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THE COMPETITIVE POSITION OF PROCESSING SWEET CORN PRODUCTION IN NEW YORK STATE

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THE COMPETITIVE POSITION OF PROCESSING SWEET CORN PRODUCTION IN NEW YORK STATE

Sweet Corn is second only to snap beans in acres and value among processing vegetable crops grown in New York State. For the past several years, New York has ranked seventh in the nation in regard to harvested acreage and total production of this crop. With over 20,000 acres harvested in most recent years, processing sweet corn comprises nearly one fourth of the State's processing vegetable acreage.

Over the past decade, sweet corn production and acreage has increased about 50 percent with the greatest increase occurring between 1972 and 1975. Since 1975, acreage in New York has remained quite stable at about 22,000 acres planted and 21,000 acres harvested each year. Acreage was significantly reduced in 1980.

The following tables will provide some perspective of New York's processing sweet corn production and its share of the national crop.

In recent years, nearly 90 percent of the processing sweet corn crop has been produced in two contiguous areas of the United States. The bulk of the crop is produced in the midwestern states of Wisconsin, Minnesota and Illinois. These states account for just over half of the national crop in production and nearly two-thirds of the national crop in acreage (Tables 1 and 2). Cultural practices to grow the crop in those states are quite similar to those used by New York growers.

Table 1. Sweet Corn for Processing
Planted Acreage
Selected States
1966, 1975-1980

State	1966	1975	1976	1977	1978	1979	1980
			- thousand acres -				
Wisconsin	120	147	138	143	124	129	123
Minnesota	117	123	125	124	124	110	104
Illinois	58	60	55	51	53	48	41
Washington	42	46	37	34	41	43	37
Oregon	35	43	N/A	42	40	40	34
Idaho	16	27	25	26	26	27	20
New York	16	23	23	23	22	22	18
Maryland	28	15	14	13	13	11	11
Other States	38	38	68*	29	25	23	16
United States	470	522	485	483	468	453	404

Source: Vegetables; Annual Summaries, Crop Reporting Board, ESCS, USDA.
* Includes Oregon for 1976.

The other major producing area is the Pacific Northwestern states of Washington, Oregon and Idaho. These three states have produced about one-third of the national crop in recent years.

Table 2. Sweet Corn for Processing
Production
Selected States
1966, 1975-1980

State	1966	1975	1976	1977	1978	1979	1980
			- thousand tons in husk -				
Wisconsin	458	518	544	596	504	574	514
Minnesota	494	505	503	648	641	562	549
Illinois	205	276	244	225	247	252	161
Washington	254	309	226	201	314	315	288
Oregon	225	319	N/A	302	320	322	293
Idaho	80	161	163	141	158	189	146
New York	79	104	83	97	100	109	86
Maryland	44	56	50	46	50	47	36
Other States	109	145	420*	98	101	94	68
United States	1,948	2,393	2,233	2,354	2,435	2,464	2,141

Source: Vegetables: Annual Summaries, Crop Reporting Board, ESCS, USDA.
* Includes Oregon for 1976.

Outside of these six states and two regions, New York State has been the leading producer of processing sweet corn. New York produces about five percent of the national crop which, in 1979, amounted to more than double the acreage and production of the crop in Maryland, the next largest producing state. In fact, in the past two decades production in Maryland and New York has remained more or less constant (Table 2).

Yields of processing sweet corn in New York State have competed favorably with other States with the exception of the irrigated areas in the northwestern States (Table 3).

Table 3. Sweet Corn for Processing
Yield per Planted Acre
Selected States
1966, 1975-1980

State	1966	1975	1976	1977	1978	1979	1980
	- tons in husk per planted acre -						
Wisconsin	3.8	3.5	3.9	4.2	4.1	4.3	4.2
Minnesota	4.2	4.1	4.0	5.2	5.2	5.1	5.3
Illinois	3.7	4.6	4.5	4.5	4.7	5.2	3.9
Washington	6.1	6.8	6.1	6.0	7.6	7.4	7.8
Oregon	6.5	7.4	N/A	7.2	7.9	8.1	8.6
Idaho	4.9	5.9	6.4	5.5	6.0	7.1	7.4
New York	5.0	4.6	3.6	4.1	4.4	5.1	4.8
Maryland	1.6	3.7	3.6	3.5	3.8	4.4	3.3
Other States	2.9	3.8	6.1*	3.6	4.3	4.0	4.2
United States	4.2	4.6	4.6	4.9	5.2	5.4	5.3

Source: Adapted from Vegetables; Annual Summaries, Crop Reporting Board, ESCS, USDA.

* Includes Oregon for 1976.

The Study -

Because of a special interest in New York's ability to compete with other areas in the production and processing of sweet corn, one of the three processors in the State encouraged the College to undertake a study of comparative production costs. While the effort interrupted the normal pattern of vegetable production cost studies for the State, it was felt that the study would provide an unusual opportunity to obtain cost information that would be beneficial not only to the New York industry but also to the industry in the Midwest.

Processors in the states of New York, Wisconsin and Minnesota were asked to make contact with growers to be interviewed by the author. The interviewing procedure used in all three states was the same that has been developed for crop production cost studies conducted by the College in New York State in recent years. The questionnaire was designed to determine the grower's cash costs for the crop and to estimate and allocate appropriate overhead costs including labor, tractor, equipment, land and other costs related to the production and disposition of the crop. The approach used relies heavily upon results and experience from the Cornell Farm Enterprise Cost Account research project for various cost factors not available apart from continuing supervised records kept by cooperating farm operators.

A detailed explanation of the procedure and forms used to accumulate crop costs and to analyze the crop enterprise is available in a bulletin published by the Department of Agricultural Economics at Cornell.*

Most of the farms on which processing sweet corn was grown also produced significant acreages of field corn. These two crops are quite competitive for the same land resource and involve much of the same technology and equipment. Therefore, during the interview with each sweet corn grower, cost information was obtained for both crops for the 1980 crop year. As a result, this report not only includes a comparison of costs and returns for sweet corn enterprises in the three States, but also a similar comparison of field corn enterprises on the same farms. This provides a look at the relative attractiveness of these two crops on the same farms in each State.

Although the cooperating growers in each State were not randomly selected, they were selected as operators of commercial farm businesses and with acreages of each crop that contributed significantly to the farm income. It is felt that these enterprises are reasonably representative of grower's experience with these crops in each State in 1980.

The study includes data from 15 sweet corn producers in western New York State of whom 13 also had field corn enterprises. In Wisconsin, 11 sweet corn records were obtained from growers in the area between Milwaukee and Green Bay, primarily in Fond-du-Lac and Sheboygan Counties. Eight of these Wisconsin growers also had field corn. Ten growers in Minnesota were interviewed in the area south of Minneapolis. Each of these farm operators grew both sweet corn and field corn.

One important difference between New York and the two midwestern states is the degree of responsibility for the crop on the part of the producer. In both areas, growers work closely with processor fieldmen and the processor is responsible for the application of insecticides for corn borer protection. Other pesticide treatment is normally performed by the grower. In New York State, the farmer is responsible for growing, harvesting and delivery of the crop to the processor. In both midwest states, the farmer only grows the crop. The processor assumes responsibility for the harvesting and delivery of the crop.

This basic difference is reflected in the price received by the grower for his crop. Accordingly, prices received on a delivered green ton basis were higher in New York than prices received by Wisconsin and Minnesota growers. Grower contracts included various arrangements to adjust crop receipts to compensate the grower for situations where part of the crop was not harvested for various reasons. Seed was provided by or purchased from the processor in all cases. Where the processor did not charge the grower for seed, the cost of the seed was entered as a cost as well as an additional credit.

Each processor graded the delivered crop for quality. Some processors were more rigid and formal in their grading procedures than others. Thus, the price paid for the crop may have been affected by the planting date, moisture content of the delivered crop and other quality related factors.

* Enterprise Analysis: A guide for determining Field and Vegetable Crop Costs and Returns, A.E. Ext. 76-4, D. P. Snyder, Department of Agricultural Economics, Cornell University, Ithaca, N.Y. 14853.

Because of the many factors that affected total returns to the grower, grower's returns were adjusted where necessary to make them comparable with other growers in the same state. Total returns per green ton in Wisconsin and Minnesota should be comparable. The total returns reflect what the grower received for the standing crop plus whatever by-pass payments and seed credits were made for acres not harvested. The major difference between the green ton price in New York and midwestern states was related to the fact that New York growers harvested and hauled the crop themselves where as midwestern growers did not. With that exception, returns per green ton should be comparable between the three States.

For the sweet corn enterprises, the following analysis will be concerned with two basic aspects of production. First, consideration will be given to costs to grow the crop to the time of harvest. Secondly, consideration will be given to the profitability of the overall sweet corn enterprise to the grower regardless of the extent of his responsibility for the harvesting and delivery of the crop. These aspects of production will be compared for the three states in which data were obtained.

Another part of this report will deal with the competition, at the farm level, between sweet corn and field corn for a place in the grower's cropping program. An effort will be made to look beyond the current year's yield and it's effect on enterprise profitability by using an average yield for both crops to minimize the effects of possibly abnormal yields of one year on enterprise profits.

Characteristics of the Farms -

The practices and procedures for growing processing sweet corn are quite similar in the three states included in this study, especially on the farms from which data were obtained. Apparently, in some areas of the midwest some irrigation is used. However, none of the farms in this study irrigated sweet corn, nor was that a common practice in the areas visited.

The size of farm operation on which sweet corn was grown varied more within each state than between states. The New York group of growers had the largest average acreage and included a few dairy farms. They operated an average of 691 acres per operator with seven of the 15 farms operating between 300 and 600 acres of crops. Most farms produced row crops including sweet corn and field corn and a variety of other crops including small grains, hay and other vegetable crops such as dry beans, snap beans or beets. Wisconsin growers operated the smallest average acreage of the three groups or 396 acres per operator. Six of the 11 Wisconsin growers operated between 200 and 600 crop acres. The variety of crops grown was similar to the New York growers. As with the New York group, a few of the Wisconsin sweet corn growers had dairy herds. However, more livestock was raised on the Wisconsin and Minnesota farms in the study. The Minnesota sweet corn growers operated an average of 513 acres each and were evenly distributed between 249 and 809 crop acres per farm. The major crop difference on the Minnesota farms was the presence of substantial soybean acreage on nine of the ten farms.

Processing Sweet Corn

Growing Costs -

In Table 4, data are presented for the costs to grow processing sweet corn in the three States.

The most significant difference in growing costs between these states is in the cost for the use of cropland. The other costs varied between states as one would expect but only to the extent explainable by the use of various production practices and inputs.

The overhead costs for labor, tractor and equipment were higher in New York than in the two midwestern states. While New York sweet corn growers operated more crop acres than growers in the other states, the fields were farther apart and tended to be smaller with more varied soil conditions. New York growers tended to use smaller equipment and go over their land more often. These factors resulted in more time and higher costs for New York growers. These costs were lowest in Minnesota where fields were largest, closest and soil conditions most uniform.

Total growing costs for processing sweet corn averaged $169 per acre in New York, $172 per acre in Wisconsin and $236 per acre in Minnesota. At the bottom of Table 4, growing costs per green ton are shown as $31 in New York, $43 in Wisconsin, and $42 in Minnesota.

The cost for land use to grow the crop varied more than any other cost between the three States. The standard approach to land costs was to obtain the actual cash cost for that portion of the enterprise cropland that was rented in. Costs for owned land were comprised of the sum of interest on the estimated value of open cropland as part of an operating farm unit plus real estate taxes per acre of open cropland. The resulting average land cost is, therefore, a combination of costs for rented and owned land used for the sweet corn enterprise in each state. No attempt was made to adjust these land costs, so determined, by the owner's anticipation of real estate appreciation (Table 5).

Table 4. Sweet Corn for Processing
Growing Costs
New York, Wisconsin, Minnesota
1980

Item	New York	Wisconsin	Minnesota
Number of farms	15	11	10
Acres per enterprise	111	91	70
Yield per acre planted, green tons	5.4	4.0	5.6
		- per acre -	
Labor	$ 12	$ 8	$ 7
Tractor	14	13	10
Equipment	15	12	13
Custom work, equipment rent	1	2	1
Land use	45	68	121
Cover crop, lime, manure	3	0	2
Fertilizer*	46	34	46
Seed	13	12	13
Chemicals	13	16	14
Interest on operating capital	4	3	4
All other	3	4	5
Total Growing Costs	$169	$172	$236
Total growing costs per green ton	$ 31	$ 43	$ 42
		- per acre -	
Total growing cost excluding land	$124	$104	$115
Land cost @ average rent cost	$ 24	$ 45	$ 84
Total growing cost using rent cost	$148	$149	$199
Physical factors per acre:			
Labor hours	2.0	1.6	1.2
Tractor hours	1.9	1.5	1.2
* Pounds of N	105	84	117
P	67	56	62
K	84	59	111
Seed	8.9	8.1	10.7

To remove the effect of land cost entirely, Table 4 shows the total growing cost per acre excluding land. When this is done, the growing costs for the three states are within $20 of each other, averaging $124 per acre in New York, $104 per acre in Wisconsin and $115 per acre in Minnesota.

The cash costs for fertilizer and chemicals alone account for just under half of the non-land costs to grow sweet corn in each of the three States.

Significant acreages in each state were rented from other land owners to grow the crop. About half of the sweet corn was grown on rented land in New York with even higher portions grown on rented land in the midwest (Table 5). The average cash rent paid was between 3.6 and 4.3 percent of the estimated average cropland value.

Table 5. Sweet Corn for Processing
Cropland Factors
New York, Wisconsin, Minnesota
1980

Factor	New York	Wisconsin	Minnesota
Crop grown on:			
Rented land, %	49	70	65
Owned land, %	51	30	35
Average rented land cost per acre	$ 24	$ 45	$ 84
Average owned land cost per acre	$ 66	$125	$189
Average value per acre owned	$617	$1231	$1961
Average taxes per acre	$ 10	$ 14	$ 13
Average enterprise land cost per acre	$ 45	$ 68	$ 121

The average cost per acre for rented land would represent the amount owned land would return if rented to another operator in each state. The average rental cost may also represent an adjustment of ownership costs for anticipated inflation related land appreciation. Thus, average land rental costs are used to arrive at a third approach to total growing costs for sweet corn in each of the three States. Using land rent costs results in total growing costs of $148 per acre in New York, $149 per acre in Wisconsin and $199 per acre in Minnesota (Table 4).

Harvesting Costs in New York -

As indicated earlier, a major difference between New York and the midwest with regard to processing sweet corn production is that New York growers harvest and haul their crop whereas in the midwest these activities are the responsibility of the processor. Returns for the crop are adjusted accordingly in each area.

Two-thirds of the New York growers in this study hired a custom operator to harvest their sweet corn. About half of the growers hauled their own crop to the processor; the other half hired the hauling done.

Table 6. Sweet Corn for Processing
Harvesting Costs
New York, 1980

Item	Owned Equipment	Custom Harvest
Number of farms	5	10
Acres per farm	174	79
Yield per acre planted, green tons	5.9	4.9
	- cost per acre -	
Labor	$ 3.07	$ .23
Tractor	.17	.38
Equipment	22.81	--
Custom harvest	--	25.77
All other	1.56	.35
Total Harvesting Costs	$27.61	$26.73
Harvesting costs per green ton	$4.68	$5.46

In Table 6, harvesting costs per acre are shown for the growers who owned harvesters and those who hired the harvesting done by a custom operator. Total harvesting costs per acre were essentially the same for both groups. Growers that owned harvesters had sweet corn enterprises that averaged 174 acres each. All but one of the five growers in this group depended upon custom harvesting to justify ownership of their harvester. Except for one six row harvester, all the harvesters were four row machines having an average original new cost of about $38,000 each. Harvesting equipment also included the use of dump boxes. For these growers harvesting equipment cost an average of $23 per acre harvested. Four of the five operators averaged only 432 acres harvested per machine or only 96 acres per row of machine capacity. In contrast to New York harvester efficiency, midwestern harvesters were operated by processors that harvested an average of 784 acres per machine or 208 acres per row of machine capacity. Harvester size in the midwestern states ranged from two row to six row capacity.

An attempt to compare harvesting costs for the three States did not seem feasible because of the lack of a consistent approach to cost determination between processors and the allocation problems involved in sorting out related costs. Based on the harvester efficiency data that was obtained it would seem that harvesting costs would tend to be lower in the Midwest than in New York because of a greater machine efficiency. However, some of the apparent advantage of greater machine efficiency in Wisconsin and Minnesota is likely offset by higher overhead costs associated with corporate operation compared to grower operation of the harvesters.

For the group of New York sweet corn growers as a whole, harvesting costs averaged $5 per ton of green weight (Table 6).

Selling Costs in New York -

Selling costs for processing sweet corn are composed mainly of the cost to haul the crop to the processor. However, because of delayed payment schedules, interest was charged as a selling cost on the portion of the crop proceeds carried by the grower as an account receivable.

Table 7 indicates the hauling and interest costs experienced by these New York sweet corn growers in 1980. Interest on accounts receivable amounted to about one-fourth of the total selling costs and averaged $6.90 per acre or $1.27 per green ton. Hauling costs totalled about $20 per acre or $4 per green ton. Together, these selling costs for the sweet corn crop amounted to a total of $27 per acre or $5 per green ton.

Over two-thirds of the sweet corn produced was hauled by the growers. Although distance and size of load has a significant effect on the hauling cost per ton, those factors do not account for the difference in cost between grower hauling and custom hauling. Distance varied similarly for both groups while custom loads would normally be larger than grower owned truck loads. In general, growers hauled sweet corn for about $2 per ton less than custom haulers (Table 7). Even so, growers with relatively little use for a large truck can wisely employ a custom hauler and, in the process, avoid unnecessary investment and benefit from additional help during a busy harvest season.

Table 7. Sweet Corn for Processing
Selling Costs
New York, 1980

Item	Cost	
	Per acre	Per green ton
Number of farms	15	
Acres per enterprise	111	
Yield per acre planted, green tons	5.4	
Green tons hauled	9,027	
Labor	$ 2.73	$ .50
Truck	8.62	1.58
Custom haul	8.89	1.63
Total hauling costs	$20.24	$3.71
Interest on accounts receivable	6.90	1.27
Total selling costs	$27.14	$4.98

Item	Own Haul	Custom Haul
Number of farms	9*	9*
Green tons hauled	6170	2857
	- cost per green ton -	
Labor	$ .73	--
Truck	2.32	--
Custom haul	--	$5.16
Total hauling cost	$ 3.05	$5.16

* Three farms hired some custom hauling to supplement their own trucks.

Costs and Returns - 1980 Yields -

Even though there were differences in grower-processor arrangements to grow, harvest and haul sweet corn between New York and the midwestern states, enterprise profits may still be compared. In both areas, growers had to commit a specific quantity of their basic resource (land) to the crop. Enterprise profits are determined by the cultural, cost and marketing management practices of the farmer, the yield which is significantly influenced by largely uncontrollable weather factors and the price received for the product which is influenced by consumer demand and processor competition.

Table 8 indicates the costs and returns for the sweet corn enterprise in each of the three states for 1980. These are the results of those enterprises in each state regardless of differences in growing, harvesting, and selling practices. The profit per acre and return per dollar of cost show the average net results of the sweet corn enterprises for each state.

Although processors in Wisconsin and Minnesota were responsible for harvesting and hauling the sweet corn crop, the growers did experience some relatively minor costs beyond growing the crop. Under adverse weather conditions growers provided extra power, if needed, to help keep the harvesters moving. Also, under costs to sell the crop growers in both states sustained an interest expense on accounts receivable under the various delayed payment schedules. About half of the $10 per acre selling costs for Minnesota growers was for some hauling costs charged to the growers of one processor.

The returns per acre shown in Table 8 represent the total amount received by the grower for his sweet corn crop including all adjustments due to by-passed acre payments, the value of seed supplied and other adjustments for early planting, etc.

Table 8 also shows enterprise costs and returns per green ton for each state. With the costs and yields experienced in 1980 and the differences in land costs between the states, New York's cost to grow sweet corn was well below the other two states averaging $31 per ton. Growing costs averaged $43 per ton in Wisconsin and $42 per ton in Minnesota. Overall, enterprise profits per green ton averaged $7 for New York, $-9 for Wisconsin and $-5 for Minnesota.

Several approaches are used in Table 8 to determine enterprise profits for each state. With its low yield in 1980, Wisconsin records consistently show the lowest profit per acre and returns to land. When all costs are considered New York growers received the highest profits of the three states. Profits in New York averaged $40 per acre. Losses of $36 and $30 per acre were experienced by Wisconsin and Minnesota growers, respectively. Only by excluding all land costs do Minnesota growers exceed New York growers in profits per acre in their sweet corn enterprise.

Table 8. Sweet Corn for Processing
Costs and Returns
New York, Wisconsin and Minnesota
1980

Item		New York	Wisconsin	Minnesota
Number of farms		15	11	10
Acres per enterprise		111	91	70
Yield per acre planted, green tons		5.4	4.0	5.6
			- per acre -	
Costs to:	Grow	$169	$172	$236
	Harvest	27	1	1
	Sell	27	3	10
	Total costs	$223	$176	$247
Total Returns		$263	$140	$217
Profit		$ 40	$-36	$-30
			- per green ton -	
Costs to:	Grow	$ 31	$ 43	$ 42
	Harvest	5	--	--
	Sell	5	1	2
	Total costs	$ 41	$ 44	$ 44
Total Returns		$ 48	$ 35	$ 39
Profit		$ 7	$ -9	$ -5
Return per dollar of cost		$1.18	$0.80	$0.88
Alternative profit calculations:				
Profit using average rent as land cost -	per acre	$ 61	$-13	$ 7
	per ton	$ 11	$ -3	$ 1
			- per acre -	
Profit excluding land cost		$ 85	$ 32	$ 91
less land taxes		-10	-14	-13
Return to land		$ 75	$ 18	$ 78
Average land value		$617	$1231	$1961
Rate of return on land		12.2%	1.5%	4.0%

Costs and Returns - Average Yields -

One of the major factors that affects profits in crop production is the yield harvested per planted acre. Weather conditions can vary greatly during the growing season of one year as well as between years. Practices such as irrigation can be used in some cases to lessen the effects of unfavorable weather, but weather remains largely an uncontrollable factor that has a significant effect on crop yields and, therefore, profit per acre in the three states included in this study.

Under 1980 conditions, New York processing sweet corn growers competed very favorably with growers in Wisconsin and Minnesota. Profits and returns were highest in New York. But yields on the sample farms in New York and Minnesota were higher than average in 1980 and were below average for Wisconsin. With normal weather (or yield) experience how would the processing sweet corn enterprise compare in the three States?

To answer that question and to, perhaps, provide a more objective perspective of the competitive position of New York growers, data in Table 9 are presented to indicate results of the sweet corn enterprises using the average yield over the previous five year period. Costs to grow and harvest the crop should remain essentially the same as for 1980. The only adjustments to costs were made to hauling costs and interest on accounts receivable which are directly related to the volume produced. Thus, with 1980 costs and returns and average yields, the profit per acre picture changes significantly for New York and Minnesota where 1980 yields were higher than average. In Wisconsin, where 1980 yield was below the five year average, profit per acre improved somewhat. Sweet corn enterprises in all three states showed a loss when average yields were used with 1980 costs and returns. New York growers would have experienced the smallest loss of the three states.

If land costs were assumed to be equal to the rent per acre paid by these growers for at least half of their acreage (Table 5), New York growers would have received a profit of $15 per acre of sweet corn. The other two states would have continued to experience losses.

The lower part of Tables 8 and 9 indicates the return to land at the average value of owned land used by these growers. These returns resulted in rates of 4.7% in New York, 2.0% in Wisconsin and 2.8% in Minnesota using average yields with 1980 costs and returns.

Table 9. Sweet Corn for Processing
Costs and returns
Using a 5 year average yield
New York, Wisconsin and Minnesota
1980

Item		New York	Wisconsin	Minnesota
Number of farms		15	11	10
Acres per enterprise		111	91	70
Yield per acre planted, green tons average for 1976-1980		4.4	4.2	4.9
			- per acre -	
Costs to:	Grow	$169	$172	$236
	Harvest	27	1	1
	Sell	21	3	8
	Total costs	$217	$176	$245
Total Returns		$211	$147	$191
Profit		$ -6	$-29	$-54
			- per green ton -	
Costs to:	Grow	$ 38	$ 41	$ 48
	Harvest	6	--	--
	Sell	5	1	2
	Total costs	$ 49	$ 42	$ 50
Total Returns		$ 48	$ 35	$ 39
Profit		$ -1	$ -7	$-11
Return per dollar of cost		$0.97	$0.84	$0.78
Alternative profit calculations:				
Profit using average rent as land cost -	per acre	$ 15	$ -6	$-17
	per ton	$ 3	$ -1	$ -3
			- per acre -	
Profit excluding land cost		$ 39	$ 39	$ 67
less land taxes		-10	-14	-13
Return to land		$ 29	$ 25	$ 54
Average land value		$617	$1231	$1961
Rate of return on land		4.7%	2.0%	2.8%

Selected Factors for Each State -

In the following three tables are shown several factors for each sweet corn producer in New York, Wisconsin and Minnesota. This information will indicate the range of yields, costs and returns between the growers and between the states under 1980 costs, returns and yield experience.

The data presented in these tables includes the land costs as determined from the growers' information. Land costs are the result of the mixture of the actual cost of rented land and the estimated cost of owned land for each cooperating grower.

At the bottom of each table is shown a comparison of averages between results using land costs as obtained and as adjusted using average rented costs for the cost of all land used for the sweet corn enterprise.

Table 10. Sweet Corn for Processing
Selected Factors
New York, 1980
1658 acres on 15 farms

Farm No.**	Yield per acre	Average per acre Planted			Average per ton*		Return per $ of cost
		Grow cost	Harvest cost	Profit	Cost	Return	
	tn*	$	$	$	$	$	$
101	6.2	147	38	87	34	48	1.41
102	5.7	181	14	53	39	48	1.23
103	6.3	186	33	69	39	50	1.28
104	5.2	185	14	32	42	48	1.15
105	4.5	161	26	-1	48	48	1.00
106	5.3	162	35	35	40	47	1.16
107	4.1	183	22	-29	56	49	0.87
108	4.6	177	22	-4	50	49	0.98
109	6.4	141	27	123	30	50	1.63
110	3.9	179	21	-37	57	47	0.83
111	3.6	148	25	-22	54	47	0.89
112	5.7	215	30	-9	50	48	0.97
113	5.0	152	22	33	41	47	1.16
114	5.3	159	30	29	40	45	1.13
115	7.3	209	33	84	37	49	1.31
Range	3.6 to 7.3	141 to 215	14 to 38	-37 to 123	30 to 57	45 to 50	0.87 to 1.63
Weighted average	5.4	169	27	40	41	48	1.18
Weighted average using avg rent as land cost	5.4	148	27	61	37	48	1.30

* Green or delivered tons.
** Ranked from largest to smallest acreage.

Table 11. Sweet Corn for Processing
Selected Factors
Wisconsin, 1980
1000 acres on 11 farms

Farm No.**	Yield per acre	Average per acre Planted			Average per ton*		Return per $ of cost
		Grow cost	Harvest cost	Profit	Cost	Return	
	tn*	$	$	$	$	$	$
201	4.4	147	2	-5	35	34	0.97
202	4.0	148	1	-9	38	36	0.95
203	6.0	163	0	40	28	35	1.23
204	3.7	136	0	-20	37	32	0.85
205	3.2	149	0	-44	48	34	0.71
206	5.8	263	0	-75	46	33	0.72
207	1.5	253	0	-194	167	39	0.23
208	2.6	152	0	-30	59	48	0.80
209	2.6	148	1	-44	58	41	0.71
210	4.1	184	0	-55	45	32	0.71
211	4.7	259	6	-111	57	34	0.59
Range	1.5 to 6.0	136 to 263	0 to 6	-194 to 40	28 to 167	32 to 48	0.23 to 1.23
Weighted average	4.0	172	1	-36	44	35	0.80
Weighted average using avg rent as land cost	4.0	148	1	-13	38	35	0.92

* Green or delivered tons.
** Ranked from largest to smallest acreage.

Notes - Harvest costs are grower costs to aid processor harvesting.
Returns per ton include by-pass payments, bonus, seed credits, etc.

Table 12. Sweet Corn for Processing
Selected Factors
Minnesota, 1980
698 acres on 10 farms

Farm No.**	Yield per acre	Average per acre Planted: Grow cost	Harvest cost	Profit	Average per ton*: Cost	Return	Return per $ of cost
	tn*	$	$	$	$	$	$
301	6.8	180	1	88	30	43	1.44
302	6.9	229	0	3	34	34	1.01
303	6.0	282	0	-80	49	35	0.73
304	5.9	251	1	-3	45	45	0.99
305	3.5	205	0	-77	59	37	0.63
306	2.9	267	0	-152	96	42	0.44
307	5.9	194	1	13	34	36	1.06
308	3.3	246	0	-143	75	32	0.42
309	6.4	307	7	-79	50	38	0.75
310	7.2	337	0	-52	50	42	0.85
Range	2.9 to 7.2	180 to 337	0 to 7	-152 to 88	30 to 96	32 to 45	0.42 to 1.44
Weighted average	5.6	236	1	-30	44	39	0.88
Weighted average using avg rent as land cost	5.6	199	1	7	37	39	1.04

* Green or delivered tons.
** Ranked from largest to smallest acreage.

Notes - Harvest costs are grower costs to aid processor harvesting.
Returns per ton include by-pass payments, bonus, seed credits, etc.

Field Corn

Of the 36 sweet corn growers asked to participate in this study, 31 growers also grew field corn. These two crops require a similar mix of land, labor, capital and management practices to produce. The major differences in New York are in marketing the crop. Sweet corn is generally grown under contract and is delivered at harvest time to the processor by the grower. Field corn, on the other hand, generally is dried, may be stored and is marketed by the grower. The same is true for field corn produced in Wisconsin and Minnesota. However, in those midwestern states, sweet corn requires significantly less capital and management by the grower than does field corn because the grower is involved only in growing the sweet corn crop. The processor is responsible for harvesting and marketing the crop.

Because of the similarities between the two crops, sweet corn and field corn tend to be competitive for the farmer's resources. This is true in each of the three States even though sweet corn acreage averaged 30 to 40 percent of the field corn acreage on these farms for each State.

Information for field corn enterprises was obtained for each farm where both sweet corn and field corn were grown. The following data for these field corn enterprises will enable an economic comparison of these two crops grown the same year under the same weather conditions and management and under the market conditions applicable to each crop in 1980.

Growing Costs -

In Table 11, data are presented for the costs to grow field corn in the three States for 1980.

Total growing costs for field corn in New York were $168 per acre - essentially the same as for sweet corn (Table 4). However, in Wisconsin and Minnesota growing costs were higher for field corn than sweet corn mainly because of higher land costs. A higher portion of field corn acreage was owned land than was the case for sweet corn. With the exception of land costs, other growing costs for field corn were much the same as for sweet corn.

Cash costs for fertilizer, seed and chemicals in each state accounted for 63 to 65 percent of the total non-land costs to grow field corn in 1980.

When land costs as experienced by these growers in 1980 were included, growing costs averaged $168 per acre in New York, $195 per acre in Wisconsin and $248 per acre in Minnesota. Growing costs per bushel of dry shelled corn, as shown in the middle of Table 11, averaged $1.70, $1.86 and $2.23 respectively for New York, Wisconsin and Minnesota growers.

Growing costs other than land costs varied from $109 to $122 per acre - a difference of only $13 per acre. When the cost of rented land per acre was used as the cost of all land, growing costs ranged from $146 per acre in New York to $154 per acre in Wisconsin and $204 per acre in Minnesota.

Various physical quantities related to growing the crop in each state are presented at the bottom of Table 11.

Table 11. Field Corn
Growing Costs
New York, Wisconsin, Minnesota
1980

Item	New York	Wisconsin	Minnesota
Number of farms	13	8	10
Acres per enterprise	346	234	186
Yield per acre, bushels	99	105	111
		- per acre -	
Labor	$ 10	$ 6	$ 7
Tractor	13	11	10
Equipment	12	12	13
Custom work, equipment rent	--	1	2
Land use	46	86	128
Cover crop, lime, manure	3	1	2
Fertilizer*	46	43	48
Seed	15	12	14
Chemicals	16	16	16
Interest on operating capital	4	4	4
All other	3	3	4
Total Growing Costs	$168	$195	$248
Total growing costs per bushel	$1.70	$1.86	$2.23
		- per acre -	
Total growing cost excluding land	$122	$109	$120
Land cost @ average rent cost	$24	$45	$84
Total growing cost using rent cost	$146	$154	$204
Physical factors per acre:			
Labor hours	1.6	1.1	1.2
Tractor hours	1.5	1.0	1.1
* Pounds of N	121	117	144
P	66	69	62
K	86	67	107
Seed planted	25M	23M	25M

Harvesting Costs -

Table 12 shows the harvesting costs for field corn for cooperating growers in each of the three States. These costs include costs to place the crop on a truck if the crop is to leave the farm for any reason at harvest time. Otherwise, as in most cases, harvesting costs include costs to deliver the corn to farm drying facilities. Drying or storage costs are not included.

Farms, in the study, that grew both sweet corn and field corn had larger acreages of field corn, on the average, in New York than farms in the other two states. Harvest costs per acre for items other than equipment were essentially the same for all three States. Equipment costs included the use of a self-propelled combine and gravity wagons and augers, if used, to move the corn from field to dryer. Equipment costs per acre for New York field corn enterprises were lower than for the other two states because equipment investment was lower in total and the investment was spread over more acres of corn.

Custom harvesting was used by three growers each in New York and Wisconsin and for a small acreage in Minnesota.

Total harvesting costs amounted to $19 per acre in New York, $24 per acre in Wisconsin and $25 per acre in Minnesota. These figures, when affected by the yield for each state result in harvesting costs of $0.19, $0.23 and $0.22 per bushel for New York, Wisconsin and Minnesota, respectively (Table 12).

Table 12. Field Corn
Harvesting Costs
New York, Wisconsin, Minnesota
1980

Item	New York	Wisconsin	Minnesota
Number of farms	13	8	10
Acres per enterprise	346	234	186
Yield per acre, bushels	99	105	111
		- cost per acre -	
Labor	$ 4	$ 4	$ 4
Tractor, Truck	2	2	2
Equipment	10	14	17
Custom harvest	2	2	0
All other	1	2	2
Total Harvesting Costs	$ 19	$ 24	$ 25
Harvesting costs per bushel	$0.19	$0.23	$0.22

Drying and Hauling Costs -

Although most field corn growers had their own storage facilities to provide flexibility in their marketing practices, no attempt was made to estimate and include total storing and selling costs as a part of this study. The aim was to analyse the production phase of the field corn enterprise and so only costs to produce and sell dry shelled corn at harvest time were considered. Therefore, this analysis includes only costs to dry and haul the crop to a buyer in addition to the growing and harvesting costs. Estimated harvest time prices for dry shelled corn were used for each grower to determine total returns and profits for each enterprise.

Table 13. Field Corn
Drying and Hauling Costs
New York, Wisconsin, Minnesota
1980

Item	New York	Wisconsin	Minnesota
Number of farms	13	8	10
Acres per enterprise	346	234	186
Yield per acre, bushels	99	105	111
Estimated harvest moisture, %	26.6	24.2	23.1
		- per acre -	
Drying costs	$ 36	$ 26	$ 22
Hauling costs	17	18	19
Total costs	$ 53	$ 44	$ 41
Drying and hauling costs per bushel	$0.53	$0.42	$0.37

Drying and hauling costs were calculated for each grower and the average costs for each group, by state, are presented in Table 13. Drying costs were based on the grower's estimated moisture content of his shelled corn at harvest time and local drying charges to 15 percent moisture. New York growers estimated their corn had more moisture at harvest than growers in Wisconsin or Minnesota. Because of the higher moisture content and generally higher drying charges, costs to dry corn were highest in New York. Field corn enterprises in each state were charged for drying at the same rate with total cost varying only because of differences in moisture. Thus, the drying costs should be reflective of all costs to dry the crop including necessary bins and related equipment.

An additional cost of 17 cents per bushel or $6 per ton was used for each grower in each state to move the crop from the farm drying facility to a local buyer. This charge resulted in handling and hauling costs of $17 to $19 per acre for field corn enterprises in these states.

Total cost to dry and haul the corn crop to a buyer, using these assumptions, amounted to $53, $44 and $41 per acre respectively in New York, Wisconsin and Minnesota. Based on estimated yields, these costs were 53 cents per bushel in New York, 42 cents per bushel in Wisconsin and 37 cents per bushel in Minnesota.

Costs and Returns - 1980 Yields -

Practices to grow, harvest and market field corn were very similar on sample farms in each of the three States. Costs and various physical factors are detailed in Tables 11, 12 and 13.

Table 14 summarizes the costs and returns for each state on a per acre basis and also on a per bushel basis according to the estimated 1980 yield levels. Returns are based on the growers' actual receipts for corn sold at harvest time plus anticipated receipts as if the balance of his crop was sold November 1, 1980. Returns per bushel averaged $3.24, $3.00 and $2.89 respectively for New York, Wisconsin and Minnesota.

Based on these costs and returns, Table 14 shows that profits for the field corn crop ranged from a high of $80 per acre in New York to $51 per acre in Wisconsin and $7 per acre in Minnesota. Yields on the sample farms were significantly higher than recent state average yields in New York and were slightly higher than average in Wisconsin and Minnesota. Prices in the fall of 1980 were also 20 to 30 percent higher than a year earlier due to different supply and demand relationships largely caused by weather problems in major production areas.

The effects of both a high yield and a high price can have a very positive effect on enterprise profits and can easily offset rapidly increasing production costs. It is well to keep this thought in mind when considering the enterprise results shown in Table 14 for the 1980 crop year.

As with processing sweet corn, New York growers competed very well with their field corn crop in 1980. The effects of generally lower yields in New York are more than offset by lower land costs in calculating enterprise profits even using average land rental costs as the cost of all land. This is shown in the lower part of Table 14.

The following section deals with the problem of variable yields by using a five year average yield for each state with the 1980 costs and prices obtained in the study.

Table 14. Field Corn
Costs and Returns
New York, Wisconsin and Minnesota
1980

Item		New York	Wisconsin	Minnesota
Number of farms		13	8	10
Acres per enterprise		346	234	186
Yield per acre, bushels		99	105	111
			- per acre -	
Costs to:	Grow	$168	$195	$248
	Harvest	19	24	25
	Produce	$187	$219	$273
	Dry and haul	52	43	41
	Total costs	$239	$262	$314
Total returns		$319	$313	$321
Profit		$ 80	$ 51	$ 7
			- per bushel -	
Costs to:	Grow	$1.70	$1.86	$2.23
	Harvest	.19	.23	.22
	Produce	$1.89	$2.09	$2.45
	Dry and haul	.53	.42	.37
	Total costs	$2.42	$2.51	$2.82
Total returns		$3.24	$3.00	$2.89
Profit		$0.82	$0.49	$0.07
Return per dollar of cost		$1.34	$1.20	$1.02
Alternative profit calculations:				
Profit using average rent as land cost -	per acre	$ 102	$ 92	$ 51
	per bushel	$1.03	$0.88	$0.46
			- per acre -	
Profit excluding land cost		$ 126	$ 137	$ 135
less land taxes		-10	-14	-13
Return to land		$ 116	$ 123	$ 122
Average land value		$ 617	$1231	$1961
Rate of return on land		18.8%	10.0%	6.2%

Costs and Returns - Average Yields -

The trend in production costs is considerably easier to predict than even next year's yield or price. By using an average corn grain yield over the most recent five year period instead of for one year, a more realistic picture of field corn profit potential may be developed.

In Table 15, average yields for 1976 to 1980 are shown for the three States. Appropriate adjustments have been made in costs and returns to reflect the effect of the lower average yield than experienced by these growers in 1980.

Throughout Table 15, New York figures show a consistent advantage over figures for the Wisconsin and Minnesota growers. Only when the opportunity cost of owned land is assumed to be equal to actual cash rent paid per acre do Wisconsin profits per acre exceed profits in New York. Profits per bushel, in that case, were $0.79 in New York compared to $0.72 in Wisconsin.

When the return to land used for field corn is calculated as in the lower portion of Table 15, and used with average land values estimated by growers in each state, the rate of return on land as an investment is most favorable in New York. Rates of return to land averaged 13.1% in New York, 8.0% in Wisconsin and 3.9% in Minnesota.

No attempt was made to anticipate changes in the price of corn. Obviously, price changes would have an effect on enterprise profits. However, it must be recognized that weather affects world production and, therefore, price. The average prices used in this study are high by recent standards but with currently strong export and domestic demand the fall 1980 prices seemed reasonable to use in estimating field corn profits in these states.

Table 15. Field Corn
Costs and Returns
Using a 5 Year Average Yield
New York, Wisconsin and Minnesota
1980

Item		New York	Wisconsin	Minnesota
Number of farms		13	8	10
Acres per enterprise		346	234	186
Yield per acre, bushels av. for 1976-80		85	95	92
			- per acre -	
Costs to:	Grow	$168	$195	$248
	Harvest	19	24	25
	Produce	$187	$219	$273
	Dry and haul	43	39	32
	Total costs	$230	$258	$305
Total returns		$275	$285	$266
Profit		$ 45	$ 27	$-39
			- per bushel -	
Costs to:	Grow	$1.98	$2.05	$2.70
	Harvest	.22	.25	.27
	Produce	$2.20	$2.30	$2.97
	Dry and haul	.51	.41	.35
	Total costs	$2.71	$2.71	$3.32
Total returns		$3.24	$3.00	$2.89
Profit		$ .53	$ .29	$-.43
Return per dollar of cost		$1.20	$1.11	$0.87
Alternative profit calculations:				
Profit using average rent as land cost -	per acre	$ 67	$ 68	$ 5
	per bushel	$0.79	$0.72	$ 0.05
			- per acre -	
Profit excluding land cost		$ 91	$ 113	$ 89
less land taxes		-10	-14	-13
Return to land		$ 81	$ 99	$ 76
Average land value		$ 617	$1231	$1961
Rate of return on land		13.1%	8.0%	3.9%

Selected Factors for each State -

In the following three tables are shown several factors for each field corn producer in New York, Wisconsin and Minnesota. This information will indicate the range in yields, costs and returns between growers and between the states under 1980 costs, returns and yield experience.

The data in these tables includes the land costs as determined from the growers' information. Land costs are the result of the mixture of the actual cost of rented land and the estimated cost of owned land for each cooperating grower.

At the bottom of each table is shown a comparison of averages between results using land costs as obtained and as adjusted using average rental costs for the cost of all land used for the field corn enterprise. Since land can be rented cheaper than it can be owned (in the short run, at least) the effect of using the rental cost for all land is to reduce growing costs and increase profits.

Table 16. Field Corn
Selected Factors
New York, 1980
4498 acres on 13 farms

Farm No.*	Yield per acre	Average per Acre			Average per Bushel		Return per $ of cost
		Grow cost	Harvest cost	Profit	Cost	Return	
	bu.	$	$	$	$	$	$
101	100	149	20	117	2.18	3.35	1.53
102	110	193	12	103	2.42	3.35	1.38
103	90	155	13	69	2.39	3.15	1.32
104	110	164	20	114	2.26	3.30	1.46
105	80	166	25	8	2.91	3.00	1.03
106	90	187	29	4	2.95	3.00	1.02
107	100	189	30	46	2.74	3.20	1.17
108	95	170	19	55	2.47	3.05	1.23
109	100	160	29	84	2.37	3.21	1.35
110	120	163	18	142	2.07	3.25	1.57
111	75	175	30	-19	3.26	3.00	0.92
112	80	174	21	5	2.94	3.00	1.02
113	85	190	32	-11	3.13	3.00	0.96
Range	75 to 120	149 to 193	12 to 32	-19 to 142	2.07 to 3.26	3.00 to 3.35	0.92 to 1.57
Weighted average	99	168	19	80	2.43	3.24	1.34
Weighted average using avg rent as land cost	99	146	19	102	2.21	3.24	1.47

* Ranked from largest to smallest acreage.

Table 17. Field Corn
Selected Factors
Wisconsin, 1980
1871 acres on 8 farms

Farm No.*	Yield per acre	Average per Acre			Average per Bushel		Return per $ of cost
		Grow cost	Harvest cost	Profit	Cost	Return	
	bu.	$	$	$	$	$	$
201	110	183	20	82	2.25	3.00	1.33
202	100	173	21	87	2.38	3.25	1.36
203	110	211	38	36	2.67	3.00	1.12
204	100	180	15	44	2.36	2.80	1.19
205	100	252	20	-23	3.13	2.90	0.93
206	105	262	32	-22	3.21	3.00	0.93
207	95	278	36	-90	3.75	2.80	0.75
208	85	152	34	19	2.57	2.80	1.09
Range	85 to 110	152 to 278	15 to 38	-90 to 87	2.25 to 3.75	2.80 to 3.25	0.75 to 1.36
Weighted average	105	195	24	51	2.50	3.00	1.20
Weighted average using avg rent as land cost	105	153	24	92	2.11	3.00	1.42

* Ranked from largest to smallest acreage.

Table 18. Field Corn
Selected Factors
Minnesota, 1980
1855 acres on 10 farms

Farm No.*	Yield per acre	Average per Acre			Average per Bushel		Return per $ of cost
		Grow cost	Harvest cost	Profit	Cost	Return	
	bu.	$	$	$	$	$	$
301	110	215	29	28	2.60	2.85	1.10
302	125	248	25	50	2.55	2.95	1.16
303	120	205	18	84	2.24	2.94	1.31
304	110	267	13	-3	2.89	2.85	0.99
305	75	189	22	-30	3.12	2.72	0.87
306	110	333	16	-68	3.52	2.90	0.82
307	120	333	47	-79	3.56	2.90	0.82
308	85	261	30	-76	3.79	2.90	0.76
309	125	313	36	-34	3.18	2.90	0.91
310	115	329	28	-45	3.39	3.00	0.88
Range	75 to 125	205 to 333	13 to 47	-79 to 84	2.24 to 3.79	2.72 to 3.00	0.76 to 1.31
Weighted average	111	248	25	7	2.82	2.89	1.02
Weighted average using avg rent as land cost	111	204	25	51	2.43	2.89	1.19

* Ranked from largest to smallest acreage.

Summary and Conclusions

Processing sweet corn is one of five major processing vegetable crops grown in New York State. Of these crops, only snap beans is more important in acres and value in the State. Sweet corn grosses less per acre than snap beans, beets, kraut cabbage or peas. In spite of the relatively low gross returns per acre, the crop has been good to its growers with steady, although modest, profits per acre on the average.

Sweet corn is relatively easy to grow and does not require intensive labor or management inputs as do cabbage or beets. The crop is a short season crop that fits in particularly well with grain crops. It is generally planted after field corn and, therefore, tends not to compete with field corn at planting time. Because it can be planted later than field corn, there may be a tendency to use wetter, less productive soils for sweet corn resulting in a reduction of potential yield. Where these soils exist, the potential for a profit may be much greater for sweet corn than for late planted field corn.

This report reviews the position of sweet corn production in New York as compared to production in the two major producing states of Wisconsin and Minnesota. Because field corn production requires many of the same resources as sweet corn production, the two crops may be considered somewhat competitive for those resources within the farm business.

Can New York growers compete successfully with growers in other states in the production of processing sweet corn?

Based on this study the following points should be noted:

- Processing sweet corn yields in New York are below the national average but are similar to the major producing states in the Midwest. New York yields are normally higher than Wisconsin but lower than Minnesota yields (Table 3).

- Growing costs per acre were higher in New York than in Wisconsin or Minnesota when land costs were excluded. When New York's low land costs are included, total growing costs per acre are lowest in New York (Table 4).

- Land values and costs in the three States appear to compare in a ratio of 1:2:3. Land values averaged $617 per acre in New York and $1231 and $1961 per acre respectively in Wisconsin and Minnesota (Table 5).

- Harvesting costs in New York averaged $27 per acre or $5 per green ton in 1980 (Table 6).

- Selling costs including hauling and interest on accounts receivable averaged $27 per acre or $5 per green ton in 1980 (Table 7).

- Total costs or returns are not directly comparable between the three States because they are affected by the degree of grower responsibility to produce the crop.

- Profit to the grower for his efforts is comparable and was more favorable to New York growers in 1980 than to growers in either Wisconsin or Minnesota (Table 8).

- With average yields and 1980 costs and returns, New York growers would have lost money on their sweet corn enterprise. However, losses would have been greater in Wisconsin and Minnesota (Table 9).

- Land costs appear to be the most important single factor in New York's favor in the production of sweet corn at this time. When interest on land value is excluded from costs, growing costs are quite similar for these three States. With that adjustment, profit or return to land would be $29 per acre with average yields in New York compared to $25 and $54 per acre in Wisconsin and Minnesota respectively. This return to the lower value land in New York results in a higher, though not attractive, rate of return for the use of land in New York.

- With present cost, return and yield relationships in the three States, New York growers compete favorably with growers in Wisconsin and Minnesota. Even so, profits are not attractive except in years, such as 1980, of higher than average yields.

As indicated earlier, processing sweet corn fits in well with other vegetable crops and, particularly, field crops. Because it has resource requirements similar to field corn a comparison was made between the two crops regarding their relative profitability on the same farms in New York, Wisconsin and Minnesota in 1980.

Accordingly, the following points should be noted:

- Growing costs for sweet corn and field corn are essentially the same within each state. Any major difference is noted in land costs, especially in Wisconsin, because of a different mix of owned and rented land costs in the average (Tables 4 and 11).

- Less nitrogen was used on sweet corn in each state. Except in Wisconsin, fertilizer costs were similar for each state because of lower cost forms of nitrogen used on field corn.

- 1980 yields for both crops were higher than average in New York.

- 1980 value per ton for sweet corn increased 4% over the previous year in New York. (less in New York than in Wisconsin and Minnesota).

- 1980 harvest prices for dry shelled corn were 20% higher than the previous year in New York.

- Under these yield and price conditions and 1980 costs of production, field corn enterprises showed higher profits per acre than sweet corn enterprises. This was true in all three States (Tables 8 and 14).

- Using average yields for each crop with 1980 costs and prices, field corn enterprises continued to show a profit of $45 per acre in New York compared to a loss of $6 per acre for sweet corn.

By way of conjecture, if field corn prices had gone up by the same 4% increase experienced by sweet corn prices in New York over 1979 field corn enterprises would have just broken even - doing a little better than the sweet corn enterprises.

- An abnormal increase in field corn price in 1980 resulted in an abnormal advantage, profit-wise, of field corn enterprises over sweet corn enterprises.

- Judging from previous studies (1975 and 1976), a five year average yield with 1980 sweet corn costs and returns would result in lower profits per acre for growers than they have experienced in the past.

Processing sweet corn has been a relatively attractive alternative for New York growers for a number of reasons. In producing the raw product, New York growers are able to compete, profit-wise, with midwestern growers. If the current abnormal increase in corn grain price can be discounted somewhat, profits for sweet corn and field corn would be quite similar in New York for 1980 with average yields.

In the short run, at this time, competing crops may appear to offer a better profit potential than sweet corn. However, sweet corn has filled a need for a short season crop that is not resource intensive and is adapted to New York climatic and soil conditions. The availability of an alternative crop should not be jeopardized by the temporary greener grass of other profit opportunities. However, sweet corn cannot and will not be grown at a loss or at a profit disadvantage for long.

This report has dealt with the production of the raw product for processed sweet corn. It has not dealt with the rest of the story - the processing of the raw product. An evaluation of processors' costs and returns in various competing production areas in the nation is much more difficult to accomplish than that of the growers. But processors are competing for the business of finished product buyers. Each processor and its growers are, in reality, a team. As such, the success of the team in the market place is highly dependent upon their joint ability to produce the product the buyer wants at a competitive price. Only by working together with individual competence and mutual trust, integrity and appreciation of their common and distinctive problems can any team win most of the time. Both grower and processor must strive to improve their productivity and cost control to maintain or increase their share of the processed sweet corn market.

New York has the market; she can produce the raw product competitively. With increasing transportation costs, New York should be able to maintain or improve her competitive position for processing sweet corn.