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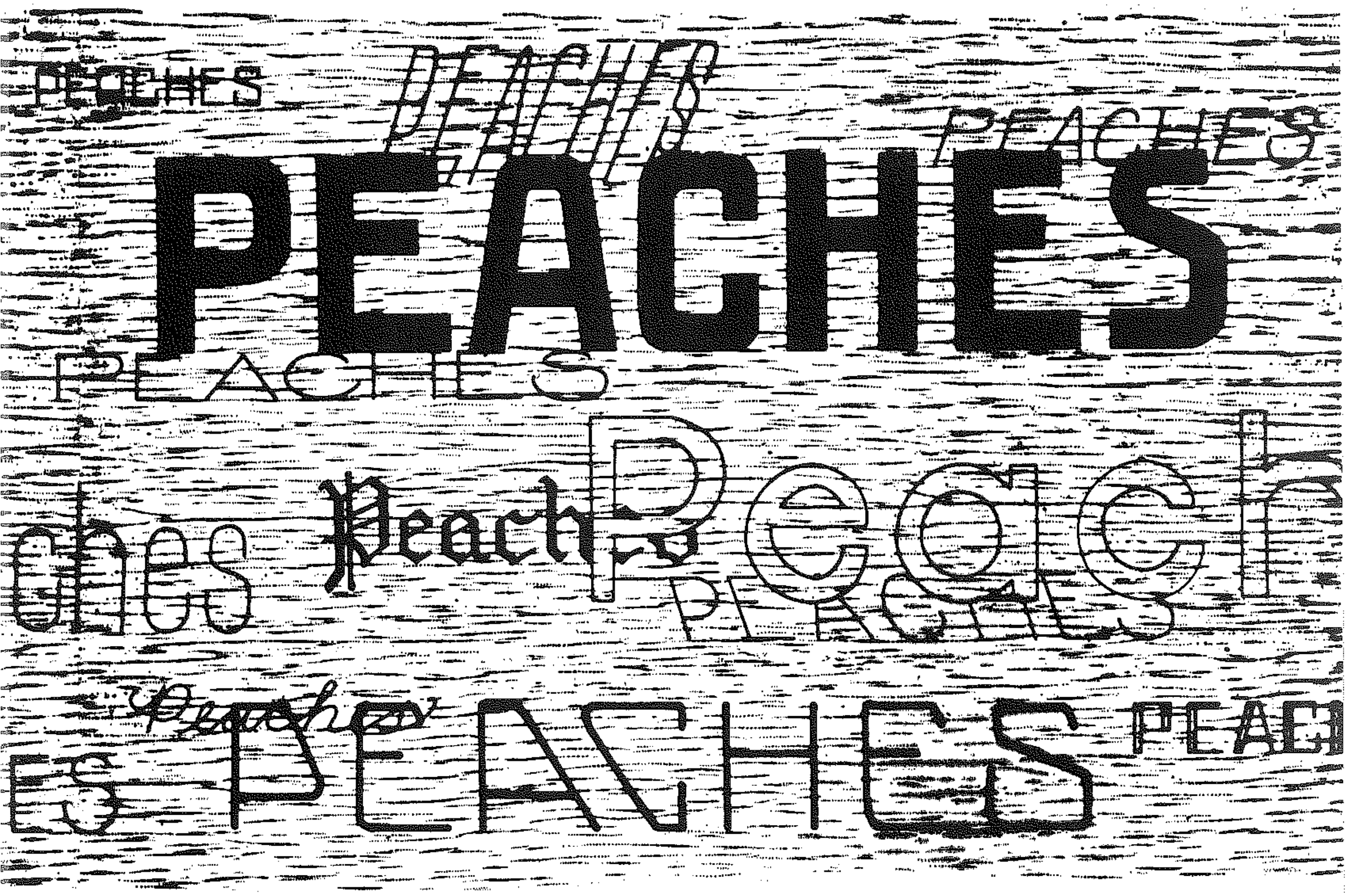
A. E. Res. 61

COSTS AND RETURNS IN PRODUCING



1960

D. G. Williams

Department of Agricultural Economics
Cornell University Agricultural Experiment Station
New York State College of Agriculture
A Unit of the State University of New York
Cornell University, Ithaca, New York

COSTS AND RETURNS IN PRODUCING

PEACHES

For the period 1950-59, New York State was the 12th state in the nation in the production of peaches (table 1). As such, however, the State's total was relatively small amounting to only about 2 per cent of that for the nation. In 1960 and over the ten year period 1950-59, the big producer of peaches was California with a little over 50 per cent of the nation's crop.

Table 1. PRODUCTION OF PEACHES FOR FRESH MARKET AND PROCESSING

State	1960 Bushels	1950-59 Bushels*	1950-59 Per cent
	(000)	(000)	
California	37,920	33,698	53.4
South Carolina	5,600	3,689	5.8
Michigan	3,300	2,942	4.7
Georgia	5,000	2,669	4.2
Pennsylvania	2,900	2,595	4.1
New Jersey	2,800	1,934	3.1
Colorado	710	1,650	2.6
Washington	2,030	1,456	2.3
Arkansas	1,950	1,428	2.3
Virginia	1,650	1,376	2.2
North Carolina	1,300	1,072	1.7
NEW YORK	680	1,034	1.6
Other 23 States	8,475	7,587	12.0
United States	74,315	63,130	100.0

Source: Crop Reporting Board, AMS, USDA, Fruits, Noncitrus by States, 1950-59

* Production having value.

Peach production in the United States has shown a general trend of increase over the last 50 years (figure 1). Production in New York State on the other hand has shown a rather marked decline.

INDEX OF PEACH PRODUCTION
1935 - 39 = 100

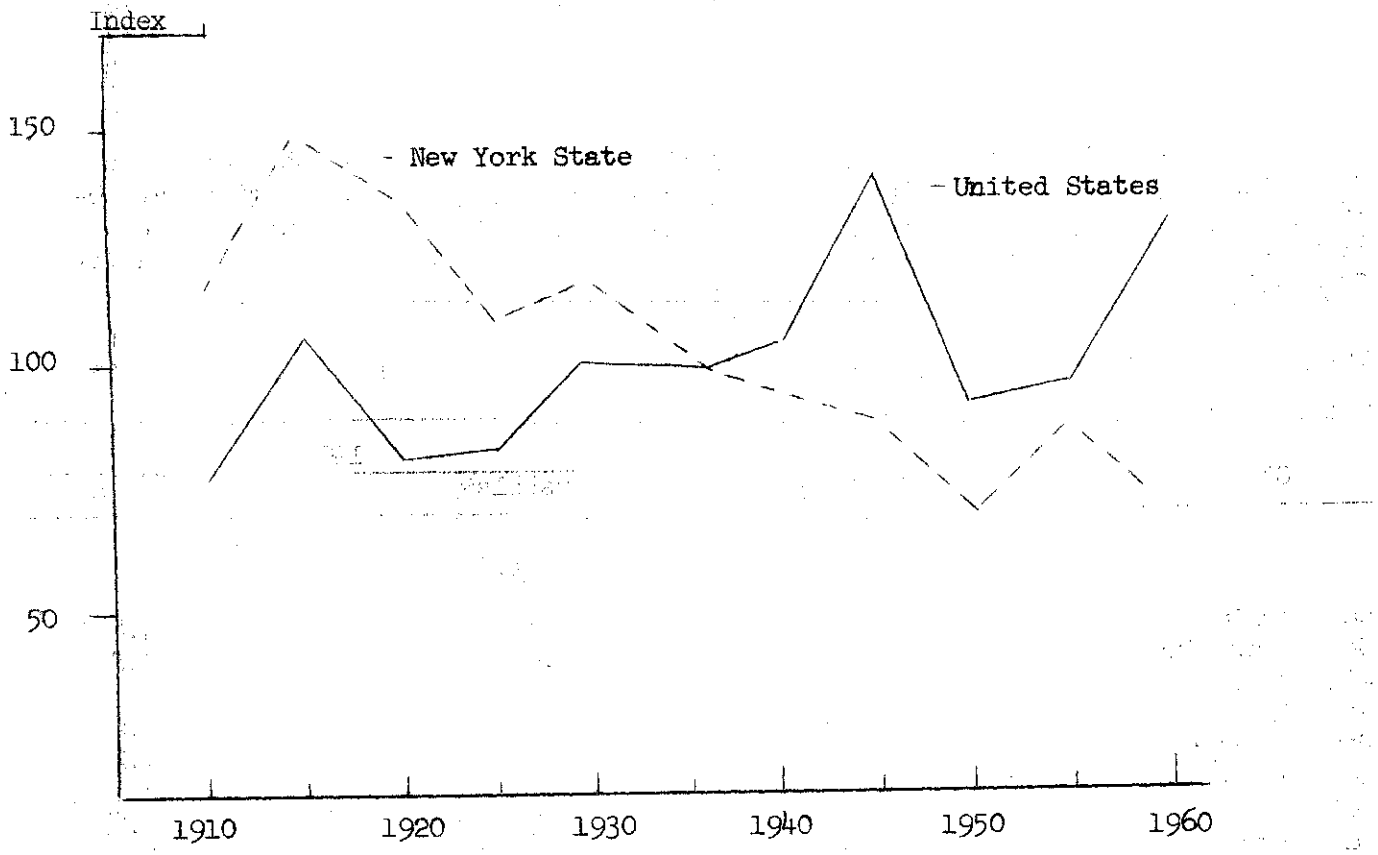


Figure 1. United States production has increased over the 50 year period; New York State production has fallen.

The pattern of declining production is not limited solely to New York State. As between the census years 1949 and 1959 each of the principal peach producing States in the Eastern United States showed a decrease in the number of bearing peach trees (table 2). Production did not decrease in all of these States but only for the reason that better yields were obtained in some States. In terms of decrease in numbers of trees, New York with a 55 per cent decrease led all of the states in the East.

Table 2. PEACH TREE NUMBERS - NEW YORK AND OTHER SELECTED STATES

State	Bearing trees			Non-bearing trees			
	1949	1959	Change 1949 to 1959	1949	1959	Percent of total trees	
						1949	1959
	thousands		per cent	thousands		per cent	
New York	1,011	457	- 55	267	111	21	20
Michigan	2,701	1,619	- 40	903	715	25	31
New Jersey	986	916	- 7	259	253	21	22
Pennsylvania	1,638	1,198	- 27	566	307	26	20
Maryland	402	204	- 49	124	67	24	25
Virginia	1,129	634	- 44	359	153	24	19
Georgia	4,198	3,478	- 17	1,137	640	21	16
North Carolina	1,339	760	- 43	512	278	28	27
South Carolina	3,971	3,716	- 6	760	1,340	16	27
West Virginia	573	271	- 53	193	67	25	20
Ohio	1,050	591	- 44	439	230	29	28

The decrease in numbers of trees in New York occurred even though a relatively favorable price situation existed. In the years 1949-58, New York farmers received 32 cents per bushel more than the average for the United States (table 3). The price advantage was more than that in 1959 and 1960. In 1959, it was $.75 and in 1960 it was $1.23.

Table 3. AVERAGE FARM PRICES OF PEACHES PER BUSHEL
New York and United States

Year	New York	United States
1949-58	$2.30	$1.98
1959	2.65	1.90
1960	3.05	1.82

The two principal peach producing areas of New York are the Western counties of Wayne, Monroe, Orleans and Niagara, and the Eastern counties of Ulster, Orange, Columbia, Dutchess and Suffolk (table 4). Niagara county is the most important county with about one-third of the total number of bearing trees for the State in 1959 and only slightly less than one-third of that year's production.

Table 4. PEACHES IN NEW YORK, 1959

County	Number			Bushels Harvested
	Farms	Bearing trees	Non-bearing trees	
Selected Western N.Y. Counties				
Wayne	318	44,096	10,072	60,215
Monroe	143	28,109	7,729	26,910
Orleans	149	29,062	7,923	45,496
Niagara	578	166,305	34,285	229,183
Selected Eastern N.Y. Counties				
Ulster	179	32,572	9,548	79,129
Orange	85	20,471	8,225	34,309
Columbia	116	20,655	5,929	43,232
Dutchess	45	8,740	1,442	15,384
Suffolk	39	13,746	4,247	21,770
New York State	2,963	456,698	111,196	693,011

United States Department of Commerce, Bureau of Census, Preliminary Census of Agriculture, New York, 1959

THE STUDY

In the summer and fall of 1960, a list of farmers who produce peaches in the four principal peach producing counties of Western New York was compiled and information on 41 businesses was obtained using a survey questionnaire. There were 16 records taken in Niagara county, 11 in Orleans, 6 in Monroe and 8 in Wayne (figure 2).

LOCATION OF PEACH GROWERS STUDIED
41 Upstate Farms, New York, 1960

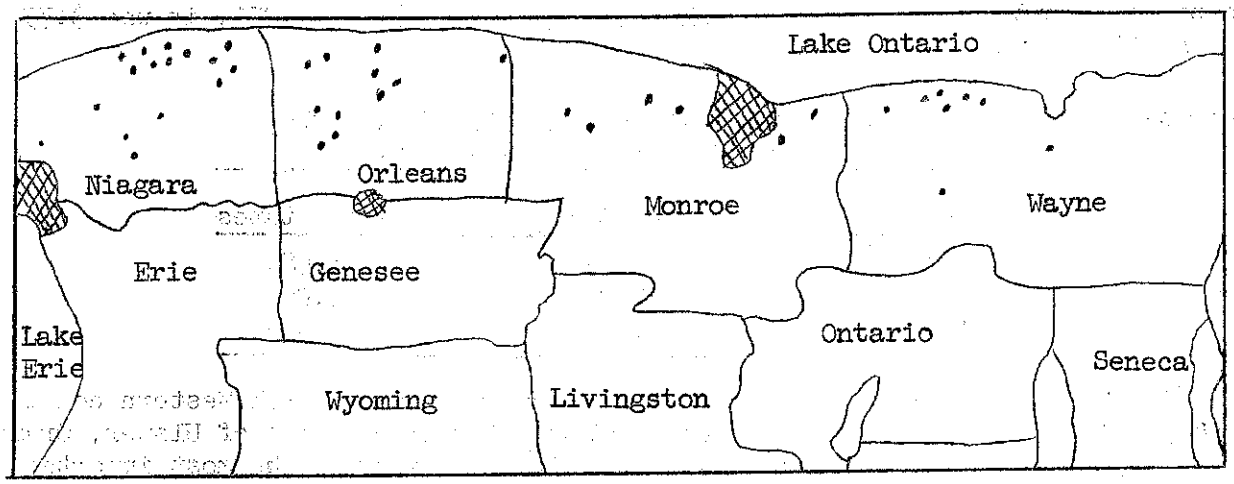


Figure 2.

In studying the enterprises, the 41 farms were divided into three groups by size of peach enterprise. The small enterprises with less than 5 acres were located on 12 farms with 75 acres of land cropped out of 87 acres operated (table 5). The 14 medium sized peach enterprises with 5 to 9 acres were on farms averaging 252 acres operated and 227 acres of land cropped. The 15 large peach enterprises of 10 or more acres were on farms averaging 179 acres with 158 acres of crops. There were only four farms with more than 20 acres of peaches and the largest enterprise was 30 acres.

On the 12 farms with small peach enterprises there were 11 apple, 9 sour cherry, 7 sweet cherry, 2 pear and 7 plum and prune enterprises. Four of the farmers had non-bearing peaches but the acreage was small.

Twelve of the 14 farmers with medium sized peach enterprises had apples, 13 had sour cherries, 9 sweet cherries, 8 pears and 7 plums and prunes. Only three had non-bearing peaches and again the acreage was small.

Of the 15 farmers with the large peach acreages, 12 had apples, 14 had peaches, 10 sour cherries, 9 sweet cherries and 12 plums and prunes. Seven farmers were starting new peach orchards but again the acreage was small.

Table 5. CHARACTERISTICS OF PEACH FARMS
41 Upstate Farms, New York, 1960

Item	Size of enterprise			
	Small	Medium	Large	All
Number of farms	12	14	15	41
Acres:				
Owned	69	230	167	160
Rented in	18	23	12	18
Rented out	--	1	--	1
Operated	87	252	179	177
Peaches	3	7	16	9
Apples	20	43	33	32
Cherries, sweet and sour	4	17	9	10
Other fruit	3	5	7	5
Non-bearing peaches	1	1	2	1
Other non-bearing tree fruit	2	14	6	8
Tomatoes	3	5	4	4
Other vegetables	8	14	6	10
Corn Grain	4	10	7	7
Other small grain	8	20	14	14
Forage crops	9	47	24	28
Pasture	5	43	30	27
Idle cropland	5	1	--	2
Total acres cropped	75	227	158	157
Poultry	110	443	84	214
Cows, calves and heifers	2	20	14	13
Beef	--	9	4	5

On the 41 farms studied peaches were a minor enterprise. This was true both generally and for individuals. There were only 7 farms on which the peach acreage, bearing and non-bearing, amounted to as much as 20 per cent of the area in crops and all of these had less than 60 acres of land being cropped. For all farms the average was only nine acres or four per cent of the land cropped in peaches (table 5). There were few livestock on the farms.

PHYSICAL REQUIREMENTS

The main physical requirement in producing peaches was labor. The time spent in pruning, thinning, spraying, etc., averaged 44 hours per acre (table 6). It was 51 hours for the small enterprises, 36 hours for the medium and 46 for the large enterprises. For this growing labor 2.7 bushels of peaches were produced per hour for the small enterprises and 2.8 for the medium sized enterprises. The large enterprises were somewhat less efficient in terms of labor with only 2.5 bushels per hour.

Table 6. PHYSICAL REQUIREMENTS PER ACRE OF PEACHES
41 Upstate Farms, New York, 1960

Item	Your farm	Size of enterprise			
		Small*	Medium**	Large***	All****
Number of farms		12	14	15	41
Yield - bushels per acre	____	140	102	114	117
Average acres per farm	____	3	7	16	9
Average trees per acre	____				
		Growing			
Labor - hours					
Operator	____	38	18	22	25
Family	____	4	1	6	4
Other	____	9	17	18	15
Total	____	51	36	46	44
Fertilizer-pounds of nutrient					
Nitrogen	____	54	41	41	45
Phosphorus	____	18	18	26	21
Potassium	____	25	35	20	26
Manure, tons	____	1	1	1	1
Tractor hours	____	19	12	16	15
Truck miles	____	4	4	2	3
Times sprayed	____	5	5	6	6
		Harvesting			
Labor - hours					
Operator	____	23	17	10	16
Family	____	6	9	2	6
Other	____	19	8	27	18
Total	____	48	34	39	40
Tractor hours	____	7	1	1	3
Truck miles	____	6	5	10	7
		Storing and Selling			
Labor - hours					
Operator	____	20	7	8	11
Family	____	11	4	6	6
Other	____	2	-	3	2
Total	____	33	11	17	19
Truck - miles	____	124	32	55	65

* Seven farms did storing or selling involving physical inputs.
** Nine farms did storing or selling involving physical inputs.
*** Twelve farms did storing or selling involving physical inputs.
**** Twenty-eight did storing or selling involving physical inputs.

There was little difference in the efficiency of harvesting peaches when the different sized enterprises were compared. For each of the groups about 3 bushels of peaches were harvested per hour of labor. The operators of small enterprises spent more time per acre but this was due to the larger yield. The farmers with small enterprises spent more time per acre and per bushel in marketing their peaches than did the operators in either of the other two groups.

Over all, including growing, harvesting and marketing the farmers with small enterprises spent the most time per acre of peaches with 132 hours per acre. The medium sized enterprises used the least labor. When related to production the latter were the most efficient producing 1.3 bushels per hour. The small and large enterprises had rates of only 1.1 bushels per hour.

The fertilizer application in terms of units of Nitrogen, Phosphorus and Potassium was about the same for each of the groups. Somewhat more nitrogen and less potassium was used on the small enterprises. Manure was not used to any important degree on any of the farms.

COSTS AND RETURNS

Growing cost per acre

The average growing cost per acre of peaches was 191 dollars and was about the same for each of the enterprise size groups (table 7). Labor and power were lower for the medium sized enterprises but this was balanced by lower spray and dust and land costs for the small and large sized enterprises.

Table 7. COST PER ACRE OF GROW PEACHES
41 Upstate Farms, New York, 1960

Item	Size of enterprises			
	Small	Medium	Large	All
Number of farms	12	14	15	41
Yield - bushels per acre	140	102	114	117
Average acres per farm	3	7	16	9
Labor	$ 67	$ 53	$ 65	$ 62
Power and equipment				
Tractor	24	15	20	20
Truck	1	1	1	1
Equipment	26	24	18	22
Materials				
Spray and dust	23	32	23	26
Fertilizer and lime	10	10	10	10
Manure	3	3	4	3
Other	--	2	1	1
Land use	29	40	38	36
Interest	3	3	3	3
Overhead	7	7	7	7
Total	$193	$190	$190	$191

The fertilizer costs were about $10 per acre regardless of size of enterprise. Equipment cost declined as size of enterprise increased.

For all farms labor in trimming, spraying, thinning, etc. cost an average of $62 per acre and was the largest item with 32 percent of the total. Power and equipment totalled $43 per acre and was 22 percent of the growing cost. Land costs were $36 or 19 percent of the growing cost.

There was great variation in growing cost among the enterprises studied. Three farmers had costs of more than $350 per acre. Almost three-fourths of the growers had costs between $100 and $250 per acre (table 8).

Table 8. DISTRIBUTION OF GROWING COSTS PER ACRE
41 Upstate Farms, New York, 1960

Distribution	Number of farms
$ 50 - 100	2
101 - 150	13
151 - 200	12
201 - 250	5
251 - 300	3
301 - 350	3
351 or more	3

Harvesting cost per acre

As indicated by the physical inputs, the harvesting of peaches involved mostly labor and the cost per acre was greatest for the farms with small enterprises. For all farms the average was $58 per acre. The farmers with large enterprises paid the lowest rate per hour and had the lowest cost per acre.

Table 9. COST PER ACRE TO HARVEST PEACHES
41 Upstate Farms, New York, 1960

Item	Size of enterprise			
	Small	Medium	Large	All
Number of farms	12	14	15	41
Yield - bushels	140	102	114	117
Average acres	3	7	16	9
Labor	$56	$50	$47	$51
Power:				
Tractor	8	1	1	3
Truck	1	1	2	1
Equipment	3	3	3	3
TOTAL	$68	$55	$53	$58

Marketing cost per acre

The average marketing cost was $46 per acre (table 10). Labor and containers were the big items and made up 83 per cent of the total. The highest cost was for the small enterprises with their highest yields but this was followed closely by the large enterprises where container costs were high even though the yield per acre was less than on the small enterprises.

Table 10. COST PER ACRE TO MARKET PEACHES
41 Upstate Farms, New York, 1960

Item	Size of enterprise			
	Small	Medium	Large	All
Number of farms	12	14	15	41
Yield - bushels	140	102	114	117
Average acres	3	7	16	9
Labor				
Operator	$19	$ 6	$13	$12
Family	7	3	5	5
Other	1	-	2	1
Truck	6	3	5	5
Storage	3	-	-	1
Containers	18	17	25	20
Others	1	2	2	2
TOTAL	$55	$31	$52	$46

Cost, returns and profits per acre

The average total cost of producing, harvesting and selling the crop per acre of peaches was $295 (table 11). The returns were $330, leaving a profit of $35. The profits were greatest on the small enterprises where the yields were high and more than offset the higher total cost. The average returns per bushel were $2.76 for this group. For the large enterprises the costs were $21 less but the returns were $51 less, thus the profit was lower by $30. This group received the highest return per bushel with $2.91.

Table 11. COSTS AND RETURNS IN PRODUCING AN ACRE OF PEACHES
41 Upstate Farms, New York, 1960

Item	Size of enterprise			
	Small	Medium	Large	All
Cost of growing	$193	$190	$190	$191
Cost of harvesting	68	55	53	58
Cost of storing and selling	55	31	52	46
Total cost	$316	$276	$295	$295
Returns	383	283	332	330
PROFIT	$ 67	$ 7	$ 37	$ 35

Cost, returns and profits per bushel

Costs per bushel averaged $2.26 for all the enterprises studied and were lowest on the farms with small enterprises (table 12). This situation was the result of the higher yields or cost per acre, as noted above, was about the same regardless of size of enterprise.

Table 12. COSTS AND RETURNS PER BUSHEL OF PEACHES
41 Upstate Farms, New York, 1960

Item	Size of enterprise			
	Small	Medium	Large	All
Cost of growing	$1.38	$1.86	$1.67	$1.63
Cost of harvesting	.49	.54	.46	.50
Cost of storing and selling	.39	.30	.46	.39
Total cost	2.26	2.70	2.59	2.52
Returns	2.74	2.77	2.91	2.82
Profit	$ .48	$ .07	$ .32	$ .30

Even though more time was spent per acre and per bushel of peaches on the small enterprises, there was no gain in the returns received per bushel. This group averaged $2.74 per bushel as compared with $2.82 for all farms. The advantage that these farmers had was not in price but in yield per acre.

The average cost for all farms was $2.52 per bushel of which $1.63 was for growing, 50 cents harvesting and 39 cents storing and selling. The returns averaged $2.82 per bushel this giving the farmer a 30 cent profit per bushel.

Variation in harvesting and marketing cost per bushel

The average cost to harvest a bushel of peaches was 50 cents. Most farmers had costs between 25 and 75 cents (table 13). There were 4 farmers with over $1.00 cost and 4 with 25 cents or less.

Table 13. DISTRIBUTION OF HARVEST COST PER BUSHEL
41 Upstate Farms, New York, 1960

Distribution	Number of farms
$0.00 - 0.25	4
0.26 - 0.50	17
0.51 - 0.75	12
0.76 - 1.00	4
1.01 - 1.25	3
1.26 or more	1

The average selling cost per bushel was 38 cents. The range and variation were large (table 14). Five farmers sold the fruit directly from the orchard and incurred low costs. Two farmers had marketing costs of more than $1.20 per bushel.

Table 14. DISTRIBUTION OF STORING AND SELLING COST PER BUSHEL
41 Upstate Farms, New York, 1960

Distribution	Number of farms
$0.00	5
0.01 - 0.10	8
0.11 - 0.30	5
0.31 - 0.50	7
0.51 - 0.70	6
0.71 - 1.00	4
1.01 - 1.20	4
1.21 or more	2

CAUSES OF VARIATIONS IN PROFITS

Differences in growing costs

Both high and low growing costs were associated with low profits (table 15). In the latter case the costs of individual items were all low but so was yield and consequently returns were low. The high growing cost enterprises had high labor, land, equipment and spray costs, but did not have high enough yields to justify these higher costs.

Table 15. COST TO GROW AN ACRE OF PEACHES AS RELATED TO YIELD AND OTHER FACTORS
41 Upstate Farms, New York, 1960

Range of growing cost	Number of farms	Growing cost per acre	Acres of Peaches	Yield per acre	Labor cost per acre growing	Land cost per acre	Equipment cost per acre	Spray & dust cost per acre	Gain per acre
$		$		Bu.	$	$	$	$	$
0 - 140	14	114	11	89	25	31	16	16	23
141 - 199	13	172	8	131	52	36	18	25	122
200 or more	14	286	8	133	108	41	32	37	-32

Differences in harvesting costs per bushel

Harvesting costs were related to profits. With few exceptions farmers who had high harvesting costs lost money on their peach enterprise (figure 3). Of the 17 growers who had harvesting costs in excess of $0.55 per bushel, 14 had some loss. Conversely, most of those with a low cost per bushel had profitable peach crops. Seventeen out of 24 farmers with harvest costs of less than 55 cents had profits on peaches.

HARVESTING COST PER BUSHEL AS RELATED TO PROFIT PER ACRE
41 Upstate Farms, New York, 1960

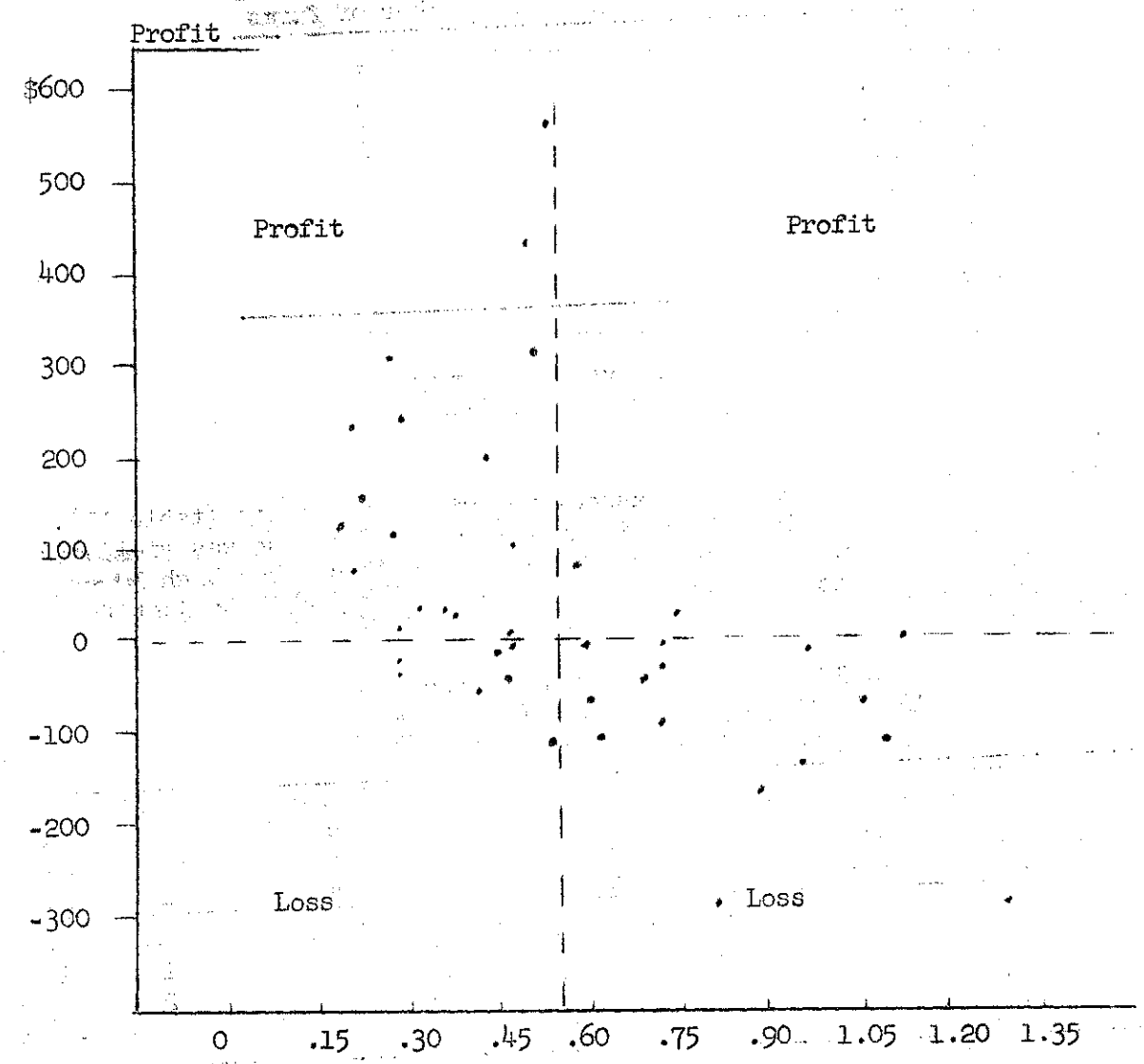


Figure 3.

Size of enterprise

Because peaches was such a minor enterprise on most farms and because the equipment, power and labor involved in their production were so minor relative to that spent on other parts of the business, no relation could be shown between size of enterprise and efficiency and profits.

Yield per acre

It was evident in studying the enterprises that yield of fruit per acre was an important factor in affecting profits in peach production. The variation among the 41 enterprises was great. Eight farmers had yields of less than 50 bushels per acre while 5 had 200 or more bushels (table 16).

Table 16. DISTRIBUTION OF YIELD PER ACRE OF PEACHES
41 Upstate Farms, New York, 1960

Distribution	Number of farms
bushels	
0 - 49	8
50 - 99	10
100 - 149	12
150 - 199	6
200 or more	5

For all farms in the study it took on the average 104 bushels of peaches per acre to cover the costs of production. Not all farmers with that yield or more had profitable enterprises, but 14 out of 19 did and 17 out of 22 who had below that yield lost on their enterprise (figure 4). Considering that there are many factors that affect profits the relation of yield is remarkable and indicates the need for farmers to pay attention to those practices that will improve production rates.

RELATIONSHIP BETWEEN YIELD & PROFIT
41 Upstate Farms, New York, 1960

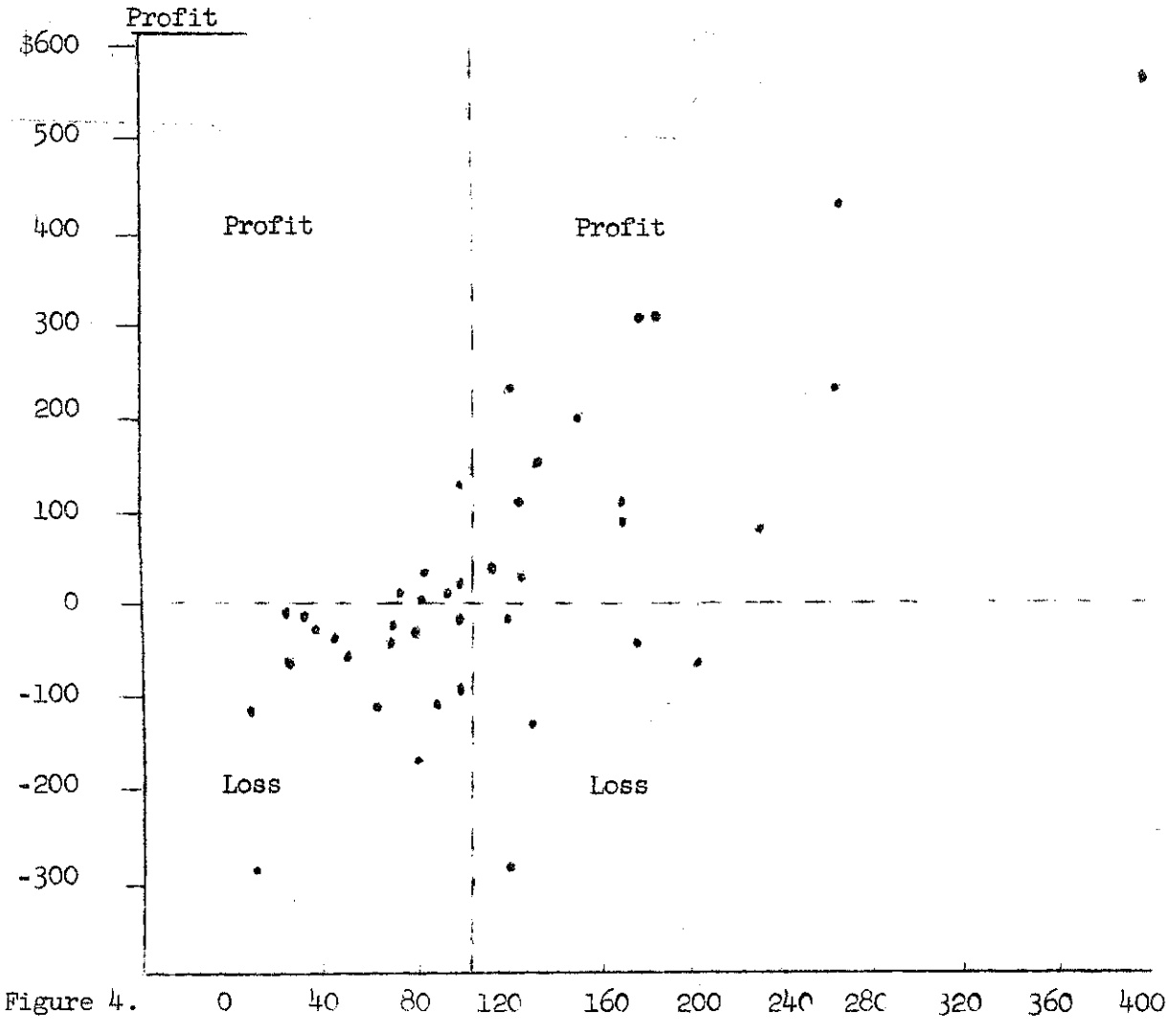


Figure 4.

YIELD NECESSARY TO BREAK EVEN

Prices of peaches, costs of production and yield per acre are the items that determine profits in peach production. If it is assumed that it costs about 90 cents per bushel to harvest and market peaches and this amount is deducted from the price received per bushel, the balance is available to cover growing costs and give the farmer his profit. The following table shows the number of bushels of peaches needed at various prices for peaches to cover different levels of the growing costs:

Table 17. YIELD NECESSARY TO BREAK EVEN WITH VARIOUS LEVELS OF PRICES AND COSTS

Price per bushel	Harvesting, storing and selling cost per bushel	Difference per bushel to apply towards growing costs	Bushels needed to break even with growing cost per acre of		
			$100	$200	$300
$1.50	.90	$0.60	167	333	500
2.00	.90	1.10	91	182	273
2.50	.90	1.60	62	125	188
3.00	.90	2.10	48	95	143
3.50	.90	2.60	38	77	115
4.00	.90	3.10	32	64	97
4.50	.90	3.60	28	56	83
5.00	.90	4.10	24	49	73