
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2001

**SAMPLE COSTS
TO ESTABLISH AND PRODUCE
*ALFALFA HAY***



INTERMOUNTAIN REGION – Siskiyou County
Wheel Line Irrigation

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INTRODUCTION

Sample costs to establish an alfalfa stand and produce alfalfa hay in the Intermountain Region – Siskiyou County 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. A “*Your Costs*” column in Tables 1, 2, 5 and 6 is provided to enter your 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) 752-1515. Current studies can be

downloaded from the department website <http://coststudies.ucdavis.edu> or obtained from the local county UC Cooperative Extension offices.

ASSUMPTIONS

The following assumptions refer to Tables 1 to 10 and pertain to sample costs to establish an alfalfa stand and produce alfalfa hay in the Intermountain Region – Siskiyou County. Practices described are not University of California recommendations, but represent production practices and materials considered typical of a well-managed alfalfa stand in the Intermountain Region. Costs, materials, and practices in this study will not be applicable to all situations. Establishment and cultural practices vary among growers within the region; variations can be significant. For information on production practices refer to the *Intermountain Alfalfa Management* publication. **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 consist of 500 non-contiguous acres of land on which 400 acres are being planted to alfalfa, 95 acres are planted to other crops, and five acres are roads and farmstead. The owner manages the farm. Typically, the grower will rotate out a portion (40-100 acres) of the crop each year and establish a new planting on the land grown to other crops.

Stand Establishment

Tables 1, 2, 3, and 4

Land Preparation. The ground is ripped to a depth of 20 to 32 inches to fracture the soil to improve water infiltration. The field is disced to break up large clods, creating better seed-to-soil contact for good germination. The land is level, so the fields are floated to remove small high and low spots.

Planting. A cultipacker is used to firm the seedbed prior to and after planting. In late August, alfalfa seed is planted at 20 pounds per acre to a depth of 1/4 to 1/2 inch. A custom operator does the planting with a pneumatic broadcast planter. Stand life in the region is 5 to 8 years. Stand life in this study is 7 years.

Fertilization. Prior to planting, fertilizers are spread and incorporated by discing. Sulfur is applied at a rate of 300 pounds per acre and phosphorus as 11-52-0 at 200 pounds per acre or 104 pounds of P₂O₅. This amount of sulfur is sufficient to supply crop needs for 3 to 4 years, and the phosphorus for two years. In this study one-fourth of the sulfur cost and one-half of the phosphorus cost is charged to the establishment year. The fertilizers are custom spread by a fertilizer company at a cost of \$5.35 per acre. Growers should apply fertilizer or soil amendments after soil tests determine pH and nutrient levels. Plant tissue tests are recommended in subsequent years.

Irrigation. Irrigation for the newly planted alfalfa begins immediately after planting. Water is applied through a wheel line sprinkler system from late August to mid-October or until fall rain. A total of six acre-inches is applied during the establishment year.

Weed Control. Grasses and broadleaf weeds compete with the seedlings during stand establishment. In early October, a post emergent application of Pursuit at 1.44 ounces per acre and Herbimax, a crop oil adjuvant, are applied by a custom applicator to control broadleaf weeds and some grasses.

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

Production Cultural Practices and Material Inputs

Tables 5 to 10.

Irrigation. Irrigation begins in April and continues into September. Three acre-feet of water at \$18 per acre foot or \$1.50 per acre-inch is applied through wheel-line sprinklers. Irrigation costs shown in the tables include the water cost and labor for moving the lines and irrigating.

Fertilization. Phosphorus and sulfur are essential for alfalfa production in this region and are first applied in the establishment year. In March of the second and fourth production years, 200 pounds of phosphorus as 11-52-0 (104 lbs P₂O₅) is custom applied. Three-hundred pounds of sulfur (elemental) per acre is also custom spread in March of the fourth production year. Phosphorus is applied every two years and one-half the cost is charged to the budget each year. Sulfur is applied every four years and one-fourth of the cost is charged to the budget each year. The costs for the operations are shown in Tables 4, 5, and 6. Fertilize alfalfa after either a soil or plant tissue test has indicated a need.

Pest Management. The pesticides and rates mentioned in this cost study are listed in UC *Integrated Pest Management Guidelines: Alfalfa*. For more information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at 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. Weeds invade alfalfa in the fall as the stand becomes dormant. In February Velpar (a residual herbicide) at 0.33 pounds per acre and Gramoxone (a contact herbicide) at 1.5 pints per acre are tank mixed and applied to control winter weeds. Activator 90 (non-ionic adjuvant) is added to the mix. Summer grass control may be needed in some areas, but is not included in this study.

Insects. Several insect species attack alfalfa, but alfalfa weevil (*Hypera postica*) is the only pest assumed to cause economic damage. Weevils don't reach economic thresholds every year, but over the stand life, controls will be applied an average of every two years. In this study, weevils are treated every other year in April by a certified applicator with the insecticide Baythroid at two fluid ounces per acre. One-half of the actual cost is charged to the budget each year.

Vertebrates. Pocket gophers (*Thomomys spp.*), ground squirrels (*Spermophilus spp.*), and meadow mice (*Microtus spp.*) cause problems in alfalfa stands. Poison bait purchased from the local Agricultural Commissioner is used to control these pests. In this study, vertebrate pest treatment occurs in March and April. The cost for rodent bait in the study is an average of the separate costs of gopher, squirrel and mouse baits.

Harvest. Harvest equipment owned by the farm consists of a self-propelled swather, center-delivery rake, a self-propelled balewagon, and two engine driven pull-type balers. Alfalfa is cut with the 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 the pull-type baler. The balewagon picks up the bales and moves them from the field to stacks. The costs for these operations are shown in Tables 5 and 7 and the equipment is listed in Tables 8 and 9. If a grower has their hay custom harvested, replace the harvest costs used in this study with the custom harvest charges.

Yield. The crop is assumed to yield 5.5 tons of hay per acre over three cuttings per year. Annual yields in the region range from 4 to 8 tons per acre.

Returns. Based on current markets for premium to rain damaged hay, an estimated price of \$100 per ton of hay is used to calculate returns. Returns will vary during the season, depending upon the market. In some areas in the region, additional revenue is generated by charging a per head fee for grazing livestock on alfalfa that is going into dormancy. Table 10 shows a range of yields over a range of returns.

Labor. Hourly wages for workers are \$6.25 per hour for labor and \$10.00 per hour for machine operators. 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.

Overhead and Capital Recovery Costs

Assumptions in this section refer to the cash overhead and capital recovery sections in Tables 1 to 9. One-half of the annual overhead costs in the establishment year (Table 1) are allocated to the previous crop.

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. 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.

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 10.51% per year. Postharvest operations are discounted back to the last harvest month at the same interest rate so that costs are adjusted to the same position in time.

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 0.666% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$767 for the entire farm or \$1.53 per acre.

Office Expense. Office and business expenses for 500 acres are estimated at \$12,395 annually or \$25 per producing acre. These expenses include office supplies, telephones, accounting, legal fees, office and shop utilities, and miscellaneous overhead expenses.

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

Capital Recovery Costs. 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 60% to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are shown in Tables 3 and 8.

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 the American Society of Agricultural Engineers (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. The purchase price and salvage value for equipment and investments are shown in Tables 3 and 8.

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 6.70% 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. 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.

Irrigation System. Water cost varies across the Intermountain Region depending on well characteristics or irrigation district. The farm's irrigation system is included in the land purchase price. The farm has four wells and each one is forty feet deep. Each well has a 50 horsepower electric pump that pumps from a 25-foot depth. The wheel line sprinkler system was purchased new by the grower and is shown as an investment in the tables. The sprinkler system consists of sixteen 1,200-foot wheel lines with wheels and levelers.

Land. The price of the land includes an already developed well and irrigation system. Land suitable for alfalfa production can vary widely in value across the region. Prices range from \$700 per acre to \$2,500. The land in this study is owned by the grower and cost \$2,000 per acre.

Establishment Costs. Costs to establish the alfalfa 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 alfalfa. The Total Cash Cost in the first year shown in Table 1 represents the establishment cost per acre. For this study, the cost is \$229 per acre or \$91,600 for the entire stand. The alfalfa stand establishment cost is amortized over the 7-year stand life.

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. 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 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.

Repairs, Fuel and Lube. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by the American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum PTO horsepower, and fuel type. The on-farm delivery fuel price is \$1.26 per gallon for diesel and \$1.51 per gallon for gasoline.

Risk. The risks associated with producing and marketing alfalfa hay 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 alfalfa hay production.

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

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For information concerning the above mentioned University of California publications contact UC DANR Communications Services at 1-800-994-8849, online at <http://danrcs.ucdavis.edu> or your local county UC Cooperative Extension office.

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UC COOPERATIVE EXTENSION
Table 1. COSTS PER ACRE to ESTABLISH ALFALFA
 INTERMOUNTAIN REGION - Siskiyou County 2001

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:								
Subsoil/Rip	0.39	6	7	0	0	14		
Fertilize: Sulfur 1X/4yr	0.00	0	0	4	1	6		
Fertilize :11-52-0 1X/2yr	0.00	0	0	13	3	16		
Disc Stubble 2X	0.14	2	3	0	0	5		
Level Field with Float	0.15	2	1	0	0	4		
Roll Field	0.44	7	4	0	0	11		
Plant - 20lb/acre August	0.00	0	0	52	6	58		
Irrigate	2.40	20	0	9	0	29		
Weeds- Post-Emergent: Pursuit	0.00	0	0	29	7	35		
Pickup Truck Use	0.36	6	2	0	0	7		
TOTAL CULTURAL COSTS	3.88	44	17	107	16	184		
Interest on operating capital @ 10.51%						3		
TOTAL OPERATING COSTS/ACRE		44	17	107	16	187		
Cash Overhead:								
Office Expense						14		
Liability Insurance						1		
Property Taxes						15		
Property Insurance						2		
Investment Repairs						10		
TOTAL CASH OVERHEAD COSTS						42		
TOTAL CASH COSTS/ACRE						229		
Non-cash Overhead:								
		Per producing acre*		-- Annual Cost -- Capital Recovery				
Land		1,117		75		75		
Storage Building		11		1		1		
Shop Building		51		5		5		
Hay Barns 2 @ 1000 tons		122		11		11		
Shop Tools		13		1		1		
Fuel Tanks/Above Ground		7		1		1		
Wheel Line Sprinkler		315		29		29		
Equipment		143		16		16		
TOTAL NON-CASH OVERHEAD COSTS		1,779		138		138		
TOTAL COSTS/ACRE						368		

*includes allocation to previous crop acres

UC COOPERATIVE EXTENSION
Table 2. MATERIAL and INPUT COSTS to ESTABLISH ALFALFA
 INTERMOUNTAIN REGION - Siskiyou County 2001

OPERATING COSTS	Amt./acre	Unit	\$/unit	\$/acre	Your cost
Fertilizer:					
Sulfur - Elemental	75.00	lb	0.06	4	
11-52-0	100.00	lb	0.13	13	
Herbicide:					
Pursuit DG	1.44	oz	13.82	20	
Adjuvant:					
Herbimax	32	floz	0.27	9	
Seed:					
Seed - Alfalfa	20.00	lb	2.60	52	
Water:					
Water	6.00	acin	1.50	9	
Custom:					
Spread – Fertilizer 1X/2yr + 1X/4yr	0.75	acre	5.50	4	
Plant Alfalfa Seed	1.00	acre	5.50	6	
Pesticide Application	1.00	acre	6.50	7	
Labor (machine)	1.78	hrs	13.40	24	
Labor (non-machine)	2.40	hrs	8.38	20	
Fuel - Gas	0.71	gal	1.51	1	
Fuel - Diesel	6.38	gal	1.26	8	
Lube				1	
Machinery repair				6	
Interest on operating capital @ 10.51%				3	
TOTAL OPERATING COSTS/ACRE					187

UC COOPERATIVE EXTENSION
Table 3. WHOLE FARM ANNUAL EQUIPMENT COSTS for ESTABLISHMENT YEAR
 INTERMOUNTAIN REGION - Siskiyou County 2001

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
01	130 HP 2WD Tractor	81,939	15	15,952	8,177	326	489	8,993
01	62 HP 2WD Tractor	32,060	15	6,242	3,199	128	192	3,518
01	Cultipacker - 16'	15,000	15	1,440	1,557	55	82	1,694
01	Disc - Tandem 21'	19,595	15	1,881	2,034	72	107	2,213
01	Float - 16'	12,944	15	1,243	1,344	47	71	1,462
01	Pickup - 1/2 Ton	20,000	5	8,964	3,271	96	145	3,512
01	Subsoiler 5 Shank 10'	14,800	10	2,617	1,886	58	87	2,031
TOTAL		196,338		38,339	21,468	781	1,173	23,423
60% of New Cost *		117,803		23,003	12,881	469	704	14,054

UC COOPERATIVE EXTENSION
Table 4. HOURLY EQUIPMENT COST FOR ESTABLISHMENT YEAR
 INTERMOUNTAIN REGION – Siskiyou County 2001

COSTS PER HOUR

Yr	Description	Actual Hours Used	Cash Overhead				Operating		Total Costs/Hr.
			Capital Recovery	Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
01	130 HP 2WD Tractor	522.30	9.39	0.37	0.56	3.47	10.93	14.40	24.73
01	62 HP 2WD Tractor	590.40	3.25	0.13	0.19	1.36	4.41	5.77	9.35
01	Cultipacker - 16'	222.70	4.19	0.15	0.22	1.66	0.00	1.66	6.22
01	Disc - Tandem 21'	126.00	9.69	0.34	0.51	3.00	0.00	3.00	13.54
01	Float - 16'	136.80	5.89	0.21	0.31	1.99	0.00	1.99	8.40
01	Pickup - 1/2 Ton	320.50	6.12	0.18	0.27	1.48	3.47	4.95	11.53
01	Subsoiler 5 Shank 10'	194.20	5.83	0.18	0.27	3.32	0.00	3.32	9.60

UC COOPERATIVE EXTENSION
Table 5. COSTS PER ACRE to PRODUCE ALFALFA HAY
 INTERMOUNTAIN REGION – Siskiyou County 2001

Operation	Operation	Cash and Labor Cost per acre					Total Cost	Your Cost
	Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/Rent			
Cultural:								
Rodent Bait - 25% acres	0.50	4	0	1	0	5		
Insects-Weevil 1X/2yr: Baythroid	0.00	0	0	6	3	10		
Irrigation 10X	3.80	32	0	45	0	77		
Fertilize - 1X/2 yrs: 11-52-00	0.00	0	0	13	3	16		
Fertilize - 1X/4 yrs: Sulfur	0.00	0	0	4	1	6		
Weeds - Winter: Velpar/Gramoxone	0.00	0	0	22	7	29		
Pickup Truck Use	0.57	9	3	0	0	12		
TOTAL CULTURAL COSTS	4.87	45	3	92	14	154		
Harvest:								
Swath Hay - 3X	0.55	9	3	0	0	11		
Rake Hay - 3X	0.22	4	2	0	0	6		
Bale Hay - 3X	0.64	10	11	12	0	34		
Roadside Hay - 3X	0.47	8	2	0	0	9		
TOTAL HARVEST COSTS	1.56	30	17	12	0	60		
Interest on operating capital @ 10.51%						9		
TOTAL OPERATING COSTS/ACRE		75	20	104	14	222		
Total Operating Costs/Ton						40		
CASH OVERHEAD:								
Office Expense						25		
Liability Insurance						2		
Property Taxes						27		
Property Insurance						4		
Investment Repairs						12		
TOTAL CASH OVERHEAD COSTS						69		
TOTAL CASH COSTS/ACRE						291		
Total Cash Costs/Ton						53		
NON-CASH OVERHEAD:								
Investment		Per producing acre*		-- Annual Cost --				
Land		2,020		Capital Recovery		135		
Shop Building		92		8		8		
Storage Building		19		2		2		
Shop Tools		24		2		2		
Hay Barns 2 @ 1000 tons		122		11		11		
Fuel Tanks/Above Ground		13		1		1		
Wheel Line Sprinkler		315		29		29		
Alfalfa Establishment		229		42		42		
Equipment		481		61		61		
TOTAL NON-CASH OVERHEAD COSTS		3,315		292		292		
TOTAL COSTS/ACRE						584		
Total Costs/Ton						106		

*495 acres

UC COOPERATIVE EXTENSION
Table 6. COSTS AND RETURNS PER ACRE to PRODUCE ALFALFA HAY
 INTERMOUNTAIN REGION – Siskiyou County - 2001

	*Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Hay	5.50	ton	100.00	550	
OPERATING COSTS					
Rodenticide:					
Rodent Bait: Poison Grain 25% acres	0.50	lb	1.75	1	
Insecticide:					
Baythroid 2, 1X/2 yrs	1.00	floz	6.45	6	
Herbicide:					
Velpar DF	0.33	lb	33.33	11	
Gramoxone Extra	1.50	pint	6.31	9	
Adjuvant:					
Activator 90	6.40	floz	0.27	2	
Fertilizer:					
11-52-0 1X/2 yrs	100.00	lb	0.13	13	
Sulfur – Elemental 1X/4 yrs	75.00	lb	0.06	4	
Custom:					
Pesticide Application 1X/2 yrs	0.50	acre	6.50	3	
Herbicide Application	1.00	acre	6.50	7	
Spread Fertilizer 1X/2 yr + 1X/4 yr	0.75	acre	5.50	4	
Water:					
Water	30.00	acin	1.50	45	
Harvest Aid:					
Baling Twine	5.50	ton	2.00	11	
Labor (machine)	2.94	hrs	13.40	39	
Labor (non-machine)	4.30	hrs	8.38	36	
Fuel - Gas	1.14	gal	1.51	2	
Fuel - Diesel	2.88	gal	1.26	4	
Lube				1	
Machinery repair				14	
Interest on operating capital @ 10.51%				9	
TOTAL OPERATING COSTS/ACRE				222	
NET RETURNS ABOVE OPERATING COSTS				328	
CASH OVERHEAD COSTS:					
Office Expense				25	
Liability Insurance				2	
Property Taxes				27	
Property Insurance				4	
Investment Repairs				12	
TOTAL CASH OVERHEAD COSTS/ACRE				69	
TOTAL CASH COSTS/ACRE				291	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Land				135	
Shop Building				8	
Storage Building				2	
Shop Tools				2	
Hay Barns-2 @ 1000 ton				11	
Fuel Tanks/Above Ground				1	
Wheel Line Sprinkler				29	
Alfalfa Establishment				42	
Equipment				61	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				292	
TOTAL COSTS/ACRE				584	
NET RETURNS ABOVE TOTAL COSTS				-34	

*Quantity per acre over 400 acres

UC COOPERATIVE EXTENSION
Table 7. MONTHLY CASH COSTS PER ACRE to PRODUCE ALFALFA HAY
 INTERMOUNTAIN REGION – Siskiyou County 2001

Beginning JAN 01	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 01	01	01	01	01	01	01	01	01	01	01	01	01	
Cultural:													
Rodent Bait - 25% acres			5										5
Insects-Weevil (1X/2 yrs) Baythroid				10									10
Irrigation 10X				8	16	17	16	13	8				77
Fertilize - (1X/2 yrs) 11-52-00			16										16
Fertilize - (1X/4 yrs) Sulfur			6										6
Weeds – Winter: Velpar/Gramoxone		29											29
Pickup Truck Use	1	1	1	1	1	1	1	1	1	1	1	1	12
TOTAL CULTURAL COSTS	1	30	28	19	17	18	17	14	9	1	1	1	154
Harvest:													
Swath Hay - 3X					4		4		4				11
Rake Hay - 3X					2		2		2				6
Bale Hay - 3X					12		11		10				34
Roadside Hay - 3X					3		3		3				9
TOTAL HARVEST COSTS					21		20		19				60
Interest on operating capital	0	0	1	1	1	1	2	2	2	0	0	0	9
TOTAL OPERATING COSTS/ACRE	1	30	29	19	39	19	38	15	30	1	1	1	222
OVERHEAD:													
Office Expense	2	2	2	2	2	2	2	2	2	2	2	2	25
Liability Insurance	2												2
Property Taxes	14						14						27
Property Insurance	4												4
Investment Repairs	1	1	1	1	1	1	1	1	1	1	1	1	12
TOTAL CASH OVERHEAD COSTS	22	3	3	3	3	3	17	3	3	3	3	3	69
TOTAL CASH COSTS/ACRE	23	33	32	22	42	23	55	18	33	4	4	4	291

UC COOPERATIVE EXTENSION
**Table 8. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT,
and BUSINESS OVERHEAD COSTS**
INTERMOUNTAIN REGION – Siskiyou County 2001

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
						Insur- ance	Taxes		
01	62 HP 2WD Tractor #1	32,060	15	6,242	3,199	128	192		3,518
01	62HP 2WD Tractor #2	32,060	15	6,242	3,199	128	192		3,518
01	Baler – Pull w/Engine #1	44,184	10	4,418	5,880	162	243		6,284
01	Baler – Pull w/Engine #2	44,184	10	4,418	5,880	162	243		6,284
01	Balewagon - Self Propelled	102,350	10	10,235	13,620	375	563		14,557
01	Pickup - 1/2 Ton	20,000	5	8,964	3,271	96	145		3,512
01	Rake - 20' Center Delivery	18,419	15	1,842	1,909	67	101		2,078
01	Swather - 14'	47,150	10	8,338	6,008	185	277		6,470
TOTAL		340,407		44,559	43,572	1,282	1,925		46,779
60% of New Cost *		204,244		26,735	26,143	769	1,155		28,067

*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	
Alfalfa Establishment	91,600	7		16,819	0	458	0	17,277
Fuel Tanks/Above Ground	6,514	20		601	22	33	130	785
Hay Barns 2 @ 1000 tons	48,900	20		4,509	163	244	978	5,894
Land	1,000,000	40	1,000,000	67,000	0	10,000	0	77,000
Shop Building	45,619	20		4,206	152	228	912	5,498
Shop Tools	11,705	20		1,079	39	59	234	1,411
Storage Building	9,650	20		890	32	48	193	1,163
Wheel Line Sprinkler	125,920	20		11,610	419	630	2,518	15,177
TOTAL INVESTMENT	1,339,908		1,000,000	106,714	827	11,700	4,965	124,205

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	500	acre	1.53	765
Office Expense	500	acre	25.00	12,375

UC COOPERATIVE EXTENSION
Table 9. HOURLY EQUIPMENT COSTS
 INTERMOUNTAIN REGION – Siskiyou County 2001

Yr	Description	COSTS PER HOUR							Total Costs/Hr
		Actual Hours Used	Capital Recovery	Cash Overhead			Operating		
				Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
01	62HP 2WD Tractor #1	297.60	6.45	0.26	0.39	1.36	4.41	5.77	12.87
01	62HP 2WD Tractor #2	174.90	10.97	0.44	0.66	1.36	4.41	5.77	17.84
01	Baler – Pull w/Engine #1	127.20	27.73	0.76	1.15	11.53	0.00	11.53	41.18
01	Baler – Pull w/Engine #2	127.20	27.73	0.76	1.15	11.53	0.00	11.53	41.18
01	Balewagon – Self Propelled	187.20	43.65	1.20	1.80	3.29	0.00	3.29	49.95
01	Pickup - 1/2 Ton	328.00	5.98	0.18	0.26	1.48	3.47	4.95	11.38
01	Rake - 20' Center Delivery	88.80	12.90	0.46	0.68	2.48	0.00	2.48	16.52
01	Swather - 14'	220.80	16.33	0.50	0.75	4.55	0.00	4.55	22.14

U.C. COOPERATIVE EXTENSION
Table 10. RANGING ANALYSIS
 INTERMOUNTAIN REGION – Siskiyou County 2001

COSTS PER ACRE AT VARYING YIELD TO PRODUCE ALFALFA HAY

	YIELD (ton/acre)						
	4.00	4.50	5.00	5.50	6.00	6.50	7.00
OPERATING COSTS:							
Cultural Cost	154	154	154	154	154	154	154
Harvest Cost	42	48	54	60	66	71	77
Interest on operating capital	8	8	8	9	9	9	9
TOTAL OPERATING COSTS/acre	204	210	216	222	228	234	240
Total Operating Cost/ton	51	47	43	40	38	36	34
CASH OVERHEAD COSTS							
CASH OVERHEAD COSTS	69	69	69	69	69	69	69
TOTAL CASH COSTS/acre	273	279	285	291	297	303	310
Total Cash Costs/ton	68	62	57	53	50	47	44
NON-CASH OVERHEAD COSTS							
NON-CASH OVERHEAD COSTS	291	292	292	292	292	293	293
TOTAL COSTS/acre	564	571	577	584	590	596	602
Total Costs/ton	141	127	115	106	98	92	86

NET RETURNS PER ACRE ABOVE OPERATING COSTS FOR ALFALFA HAY

PRICE \$/ton	YIELD (ton/acre)						
	4.00	4.50	5.00	5.50	6.00	6.50	7.00
70.00	76	105	134	163	192	221	250
80.00	116	150	184	218	252	286	320
90.00	156	195	234	273	312	351	390
100.00	196	240	284	328	372	416	460
110.00	236	285	334	383	432	481	530
120.00	276	330	384	438	492	546	600
130.00	316	375	434	493	552	611	670

NET RETURN PER ACRE ABOVE CASH COST FOR ALFALFA HAY

PRICE \$/ton	YIELD (ton/acre)						
	4.00	4.50	5.00	5.50	6.00	6.50	7.00
70.00	7	36	65	94	123	152	180
80.00	47	81	115	149	183	217	250
90.00	87	126	165	204	243	282	320
100.00	127	171	215	259	303	347	390
110.00	167	216	265	314	363	412	460
120.00	207	261	315	369	423	477	530
130.00	247	306	365	424	483	542	600

NET RETURNS PER ACRE ABOVE TOTAL COST FOR ALFALFA HAY

PRICE \$/ton	YIELD (ton/acre)						
	4.00	4.50	5.00	5.50	6.00	6.50	7.00
70.00	-284	-256	-227	-199	-170	-141	-112
80.00	-244	-211	-177	-144	-110	-76	-42
90.00	-204	-166	-127	-89	-50	-11	28
100.00	-164	-121	-77	-34	10	54	98
110.00	-124	-76	-27	21	70	119	168
120.00	-84	-31	23	76	130	184	238
130.00	-44	14	73	131	190	249	308