U.C. COOPERATIVE EXTENSION

SAMPLE COST TO ESTABLISH AND PRODUCE

SWEET CORN

IMPERIAL COUNTY – 2003

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For an explanation of calculations used for the study refer to the attached General Assumptions or call the author, Keith S. Mayberry , at the Imperial County Cooperative Extension office, (619)352-9474 or e-mail at ksmayberry@ucdavis.edu.

FOREWORD

We wish to thank growers, pest control advisors, chemical applicators and dealers, custom farm operators, fertilizer dealers, seed companies, contract harvesters, equipment companies, and the Imperial County Agricultural Commissioners office for providing us with the data necessary to compile this circular. Without them we could not have achieved the accuracy needed for evaluating the cost of production for the field crop industry in Imperial County.

The information presented herein allows one to get a "ballpark" idea of field crop production costs and practices in the Imperial County. They do not reflect the exact values or practices of any one grower, but are rather an average of countywide prevailing costs and practices. Exact costs incurred by individual growers depend upon many variables such as weather, land rent, seed, choice of agrichemicals, location, time of planting, etc. No exact comparison with individual grower practice is possible or intended. The budgets do reflect, however, the prevailing industry trends within the region.

Overhead usually includes secretarial and office expenses, general farm supplies, communications, utilities, farm shop, transportation, moving farm equipment, accountants, insurance, safety training, permits, etc. In most of the crop guidelines contained in this circular we used 13 % of the total of land preparation, growing costs and land rent to estimate overhead.

Since all of the inputs used to figure production costs are impossible to document in a single page, we have included extra expense in man-hours or overhead to account for such items as pipe setting, motor grader, water truck, shovel work, bird and rodent control, etc. Whenever possible we have given the costs of these operations per hour listed on the cultural operations page.

Not included in these production costs are expenses resulting from management fees, loans, providing supervision, or return on investments. The crop budgets also do not contain expenses encumbered for road and ditch maintenance, and perimeter weed control. If all the above items were taken into account, the budget may need to be increased by 7-15%.

Where applicable we have used terminology that is commonly used in the agricultural industry. These terms are compiled in a glossary at the end of the circular. We feel that an understanding of these terms will be useful to entry-level growers, bankers, students and visitors.

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2002-2003 Field/Vegetable Prevailing Rate for Field Operations
IMPERIAL COUNTY

HEAVY TRACTOR WORK & LAND PREPARATION

OPERATION	$/ACRE
Plow	30.50
Subsoil, 2nd gear	39.00
Landplane	12.75
Triplane	11.25
Chisel 15”	25.00
Wil-Rich chisel	16.00
Big Ox	24.00
Slip plow	41.00
Pull/disc borders	6.75
Make cross checks (taps)	6.25
Break border	6.00
Disc, stubble	21.00
Disc, regular	12.50
Corrugate	11.00
Disc, regular with ring roller	13.50
List 30” beds 12-row	15.00
List 40” beds 8-row	15.00
Float	10.00
Disc, borders	7.00
Dump (scraper) borders	14.50

LIGHT TRACTOR WORK

Power mulch dry	25.00
Power mulch with herbicide	28.00
Shape 30” 6 row	10.75
Shape 40” 4 row	10.75
Plant 30” beds nonprecision	20.00
Plant 40” beds nonprecision	18.00
Precision plant 30” beds	22.00
Precision plant 40” beds	20.00
Mulch plant wheat	19.50
Plant alfalfa (corrugated)	17.50
Plant bermudagrass (flat)	13.75
Plant sudangrass	14.75
Cultivate 30” beds 4-row	16.00
Cultivate 40” beds 4-row	14.00
Spike 30” beds 4-row	13.25
Spike 40” beds 4-row	11.25
Spike and furrow out 30” 4-row	14.00
Spike and furrow out 40” 4-row	12.00
Furrow out 30” beds 4-row	13.25
Furrow out 40” beds 4-row	11.25
Lilliston 30” beds 6-row	13.00
Lilliston 40” beds 4-row	13.00
Lilliston 30” beds with/herbicides 6-row	15.00
Lilliston 40” beds with/herbicides 4 -row	15.00
Inject fertilizer & furrow out 30” beds 4-row	15.00
Inject fertilizer & furrow out 40” beds 4-row	13.00
Fertilize dry & furrow out 30” beds	17.00
Fertilize dry & furrow out 40” beds	15.00
Flat inject fertilizer NH_3	15.00
Broadcast dry fertilizer	7.00
Ground spray 40” 8-row	12.00
Ground spray 30” 8-row	14.00
Chop cotton stalks	13.75

HARVEST COSTS Field Crops

	BY UNIT
Combine alfalfa seed	41.75/acre
Windrow alfalfa seed	17.50/acre
Rake bermudagrass	5.00/acre
Swath bermudagrass	13.50/acre
Swath sudangrass	11.25/acre
Rake sudangrass	5.25/acre
Swath alfalfa	8.00/acre
Rake alfalfa	4.50/acre
Bale (all types of hay- small bale)	0.65/bale
Haul & stack hay – small bale	0.25/bale
Bale (large bale 4X4)	10.00/bale
Bale (large bale Jr. 3X4)	9.00/bale
Stack & load large bale	6.00/bale
Dig sugar beets	2.60/clean ton
Haul sugar beets	2.45/clean ton
Combine wheat	15 per acre + 0.55 /cwt over 1 ton
Haul wheat	5.50/ton
Combine bermudagrass seed 1st time	40.00/acre
Combine bermudagrass seed 2st time	25.00/acre
Haul bermudagrass seed (local)	175/load
Haul bermudagrass seed (Yuma)	300/load

MISCELLANEOUS OPERATIONS BY THE HOUR

Motor grader	48.00
Backhoe	45.00
Water truck	40.00
Wheel tractor	35.00
Scraper	36.00
Versatile	56.00
D-6	56.00
D-8	70.00
Buck ends of field	28.00
Pipe setting (2 men)	37.00
Laser	88.00
Work ends (disc out rotobucks)	35.00

SWEET CORN CULTURE 2002-2003

Annual acreage, yield, and gross value of sweet corn
in Imperial County, CA (1997-2001)

Year	Acres	Yield/Acre*	Gross Value/Ton
2001	3,816	350	$2,520
2000	5,921	238	$1,397
1999	6,790	289	$2,270
1998	6,088	311	$2,273
1997	4,556	308	$2,458

* cartons containing 4-dozen ears
Source: Imperial County Agricultural Commissioner's Reports 1997-2001

PLANTING-HARVESTING DATES A good field should produce over 300 cartons (4-dozen ears) per acre. Yield can reach as high as 400+ cartons per acre on outstanding fields. Spring sweet corn is planted late December to early March for harvest in late April to early June. Fall sweet corn is planted in August for harvest in early November to early December.

VARIETIES Popular yellow sweet corn varieties include: Sugar Ace *Harris Moran* enhanced sugar gene and the supersweets 8100Y *Abbott & Cobb;* Victor *Harris Moran;* Bandit *Harris Moran;* AC 525 *Abbott & Cobb* and Primetime *Syngenta*.

White varieties used include: Aspen *Syngenta*; AC 8101 *Abbott & Cobb*; AC 527 *Abbott & Cobb;* AC 402 *Abbott & Cobb;* Boreal *Syngenta* and Snow White *Harris Moran*.

Hudson *Syngenta*; Bi-Time *Syngenta*, AC 502 *Abbott & Cobb*, and BSS 9686 *Syngenta* are popular bicolor types.

PLANTING INFORMATION Sweet corn is planted with a vacuum air planter. Some growers use a Planet Jr. or other type of plate planter for inexpensive seed. Supersweets must be planted with air planters, as the seed is small and irregular in size. Plate planters damage the seed or produce too many "doubles" (two seeds dropped instead of one).

Sweet corn is planted ½ inch deep in single rows on 40-inch beds. Spacing within the row is 6 to 8 inches. Over crowding with sweet corn can result in nonheading. Too wide a spacing can result in wind damage of the plants and/or excessive tillering (more than one stalk emerging from a single root system).

The ears of sweet corn pollinate starting at the base of the ear and move towards the tip. Dry heat occurring during pollination can result in "blanks" (lack of kernel formation) on the cob.

IRRIGATION Typically sweet corn is furrow irrigated throughout the season. Sweet corn requires frequent irrigations during tasseling and ear formation. It is not uncommon to irrigate every three days. The last irrigation should occur roughly three days before harvest.

PESTS AND DISEASES Major insect pests of sweet corn include corn earworm, spider mites, and corn leaf aphids. Minor pests include wireworms, seed corn maggot, cutworms, flea beetles and lesser cornstalk borer. Sweet corn is often sprayed every three days during silking to prevent worms in the ears.

Penicillium seed rot (*Penicillium* spp.) can cause severe loss of stand by destroying seed during germination, especially with the supersweet varieties. Seed treatment is necessary to control these molds. Corn rust (*Puccinia sorghi)* may cause damage from time to time.

HARVESTING All sweet corn packed in Imperial Valley is field harvested. A standard crew uses 20 to 25 people on a field-harvest machine.

Corn is harvested once or sometimes twice, even though the machine and crew may cause some mechanical damage going through the field during first harvest. About 95 percent of the top ears are taken during the first harvest. Fifty percent of the secondary ears will "make" if market prices are sufficient to warrant a second harvest.

Federal standards call for an 8-inch ear with full kernel development, excluding a short area at the tip. Sizes of packed-ear corn may vary while the count per carton remains consistent.

Long ear shanks and excess flag leaves will increase dehydration and denting of the kernels. The ears are laid on a packing table and placed in a waxed fiberboard carton containing 48 ears. Cartons are palletized and shipped to the cooler where they are slush-ice cooled or sometimes hydrocooled before icing.

Most of the sweet corn is harvested at night to reduce the amount of field heat in the product. Crews normally start about midnight and work until they fill the sales orders for the day.

POSTHARVEST HANDLING Rapid removal of field heat is critical to retard deterioration of sweet corn. Crated corn has a high respiration rate and produces heat during storage. Corn should be stored just above freezing and with a 95 percent plus relative humidity. None-the-less, sweet corn has a storage life of only 5 to 8 days. At 41°F, shelf life is cut to 3 to 5 days and about 2 days at 50°F.

Supersweets also loose sugar upon storage but they do it more slowly. Shelf life of a supersweet can be roughly 10 days after picking. Therefore, a supersweet will generally have more sugar after a 5-day storage period than will a standard variety. Supersweets tend to have husks that appear more dried out than other types. Consequently, supersweets are often displayed in film wrapped packs without husk.

For more information see "Sweet Corn Production in California", DANR Publication 7223 available from the Imperial County Cooperative Extension Office or for a free download from the Internet go to http://anrcatalog.ucdavis.edu/specials.ihtml

SWEET CORN PROJECTED PRODUCTION COSTS 2002-2003

Hand labor at $9.25 per hour ($6.75 plus SS,unemployment insurance, transportation, supervision, workman's compensation, and fringe benefits).

Yield-- 325 4-dozen cartons per acre

OPERATION	Cost	Materials		Hand Labor		Cost
		Type	Cost	Hours	Dollars	Per acre
LAND PREPARATION						
Chisel 1x	25.00					25.00
Disc 2x	12.50					25.00
Triplane 1x	12.00					12.00
Border, cross check & break borders	19.00					19.00
Flood irrigate		Water 1 ac/ft	16.00	1	9.25	25.25
Fertilizer, spread	7.00	500 lb. 11-52-0	58.75			65.75
List	15.00					15.00
TOTAL LAND PREPARATION						**187.00**
GROWING PERIOD						
Plant	18.00	50M	190.00			208.00
Herbicide, planting	12.50	Prowl	3.00			15.50
Sprinkler irrigate	160.00					160.00
Cultivate 2x	14.00					28.00
Herbicide, lay-by	12.50	Atrazine	4.00			16.50
Fertilize & furrow out 2x	15.00	120 lb. N @ .32	38.40			68.40
Water-run fertilizer		90 lb.N @ .32	28.80			28.80
Gated pipe (harvest)	10.00					10.00
Irrigate 8x		Water 5 ac. ft.	80.00	12	111.00	191.00
Insect control air 10x	10.00	Insecticides	120.00			220.00
Chop stalks	13.00					13.00
TOTAL GROWING PERIOD						**959.20**
GROWING PERIOD & LAND PREPARATION COSTS						1146.20
Land Rent (net acres)						200.00
Cash Overhead-----	13 % of preharvest costs & land rent					175.01
TOTAL PREHARVEST COSTS						1521.21
HARVEST						
Pick, pack, haul, cool and sell	325 cartons @	4.25 per carton*				1381.25
TOTAL OF ALL COSTS						**2902.46**

* Harvest costs vary with the shipper, the field conditions, the need for re-icing and the market value.

PROJECTED PROFIT OR LOSS PER ACRE
price/ 4 doz. carton (dollars)

		7.00	8.00	9.00	10.00	11.00	Break-even $/carton
	300	-696	-396	-96	204	504	9.32
Cartons	350	-559	-209	141	491	841	8.60
per	400	-421	-21	379	779	1179	8.05
acre	450	-284	166	616	1066	1516	7.63
	500	-146	354	854	1354	1854	7.29