UNIVERSITY OF CALIFORNIA - COOPERATIVE EXTENSION

2005

SAMPLE COSTS TO PRODUCE

SAFFLOWER

in the Sacramento Valley

Bed Planted and Irrigated

Prepared by

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INTRODUCTION

Sample costs to produce irrigated safflower planted on beds in the Sacramento Valley are presented in this study. The study is intended as a guide only and can be used in making production decisions, determining potential returns, preparing budgets, and evaluating production loans. The practices described are based on production procedures considered typical for this crop and area, but will not apply to every situation. Sample costs for labor, materials, equipment, and custom services are based on current figures. A blank column, "*Your Cost*", is provided to enter your actual costs on Tables 1 and 2.

The hypothetical farm operation, production practices, overhead, and calculations are described under the assumptions. For additional information, or explanation of calculations used in the study, call the Department of Agricultural and Resource Economics, University of California, Davis, California, 530-752-2414 or the local UC Cooperative Extension office.

Sample Cost of Production Studies for many commodities can be downloaded at http://coststudies.ucdavis.edu, requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-4424 or obtained from the local county UC Cooperative Extension offices. Some archived studies are also available on the website.

ASSUMPTIONS

The following assumptions pertain to sample costs to produce irrigated and bed planted safflower in the Sacramento Valley. Practices described should not be considered recommendations by the University of California, but represent production procedures considered typical for this crop and area. Some of the costs and practices may not be applicable to your situation or used during every production year. Other practices not indicated may be needed. Cultural practices to produce safflower will vary by grower and region, and can be significant. The practices and inputs used in this cost study serve as a sample or guide only. The costs are presented on an annual per acre basis. *The use of trade names in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products.*

Farm. This report is based on a 2,900-acre field and row crop farm. Safflower is planted on noncontiguous fields totaling 200 acres; therefore farming practices can vary among fields. The other 2,700 acres, planted in rotation with the safflower, may be processing tomatoes, alfalfa hay, wheat, sunflower, dry beans and/or corn. The land rented includes developed wells and an irrigation system. All costs associated with the land and the irrigation systems are incurred by the landowner. The grower also owns land, a shop, and an equipment yard.

CULTURAL PRACTICES AND MATERIAL INPUTS

Land Preparation. Primary tillage and planting groundwork operations which include laser leveling, discing, rolling, subsoiling, land leveling, and listing beds are done from August through October in the year preceding planting. Operations are done on all of the acreage unless noted. Although, stubble discing is done as a postharvest operation, additional preplant discing is needed to prepare seedbeds following high residue crops. The 200 acres are stubble disced in October followed by one pass with a finish disc. Sixty-inch beds are then made with a three-row lister.

Stand Establishment. Safflower is planted from March through May. In this study, 22 pounds of seed per acre are planted in three rows on the bed in April.

Pest Management. The pesticides and rates mentioned in this cost study are commonly used for safflower production in the Sacramento Valley. For more information on pest management and growing safflower in California refer to ANR publication 21565, *Safflower Production in California*. Written recommendations are required for many pesticides and are made by licensed pest control advisors. For information on pesticide use permits, contact the local county Agricultural Commissioner's office.

Weeds. To control winter weeds, a contact herbicide (Roundup) is sprayed on the beds in February using an ATV and pull sprayer. In March, Treflan is sprayed on and incorporated into the beds in a single operation. Mechanical cultivation is done with a rolling cultivator in May.

Fertilization. Preplant Nitrogen as aqua ammonia (20-0-0) at 100 pounds of N per acre is injected into the beds in March prior to planting.

Irrigation. In this study, water is calculated to cost $20.79 per acre-foot and is a combination of 1/2 well water and 1/2 canal delivered surface water. The irrigation costs shown in Tables 1, 2, and, 3 include water, pumping, and labor charges. Usually, fields are planted to moisture with one later crop irrigation. In this study six-acre inches of water are applied in a single May irrigation. All of the acres are irrigated during the irrigation. Growers should time their irrigation based on actual plant needs.

Harvest. It is assumed that the farm owns combines and bankout wagons to harvest the 200 acres. The safflower is dumped from the combine directly into the tractor-pulled bankout wagon that delivers the safflower to bulk grain trailers for transport to the buyer. The buyer pays transportation from the field to the processor.

Costs for harvest operations are shown in Tables 1 and 3, and the equipment is listed in Tables 4 and 5. If a grower has the safflower custom harvested, related costs should be subtracted from harvest costs in Tables 1 and 3, and the equipment should be subtracted from investment costs in Table 4. A custom harvest charge should be added to harvest costs in Tables 1 and 3.

Growers may choose to own harvesting equipment, purchased either new or used, or hire a custom harvester. Many factors are important in deciding which harvesting option a grower uses. These considerations and an appropriate method of analysis are discussed in *"Acquiring Alfalfa Hay Harvest Equipment: A Financial Analysis of Alternatives"*.

Yields. The average (dryland plus irrigated) safflower crop yields in the Sacramento Valley for the last five years range from 16.80 to 26.00 hundredweight (cwt) per acre or 0.84 to 1.30 tons per acre. The average county yields from 1999 to 2003 are shown in Table A. Irrigated safflower yields tend to be higher than dryland yields so an average yield of 22.50 cwt (1.13 tons) per acre is used in this study. This study does not include prices for safflower grown for seed production

Returns. Growers will usually produce safflower under contract with a processor. Prices to Sacramento Valley growers from 1999 to 2003 ranged from $10.95 to $14.86 per cwt ($219.00 to $297.25 per ton) and are shown in Table A. The price used in this study is $12.62 per cwt or $252.48 per ton, an average based on the current market.

Table A. Average Yields and Prices for Safflower in the Sacramento Valley, 1999 – 2003[§]

Year	Harvested Acres	Tons/ Acre	Total Yield Tons/Acre	$/Ton	Cwt/ Acre	Total Yield Cwt/Acre	$/Cwt	Total Value
2003	61,445	1.00	68,416	271.66	20.03	1,370,030	13.58	18,607,000
2002	62,937	1.05	74,712	237.99	20.93	1,563,349	11.90	17,868,700
2001	67,762	0.87	66,242	219.00	17.43	1,154,267	10.95	14,657,300
2000	65,753	1.01	76,543	236.50	20.18	1,544,255	11.83	17,999,700
1999	71,894	1.03	82,585	297.25	20.65	1,705,380	14.86	24,387,900
5 Year Average	**65,958**	**0.99**	**73,700**	**252.48**	**19.84**	**1,467,456**	**12.62**	**18,704,120**

[§] Agriculture Commissioners' Annual County Crop Reports, Butte, Colusa, Glenn, Sacramento, Solano, Sutter, Tehama, Yolo, 1999 - 2003

Labor. Labor rates of $14.61 per hour for machine operators and $10.08 for general labor includes payroll overhead of 48%. Basic hourly wages for workers are $9.87 and $6.81 per hour for machine operators and non-machine (irrigators and manual laborers) workers, respectively. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for field crops (code 0171), and a percentage for other possible benefits. Workers' compensation costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 1, 2005 (California Department of Insurance). Labor for operations involving machinery are 20% higher than the operation time given in Table 1 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

Interest on Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 7.65% per year. A nominal interest rate is the typical market cost of borrowed funds.

Risk. Risks associated with safflower production are not assigned a production cost. While this study makes an effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks which affect the profitability and economic viability of safflower production. Because of the risk involved, growers should consider all of the agronomic and economic risks before committing resources to safflower production in the Sacramento Valley.

CASH OVERHEAD COSTS

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation. These costs include property taxes, interest on operating capital, office expense, liability and property insurance, and equipment repairs.

Property Taxes. Counties charge a base property tax rate of 1% on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. For this study, county taxes are calculated as 1% of the average value of the property. Average value equals new cost plus salvage value divided by 2 on a per acre basis.

Insurance. Insurance for farm investments vary depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.723% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $1,360 for the entire farm or $0.47 per acre.

Office Expense. Office and business expenses are estimated at $15 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, and road maintenance. Cash overhead costs are found in Tables 1, 2, 3 and 4.

Share Rent. Rental contracts and rates for land suitable for safflower production can range widely in Sacramento Valley. Land in this study is leased on a share-rent basis with the landowner receiving 20% of the gross returns.

Supervisor Salary. Wages for supervisors are included as a cash overhead cost. Supervisor salaries, including benefits, are $100,000 per year for two supervisors and are allocated amongst the farm's other crops on a gross returns basis. Safflower is assumed to provide 5% of the farm's gross returns. The supervisor's salary allocated to safflower is $5,000 per year or $25.00 per acre. Any returns above total costs are considered returns to investment.

Field Sanitation. Sanitation services provide portable toilets and washing facilities and cost the farm $1,360 annually or $0.47 per acre. The cost includes delivery and regular servicing of the units.

Equipment Operating Costs. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum Power-Take-Off (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are $1.51 and $2.05 per gallon, respectively. Costs are based on current delivery prices quoted by distributors and 2004 monthly price data. The cost includes a 2% local sales tax on diesel fuel and 8% sales tax on gasoline.

Gasoline also includes federal and state excise taxes that are refundable for on-farm use when filing income tax return. The fuel, lube, and repair cost per acre for each operation in Table 2 is determined by multiplying the total hourly operating cost in Table 7 for each piece of equipment used for the selected operation by the hours per acre. Tractor time is 10% higher than implement time for a given operation to account for setup, travel and down time.

NON-CASH OVERHEAD COSTS

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments. Although farm equipment used on farms in the Sacramento Valley might be purchased new or used, this study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% of new value to indicate a mix of new and used equipment. Annual ownership costs (equipment and investments) are shown in Tables 1-3, and 5. They represent the capital recovery cost for investments on an annual per acre basis.

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). Put another way, it is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual costs of ownership because it takes the time value of money into account. The calculation for the annual capital recovery costs is as follows.

$$\left[\left(\underset{\text{Price}}{\text{Purchase}} - \underset{\text{Value}}{\text{Salvage}}\right) \times \left(\underset{\text{Factor}}{\overset{\text{Capital}}{\text{Recovery}}}\right)\right] + \left[\underset{\text{Value}}{\text{Salvage}} \times \underset{\text{Rate}}{\text{Interest}}\right]$$

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (e.g., tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the wearout life, as given by ASAE by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is equal to the purchase price because land does not depreciate. The purchase price and salvage value for certain equipment and investments are shown in Table 5.

Capital Recovery Factor. Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. The amortization factor is a table value that corresponds to the interest rate used and the life of the machine.

Interest Rate. The interest rate of 6.01% used to calculate capital recovery cost is the United States Department of Agriculture-Economic Reporting Service's (USDA-ERS) ten-year average of California's agricultural sector long run rate of return to production assets from current income. It is used to reflect the long-term realized rate of return to these specialized resources that can only be used effectively in the agricultural sector. In other words, the next best alternative use for these resources is in another agricultural enterprise.

Table Values. Due to rounding, the totals may be slightly different from the sum of the components.

Acknowledgment. Assistance provided by local producers and supplier was greatly appreciated.

REFERENCES

American Society of Agricultural Engineers. 2003. *American Society of Agricultural Engineers Standards Yearbook*. St. Joseph, MO.

Barker, Doug. January 17, 2005. *California Worker' Compensation Rating Data for Selected Agricultural Classifications as of January 1, 2005.* California Department of Insurance, Rate Regulation Branch.

Blank, Steve, Karen Klonsky, Kim Norris, and Steve Orloff. 1992. *Acquiring Alfalfa Hay Equipment: A Financial Analysis of Alternatives*. Giannini Information Series No. 92-1. University of California. Oakland, CA.

Boehlje, Michael D., and Vernon R. Eidman. 1984. *Farm Management*. John Wiley and Sons. New York, NY

California Department of Food and Agriculture. 1999 - 2003. Agricultural Commissioners' Data. http://www.nass.usda.gov/ca/bul/agcom/indexcac.htm. Internet accessed March, 2005.

California State Automobile Association. 2005. *Gas Price Survey 2004.* AAA Public Affairs, San Francisco,

California State Board of Equalization. *Fuel Tax Division Tax Rates*. Internet accessed January 2005. http://www.boe.ca.gov/sptaxprog/spftdrates.htm.

Energy Information Administration. 2005. *Retail On-Highway Diesel Prices*. http://tonto.eia.doe.gov/oog/info/gdu/gasdiesel.asp. Internet accessed: January 2005.

Kafka, Steven, 1999, *Safflower Production in California*, Pub. 21565, University of California, Division of Agriculture and Natural Resources. Oakland, CA.

Kearney, Tom, Karen Klonsky, Rich De Moura. 2000. *Sample Cost to Produce Safflower in the Sacramento Valley - Yolo County*. University of California Cooperative Extension, Department of Agricultural and Resource Economics. Davis, CA.

USDA-ERS. 2005. *Farm Sector: Farm Financial Ratios*. Agriculture and Rural Economics Division, ERS. USDA. Washington, DC. http://usda.mannlib.cornell.edu/reports/nassr/price/zap-bb/agpran04.txt; Internet; accessed May, 2005.

For information concerning the above mentioned University of California publications contact UC DANR Communications Services (1-800-994-8849) or your local county UC Cooperative Extension office.

Table 1

UC COOPERATIVE EXTENSION
COSTS PER ACRE TO PRODUCE SAFFLOWER
SACRAMENTO VALLEY – 2005
Bed Planted and Irrigated

Labor Rate: $14.61/hr. machine labor
$10.08/hr. non-machine labor

Operating Interest Rate: 7.65%
Yield per Acre: 22.50 Cwt

Operation	Operation Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
		---------- Cash and Labor Costs per Acre ----------					
Cultural:							
Finish Disc	0.13	2	4	0	0	6	
List Beds	0.06	1	2	0	0	3	
Weed Control - Roundup	0.07	1	0	13	0	14	
Inject Pre-plant N Fertilizer	0.15	3	2	36	3	43	
Weed Control - Treflan	0.14	2	2	9	0	14	
Plant Safflower	0.12	2	2	13	0	18	
Make Drain	0.01	0	0	0	0	0	
Irrigate	0.30	3	0	11	0	14	
Close Drain	0.01	0	0	0	0	0	
Cultivate	0.15	3	2	0	0	5	
Pickup Use	0.10	3	2	0	0	5	
ATV Use	0.10	2	0	0	0	2	
TOTAL CULTURAL COSTS	1.32	23	16	82	3	124	
Harvest:							
Harvest Safflower	0.20	7	12	0	0	18	
Bank Out Grain	0.20	3	3	0	0	6	
TOTAL HARVEST COSTS	0.39	10	14	0	0	25	
Postharvest:							
Chop Stubble	0.14	2	2	0	0	5	
TOTAL POSTHARVEST COSTS	0.14	2	2	0	0	5	
Interest on operating capital @ 7.65%						5	
TOTAL OPERATING COSTS/ACRE		35	33	82	3	158	
CASH OVERHEAD:							
Liability Insurance						0	
Office Expense						15	
Field Sanitation						1	
Share Rent @ 20% of Gross Returns						57	
Supervisor Salary						25	
Property Taxes						2	
Property Insurance						1	
Investment Repairs						1	
TOTAL CASH OVERHEAD COSTS						102	
TOTAL CASH COSTS/ACRE						260	
NON-CASH OVERHEAD:							
Investment		Per producing Acre		-- Annual Cost -- Capital Recovery			
Fuel Tanks & Pumps		6		1		1	
Fuel Wagon		1		0		0	
Truck Tractor		17		2		2	
Trailer - Lowbed		3		0		0	
Shop Building		24		2		2	
Shop Tools		5		0		0	
Storage Building		9		1		1	
Closed Mix System		1		0		0	
Siphon Tubes		4		0		0	
Tool Carrier		5		0		0	
Portable Pump		7		1		1	
Equipment		245		27		27	
TOTAL NON-CASH OVERHEAD COSTS		327		34		34	
TOTAL COSTS/ACRE						295	

Table 2.

UC COOPERATIVE EXTENSION
COSTS AND RETURNS PER ACRE TO PRODUCE SAFFLOWER
SACRAMENTO VALLEY – 2005
Bed Planted and Irrigated

Labor Rate: $14.61/hr. machine labor
$10.08/hr. non-machine labor

Operating Interest Rate: 7.65%

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Safflower	22.50	Cwt	12.62	284	
TOTAL GROSS RETURNS FOR SAFFLOWER				284	
OPERATING COSTS					
Herbicide:					
Roundup Ultra Max	1.50	Pint	8.58	13	
Treflan HFP	2.00	Pint	4.74	9	
Fertilizer:					
Aqua Ammonia	100.00	Lb N	0.36	36	
Rent:					
Fertilizer Application	1.00	Acre	2.75	3	
Seed:					
Safflower Seed	22.00	Lb	0.61	13	
Irrigation:					
Water	6.00	AcIn	1.76	11	
Labor (machine)	2.21	Hrs	14.60	32	
Labor (non-machine)	0.30	Hrs	9.98	3	
Fuel - Gas	0.74	Gal	2.05	2	
Fuel - Diesel	12.01	Gal	1.51	18	
Lube				3	
Machinery repair				10	
Interest on operating capital @ 7.65%				5	
TOTAL OPERATING COSTS/ACRE				158	
NET RETURNS ABOVE OPERATING COSTS				126	
CASH OVERHEAD COSTS:					
Liability Insurance				0	
Office Expense				15	
Field Sanitation				1	
Share Rent @ 20% of Gross Returns				57	
Supervisor Salary				25	
Property Taxes				2	
Property Insurance				1	
Investment Repairs				1	
TOTAL CASH OVERHEAD COSTS/ACRE				102	
TOTAL CASH COSTS/ACRE				260	
NON-CASH OVERHEAD COSTS (CAPITAL RECOVERY):					
Fuel Tanks & Pumps				1	
Fuel Wagon				0	
Truck Tractor				2	
Trailer - Lowbed				0	
Shop Building				2	
Shop Tools				0	
Storage Building				1	
Closed Mix System				0	
Siphon Tubes				0	
Tool Carrier				0	
Portable Pump				1	
Equipment				27	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				34	
TOTAL COSTS/ACRE				295	
NET RETURNS ABOVE TOTAL COSTS				-11	

Table 3.

UC COOPERATIVE EXTENSION
MONTHLY CASH COSTS PER ACRE TO PRODUCE SAFFLOWER
SACRAMENTO VALLEY – 2005
Bed Planted and Irrigated

Beginning OCT 04 Ending SEP 05	OCT 04	NOV 04	DEC 04	JAN 05	FEB 05	MAR 05	APR 05	MAY 05	JUN 05	JUL 05	AUG 05	SEP 05	TOTAL
Cultural:													
Finish Disc	6												6
List Beds	3												3
Weed Control - Roundup					14								14
Inject Pre-plant N Fertilizer						43							43
Weed Control - Treflan						14							14
Plant Safflower							18						18
Make Drain								0					0
Irrigate								14					14
Close Drain								0					0
Cultivate								5					5
Pickup Use	0	0	0	0	0	0	0	0	0	0	0	0	5
ATV Use	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL CULTURAL COSTS	9	1	1	1	15	58	18	19	1	1	1	1	124
Harvest:													
Harvest Safflower											18		18
Bank Out Grain											6		6
TOTAL HARVEST COSTS											25		25
Postharvest:													
Chop Stubble												5	5
TOTAL POSTHARVEST COSTS												5	5
Interest on Operating Capital @ 7.65%	0	0	0	0	0	1	1	1	1	1	1	0	5
TOTAL OPERATING COSTS/ACRE	9	1	1	1	15	58	19	20	1	1	26	5	158
OVERHEAD:													
Liability Insurance				0									0
Office Expense	1	1	1	1	1	1	1	1	1	1	1	1	15
Field Sanitation	0	0	0	0	0	0	0	0	0	0	0	0	1
Share Rent @ 20% of Gross Returns												57	57
Supervisor Salary	2	2	2	2	2	2	2	2	2	2	2	2	25
Property Taxes				1						1			2
Property Insurance				1						1			1
Investment Repairs	0	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL CASH OVERHEAD COSTS	3	3	3	6	3	3	3	3	3	5	3	60	102
TOTAL CASH COSTS/ACRE	13	4	4	6	19	62	22	24	5	6	30	66	260

UC COOPERATIVE EXTENSION

Table 4. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT AND BUSINESS OVERHEAD COSTS
SACRAMENTO VALLEY – 2005
Bed Planted and Irrigated

ANNUAL EQUIPMENT COSTS

						- Cash Overhead -		
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
05	200 HP Crawler	168,891	10	49,888	19,175	755	1,094	21,023
05	90 HP 2WD Tractor	64,227	10	18,972	7,292	287	416	7,995
05	ATV	5,700	7	2,162	764	27	39	830
05	ATV Sprayer - 30' Boom	3,473	10	0	472	12	17	501
05	Bankout Wagon - 30 Ton - Pull Type	17,072	10	3,019	2,092	69	100	2,261
05	Combine - No Header	162,890	15	16,681	16,066	620	898	17,584
05	Cultivator - 3 Row Rolling	3,536	10	625	433	14	21	468
05	Cultivator - 3 Row Sled	9,075	12	1,257	1,009	36	52	1,096
05	Disc - Finish 18'	24,300	10	4,297	2,977	99	143	3,219
05	Ditcher - V	7,997	12	1,108	889	31	46	966
05	Grain Drill - 20'	24,480	10	4,329	2,999	99	144	3,243
05	Grain Platform - 20'	15,383	20	855	1,319	56	81	1,456
05	Lister - 3 Row - 45'	7,452	10	1,318	913	30	44	987
05	Mower - Flail 15'	12,107	10	2,141	1,483	49	71	1,604
05	Pickup - 1/2 Ton	21,825	5	9,781	3,448	109	158	3,715
05	Pickup - 3/4 Ton	26,357	5	11,813	4,164	132	191	4,486
05	Rear Blade - 8'	2,595	20	135	223	9	14	246
05	Saddle Tank - 300 Gallon	3,417	10	604	419	14	20	453
TOTAL		580,777		128,985	66,136	2,449	3,549	72,134
60% of New Cost *		348,466		77,391	39,682	1,469	2,129	43,280

* Used to reflect a mix of new and used equipment.

ANNUAL INVESTMENT COSTS

					------ Cash Overhead ------			
Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Repairs	Total
INVESTMENT								
Closed Mix System	4,150	10	415	533	16	23	210	781
Fuel Tanks & Pumps	17,196	20	1,720	1,454	65	95	232	1,846
Fuel Wagon	2,085	10	209	268	8	11	41	328
Portable Pump	20,974	20	2,097	1,773	80	115	576	2,544
Shop Building	69,694	25	6,969	5,330	264	383	940	6,918
Shop Tools	13,333	20	1,333	1,127	51	73	135	1,386
Siphon Tubes	10,404	20	1,040	880	39	57	100	1,076
Storage Building	27,370	20	2,737	2,314	104	151	550	3,118
Tool Carrier	15,420	15	15,420	927	106	154	365	1,552
Trailer - Lowbed	7,850	15	785	775	30	43	105	953
Truck Tractor	49,825	15	4,983	4,920	189	274	385	5,768
TOTAL INVESTMENT	238,301		37,708	20,299	952	1,380	3,639	26,271

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Field Sanitation	2,900	Acre	0.73	2,117
Liability Insurance	2,900	Acre	0.47	1,363
Office Expense	2,900	Acre	15.00	43,500
Share Rent @ 20% of Gross Returns	200	Acre	56.80	11,360
Supervisor Salary	200	Acre	25.00	5,000

Table 5.

UC COOPERATIVE EXTENSION
HOURLY EQUIPMENT COSTS
SACRAMENTO VALLEY – 2005
Bed Planted and Irrigated

			---------- COSTS PER HOUR ----------					
		Actual		- Cash Overhead -		-------- Operating --------		
Yr	Description	Hours Used	Capital Recovery	Insur-ance	Taxes	Repairs	Fuel & Lube	Total Oper.	Total Costs/Hr.
05	200 HP Crawler	1,599.7	7.19	0.28	0.41	4.40	20.16	24.56	32.44
05	90 HP 2WD Tractor	1,242.7	3.52	0.14	0.20	2.93	7.67	10.60	14.46
05	ATV	283.6	1.62	0.06	0.08	0.42	2.83	3.25	5.01
05	ATV Sprayer - 30' Boom	13.0	21.79	0.55	0.80	0.93	0.00	0.93	24.07
05	Bankout Wagon - 30 Ton - Pull Type	199.2	6.30	0.21	0.30	2.32	0.00	2.32	9.13
05	Combine - No Header	199.1	48.41	1.87	2.71	11.10	21.67	32.77	85.75
05	Cultivator - 3 Row Rolling	199.6	1.30	0.04	0.06	0.74	0.00	0.74	2.15
05	Cultivator - 3 Row Sled	165.8	3.65	0.13	0.19	1.84	0.00	1.84	5.81
05	Disc - Finish 18'	199.4	8.96	0.30	0.43	3.94	0.00	3.94	13.63
05	Ditcher - V	166.0	3.21	0.11	0.16	2.18	0.00	2.18	5.67
05	Grain Drill - 20'	149.6	12.03	0.40	0.58	6.59	0.00	6.59	19.60
05	Grain Platform - 20'	149.1	5.31	0.23	0.33	0.99	20.16	21.15	27.01
05	Lister - 3 Row - 45'	199.4	2.75	0.09	0.13	1.56	0.00	1.56	4.53
05	Mower - Flail 15'	199.6	4.46	0.15	0.21	5.02	0.00	5.02	9.84
05	Pickup - 1/2 Ton	284.6	7.27	0.23	0.33	1.42	5.89	7.31	15.14
05	Pickup - 3/4 Ton	284.6	8.78	0.28	0.40	1.71	7.07	8.78	18.24
05	Rear Blade - 8'	150.0	0.89	0.04	0.05	0.38	0.00	0.38	1.36
05	Saddle Tank - 300 Gallon	149.6	1.68	0.06	0.08	0.91	0.00	0.91	2.73

Table 6.

UC COOPERATIVE EXTENSION
RANGING ANALYSIS
SACRAMENTO VALLEY – 2005
Bed Planted and Irrigated

COSTS PER ACRE AT VARYING YIELDS FOR SAFFLOWER

	YIELD (CWT/ACRE)						
	15.00	17.50	20.00	22.50	25.00	27.50	30.00
OPERATING COSTS/ACRE:							
Cultural Cost	124	124	124	124	124	124	124
Harvest Cost	16	19	22	25	27	30	33
Postharvest Cost	5	5	5	5	5	5	5
Interest on operating capital	5	5	5	5	5	5	5
TOTAL OPERATING COSTS/ACRE	150	152	155	158	161	163	166
TOTAL OPERATING COSTS/CWT	9.98	8.71	7.76	7.02	6.43	5.94	5.54
CASH OVERHEAD COSTS/ACRE	102	102	102	102	103	103	103
TOTAL CASH COSTS/ACRE	252	255	258	260	263	266	269
TOTAL CASH COSTS/CWT	16.79	14.55	12.88	11.57	10.53	9.68	8.97
NON-CASH OVERHEAD COSTS/ACRE	31	32	33	34	35	36	37
TOTAL COSTS/ACRE	282	286	291	295	298	302	306
TOTAL COSTS/CWT	18.82	16.37	14.53	13.09	11.94	11.00	10.21

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR SAFFLOWER

PRICE (DOLLARS/CWT)	YIELD (CWT/ACRE)						
Safflower	15.00	17.50	20.00	22.50	25.00	27.50	30.00
10.50	8	31	55	78	102	125	149
11.00	15	40	65	90	114	139	164
11.50	23	49	75	101	127	153	179
12.00	30	58	85	112	139	167	194
12.50	38	66	95	123	152	180	209
13.00	45	75	105	135	164	194	224
13.50	53	84	115	146	177	208	239

NET RETURNS PER ACRE ABOVE CASH COST FOR SAFFLOWER

PRICE (DOLLARS/CWT)	YIELD (CWT/ACRE)						
Safflower	15.00	17.50	20.00	22.50	25.00	27.50	30.00
10.50	-94	-71	-48	-24	-1	23	46
11.00	-87	-62	-38	-13	12	36	61
11.50	-79	-53	-28	-2	24	50	76
12.00	-72	-45	-18	10	37	64	91
12.50	-64	-36	-8	21	49	78	106
13.00	-57	-27	2	32	62	91	121
13.50	-49	-18	12	43	74	105	136

NET RETURNS PER ACRE ABOVE TOTAL COST FOR SAFFLOWER

PRICE (DOLLARS/CWT)	YIELD (CWT/ACRE)						
Safflower	15.00	17.50	20.00	22.50	25.00	27.50	30.00
10.50	-125	-103	-81	-58	-36	-14	9
11.00	-117	-94	-71	-47	-23	0	24
11.50	-110	-85	-61	-36	-11	14	39
12.00	-102	-76	-51	-25	2	28	54
12.50	-95	-68	-41	-13	14	41	69
13.00	-87	-59	-31	-2	27	55	84
13.50	-80	-50	-21	9	39	69	99

Table 7.

UC COOPERATIVE EXTENSION
COSTS AND RETURNS / BREAKEVEN ANALYSIS
SACRAMENTO VALLEY – 2005
Bed Planted and Irrigated

COSTS AND RETURNS - PER ACRE BASIS

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Safflower	284	158	126	260	24	295	-11

COSTS AND RETURNS - TOTAL ACREAGE

Crop	1. Gross Returns	2. Operating Costs	3. Net Returns Above Oper. Costs (1-2)	4. Cash Costs	5. Net Returns Above Cash Costs (1-4)	6. Total Costs	7. Net Returns Above Total Costs (1-6)
Safflower	284	158	126	260	24	295	-11

BREAKEVEN PRICES PER YIELD UNIT

CROP	Base Yield (Units/Acre)	Yield Units	-------- Breakeven Price To Cover -------- Operating Costs	Cash Costs	Total Costs
			---------- $ per Yield Unit ----------		
Safflower	22.5	Cwt	7.02	11.57	13.09

BREAKEVEN YIELDS PER ACRE

CROP	Yield Units	Base Price ($/Unit)	-------- Breakeven Yield To Cover -------- Operating Costs	Cash Costs	Total Costs
			---------- Yield Units / Acre ----------		
Safflower	Cwt	12.62	12.50	20.60	23.30

Table 8.

UC COOPERATIVE EXTENSION
DETAILS BY OPERATIONS
SACRAMENTO VALLEY - 2005
Bed Planted and Irrigated

Operation	Operation Month	Tractor/ Power Unit	Implement	Material	Broadcast Rate/acre	Material Unit
Cultural:						
Finish Disc	October	200 HP Crawler	Disc - Stubble 16'			
List Beds	October	200 HP Crawler	Lister - 3 Row - 45'			
Weed Control - Roundup	February	ATV	ATV Sprayer - 30' Boom	Roundup Ultra Max	1.50	Pint
Inject Pre-plant N Fertilizer	March	90 HP 2WD Tractor	Cultivator - 3 Row Sled	Aqua Ammonia	100.00	Lb N
				Fertilizer Applicator	1.00	Acre
Weed Control - Treflan	March	90 HP 2WD Tractor	Cultivator - 3 Row Rolling	Treflan HFP	2.00	Pint
			Saddle Tank - 300 Gal			
Plant Safflower	April	90 HP 2WD Tractor	Grain Drill - 20'	Safflower Seed	22.00	Lb
Make Drain	May	200 HP Crawler	Ditcher - V			
Irrigate	May			Water	6.00	AcIn
Close Drain	May	90 HP 2WD Tractor	Rear Blade - 8'			
Cultivate	May	90 HP 2WD Tractor	Cultivator - 3 Row Sled			
Harvest Safflower	August	Combine - No Header	Grain Platform - 20'			
Bank Out Grain	August	90 HP 2WD Tractor	Bankout Wagon - 30 T, Pull Type			
Chop Stubble - Postharvest	September	90 HP 2WD Tractor	Mower - Flail 15'			
Pickup Use	All	Pickup - 1/2 Ton				
		Pickup - 3/4 Ton				
ATV Use	All	ATV				