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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2003

**SAMPLE COSTS  
TO ESTABLISH AND PRODUCE  
PASTURE**



**SACRAMENTO VALLEY**

Flood Irrigation

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## SAMPLE COSTS TO ESTABLISH AND PRODUCE PASTURE Sacramento Valley -2003

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### INTRODUCTION

Sample costs to establish a pasture stand and produce irrigated pasture 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, 2, 3 and 4 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 calculations used in the study call the Department of Agricultural and Resource Economics, University of California, Davis, California, (530) 752-3589 or the local UC Cooperative Extension office.

Sample Cost of Production Studies for many commodities are available and can be requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-3589. Current studies can be downloaded from the department website <http://coststudies.ucdavis.edu> or obtained from the local county UC Cooperative Extension offices. Some archived studies are also available on the website.

## ASSUMPTIONS

The assumptions refer to Tables 1 to 8 and pertain to sample costs to establish a pasture stand, produce pasture and pasture hay in the Sacramento Valley. Practices described are not University of California recommendations but represent production practices and materials considered typical of a well-managed pasture stand in the Sacramento Valley. Costs, materials, and practices in this study will not be applicable to all situations. Establishment and cultural practices vary among growers within the region. **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.** The hypothetical farm consists of 50 contiguous acres. Pasture is being established and produced on 40 acres that had been previously planted to pasture. The remaining 10 acres are roads, farmstead, and miscellaneous buildings and corrals. The farm also includes cattle that are fed pasture hay and/or grazed on the pasture. The owner manages the farm and cattle.

### Stand Establishment Operating Costs

Tables 1 to 2

**Land Preparation.** The ground is ripped 20 to 32 inches deep to fracture the soil and improve water infiltration. The field is disced with a semi stubble and/or finish disc to break up clods and smooth the surface, creating better seed-to-soil contact for good germination. Borders (levees) for irrigation checks are made at periodic intervals (40 ft in this study) through the field. Border costs include the tractor operations and two men furnished by the custom operator to assist in shoveling and levee building. The land is level, so the fields are floated to remove small high and low spots. A custom operator does all of the land preparation through planting.

**Planting.** In September, an irrigated pasture mix at 15 to 20 pounds per acre is planted with a Brillion seed planter. A custom operator does the planting. Stand life in this study is 20 years.

**Fertilization.** Prior to planting, 200 pounds of 16-20-0 is spread and incorporated by discing. A custom operator does the application. Growers should apply fertilizer or soil amendments after appropriate soil and/or tissue testing in the establishment and succeeding years.

**Irrigation.** Irrigations are done preplant (August), immediately after planting (September), and 10 to 14 days later (October) to germinate the seed. A total of nine acre-inches is applied during the establishment year. This cost study assumes delivered district water. If your pasture depends on pumped irrigation water for either flood or sprinklers, these costs will increase.

**Weed Control.** Grasses and broadleaf weeds can compete with the seedlings during stand establishment, but are not often a problem.

**Harvest.** August plantings will not produce a crop in the first year.

### Production Operating Costs

Tables 3 to 8.

**Irrigation.** The water is supplied by an irrigation district and is gravity fed into the growers irrigation system. Water districts in the Sacramento Valley were randomly selected for water costs and an average cost determined. Costs vary among districts and depending on the district, the rates are either metered (per acre foot) or non-metered rates (per acre). Four-acre feet of water, converted to per-acre costs ranged from \$12 to \$140 or

\$3 to \$35 per acre-foot. Irrigation begins in April and continues into October. Four and one-half acre-feet of water at \$15.77 per acre-foot or \$1.31 per acre-inch is applied by border-flood irrigation. Pumped irrigation water for either flood or sprinklers will increase the irrigation costs.

**Fertilization.** Ammonium sulfate (21-0-0-24S) at 42 pounds of N is applied in March. The fertilizer also supplies 48 pounds of elemental sulfur to cover sulfur deficiency.

**Pest Management.** For pesticide information, pest identification, monitoring, and management visit the UC IPM website at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu). 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.** Spot sprays with Roundup plus 2,4-D (Weedone LV4) in March and April are applied to approximately 1% of the acres with a small sprayer on the ATV.

**Mow/Harrow.** During June through September, the field is harrowed twice to break up the manure deposited in the pasture. A flail mower is used to clip the pasture two times during the same period.

**ATV.** An All Terrain Vehicle (ATV – 4 wheeler) is used for spot spraying, irrigating, checking fence lines and cattle. Use for spot spraying is allocated to that operation and checking cattle is allocated to grazing. The line item ATV is for irrigating and general use.

**Harvest.** Twenty acres are custom harvested in June. The pasture is cut with a self-propelled swather, cured or dried in windrows for several days and then turned with a center-delivery rake. When dried to the correct moisture, the hay is baled with a pull-type baler. The balewagon picks up the bales and moves them from the field to stacks. The chambered bales are for winter-feeding or off-farm sales. The regrowth is grazed from July through October. The other 20 acres are grazed from April through October. Grazing costs are the ATV use for daily checking of the fence and cattle at one-hour per day or 0.025 hours per acre for 40 acres.

**Yield.** The June hay harvest at 90% dry matter is assumed to yield 2.50 tons of hay per acre per year over 20 acres. Stocking rate of beef cattle varies with production. Total grazing yield on the hayed acreage is 5.50 AUM/acre (July to October) and the grazed only is 10.50 AUM/acre (April to October).

Table A. Forage Produced Per Acre for Grazed Only Acres, Grazed and Hayed Only Acres and Average Yield Over Entire 40 Acres

Month	lbs/Acre	tons/acre	Grazed Only (20 acres)		Grazed & Hay Only (20 acres)		Average Yield over 40 acres	
			Yield/acre	AUM	Yield/acre	hay tons	Yield/acre	hay tons
May*	3,247	1.62	3.25	0	0	1.62	0	
June	1,783	0.89	1.78	0	2.51	0.89	1.25	
July	1,628	0.81	1.63	1.63	0	1.63	0	
August	1,665	0.83	1.67	1.67	0	1.67	0	
Sept.	1,422	0.71	1.42	1.42	0	1.42	0	
Oct.	753	0.38	0.75	0.75	0	0.75	0	
<b>Total</b>	<b>10,498</b>	<b>5.25</b>	<b>10.50</b>	<b>5.47</b>	<b>2.51</b>	<b>7.98</b>	<b>1.25</b>	

\*Includes forage produced in the months preceding

AUM's (animal unit month) can be converted to approximate hay tons equivalent. For air-dried irrigated pasture hay, 1,000 pounds of hay is equivalent to 1.0 AUM or 2.0 AUM is equivalent to one ton of pasture hay. Projected forage yields based on unpublished data from five locations in the Sacramento Valley, grazed only yields for 20 acres, grazed and hayed yields on 20 acres and average yields over 40 acres, are shown in Table A. Grazing and haying management, species composition, access to timely irrigation water and the fertilizer program will affect the pasture production (yield).

**Returns.** The price of \$70 per ton is based on an average of the 2002 Sacramento Valley USDA market prices for alfalfa hay, fair grade. Returns will vary during the season, depending upon the hay quality and grazing markets. Returns for grazing forage are assumed to be the stated hay value and give a return of \$35 per AUM (each animal unit = 0.5 ton). The price received (returns) for pasture rental can vary greatly (\$18 to \$38/AUM) depending on the structure of the lease and pasture amenities. The price received will vary depending on who pays (lessor or lessee) for the irrigation water and the labor to apply it, and for the fertilizer. Responsibility for animal management (checking livestock water, providing salt and minerals, and doctoring sick animals), for death loss, for moving the cattle from field to field, and for repairing the fence are also items to consider. Other rental and rent price considerations are the ranch infrastructure and location variables such as quality of the livestock handling facilities, proximity to lessee's operation, quality of the pasture, and number of AUM's. Table 8 "Costs Per Acre At Varying Yields to Produce Pasture" shows a range of returns and yields. Harvest costs in the table are based on a combination of grazing and hay harvest costs.

**Labor.** Hourly wages for workers are \$6.75 per hour for labor and \$10.00 per hour for machine labor. Adding 34% for the employers share of federal and state payroll taxes, insurance, and other possible benefits gives the labor rates shown of \$8.38 for non-machine labor and \$13.40 per hour for machine labor. The labor hours for operations involving machinery are 10% higher than the machine hours to account for extra labor involved in equipment set-up, moving, maintenance and repair.

**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 PTO horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$1.11 and \$1.58 per gallon, respectively. The fuel prices are a January 2003 average based on four California delivery locations. 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 3 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.

**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 7.14% 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.** The associated 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 pasture production.

### **Cash Overhead**

Assumptions in this section refer to the cash overhead and capital recovery sections in Tables 1 to 8. One-half of the annual overhead costs for the 40 acres in the establishment year (Table 1) are allocated to the previous crop.

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm, not to a particular operation. These costs include property taxes, interest, office expense, liability and property insurance, and investment repairs (buildings and irrigation equipment). Employee benefits, payroll taxes and workman's compensation insurance are included in labor costs and not under cash overhead.

**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 0.676% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$516 for the entire farm (50 acres) or \$10.32 per acre.

**Office.** Costs are estimated to include minor bookkeeping, tax preparation, and phone.

**Investment Repairs.** Annual repairs on investments or capital recovery items that require maintenance are calculated as two percent of the purchase price.

### **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  $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$ .

*Salvage Value.* Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery 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 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 6.25% 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. This represents the long-term interest rate typical of another agricultural enterprise.

**Tools.** Includes shop equipment/tools, hand and cattle tools used on the farm.

**Fence.** This is as dealer-estimated cost for energizer (electrical unit), barbed wire, posts and installation for perimeter fence on the 40 acres.

**Irrigation System.** The irrigation system was installed during the previous crop, but is being depreciated over the stand life of the two crops. The system consists of two underground lines with alfalfa valves, each line is one-quarter mile long and installed at the edge and middle of the 40 acres. The water is gravity fed from a water district canal into the growers' underground main line.

**Land.** Land suitable for pasture production can vary widely in value across the region. Prices range from \$1,500 per acre to \$5,000. The land in this study is owned by the grower and cost \$2,000 per acre.

**Livestock Facility.** These facilities for handling the grazing cattle are estimated costs for two corrals/pens, a squeeze chute, guardrail and related equipment.

**Establishment Costs.** Costs to establish the pasture stand are used to determine capital recovery expenses, depreciation, and interest on investment, during the production years. The establishment cost is the sum of cash costs for land preparation, planting, production expenses, and cash overhead for establishing the pasture. The Total Cash Cost in the first year shown in Table 1 represents the establishment cost per acre. For this study, the cost is \$255 per acre or \$10,200 for the 40 acres. The pasture stand establishment cost is amortized over the 20-year stand life.

**Equipment.** Farm equipment is purchased new or used, but the study shows the current purchase price for new equipment. The new purchase price is adjusted to 40% 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.

## **ACKNOWLEDGEMENTS**

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UC COOPERATIVE EXTENSION  
**Table 1. COSTS PER ACRE to ESTABLISH PASTURE**  
 SACRAMENTO VALLEY - 2003

Operation	Operation Time (Hrs/A)	Cash and Labor Cost per acre				Total Cost	Your Cost
		Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/ Rent		
Cultural:							
Rip 2X	0.00	0	0	0	50	50	
Disc 2X	0.00	0	0	0	36	36	
Fertilize	0.00	0	0	26	5	31	
Borders	0.00	0	0	0	18	18	
Level - Float	0.00	0	0	0	10	10	
Plant - Irrigated Pasture Seed	0.00	0	0	26	12	38	
Irrigate	1.25	10	0	12	0	22	
ATV	1.25	20	2	0	0	22	
<b>TOTAL CULTURAL COSTS</b>	<b>2.50</b>	<b>30</b>	<b>2</b>	<b>64</b>	<b>131</b>	<b>227</b>	
Interest on operating capital @ 7.14%						4	
<b>TOTAL OPERATING COSTS/ACRE</b>		<b>31</b>	<b>1</b>	<b>64</b>	<b>131</b>	<b>230</b>	
CASH OVERHEAD:							
Liability Insurance						4	
Office Expense						13	
Property Taxes						1	
Property Insurance						1	
Investment Repairs						6	
<b>TOTAL CASH OVERHEAD COSTS</b>						<b>25</b>	
<b>TOTAL CASH COSTS/ACRE</b>						<b>255</b>	
NON-CASH OVERHEAD*:							
		Per producing acre		Annual Cost Capital Recovery			
Land		833		52		52	
Irrigation System		275		19		19	
Tools		13		1		1	
Equipment		50		10		10	
<b>TOTAL NON-CASH OVERHEAD COSTS</b>		<b>1,171</b>		<b>82</b>		<b>82</b>	
<b>TOTAL COSTS/ACRE</b>						<b>337</b>	

\*50% of costs allocated to previous crop

UC COOPERATIVE EXTENSION  
**Table 2. MATERIAL and INPUT COSTS to ESTABLISH PASTURE**  
 SACRAMENTO VALLEY - 2003

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>OPERATING COSTS</b>					
<b>Custom:</b>					
Rip	2.00	acre	25.00	50	
Disc	2.00	acre	18.00	36	
Fertilizer Spread	1.00	acre	5.00	5	
Make Borders	1.00	acre	10.00	10	
Border Hand Labor portion	1.00	acre	8.00	8	
Level (Float)	1.00	acre	10.00	10	
Plant w/Brillion Seeder	1.00	acre	12.00	12	
<b>Fertilizer:</b>					
16-20-00	200.00	lb	0.13	26	
<b>Seed:</b>					
Irrigated Pasture Mix	18.00	lb	1.45	26	
<b>Water:</b>					
Water-Surface	9.00	acin	1.31	12	
Labor (machine)	1.50	hrs	13.40	20	
Labor (non-machine)	1.25	hrs	8.38	10	
Fuel - Gas	0.75	gal	1.51	1	
Lube				0	
Machinery repair				0	
Interest on operating capital @ 7.14%				4	
<b>TOTAL OPERATING COSTS/ACRE</b>				<b>230</b>	

UC COOPERATIVE EXTENSION  
**Table 3. COSTS PER ACRE to PRODUCE PASTURE**  
 SACRAMENTO VALLEY 2003

Operation	Operation	Cash and Labor Cost per acre				Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/Rent		
<b>Cultural:</b>							
Irrigate	0.60	5	0	71	0	76	
Fertilize	0.00	0	0	16	5	21	
Mow Pasture 2X	0.37	6	2	0	0	8	
Harrow Pasture 2X	0.10	2	0	0	0	2	
Weed:Spot Sprays	0.06	1	0	13	0	14	
ATV	1.25	20	1	0	0	22	
<b>TOTAL CULTURAL COSTS</b>	<b>2.38</b>	<b>34</b>	<b>4</b>	<b>100</b>	<b>5</b>	<b>143</b>	
<b>Harvest:</b>							
Graze Pasture (20 acres)	1.13	18	1	0	0	19	
Bale Pasture (20 acres)	0.00	0	0	0	48	48	
Graze Pasture (40 acres)	3.00	48	1	0	0	50	
<b>TOTAL HARVEST COSTS</b>	<b>4.13</b>	<b>66</b>	<b>2</b>	<b>0</b>	<b>48</b>	<b>116</b>	
Interest on operating capital @ 7.14%						7	
<b>TOTAL OPERATING COSTS/ACRE</b>		<b>100</b>	<b>5</b>	<b>100</b>	<b>53</b>	<b>265</b>	
<b>CASH OVERHEAD:</b>							
Liability Insurance						10	
Office Expense						38	
Property Taxes						3	
Property Insurance						6	
Investment Repairs						23	
<b>TOTAL CASH OVERHEAD COSTS</b>						<b>81</b>	
<b>TOTAL CASH COSTS/ACRE</b>						<b>346</b>	
<b>NON-CASH OVERHEAD:</b>							
		Per producing acre		Annual Cost			
				Capital Recovery			
Land		2,500		156		156	
Irrigation System		825		57		57	
Tools		38		3		3	
Pasture Establishment		255		23		23	
Electric Fence Perimeter		165		15		15	
Livestock Corrals		138		11		11	
Equipment		380		39		39	
<b>TOTAL NON-CASH OVERHEAD COSTS</b>		<b>4,301</b>		<b>304</b>		<b>304</b>	
<b>TOTAL COSTS/ACRE</b>						<b>649</b>	

UC COOPERATIVE EXTENSION  
**Table 4. COSTS AND RETURNS PER ACRE to PRODUCE PASTURE**  
 SACRAMENTO VALLEY - 2003

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>GROSS RETURNS</b>					
Pasture Hay	1.25	ton	70.00	88	
Graze AUM (AUM=0.5 ton of hay)	8.00	AUM	35.00	280	
<b>TOTAL GROSS RETURNS</b>				367	
<b>OPERATING COSTS</b>					
<b>Water:</b>					
Water-Surface	54.00	acin	1.31	71	
<b>Fertilizer:</b>					
21-0-0-24S Ammonium Sulfate	42.00	lbN	0.39	16	
<b>Custom:</b>					
Fertilizer Spread	1.00	acre	5.00	5	
Swath Bale Stack Hay	1.25	ton	38.00	48	
<b>Herbicide:</b>					
Roundup Ultra Max	1.00	pint	7.36	7	
Weedone LV4	2.40	pint	2.53	6	
Labor (machine)	7.09	hrs	13.40	95	
Labor (non-machine)	0.60	hrs	8.38	5	
Fuel - Gas	1.08	gal	1.51	2	
Fuel - Diesel	1.14	gal	1.26	1	
Lube				0	
Machinery repair				2	
Interest on operating capital @ 7.14%				7	
<b>TOTAL OPERATING COSTS/ACRE</b>				264	
<b>NET RETURNS ABOVE OPERATING COSTS</b>				102	
<b>CASH OVERHEAD COSTS:</b>					
Liability Insurance				10	
Office Expense				38	
Property Taxes				3	
Property Insurance				6	
Investment Repairs				23	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>				81	
<b>TOTAL CASH COSTS/ACRE</b>				346	
<b>NON-CASH OVERHEAD COSTS (Capital Recovery)</b>					
Land				156	
Irrigation System				57	
Tools				3	
Pasture Establishment				23	
Electric Fence Perimeter				15	
Livestock Corrals				11	
Equipment				39	
<b>TOTAL NON-CASH OVERHEAD COSTS/ACRE</b>				303	
<b>TOTAL COSTS/ACRE</b>				649	
<b>NET RETURNS ABOVE TOTAL COSTS</b>				-282	

UC COOPERATIVE EXTENSION  
**Table 5. MONTHLY CASH COSTS PER ACRE to PRODUCE PASTURE**  
 SACRAMENTO VALLEY 2003

Beginning JAN 03	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 03	03	03	03	03	03	03	03	03	03	03	03	03	
Cultural:													
Irrigate				6	13	17	14	14	6	5			76
Fertilize				6	13	17	14	14	6	5			76
Mow Pasture 2X							4		4				8
Harrow Pasture 2X						1		1					2
Weed:Spot Sprays			7	7									14
ATV	2	2	2	2	2	2	2	2	2	2			21
<b>TOTAL CULTURAL COSTS</b>	<b>2</b>	<b>2</b>	<b>30</b>	<b>15</b>	<b>15</b>	<b>20</b>	<b>20</b>	<b>17</b>	<b>12</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>144</b>
Harvest:													
Graze Pasture (20 acres)				6	6	6							19
Graze Pasture (40 acres)							12	12	12	12			50
Bale Pasture (20 acres)						48							48
<b>TOTAL HARVEST COSTS</b>				<b>6</b>	<b>6</b>	<b>54</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>12</b>			<b>116</b>
Interest on operating capital	0	0	0	0	0	1	1	1	1	2	0	0	7
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>2</b>	<b>2</b>	<b>31</b>	<b>22</b>	<b>22</b>	<b>74</b>	<b>34</b>	<b>31</b>	<b>26</b>	<b>21</b>			<b>265</b>
OVERHEAD:													
Liability Insurance										10			10
Office Expense										38			38
Property Taxes				3									3
Property Insurance		3		3									6
Investment Repairs	2	2	2	2	2	2	2	2	2	2	2	2	23
<b>TOTAL CASH OVERHEAD COSTS</b>	<b>2</b>	<b>5</b>	<b>2</b>	<b>8</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>50</b>	<b>2</b>	<b>2</b>	<b>81</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>4</b>	<b>7</b>	<b>33</b>	<b>30</b>	<b>24</b>	<b>76</b>	<b>36</b>	<b>33</b>	<b>28</b>	<b>71</b>	<b>2</b>	<b>2</b>	<b>346</b>

UC COOPERATIVE EXTENSION  
**Table 6. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT,**  
and BUSINESS OVERHEAD COSTS  
SACRAMENTO VALLEY - 2003

ANNUAL EQUIPMENT COSTS

Yr Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes		
03 45HP 2WD Tractor	20,120	20	2,582	1,722	77	11		1,832
03 ATV 4WD	5,000	5	1,000	1,019	20	3		1,042
03 Harrow 20'	3,250	20	169	285	12	2		298
03 Mower Flail 8'	9,600	20	500	841	34	5		880
<b>TOTAL</b>	<b>37,970</b>		<b>4,251</b>	<b>3,866</b>	<b>143</b>	<b>21</b>		<b>4,029</b>
40% of New Cost *	15,188		1,700	1,546	57	8		1,612

\*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	
Electric Perimeter Fence	6,600	20		587	22	3	132	745
Irrigation System	33,000	40		2,263	109	16	660	3,051
Land	100,000	20	100,000	6,250	0	100	0	6,350
Livestock Corrals	5,500	20	1,500	450	24	4	110	587
Pasture Establishment	10,200	20		907	34	0	0	942
Tools	1,500	20		133	5	1	30	169
<b>TOTAL INVESTMENT</b>	<b>156,800</b>		<b>101,500</b>	<b>10,590</b>	<b>194</b>	<b>124</b>	<b>932</b>	<b>11,844</b>

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	50	acre	10.32	516
Office	40	acre	37.50	1,500

UC COOPERATIVE EXTENSION  
**Table 7. HOURLY EQUIPMENT COSTS**  
SACRAMENTO VALLEY - 2003

Yr Description	COSTS PER HOUR							Total Costs/Hr.
	Actual Hours Used	Cash Overhead			Operating			
		Capital Recovery	Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
03 45HP 2WD Tractor	20.70	33.19	1.48	0.22	0.54	2.82	3.36	38.26
03 ATV 4WD	217.40	1.87	0.04	0.01	0.13	0.36	0.49	2.40
03 Harrow 20'	4.10	27.50	1.12	0.17	0.42	0	0.42	29.20
03 Mower Flail 8'	14.70	22.85	0.93	0.14	2.04	0	2.04	25.95

UC COOPERATIVE EXTENSION  
**Table 8. RANGING ANALYSIS**  
 SACRAMENTO VALLEY 2003

COSTS PER ACRE AT VARYING YIELD TO PRODUCE PASTURE

	0.50	0.75	1.00	1.25	1.50	1.75	2.00
Hay Yield (ton/acre):	0.50	0.75	1.00	1.25	1.50	1.75	2.00
Graze Yield (AUM):	3.50	5.00	6.50	8.00	9.50	11.00	12.50
Total Yield (ton/acre)*:	2.25	3.25	4.25	5.25	6.25	7.25	8.25
<b>OPERATING COSTS/ACRE:</b>							
Cultural Cost	142	142	142	142	142	142	142
Harvest Cost (Hay & Graze)	87	97	106	116	125	135	144
Interest on operating capital	6	7	7	7	8	8	8
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>235</b>	<b>246</b>	<b>255</b>	<b>265</b>	<b>275</b>	<b>285</b>	<b>294</b>
<b>TOTAL OPERATING COSTS/ton</b>	<b>104</b>	<b>76</b>	<b>60</b>	<b>50</b>	<b>44</b>	<b>39</b>	<b>36</b>
CASH OVERHEAD COSTS/ACRE	81	81	81	81	81	81	81
<b>TOTAL CASH COSTS/ACRE</b>	<b>316</b>	<b>327</b>	<b>336</b>	<b>346</b>	<b>356</b>	<b>366</b>	<b>375</b>
<b>TOTAL CASH COSTS/ton</b>	<b>140</b>	<b>101</b>	<b>79</b>	<b>66</b>	<b>57</b>	<b>50</b>	<b>45</b>
NON-CASH OVERHEAD COSTS/ACRE	303	303	303	303	303	303	303
<b>TOTAL COSTS/ACRE</b>	<b>619</b>	<b>630</b>	<b>639</b>	<b>649</b>	<b>659</b>	<b>669</b>	<b>678</b>
<b>TOTAL COSTS/ton</b>	<b>275</b>	<b>194</b>	<b>150</b>	<b>124</b>	<b>105</b>	<b>92</b>	<b>82</b>

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/ton	TOTAL YIELD (ton/acre)*						
	2.25	3.25	4.25	<b>5.25</b>	6.25	7.25	8.25
40.00	-145	-116	-85	-55	-25	5	36
55.00	-111	-67	-21	24	69	114	160
70.00	-78	-19	43	103	163	223	284
85.00	-44	30	106	181	256	331	407
100.00	-10	79	170	260	350	440	531
115.00	24	128	234	339	444	549	655
130.00	58	177	298	418	538	658	779

NET RETURNS PER ACRE ABOVE CASH COST

PRICE \$/ton	TOTAL YIELD (ton/acre)*						
	2.25	3.25	4.25	<b>5.25</b>	6.25	7.25	8.25
40.00	-226	-197	-166	-136	-106	-76	-45
55.00	-192	-148	-102	-57	-12	33	79
70.00	-159	-100	-39	22	82	142	203
85.00	-125	-51	25	100	175	250	326
100.00	-91	-2	89	179	269	359	450
115.00	-57	47	153	258	363	468	574
130.00	-24	96	217	337	457	577	698

NET RETURNS PER ACRE ABOVE TOTAL COST

PRICE \$/ton	TOTAL YIELD (ton/acre)*						
	2.25	3.25	4.25	<b>5.25</b>	6.25	7.25	8.25
40.00	-529	-500	-469	-439	-409	-379	-348
55.00	-495	-451	-405	-360	-315	-270	-224
70.00	-462	-403	-342	-282	-222	-162	-101
85.00	-428	-354	-278	-203	-128	-53	23
100.00	-394	-305	-214	-124	-34	56	147
115.00	-360	-256	-150	-45	60	165	271
130.00	-327	-208	-87	34	154	274	395

\*Includes AUM equivalent of AUM=0.5 tons/acre