U.C. COOPERATIVE EXTENSION

SAMPLE COST TO ESTABLISH AND PRODUCE

COTTON

IMPERIAL COUNTY – 2000

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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, 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 dynamic and important vegetable industry in Imperial County.

The information presented herein allows one to get a "ballpark" idea of field crops 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. The amount of overhead charged depends upon the crop and the size of the labor crew, payroll, supplies, and supervision needed for culture.

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 loans, supervision, or return on investments. If these items were taken into account, the budget may need to be increased by 7-15%.

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2000-2001 FIELD 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

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

PLANTING, CULTIVATING & LIGHT TRACTOR WORK

Power mulch dry	23.00
Power mulch with herbicide	27.00
Shape 40" beds	9.50
Precision plant 40" beds	17.50
Plant and shape sugar beet beds	14.50
Mulch plant wheat	11.25
Plant alfalfa (corrorgated)	16.00

PLANTING, CULTIVATING & LIGHT TRACTOR WORK (continued)

OPERATION	$/ACRE
Plant bermudagrass (flat)	12.00
Plant sudangrass	10.50
Cultivate 4-row 40" beds	13.00
Spike 40" beds	9.75
Spike and furrow 4-rows 40-42" beds	10.25
Furrow out 40-42" beds	9.75
Lilliston 40" beds	10.75
Lilliston 40" beds with/herbicides	14.50
Inject fertilzer 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
Drill with cultipacker	15.00
Chop cotton stalks	12.00

HARVEST COSTS

	BY UNIT
Combine alfalfa seed	40.00/acre
Windrow alfalfa seed	15.00/acre
Rake bermudagrass (heavy)	7.00/acre
Rake bermudagrass (light)	4.00/acre
Swath bermudagrass (heavy)	15.00/acre
Swath bermudagrass (light)	10.00/acre
Swath sudangrass	10.00/acre
Rake sudangrass	5.00/acre
Crimp sudangrass	8.00/acre
Swath alfalfa	7.75/acre
Rake alfalfa	3.75/acre
Bale (all types of hay)	0.63/bale
Haul & stack hay	0.24/bale
Dig sugar beets	2.50/clean ton
Haul sugar beets	2.45/clean ton
Combine wheat	15/ton + 0.55/cwtover 1 ton
Haul wheat	5/ton

IRRIGATION

Sprinkler irrigate flat crops	$125-160.00/acre
Flood irrigate flat crops	variable
Irrigate bed-planted crops	variable
1ac-ft water	14.56

IMPERIAL COUNTY SHORT-SEASON COTTON CULTURE 2000-2001

Annual acreage, yields, and value of cotton lint in Imperial County, CA for five consecutive years

Year	Acres	Yield/Acre (bales)*	Value/Acre
1999	10,028	2.88	$959
1998	7,800	2.41	$908
1997	6,734	3.50	$1,620
1996	7,825	2.74	$1,400
1995	9,647	2.75	$1,086

* 500 lb. Bales (Source: Imperial County Agricultural Commissioner's Reports).

LAND PREPARATION Most cotton is grown on 30- or 40-inch raised beds. The crop is generally planted in moist soil mulch and irrigated up. Cotton can be grown on all types of soils in Imperial County.

PLANTING DATES AND RATES Cotton yields are normally higher when the crop is planted in early to mid-March. Yields decrease when cotton is planted later in the season. A soil temperature of at least 62°F, 6 inches deep is desirable. Spacing within the row of 3 to 12 inches results in approximately the same yields.

VARIETIES "NuCotn3313" has become the standard variety for the area. It is a nondeterminant transgenic variety with Bt toxin. Some "DPL 5415" is also being grown on a limited scale, mostly as a refuge for the NuCotn 3313.

FERTILIZATION Short-season cotton yields are highest when ample nutrients are applied early in the season. Two hundred fifty pounds of nitrogen per acre will produce a good crop. The applications should be made before planting, at thinning, and in June. Application of phosphate is a common practice, although tests have failed to show a yield response. The total nitrogen and phosphate required depends on carryover from the previous crop. It is important to check the nutrient and water status of plants and soil in the latter part of the growing season. Dry soil and low nutrients make plants easier to defoliate and harvest.

IRRIGATION Short-season cotton requires more frequent irrigations than long-season cotton in order to maximize yield. It used to be common practice to delay the first irrigation after seedling emergence. However, more recent research information shows that more frequent, early-season irrigations allow for maximum retention of early squares (flower buds) for earlier lint production. The number of irrigations depends upon the season and the soil type. Do not

allow the plants to remain wilted for extended periods of time. Laser leveling for more uniform irrigation will increase cost roughly $34 per acre.

WEED CONTROL. Weeds in cotton can reduce yield, interfere with harvest and reduce lint quality. Preemergence, postemergence, and layby herbicide applications are used on most cotton fields. Consult your pest control advisor or Weed Science Farm Advisor for current recommendations.

PEST CONTROL The pink bollworm, cotton leaf perforator, tobacco budworm, cotton bollworm, and silverleaf whitefly are widespread pests and pose a serious threat to cotton production. Other insects such as spider mites, cutworm, lygus bugs, and leafhoppers may require treatment. The presence of these insect pests results in increased costs for pest control since multiple applications are necessary to keep them in check. The insecticide costs included in this circular could be higher, depending upon the presence of these and other pests. Consult your pest control advisor for most recent information and control recommendations.

Seedling disease complex can reduce cotton stands to the point where replanting may be necessary. The most common organisms involved are the following fungi: *Pythium ultimum*, *Rhizoctonia solani*, and *Thielaviopsis basicola*. Seedling disease problems frequently are more severe where cotton follows sugar beets or alfalfa. Cool soil temperatures may also increase disease. Fungicide seed treatments should be used to control seedling diseases. Root knot nematode (*Meloidogyne* spp.) is a serious pest when acting alone, but will also function as a primary organism in several disease complexes involving fungi.

HARVESTING Cotton is harvested from early October through late December. Fields are harvested only once as multiple picking has not proven to be economical (no late top crop is produced with short season-cotton). Likewise, cotton scrapping is not practiced unless there is a summer downpour and heavy winds cause cotton to be stripped from the plants.

Defoliation should be complete and few, if any, green leaves should be left on the plants as they can stain the lint. Bolls should be completely open and dried. A preconditioning chemical may be used prior to defoliation to enhance boll opening.

Ginning costs, module compressing, and module transport and are currently offset by the value of the cotton seed.

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IMPERIAL COUNTY COTTON PRODUCTION COSTS 2000-2001

Mechanical operations at prevailing rates. Labor at $7.75/hr ($5.75 plus SS, unemployment, and fringe benefits).
Yield- 1400 pounds lint per acre (2.8 bales @ 500 lb/bale). Days to harvest 170 to 200+ days.

OPERATION	Prevailing Rate	MATERIALS Type /Amount	Cost	HAND LABOR Hours	Dollars	COST Per Acre
LAND PREPARATION						
Stubble disc	21.75					21.75
Subsoil	38.75					38.75
Corrugate	11.00					11.00
Flood irrigate		Water 0.5 ac-ft	7.28	1	7.75	15.03
Disc 2x	11.50					23.00
Triplane	11.00					11.00
List	13.00					13.00
Broadcast fertilizer	6.00	250 lb P2O5	31.88			37.88
Fertilize (injected)	10.50	80 lb. N @ .165	13.20			23.70
Irrigate beds		0.5 ac-ft	7.28	2	15.50	22.78
Lilliston (2x)	10.75					21.50
Work ends	5.00					5.00
TOTAL LAND PREPARATION COSTS						**244.39**
GROWING PERIOD						
Plant - Shape w/ insecticide	14.00	Seed 13 lb	7.25			26.75
		Insecticide	5.50			
Preemergence weed control	20.25	Herbicide	18.30			38.55
Cultivate 2x	13.00					26.00
Fertilize dry sidedress 1x	10.50	100 lb N @ .32	32.00			42.50
Synchronous thin	25.00					25.00
Hand weed				4	31.00	31.00
Layby herbicide	22.00	Herbicide	12.00			34.00
Sidedress insecticide	13.00	Insecticide	36.50			49.50
Work ends	5.00					5.00
Irrigate 10x		Water 4.5 ac-ft	65.52	8	62.00	127.52
Water-run fertilizer		60 lb N @ .165	9.90			9.90
Insect control 3x	8.00	Insecticide	72.75			96.75
Preconditioner	8.00	Preconditioner	7.50			15.50
Defoliate 1x	10.00	Defoliant	12.00			22.00
Chop stalks	12.00					12.00
TOTAL GROWING PERIOD COSTS						**561.97**
GROWING PERIOD & LAND PREPARATION COSTS						**806.36**
Land rent (net acres)						150.00
Cash overhead--	13 % growing period, land prep and land rent					124.33
TOTAL PREHARVEST COSTS						**1080.68**
HARVEST COSTS & BALE ASSESSMENTS						
Machine picking & hauling	2.80 /bales	@ 33% clean lint				147.00
Ginning	NC (price offset by seed value)					0.00
Bale assessments	3.80 /bale	2.8 bales				10.64
TOTAL HARVEST COSTS & BALE ASSESSMENTS						**157.64**
TOTAL ALL COSTS						**1238.32**

PROJECTED NET GAIN (PER ACRE)

Yield lb. lint/ac	price/lb lint (cents) 0.70	0.75	0.80	0.85	0.9	Breakeven $/lb.
1000	-493	-443	-393	-343	-293	1.19
1250	-346	-284	-221	-159	-96	0.98
1500	-200	-125	-50	25	100	0.83
1750	-53	35	122	210	297	0.73
2000	94	194	294	394	494	0.65