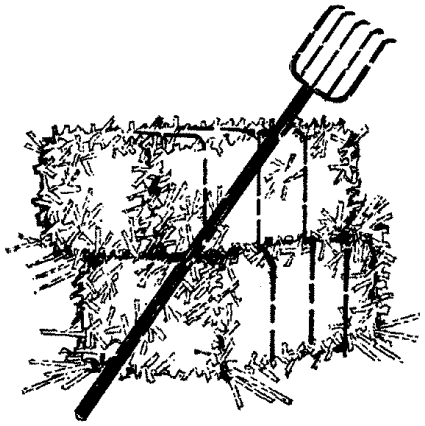
U.C. COOPERATIVE EXTENSION

SAMPLE COST TO ESTABLISH AND PRODUCE

BERMUDAGRASS SEED



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 BERMUDAGRASS CULTURE 2002-2003

Bermudagrass Seed

Annual acreage, yield, and value of bermudagrass seed in Imperial County, CA for five consecutive years

Year	Acres	Yield/Acre (lbs. hulled)	Value/Acre
2001	27,153	347	520
2000	29,383	424	628
1999	23,488	457	591
1998	21,865	688	963
1997	18,710	589	954

(Source: I.C. Agricultural Commissioner's Reports).

*Check with local mills for current yield and value updates. Historic data reported to be high due to accounting differences as to thrasher run, unhulled and hulled seed yield and value.

STAND ESTABLISHMENT: A uniform seedbed is prerequisite to obtaining a good stand. High spots in the field may cause uneven irrigation, resulting in poor stands. Lasers leveling the field before planting will ensure more uniform irrigation and help prevent scalding. The cost of laser leveling varies from field to field based upon an hourly rate for equipment. The hourly rate normally translates to $45-50 per acre. If laser leveling is not used, then land plane and dump borders are often used to make a flat seed bed.

PLANTING DATE: Late May to early June is the preferred time for establishing new plantings. However, bermudagrass will germinate anytime during the summer.

SEEDING RATES: Plant 15-20 pounds of seed per acre on corrugations or on flat ground. Higher seed rates are needed on saline soils. Corrugation adds approximately $17.50 to the cost.

VARIETIES: Roughly 90% of the bermudagrass acreage is planted with the variety "Common." Limited acreage of other varieties such as "Sahara" is grown, including some on contract.

IRRIGATION: Sprinkler irrigation is used by many growers for stand establishment (approximate cost per acre is $125-160). Other growers prefer flood irrigation. It may take 5 to 7 surface irrigations to establish a stand. During the season, 14 to16 irrigations may be needed to produce the crop. Three irrigations will generally produce a crop between cuttings; four irrigations will increase yield but decrease quality.

FERTILIZATION: The amount of fertilizer needed depends upon the intended use of the bermudagrass crop. Fields producing hay exclusively may receive as much as 600 pounds of nitrogen per acre for the growing season. Fields used for a seed/hay combination will require 150-200 lbs less N for the season. Urea and anhydrous ammonia are commonly applied. Some growers have added phosphorus to their fertilizer program if soil test show that levels of soluble phosphorus are lower than 10 parts per million.

PEST CONTROL: Bermudagrass grown for seed occasionally has pest problems. Cutworm, spider mites, thrips and mealy bugs should be monitored as they may cause damage to spring and fall seed crops. Grass whiteflies and the fulgorid (*Toya propingua*) can cause extensive damage in the fall by contaminating seed heads with honeydew. The plant bug (*Trigenotylus tenuis*) can cause stunting, delayed flowering, and reduced yield.

Rust (*Puccinia cynodontis*) is common and is sometimes severe enough to merit control with fungicides following periods of high humidity and heavy dews. The needle nematode (*Longidorus africanus*) and the root knot nematode (*Meloidogyne* spp.) are occasional pests, but control is not economically feasible.

WEED CONTROL: Most weed control efforts are aimed at the stand establishment phase. Once the bermudagrass is established, weeds are seldom a problem due to the competitive nature of a healthy stand except in the wintertime. Some broadleaf weeds and wild oats are problems in the wintertime. Various materials are available for control. Consult your PCA or your local Weed Science Farm Advisor for suggestions.

HARVESTING: Bermudagrass seed is harvested once during the late spring or early summer. The field may be harvested again for seed as a late fall crop. However, some fields may be used as pasture or harvested for summer hay depending on market demand and prices. Some hay can be harvested between seed crops.

The spring seed crop is cut with a rotary mower, combine-harvested once, and re-thrashed to maximize seed production. The soil should not be allowed to dry extensively while making the spring seed crop or it will be difficult to get the stand to grow out of a dormant condition caused by water stress.

This crop budget is based upon one seed crop and a summer hay crops. The harvesting costs presented here need to be adjusted for seed/seed, seed/hay/seed, seed/pasture, or other possible harvest regimes. See "bermudagrass hay production" section for hay production alone.

The values presented in the crop budget are based upon thrasher run seed. This seed is then cleaned to produce unhulled seed or further processed to hulled seed to meet market demands. While there is a wide variation in clean out (high purity seed), a "ball park" average may be 50 percent clean, unhulled seed from thrasher run (field run).

If a fall seed crop is made, the crop is often thrashed only once while the seed crop is standing. Frost normally takes care of desiccation of the stand for harvest. There is no re-run thrashing of the field, as it is not economical.

BERMUDAGRASS HAY PRODUCTION ONLY: Most of the cultural practices for producing hay only are similar to those for seed/hay production. However, for hay production, the crop should be maintained in a lush, vegetative growing condition by applying ample nitrogen and maintaining regular irrigations. Bermudagrass for export should not be allowed to grow too rank or the lower stems will have more bleach due to lack of sunlight.

The early season hay crop commands a $10-20 per ton premium over late season cuttings.

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IMPERIAL COUNTY BERMUDAGRASS SEED PRODUCTION COSTS 2002-2003
80 Acre Field

Mechanical operations at prevailing rates. Hand labor at $9.25 /hr. ($6.75 plus SS, unemployment,workmans compensation and fringe benefits).

Yield--800 pounds seed, thrasher run (TR), spring seed crop and summer hay crop*

	Prevailing	MATERIALS		HAND LABOR		COST
OPERATION	**Rate**	**Type/Amount**	**Cost**	**Hours**	**Dollars**	**Per Acre**
LAND PREPARATION						
Stubble disc 1x	21.00					21.00
Big ox	24.00					24.00
Disc, regular 1x	12.50					12.50
Fertilize	7.00	11-50-0 200lbs	24			31.00
Disc, regular 1x	12.50					12.50
Triplane 2x	11.25					22.50
Dump borders	14.50					14.50
Shape Borders	6.00					6.00
TOTAL LAND PREPARATION COSTS						**138.00**
COST OF ESTABLISHMENT						
Plant (flat)	13.75	Seed 15 lb @ $1.50/lb	22.50			36.25
Irrigate 5x		Water 2.5 ac-ft	40.00	1.5	13.88	53.88
Weed control 2x grd	12.50	Herbicide	32.00			44.50
COST OF ESTABLISHMENT						**134.63**
TOTAL COST OF STAND ESTABLISHMENT						**272.63**
ANNUAL COST OF SEED PRODUCTION (5-year life)						
Irrigate 14x		Water 5.5 ac-ft	88.00	5	41.63	129.63
Fertilizer, dry	7.00	100 lb N (urea)	22.00			29.00
Fertilizer (water-run)		300 lb N (UAN32)	66.00			66.00
Insect control 2x	10.75	Insecticide	25.00			35.75
TOTAL ANNUAL COSTS						**260.38**
Land rent (net acres)						90.00
Amortization	20 % of total cost of stand establishment					54.53
Cost overhead	13 % of annual costs, land rent and amortization					52.64
TOTAL PREHARVEST COSTS						**457.54**
SUMMER HAY HARVEST COSTS (2 cuttings)						
Swather 2x	13.50					27.00
Rake 2x, heavy	7.00					14.00
Rake 2x cleanup	4.00					8.00
Bale 4 tons	0.65 /bale	18 bales/ton				46.80
Haul & Stack	0.25 /bale	18 bales/ton				18.00
TOTAL HARVEST COST						**113.80**
SEED HARVEST & POST HARVEST COSTS						
Cut rotary mower 1x spring	15.00 /acre					15.00
Combining 2x spring	42.50 /acre 1st +	25.00 2nd time				67.50
Hauling (thrasher run, TR)	0.65 cwt/TR					5.20
Cleaning seed						
thrasher run to unhulled	8.50 /cwt	@800 lbs. thrasher run				68.00
Bags	1.00 /cwt	400 pounds clean seed (estimate)				4.00
Baling straw 2 tons	0.65 /bale @	18 bales/ton				23.40
Haul & Stack	0.25 /bale @	18 bales/ton				9.00
Cleanup field	5.00					5.00
TOTAL SEED HARVEST & POST HARVEST COSTS						**197.10**
TOTAL ALL COSTS						**768.44**
Value of straw (estimated)	30.00 /ton @ 2 tons					60.00
Estimated value of hay	75.00 /ton @ 4 tons					300.00
TOTAL COSTS LESS STRAW & PASTURE VALUE						**408.44**

* Note: Some producers make a second seed crop in the fall. See culture section for additional information.