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UNIVERSITY OF CALIFORNIA AGRICULTURE AND NATURAL RESOURCES  
COOPERATIVE EXTENSION  
AGRICULTURAL ISSUES CENTER  
UC DAVIS DEPARTMENT OF AGRICULTURAL AND RESOURCE ECONOMICS  
**2020**  
**SAMPLE COSTS TO PRODUCE**  
**IRRIGATED PASTURE**



**Sierra Nevada Foothill**  
Flood Irrigation

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**SAMPLE COSTS TO PRODUCE IRRIGATED PASTURE**  
 In the Sierra Nevada Foothills -2020

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**INTRODUCTION**

Sample costs to produce irrigated pasture and pasture hay in the Sierra Nevada Foothills are shown in this study. This analysis does not represent any single farm and is intended as a guide only. It can be used to help guide production decisions, estimate potential returns, prepare budgets and evaluate production loans. Sample costs given for labor, materials, equipment and contract services are based on January 2020 figures. A blank column titled Your Costs is provided in Tables 1 and 2 for your convenience.

For an explanation of calculations used refer to the section titled Assumptions. For more information contact Donald Stewart; University of California Agriculture and Natural Resources, Agricultural Issues Center, Department of Agricultural and Resource Economics, at 530-752-4651 or [destewart@ucdavis.edu](mailto:destewart@ucdavis.edu). To discuss this study with a local extension farm advisor, contact your county cooperative extension office. [ucanr.edu/County\\_Offices/](http://ucanr.edu/County_Offices/).

Sample Cost of Production studies for many commodities are available and can be downloaded from the website, [coststudies.ucdavis.edu](http://coststudies.ucdavis.edu). Archived studies are also available on the website.

**Costs and Returns Study Program/Acknowledgements.** A cost and return study are a compilation of specific crop data collected from meetings with professionals working in production agriculture from the region the study is based. The authors thank the farmer cooperators, UC Cooperative Extension and other industry representatives who provided information, assistance, and expert advice. **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.** *The University is an affirmative action/equal*

*opportunity employer.*

## ASSUMPTIONS

The assumptions contain background in developing Tables 1 to 6 and pertain to sample costs to produce pasture and pasture hay in the Sierra Nevada Foothills. The cultural practices described are based on production practices considered typical for the crop and area, but will not apply to every situation.

This study explains the annual costs associated with an ongoing operation, under the assumptions that the farm was operated this way in prior years and will continue in subsequent years. The costs, materials, and practices will not apply to all farms. Timing of and types of cultural practices will vary among growers within the region and from season to season due to variables such as weather, soil, and insect and disease pressure.

**Farm.** The hypothetical farm that is leased consists of 40 contiguous acres of pasture land. Irrigated pasture land is valued at \$2,500 per acre. The land is established and rented at \$200 per acre or for \$25 - \$55 per animal unit month (AUM), this analysis uses \$40/AUM. If your farm does not already have an established pasture, refer to (“*Sample Costs to Establish or Reestablish and Produce Pasture in the Sierra Nevada Foothills - 2020*”) for the costs of establishing a pasture.

The farm also has cattle operations that are fed pasture hay and/or grazed on annual rangeland from October through April. During the irrigation season, cattle are grazed on the pasture. The tenant manages the farm and cattle.

### Production Operating Costs

**Irrigation.** Water is supplied by Nevada Irrigation District (NID) and is gravity feed into the grower’s irrigation system. Costs vary among districts and depending on whether pumping is required. Most foothill irrigation district rates are based on a Miner’s Inch (MI – 11.22 gallons per minute) plus a basic service fee. This pasture uses a total of 0.6 MI per acre of pasture (24 MI total) to irrigate 40 acres.

Pumped irrigation water for either flood or sprinklers will increase irrigation costs. Water charges increase significantly if delivered in the winter months from NID.

**Fertilization.** 200 lbs. of ammonium sulfate (21-0-0, 24% S) provides 42 pounds of N applied in February or early March before the last rains. The fertilizer also supplies 48 pounds of elemental sulfur to cover sulfur deficiency. This application is done every other year and is charged at 50 percent the per acre rate. It is assumed that phosphorous was applied pre-plant, none is required at this stage.

**Soil Sampling.** Growers should apply fertilizer or soil amendments after appropriate soil and/or tissue testing in the establishment year. No costs for soil sampling or analysis is shown during the production years.

**Pest Management.** The pesticides and rates mentioned in this cost study, as well as other materials available, are listed in the UC Integrated Pest Management Guidelines for *Alfalfa*, on the UC IPM website at [ipm.ucanr.edu/PMG/selectnewpest.alfalfa-hay.html](http://ipm.ucanr.edu/PMG/selectnewpest.alfalfa-hay.html). For information on other pesticides available, pest identification, monitoring, and management, check with your PCA and/or visit the UC IPM website. For information and pesticide use permits, contact the local county agricultural commissioner's office. Adjuvants are recommended for use with many pesticides for effective control, but the adjuvants and their costs are not included.

*UCCE Farm Advisor, Pest Control Adviser/Certified Crop Advisor (PCA/CCA).* Written recommendations are required for many pesticide applications and are available from licensed pest control or certified crop advisers. The PCA/CCA or an independent consultant will monitor the field for agronomic problems including irrigation and nutrition. Ranchers may contact the local extension farm advisor or hire a private PCA/CCA or receive the service as part of a service agreement with an agricultural chemical and Fertilizer Company. Farm advisors do not charge fees for pest management farm calls.

*Weeds-Spot sprays.* Spot application with glyphosate (Roundup) for grasses and 2,4-D for broadleaves in March and April are applied with a small sprayer on an ATV. This would include spot spraying ditch banks, irrigation main lines and around alfalfa valves. Wild berries grow along ditch banks and riparian areas which left uncontrolled, can become invasive and need control.

*Weeds-Rotary wiper.* A rotary wiper is used to control smutgrass and other undesirable weeds in late summer or early fall, after smutgrass has flowered. It is assumed that about one third of the pasture is infested with smutgrass, which would use approximately 5 gallons of glyphosate at 50 percent concentration in the roto-wiper for 40 acres. It is critical that desirable plants are grazed closer to the ground before using a rotary wiper.

**Table A.** Forage Produced Per Acre for Grazed Only Acres, Grazed and Hayed Only.

Month	Lbs./Acre	Tons/Acre	Graze Only	Graze & Hay	Average Yields		
			(40 acres)	(40 acres)	(Over 40 acres)		
			Yield/Acre	Yield/Acre	Hay	AUM	Hay
			AUM	AUM	Tons		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>Totals</b>	<b>10,498</b>	<b>5.25</b>	<b>10.5</b>	<b>5.47</b>	<b>2.51</b>	<b>7.98</b>	<b>1.25</b>

### Harvest, Yields and Revenue

**Harvest.** There are two different operational options.

*Option 1.* The forty acres are custom harvested for hay in late May. The pasture is swathed, raked, baled and roadside stacked by a custom operator for \$48/ ton. Bales are two-stranded and weigh about 105 lbs. each (19 bales/ton). The regrowth is grazed from June through October.

*Option 2.* The 40 acres are grazed from April through October. Grazing costs are the AUM/acre (April to October). 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 2-40 acres, grazed and hayed yields on 40 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).

**Yield.** In option 1 the May hay harvest is at 90 percent dry matter and 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 (June – October). In Option 2, the grazed only there is 10.50 AUM/acre (April – October).

**Revenue.** The price of \$230 per ton is based on October 2019 California hay Report, USDA market prices for fair grade orchard grass hay. 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 \$40 per AUM (each animal unit = 0.5 ton). The price received (returns) for pasture rental can vary greatly (\$25-\$55/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 4 "*Ranging Analysis*" shows a range of returns and yields. Harvest costs in the table are based on a combination of grazing and hay harvest costs.

### **Labor and Interest**

**Labor.** On this 40-acre operation, the labor is listed under custom charges. The per hour rate of \$18.37 (includes payroll overhead), is used for hand labor.

**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 5.25 percent 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. The rate will vary depending upon various factors, but the rate is considered a typical lending rate by a farm lending agency as of January 2020.

The costs to produce irrigated pasture is relatively low, no operating loan is required. The ranchers renting the pasture pays cash costs as received.

**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 irrigated pasture production. Because of so many potential risk factors, effective risk management must combine specific tactics in a detailed manner, in various combinations for a sustainable operation.

### **Grazing Management**

Increasing the management of irrigated pasture will require a capital investment in fence installation and maintenance, as well as labor in monitoring electric fences, forage and animals and moving animals more frequently. In return, stocking rate could easily increase by 30 percent. Implementing grazing management requires dividing the pasture into smaller paddocks and rotating animals frequently to optimize the amount of forage harvested and providing the proper length of rest allowed for regrowth. Intensive grazing management may also minimize the need for harrowing to break up manure and mowing weeds.

*Fencing.* In this study, ten 4-acre paddocks would be developed. Fencing is a mixture of permanent and electric temporary fencing, and layout will vary greatly with each operation's needs. Cattle trained to electric fence can be controlled with a one-wire electric fence on irrigated pasture. The costs of the fencing (posts, wire, etc.) are charged to another operation on the ranch.

*Watering.* If livestock always have to come back to a single water point, the result will be heavier utilization closer to the water and lighter grazing farther out from the water. Water will need to be available in each paddock and temporary paddock. Watering points must be setup to service multiple paddocks at the same time.

*Labor.* Time will be invested into installing the permanent fencing and water points. More labor will also be required throughout the grazing season to monitor forage, animals, and move animals frequently. On average, animals will be moved to new pasture every 4 days. The labor and equipment operator charges are included in the individual custom operations.

*Carrying Capacity.* This can vary greatly based on rainfall, irrigation, and temperature. Stocking rates will vary by location, topography, and slope. A good starting point on irrigated pasture would be 1 Animal-Unit Month (AUM) per acre. This would be the equivalent of one 1,000-pound cow and calf, one acre per month.

### **Cash Overhead**

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, crop insurance, and investment repairs. Employee benefits, insurance, and payroll taxes are included in labor costs and not in overhead. Cash overhead costs are shown in Tables 1 thru 5.

**Property Taxes.** Counties charge a base property tax rate of 1 percent 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. Property taxes are calculated as 1 percent of the average value of the property and not influenced by the Williamson Act or additional county taxes. Average value equals new cost, plus salvage value divided by 2 on a per acre basis.

*The Williamson Act.* California Land Conservation Act has helped preserve agricultural and open space lands since 1965. Local governments and landowners enter into voluntary contracts to restrict enrolled lands to agricultural and open space uses in exchange for property tax reductions. The impact of the Williamson Act on property taxes will vary from year to year and property to property. This is due to how it is annually calculated and then compared to its Proposition 13 (factored base year value). The lower of the two is used for the annual assessment.  
[boe.ca.gov/proptaxes/pdf/lta19029.pdf](http://boe.ca.gov/proptaxes/pdf/lta19029.pdf)  
[boe.ca.gov/proptaxes/faqs/changeinownership.htm](http://boe.ca.gov/proptaxes/faqs/changeinownership.htm)

**Insurance.** Insurance for farm investments varies depending on the assets included and the amount of coverage.

*Property Insurance.* Property insurance provides coverage for property loss and is charged at 8.86 percent per \$1,000 of the value of the assets over their useful life.

*Liability Insurance.* A standard farm liability insurance policy will help cover the expenses for which you become legally obligated to pay for bodily injury claims on your property and damages to another person's property as a result of a covered accident. For this analysis a basic policy fee of \$621 is charged and covers the entire farm.

*Crop Insurance.* This is available to pasture/hay producers for any unavoidable loss of production, damage or poor quality resulting from adverse weather conditions such as cool wet weather, freeze, frost, hail, heat, rain, wind and damage from birds, drought, earthquakes and fire. Coverage levels are from 50-85 percent of the approved average yield as established by verifiable production records. Actual insurance coverage is by unit, not by acre. Very few, if any ranchers purchase crop insurance for pasture. Due to variability in coverages no level is specified. [rma.usda.gov/](http://rma.usda.gov/)

**Office Expense.** Costs are estimated at \$25 per acre to include bookkeeping, tax preparation, phone and internet.

**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 prices 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;  $[(Purchase\ Price - Salvage\ Value) \times Capital\ Recovery\ Factor] + (Salvage\ Value \times Interest\ Rate)$ .

*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 ASABE based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASABE 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 6.00 percent used to calculate capital recovery. The rate will vary depending upon loan amount and other lending agency conditions, which is the basic suggested rate by a farm- lending agency as of January 2020. There are no capital investments, these would be charged to the cow/calf operations.

**Fence.** The costs for the energizer (electrical unit), posts, clips and wire are charged to a different operation on the ranch. Corral fencing, 10' portable panels are also charged to a cow/calf operation.

**Irrigation System.** This pasture is under flood irrigation using an underground main line with alfalfa valves every 50-75 feet at the top-end of the pasture. The water is gravity fed from a water district canal into the underground main line.

**Livestock Facility.** The facilities for handling the grazing cattle, panels for two corrals, a squeeze chute and related

equipment costs are not included. These costs are included in a cow/calf operation.

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

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UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER  
**TABLE 1. COSTS PER ACRE TO PRODUCE PASTURE 40 AC**  
Sierra Nevada Foothill-2020

Operation	Equipment Time (Hrs./Acre)	Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:								
Weeds: Spot Spray 2x	0.00	0	0	0	7	25	32	
Fertilizer: 21-0-0-24% Sulfur (50%)	0.00	0	0	0	68	6	74	
Irrigate: Flood 7x	0.00	0	0	0	217	46	264	
Fencing: Setup/Moving	0.00	0	0	0	0	22	22	
Weeds: Rotary Wiper	0.00	0	0	0	2	15	17	
<b>TOTAL CULTURAL COSTS</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>294</b>	<b>115</b>	<b>408</b>	
Harvest:								
Harvest: Hay 40 Acres	0.00	0	0	0	0	120	120	
Graze: 40 Acres 5x	0.00	0	0	0	0	110	110	
<b>TOTAL HARVEST COSTS</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>230</b>	<b>230</b>	
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>294</b>	<b>345</b>	<b>639</b>	
CASH OVERHEAD:								
Office Expense							25	
Liability Insurance							16	
Land Lease 40 Ac							200	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>							<b>241</b>	
<b>TOTAL CASH COSTS/ACRE</b>							<b>879</b>	
<b>TOTAL COSTS/ACRE</b>							<b>879</b>	

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**TABLE 2. COSTS AND RETURNS PER ACRE TO PRODUCE PASTURE 40 AC**  
 Sierra Nevada Foothill-2020

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
<b>GROSS RETURNS</b>					
Hay 40 Ac	2.5	Ton	230.00	575	
Graze 40 Ac	5.0	AUM	40.00	200	
<b>TOTAL GROSS RETURNS</b>				<b>775</b>	
<b>OPERATING COSTS</b>					
<b>Fertilizer:</b>				<b>68</b>	
Ammonium Sulfate 16-0-0-24% Sulfur	100.00	Lb.	0.68	68	
<b>Custom:</b>				<b>345</b>	
Ground Application	2.00	Acre	12.50	25	
Broadcast Fertilizer	0.50	Acre	12.50	6	
Hand Labor - Irrigation	2.52	Hour	18.37	46	
Hand Labor – Field	7.20	Hour	18.37	132	
Swath/Rake/Bale/Roadside	2.50	Ton	48.00	120	
Rotary Weeder	1.00	Acre	15.00	15	
<b>Herbicide:</b>				<b>8</b>	
Roundup PowerMax	1.50	Pint	3.75	6	
2,4-D	1.00	Pint	2.82	3	
<b>Irrigation:</b>				<b>217</b>	
Water: Miner’s Inch (NID)	0.60	MI	341.00	205	
Water: Service Fees	1.00	Acre	12.77	13	
<b>TOTAL OPERATING COSTS/ACRE</b>				<b>639</b>	
<b>NET RETURNS ABOVE OPERATING COSTS</b>				<b>136</b>	
<b>CASH OVERHEAD COSTS</b>					
Office Expense				25	
Liability Insurance:				16	
Land Lease: 40 Acres				200	
<b>TOTAL CASH OVERHEAD COSTS/ACRE</b>				<b>241</b>	
<b>TOTAL CASH COSTS/ACRE</b>				<b>879</b>	
<b>NET RETURNS ABOVE CASH COSTS</b>				<b>-104</b>	
<b>TOTAL COST/ACRE</b>				<b>879</b>	
<b>NET RETURNS ABOVE TOTAL COST</b>				<b>-104</b>	

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**TABLE 3. MONTHLY CASH COSTS PER ACRE TO PRODUCE PASTURE 40 AC**  
 Sierra Nevada Foothill-2020

	MAR 20	APR 20	MAY 20	JUN 20	JUL 20	AUG 20	SEP 20	OCT 20	Total
Cultural:									
Weeds: Spot Spray 2x	16	16							32
Fertilizer: 21-0-0-24% Sulfur (50%)	74								74
Irrigate: Flood 7x		27	34	34	51	51	27	40	264
Fencing: Setup/Moving		22							22
Weeds: Rotary Wiper						17			17
<b>TOTAL CULTURAL COSTS</b>	<b>90</b>	<b>65</b>	<b>34</b>	<b>34</b>	<b>51</b>	<b>68</b>	<b>27</b>	<b>40</b>	<b>408</b>
Harvest:									
Harvest: Hay 40 Acres			120						120
Graze: 40 Acres 5x				22	22	22	22	22	110
<b>TOTAL HARVEST COSTS</b>	<b>0</b>	<b>0</b>	<b>120</b>	<b>22</b>	<b>22</b>	<b>22</b>	<b>22</b>	<b>22</b>	<b>230</b>
<b>TOTAL OPERATING COSTS/ACRE</b>	<b>90</b>	<b>65</b>	<b>154</b>	<b>56</b>	<b>73</b>	<b>90</b>	<b>49</b>	<b>62</b>	<b>639</b>
CASH OVERHEAD									
Office Expense							25		25
Liability Insurance							16		16
Land Lease 40 Ac								200	200
<b>TOTAL CASH OVERHEAD COSTS</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>41</b>	<b>0</b>	<b>241</b>
<b>TOTAL CASH COSTS/ACRE</b>	<b>90</b>	<b>65</b>	<b>154</b>	<b>56</b>	<b>73</b>	<b>90</b>	<b>90</b>	<b>262</b>	<b>879</b>

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**TABLE 4. RANGING ANALYSIS**

Sierra Nevada Foothill-2020

COSTS & RETURNS PER ACRE AT VARYING YIELDS TO PRODUCE PASTURE 40 AC

	YIELD(TONS/AUM)/ACRE								
	1.00	1.50	2.00	2.50	3.00	3.50	4.00		
Hay:									
Graze	2.00	3.00	4.00	5.00	6.00	7.00	8.00		
OPERATING COSTS/ACRE:									
Cultural	408	408	408	408	408	408	408	408	
Harvest	92	138	184	230	276	322	368		
TOTAL OPERATING COSTS/ACRE	500	547	593	639	685	731	777		
TOTAL OPERATING COSTS/TON	166.83	121.45	98.76	85.15	76.07	69.59	64.73		
CASH OVERHEAD COSTS/ACRE									
	241	241	241	241	241	241	241	241	
TOTAL CASH COSTS/ACRE	741	787	833	879	925	971	1,017		
TOTAL CASH COSTS/TON	247.00	174.90	138.85	117.22	102.80	92.50	84.77		
TOTAL COSTS/ACRE	741	787	833	879	925	971	1,017		
TOTAL COSTS/TON	247.00	174.90	138.85	117.22	102.80	92.50	84.77		
Net Return per Acre above Operating Costs for Pasture									
PRICE (\$/ton)		YIELD (tons/AUM)/Acre							
Graze 40 Ac		1.00	1.50	2.00	2.50	3.00	3.50	4.00	
Hay 40 Ac	\$/ton	2.00	3.00	4.00	5.00	6.00	7.00	8.00	
	170.00	25.00	-280	-217	-153	-89	-25	39	103
	190.00	30.00	-250	-172	-93	-14	65	144	223
	210.00	35.00	-220	-127	-33	61	155	249	343
	230.00	40.00	-190	-82	27	136	245	354	463
	250.00	45.00	-160	-37	87	211	335	459	583
	270.00	50.00	-130	8	147	286	425	564	703
	290.00	55.00	-100	53	207	361	515	669	823
Net Return per Acre above Cash Costs for Pasture									
PRICE (\$/ton)		YIELD (tons/AUM)/Acre							
Graze 40 Ac		1.00	1.50	2.00	2.50	3.00	3.50	4.00	
Hay 40 Ac	\$/ton	2.00	3.00	4.00	5.00	6.00	7.00	8.00	
	170.00	25.00	-521	-457	-393	-329	-265	-201	-137
	190.00	30.00	-491	-412	-333	-254	-175	-96	-17
	210.00	35.00	-461	-367	-273	-179	-85	9	103
	230.00	40.00	-431	-322	-213	-104	5	114	223
	250.00	45.00	-401	-277	-153	-29	95	219	343
	270.00	50.00	-371	-232	-93	46	185	324	463
	290.00	55.00	-341	-187	-33	121	275	429	583
Net Return per Acre above Total Costs for Pasture									
PRICE (\$/ton)		YIELD (tons/AUM)/Acre							
Graze 40 Ac		1.00	1.50	2.00	2.50	3.00	3.50	4.00	
Hay 40 Ac	\$/ton	2.00	3.00	4.00	5.00	6.00	7.00	8.00	
	170.00	25.00	-521	-457	-393	-329	-265	-201	-137
	190.00	30.00	-491	-412	-333	-254	-175	-96	-17
	210.00	35.00	-461	-367	-273	-179	-85	9	103
	230.00	40.00	-431	-322	-213	-104	5	114	223
	250.00	45.00	-401	-277	-153	-29	95	219	343
	270.00	50.00	-371	-232	-93	46	185	324	463
	290.00	55.00	-341	-187	-33	121	275	429	583

UC COOPERATIVE EXTENSION - AGRICULTURAL ISSUES CENTER  
**TABLE 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT AND BUSINESS OVERHEAD COSTS**

Sierra Nevada Foothill-2020

ANNUAL EQUIPMENT COSTS  
 There are no owned/operated equipment

ANNUAL INVESTMENT COSTS  
 There are no Investment costs

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Office Expense	40	Acre	25.00	1,000
Liability Insurance	40	Acre	15.53	621
Land Lease 40 Ac	40	Acre	210.00	8,400

UC COOPERATIVE EXTENSION- AGRICULTURAL ISSUES CENTER

**TABLE 6. OPERATIONS WITH EQUIPMENT & MATERIALS**

Sierra Nevada Foothill-2020

Operation	Operation Month	Labor Type/ Material	Rate/ acre	Unit
Weeds: Spot Spray 2x	Mar	Roundup PowerMax	0.50	Pint
		2,4-D	0.50	Pint
		Ground Application	1.00	Acre
	Apr	Roundup PowerMax	0.50	Pint
		2,4-D	0.50	Pint
		Ground Application	1.00	Acre
Fertilizer:	Mar	16-20-0-24% Sulfur	100.00	Lb.
		Broadcast Fertilizer	0.50	Acre
Irrigate: Flood 7x	Apr	Water: Miner's Inch (MI)	0.06	MI
		Hand Labor - Irrigation	0.36	Hour
	May	Water: Miner's Inch (MI)	0.08	MI
		Hand Labor - Irrigation	0.36	Hour
	June	Water: Miner's Inch (MI)	0.08	MI
		Hand Labor - Irrigation	0.36	Hour
	July	Water: Miner's Inch (MI)	0.13	MI
		Hand Labor - Irrigation	0.36	Hour
	Aug	Water: Miner's Inch (MI)	0.13	MI
		Hand Labor - Irrigation	0.36	Hour
	Sept	Water: Miner's Inch (MI)	0.06	MI
		Hand Labor - Irrigation	0.36	Hour
	Oct	Water: Miner's Inch (MI)	0.06	MI
		Hand Labor - Irrigation	0.36	Hour
	Fencing: Setup/Moving	Apr	Water: Service Fees	1.00
Weeds: Rotary Wiper	Aug	Hand Labor - Field	1.20	Hour
		Roundup PowerMax	0.50	Pint
Harvest: Hay 40 Acre	May	Rotary Weeder	1.00	Acre
		Swath/Rake/Bale/Roadside	2.50	Ton
Graze: 40 Acres 5x	June	Hand Labor - Field	1.20	Hour
	July	Hand Labor - Field	1.20	Hour
	Aug	Hand Labor - Field	1.20	Hour
	Sept	Hand Labor - Field	1.20	Hour
	Oct	Hand Labor - Field	1.20	Hour