U.C. COOPERATIVE EXTENSION

SAMPLE COST TO ESTABLISH AND PRODUCE

COTTON

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

IMPERIAL COUNTY COTTON CULTURE 2002-2003

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

Year	Acres	Yield/Acre (bales)*	Value/Acre
2001	16528	2.83	$1019
2000	9295	3.09	$1039
1999	10,028	2.88	$959
1998	7,800	2.41	$908
1997	6,734	3.50	$1,620

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

LAND PREPARATION: Cotton can be grown flat between borders, but is more commonly grown on 30- or 40-inch raised beds. The soil is usually pre-irrigated to obtain bottom moisture and germinate weeds. The beds are cultivated with a lilliston, planted, and irrigated. Cotton can be dry-planted and irrigated up later in the season when soil temperature conditions are more favorable for germination.

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 for successful germination. Spacing within the row of 3 to 4 inches is desirable.

VARIETIES: DP33B has become the standard variety for the area. It is a transgenic variety with the Bt toxin for Pink Bollworm control.. Some "DPL 5415" is also being grown on a limited scale, mostly as a refuge for the DP33B, DP448B, and DP458BR.

FERTILIZATION: 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 in the pre-irrigated beds, and as a sidedress before 1st bloom with a water run if necessary depending on petiole samples. The total nitrogen and phosphate required depends on carryover from the previous crop. Soil samples along with a petiole analysis program are suggested as management tools for evaluating the need for nitrogen and phosphorus fertilizer. Pix is a plant growth regulator compound that has been used to assist in controlling the vegetative growth of cotton in certain instances.

IRRIGATION: After the germination irrigation, the next irrigation is usually necessary about 1st square or around 60 days after the germination water. If the crop requires irrigation before first

square, apply a quick irrigation to avoid saturating the soil. The next irrigation after 1st square will be approximately 2-3 weeks later. During this time the crop will be cultivated, sidedressed, and the layby herbicide applied. The irrigation frequency the remainder of the season will depend on the plant growth, boll load, and weather, but usually is around a 7-10 interval.

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 silverleaf whitefly, pink bollworm, and lygus are the most serious threat to cotton production currently. Other pests such as cutworm, cotton leaf perforator, tobacco budworm, cotton bollworm, leafhoppers and spider mites may require treatment. The presence of these pests may result in increased costs for pest control since multiple applications may be necessary to keep them in check. The estimated insecticide costs could be higher or lower depending upon the levels of infestation and required control measures. 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 increase disease severity. 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 December. Fields are harvested only once as multiple picking has not proven to be economical in recent times with the more efficient machines. Consequently, cotton scrapping is not practiced unless there is a summer downpour and heavy winds cause cotton to be stripped from the plants.

The first defoliation is usually applied about 3-4 weeks after the last irrigation. 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 cottonseed.

IMPERIAL COUNTY COTTON PRODUCTION COSTS 2002-2003

Mechanical operations at prevailing rates. Labor at $9.25/hr ($6.75 plus SS, unemployment, workman's compensation 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	21.00					21.00
Big Ox	24.00					24.00
Disc 2x	12.50					25.00
Triplane 1x	11.25					11.25
Broadcast fertilizer	7.00	200 lb 11-52-0	23.50			30.50
List and inject fertilizer	15.00	60 lb. N anhydrous	10.80			25.80
Irrigate beds		0.5 ac-ft	8.00	1	9.25	17.25
Lilliston 1x	13.00					13.00
Work ends	5.00					5.00
TOTAL LAND PREPARATION COSTS						**172.80**
GROWING PERIOD						
Plant - Shape w/ insecticide	18.00	Insecticide	5.50			23.50
Preemergence weed control	12.50	Herbicide	3.50			16.00
Cultivate and sidedress 1x	15.00	100 lb N UAN32	26.00			41.00
Layby herbicide	12.50	Herbicide	20.00			32.50
Irrigate 12x		Water 4.5 ac-ft	72.00	4	37.00	109.00
Water-run fertilizer		60 lb N anyhdrous	10.80			10.80
Insect control 3x (night)	9.50	Insecticide	90.00			118.50
Preconditioner	10.00	Preconditioner	7.50			17.50
Defoliate 1x	10.00	Defoliant	6.50			16.50
Work ends	5.00					5.00
Chop stalks	13.75					13.75
TOTAL GROWING PERIOD COSTS						**404.05**
GROWING PERIOD & LAND PREPARATION COSTS						**576.85**
Land rent (net acres)						150.00
Cash overhead--	13 % growing period, land prep and land rent					94.49
TOTAL PREHARVEST COSTS						**821.34**
HARVEST COSTS & BALE ASSESSMENTS						
Machine picking & hauling	2.80 /bales	@ 33% clean lint				147.00
Ginning & planting seed	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						**978.98**

Yield lb. lint/ac	PROJECTED NET GAIN (PER ACRE) price/lb lint (cents) 0.70	0.75	0.80	0.85	0.9	Breakeven $/lb.
1000	-234	-184	-134	-84	-34	0.93
1250	-87	-25	38	100	163	0.77
1500	60	135	210	285	360	0.66
1750	207	294	382	469	557	0.58
2000	353	453	553	653	753	0.52