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**UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION**

**2005**

**SAMPLE COSTS TO PRODUCE  
OAT HAY**



**IN THE SACRAMENTO VALLEY  
DRYLAND**

Prepared by

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In the Sacramento Valley, Dryland

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**INTRODUCTION**

Sample costs to produce oat hay under dryland conditions in the Sacramento Valley are shown in this study. The study is intended as a guide only and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. Practices described are based on the production practices considered typical for this crop and region, but will not apply to every farm situation. Sample costs for labor, materials, equipment and custom services are based on current figures. “*Your Costs*” columns in Tables 1 and 2 are provided for entering your farm costs.

The hypothetical farm operations, production practices, overhead, and calculations are described under the assumptions. For additional information or an explanation of the 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.

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## ASSUMPTIONS

The assumptions refer to Tables 1 through 8 and pertain to sample costs to produce oat hay in the Sacramento Valley. Practices described represent production practices and materials considered typical of a well-managed oat hay crop in the Sacramento Valley. Costs, materials, and practices in this study will not be applicable to all situations. Cultural practices vary among growers within the region. *The use of trade names and cultural practices 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 or cultural practices.*

**Land.** This report is based on a 2,900-acre field and row crop farm that produces processing tomatoes, alfalfa hay, safflower, sunflower, dry beans, wheat, and other crops. Oat hay is planted on noncontiguous fields totaling 100 acres. Farming practices can vary among fields. Rented land includes developed wells and an irrigation system. All costs associated with the land and the irrigation system are incurred by the landowner.

The 100 acres of rented land is used for growing oat hay with operations beginning in the fall. The land rent used to grow the oat hay is considered a cash overhead cost. The farm buildings, roads, and homestead occupy 20 of the 2,900 acres.

## CULTURAL PRACTICES AND MATERIAL INPUTS

**Land Preparation.** The fields are stubble disced to incorporate any plant residue in September and finished disced once to prepare a seedbed in October.

**Planting.** The oats are planted at a rate of 100 pounds per acre. Planting occurs in the fall and in this study the grower drills the seed in October. No irrigations are made for this crop.

**Fertilization.** In October prior to planting, nitrogen (N) as aqua ammonia (20-0-0) is shanked into the ground at a rate of 60 pounds per acre. Growers should apply fertilizer or soil amendments only after soil tests determine nutrient and pH levels.

**Pest Management.** The pesticides, rates, and application practices mentioned in this cost study are listed in the *UC IPM Pest Management Guidelines for small grains*. Pesticides mentioned in this study are not recommendations, but those commonly used in the region. For information and pesticide use permits, contact the local county Agricultural Commissioner's office. For information on other pesticides available, pest identification, monitoring, and management, visit the UC IPM website at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu). Pest control costs can vary considerably each year depending upon local conditions and pest populations in any given year. Adjuvants are recommended for many pesticides for effective control and are an added cost. The costs for these adjuvants are not included in this study. Pesticide costs will vary by grower location and the grower's purchasing volume or use. Material costs are shown at full retail from a single chemical dealer.

*Pest Control Adviser (PCA).* Written recommendations are required for many commercially applied pesticides and are available from licensed pest control advisers. In addition the PCA or an independent consultant will monitor the field for agronomic problems including irrigation and nutrition. Growers may hire private PCA's or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. PCA costs are not shown in this study.

**Weeds.** 2,4-D is applied to control broadleaf weeds in February when weeds are still small. The herbicide is applied by ground using an ATV and sprayer.

**Harvest.** In this study, the oats are harvested for hay in May. The grower has the hay custom swathed, baled, and roadsided. A rate of \$25 per ton (or \$1.50 per bale) for swathing, raking, and baling is used in this study. Roadsiding the hay costs \$5 per ton.

**Yields.** The crop is assumed to yield 2.5 tons per acre, the average yield based on County Agricultural Commissioners' data for the period 1999–03 in the Sacramento Valley. Table A shows average yields and return prices for that period. Grower yields will vary depending on the oat variety and growing conditions.

Table A. Oat hay statistics for the Sacramento Valley <sup>§</sup>

Year	Acres	Yield	Tons	\$/Ton	Value (\$)
2003	38,984	2.76	115,434	64.64	7,264,800
2002	39,776	2.52	108,932	73.61	7,744,000
2001	27,910	2.71	72,169	85.63	6,201,200
2000	27,910	2.71	72,169	85.63	6,201,200
1999	31,307	2.23	68,697	61.00	4,046,700
<b>Avg</b>	<b>33,177</b>	<b>2.58</b>	<b>87,480</b>	<b>74.10</b>	<b>6,291,580</b>

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

**Returns.** A price of a \$110 per ton for hay is used to calculate returns above several cost levels. Table 4 indicates the effects on grower returns based on varying yields and returns, with the average at approximately \$75 per ton from 1999-03.

**Pickup/ATV.** The pickup and the all terrain vehicle (ATV) each travel 2.95 miles per acre for oat hay production use or a total of 295 miles per vehicle per year. Costs are estimated and not based on any specific data.

**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.

**Equipment Operating Costs.** Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the American Society of Agriculture Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum PTO horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$1.81 and \$2.05 per gallon, respectively. The fuel prices are averages based on four California delivery locations plus \$0.24 per gallon, which is one-half the difference between the high and low price for regular gasoline in 2004 from the California State Automobile Association Monthly Survey. The cost includes a 2.25% sales tax (effective September 2001) on diesel fuel and 7.25% sales tax on gasoline. Gasoline also includes federal and state excise tax, which can be refunded for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in Table 1 is determined by multiplying the total hourly operating cost in Table 6 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.

**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. The interest cost of post harvest operations is discounted back to the last harvest month using a negative interest charge.

**Risk.** Production risks should not be minimized. While this study makes every 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 oat hay production.

## CASH OVERHEAD

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm, not to a particular operation.

*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 varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.690% 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 producing acre. Fifty percent of the cost or \$0.23 per acre is allocated to the oat hay.

*Office.* Costs are estimated at \$15 per acre for the ranch and are not based on any specific information, except that there is a cost involved for bookkeeping, payroll, tax preparation, and telephone. Fifty percent of the per acre rate of office expenses are allocated to the oat hay crop.

*Land Rent.* Rent for the land that the hay crop on is grown on is 19% of the gross returns or \$35.72 per acre is used in this study. Because the field is double cropped rent is also charged on the second crop grown in the field.

*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. Oat hay is assumed to provide 1.65% of the farm's gross returns. Therefore, the supervisor's salary for oat hay is \$1,650 per year or \$16.50 per acre. Any returns above total costs are considered returns to investment.

*Investment Repairs.* Annual repairs on investments or capital recovery items that require maintenance are calculated as 2% of the purchase price. Repairs are not calculated for land and establishment costs.

## NON-CASH OVERHEAD

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments.

*Capital Recovery Costs.* Capital recovery cost is the annual depreciation and interest costs for a capital investment and is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). The capital recovery costs are 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 (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is

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

*Salvage Value.* Salvage value is the estimated value of an investment at the end of its useful life. For farm machinery the value is a percentage of the new cost of the investment (Boehlje and Eidman). The value is calculated from equations developed by ASAE based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASAE, by the annual hours of use in the 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 the purchase price because land does not depreciate.

*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 and equipment life.

*Interest Rate.* The interest rate of 6.01% used to calculate capital recovery cost is the USDA-ERS's ten year average of California's agricultural sector long-run rate of return to production assets from current income.

*Tools.* Includes shop equipment/tools and other tools used on the farm and does not recognize any specific inventory.

*Equipment.* Although, farm equipment is purchased new or used, the study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to indicate a mix of new and used equipment. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of repairs, fuel, and lubrication and are discussed under operating costs.

**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.

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

Table 1.

UC COOPERATIVE EXTENSION  
 COSTS PER ACRE TO PRODUCE OAT HAY  
 SACRAMENTO VALLEY – 2005  
 Dryland

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre				Total Cost	Your Cost
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent		
Cultural:							
Stubble Disc	0.15	3	5	0	0	7	
Finish Disc	0.13	2	4	0	0	6	
Inject Pre-plant N Fertilizer	0.13	2	3	22	3	30	
Plant Oat Hay	0.12	2	2	28	0	32	
Weed Control - Apply 2,4-D	0.07	1	0	5	0	6	
Pickup Use	0.10	3	2	0	0	5	
ATV Use	0.10	2	0	0	0	2	
<b>TOTAL CULTURAL COSTS</b>	<b>0.79</b>	<b>15</b>	<b>16</b>	<b>55</b>	<b>3</b>	<b>89</b>	
Harvest:							
Harvest Oat Hay	0.00	0	0	0	63	63	
Roadside Oat Hay	0.00	0	0	0	13	13	
<b>TOTAL HARVEST COSTS</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>75</b>	<b>75</b>	
Interest on Operating Capital @ 7.65%						5	
<b>TOTAL OPERATING COSTS/ACRE</b>		<b>15</b>	<b>16</b>	<b>55</b>	<b>78</b>	<b>169</b>	
CASH OVERHEAD:							
Liability Insurance						0	
Office Expense						15	
Field Sanitation						1	
Share Rent @ 19% of Gross Returns						52	
Supervisor Salary						33	
Property Taxes						1	
Property Insurance						1	
Investment Repairs						1	
<b>TOTAL CASH OVERHEAD COSTS</b>						<b>104</b>	
<b>TOTAL CASH COSTS/ACRE</b>						<b>273</b>	
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	
Tool Carrier		5		0		0	
Portable Pump		7		1		1	
Equipment		71		9		9	
<b>TOTAL NON-CASH OVERHEAD COSTS</b>		<b>150</b>		<b>16</b>		<b>16</b>	
<b>TOTAL COSTS/ACRE</b>						<b>288</b>	



Table 2.

UC COOPERATIVE EXTENSION  
 COSTS AND RETURNS PER ACRE TO PRODUCE OAT HAY  
 SACRAMENTO VALLEY - 2005  
 Dryland

	Quantity/Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
Labor Rate: \$14.61/hr. machine labor \$10.08/hr. non-machine labor					
Operating Interest Rate: 7.65%					
<hr/>					
GROSS RETURNS					
Oay Hay	2.50	Ton	110.00	275	
TOTAL GROSS RETURNS FOR OAT HAY				275	
<hr/>					
OPERATING COSTS					
Fertilizer:					
20-0-0	60.00	Lb N	0.36	22	
Rent:					
Fertilizer Applicator	1.00	Acre	2.75	3	
Seed:					
Oat Seed	100.00	Lb	0.28	28	
Herbicide:					
Weedar 64	2.50	Pint	1.96	5	
Custom:					
Haying - Custom	2.50	Ton	25.00	63	
Roadside - Custom	2.50	Ton	5.00	13	
Labor (machine)	1.06	Hrs	14.61	15	
Labor (non-machine)	0.00	Hrs	0.00	0	
Fuel - Gas	0.74	Gal	2.05	2	
Fuel - Diesel	5.76	Gal	1.51	9	
Lube				2	
Machinery repair				5	
Interest on Operating Capital @ 7.65%				5	
TOTAL OPERATING COSTS/ACRE				169	
<hr/>					
NET RETURNS ABOVE OPERATING COSTS				106	
<hr/>					
CASH OVERHEAD COSTS:					
Liability Insurance				0	
Office Expense				15	
Field Sanitation				1	
Share Rent @ 19% of Gross Returns				52	
Supervisor Salary				33	
Property Taxes				1	
Property Insurance				1	
Investment Repairs				1	
TOTAL CASH OVERHEAD COSTS/ACRE				104	
<hr/>					
TOTAL CASH COSTS/ACRE				273	
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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	
Tool Carrier				0	
Portable Pump				1	
Equipment				9	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				16	
<hr/>					
TOTAL COSTS/ACRE				288	
<hr/>					
NET RETURNS ABOVE TOTAL COSTS				-13	
<hr/>					

Table 3.

UC COOPERATIVE EXTENSION  
MONTHLY CASH COSTS PER ACRE TO PRODUCE OAT HAY  
SACRAMENTO VALLEY - 2005  
Dryland

Beginning SEP 04	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	TOTAL
Ending AUG 05	04	04	04	04	05	05	05	05	05	05	05	05	
Cultural:													
Stubble Disc	7												7
Finish Disc		6											6
Inject Pre-plant N Fertilizer		30											30
Plant Oat Hay		32											32
Weed Control - Apply 2,4-D						6							6
Pickup Use	0	0	0	0	0	0	0	0	0	0	0	0	5
ATV Use	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>
<b>TOTAL CULTURAL COSTS</b>	<b>8</b>	<b>69</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>89</b>
Harvest:													
Harvest Oat Hay									63				63
Roadside Oat Hay									<u>13</u>				<u>13</u>
<b>TOTAL HARVEST COSTS</b>									<b>75</b>				<b>75</b>
Interest on oper. Capital @ 7.65%	0	0	0	0	1	1	1	1	1	0	0	0	5
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>8</b>	<b>69</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>77</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>169</b>
CASH OVERHEAD:													
Liability Insurance					0								0
Office Expense	2	2	2	2	2	2	2	2	2				15
Field Sanitation	0	0	0	0	0	0	0	0	0				1
Share Rent @ 19% of Gross Returns										52			52
Supervisor Salary	4	4	4	4	4	4	4	4	4				33
Property Taxes					0						0		1
Property Insurance					0						0		1
Investment Repairs	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
<b>TOTAL CASH OVERHEAD COSTS</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>52</b>	<b>1</b>	<b>0</b>	<b>104</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>13</b>	<b>75</b>	<b>7</b>	<b>7</b>	<b>8</b>	<b>13</b>	<b>7</b>	<b>7</b>	<b>82</b>	<b>53</b>	<b>1</b>	<b>1</b>	<b>273</b>

Table 4.

UC COOPERATIVE EXTENSION  
WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, and BUSINESS OVERHEAD COSTS  
SACRAMENTO VALLEY - 2005

ANNUAL EQUIPMENT COSTS								
Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	- Cash Overhead -		Total
						Insur- ance	Taxes	
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	Disc - Finish 18'	24,300	10	4,297	2,977	99	143	3,219
05	Disc - Stubble 16'	18,686	10	3,304	2,289	76	110	2,475
05	Grain Drill - 20'	24,480	10	4,329	2,999	99	144	3,243
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	Sprayer - ATV 30' Boom	3,473	10	604	426	14	20	461
TOTAL		357,939		105,150	43,534	1,598	2,315	47,447
60% of New Cost *		214,763		63,090	26,121	959	1,389	28,468

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

ANNUAL INVESTMENT COSTS								
Description	Price	Yrs Life	Salvage Value	Capital Recovery	----- Cash Overhead -----			Total
					Insur- ance	Taxes	Repairs	
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
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	227,897		36,668	19,420	913	1,323	3,539	25,194

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 @ 19% of Gross Returns	100	Acre	52.25	5,225
Supervisor Salary	2,900	Acre	33.00	95,700

Table 5.

UC COOPERATIVE EXTENSION  
 HOURLY EQUIPMENT COSTS  
 SACRAMENTO VALLEY – 2005

		----- COSTS PER HOUR -----								
Yr	Description	Actual Hours Used	Capital Recovery	- Cash Overhead -			----- Operating -----		Total Oper.	Total Costs/Hr.
				Insur- ance	Taxes	Repairs	Fuel & Lube	Total		
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	1,589.0	2.75	0.11	0.16	2.93	7.67	10.60	13.62	
05	ATV	287.3	1.60	0.06	0.08	0.42	2.83	3.25	4.98	
05	Disc - Finish 18'	186.7	9.57	0.32	0.46	3.94	0.00	3.94	14.29	
05	Disc - Stubble 16'	199.2	6.90	0.23	0.33	3.03	0.00	3.03	10.49	
05	Grain Drill - 20'	149.8	12.01	0.40	0.58	6.59	0.00	6.59	19.58	
05	Pickup - 1/2 Ton	284.8	7.26	0.23	0.33	1.42	5.89	7.31	15.13	
05	Pickup - 3/4 Ton	284.8	8.77	0.28	0.40	1.71	7.07	8.78	18.23	
05	Sprayer - ATV 30' Boom	159.5	1.60	0.05	0.08	0.93	0.00	0.93	2.66	

Table 6.

UC COOPERATIVE EXTENSION  
RANGING ANALYSIS  
SACRAMENTO VALLEY - 2005

COSTS PER ACRE TO PRODUCE OAT HAY AT VARYING YIELDS							
	YIELD (TON/ACRE)						
	1.75	2.00	2.25	2.50	2.75	3.00	3.25
OPERATING COSTS/ACRE:							
Cultural Cost	89	89	89	89	89	89	89
Harvest Cost	53	60	68	75	83	90	98
Interest on operating capital	5	5	5	5	5	5	5
TOTAL OPERATING COSTS/ACRE	146	154	161	169	176	184	191
TOTAL OPERATING COSTS/TON	83	77	72	67	64	61	59
CASH OVERHEAD COSTS/ACRE	104	104	104	104	104	104	104
TOTAL CASH COSTS/ACRE	250	258	265	273	280	288	296
TOTAL CASH COSTS/TON	143	129	118	109	102	96	91
NON-CASH OVERHEAD COSTS/ACRE	16	16	16	16	16	16	16
TOTAL COSTS/ACRE	266	273	281	288	296	304	311
TOTAL COSTS/TON	152	137	125	115	108	101	96

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR OAT HAY							
PRICE (DOLLARS/TON)	YIELD (TON/ACRE)						
	1.75	2.00	2.25	2.50	2.75	3.00	3.25
Oat Hay							
80	-6	6	19	31	44	56	69
90	11	26	41	56	71	86	101
100	29	46	64	81	99	116	134
110	46	66	86	106	126	146	166
120	64	86	109	131	154	176	199
130	81	106	131	156	181	206	231
140	99	126	154	181	209	236	264

NET RETURNS PER ACRE ABOVE CASH COSTS FOR OAT HAY							
PRICE (DOLLARS/TON)	YIELD (TON/ACRE)						
	1.75	2.00	2.25	2.50	2.75	3.00	3.25
Oat Hay							
80	-110	-98	-85	-73	-60	-48	-36
90	-93	-78	-63	-48	-33	-18	-3
100	-75	-58	-40	-23	-5	12	29
110	-58	-38	-18	2	22	42	62
120	-40	-18	5	27	50	72	94
130	-23	2	27	52	77	102	127
140	-5	22	50	77	105	132	159

NET RETURNS PER ACRE ABOVE TOTAL COSTS FOR OAT HAY							
PRICE (DOLLARS/TON)	YIELD (TON/ACRE)						
	1.75	2.00	2.25	2.50	2.75	3.00	3.25
Oat Hay							
80	-126	-113	-101	-88	-76	-64	-51
90	-108	-93	-78	-63	-49	-34	-19
100	-91	-73	-56	-38	-21	-4	14
110	-73	-53	-33	-13	6	26	46
120	-56	-33	-11	12	34	56	79
130	-38	-13	12	37	61	86	111
140	-21	7	34	62	89	116	144

Table 7.

UC COOPERATIVE EXTENSION  
 COST AND RETURNS/BREAKEVEN ANALYSIS  
 SACRAMENTO VALLEY - 2005

**COSTS AND RETURNS - PER ACRE BASIS**

	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)
Crop							
Oat Hay	275	169	106	273	2	288	-13

**COSTS AND RETURNS - TOTAL ACREAGE**

	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)
Crop							
Oat Hay	27,500	16,869	10,631	27,289	211	28,846	-1,346

**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 -----		
Oat Hay	2.5	Ton	67.47	109.16	115.39

**BREAKEVEN YIELDS PER ACRE**

CROP	Yield Units	Base Price (\$/Unit)	----- Breakeven Yield To Cover -----		
			Operating Costs	Cash Costs	Total Costs
			----- Yield Units / Acre -----		
Oat Hay	Ton	110.00	1.5	2.5	2.6

Table 8.

UC COOPERATIVE EXTENSION  
OPERATIONS WITH EQUIPMENT  
SACRAMENTO VALLEY - 2005

Operation	Operation Month	Tractor/ Power Unit	Implement	Material	Broadcast Rate/acre	Material Unit
Cultural:						
Stubble Disc	September	200 HP Crawler	Disc - Stubble 16'			
Finish Disc	October	200 HP Crawler	Disc - Finish 18'			
Inject Pre-plant N Fertilizer	October	90 HP 2WD Tractor	Fertilizer Applicator	Rental	1.00	Acre
				20-0-0	60.00	Lb N
Plant Oat Hay	October	90 HP 2WD Tractor	Grain Drill - 20'	Oat Seed	100.00	Lb
Weed Control - Apply 2,4-D	February	ATV	Sprayer - ATV 30' Boom	Weedar 64	2.50	Pint
Harvest Oat Hay	May			Custom	25.00	Ton
Roadside Oat Hay	May			Custom	5.00	Ton
Pickup Use	All	Pickup - 1/2 Ton				
		Pickup - 3/4 Ton				
ATV Use	All	ATV				