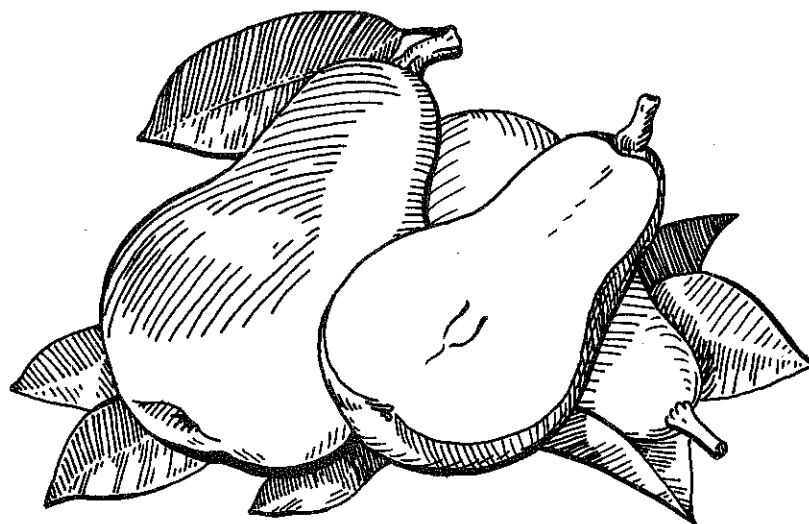


COSTS AND RETURNS IN PRODUCING PEARS 1959



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PEAR COSTS AND RETURNS
Upstate New York, 1959

Trends in Production

Pear production in the United States has increased from an index of 32 (1935-39 = 100) in 1909 to 107 in 1959 (figure 1). This was an increase from nine to thirty-one million bushels. New York pear production, always extremely variable from year to year, increased during the decade 1910 to 1920 and has fallen drastically since then. Production in the peak year of 1922 was three million bushels or an index of 286. For the last 15 years the average annual production has been 509 thousand bushels, less than one-sixth the peak year's production.

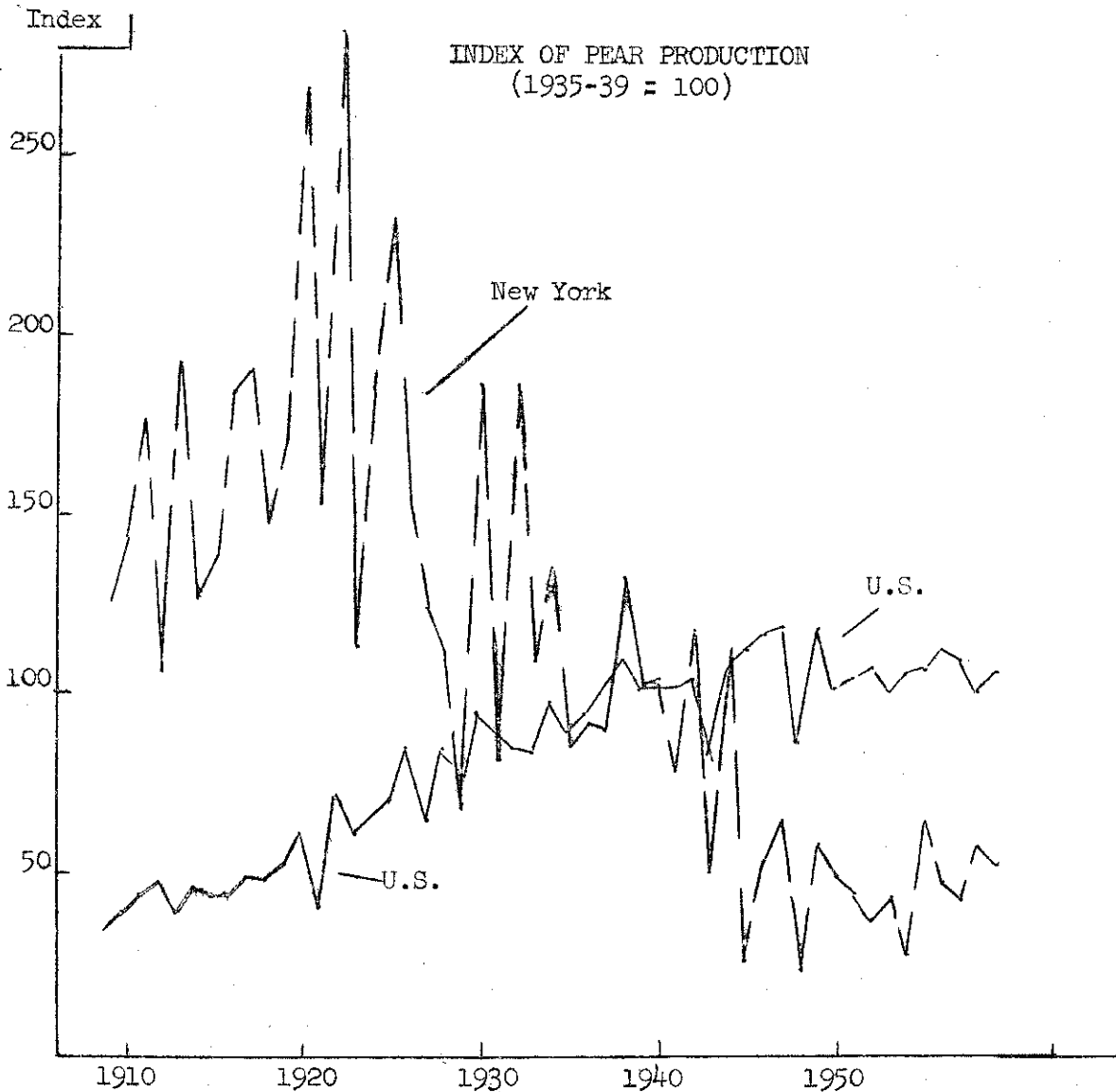


Figure 1. United States production is up over the 50 year period; New York production has fallen.

Pear Yields

The yield of pears in 1959 averaged 124 bushels per acre (figure 2). This is in keeping with the good yields of the last five years and well above the levels of the previous 35 years.

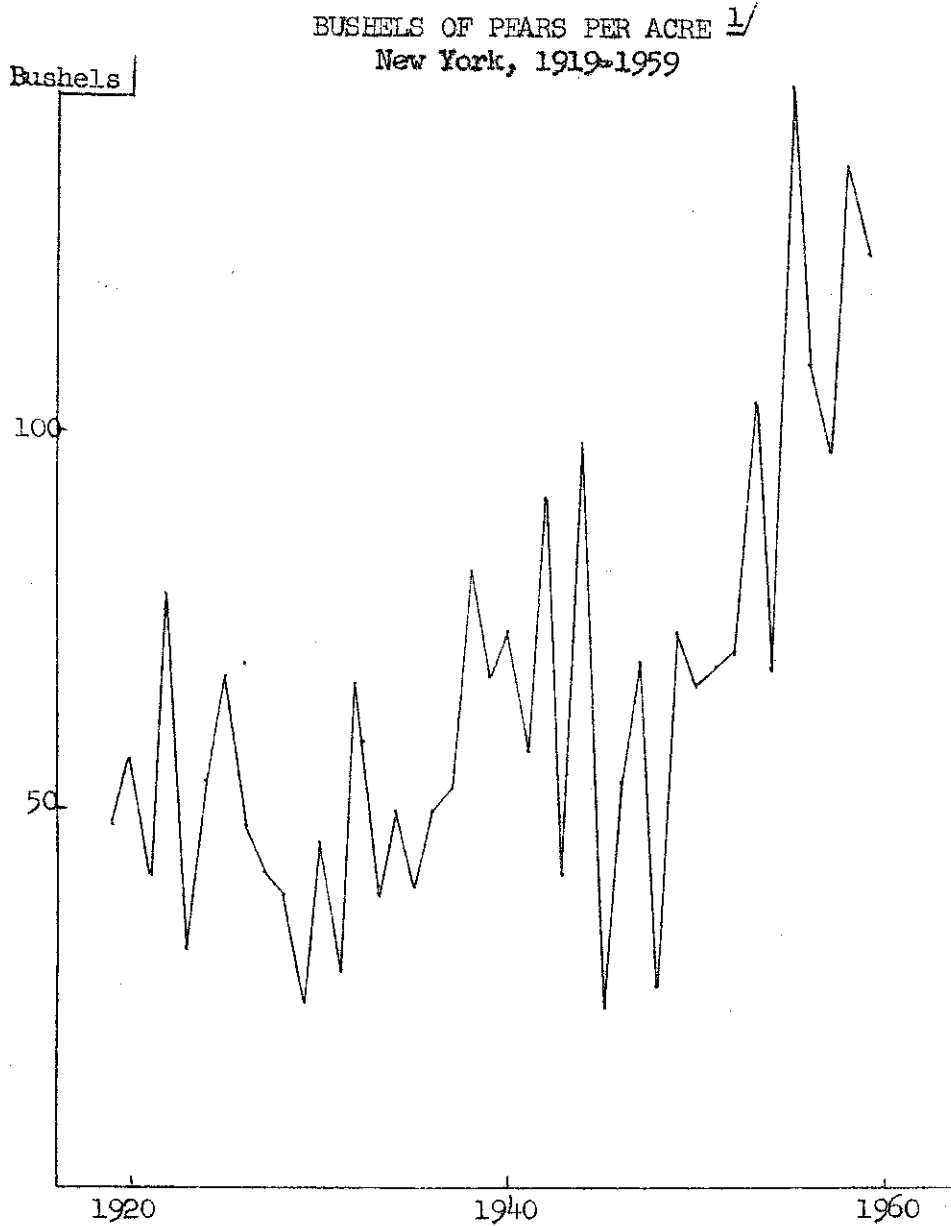


Figure 2.

^{1/} Data for 1919 to 1939 taken from "Fruit Acreage, Production and Yield", A.E.732 Dept. of Agricultural Economics, Cornell University, Ithaca, New York, May 1950. Yields from 1939 through 1959 were calculated assuming constant annual changes in tree numbers between census years and the average number of trees per acre as existed in the late 1930's.

Prices of Pears

Prices of pears in the United States are now a little above the post-World War I level but are down from the World War II peaks (figure 3). New York State prices were very slightly above those of the United States for the years 1919-41. Since then there has been a sizeable difference in price per bushel for New York State pears over United States average prices. This has meant, among other things, that prices in the World War II and the post-war period are substantially above the earlier prices.

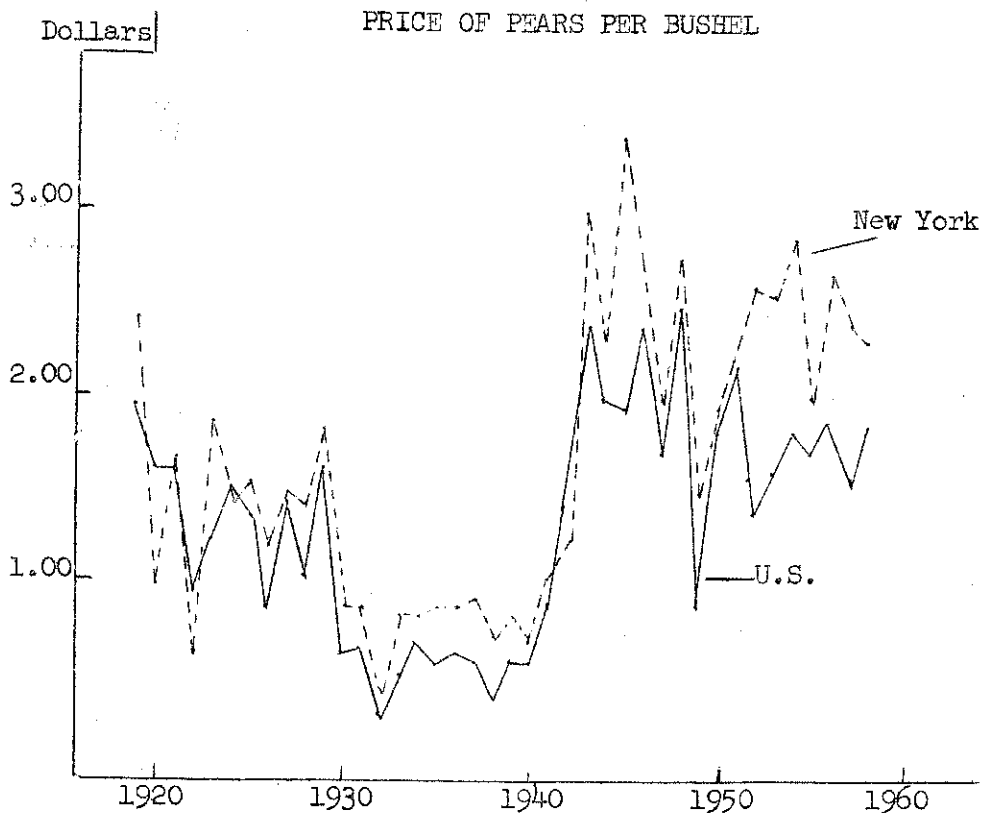


Figure 3. For the last fifteen years, New York State prices for pears have been appreciably above those for the United States.

Location of United States Production

Almost ninety per cent of the pears produced in the United States are grown on the West Coast (table 1). California is the leading state and produces more than half of the national crop.

New York State production amounted to 570 thousand bushels in 1959 and was only two per cent of the national crop. Both within the State as a whole and on the farms on which they are grown, pears is a minor enterprise.

Table 1. PEARS PRODUCTION IN THE UNITED STATES ^{1/}

State	<u>1948-57</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	
	Bushels	Bushels	Bushels	Bushels	Per cent of total
		- thousand -			
California	14,822	17,418	14,375	17,502	56
Oregon	5,608	6,250	5,500	5,640	18
Washington	5,438	4,890	4,700	4,350	14
Michigan	879	740	1,400	1,200	4
New York	491	460	625	570	2
All others	<u>2,352</u>	<u>1,918</u>	<u>2,290</u>	<u>1,828</u>	<u>6</u>
Total	29,590	31,676	28,890	31,090	100

^{1/} Bushels of 48 pounds in California and 50 pounds in all other states.
Source: Crop Production, AMS, USDA, Dec. 16, 1959.

Pears in New York

More than half of the number of farmers growing pears, of pear trees and of acres were in the western New York counties of Niagara, Orleans, Monroe and Wayne (table 2). These four Lake Ontario counties had in 1958 an estimated 2,075 acres of pears, which was just over five acres per farm.

Eighty-five per cent of the trees in this area were in the two counties -- Wayne and Niagara. On the same basis about half of the pear trees in New York are in these two counties (table 3).

Table 2.

PEARS
Number of Farms, Trees and Acres in Commercial Orchards
New York, 1958

County	Farms	Trees	Acres
Albany	5	3,957	38
Columbia	75	42,231	601
Dutchess	10	5,959	61
Greene	4	10,397	115
Orange	17	10,409	113
Saratoga	7	1,764	21
Ulster	83	37,478	453
Other eastern counties	<u>14</u>	<u>6,286</u>	<u>71</u>
Total eastern counties	215	118,481	1,473
Cayuga	13	8,003	96
Chautauqua	9	2,435	29
Oswego	9	8,495	94
Yates	6	898	11
Four Lake Ontario counties	383	180,300	2,075
Other western counties	<u>11</u>	<u>4,644</u>	<u>54</u>
Total western counties	431	204,775	2,359
New York State	646	323,256	3,832

Source: Fruit Tree Survey, Feb. 1960, N. Y. Crop Reporting Service, Albany New York.

A 1957 survey of the four Lake Ontario counties showed a total of 161 thousand trees of all ages (table 3).

Table 3.

PEAR TREES
Four Lake Ontario Counties, 1957

County	Number	Per cent
Wayne	72,308	45
Monroe	7,120	4
Orleans	17,825	11
Niagara	<u>63,785</u>	<u>40</u>
Total	161,038	100

The Study

In 1959 records were obtained on 35 pear enterprises in the four Lake Ontario fruit counties, Niagara, Wayne, Orleans and Monroe (figure 4). Fifteen records came from Wayne County, thirteen from Niagara, four from Orleans and three from Monroe.

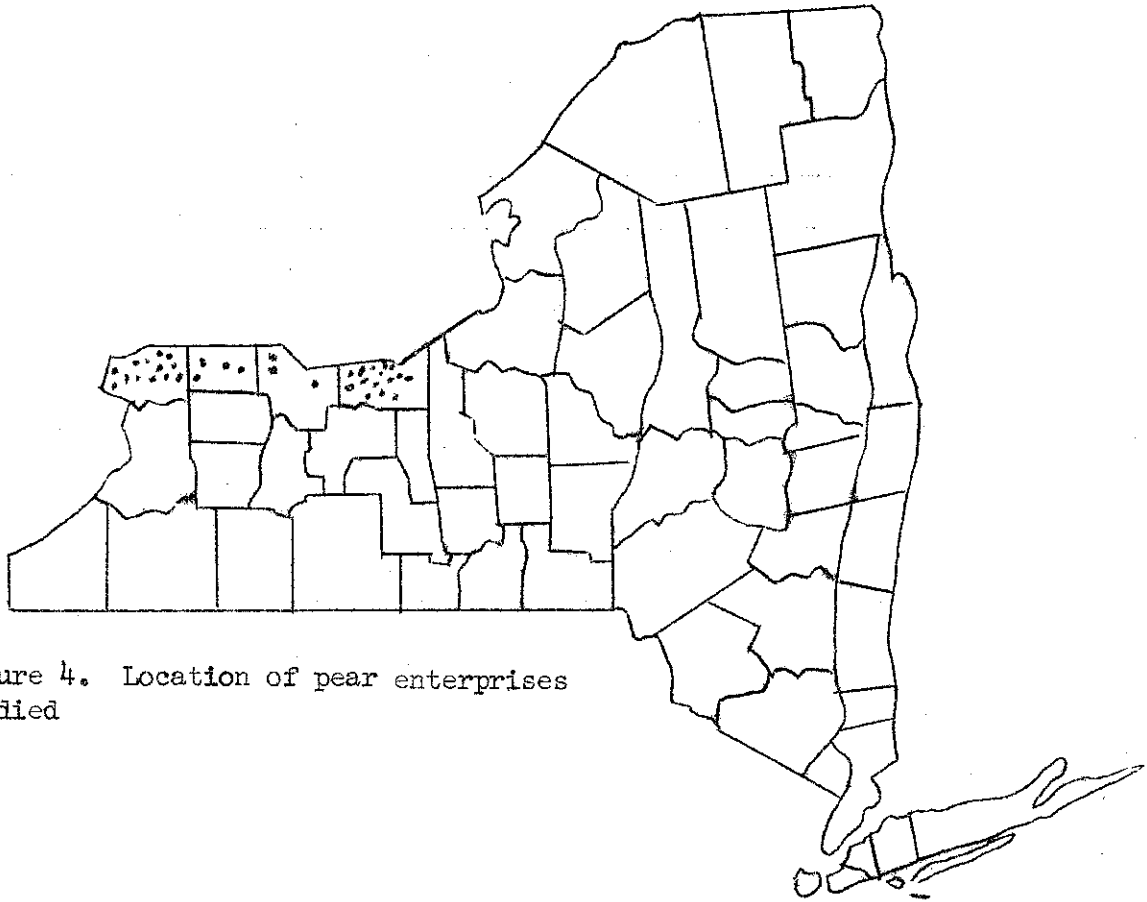


Figure 4. Location of pear enterprises studied

These farms averaged 210 acres of owned and rented land. Of this, 174 acres was cropable, 88 acres being in orchard. The pear acreage was small, averaging only nine acres per farm. The smallest pear enterprise on which information was obtained was two acres; the largest was 21 acres.

Most of the farmers indicated that their pear acreage was on moderate-to-well drained soils.

Although fire blight has been blamed for much of the decline in acreage of pears in the State, only four of the 35 farmers reported it as a serious problem. Sixteen of the farmers indicated that they followed no control program. Of those who had a control program, eight used copper sulphate, three used streptomycin and five controlled the fertilizer application.

Physical Inputs

Man labor used in growing pears averaged 30 hours per acre and varied from one to 71 hours. Most of this difference was due to differences in the time and care spent in trimming of the orchard. Harvesting labor averaged

39 hours and varied from four to 79 hours (table 4). This requirement was of course closely related to the yield per acre of pears.

Total hours per acre averaged 69 and ranged from 12 to 150.

Nitrogen was the main nutrient that was applied to the pear orchards. This averaged 79 pounds per acre. Small amounts of phosphorus and potash were used. Some farmers were reluctant to fertilize heavily because of the problem of fire blight.

Table 4. PHYSICAL INPUTS PER ACRE IN PRODUCING PEARS
Upstate New York, 1959

Item	Unit	Your farm	Quantity
Man labor:			
Growing	hours	_____	30
Harvesting	hours	_____	39
Total	hours	_____	69
Fertilizer:			
Nitrogen	pounds	_____	79
Phosphorus	pounds	_____	6
Potash	pounds	_____	9
Number of sprays		_____	6

Costs and Returns

About two-thirds of the cost of producing pears was the growing cost. This varied from farm to farm and was affected by the overall size of the fruit business on the farm more, perhaps, than conditions within the pear enterprise.

Cost per Acre to Grow

Labor was about one-third of the cost of growing pears in New York (table 5). Spray and dust materials were next in importance and were followed by the land cost. Power and equipment costs combined were \$20 per acre, the next important cost. Fertilizer and lime expenditure was \$11 per acre but was only seven per cent of the growing cost. Other costs were minor.

Table 5.

COST PER ACRE TO GROW PEARS
Upstate New York, 1959

Item	Your farm	Amount	Per cent
Acres per farm	_____	9	
Man hours	_____	31	
Tractor hours	_____	8	
Land	_____	\$ 25	16
Labor	_____	51	34
Tractor	_____	9	6
Truck	_____	1	1
Equipment	_____	10	6
Fertilizer and lime	_____	11	7
Mulch and manure	_____	2	1
Spray and dusting materials	_____	28	19
Custom work	_____	1	1
Bee rental	_____	3	2
Mouse bait	_____	1	1
Interest	_____	2	2
Other	_____	7	4
Total	_____	\$ 151	100

The growing costs ranged from \$81 to \$290 per acre. The most common cost was between \$110 and \$139 per acre (table 6).

Table 6.

DISTRIBUTION OF GROWING COSTS PER ACRE
Upstate New York, 1959

Cost per acre	Number of farms
\$ 80 - 109	9
110 - 139	11
140 - 169	4
170 - 199	3
200 - 229	4
230 or more	4
Total	35

Cost per Acre to Harvest

Harvesting pears, as is the case for most fruits, is a hand operation with labor being the important cost (table 7). An average of 37 hours were spent per acre. This was valued at \$54 and was 83 per cent of the harvesting cost.

Table 7. COST PER ACRE TO HARVEST PEARS
Upstate New York, 1959

Item	Your farm	Amount	Per cent
Hours of man labor	_____	37	
Hours of tractor work	_____	2	
Man labor	_____	\$ 54	83
Tractor	_____	2	3
Truck	_____	3	5
Equipment	_____	2	3
Custom work	_____	1	2
Containers	_____	1	2
Other	_____	2	2
Total	_____	\$ 65	100

The range in harvesting cost was \$6 to \$165, with half of the farmers having costs between \$49 and \$80. Costs of harvesting were, as would be expected, related to the yield of fruit. The farmer with a \$6-per-acre harvesting cost had a virtual crop failure.

The cost per bushel to harvest ranged from 23 to 91 cents per bushel. Almost half of the farms had costs from 30 to 39 cents (table 8).

Table 8. DISTRIBUTION OF COST PER BUSHEL TO HARVEST PEARS
Upstate New York, 1959

Cost per bushel	Number of farms
20 - 29¢	4
30 - 39	16
40 - 49	8
50 - 59	3
60 or more	<u>4</u>
Total	35

Yields and Returns

The average yield of 168 bushels per acre is 24 bushels above the average New York State yield in 1959. Among the 35 farmers there was an extreme variation in yields from seven to 353 bushels per acre. The most common yields of pears were 100 to 200 bushels per acre (table 9). Three farms had yields of less than 50 bushels per acre while on five farms the yield was 300 or more bushels. The price averaged \$2.12 per bushel and the returns per acre amounted to \$356.

Table 9. DISTRIBUTION OF YIELD PER ACRE OF PEARS
Upstate New York, 1959

Bushels per acre	Number of farms
0 - 49	3
50 - 99	5
100 - 149	7
150 - 199	8
200 - 249	5
250 - 299	2
300 or more	<u>5</u>
Total	35

Total Costs and Returns

The total cost per acre in producing pears averaged \$216 (table 10). When this was deducted from the \$356 worth of pears produced per acre, the profit, above all costs including a charge for the farmer's time, was \$140.

Table 10. TOTAL COSTS AND RETURNS PER ACRE IN PRODUCING PEARS
Upstate New York, 1959

Item	Your farm	Amount
Growing cost	_____	\$ 151
Harvesting cost	_____	65
Total cost	_____	\$ 216
Returns	_____	356
Profit	_____	\$ 140

Profits ranged from -\$104 to \$540 per acre. Ten of the 35 farmers had profits of \$1.00 to \$99 per acre (table 11). Almost the same number had profits in the range \$100 to \$199.

Table 11. DISTRIBUTION OF PROFITS PER ACRE OF PEARS
Upstate New York, 1959

Profit per acre	Number of farms
Loss	5
\$ 0 - 99	10
100 - 199	9
200 - 299	5
300 - 399	4
400 or more	2
Total	35

Costs and Returns per Bushel

On these farms a bushel of pears which sold at an average price of \$2.12 cost \$1.28 to produce (table 12). Of this, 90 cents was the cost of growing and 38 cents was the cost of harvesting.

Table 12. COSTS AND RETURNS PER BUSHEL TO PRODUCE PEARS
Upstate New York, 1959

Item	Your farm	Cost
Growing cost	_____	\$ 0.90
Harvesting cost	_____	0.38
Total cost	_____	\$ 1.28
Returns	_____	2.12
Profit	_____	\$ 0.84

Break-Even Yields

A yield of 105 bushels per acre was required for pear growers to break even with average costs and prices for pears (figure 5).

Costs of growing pears vary more per bushel than do harvesting costs. Furthermore, as shown by figure 5, profits are closely related to yields and these are extremely variable. Table 13 shows the number of bushels of pears needed to break even with different prices and three levels of growing cost. A cost of harvesting of 40 cents per bushel is used in the calculation.

Table 13. YIELDS OF PEARS NECESSARY TO BREAK EVEN WITH VARIOUS
LEVELS OF PRICES AND COSTS

Price per bushel	Harvesting cost per bushel	Difference per bushel to apply toward growing cost	Bushels needed to break even with growing costs of:		
			\$100 per acre	\$150 per acre	\$200 per acre
\$ 1.25	\$ 0.40	\$ 0.85	118	176	235
1.50	0.40	1.10	91	136	182
1.75	0.40	1.35	74	111	148
2.00	0.40	1.60	62	94	125
2.25	0.40	1.85	54	81	108
2.50	0.40	2.10	48	71	95
2.75	0.40	2.35	43	64	85
3.00	0.40	2.60	38	58	77

RELATION OF YIELD TO PROFITS

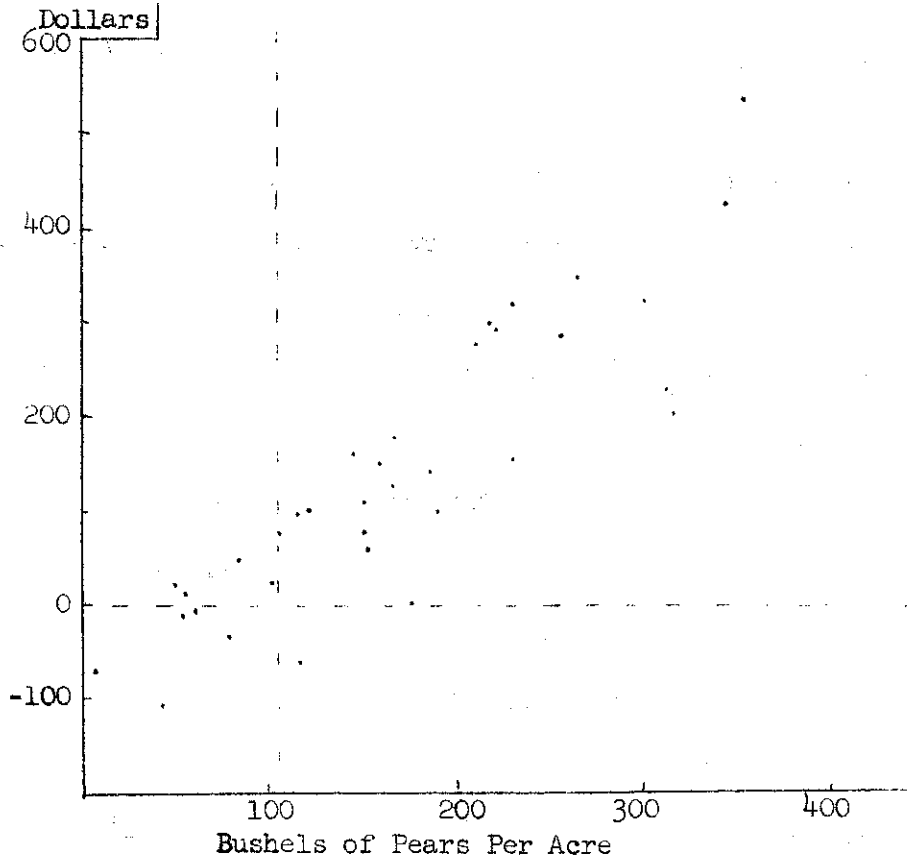


Figure 5. Yield and profit per acre of pears. With an average price of \$2.12 per bushel the break-even point is 105 bushels per acre.

Methods Used in Determining Costs and Returns

The data presented in this report were obtained by survey questionnaire from Upstate New York pear growers. Following is a list of the items of costs and returns and the methods used to determine them:

Labor was obtained by asking the farmers to estimate the number of hours spent on the enterprise both in growing and harvesting. An hourly rate of \$2.10 was used for operator's time, \$1.00 for unpaid family labor, and the actual rate for all hired labor.

Equipment (growing and harvesting) cost for items such as sprayers, dusters, power pruners, brushbeaters, pallet loaders, ladders, etc., was

obtained by determining the original cost, years of life, depreciation, interest, repairs, etc., and apportioning the total on the basis of usage:

Spray and dust materials were charged at cost. Discounts were deducted from the cost.

Fertilizer was charged at cost with discounts deducted.

Manure and lime charges were prorated over three years. These were based on values and quantities estimated by the farmers.

Land was charged at the actual rental rate if rented or at a rate of \$25 per acre of orchard if owned.

Bees were charged on the basis of farmers' expenditures in rental of hives.

Interest charges were made on all growing costs except land and equipment for a four-month period at an annual rate of five per cent.

Tractor and truck rates were applied to the farmer's estimate of the amounts required as follows:

<u>Description</u>	<u>Annual Use</u>	<u>Rate</u>
Two plow tractor	under 400 hours	\$1.40 per hour
	400 - 600 hours	1.00
	over 600 hours	0.90
Three plow tractor	under 500 hours	1.70
	500 - 700 hours	1.25
	over 700 hours	1.10
Small truck	under 5000 miles	0.12 per mile
	5000 - 7000 miles	0.10
	over 7000 miles	0.07
Large truck	under 3000 miles	0.23
	3000 - 4000 miles	0.19
	over 4000 miles	0.15

Overhead charges of five per cent of the growing and two per cent of the harvesting costs were added. This was to cover costs of insurance, telephone and similar expenses which are borne by all farm enterprises.

Other costs included containers and other items used for only one season and were charged at cost.