Enterprise Budget

Alfalfa Establishment, South Central Region

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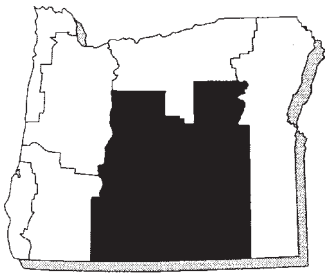

EM 8603, June 1995

This enterprise budget estimates the typical costs of establishing alfalfa in Jefferson, Crook, and Deschutes counties of South Central Oregon. While efforts were made to reflect common practices, it is not representative of any particular farm and should thus be used only as a guide to estimating actual costs. The major assumptions used in constructing this budget are discussed below. Assistance was provided by producers in Crook and Jefferson counties and is greatly appreciated.

For costs and returns associated with alfalfa production, see *EM 8604 Enterprise Budget: Alfalfa Production, South Central Region*.

Cropping Pattern

This budget is based on a 350-acre farm with 75 acres in production of alfalfa following a grain crop. It is assumed that 25 acres of alfalfa are established every other year and the alfalfa crop has a 5-year life, including an establishment year.

Land and Irrigation

A land lease charge of $90 per acre is included to represent the cost of leasing or owning land. This charge is based on a lease of irrigated land and includes a wheel-line irrigation system and canal maintenance. The cost of irrigation water is $24.65 per acre and is based on the North Unit Irrigation District water and construction charges for 1994. Electricity, repair, and maintenance for the sprinkler system are estimated to be $29.55 per acre.

Labor

Labor is hired at a rate of $8 per hour, which includes worker's compensation, unemployment insurance, and other payroll expenses. Owner/operator labor is assumed to be a cash expense of $15 per hour. Labor hours for machinery operation are calculated by multiplying 1.21 times machinery hours to allow for setup, movement, and adjustment.

Capital

Opportunity costs of capital are charged at a rate of 8 percent for current and intermediate capital provided by the owner/operator.

Machinery and Equipment

The machinery complement is sufficient to farm 350 acres. A detailed breakdown of machinery values used in this budget is shown in Table 1. January 1994 replacement costs are used, assuming the machinery is half depreciated. The hay storage shed can store 1 year of alfalfa hay production.

Operations

Land preparation begins in late winter with a soil test, plowing, a fertilizer application, and a disk/harrow operation. These operations are appropriate for the crop rotation stated above, alfalfa following grain. (If the previous crop is a hay field or pasture, one or more of the following operations may be required, thus increasing the cost of production: rototill, vibrashank, ripper/subsoil, and rock-picking.) Alfalfa seed is planted with oats as a companion (nurse) crop. The alfalfa is irrigated 11 times, and a total of 24" of water is applied.

The alfalfa hay is custom harvested (swathed, baled, and stacked) for $30 per ton. During this establishment year, one cutting yields 4.5 tons/acre. The alfalfa is stored in an on-farm storage shed. At the time of sale, the hay is loaded with a front-end loader and tractor by the owner/operator.

Other

A pickup is included for hauling supplies and general farm work. An ATV is used to monitor the irrigation system and for on-farm transportation. A general overhead charge of $10 per acre is included to cover general insurance, tools, shop, utilities, accounting fees, office supplies, and other miscellaneous expenses.

Results

The total establishment and harvest costs are $640. This cost is partially offset by income from the harvest of 4.5 tons per acre. Total income is $360. The remaining balance of -$280 is amortized over the alfalfa's 4-year stand life at 8 percent interest. This results in an $84.40/acre establishment charge in the alfalfa production budget, *EM 8604, Enterprise Budget: Alfalfa Production, South Central Region*.

Table 2 shows net returns for varying yields and prices over variable costs, and Table 3 shows net returns over total cost for varying yields and prices. In Figure 1, average production and price data are presented for Crook and Deschutes counties.

ECONOMIC COSTS and RETURNS
SOUTH CENTRAL REGION
Alfalfa Establishment, 25 acres ($/acre)

GROSS INCOME Description	Quantity	Unit	$/Unit	Total	Your Income
Alfalfa	4.50	ton	80.00	360.00	
Total GROSS Income				360.00	

VARIABLE COST Description		Labor	Machinery	Materials	Total	Your Cost
Soil Test		0.00	0.00	0.60	0.60	
Soil Test	0.04 ac x 15.00 = 0.60					
Plow		7.26	7.21	0.00	14.47	
Lime		0.00	0.00	54.00	54.00	
Lime and Cust. Appl.	1 tn x 54.00 = 54.00					
Fertilize		0.00	0.00	53.91	53.91	
Gypsum	350 lb x 0.055 = 19.25					
Triple Phosphate	32 lb x 0.12 = 3.84					
Murated Potash	100 lb x 0.081 = 8.10					
16-20-0-0	156 lb x 0.104 = 16.22					
Custom Application	1 ac x 6.50 = 6.50					
Disk/Harrow		3.63	3.60	0.00	7.23	
Plant		3.63	3.47	43.25	50.34	
Alfalfa Seed	15 lb x 2.50 = 37.50					
Oat Seed	40 lb x 0.143 = 5.74					
Irrigate		44.00	0.00	54.20	98.20	
Water/Constr. Charge	1 ac x 24.65 = 24.65					
Electricity	1 ac x 25.00 = 25.00					
Repair & Maint.	1 ac x 4.55 = 4.55					
Harvest		0.00	0.00	135.00	135.00	
Custom Harvest	4.5 tn x 30.00 = 135.00					
Load		7.42	7.39	0.00	14.82	
MISCELLANEOUS						
Storage Shed Repair & Maint.		0.37	0.00	0.50	0.87	
General Overhead		0.00	0.00	10.00	10.00	
Pickup		15.00	4.34	0.00	19.34	
ATV		7.50	0.20	0.00	7.70	
Operating Capital Interest		0.00	0.00	35.36	35.36	
Total MISCELLANEOUS					73.27	
Total VARIABLE COST					501.86	
GROSS INCOME minus VARIABLE COST					141.86	

FIXED COST Description	Unit	Total	Your Cost
CASH Cost			
Machinery & Equipment Insurance	acre	5.34	
Land Lease	acre	90.00	
Total CASH Cost		95.34	
NONCASH Cost			
Machinery & Equipment Interest & Depreciation	acre	42.36	
Total NONCASH Cost		42.36	
Total FIXED Cost		137.70	
Total of ALL Cost		639.56	
NET PROJECTED RETURNS		-279.56	
Break-even Price, Total Variable Cost		$111.52 per ton	
Break-even Price, Total Cost		$142.12 per ton	

Table 1. Machinery Cost Assumptions

Item	Size	List Price	Current Market Value	Salvage Value	Useful Life	Remaining Life	Annual Use
Tractor	100 hp	$50,000	$32,500	$15,000	10,000 hr	5,000 hr	33 hr
Disk	12 ft	9,500	5,700	1,900	2,000 hr	1,000 hr	5 hr
Front-end Loader		7,500	4,500	1,500	2,000 hr	1,000 hr	10 hr
Grain Drill	12 ft	3,750	2,250	750	2,000 hr	1,000 hr	5 hr
Moldboard Plow	3-bottom	5,685	3,411	1,137	2,000 hr	1,000 hr	10 hr
Roller	12 ft	2,500	1,500	500	1,500 hr	750 hr	5 hr
Spiked Tooth Harrow	12 ft	900	540	180	2,000 hr	1,000 hr	5 hr
ATV		3,500	2,100	700	1,500 mi	750 mi	19 mi
Pickup	1/2 ton	15,000	9,000	3,000	100,000 mi	50,000 mi	875 mi
Hay Shed			12,000			15 yr	

Table 2. Net Projected Returns for Establishment Year over Variable Cost with Varying Yield and Price ($/acre based on 1 establishment year and 4 production years)

Yield (ton/acre)	$50	$60	$70	$80	$90	$100	$110	$120
1.5	-$346	-$330	-$313	-$297	-$280	-$263	-$247	-$230
2.0	-337	-315	-293	-271	-249	-227	-205	-183
2.5	-327	-300	-272	-244	-217	-189	-161	-134
3.0	-318	-285	-252	-219	-186	-152	-119	-86
3.5	-309	-271	-232	-193	-154	-116	-77	-38
4.0	-300	-256	-212	-168	-123	-79	-35	9
4.5	-291	-242	-192	-142	-92	-42	7	57
5.0	-282	-227	-172	-116	-61	-6	50	105
5.5	-273	-212	-152	-91	-30	31	92	153

Table 3. Net Projected Returns for Establishment Year over Total Cost with Varying Yield and Price ($/acre based on 1 establishment year and 4 production years)

Yield (ton/acre)	$50	$60	$70	$80	$90	$100	$110	$120
1.5	-$482	-$466	-$449	-$432	-$416	-$399	-$383	-$366
2.0	-474	-452	-430	-408	-386	-364	-341	-319
2.5	-466	-438	-411	-383	-355	-328	-300	-272
3.0	-458	-425	-392	-358	-325	-292	-259	-226
3.5	-450	-411	-372	-334	-295	-256	-218	-179
4.0	-442	-398	-353	-309	-265	-221	-176	-132
4.5	-434	-384	-334	-284	-235	-185	-135	-85
5.0	-426	-370	-315	-260	-204	-149	-94	-38
5.5	-418	-357	-296	-235	-174	-113	-52	8

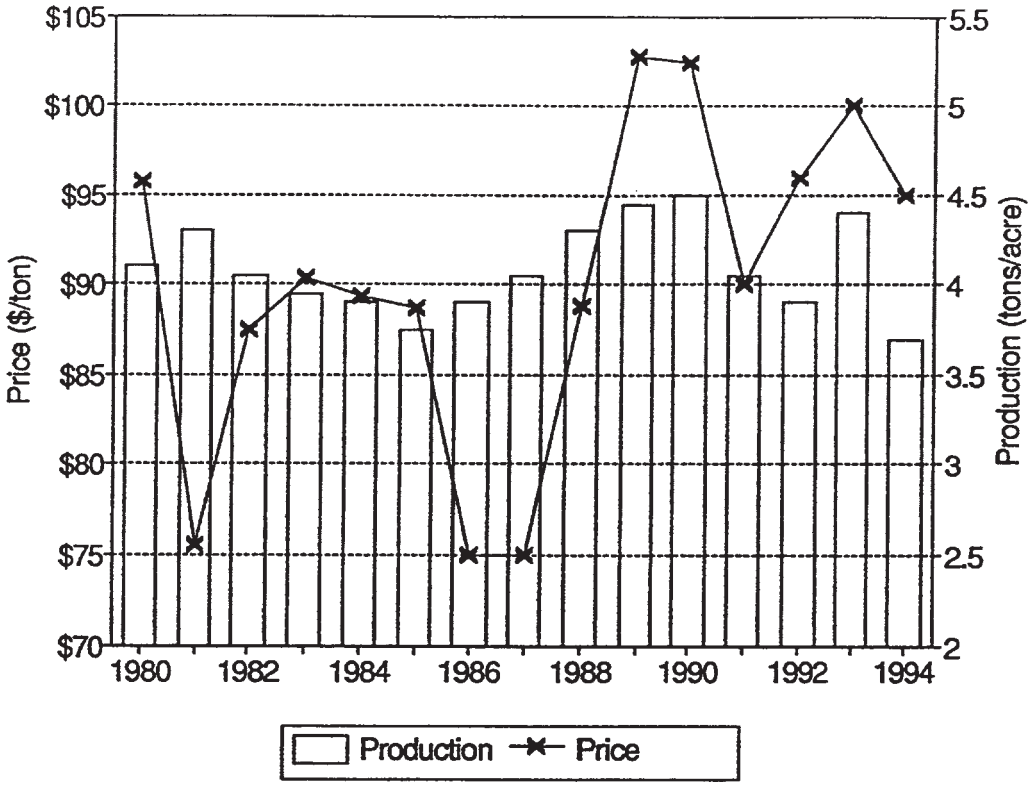

Figure 1. Alfalfa Production and Price in Crook and Deschutes Counties, Oregon, 1980-1994

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