

Sweet Corn

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Background and Assumptions

Economic costs are used in the University of Idaho costs and returns estimates. All resources are valued based on market price or opportunity cost. Input prices are based on the U of I's annual survey of agricultural supply companies. Except for contract crops, the selling price is a 10-year average. The costs and returns estimate shown here is typical for growing sweet corn in southcentral Idaho. Production practices most closely represent those in Twin Falls County. Although production practices may be similar for individual farms, each has a unique set of resources with different levels of productivity, different production problems, and therefore different costs. Farm size, crop rotation, age and type of equipment, and quality of management are all crucial factors that influence costs.

The Model Farm

This costs and returns estimate models a 1,500-acre farm with 150 acres in sweet corn, 375 acres in potatoes or sugarbeets, 225 acres in dry beans, and 750 acres in grain or dry pea seed. The farm uses center pivot irrigation and surface water delivered to the farm from an irrigation district. The district charges a flat fee per acre for water.

Tillage, Fertilization, Pest Control, and Irrigation

Corn acreage is plowed in the fall after the harvest of grain or pea seed, then roller harrowed, and planted early in the spring. The ground is bedded and harrowed, then watered after fertilizer and chemicals are applied. The ground is disked and roller harrowed again in June to incorporate the herbicides, then planted 7 to 10 days later. Both planting and harvest operations are performed by the sweet corn processor. The producer is charged a custom rate for the planting operation while the processor covers the harvest and hauling costs. The processor also supplies the sweet corn seed and pays one-half the crop insurance. Fertilizer is applied in the fall and again in the spring. The fall nutrients are applied by the farm operator during the plow operation, while the spring pre-plant nutrients are applied by a custom operator. The farm operator applies additional nutrients in July using a rented sidedresser. The farm operator also performs weed control using tillage, cultivation, and herbicides. Herbicide is custom applied and incorporated 2 weeks before planting. The processor

provides insect control if needed. Sweet corn receives about 26 inches of water during the growing season using approximately 52 irrigations (pivot rotations), 3 inches in June, 9 inches in July, 9 inches in August, and 5 inches in September. Each irrigation generally applies .5 inch of water.

Resources: Machinery, Land, Labor, and Capital

Table 3 lists the tractors, trucks, and other equipment used for sweet corn, along with their operating and ownership costs. All machinery except trucks is valued at 75 percent of new prices. This adjustment reduces the machinery repair operating cost, and the depreciation and interest ownership costs on equipment by 25 percent. Each truck's price includes the cost of a used truck and a new self-unloading bed.

The land charge is cash rent and covers the ownership costs (depreciation, interest, and insurance) on the irrigation system. A labor charge is made for all labor pertaining to field operations and includes a base rate plus overhead expenses. Custom charges account for those field operations that are contracted out. A management charge, 5 percent of gross returns, is included as an ownership cost.

Labor to operate machinery is valued at \$13.15 per hour, while irrigation and non-machine labor are valued at \$8.75 and \$7.70, respectively. The non-machine rate accounts for extra planting labor. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. Labor overhead amounts to 15 percent for non-machine labor, 25 percent for irrigation labor, and 30 percent for machinery labor.

Interest on operating capital is charged from the time an input is applied until the month of harvest and calculated at a nominal rate of 7.5 percent. Interest on intermediate term capital is calculated using a rate of 7.75 percent. A general overhead charge of 2.5 percent of operating expenses is included to cover unallocated costs such as office expenses, legal and accounting fees, and utilities.

**Table 1. Costs And Returns Per Acre to Produce Sweet Corn
SCI Sweet Corn**

EBB3-SCo-05

	Quantity Per Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
Gross Returns					
Sweet Corn	9.00	ton	55.00	495.00	_____
Total Gross Returns For Sweet Corn				495.00	_____
Operating Costs					
Custom:					
Custom Fertilize	2.00	acre	5.70	11.40	_____
Custom Ground Spray	1.00	acre	5.40	5.40	_____
Custom Plant	1.00	acre	6.00	6.00	_____
Custom Sidedress	1.00	acre	11.00	11.00	_____
Fertilizer:					
Dry Nitrogen	50.00	lb	0.39	19.50	_____
Liquid Nitrogen	100.00	lb	0.45	45.00	_____
Dry P2O5	70.00	lb	0.23	16.10	_____
K2O	70.00	lb	0.22	15.40	_____
Other:					
Crop Insurance	0.50	acre	15.00	7.50	_____
Irrigation:					
Water Assessment	1.00	acre	30.20	30.20	_____
Irrigation Repairs	26.00	acin	0.55	14.30	_____
Irrigation Power	26.00	acin	1.39	36.14	_____
Labor (irrigation)	1.30	hr	8.75	11.38	_____
Pesticide:					
Dual Magnum	0.75	qt	29.20	21.90	_____
Atrazine 4L	0.50	qt	3.15	1.58	_____
Seed:					
Sweet Corn Seed	12.00	lb	0.00	0.00	_____
Labor (machine)	2.44	hrs	13.15	32.09	_____
Labor (non-machine)	0.00	hrs	0.00	0.00	_____
Fuel - Gas	1.69	gal	2.26	3.82	_____
Fuel - Diesel	11.09	gal	2.07	22.95	_____
Lube				4.02	_____
Machinery Repair				7.68	_____
Interest on Operating Capital @ 7.50%				10.42	_____
Total Operating Costs per Acre				333.77	_____
Net Returns Above Operating Costs				161.23	_____
Cash Ownership Costs					
General Overhead				12.50	_____
Land Rent				120.00	_____
Management Fee				25.00	_____
Property Taxes (machinery)				0.00	_____
Property Insurance				1.04	_____
Total Cash Ownership Costs per Acre				158.54	_____
Non-Cash Ownership Costs (depreciation and interest)					
Equipment				39.12	_____
Total Non-Cash Ownership Costs per Acre				39.12	_____
Total Costs per Acre				531.42	_____
Returns to Risk				-36.42	_____

Table 2. Monthly Summary of Cash Expenses per Acre

EBB3-SCo-05

	Oct 04	Nov 04	Dec 04	Jan 05	Feb 05	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Total
Preharvest:													
Plow	14.28												14.28
Fertilize	25.20								59.70	36.58			121.48
Harrow							6.90	2.91	2.91				12.73
Crop Insurance							7.50						7.50
Assessments							30.20						30.20
Repairs							14.30						14.30
Bed Up								5.88					5.88
Ground Spray									28.88				28.88
Disk									5.51				5.51
Irrigate									5.48	16.45	16.45	9.14	47.52
Seed Hauling									2.91				2.91
Plant									6.00				6.00
Cultivate										10.12			10.12
General Pickup Use	3.74	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	16.05
Total Preharvest Costs	43.22	1.12	1.12	1.12	1.12	1.12	60.02	9.91	112.51	64.27	17.57	10.26	323.35
Interest on Operating Capital	0.27	0.28	0.28	0.29	0.30	0.31	0.68	0.74	1.45	1.85	1.96	2.02	10.42
Operating Costs per Acre	43.49	1.40	1.40	1.41	1.42	1.42	60.70	10.65	113.96	66.11	19.52	12.28	333.77
Cash Ownership													
General Overhead	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	12.50
Land Rent						120.00							120.00
Management Fee	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	2.08	25.00
Property Insurance							1.04						1.04
Cash Ownership Costs	3.13	3.13	3.13	3.13	3.13	123.13	4.16	3.13	3.13	3.13	3.13	3.13	158.54
Total Cash Costs per Acre	46.61	4.52	4.53	4.54	4.54	124.55	64.86	13.78	117.08	69.24	22.65	15.40	492.30

Table 3. Machinery and Equipment Costs per Hour

Description	Purchase Price	Years to Trade	Salvage Value	Hours Used	<-Non-Cash->		<-----Cash----->		<-----Operating----->			Total Costs/Hr.
					Ownership Cap. Rec.	Insur.	Ownership Taxes	Repairs	Fuel & Lube	Total Oper.		
4-wheeler	6500	10	1920	350	1.77	0.05	0.00	0.11	3.40	3.51	5.32	
Corrugator - 6R CN	1600	15	154	30	4.40	0.11	0.00	0.06	0.00	0.06	4.57	
Cultivator - 6R CN	6600	15	634	35	15.61	0.38	0.00	0.31	0.00	0.31	16.30	
Moldboard Plow 5b	9700	15	931	150	5.42	0.13	0.00	3.40	0.00	3.40	8.95	
Pickup - Used 3/4t	11000	8	3839	200	5.74	0.14	0.00	0.91	5.95	6.86	12.74	
Pickup 1 - 3/4 ton	37000	8	12913	300	12.88	0.31	0.00	3.59	10.40	13.99	27.18	
Pickup 2 - 3/4 ton	37000	8	12913	300	12.88	0.31	0.00	3.59	10.40	13.99	27.18	
Roller-harrow - 16'	20000	15	1920	165	10.10	0.25	0.00	4.36	0.00	4.36	14.71	
Spike Harrow - 20'	1000	15	96	85	0.98	0.02	0.00	0.12	0.00	0.12	1.13	
Tandem Disk - 18'	22000	15	2112	130	14.12	0.35	0.00	4.06	0.00	4.06	18.52	
Tractor - 160hp	113000	15	21999	475	19.21	0.53	0.00	3.46	22.10	25.56	45.30	
Tractor - 200hp	134000	15	26087	350	30.98	0.86	0.00	3.02	27.63	30.65	62.49	
Tractor - 95hp	68000	15	13238	400	13.73	0.38	0.00	1.76	11.11	12.87	26.97	
Truck 1 - 5 ton	55000	15	10708	400	11.13	0.31	0.00	7.35	11.90	19.25	30.68	

Net Returns Per Acre Above Operating Costs For Sweet Corn
Yield (ton/acre)

Price (dollars/ton)	Yield (ton/acre)						
	6.30	7.20	8.10	9.00	9.90	10.80	11.70
38.50	-91	-57	-22	13	47	82	117
44.00	-57	-17	23	62	102	141	181
49.50	-22	23	67	112	156	201	245
55.00	13	62	112	161	211	260	310
60.50	47	102	156	211	265	320	374
66.00	82	141	201	260	320	379	438
71.50	117	181	245	310	374	438	503

Net Returns Per Acre Above Cash Costs For Sweet Corn
Yield (ton/acre)

Price (dollars/ton)	Yield (ton/acre)						
	6.30	7.20	8.10	9.00	9.90	10.80	11.70
38.50	-250	-215	-180	-146	-111	-77	-42
44.00	-215	-176	-136	-96	-57	-17	22
49.50	-180	-136	-91	-47	-2	42	87
55.00	-146	-96	-47	3	52	102	151
60.50	-111	-57	-2	52	107	161	216
66.00	-77	-17	42	102	161	220	280
71.50	-42	22	87	151	216	280	344

Net Returns Per Acre Above Total Costs For Sweet Corn
Yield (ton/acre)

Price (dollars/ton)	Yield (ton/acre)						
	6.30	7.20	8.10	9.00	9.90	10.80	11.70
38.50	-289	-254	-220	-185	-150	-116	-81
44.00	-254	-215	-175	-135	-96	-56	-17
49.50	-220	-175	-130	-86	-41	3	48
55.00	-185	-135	-86	-36	13	63	112
60.50	-150	-96	-41	13	68	122	176
66.00	-116	-56	3	63	122	181	241
71.50	-81	-17	48	112	176	241	305

The practices and chemicals specified here are based on survey information representative of typical operations. They are not recommendations. Because of constantly changing labels, laws, and regulations, the University of Idaho can assume no liability for the consequences of use of chemicals specified here. In all cases, read and follow the directions and precautionary statements on the specific pesticide product label. To simplify information, trade names have been used. No endorsement of named products is intended nor is criticism implied of similar products not mentioned.

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