season the shortest of the eight years studied. The quality of melons from all sections was relatively poor. Market demands were exceedingly light.

In 1927 prices of muskmelons from Rocky Ford, Colorado, and Berrien County began at a fair level, however, despite increased shipments from all sections averaging 113 cars daily or 41 more per day than in 1926, prices for Michigan muskmelons steadily increased as the season advanced (Figures 9 and 10) (Table 2).

Figure 7.- Price Trend for 1925.

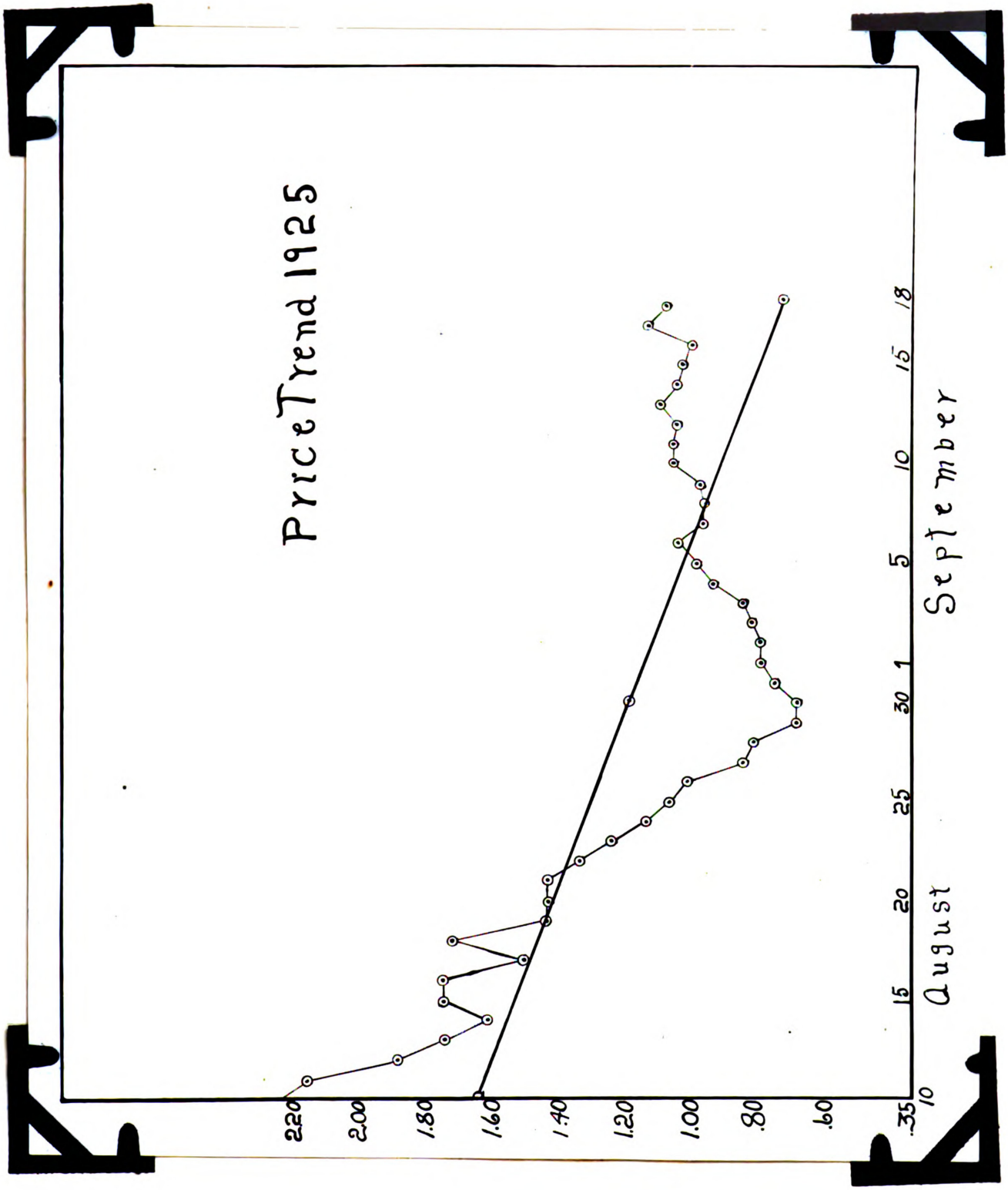


Figure 8.- Price Trend for 1926.

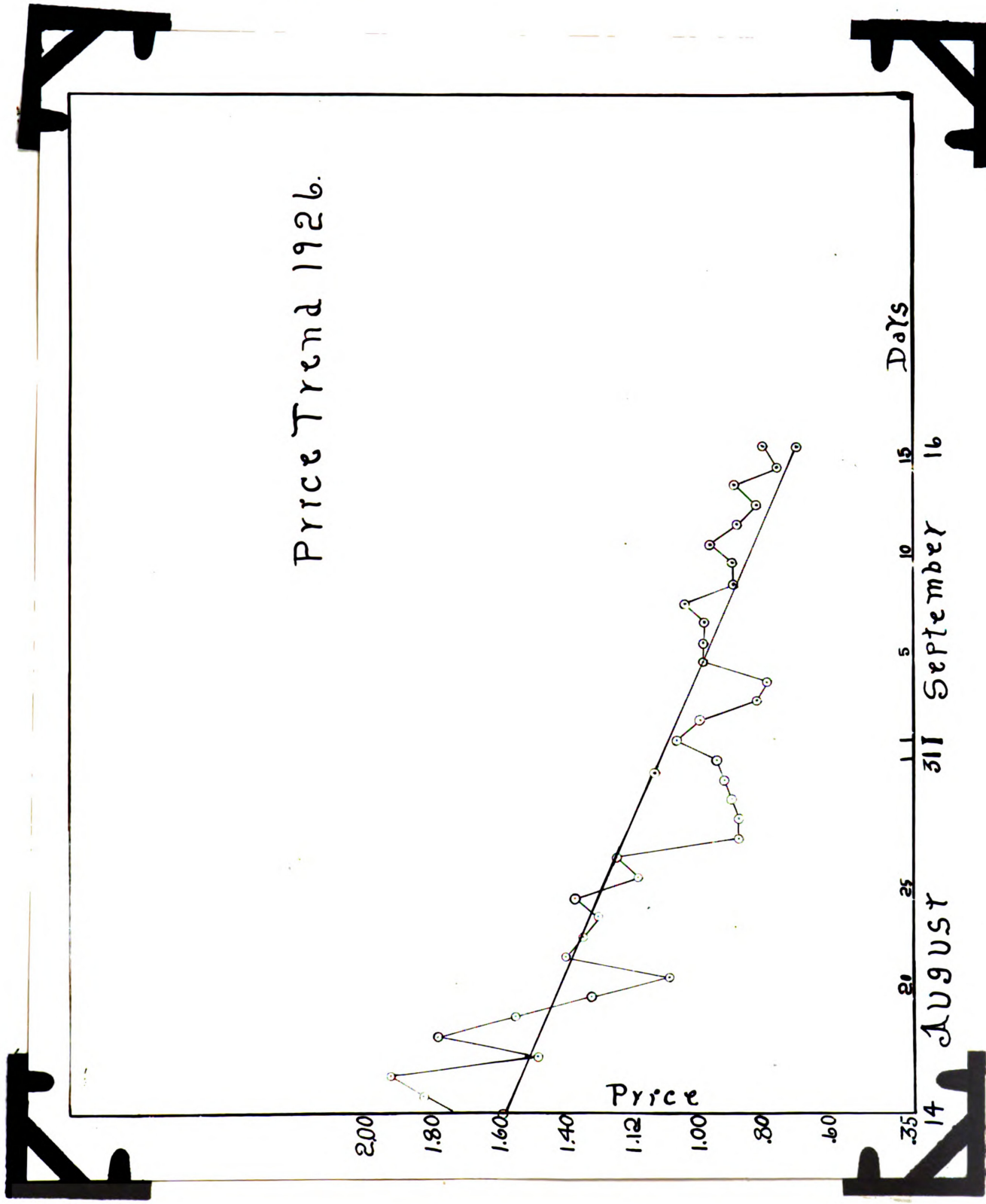


Figure 9.-Price Trend for 1926.
----- Rocky Ford, Colorado.
_____ Michigan.

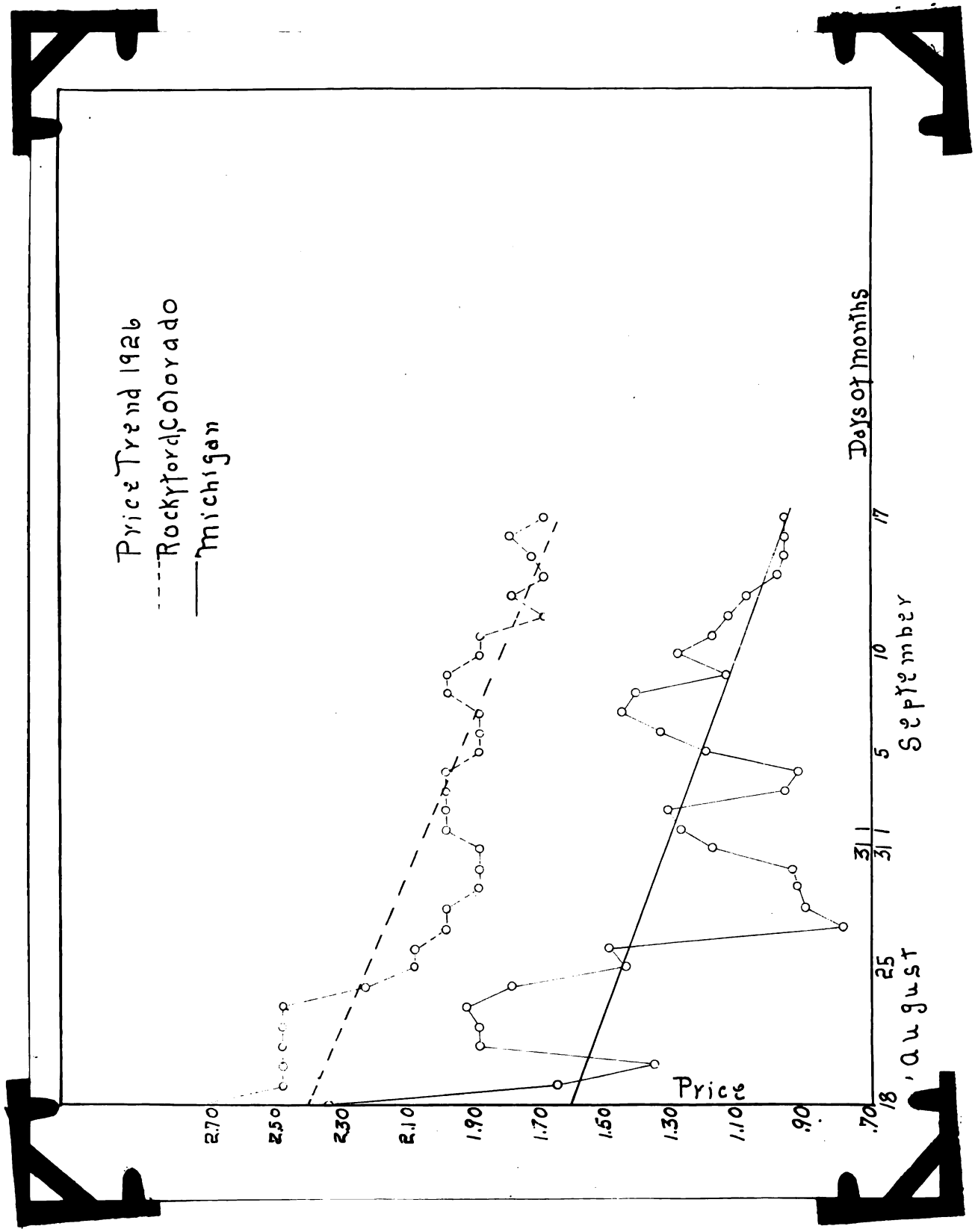
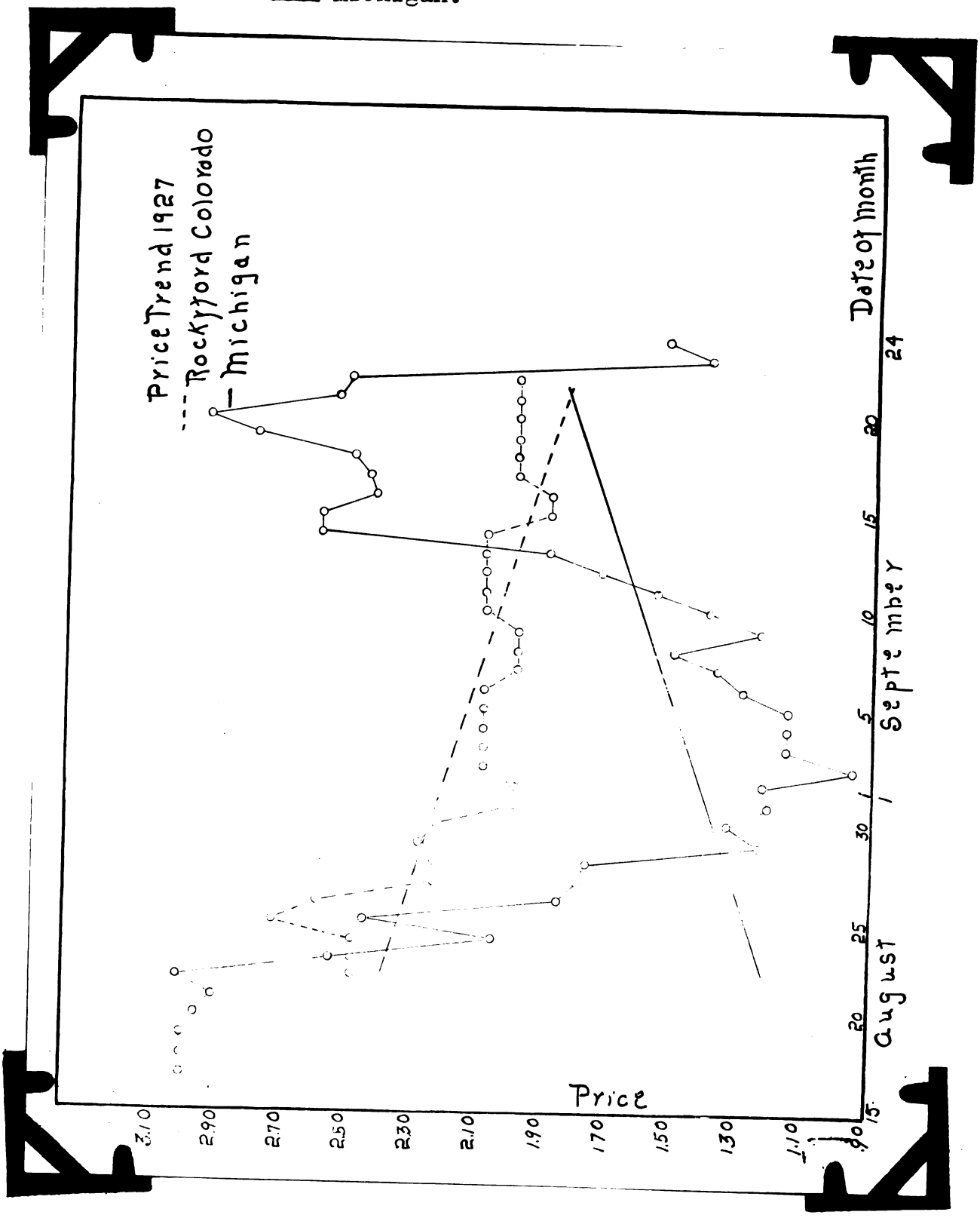


Figure 10.-Price Trend for 1927.
----- Rocky Ford, Colorado.
——— Michigan.



Effect of Western Shipments on Price Trend.

Though high quality muskmelons generally demand highest prices this is not always the case. Frequently the quality of the fruit in any one season markedly affects the trend of sales during the succeeding season. For instance, though the quality of Colorado muskmelons in 1925 was relatively high, the low quality of the 1924 product no doubt was responsible for the low prices received for the initial shipments. Later, however, higher prices were realized as the consuming public demand for the quality fruit increased.

A similar condition existed in Berrien County during 1926 and 1927. The low quality of fruit marketed during 1926 brought low returns and poor market demands. The high quality of the fruits the following year failed to bring fancy prices at the beginning of the season but did so at the close of the marketing period. Table 2 and Figures 9 and 10 indicate that the prices obtained for quality fruits are not necessarily decreased by western shipments.

The prevalence of muskmelon diseases in 1926, favored by adverse weather conditions during the growing season, resulted in the production of poor quality fruits and very light market demands. The data in Table 2 show that the average carlot receipts at Chicago of 72 cars remained

Table 2.- Daily prices of standard "36" and "45" crates of muskmelons and total carlot receipts- Chicago, Illinois, 1926-1927

Month	1926 Michigan Prices	Rocky Ford Colorado Prices	Chicago Total Carlot Receipts	Month	1927 Michigan Prices	Rocky Ford Colorado Prices	Chicago Total Carlot Receipts
August				August			
18	$2.36	$2.75	87	22	$3.04	$2.50	134
19	1.67	2.50	87	23	2.56	2.50	116
20	1.36	2.50	105	24	2.06	2.50	96
21	1.90	2.50	89	25	2.46	2.75	90
22	1.91	2.50	84	26	1.86	2.60	94
23	1.92	2.50	82	27	1.80	2.25	106
24	1.80	2.25	81	28	1.75	2.25	115
25	1.45	2.10	87	29	1.24	2.30	124
26	1.50	2.10	35	30	1.35	2.25	114
27	.78	2.00	61	31	1.13	2.00	102
28	.90	2.00	46	Sept. 1	1.14	2.00	119
29	.92	1.90	60	2	.95	2.10	100
30	.94	1.90	75	3	1.17	2.10	106
31	1.15	1.90	49	4	1.17	2.10	106
Sept. 1	1.28	2.00	54	5	1.17	2.10	121
2	1.32	2.00	33	6	1.30	2.10	145
3	.96	2.00	66	7	1.38	2.00	122
4	.92	2.00	53	8	1.51	2.00	113
5	1.20	1.90	59	9	1.24	2.00	89
6	1.34	1.90	76	10	1.40	2.10	88
7	1.48	1.90	92	11	1.57	2.10	102
8	1.46	2.00	68	12	1.74	2.10	116
9	1.14	2.00	60	13	1.90	2.10	112
10	1.29	1.90	63	14	2.61	1.90	110
11	1.18	1.90	57	15	2.61	1.90	93
12	1.12	1.70	52	16	2.44	2.00	97
13	1.07	1.80	116	17	2.46	2.00	119
14	.98	1.70	104	18	2.49	2.00	145
15	.96	1.75	93	19	2.81	2.00	153
16	.96	1.80	95	20	2.97	2.00	161
17	.96	1.70	72	21	2.56	2.00	113
	1.29	2.04	72		1.54	2.14	113
	b -.023	b -.026	b -.002		b .021	b .018	b .58

Data were secured from the Bureau of Agricultural Economics. Market News Service Daily Market Report.
b = slope of line.

about constant throughout the season and that the carlot receipts in 1927 were very heavy, averaging 113 cars daily or 41 more than in 1926. Shipments also materially increased as the season advanced.

In 1926 a marked parallelism existed in the downward price trend of Michigan and Colorado muskmelons. The quality of the fruit was poor from both sections. In 1927, though the price of Colorado fruits progressively decreased, the increased shipments from all sections failed to lower the prices for the Michigan product, prices steadily increasing as the season advanced. During that season the quality of Michigan muskmelons was exceptionally high.

Early Production and Profits

Variations in price, however, are not limited to the differences that exist from week to week or season to season. There are differences in the average prices obtained by different growers, differences due to size of melons and many other factors. It was thought desirable to obtain data on some of these questions and with this idea in mind a determination of the direct causes of variations in price returns for different growers was made by carefully listing the number of large, small, and early melons on a

Table 3.- Number and per cent of small, large and early muskmelons harvested by four representative growers, (1920 to 1927 inclusive)

	Crates containing 36 small melons				Crates containing 16 large melons				Crates of large and small early melons			
	Grower Number				Grower Number				Grower Number			
Years	1	2	3	4	1	2	3	4	1	2	3	4
1920	44	285	33	----	63	151	72	----	10	78	0	----
1921	145	216	142	172	144	444	950	316	14	102	52	0
1922	439	296	275	265	981	317	550	389	221	188	65	37
1923	450	236	71	18	1664	972	1606	85	389	10	56	4
1924	161	87	102	44	890	288	337	244	138	28	17	17
1925	168	91	92	33	412	582	605	184	116	108	173	24
1926	114	116	86	13	907	658	720	111	364	81	63	0
1927	141	111	132	45	323	135	413	146	0	52	4	0
Total	1662	1438	933	590	5384	3547	5253	1475	1252	647	430	82
Per Cent	23.5	28.0	15.0	28.5	76.5	72.0	85.0	71.5	17.7	12.5	7.0	4.0

crate basis and determining the per cent of each produced. The period covered was from 1920 to 1927 inclusive. The records of the number of crates produced by the four representative growers were secured from the Benton Center Fruit Association. The per cent "large" refers to the melons packed in 11 x 11, 10 x 10 and 9 x 9 crates. Each crate contained 16 large melons 4.5 to 5.5 inches in diameter. The per cent "small" refers to the total number of small melons packed in 12 x 12 standard crates, containing 36 fruits measuring not less than 3.5 inches and not more than 4.25 inches in diameter. The per cent "early" refers to the total number of large and small fruits packed the first week of the shipping seasons. The average date of the last killing frost in the spring is on May 6 and the first in the fall October 24 providing a frost free season of approximately 150 days. Muskmelons are seldom set out in the field earlier than the last week in May, as a very light frost will destroy the plants.

Tables 3 and 4 show the per cent of large, small, and early melons produced by each of four representative growers and the average prices per crate they received during the eight years for which records were available.

Data in Tables 3 and 4 show that grower No. 1 produced the greatest number of early fruits or about four and one half times as many as grower No. 4, and

Table 4.- Average gross price returns per crate for four growers, (1920-1927 inclusive)

Year	Grower Number 1	Grower Number 2	Grower Number 3	Grower Number 4	Average for season
1920	$2.06	$1.79	$2.19	-----	$2.01
1921	1.79	1.70	1.55	$1.32	1.59
1922	1.60	1.70	1.40	1.31	1.50
1923	1.23	.89	1.03	.83	.99
1924	1.11	1.07	.97	1.08	1.05
1925	.86	.94	1.00	.83	.90
1926	1.18	.92	.97	.86	.98
1927	1.16	1.29	1.12	1.26	1.20
Average for grower	1.37	1.28	1.27	1.07	1.27

received 30 cents a crate more. The figures showing average gross returns per crate indicate that the grower producing a relatively large number of early fruits receives the greatest average returns, however, grower No. 3 produced a relatively small percentage of early fruits but a large percentage of large fruits and received only one cent less per crate than grower No. 2 who produced a relatively large percentage of early melons. In a word the production of both early and large melons is desirable. This can be done by the use of sandy loams with southeasterly exposure, protection from cold winds and coupling these natural advantages of location and soil with good soil management and cultural methods.

Influence of Climate on Quality

Growers of muskmelons in Berrien County, Michigan, generally realize the marked influence of weather conditions on quality. In seasons characterized by long periods of heavy rainfall quality of the fruit is usually poor. Conversely light rainfall during the ripening period favors the production of high quality fruit. Periods of heavy rainfall accompanied by high temperatures are conducive to the spread of muskmelon diseases.

Data in Table 5 show that precipitation was excessive and high temperatures prevailed during the months of July and August in 1924 to 1926 inclusive. During this period diseases were prevalent and fruits were of poor quality. On the other hand, the season of 1927, when exceptionally high quality melons were produced, was characterized by a low July, August and early September rainfall and by relative freedom from diseases.

The Advantages of Cooperative Marketing

Approximately 50 per cent of the muskmelons produced in Berrien County, Michigan, are marketed through cooperative packing and shipping associations. This situation offered excellent opportunity to determine which class of growers were realizing the greatest gross returns.

Table 5.- Number of inches of rainfall and heat units occurring during the growing and ripening seasons (1920 to 1927 inclusive)

Months	Years																Average Monthly	
	1920		1921		1922		1923		1924		1925		1926		1927			
	Rainfall	Heat Units	Rainfall	Heat Units	Rainfall	Heat Units	Rainfall	Heat Units	Rainfall	Heat Units	Rainfall	Heat Units	Rainfall	Heat Units	Rainfall	Heat Units	Rainfall	Heat Units
ay	----	1022	----	1089	----	1200	----	1068	----	906	----	990	----	1204	----	980	----	1057
une	3.60	1289	1.67	1391	2.32	1237	1.90	1267	6.37	1145	1.57	1400	1.83	1109	2.13	1184	2.66	1252
uly	1.62	1290	.80	1764	3.35	1335	4.85	1439	2.97	1438	2.85	1516	3.23	1507	1.52	1468	2.64	1469
ug.	1.80	1393	4.50	1362	1.35	1392	1.66	1266	3.88	1366	3.21	1514	3.11	1434	.72	1272	2.53	1375
ept.	1.96	1852	7.13	1215	3.20	1226	3.89	1076	2.94	883	2.27	1229	3.85	1020	7.01	1226	4.03	1215
ea-ons otals	8.98	6826	14.10	8057	10.22	6390	12.30	6116	16.16	5738	9.90	6649	12.02	6274	11.38	6130	11.86	6522

Data for Table 5 were secured from the St. Joseph, Michigan, U.S. Weather Bureau records.
Heat units were calculated according to the Seeley method.

Table 6.- Comparative table of climatic conditions occurring during latter growing and ripening seasons (1924 to 1927 inclusive)

	Seasons of excessive rainfall and high temperatures.						Season of low rainfall and relatively low temperatures	
	1924		1925		1926		1927	
Month	Rainfall inches	Heat units	Rainfall inches	Heat units	Rainfall inches	Heat units	Rainfall inches	Heat units
July	2.97	1438	2.85	1516	3.23	1507	1.52	1468
August	3.88	1366	3.21	1514	3.11	1434	.72	1272
Average	3.42	1402	3.03	1515	3.17	1471	1.12	1370

The data presented in Table 7 show the average daily prices received by a non-association and an association respectively, and Figures 11 and 12 give their seasonal price trend.

An average mean price for the eight years for each group was determined by the method of Least Squares. The data presents the following results:

Mean price non-association member

$1.27 ± .021

$$\frac{432.50}{235 - 1.613} = .476$$

$$P.E. = \frac{.476}{15.33} \times 0.6745 = \pm .021$$

Mean price association member

$1.44 - 0.20

$$= \frac{820.04}{347 - 2.0736} = .537$$

$$P.E. = \frac{.537}{18.63} \times 0.6745 = \pm 0.20$$

$1.44 - $1.27 = $0.17

$$P.E. = (0.21)^2 + (0.20)^2 = .029 \quad \frac{0.17}{.029} = 5.86$$

Table 7.- Average daily price per package (1926 to 1927 inclusive).Association and non-association members

Month		1920		1921		1922		1923		1924		1925		1926		1927	
		Association	Non-Association	Association	Non-Association	Association	Non-Association	Association	Non-Association	Association	Non-Association	Association	Non-Association	Association	Non-Association	Association	Non-Association
July	20	----	----	----	2.25	----	----	----	----	----	----	----	----	----	----	----	----
"	21	----	----	----	2.25	----	----	----	----	----	----	----	----	----	----	----	----
"	22	----	----	----	2.00	----	----	----	----	----	----	----	----	----	----	----	----
"	23	----	----	----	2.00	----	----	----	----	----	----	----	----	----	----	----	----
"	24	----	----	2.64	2.00	----	----	----	----	----	----	----	----	----	----	----	----
"	25	----	----	2.73	2.00	----	----	----	----	----	----	----	----	----	----	----	----
"	26	----	----	2.83	1.90	----	----	----	----	----	----	----	----	----	----	----	----
"	27	----	----	2.90	2.00	----	----	----	----	----	----	----	----	----	----	----	----
"	28	----	----	2.62	1.50	----	----	----	----	----	----	----	----	----	----	----	----
"	29	----	----	1.96	1.50	----	----	----	----	----	----	----	----	----	----	----	----
"	30	----	----	1.87	1.25	----	----	----	----	----	----	----	----	----	----	----	----
"	31	----	----	1.79	1.00	----	1.50	----	----	----	----	----	----	----	----	----	----
Aug.	1	----	----	1.66	1.00	----	1.25	----	----	----	----	----	----	----	----	----	----
"	2	----	----	2.01	1.00	----	1.25	----	----	----	----	----	2.16	----	----	----	----
"	3	----	----	1.81	1.00	----	1.25	----	----	----	----	----	2.25	----	----	----	----
"	4	----	----	2.15	1.16	2.27	1.25	----	1.50	----	----	----	1.88	----	----	----	----
"	5	----	----	1.94	1.33	2.04	1.35	----	1.37	----	----	----	1.86	----	2.00	----	----
"	6	----	----	1.86	1.40	2.10	1.45	----	1.35	----	----	----	1.87	----	2.00	----	----
"	7	----	----	1.99	1.50	2.20	1.59	----	1.25	----	----	----	1.72	----	2.00	----	2.37
"	8	----	2.00	2.01	1.28	2.04	1.59	2.12	1.00	----	----	----	1.52	----	2.03	----	2.50
"	9	----	2.00	1.99	1.25	2.29	1.35	2.51	1.00	----	----	----	1.90	----	2.05	----	2.75
"	10	----	2.03	1.88	1.07	2.11	1.35	2.56	1.00	----	2.50	2.25	1.81	----	2.06	----	2.65
"	11	----	2.06	1.82	1.00	2.03	1.35	2.61	1.04	----	2.50	2.19	1.74	----	1.81	----	2.92
"	12	----	1.87	1.69	1.00	1.50	1.33	1.97	1.09	----	1.70	1.91	1.34	----	1.64	----	2.13

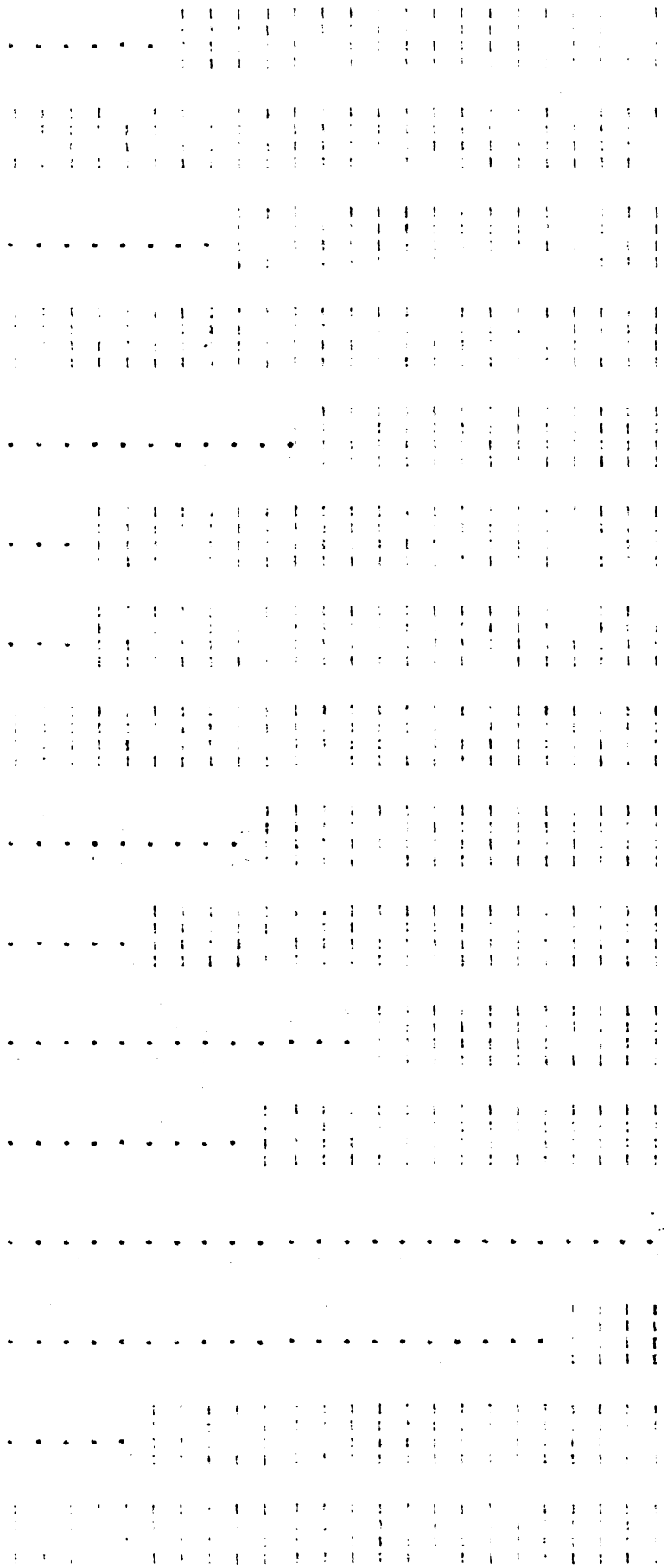


Table continued

Month		1920		1921		1922		1923		1924		1925		1926		1927	
		Association ¢¢	Non-Association ¢¢	Association ¢¢	Non-Association ¢¢	Association ¢¢	Non-Association ¢¢	Association ¢¢	Non-Association ¢¢	Association ¢¢	Non-Association ¢¢	Association ¢¢	Non-Association ¢¢	Association ¢¢	Non-Association ¢¢	Association ¢¢	Non-Association ¢¢
Aug.	13	----	1.62	1.15	1.00	1.50	1.32	1.94	1.12	----	1.64	1.77	1.51	1.75	1.64	----	1.85
"	14	----	1.56	1.08	1.00	1.50	1.00	1.91	1.05	----	1.64	1.64	1.26	1.85	1.40	2.41	1.63
"	15	----	1.50	1.01	1.00	1.83	1.50	1.87	1.05	----	1.60	1.77	1.32	1.95	1.16	2.41	1.46
"	16	----	1.50	1.07	.75	1.59	.85	1.83	1.05	----	1.27	1.77	1.37	1.50	1.29	2.41	1.71
"	17	2.42	1.50	1.15	.75	1.83	1.30	1.72	1.05	----	1.28	1.53	1.32	1.81	1.36	2.15	1.00
"	18	2.11	1.22	1.30	.75	1.76	1.55	1.65	1.08	----	1.28	1.75	1.28	1.57	1.10	2.06	1.39
"	19	2.45	1.18	1.25	.75	1.76	1.45	1.22	1.08	----	1.01	1.46	1.12	1.35	1.01	1.98	1.60
"	20	2.53	1.17	1.22	.75	1.75	1.35	1.19	1.05	2.44	1.46	1.45	.98	1.10	.96	2.03	1.60
"	21	2.54	1.17	1.40	.75	1.60	1.37	1.06	1.05	2.23	.80	1.46	.99	1.42	.95	2.08	1.61
"	22	2.55	1.17	1.40	.75	1.31	1.40	1.03	1.02	2.02	1.07	1.36	.72	1.37	.94	2.17	1.04
"	23	2.46	.87	1.46	.75	1.35	1.77	1.12	1.05	1.59	1.10	1.26	.72	1.32	.82	2.08	1.03
"	24	2.48	.84	1.45	----	1.45	2.15	1.31	1.05	1.17	1.12	1.16	.67	1.39	.71	1.41	1.12
"	25	2.60	.82	1.44	----	1.40	2.50	1.34	1.05	1.17	1.12	1.13	----	1.20	.58	1.70	1.08
"	26	2.42	.75	1.29	----	1.35	2.50	1.34	1.08	1.87	1.12	1.04	----	1.27	.59	1.45	1.11
"	27	2.03	.75	1.20	----	1.35	----	1.06	1.05	1.58	1.01	.87	----	.89	.57	1.39	.97
"	28	1.67	.75	1.22	----	1.32	----	1.02	1.05	1.34	1.01	.84	----	.89	.50	1.34	.97
"	29	1.71	.75	1.23	----	1.01	----	.98	1.05	1.38	----	.70	----	.91	.44	1.22	.60
"	30	1.59	.85	1.33	----	1.01	----	.93	1.05	1.33	----	.70	----	.93	.44	1.06	.64
"	31	1.58	.85	1.07	----	1.12	----	.89	1.05	1.30	----	.79	----	.96	.44	.93	.73
Sept.	1	1.85	.75	1.31	----	.94	----	.35	1.05	1.28	----	.81	----	.98	----	.91	.60
	2	2.02	.75	1.13	----	1.20	----	.35	1.05	1.28	----	.81	----	1.01	----	.92	.65
	3	2.12	.75	1.18	----	1.33	----	.81	1.05	1.24	----	.84	----	.84	----	.83	.65
	4	1.97	.75	1.18	----	1.46	----	.81	----	1.22	----	.87	----	.81	----	.83	.64
	5	1.97	.75	1.24	----	1.24	----	.83	----	.85	----	.96	----	1.01	----	.83	.65
"	6	1.83	.75	1.36	----	1.22	----	.88	----	.95	----	1.01	----	1.00	----	1.14	.65

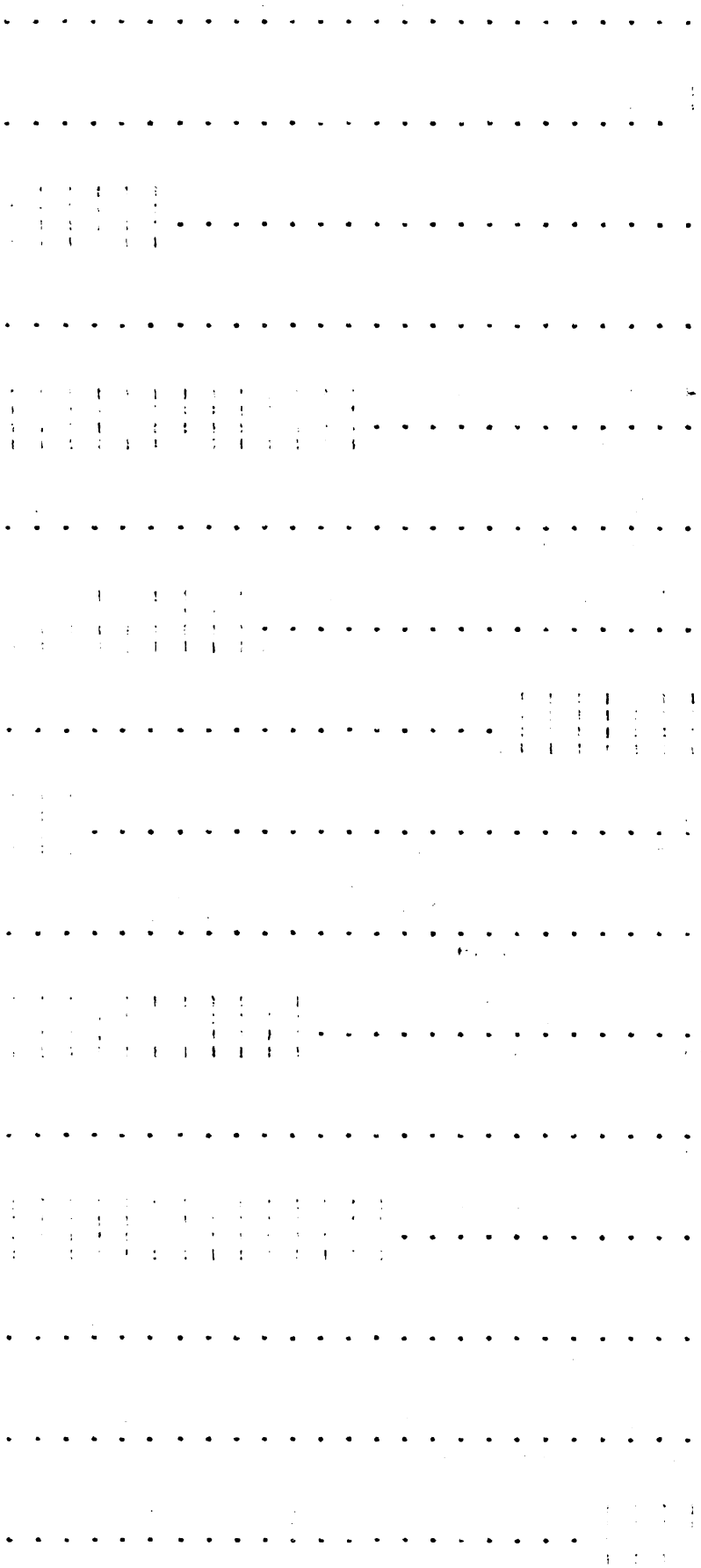


Table 7 continued

Month	1920		1921		1922		1923		1924		1925		1926		1927	
	Association	Non-Association	Association	Non-Association	Association	Non-Association	Association	Non-Association	Association	Non-Association	Association	Non-Association	Association	Non-Association	Association	Non-Association
Sept. 7	2.01	.75	1.34	----	.90	----	.88	----	1.05	----	1.06	----	.99	----	1.28	.65
" 8	2.07	.75	1.32	----	.73	----	.90	----	.83	----	.99	----	1.06	----	1.07	.80
" 9	2.04	.75	1.38	----	.85	----	.93	----	.89	----	.99	----	.91	----	.99	.80
" 10	1.62	.75	1.37	----	.97	----	.90	----	1.11	----	1.00	----	.93	----	1.11	.75
" 11	1.62	.75	1.38	----	.95	----	1.24	----	.89	----	1.08	----	.97	----	1.23	.75
" 12	1.62	----	1.38	----	.84	----	1.17	----	.89	----	1.08	----	.90	----	1.27	.80
" 13	1.60	----	1.46	----	.73	----	.91	----	.91	----	1.07	----	.84	----	1.48	.90
" 14	1.60	----	1.12	----	----	----	.76	----	.91	----	1.12	----	.93	----	1.77	1.00
" 15	1.99	----	----	----	----	----	.62	----	.95	----	1.07	----	.77	----	1.65	----
" 16	2.13	----	----	----	----	----	.54	----	.88	----	1.05	----	.81	----	1.70	----
" 17	2.28	----	----	----	----	----	.46	----	.82	----	1.03	----	----	----	1.74	----
" 18	2.34	----	----	----	----	----	.53	----	.93	----	1.16	----	----	----	1.78	----
" 19	2.40	----	----	----	----	----	.53	----	1.05	----	1.07	----	----	----	1.89	----
" 20	2.48	----	----	----	----	----	.53	----	.99	----	----	----	----	----	1.91	----
" 21	2.48	----	----	----	----	----	.54	----	.93	----	----	----	----	----	1.87	----
" 22	2.43	----	----	----	----	----	----	----	.93	----	----	----	----	----	1.60	----
" 23	2.34	----	----	----	----	----	----	----	.95	----	----	----	----	----	1.31	----
" 24	2.25	----	----	----	----	----	----	----	.97	----	----	----	----	----	1.16	----
" 25	2.28	----	----	----	----	----	----	----	.89	----	----	----	----	----	1.09	----
" 26	2.44	----	----	----	----	----	----	----	.81	----	----	----	----	----	1.02	----
" 27	2.61	----	----	----	----	----	----	----	.82	----	----	----	----	----	1.01	----
" 28	2.48	----	----	----	----	----	----	----	.83	----	----	----	----	----	1.02	----
" 29	2.48	----	----	----	----	----	----	----	.83	----	----	----	----	----	1.01	----
" 30	2.35	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Average	2.15	1.11	1.58	1.27	1.45	1.47	1.17	1.09	1.12	1.38	1.21	1.44	1.15	1.20	1.48	1.25

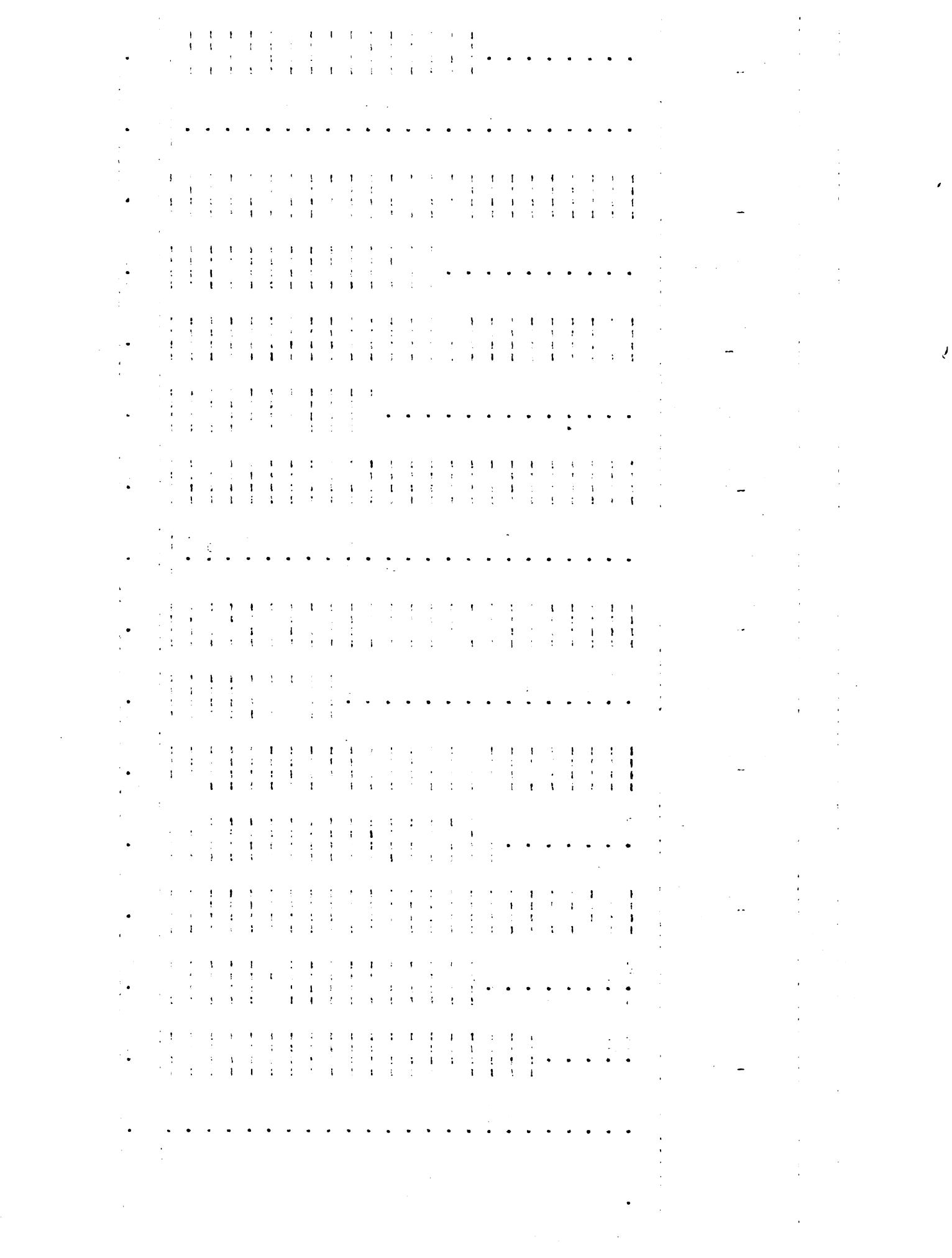


Figure 11.-Association Seasonal Price Trends.

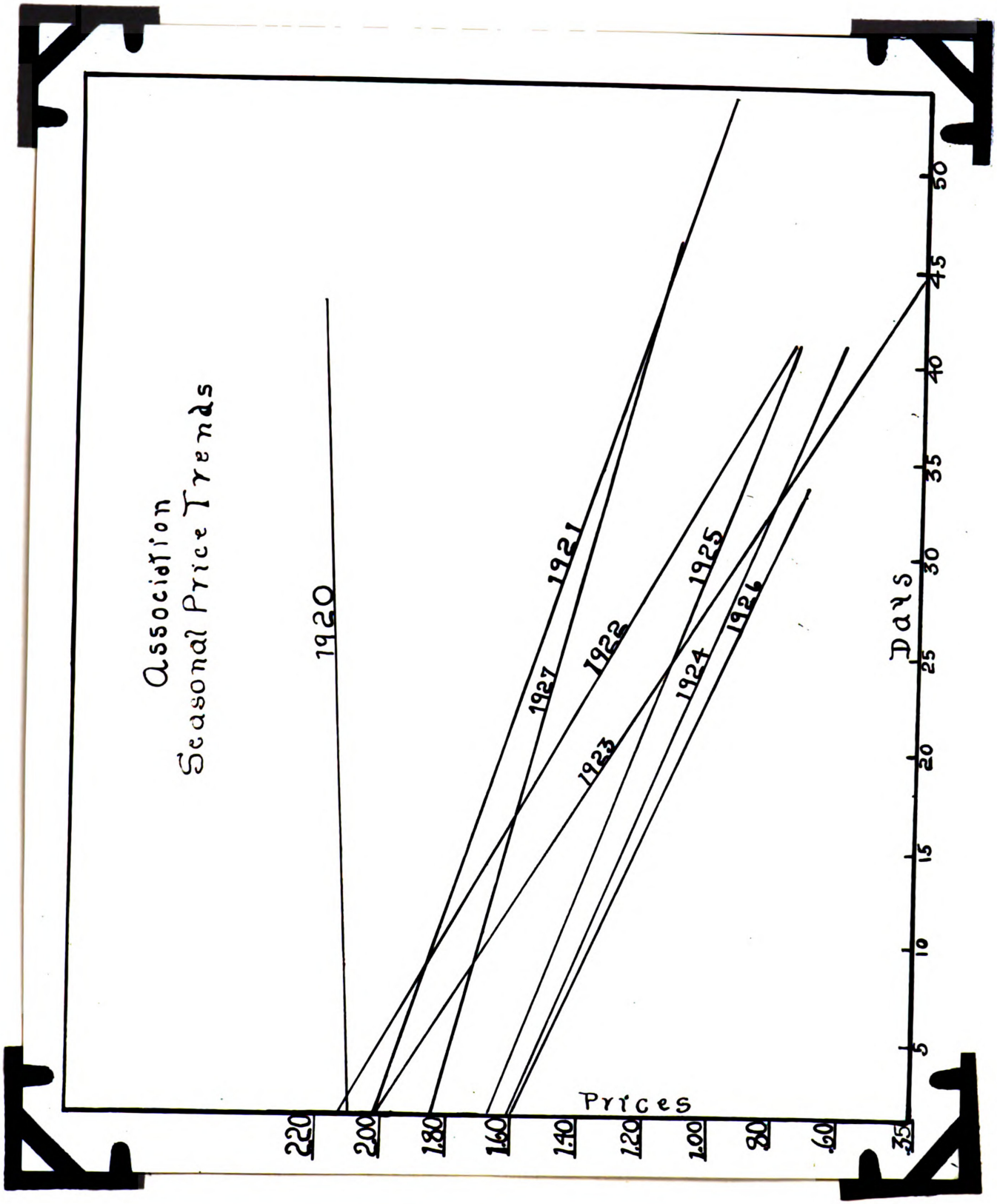
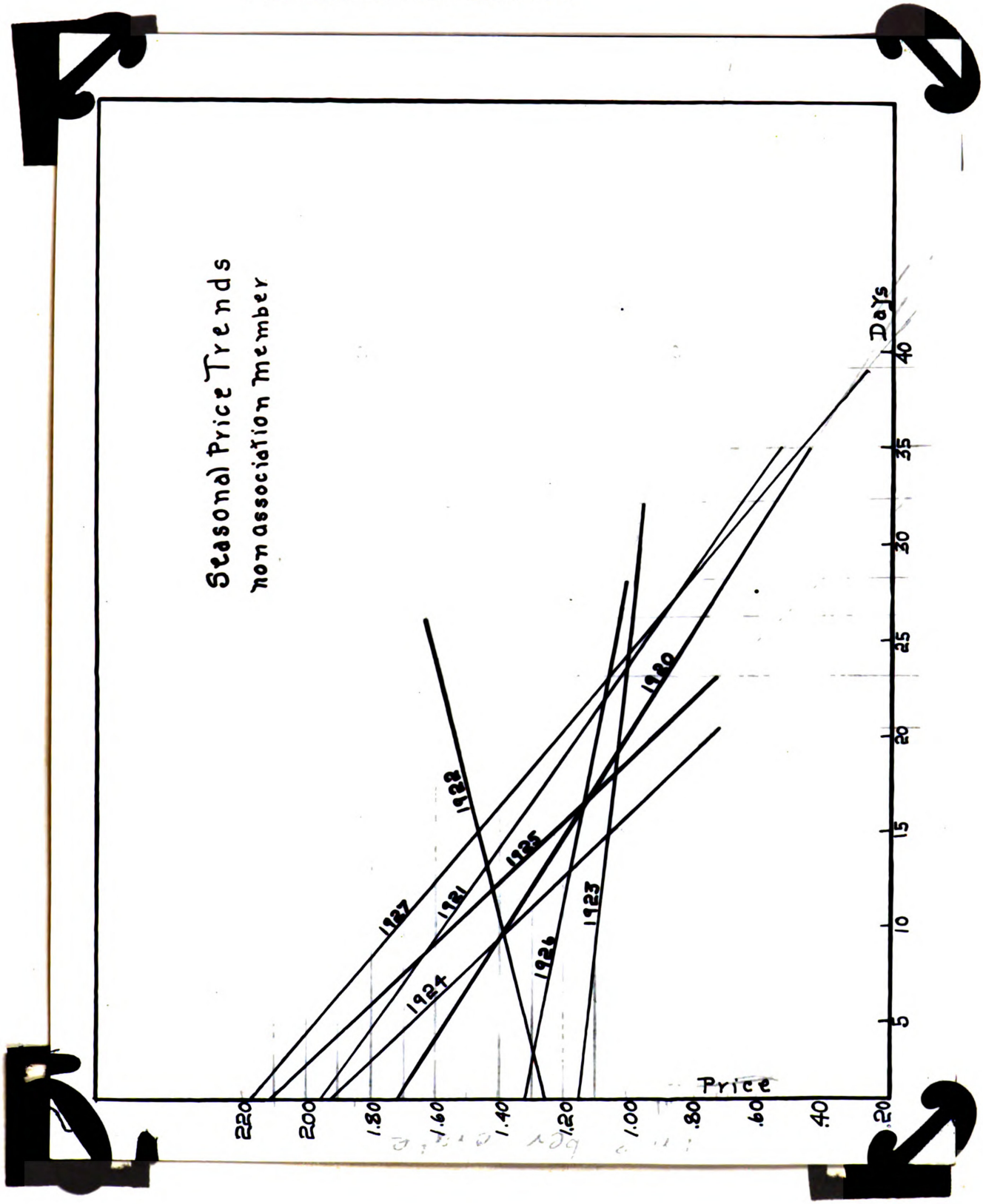


Figure 12.- Seasonal Price Trends-
Non-association Members



advantage over the association member, he averaged 17 cents less per crate during the eight-year period. In this instance, at least, the non-association member penalized himself by marketing independently. Marketing through a cooperative organization would seem to be the more profitable practice.

Relation of Quality to Price

The quality of Michigan muskmelons in 1927 was exceptionally high and very inferior in 1926.

The data of Edmond and McNall (1) (Table 8) shows striking differences in quality, as measured by total sugars, between melons of the Hoodoo variety produced in 1926 and 1927.

Table 8.- Total per cent sugar of Hoodoo muskmelons in 1926 and 1927

		Per cent total sugars		Per cent differences
		Years		
Variety	Number Samples	1926	1927	
Hoodoo	6	7.54	10.02	2.48

The differences in price of these two years are shown in Table 2. Obviously a high positive correlation existed in 1926 and 1927 between quality and price. When fruits of high quality are available prices are likely to be correspondingly high.

DISCUSSION

A significant fact brought out in this study is that high quality muskmelons tend to produce an upward price trend and yield greater net returns to the grower. Conversely inferior fruits to a large extent have a very depressing effect on the market demand and results in low price returns and severe losses to the grower.

Since high quality fruits bring correspondingly high prices growers should endeavor to keep the foliage in a green and vigorous condition at all times. On the culture and treatments of muskmelons (Edmond and McNall) (1) gives the following: The wide climatic variations of growing seasons explains why Michigan growers produce surprisingly fine melons one year and, concomitant with an unfavorable season, disappointingly poor fruits another. Apparently conditions prevailing in Berrien County makes spraying a valuable insurance against low quality in any year but more particularly during an unfavorable year. To the extent that fertilizers develop foliage and that fungicides keep it functioning they are effective in developing quality as measured by total sugars.

There is some indication that severe competition from the west can be met by production of high quality fruit.

The placing of muskmelons on the market extremely early has always been an important factor in determining the profitableness of melon culture in Berrien County, Michigan, since early fruits have usually brought the greatest returns. The use of sandy loams with south easterly exposure, protection from cold winds and sand-storms, good soil management and cultural methods will combine to hasten the maturity of the crop.

The value of cooperative marketing should be emphasized. The non-association growers in Michigan can profitably follow the example of members of cooperative marketing associations.

SUMMARY

1. Michigan, with a total of 3778 acres given over to the production of muskmelons ranks fourteenth of all states in acreage.

2. The commercial industry is centralized in Berrien County with producing centers at Millburg, Bainbridge, Coloma and Benton Harbor.

3. With the exception of the year 1920, which was marked by a high and upward trend of prices throughout the season, the general price trend (1921 to 1926 inclusive) has been consistently downward.

The low level was reached in 1926 when the low quality of the fruit and poor market demand made returns poor throughout the season. In 1927, however, there was a marked return to normality in prices. The general trend throughout this season was slightly downward; however, a high and markedly upward trend prevailed during the peak of the shipping season. The quality of the fruit was exceptionally good and market demand heavy.

4. The result of this study shows that seasons of below normal precipitation, particularly during the ripening period, are more favorable for production of high quality muskmelons, resulting in greater net returns to the grower than seasons of excessive rainfall. Furthermore the presence of high quality muskmelons from Michigan on the market makes competition of western melons a less vital factor.

5. Producing early muskmelons and marketing through shipping associations will doubtless bring greater net returns.

LIETERATURE CITED

1. Edmond, J.B. and F.J.McNall, Influence of Certain Varietal and Cultural Treatments on the Sugar Content of Cantaloupes. Proc. Amer. Soc. Hort. Sci. 1927.

2. Market News Service, United States Department of Agriculture, Bureau of Agricultural Economics, Daily Market Report. Carlot Shipment Receipts and Prices on Chicago Market (1926-1927).

ACKNOWLEDGMENTS

The writer wishes to express his appreciation to those who have aided in assembling the material for this manuscript; Benton Center Fruit Association, Millburg Fruit Association, and Carl Lindemann for statistics with reference to price returns for Berrien County, Michigan, muskmelons; The Chicago Office of the Market News Service U.S.Bureau of Agricultural Economics for data relative to Western melon prices and carlot receipts on Chicago market; D.A.Seeley, meteoraligist of U.S.Weather Bureau Station, East Lansing, for use of necessary Weather Bureau records.

Acknowledgment is also made to Messrs. V.R.Gardner, J.B.Edmond, J.W.Crist and F.C.Bradford of the Department of Horticulture for many valuable suggestions and criticisms and aid in organizing this manuscript.