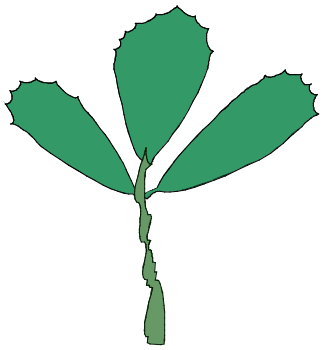
U.C. COOPERATIVE EXTENSION

SAMPLE COST TO ESTABLISH AND PRODUCE

ALFALFA



SEED PRODUCTION

IMPERIAL COUNTY – 2003

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

Herman S Meister & Keith S. Mayberry
(Principal researchers and editors)
Vegetable Crops and Agronomy Advisors

Contributors: Eric T. Natwick
Tom A. Turini
Jose L. Aguiar
Khaled M. Bali
Juan N Guerrero

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 ALFALFA SEED CULTURE 2002-2003

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

Year	Acres	lbs/Acre	Value/Acre
2001	15,328	371	$374
2000	26,462	426	$396
1999	24,362	411	$517
1998	19,781	476	$747
1997	11,739	530	$853

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

STARTING DATES: Starting times vary for alfalfa seed production, but generally fall between May 1st and June 1st depending on the hay market to some degree. Most alfalfa seed is produced from hay fields, which will be taken out for another crop. In recent years, more alfalfa has been planted on beds and this method is contributing to the overall production. Starting seed crops later (maturing for harvest in late August and into September) are exposed to high insect populations and weather related harvest problems. Seed crops started in April do not bloom properly and set seed.

YIELD: Seed yield depends upon weather conditions during seed set as well as the severity of insect infestation levels and the need for pesticide applications. Heavy rain can ruin a seed crop in minutes. Seed yield per acre varies from a few hundred pounds to as much as 1,000 pounds.

Often seed is made on fields producing alfalfa hay. Normally there is a lower rent charged against the seed crop on a hay field than one leased for seed alone. If a field were selected for seed only or leased for seed, the rent might be $140 per acre or more.

VARIETIES: A number of nondormant varieties both public and proprietary are grown in Imperial County. Any alfalfa variety may be grown for seed; however, the grower should follow seed market trends before making a decision to grow a seed crop. Some growers produce seed for their own use. Occasionally a small acreage of dormant varieties will be grown by special arrangement if seed demand indicates good potential returns.

IRRIGATION: Early in the cycle, allow the plants to become water stressed to initiate bloom and prevent rank growth. After bloom begins, the plants should be irrigated no more frequently than necessary to prevent wilting and to help produce well-filled seedpods. The flowers of a slightly stressed plant contain a high concentration of nectar and are more attractive to bees.

POLLINATION: Bees are the only insect pollinators of any value on alfalfa. In Imperial

County, it is necessary to rely on commercial honeybees or commercial solitary bees due to the lack of sufficient wild bees available. At least three colonies of bees per acre are needed to produce high seed yields. Five or more colonies may produce higher seed yields on fields with high seed potential. Since the price of bees is high ($27/colony), some growers prefer to use fewer bees.

PEST CONTROL: Lygus control is necessary throughout the season to protect buds and young developing seeds. Stinkbugs can cause damage to maturing seed and should be controlled. Seed chalcid is best managed by proper cultural practices, as insecticides have not been cost effective. Consult your pest control advisor for information on currently registered insecticides.

As with hay production, Root rot (*Phytophthora* spp.) stem canker (*Rhizoctonia solani*) and anthracnose (*Colletotrichum trifolii*) can be severe problems.

HARVESTING: The seed crop may be desiccated with foliar applied desiccants or mowed and windrowed to facilitate combining.

_____

IMPERIAL COUNTY PROJECTED ALFALFA SEED PRODUCTION COSTS 2002-2003

Flat Planted Culture - 80 acre field

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

Typical yield of 400 pounds of clean seed (~570 pounds noncleaned) in 90 days on an established alfalfa hay stand.

	Prevailing		MATERIALS		HAND LABOR		COST
OPERATION	**Rate**		**Type/Amount**	**Cost**	**Hours**	**Dollars**	**Per Acre**
SEED PRODUCTION COSTS							
Irrigate 4x			Water 1.5 ac-ft	24.00	1.25	11.56	35.56
Insect control 3x	8.00		Insecticides	50.00			74.00
Bees			3 colonies @ 27.00	81.00			81.00
TOTAL GROWING PERIOD COSTS							**190.56**
Land rent (net acres)							90.00
Cash overhead--	13 % of growing period costs and land rent						36.47
TOTAL PREHARVEST COSTS							**317.04**
HARVEST COSTS @ 570 pounds / acre							
Windrow 1x	17.50	/acre					17.50
Combine	40.00	/acre					40.00
Hauling	170.00	truck load				~estimate	2.50
Cleaning seed	7.00	/cwt.	570 pounds noncleaned				39.90
Bags	1.00	/cwt.	400 pounds clean				4.00
Seed Research Fee	0.10	/cwt.					0.40
TOTAL HARVEST COSTS							**104.30**
TOTAL ALL COSTS							**421.34**

PROJECTED NET GAIN (PER ACRE)

Yield	Price/pound ($)					Breakeven
Pounds clean seed/acre	**0.80**	**1.00**	**1.20**	**1.40**	**1.60**	**$ per pound**
200	-239	-199	-159	-119	-79	2.00
300	-170	-110	-50	10	70	1.37
400	-101	-21	59	139	219	1.05
500	-32	68	168	268	368	0.86
600	37	157	277	397	517	0.74