C O S T S A N D R E T U R N S

I N P R O D U C I N G

C A N N I N G F A C T O R Y T O M A T O E S

24 Western New York Farms

1951

by

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February, 1952

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COSTS AND RETURNS IN PRODUCING TOMATOES[1/]

Approximately 20,000 acres of tomatoes were grown for processing in New York State in 1951. This was 7,400 less than the peak year of 1946 and 400 less than 1950. Three of the high producing counties were Monroe, Orleans, and Genesee. These counties produced slightly less than half of the total acreage of processing tomatoes which are grown in the State.

In 1951, there were 24 farmers in Monroe, Genesee, and Orleans Counties who kept records on their tomato production. The enterprises on these farms varied from 5 to 102 acres. The average yield per acre was 18.6 tons (Table 1). This was 9.1 tons more than the average yield for New York State in 1951 and was 11.4 tons more than the average yield for New York State for the last 10 years.

Table 1. CANNING FACTORY TOMATO YIELDS
New York State, 1942-51

Year	New York	Farms studied			
		Monroe	Genesee	Orleans	All farms
1942	7.2				
1943	6.1				
1944	6.0				
1945	6.0				
1946	6.4				
1947	4.9				
1948	8.1				
1949	8.4				
1950	9.0				
1951	9.5	18.1	19.1	19.3	18.6
Ten-year average	7.2				

COSTS AND RETURNS PER ACRE

The costs of producing canning factory tomatoes were calculated by operations to enable farmers and others to use the figures in making comparisons with their own businesses.

Cost of Plowing

The average cost of plowing an acre of tomato land amounted to $5.41 (Table 2). The range was from $3.29 to $7.61. The average number of hours required per acre were 1.7, and the range was from 0.9 to 2.8.

[1/] Author's acknowledgments. This publication was made possible because 24 New York farmers were willing to cooperate with their County Agent and the College of Agriculture at Cornell. The County Agents were K. W. Stone, W. J. Klotzbach, and A. G. West. The clerical work was done by Joyce Sewell and Mary Dwu, and the stenographic work by Gloria Howell. Dr. M. C. Bond gave valuable advice and assistance.

Table 2. COST PER ACRE TO PLOW FOR CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Hours of man labor	1.7	1.3	1.8	1.7
Hours of tractor work	1.7	1.3	1.8	1.7
Cost:				
Labor	$2.29	$1.56	$1.82	$2.03
Tractor	2.61	1.00	1.43	1.99
Truck	--	0.02	--	*
Other equipment	1.48	1.59	1.15	1.39
Total	$6.38	$4.17	$4.40	$5.41

*Less than one cent.

The average cost for the farms in Orleans County was $4.40. For those in Genesee County it was $4.17, and in Monroe County it was $6.38.

Cost of Fitting

The average cost of fitting an acre of land for tomatoes was $6.26 (Table 3). Of this, $2.62 was for labor and $3.64 for power and equipment. The range in cost was from $3.07 to $10.66. The average amount of time required per acre was 2.3 hours. The range in time was from 0.9 hours to 4.0 hours per acre.

Table 3. COST PER ACRE TO FIT FOR CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Hours of man labor	2.1	1.3	3.0	2.3
Hours of tractor work	2.1	1.3	3.0	2.3
Cost:				
Labor	$2.67	$1.66	$3.00	$2.62
Tractor	2.62	1.08	2.31	2.29
Truck	--	--	--	--
Other equipment	1.24	1.27	1.54	1.35
Total	$6.53	$4.01	$6.85	$6.26

The time required for fitting in Orleans County averaged considerably above that in Genesee and Monroe Counties. There were no farmers in that county who spent less than 2.5 hours per acre at the operation. Because of the large amount of time spent, the costs were highest for that county, averaging $6.85. The lowest costs were for Genesee County with $4.01.

Cost of Fertilizing

The average cost of applying fertilizer for the 24 New York farms was $4.44 (Table 4). This was for labor and equipment. The fertilizer cost $38.37. The total was $42.81. Approximately 1.6 hours of labor per acre were required in applying the fertilizer, and an average of 1,597 pounds were applied. The range in fertilizer application was from 837 pounds to 2,508 pounds per acre. The cost for the fertilizer varied from $21.41 to $72.34 per acre.

Table 4. COST PER ACRE TO FERTILIZE FOR CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Hours of man labor	1.3	1.0	2.4	1.6
Hours of tractor work	1.0	0.6	2.0	1.2
Truck miles	1.7	1.1	2.4	1.9
Pounds of fertilizer	1,696	1,238	1,600	1,597
Cost:				
Labor	$1.73	$1.24	$2.31	$1.84
Tractor	1.27	0.55	1.56	1.26
Truck	0.32	0.12	0.30	0.28
Other equipment	1.10	0.61	1.23	1.06
Total	$4.42	$2.52	$5.40	$4.44
Fertilizer	41.33	26.51	38.92	38.37
Total	$45.75	$29.03	$44.32	$42.81

The average application of fertilizer was highest in Monroe County with 1,696 pounds. The cost of fertilizing, including the fertilizer, averaged $45.75. For Orleans County, the average application was 1,600 pounds, and the cost was $44.32. Less fertilizer was applied in Genesee County, the average being 1,238 pounds, and the cost of fertilizer application amounted to $29.03 per acre.

The most common kind of fertilizer used was 5-10-10 analysis. Superphosphate and 6-18-6 were used rather widely. Other fertilizers which were used were amonium nitrate, sodium nitrate, 0-20-20, 5-10-5, 10-10-10, 4-14-6, 8-16-16, 10-6-4, 8-16-8, 4-12-8, 6-12-12, 0-14-14.

Cost of Planting

The average cost of planting an acre of tomatoes for the 24 New York farms was $50.38 (Table 5). Of this, $38.37 was for plants and $12.01 for labor and equipment. The average number of plants used per acre was 3,088. The time required for planting averaged 7.8 hours of man labor.

Table 5. COST PER ACRE TO PLANT CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Hours of man labor	7.9	7.8	7.8	7.8
Hours of tractor work	1.7	1.6	1.8	1.7
Truck miles	1.0	3.9	1.6	1.7
Number of plants	3,154	3,269	2,898	3,088
Cost:				
Labor	$8.45	$9.59	$7.45	$8.30
Tractor	1.90	1.34	1.42	1.66
Truck	0.16	0.36	0.17	0.20
Other equipment	2.08	1.84	1.49	1.85
Total	$12.59	$13.13	$10.53	$12.01
Plants	38.93	40.86	36.31	38.37
Total	$51.52	$53.99	$46.84	$50.38

For Monroe County, the average cost per acre was $51.52, of which $38.93 was for plants and $12.59 for planting. The number of plants averaged 3,154 per acre. In Genesee County, the average cost was $53.99, and the average number of plants used per acre was 3,269. In Orleans County, the cost of planting an acre of tomatoes was somewhat lower with $46.84. The number of plants averaged 2,898 and cost $36.31. The average number of hours of labor required per acre for planting, 7.8, was about the same for each of the counties.

The cost of planting ranged from $42.95 to $55.20. The number of plants varied from 2,500 to 3,475. The number of hours of labor per acre varied from 4.6 to 10.6.

The most common variety of plants used was the Red Jacket, which made up 56 per cent of those where the variety was indicated. Long Red accounted for 27 per cent of the plants, and Gem, 15 per cent. Stokesdale and John Bear made up 1 per cent each.

Cost of Cultivating and Hoeing

The average cost per acre for cultivating and hoeing was $17.49 (Table 6). Eleven dollars and forty-seven cents of this was for labor and the balance for equipment and power. The highest cost of cultivating and hoeing was in Orleans County with $21.71. In that county, considerably more hoeing was performed than in any of the other counties and the number of hours of labor spent per acre averaged 19.5. This was about double that spent in Monroe County and more than three times that in Genesee County. The cost in Monroe County for cultivating and hoeing was $16.68 and in Genesee County, $11.19.

Table 6. COST PER ACRE TO CULTIVATE AND HOE CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Hours of man labor	9.3	5.9	19.5	12.1
Hours of tractor work	4.3	3.1	3.9	4.0
Truck miles	0.1	0.2	0.1	0.1
Cost:				
Labor	$9.51	$6.98	$16.73	$11.47
Tractor	5.86	2.56	3.17	4.50
Truck	0.01	0.02	0.01	0.01
Other equipment	1.30	1.63	1.80	1.51
Total	$16.68	$11.19	$21.71	$17.49

Cost of Spraying

The average cost of spraying amounted to $25.29 per acre (Table 7). Of this, $1.80 was custom spraying and $23.49 spraying done by the farmer. The latter cost is made up of $12.30 per acre for materials and $11.19 for the labor and equipment. An average of 3 hours of man labor were required per acre to perform the sparying operation.

Table 7. COST PER ACRE FOR SPRAYING AND DUSTING CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Hours of man labor	3.1	1.4	3.5	3.0
Hours of tractor work	2.6	0.4	2.1	2.2
Truck miles	0.2	2.2	1.2	0.7
Cost:				
Labor	$3.93	$1.54	$3.51	$3.44
Tractor	3.25	0.26	1.84	2.35
Truck	0.02	0.12	0.49	0.19
Other equipment	6.92	1.48	4.15	5.21
Total	$14.12	$3.40	$9.99	$11.19
Spray materials	9.20	12.41	17.31	12.30
Total	$23.32	$15.81	$27.30	$23.49
Custom spraying	—	12.17	—	1.80
Total	$23.32	$27.98	$27.30	$25.29

The lowest average cost per acre for any of the counties was $23.32 per acre for the farms in Monroe County. In Genesee County the cost, including the custom spraying, was $27.98. The cost for Orleans County was $27.30.

Other Costs

The other costs include the land cost and such miscellaneous items as manure, cover crop and green manure (Table 8). On one farm in Monroe County, a considerable acreage was irrigated, and the cost of irrigation is included in the average of the other costs.

Table 8. OTHER COSTS PER ACRE FOR CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Hours of man labor	1.5	0.1	0.6	1.0
Hours of tractor work	0.3			0.1
Truck miles	0.3			*
Cost:				
Land	$11.22	$11.51	$6.49	$9.73
Labor	1.64	0.02	0.65	1.08
Tractor	0.64	--	--	0.35
Truck	0.05	--	--	0.03
Other equipment	1.08	0.02	--	0.58
Manure	1.15	--	5.72	2.46
Green manure and cover	1.86	--	0.84	1.25
All other	6.21	6.31	6.75	6.39
Total	$23.85	$17.86	$20.45	$21.87

*Less than .05.

Total Cost to Grow

The average cost of growing an acre of tomatoes on the 24 New York farms amounted to $169.51 (Table 9). The principal items of cost were fertilizer, $38.37; plants, $38.37; labor, $30.78; tractor and equipment, $28.06; and land cost, $9.73. The average amount of labor per acre for growing was 29.5 hours. The tractor hours amounted to 13.2, and the truck miles average 4.5. As previously mentioned, the average number of pounds of fertilizer per acre amounted to 1,597, and the number of plants averaged 3,088 per acre. The cost per acre in Monroe County was $174.03 and in Orleans County, $171.88. The lowest cost was in Genesee County with $148.23.

Table 9. TOTAL COSTS PER ACRE TO GROW CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Number of farms	11	4	9	24
Man hours	26.9	18.8	38.6	29.5
Tractor hours	13.7	8.2	14.6	13.2
Truck miles	3.3	7.6	5.3	4.5
Pounds of fertilizer	1,696	1,238	1,600	1,597
Number of plants	3,154	3,269	2,898	3,088
Costs:				
Land	$11.22	$11.51	$6.49	$9.73
Labor	30.22	22.59	35.45	30.78
Tractor	18.15	6.79	11.76	14.40
Truck	0.56	0.64	0.97	0.71
Other equipment	15.20	8.44	11.36	12.95
Fertilizer	40.98	26.51	38.92	38.37
Manure	1.15	--	5.72	2.46
Spray and dust	9.20	12.41	17.31	12.30
Plants	38.93	40.86	36.31	38.37
Cover and green manure	1.86	--	0.84	1.25
Hired spraying	--	12.17	--	1.80
All other	6.56	6.31	6.75	6.39
Total	$174.03	$148.23	$171.88	$169.51

Cost to Harvest and Sell

The cost of harvesting an acre of tomatoes amounted to $193.63 per acre (Table 10). This was mostly labor, $166.73, but included $11.46 charge for truck and hired trucking. The average amount of time required to harvest the tomatoes was 118.5 hours per acre.

Table 10. COST PER ACRE TO HARVEST AND SELL CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Hours of man labor	124.6	112.2	111.6	118.5
Hours of tractor work	0.7	3.8	1.3	1.3
Truck miles	30.9	29.6	46.5	35.8
Cost:				
Labor	$169.61	$192.61	$150.17	$166.73
Tractor	0.80	0.56	1.02	0.84
Truck	4.46	3.48	6.14	4.85
Other equipment	0.22	0.30	0.22	0.23
Hired hauling	2.96	29.60	2.04	6.61
All other	15.83	11.83	13.13	14.37
Total	$193.88	$238.38	$172.72	$193.63

The cost in Monroe County was $193.88 of which $169.71 was for 124.6 hours of labor. In Genesee County the cost averaged $238.38 per acre. Of this, $192.61 was for 112.2 hours of labor. The Orleans County cost was $172.72 per acre. The labor cost was $150.17 and was for 111.6 hours of labor.

Total Cost

The cost per acre for all farms in producing tomatoes amounted to $363.14 (Table 11). Over half of this was for labor $197.51. Fertilizer, plants, spray and dust materials, equipment and tractor costs were other important items. An average of 148 hours of labor were required per acre to grow and harvest the crop. The number of tractor hours averaged 14.5, and the truck miles averaged 40.3.

Table 11. TOTAL COSTS PER ACRE FOR CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Number of farms	11	4	9	24
Man hours	151.5	131.0	150.2	148.0
Tractor hours	14.4	12.0	15.9	14.5
Truck miles	34.2	37.2	51.8	40.3
Pounds of fertilizer	1,696	1,238	1,600	1,597
Number of plants	3,154	3,269	2,898	3,088
Costs:				
Land	$11.22	$11.51	$6.49	$9.73
Labor	199.83	215.20	185.62	197.51
Tractor	18.95	7.35	12.78	15.24
Truck	5.02	4.12	7.11	5.56
Other equipment	15.42	8.74	11.58	13.18
Fertilizer	40.98	26.51	38.92	38.37
Manure	1.15	--	5.72	2.46
Spray and dust	9.20	12.41	17.31	12.30
Plants	38.93	40.86	36.31	38.37
Cover and green manure	1.86	--	0.84	1.25
Hired hauling	2.96	29.60	2.04	6.61
Hired spraying	--	12.17	--	1.80
All other	22.39	18.14	19.88	20.76
Total	$367.91	$386.61	$344.60	$363.14

The cost for the farms in Monroe County averaged $367.91. The labor used averaged 151.5 hours and cost $199.83. For the Genesee County farms the cost averaged $386.61. The principal cost item was labor which averaged $215.20 per acre and was for 131 hours. The farms in Orleans County averaged $344.60. Again labor was the most important cost item and amounted to $185.62. The hours were 150.2 per acre.

Costs and Returns

As has been previously noted, the average yield on these farms was extremely high, amounting to 18.6 tons per acre (Table 12). These brought $588.19. In addition there were other credits for trucking of $7.88, which made the total returns per acre $596.07. The costs were $363.14 leaving a profit of $232.93. The return per hour of labor, based only on the time which the farmer and his regular hired help worked on the enterprise, amounted to $5.98. Custom labor was not included in calculating the return per hour of labor except as it was considered as an expense.

Table 12. COSTS AND RETURNS PER ACRE FOR CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe		Genesee		Orleans		All farms	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
Returns								
Tomatoes	18.1	566.80	19.1	597.87	19.3	618.68	18.6	588.19
Other		7.62		25.71		0.14		7.88
Total returns		574.42		623.58		618.82		596.07
Total cost		367.91		386.61		344.60		363.14
Profit		206.51		236.97		274.22		232.93
Return per hour of labor (Regular)		5.84		8.82		5.46		5.98

The average yield in Monroe County amounted to 18.1 tons per acre and brought $566.80. The total returns for the 11 farms in that county averaged $574.42 per acre. The cost averaged $367.91 which left a profit of $206.51. The return per hour of labor for regular help amounted to $5.84. For the farms in Genesee County the yield was one ton above that for Monroe County, and the other returns were higher. The total returns amounted to $623.58. When the costs of $368.61 were deducted, the profit amounted to $236.97 and the return per hour of labor was $8.82. The yield for the farms in Orleans County was just slightly above that for Genesee with 19.3 tons. The total returns per acre amounted to $618.82. The cost was $344.60, and the profit was $274.22. The return per hour of labor was $5.46.

COSTS AND RETURNS PER TON

Cost to Grow

Because of the very high yield, the cost per ton in growing tomatoes averaged only $9.09 (Table 13). For Monroe County, the average was $9.63; for Genesee it was $7.75; and for Orelans, $8.88. With such high yields, the costs of growing, many of which are incurred on an acre basis and do not vary with the yield, are spread over a large number of tons and are low.

Table 13. TOTAL COST PER TON TO GROW FOR CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Number of farms	11	4	9	24
Man hours	1.5	1.0	2.0	1.5
Tractor hours	0.7	0.4	0.7	0.7
Truck miles	0.1	0.4	0.7	0.3
Pounds of fertilizer	94	65	83	86
Number of plants	174	171	150	166
Costs:				
Land	$0.62	$0.60	$0.34	$0.52
Labor	1.67	1.18	1.83	1.65
Tractor	1.01	0.35	0.61	0.77
Truck	0.03	0.03	0.05	0.04
Other equipment	0.84	0.45	0.59	0.69
Fertilizer	2.27	1.39	2.01	2.06
Manure	0.06	--	0.29	0.13
Spray and dust	0.51	0.65	0.89	0.66
Plants	2.15	2.14	1.88	2.06
Cover and green manure	0.10	--	0.04	0.07
Hired hauling	--	--	--	--
Hired spraying	--	0.64	--	0.09
All other	0.37	0.32	0.35	0.35
Total	$9.63	$7.75	$8.88	$9.09

Cost to Harvest

The average cost per ton in harvesting tomatoes amounted to $10.39 (Table 14). An average of 6.4 hours were required per ton, and the cost was $8.94. The cost for Monroe County averaged $10.72. For Genesee it was $12.46, and for Orleans it was $8.93. Since these costs are mostly labor hired on a piecework basis, they increase per acre as the yield increases.

Table 14. COSTS PER TON TO HARVEST FOR CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Number of farms	11	4	9	24
Man hours	6.9	5.8	5.8	6.4
Tractor hours	0.1	0.2	0.1	0.1
Truck miles	1.7	1.5	2.4	1.9
Costs:				
Labor	$9.38	$10.07	$7.76	$8.94
Tractor	0.04	0.03	0.05	0.05
Truck	0.25	0.18	0.32	0.26
Other equipment	0.01	0.01	0.01	0.01
Hired hauling	0.16	1.54	0.11	0.35
All other	0.88	0.63	0.68	0.78
Total	$10.72	$12.46	$8.93	$10.39

Total Cost

The average cost per ton of growing and harvesting amounted to $19.48 (Table 15). Labor cost $10.59, and much of it was for the harvest season. Fertilizer and plants were the next most important items of cost, averaging $2.06 each per ton.

Table 15. TOTAL COSTS PER TON FOR CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Number of farms	11	4	9	24
Man hours	8.4	6.8	7.8	7.9
Tractor hours	0.8	0.6	0.8	0.8
Truck miles	1.8	1.9	2.6	2.2
Pounds of fertilizer	94	65	83	86
Number of plants	174	171	150	166
Costs:				
Land	$0.62	$0.60	$0.34	$0.52
Labor	11.05	11.25	9.59	10.59
Tractor	1.05	0.38	0.66	0.82
Truck	0.28	0.21	0.37	0.30
Other equipment	0.85	0.46	0.60	0.70
Fertilizer	2.27	1.39	2.01	2.06
Manure	0.06	--	0.29	0.13
Spray and dust	0.51	0.65	0.89	0.66
Plants	2.15	2.14	1.88	2.06
Cover and green manure	0.10	--	0.04	0.07
Hired hauling	0.16	1.54	0.11	0.35
Hired spraying	--	0.64	--	0.09
All other	1.25	0.95	1.03	1.13
Total	$20.35	$20.21	$17.81	$19.48

Costs and Returns

The average returns per ton of tomatoes amounted to $31.55 (Table 16). The returns were very nearly the same for the farms in each of the counties with an average of $31.26 for Genesee, $31.35 for Monroe, and $31.99 for Orleans County.

For All Farms, when the average cost of $19.48 was subtracted from the returns, there remained a profit of $12.49 per ton. The profit for Monroe County was $11.42. For Genesee County it was $12.39, and for Orleans County, $14.19.

Table 16. COSTS AND RETURNS PER TON FOR CANNING FACTORY TOMATOES 24 New York Farms, 1951

Item	Monroe	Genesee	Orleans	All farms
Returns;				
Tomatoes	$31.35	$31.26	$31.99	$31.55
Other	0.42	1.34	0.01	0.42
Total returns	$31.77	$32.60	$32.00	$31.97
Total cost	20.35	20.21	17.81	19.48
Profit	$11.42	$12.39	$14.19	$12.49

COSTS IN MONROE COUNTY, 1950-1951

Total Growing Costs per Acre

In 1950, there were 10 farms in Monroe County on which costs were kept. Eight of these kept records in 1951 along with three other farmers. A comparison of the costs shows an increase in total cost of growing an acre of tomatoes from $159.52 to $174.03 (Table 17). The principal items of increase were $7.17 more labor cost, $5.18 more fertilizer expense, and $11.52 more cost for plants. Land and spray materials were up, and equipment costs were down very slightly. The miscellaneous costs were considerably under the 1950 figure.

Table 17. TOTAL GROWING COSTS PER ACRE Monroe County Farms, 1950 and 1951

Item	1950	1951
Number of farms	10	11
Man hours	23.7	26.9
Tractor hours	13.1	13.7
Truck miles	4.4	3.3
Pounds of fertilizer	1,449	1,696
Number of plants	2,988	3,154
Costs:		
Land	$ 8.76	$11.22
Labor	23.05	30.22
Equipment	35.08	33.91
Fertilizer	35.80	40.98
Manure	4.33	1.15
Spray materials	7.69	9.20
Plants	27.41	38.93
Cover and green manure	2.60	1.86
All other	14.80	6.56
Total	$159.52	$174.03

Total Harvesting and Selling Costs per Ton

The harvesting and selling costs for 1951 for Monroe County averaged $10.72 (Table 18). This was $1.91 more than in 1950. The principal increase was in labor, but other costs increased slightly. The average number of hours per ton was somewhat higher in 1951, with 6.9 as compared to 5.1. The labor cost was $9.38, or $1.58 more than for 1950. The equivalent cost was $0.33 more.

Table 18. TOTAL HARVESTING AND SELLING COSTS PER TON
Monroe County Farms, 1950 and 1951

Item	1950	1951
Number of farms	10	11
Man hours	5.1	6.9
Tractor hours	0.1	0.1
Truck miles	3.2	1.7
Costs:		
Labor	$7.80	$9.38
Other costs	1.01	1.34
Total	$8.81	$10.72

FACTORS AFFECTING COSTS, RETURNS, AND PROFITS

Size of Enterprise

In order to study the effect of size of enterprise on the costs and returns and profits, the farms were divided into two groups, those with large acreage and those with small. There were 12 farms in each group. The average number of acres per farm for the farms with large enterprises was 43.6 acres while the acreage for the farms with smaller enterprises was 11.8 (Table 19). Somewhat more hours of labor were required on the larger enterprises, but this is related to a slightly higher yield for those enterprises. The costs for the larger enterprises averaged $362.78 as compared to $346.29 for those with small acreages, but the returns were sufficiently larger for the farms with the large enterprises that the profit was $44.82 more for the large farm. They made considerably higher returns per hour of labor.

Table 19. RELATION OF SIZE OF ENTERPRISES TO VARIOUS FACTORS
24 New York Farms, 1951

Factor	Large	Small
Acres	43.6	11.8
Per acre:		
Man hours	148	136
Pounds of fertilizer	1,531	1,526
Number of plants	3,076	3,029
Yield of tomatoes (tons)	19.0	17.1
Returns	$610.37	$549.06
Cost	362.78	346.29
Profit	$247.59	$202.77
Return per hour of labor	$6.48	$5.91

Hours of Labor per Acre

When the farms were grouped according to labor requirements per acre, the division was essentially one of yield. More hours of labor were required on the farms with the higher yields. These farmers had somewhat higher costs per acre but because of their higher yields made more profit (Table 20).

Table 20. RELATION OF MAN HOURS PER ACRE TO VARIOUS FACTORS
24 New York Farms, 1951

Factors	High	Low
Acres	31.8	23.7
Per acre:		
Man hours	169	114
Pounds of fertilizer	1,527	1,530
Number of plants	3,087	3,018
Yield of tomatoes (tons)	20.7	15.4
Returns	$660.47	$498.96
Cost	376.31	332.76
Profit	$284.16	$166.20
Return per hour of labor	$6.28	$6.11

Number of Plants per Acre

When the farms were grouped according to number of plants per acre, it was found that the farmer using more plants had larger acreages, used more fertilizer, and had considerably higher yields. Their costs were $80.63 higher, but their returns were more than enough to offset the additional costs, and their profits were $85.66 more. The return per hour of labor was $8.05 as compared to $4.34 (Table 21).

Table 21. RELATION OF NUMBER OF PLANTS PER ACRE TO VARIOUS FACTORS
24 New York Farms, 1951

Factors	High	Low
Acres	35.9	19.5
Per acre:		
Man hours	153	131
Pounds of fertilizer	1,628	1,429
Number of plants	3,207	2,898
Yield of tomatoes (tons)	20.3	15.8
Returns	$657.86	$501.57
Cost	389.85	319.22
Profit	$268.01	$182.35
Return per hour of labor	$8.05	$4.34

Pounds of Fertilizer per Acre

The 12 farms with the larger fertilizer application had somewhat higher yields than the 12 which used smaller amounts of fertilizer (Table 22). Their costs were more, but because of their higher yields they made more profit and had a greater return per hour of labor. The average application of fertilizer on the 12 farms using most fertilizer was 1,880 pounds per acre. For the other group the average was 1,176 pounds. The cost per acre was $356.88 as compared to $352.19. The returns were $23.11 greater, and the profit was more by $18.43 per acre.

Table 22. RELATION OF POUNDS OF FERTILIZER PER ACRE TO VARIOUS FACTORS
24 New York Farms, 1951

Factors	High	Low
Acres	27.7	27.8
Per acre:		
Man hours	135	149
Pounds of fertilizer	1,880	1,176
Number of plants	3,035	3,070
Yield of tomatoes (tons)	18.2	17.9
Returns	$591.27	$568.16
Cost	356.88	352.19
Profit	$234.39	$215.97
Return per hour of labor	$6.70	$5.69

Yield of Tomatoes per Acre

When the 24 farms were divided into two groups, those with high and with low tomato yields, the farms with higher yields averaged 21.6 tons per acre as compared to 14.0 tons for those with lower yields (Table 23). The high yielding farms required somewhat more labor, used more fertilizer, and more plants. Their costs per acre were $86.75 more, but this additional cost was more than offset by larger returns, and their profits were $149.36 more. The return per hour of labor for the high yielding farms was $8.07 as compared to $4.33.

Table 23. RELATION OF YIELDS OF TOMATOES PER ACRE TO VARIOUS FACTORS
24 New York Farms, 1951

Factors	High	Low
Acres	28.9	26.6
Per acre:		
Man hours	165	119
Pounds of fertilizer	1,658	1,399
Number of plants	3,139	2,966
Yield of tomatoes (tons)	21.6	14.5
Returns	$692.77	$466.66
Cost	392.91	316.16
Profit	$299.86	$150.50
Return per hour of labor	$8.07	$4.33

Returns per Hour of Labor

The 12 farms with the highest returns per hour for the farmer's time and that of his regular workers, compared with those with lower returns, had higher yields and used somewhat more fertilization and plants per acre (Table 24). The cost for the farms with high returns per hour of labor amounted to $395.31 per acre. This was $81.55 more than the cost for the less profitable farms. The returns were $93.79 more, and the profit per acre was $281.30 as compared to $169.06. The difference is $112.24.

Table 24. RELATION OF RETURNS PER HOUR OF LABOR TO VARIOUS FACTORS
24 New York Farms, 1951

Factors	High	Low
Acres	25.6	29.9
Per acre:		
Man hours	155	128
Pounds of fertilizer	1,633	1,425
Number of plants	3,144	2,961
Yield of tomatoes (tons)	21.0	15.1
Returns	$676.61	$482.82
Cost	395.31	313.76
Profit	$281.30	$169.06
Return per hour of labor	$8.30	$4.09

RESULTS FOR INDIVIDUAL FARMS

A comparison of the information for individual farms shows some of the variation between farms. The smallest acreage of tomatoes on any of the farms studied was 5, whereas the largest was 102 (Table 25). The smallest number of man hours per acre was 99.4, whereas the largest number was 242.9. The tractor hours varied from 7.4 to 30.5. The yield ranged from 7.7 to 24.3 tons.

The farm with the lowest cost had an average of $275.35 per acre. The highest cost farm averaged $433.76. The returns ranged from $249.90 to $881.02. The profit varied from -$25.45 to $447.26 per acre.

The lowest cost per ton was $16.85. The highest cost was $35.77. The highest returns per ton were for farm number 34 with $36.38. This farmer had 94 per cent of his tomatoes graded as #1 tomatoes. The profits per ton ranged from $3.30 to $18.47.

COST AND RETURN PER ACRE AND PER TON FOR CANNING FACTORY TOMATOES
24 Individual New York Farms, 1951

Farm no.	Acres	Per acre					Per acre			Per ton			Return per hr. labor
		Man hours	Tractor hours	Fertilizer pounds	Plants number	Yield tons	Cost	Returns	Profit	Cost	Returns	Profit	
Genesee County													
4	38.0	114.6	8.5	1,111	3,158	16.28	$388.78	$528.41	$139.63	$23.88	$32.46	$8.58	$6.15
16	32.0	133.9	9.9	1,353	3,228	20.66	378.73	681.68	302.95	18.33	32.99	14.66	11.16
18	23.6	157.0	7.4	1,050	3,475	21.20	384.03	683.75	299.72	18.11	32.25	14.14	9.06
22	5.0	114.8	9.8	2,363	3,400	21.07	432.64	690.91	258.27	21.18	33.82	12.64	18.45
Monroe County													
20	10.0	110.9	23.0	1,500	3,000	14.07	294.75	445.02	150.27	20.95	31.63	10.68	4.39
21	10.0	104.5	12.9	1,500	2,500	17.02	300.68	536.67	235.99	17.66	31.52	13.86	5.50
23	10.0	242.9	13.2	920	3,250	23.10	426.11	694.72	268.61	18.44	30.07	11.63	6.58
24	60.0	166.7	9.5	1,300	3,000	17.69	363.04	568.30	205.26	20.52	32.12	11.60	5.03
25	14.0	110.5	16.5	1,721	3,286	16.63	363.54	551.77	188.23	21.86	33.18	11.32	5.84
26	20.5	157.9	30.5	1,277	2,976	17.81	352.46	556.57	204.11	19.78	31.24	11.46	4.69
27	102.0	196.2	15.0	2,612	3,353	24.34	459.60	755.23	295.63	18.88	31.02	12.14	10.38
28	70.0	112.9	8.0	1,235	3,257	15.27	312.85	494.15	181.30	20.49	32.37	11.88	4.37
29	10.0	135.9	22.6	1,800	2,900	11.36	334.43	368.17	33.74	29.74	32.42	2.97	1.85
30	30.0	99.4	15.0	1,510	3,000	13.06	291.79	429.05	137.26	22.34	32.85	10.51	4.57
31	15.0	100.2	16.1	837	3,000	7.70	275.35	249.90	-25.45	35.77	32.47	-3.30	0.68
Orleans County													
34	7.2	143.3	27.2	2,491	3,034	24.22	433.76	881.02	447.26	17.91	36.38	18.47	8.61
36	23.0	190.0	25.0	1,783	3,043	22.58	380.82	708.16	327.34	16.86	31.36	14.50	6.00
37	10.0	107.3	17.0	1,800	3,000	17.44	327.03	528.18	201.15	18.75	30.28	11.53	4.89
38	40.0	126.7	8.9	1,625	2,490	14.37	292.50	483.62	191.12	20.35	33.65	13.30	5.49
39	24.0	188.7	13.9	1,431	3,000	23.07	429.58	737.95	308.37	18.62	31.99	13.37	5.60
40	35.0	137.0	12.7	1,761	2,914	18.83	317.43	589.38	271.95	16.85	31.29	14.44	4.95
41	12.0	138.4	11.8	846	3,000	12.76	249.23	416.69	167.46	19.53	32.65	13.12	3.19
42	46.0	147.9	21.6	1,600	3,000	20.74	354.26	656.21	301.95	17.07	31.63	14.56	5.03
44	18.0	166.1	11.9	1,256	3,000	22.13	365.46	669.08	303.62	16.52	30.24	13.72	6.30