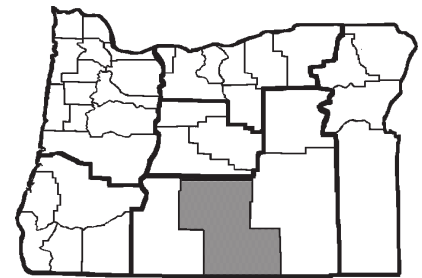


# Enterprise Budget

## Alfalfa Production, Christmas Valley Area

Bart Eleveld, Extension economist,  
Rodney Todd, Extension agent, Klamath County, and  
William Riggs, former Extension agent, Lake County,  
Oregon State University.



**EM 8353, Revised July 1998**

This enterprise budget estimates the typical costs and returns of producing alfalfa in the Christmas Valley area of south central Oregon. It should be used as a guide to estimating costs and returns and is not representative of any particular farm. The major assumptions used in constructing this budget are discussed below. Assistance provided by area producers is greatly appreciated.

The alfalfa production budget includes the amortized cost of establishment shown in *Alfalfa Establishment/Christmas Valley Area, EM 8352*. The net loss from the rotation year is included as a noncash fixed cost in the establishment year. An 8-year production life is assumed for established alfalfa. The establishment cost is based on \$264.14 net establishment cost amortized at 10 percent over 8 years, for an annual charge of \$49.51 per acre.

### Land

This budget is based on five 160-acre fields of which 125 acres of each field is center pivot irrigated. Thus, in any given year, four of the five fields are in full production. The land is valued at \$800 per irrigated acre, and property taxes are \$18.50 per irrigated acre. An established alfalfa stand at the end of its productive life is assumed as the starting land condition for the rotation year. A hay shed valued at \$100,000 provides storage for almost 2,200 tons of hay.

### Labor

Hired labor typically costs approximately \$8 per hour including social security, FICA, and other payroll expenses. For this study, all labor is treated as owner/operator labor valued at \$8 per hour and therefore assumed to be a noncash cost.

### Capital

Opportunity costs of capital are charged at a rate of 10 percent for current, intermediate, and long-term capital provided by the owner/operator.

### Machinery and Equipment

The machinery complement is sufficient to establish and harvest the five fields of alfalfa on the farm in a timely manner. A detailed breakdown of machinery values used in these budgets is shown in Table 1. February 1998 replacement costs are used, assuming the machinery is half depreciated. Estimated machinery costs are shown in Table 2.

Each center pivot irrigation system includes a 50-hp pump and low-pressure nozzles with a remaining life of 15 years. Depreciation and interest is charged for irrigation equipment at a rate of \$70 per acre.

The hours of annual use for machinery are calculated based on the machinery's field capacity in acres per hour. The total annual use values in Table 1 represent the hours the machinery is used to establish, maintain, and harvest the five fields.

### Operations

The fields are first treated to remove rodents in the spring using a custom operation. This is followed by an application of herbicide on half of the acreage. A 50-hp tractor and 14-ft disc harrow are used for light field preparation. Fertilizer is applied as follows: 3 out of 4 years, 200 lb of triple phosphate is applied, and the fourth year, 200 lb of sulfur. The budget shows these amounts averaged out to an annual basis. Insecticide is applied every 4 years. Irrigation consists of 28 acre inches of water applied over a 120-day period. Irrigation labor is based on 2 hours per day per circle for 120 days, or 1.92 hours of irrigation labor per acre.

Harvest consists of two and a half cuttings (i.e., there is a 50 percent chance of getting a third cutting in any given year). A self-propelled 14-ft swather is used to cut the hay, and a 75-hp tractor and rake is used to rake it. A 3-tie square baler pulled by a 75-hp tractor is used to bale the hay, and a bale wagon is used to stack it. A squeeze and operator are hired to load the hay onto trucks.

The assumed yield in this budget is 4.5 tons per acre during the production years. At a price of \$110 per ton, gross revenues are \$495 per acre. Subtracting variable costs of \$225.50 gives a return of \$269.50 over variable costs. The break-even price needed to cover variable cost is \$50.11 per ton (assuming price is fixed in the establishment years). Thus, as long as the price received exceeds this break-even level, it is economically worthwhile to continue producing in the short run. When the fixed costs of \$288.38 also are deducted, however, the net return is a loss of \$18.87 per acre. The break-even price to cover total costs is \$114.19 per ton. This price is sufficient to cover replacement of depreciable equipment as well as the opportunity cost of all capital invested in this enterprise.



OREGON STATE UNIVERSITY EXTENSION SERVICE



**EM 8353 Enterprise Budget**

**ECONOMIC COSTS and RETURNS**  
**South Central Region: Christmas Valley**  
 Irrigated Alfalfa Production Costs (\$/acre)

<u>GROSS INCOME Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>\$/Unit</u>	<u>Total</u>	<u>Your Cost</u>
Alfalfa Hay	4.5	ton	110.00	495.00	_____
Total GROSS Income				495.00	_____
<u>VARIABLE COST Description</u>	<u>Labor</u>	<u>Machinery</u>	<u>Materials</u>	<u>Total</u>	<u>Your Cost</u>
<b>PREHARVEST</b>					
Rodent Control Custom	0.00	0.00	10.00	10.00	_____
Rodent Control	1.00 ac x 10.00 = 10.00				
Herbicide	0.00	0.00	10.25	10.25	_____
Velpar	0.50 ac x 15.00 = 7.50				
Appl. Herbicide	0.50 ac x 5.50 = 2.75				
Harrow	0.97	1.16	0.00	2.13	_____
Fertilize	0.00	0.00	18.63	18.63	_____
Sulfur	0.025 tn x 150.00 = 3.75				
11-52-0	50.00 lb x 0.187 = 9.37				
Appl. Fertilizer	1.00 ac x 5.50 = 5.50				
Insecticide	0.00	0.00	2.88	2.88	_____
Insecticide	0.250 ac x 6.00 = 1.50				
Appl. Insecticide	0.250 ac x 5.50 = 1.37				
Irrigate	15.36	0.00	45.00	60.36	_____
Irrigate-Electricity	1.00 ac x 35.00 = 35.00				
Repairs & Maint.	1.00 ac x 10.00 = 10.00				
Total PREHARVEST				104.24	_____
<b>HARVEST</b>					
Cut Hay	3.67	15.98	0.00	19.65	_____
Rake Hay	2.02	2.13	0.00	4.14	_____
Bale Hay	6.05	14.97	0.00	21.02	_____
Stack Hay	3.67	42.58	0.00	46.24	_____
Load Hay	0.00	0.00	13.50	13.50	_____
Load Hay	4.50 tn x 3.00 = 13.50				
Total HARVEST				104.55	_____
<b>OTHER</b>					
Pickup-4WD	4.27	2.11	0.00	6.38	_____
ATV	4.27	0.87	0.00	5.13	_____
Operating Capital Interest	0.00	0.00	0.00	5.19	_____
Total OTHER				16.70	_____
Total VARIABLE COST				225.50	_____
GROSS INCOME minus VARIABLE COST				269.50	_____

**EM 8353 Enterprise Budget**

**ECONOMIC COSTS and RETURNS**  
**South Central Region: Christmas Valley**  
 Irrigated Alfalfa Production Costs (\$/acre)

<u>FIXED COST Description</u>	<u>Unit</u>	<u>Total</u>	<u>Your Cost</u>
CASH Cost			
Machinery & Equipment Insurance	acre	6.72	_____
Land	acre	18.50	_____
Total CASH Cost		<u>25.22</u>	_____
NONCASH Cost			
Amortized Establishment	acre	49.51	_____
Irrigation System	acre	70.00	_____
Machinery & Equipment Depreciation & Interest	acre	63.65	_____
Land	acre	80.00	_____
Total NONCASH Cost		<u>263.16</u>	_____
Total FIXED Cost		288.38	_____
Total of ALL Cost		513.87	_____
<b>NET PROJECTED RETURNS</b>		-18.87	_____
Break-even price, Total Variable Cost		\$50.11 per tn	_____
Break-even price, Total Cost		\$114.19 per tn	_____

## EM 8353 Enterprise Budget

**Table 1. Machinery Cost Assumptions**

No.Machine	Size	List Price	Current Market Value	Salvage Value	Useful Life	Remaining Life	Annual Use
1 Tractor	120 hp	\$75,000	\$45,000	\$15,000	12,000 hr	7,200 hr	250 hr
2 Tractor	50 hp	22,000	13,200	4,400	6,000 hr	3,600 hr	150 hr
3 Tractor	75 hp	33,500	20,100	6,700	6,000 hr	3,600 hr	400 hr
4 Bale Wagon	9,600	90,000	54,000	18,000	2,000 hr	1,200 hr	230 hr
5 Swather	14 ft	60,000	36,000	12,000	4,000 hr	2,400 hr	230 hr
6 Baler	3-tie	40,000	1,320	8,000	2,000 hr	1,200 hr	350 hr
7 Cultipacker	12 ft	4,000	2,400	800	2,500 hr	1,500 hr	15 hr
8 Disk	10 ft	3,000	1,800	600	2,500 hr	1,500 hr	50 hr
9 Disk Harrow	14 ft	2,000	1,200	400	2,000 hr	1,200 hr	50 hr
10 Land Plane	12 ft	2,000	1,200	400	2,000 hr	1,200 hr	20 hr
11 Plow	4 bottom	3,000	1,800	600	2,500 hr	1,500 hr	15 hr
12 Rototiller	12 ft	12,000	7,200	2,400	2,000 hr	1,200 hr	50 hr
13 Seed Drill	12 ft	9,000	5,400	1,800	1,500 hr	900 hr	25 hr
14 V-Rake	14 ft	10,000	6,000	2,000	1,200 hr	720 hr	110 hr
15 ATV		5,000	3,000	1,000	25,000 mi	15,000 mi	5,000 mi
16 Pickup	3/4 ton	20,000	12,000	4,000	100,000 mi	60,000 mi	10,000 mi
17 Hay Shed	20,000 sq ft	100,000			30 yr	15 yr	

**Table 2. Cost of Machinery Operations, Production Years (\$/Acre) Acres: 500**

Operation	Machines	Fuel & Lube	Operator Labor Cost	Repair & Maint.	Variable Cost	Deprec. & Taxes, Lic. & Interest	Insurance	Fixed Cost	Total Mach. Cost
Harrow	(1,9)	\$0.53	\$0.97	\$0.63	\$2.13	\$2.22	0.22	\$2.44	\$4.57
Cut Hay	(5)	3.12	3.67	12.86	19.65	6.93	0.65	7.58	27.23
Rake Hay	(2,14)	1.24	2.02	0.89	4.15	3.15	0.32	3.47	7.61
Bale Hay	(3,6)	3.22	6.05	11.75	21.02	9.39	0.78	10.16	31.18
Stack Hay	(4)	2.08	3.67	40.49	46.24	9.78	0.98	10.76	57.01
Pickup	(16)	1.34	4.27	0.77	6.38	4.35	0.34	4.69	11.07
ATV	(15)	0.40	4.26	0.46	5.13	1.70	0.24	1.94	7.06
Hay Shed	(17)	0.00	0.00	0.00	0.00	26.13	3.20	29.33	29.33
<b>TOTAL</b>		<b>\$11.94</b>	<b>\$24.91</b>	<b>\$67.85</b>	<b>\$104.70</b>	<b>\$63.65</b>	<b>6.72</b>	<b>\$70.37</b>	<b>\$175.07</b>



© 1998 Oregon State University. This publication may be photocopied or reprinted in its entirety, without change, for noncommercial purposes. Produced and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties.

Oregon State University Extension Service offers educational programs, activities, and materials without regard to race, color, religion, sex, sexual orientation, national origin, age, marital status, disability, and disabled veteran or Vietnam-era veteran status as required by Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and Section 504 of the Rehabilitation Act of 1973. Oregon State University Extension Service is an Equal Opportunity Employer.

Published August 1987. Revised July 1998.