

COSTS AND RETURNS  
IN PRODUCING  
CANNING FACTORY SWEET CORN

13 Western New York Farms

1951

by

C. D. Kearl

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

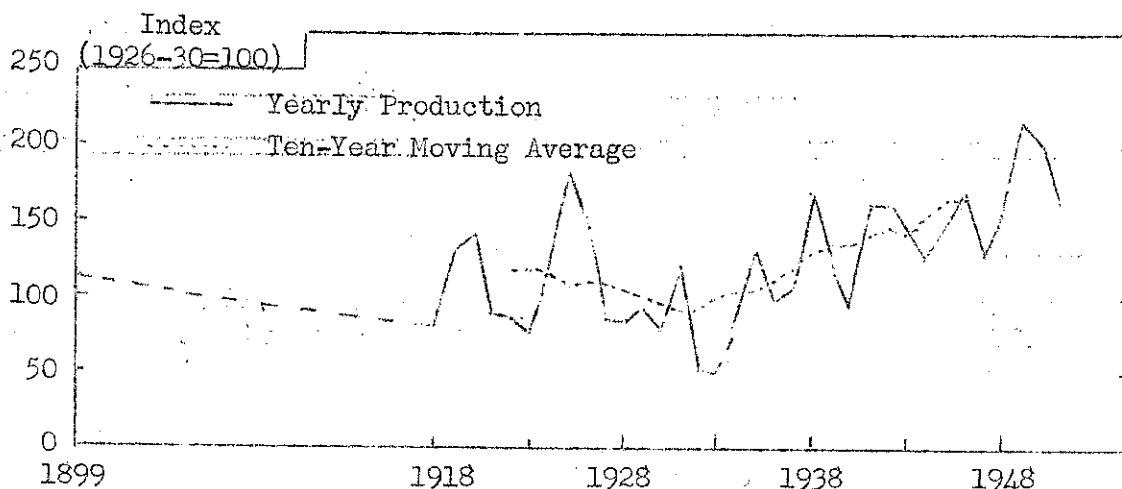
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COSTS AND RETURNS IN PRODUCING CANNING FACTORY SWEET CORN<sup>1/</sup>

Sweet corn production in New York State has been increasing since the depression years of the '30's. Today there is about twice as much corn produced for processing in New York State as there was at that time (Figure 1). Two of the principal counties in the production of this crop in the State are Genesee and Livingston Counties which account for slightly less than half of the total for the State.

Figure-1. PRODUCTION OF SWEET CORN FOR PROCESSING IN NEW YORK STATE



Source: Agricultural Production in New York, A.E. 783, M. C. Bond

In 1951, there were 13 farmers in these counties who kept records on their canning factory sweet corn in order to determine the costs, returns, and profits. The average yield per acre of unhusked corn for these farmers was 3.0 tons (Table 1). The yield was the same for the farms in both Genesee and Livingston Counties. The average yield for New York State as a whole was somewhat less with 2.7 tons. The three-ton yield for Genesee and Livingston Counties was one-half ton more than the average for the last ten years for New York State.

Table 1. YIELD PER ACRE OF CANNING FACTORY SWEET CORN--NOT HUSKED

Year	New York State	Farms studied		All farms
		Genesee	Livingston	
1942	2.6			
1943	2.3			
1944	1.9			
1945	2.4			
1946	2.4			
1947	2.2			
1948	2.4			
1949	2.6			
1950	3.4			
1951	2.7	3.0	3.0	3.0
10-year average	2.5			

Source: Commercial Truck Crop Report, B.A.E., U.S.D.A.

<sup>1/</sup> Author's acknowledgements. This publication was made possible because 21 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 and R. G. Parker. 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.

## COSTS AND RETURNS PER ACRE

Cost of Plowing

The average cost of plowing an acre of sweet corn land on the 13 farms in the two counties was \$4.33 (Table 2). The average for Livingston County farms was \$4.00 while for those in Genesee County it was \$4.44. In both of the counties 1.7 hours of labor were required per acre to do the work. The equipment cost was about the same for each county, and the difference in labor cost was due to the differences in the estimated rate per hour as given by the farmers.

Table 2. COST PER ACRE TO PLOW  
FOR CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Item	Genesee	Livingston	All farms
Man hours	1.7	1.7	1.7
Tractor hours	1.7	1.7	1.7
Cost:			
Labor	\$1.88	\$1.51	\$1.79
Tractor	1.37	1.32	1.36
Other equipment	1.19	1.17	1.18
Total	\$4.44	\$4.00	\$4.33

Cost of Fitting

The average cost of fitting land for sweet corn was \$4.49 per acre (Table 3). Of this, \$1.77 was for the 1.7 hours of labor that were required. Power and equipment costs came to \$2.72.

Table 3. COST PER ACRE TO FIT  
FOR CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Item	Genesee	Livingston	All farms
Man hours	1.6	1.9	1.7
Tractor hours	1.6	1.9	1.7
Cost:			
Labor	\$1.80	\$1.66	\$1.77
Tractor	1.27	1.50	1.32
Other equipment	1.35	1.54	1.40
Total	\$4.42	\$4.70	\$4.49

On the Livingston County farms the cost was \$4.70. The labor required was 1.9 hours which cost \$1.66. Equipment and power costs amounted to \$3.04. For Genesee County farms the labor requirement was 1.6 hours per acre and cost \$1.80. The total cost per acre was \$4.42.

Cost of Fertilizing

The average cost for fertilizing was \$8.75 (Table 4). This, however, is not the total cost because only a part of the fertilizer was applied directly as a fertilizing operation. Much of the fertilizer was applied at the time of planting, and the labor and equipment cost in applying that fertilizer, since they could not be separated, are included in the planting cost. The cost of fertilizing as shown is for all material that was used but is for only the labor and equipment used directly in fertilizing. The cost of the fertilizer which was applied was \$8.29. The average amount of fertilizer used was 372 pounds.

Table 4.  
COST PER ACRE TO FERTILIZE  
FOR CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Item	Genesee	Livingston	All farms
Man hours	0.1	0.2	0.1
Tractor hours	0.1	0.1	0.1
Pounds of fertilizer	372	369	372
Cost:			
Labor	\$0.02	\$0.16	\$0.05
Tractor	0.01	0.12	0.04
Other equipment*	0.16	1.05	0.37
Total	\$0.19	\$1.33	\$0.46
Fertilizer	8.31	8.24	8.29
Total	\$8.50	\$9.57	\$8.75

\*Includes truck.

The fertilizer application for the Livingston and Genesee County farms was almost the same with 369 pounds average for Livingston County and 372 pounds in Genesee. The fertilizer cost was almost similar with \$8.24 for Livingston County and \$8.31 for Genesee County. Somewhat more labor and more equipment were used in applying fertilizer on the corn land on the farms in Livingston than on those in Genesee County with the result that the cost for applying fertilizer amounted to \$1.33 in Livingston and only \$0.19 in Genesee County. There were a large number of fertilizer analyses used on the farms in these counties. The most common was 5-10-10. However, other analyses were 8-8-8, 4-12-8, 5-10-5, 10-10-10, 3-12-6, 8-16-16, superphosphate, and nitrogen compounds.

Cost of Planting

An average of one hour per acre was required in planting the sweet corn (Table 5). The seed averaged 7 pounds per acre, and the total planting cost including the seed was \$5.39. Of this total, \$2.37 was for the seed while \$3.02 was for labor and equipment.

In Livingston County, the time required for planting was almost the same with 0.9 hours. Slightly more seed was used, 8.4 pounds, and the cost averaged \$6.55. The cost of seed was \$2.64 and the planting cost was \$3.91.

Table 5. COST PER ACRE TO PLANT  
CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Item	Genesee	Livingston	All farms
Man hours	1.0	0.9	1.0
Tractor hours	0.6	0.7	0.7
Pounds of seed	6.5	8.4	7.0
Cost:			
Labor	\$1.21	\$0.82	\$1.12
Tractor	0.57	0.53	0.56
Truck	0.04	0.05	0.04
Other equipment	0.94	2.51	1.30
Total	\$2.76	\$3.91	\$3.02
Seed	2.29	2.64	2.37
Total	\$5.05	\$6.55	\$5.39

For the Genesee County farms the labor requirement for planting was one hour per acre, and 6.5 pounds of seed were used. The total cost of planting came to \$5.05, of which \$2.29 was for seed and \$2.76 was the cost of planting.

The most common variety of corn planted was the Golden Cross Bantam. However, other varieties mentioned were Golden Crown, Seneca El, Tendermost, Hybrid Bantam, and Yellow Hybrid.

#### Cost of Cultivating

The average cost of cultivating sweet corn was \$3.71 (Table 6). Approximately 1.5 hours were spent per acre in performing this work for All Farms. On the farms in Livingston County, more time was spent, an average of 2.3 hours, and the cost was \$5.83. In Genesee County only 1.2 hours were spent in cultivating, and the cost for labor, tractor, and equipment came to \$3.05.

Table 6. COST PER ACRE TO CULTIVATE  
CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Item	Genesee	Livingston	All farms
Man hours	1.2	2.3	1.5
Tractor hours	1.2	2.1	1.4
Cost:			
Labor	\$1.35	\$2.20	\$1.55
Tractor	0.89	1.62	1.06
Other equipment	0.81	2.01	1.10
Total	\$3.05	\$5.83	\$3.71

Cost of Spraying

There was only a slight amount of spraying done on these farms. An average of 0.1 of an hour was spent, and the spray materials and spraying came to a total of \$1.40 per acre (Table 7). Of this, \$0.76 was for the material and \$0.64 for equipment and labor. In Livingston County the average cost was \$0.85 per acre, while in Genesee County it was \$1.58. The cost of spray materials in Livingston County was \$0.69 and in Genesee County, \$0.78.

Table 7.

COST PER ACRE TO SPRAY  
CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Item	Genesee	Livingston	All farms
Man hours	0.2	0.1	0.1
Tractor hours	0.2	0.1	0.1
Cost:			
Labor	\$0.22	\$0.05	\$0.18
Tractor	0.17	0.04	0.14
Other equipment	0.41	0.07	0.32
Total	\$0.80	\$0.16	\$0.64
Spray and dust	0.78	0.69	0.76
Total	\$1.58	\$0.85	\$1.40

Other Costs

The other costs in growing sweet corn were land, a small amount of manure, and the miscellaneous items (Table 8). The land cost averaged \$7.42 and the miscellaneous costs \$6.63, with a total for the other costs of \$14.54.

Table 8.

OTHER COSTS PER ACRE  
FOR CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Item	Genesee	Livingston	All farms
Man hours	--	--	--
Tractor hours	--	--	--
Cost:			
Land	\$7.09	\$8.51	\$7.42
Manure	--	2.11	0.49
All other	6.63	6.63	6.63
Total	\$13.72	\$17.25	\$14.54

Total Costs

The total cost per acre in producing canning factory sweet corn averaged \$60.19 (Table 9). Of this, \$42.61 was the cost of growing and \$17.50 the cost of harvesting the corn. Fertilizer was the largest item of expense in growing corn, amounting to \$8.29 per acre. Land came next with \$7.42. The 6.1 hours of labor per acre cost \$6.46. The tractor cost was \$4.48, and the equipment cost was \$5.64.

Table 9.

TOTAL COSTS PER ACRE  
FOR CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Item	Genesee	Livingston	All farms
Number of farms	8	5	13
Man hours	5.8	7.1	6.1
Tractor hours	5.4	6.6	5.7
Pounds of fertilizer	372	369	372
Pounds of seed	6.5	8.4	7.0
Growing cost:			
Land	\$7.09	\$8.51	\$7.42
Labor	6.48	6.40	6.46
Tractor	4.28	5.13	4.48
Truck	0.04	0.18	0.07
Other equipment	4.86	8.22	5.64
Fertilizer	8.31	8.24	8.29
Manure	—	2.11	0.49
Spray and dust	0.78	0.69	0.76
Seed	2.29	2.64	2.37
All other	6.63	6.63	6.63
Total	\$40.76	\$48.75	\$42.61
Harvesting and selling	17.69	17.19	17.58
Total cost	\$58.45	\$65.94	\$60.19

In Livingston County the average cost per acre was \$65.94. The cost of harvesting and selling was slightly less than the average for all farms and the cost of growing was higher. The fertilizer cost was almost the same at about \$8.24. Land and equipment costs were higher, \$8.51 and \$8.22, respectively. Labor cost \$6.40.

For Genesee County, the average cost per acre was \$58.45. Of this, \$17.69 was harvesting and selling and \$40.76 was growing. The largest items of growing expense were again fertilizer, land, labor, and equipment.

Costs and Returns

The returns per acre for all farms averaged \$66.24 (Table 10). The 2 ton yield of husked corn per acre brought \$65.56. The remaining 68 cents was credit for hauling. When the average cost of \$60.19 was deducted from the returns, the profits per acre amounted to \$6.05. The return per hour of labor was \$2.04.

Table 10.

COST AND RETURNS PER ACRE  
FOR CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Item	Genesee		Livingston		All farms	
	Tons*	Dollars	Tons*	Dollars	Tons*	Dollars
Returns:						
Sweet corn	1.99	64.78	2.06	68.12	2.00	65.56
Other		0.84		0.15		0.68
Total returns		65.62		68.27		66.24
Total cost		58.45		65.94		60.19
Profit		7.17		2.33		6.05
Return per hour of labor		2.35		1.22		2.04

\*Husked

For Livingston County the total returns per acre were \$68.27 of which \$68.12 was for corn and \$0.15 for other returns. The profits for Livingston County was \$2.33 and the return per hour of labor was \$1.22. For Genesee County, the average return per acre was \$65.52. The profit per acre amounted to \$7.17, and the return per hour of labor was \$2.35.

COSTS AND RETURNS PER TON

Cost

The average cost per ton for canning factory sweet corn was \$30.01 (Table 11). Of this, \$21.25 were growing costs, and \$8.26 harvesting costs. The labor requirement per ton amounted to 3.1 hours and cost \$3.22. Fertilizer cost was \$4.13, the land cost \$3.70, labor cost \$3.22, and truck and equipment cost \$5.07.

For Livingston County the cost was \$31.88 per ton, of which \$8.31 was for harvesting, and \$23.57 for growing. The average number of hours of labor per ton was 3.5. For Genesee County, the cost averaged \$29.42, of which \$8.91 was harvesting and \$21.51 growing. The number of hours of labor per ton was 2.9.



Table 11.

COSTS PER TON\*  
FOR CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Item	Genesee	Livingston	All farms
Man hours	2.9	3.5	3.1
Tractor hours	2.7	3.2	2.8
Pounds of fertilizer	187	178	185
Pounds of seed	3.3	4.1	3.5
Growing cost:			
Land	\$3.57	\$4.11	\$3.70
Labor	3.26	3.09	3.22
Tractor	2.15	2.48	2.23
Truck	0.02	0.09	0.03
Other equipment	2.44	3.97	2.81
Fertilizer	4.18	3.98	4.13
Manure	--	1.02	0.24
Spray and dust	0.39	0.34	0.38
Seed	1.15	1.27	1.18
All other	3.35	3.22	3.33
Total	\$20.51	\$23.57	\$21.25
Harvesting and selling	8.91	8.31	8.76
Total cost	\$29.42	\$31.88	\$30.01

\*Husked

Costs and Returns

The returns per ton of canning factory sweet corn for all farms averaged \$33.03 (Table 12). Of this, \$32.69 was for the corn and 34 cents for other returns. The profit per ton was \$3.02.

Table 12.

COST AND RETURNS PER TON\*  
FOR CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Items	Genesee	Livingston	All farms
Returns:			
Sweet corn	\$32.61	\$32.93	\$32.69
Other	0.42	0.07	0.34
Total returns	\$33.03	\$33.00	\$33.03
Total cost	29.42	31.88	30.01
Profit	\$3.61	\$1.12	\$3.02

\*Husked

For Livingston County the returns per ton averaged \$32.93 for corn and 7 cents for other returns, making a total of \$33.00. The profit per ton amounted to \$1.12. In Genesee County the returns for corn were \$32.61 per ton with other returns amounting to 42 cents, or total returns of \$33.03 per ton. The profit per ton was \$3.61. All of the costs and returns are based on the averaged or husked yield.

#### COST AND RETURNS FOR INDIVIDUAL FARMS

The acreage for corn for individual farms varied from 5 to 60 acres (Table 13 on next page). The number of man hours per acre ranged from 5.1 to 19.9. In the latter case, the corn was harvested by hand. The fertilizer application ranged from 154 pounds to 571 pounds. The lowest yield was 0.59 tons and the highest 2.68 tons. The farm with the lowest cost per acre averaged \$48.19. The highest cost farm had an average of \$70.36. The profits ranged from -\$31.09 to \$15.47. The returns per hour of labor varied from -\$3.24 to \$5.88 per hour.

The corn yields as shown on this table are on a husked basis. The husked yield was 64 to 76 per cent as great as the unhusked tonnage.

#### FACTORS AFFECTING COSTS, RETURNS, AND PROFITS

##### Size of Enterprise

In order to study the relationship of size of enterprise to costs and returns in producing canning factory sweet corn, the farms were divided into two groups, those on which the enterprise was large and those with smaller sized corn enterprises. The farms with large enterprises used somewhat more labor per acre, about the same amount of seed, and had a higher yield (Table 14). The cost per acre was greater, an average of \$62.79 compared with \$57.69, and because of the higher yield, the returns were much greater, \$70.48 compared with \$50.33. The profits were \$15.05 per acre more, and the average returns per hour of labor were greater by \$3.00.

Table 14. RELATION OF SIZE OF ENTERPRISE TO VARIOUS FACTORS  
13 New York Farms, 1951

Factor	Large	Small
Acres	24.1	10.5
Per acre:		
Man hours	10.8	7.5
Pounds of fertilizer	415	357
Pounds of seed	7.1	6.8
Yield of sweet corn (tons)	2.14	1.63
Returns	\$70.48	\$50.33
Cost	62.79	57.69
Profit	\$ 7.69	-\$ 7.36
Return per hour of labor	\$ 2.79	-\$ 0.21

Table 13. COST AND RETURNS FOR INDIVIDUAL FARMS IN PRODUCING CANNING FACTORY SWEET CORN  
13 New York Farms, 1951

Farm no.	Acres	Per acre			Seed pounds	Yield tons*	Per acre		Per ton		Return per hr. labor	
		Man hours	Tractor hours	Fertilizer pounds			Cost	Returns	Profit	Cost		Returns
<b>Genesee County</b>												
1	20	5.1	5.1	300	4.7	1.57	\$53.25	\$47.01	\$6.24	\$33.98	\$30.00	\$3.98
4	19	18.1	3.6	500	4.2	2.68	66.34	93.87	27.54	24.73	35.00	10.27
5	60	7.0	6.3	400	7.0	2.23	59.07	80.12	21.05	26.57	35.94	9.44
7	13	9.2	8.1	154	8.1	0.59	48.19	17.18	-31.01	81.36	29.01	-52.35
8	12	4.7	4.7	500	7.0	1.19	52.33	32.14	-20.20	43.98	27.01	-16.97
16	14	4.7	4.2	286	6.4	1.66	63.50	53.21	-10.28	38.32	32.11	-6.21
32	18	6.4	6.4	333	6.7	1.66	64.02	51.27	-12.75	38.50	30.84	-7.67
33	22	19.9	3.6	400	7.7	2.84	56.26	85.15	28.90	19.82	30.00	10.18
<b>Livingston County</b>												
12	16	9.3	8.2	400	13.8	2.09	70.22	71.58	1.36	33.59	34.24	0.65
14	14	10.1	5.5	571	5.9	1.89	70.36	64.38	-5.98	37.16	34.00	-3.16
15	10	6.9	4.9	300	6.5	2.20	59.29	74.76	15.47	26.96	34.00	7.03
17	9	7.1	6.9	500	6.2	2.24	61.29	67.23	5.93	27.35	30.00	2.65
43	5	12.4	8.2	400	6.4	1.91	61.53	57.44	-4.09	32.15	30.01	-2.14

\*Huskcd.

Pounds of Fertilizer per Acre

A comparison of the farms on which large amounts of fertilizer were used on sweet corn and those where small amounts were used, shows the former to have somewhat higher yields. Their costs were higher by \$3.97 per acre, but their returns were \$20.50 per acre more with the result that their profit is \$16.53 more (Table 15). The return per hour of labor for the farms with high fertilizer use was \$2.72 as compared with -\$0.13 for those with less fertilizer use.

Table 15. . . . RELATION OF POUNDS OF FERTILIZER PER ACRE TO VARIOUS FACTORS  
13 New York Farms, 1951

Factor	High	Low
Acres	21.7	13.3
Per acre:		
Man hours	10.9	7.4
Pounds of fertilizer	467	295
Pounds of seed	7.4	6.5
Yield of sweet corn (tons)	2.17	1.60
Returns	\$70.64	\$50.14
Cost	62.27	58.30
Profit	\$ 8.37	-\$ 8.16
Return per hour of labor	\$ 2.72	-\$ 0.13

Yield of Corn per Acre

The most important single factor affecting profits is yield. The farms with the largest yield per acre averaged 2.31 tons, whereas the less productive corn enterprises averaged 1.43 tons (Table 16). The high yielding enterprises were somewhat larger, required more labor, used more fertilizer, and had somewhat higher costs. Their returns were considerably higher. The difference in profit between the two groups was \$28.15. The return per hour of labor for the high yielding enterprises was \$3.70 as compared to -\$1.28 for the low yielding enterprises.

Table 16. . . . RELATION OF YIELD OF SWEET CORN PER ACRE TO VARIOUS FACTORS  
13 New York Farms, 1951

Factor	High	Low
Acres	20.1	15.2
Per acre:		
Man hours	11.5	6.7
Pounds of fertilizer	414	357
Pounds of seed	7.4	6.5
Yield of sweet corn (tons)	2.31	1.43
Returns	\$75.74	\$44.20
Cost	62.00	58.61
Profit	\$13.74	-\$14.41
Return per hour of labor	\$ 3.70	-\$ 1.28

Return per Hour of Labor

When the farms which received high returns for labor were compared with those receiving low returns, it was found that the same farms that had the high yields, as shown in the comparison on yields, received high returns (Table 17). This serves to emphasize the fact that yields in sweet corn production have far more effect on profits than any other single factor.

Table 17. RELATION OF RETURNS PER HOUR OF LABOR TO VARIOUS FACTORS  
13 New York Farms, 1951

Factor	High	Low
Acres	20.1	15.2
Per acre:		
Man hours	11.5	6.7
Pounds of fertilizer	414	357
Pounds of seed	7.4	6.5
Yield of sweet corn (tons)	2.31	1.43
Returns	\$75.74	\$44.20
Cost	62.00	58.61
Profit	\$13.74	-\$14.41
Return per hour of labor	\$ 3.70	-\$ 1.28