U.C. COOPERATIVE EXTENSION

SAMPLE COST TO ESTABLISH AND PRODUCE

SWEET CORN

IMPERIAL COUNTY – 2000

Prepared by:
Keith S. Mayberry Farm Advisor, U.C. Cooperative Extension, Imperial County

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, seed companies, transplant producers, contract harvesters, fertilizer dealers, and equipment companies 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 dynamic and important vegetable industry in Imperial County.

The information presented herein allows one to get a "ballpark" idea of vegetable production costs and practices in the Imperial County. They do not reflect the exact values or practices of any grower or shipper, but are rather an amalgamation 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, 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, supplies, donations, utilities, transportation, 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. For crops that require additional labor or extra operations (i.e. leaf lettuce) we used 17% overhead to account for the additional expenses.

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, etc. Whenever possible we have given the costs of these operations per hour.

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

Keith S. Mayberry
(Principal researcher and editor)
Farm Advisor
Vegetable Crops

Refugio A. Gonzalez
County Director

Tom Turini
Farm Advisor
Plant Pathology

Khaled M. Bali
Farm Advisor
Irrigation/Water Science

Eric T. Natwick
Farm Advisor
Entomology

Jose L. Aguiar
Farm Advisor
Vegetable Crops
Coachella Valley

Mark D. Stutes
C.E. Staff

August 2000

2000-2001 VEGETABLE CROPS PREVAILING RATES
IMPERIAL COUNTY

HEAVY TRACTOR WORK & LAND PREPARATION

OPERATION	$/ACRE
Plow	27.75
Subsoil, 2nd gear	38.75
Subsoil, 3rd gear	32.75
Landplane	12.00
Triplane	11.00
Chisel 15"	24.75
Wil-Rich chisel	14.75
Big Ox	21.25
Slip plow	39.00
Pull/disc borders	6.00
Make cross checks (taps)	6.00
Break border	5.75
Disc, stubble	21.75
Disc, regular	11.50
List 40" beds	13.50
Float	10.00
Disc, borders	11.25
Laser (acre)	34.00-38.00
Dump (scraper) borders	14.00

PLANTING, CULTIVATING & LIGHT TRACTOR WORK

	$/HR
Power mulch dry	23.00
Power mulch with herbicide	27.00
Shape 40" beds	9.50
Precision plant 40" beds	17.50
Cultivate 4-row 40" beds	13.00
Spike 40" beds	9.75
Spike and furrow 4-rows 40" beds	10.25
Furrow out 40-42" beds	9.75
Lilliston 40" beds	10.75
Lilliston 40" beds with/herbicides	14.50
Inject fertilizer and furrow out 40" beds	13.50
Fertilize dry and furrow out 40" beds	13.50
Broadcast dry fertilizer >300lb/a	7.00
Broadcast dry fertilizer <300lb/a	6.00
Ground spray 4-row	10.00
Ground spray 8-row	9.00
Layby herbicide	22.00

PREVAILING RATES BY THE HOUR

	$/HR
Motor grader	50.00
Backhoe	42.50
Water truck	39.00
Wheel tractor	32.00
Scraper	27.00
Versatile	53.00
D-6	46.50
D-8	65.00
Burn ditches	28.00
Buck ends of field	30.00
Pipe setting (2 men)	33.00
Laser	70.00
Work ends	40.00

IRRIGATION

Sprinkler irrigate	$125-160.00/acre
1 acre-foot of water	14.56
Sprinkler irrigate carrots	155.00

*Note – Cultural rates for specific crop operations listed on crop budgets.

SWEET CORN CULTURE 2000-2001

Annual acreage, yield, and gross value of sweet corn
in Imperial County, CA (1995-1999)

Year	Acres	Yield/Acre*	Gross Value/Ton
1999	6,790	289	$2,270
1998	6,088	311	$2,273
1997	4,556	308	$2,458
1996	4,397	320	$2,647
1995	3,896	299	$2,395

* cartons containing 4 dozen ears
Source: Imperial County Agricultural Commissioner's Reports 1995-99

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;* and Primetime *Novartis*. White varieties used include: Aspen *Novartis*; AC 8101 *Abbott & Cobb* ; and Snow White *Harris Moran*. Hudson *Novartis*; Bi-Time *Novartis,* 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" (2 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 2000-2001

Hand labor at $7.75per hour ($5.75 plus SS,unemployment insurance, and transportation, supervision 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	24.75					24.75
Disc 2x	11.50					23.00
Landplane 2x	12.00					24.00
Border, cross check & break borders	17.75					17.75
Flood irrigate		Water 1 ac/ft	14.56	1	7.75	22.31
Fertilize	8.00	500 lb. 11-52-0	63.75			71.75
List	13.50					13.50
TOTAL LAND PREPARATION						**197.06**
GROWING PERIOD						
Plant	12.00	50M	135.00			147.00
Apply herbicide	12.00	Prowl	3.00			15.00
Sprinkler irrigate	145.00					145.00
Cultivate 2x	13.00					26.00
Fertilize & furrow out 2x	13.50	120 lb. N @ .35	42.00			69.00
Water-run fertilizer		90 lb.N @ .35	31.50			31.50
Gated irrigation pipe	53.00					53.00
Irrigate 6x		Water 4 ac. ft.	58.24	7	54.25	112.49
Insect control air 9x	9.50	Insecticides	97.00			182.50
Stubble disc	21.75					21.75
TOTAL GROWING PERIOD						**803.24**
GROWING PERIOD & LAND PREPARATION COSTS						1000.30
Land Rent (net acres)						200.00
Cash Overhead-----	13 % of preharvest costs & land rent					156.04
TOTAL PREHARVEST COSTS						1356.34
HARVEST						
Pick, pack, haul, cool and sell	325 cartons @	4.75 per carton*				1543.75
TOTAL OF ALL COSTS						**2900.09**

* 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**
	275	-738	-463	-188	87	362	9.68
Cartons	300	-681	-381	-81	219	519	9.27
per	325	-625	-300	25	350	675	8.92
acre	400	-456	-56	344	744	1144	8.14
	425	-400	25	450	875	1300	7.94