Crop Enterprise Budget

Alfalfa Establishment, Wheatland Area

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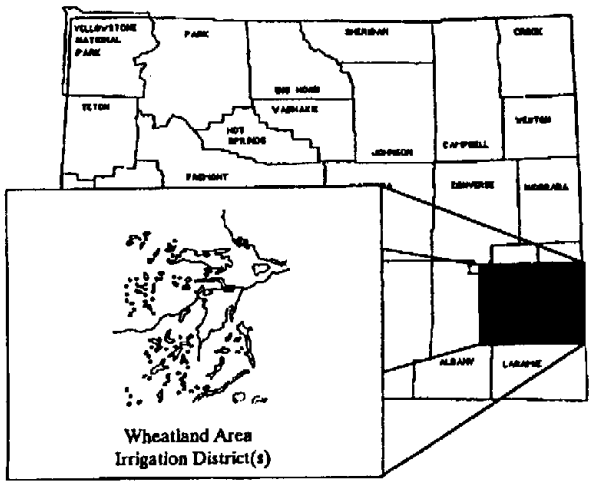

This enterprise budget estimates typical costs and returns for establishing alfalfa hay in the Wheatland area of Wyoming. It should be used only as a guide. The data presented are not taken from an actual farm. The major assumptions used in this budget are presented below.

LAND

The budget is based on a 500-acre farm, with 17 acres of alfalfa hay established with a nurse crop of oat hay each year. Other enterprises included on this farm are: alfalfa hay, 100 acres; sugar beets, 100 acres; dry beans, 75 acres; corn for grain, 62.5 acres; corn for silage, 62.5 acres; and setaside program, 23 acres. The remaining 60 acres include roadways, fence lines, and farmsteads. Owned land is valued at $750 per acre for flood-irrigated land and $850 per acre for center pivot-irrigated land. Leased land is rented on a crop-share basis. For alfalfa establishment, a 50 percent share of gross revenue is paid to the landowner. In turn, the landowner pays for all purchased irrigation water, 50 percent of the fertilizer applied, and provides $10 per ton toward baling and stacking the hay produced.

LABOR

Labor on this farm is provided by the operator and one full-time employee. All labor, including operator labor, is valued at $5 per hour plus 7.65 percent to cover social security and federal withholding taxes. Labor charges for the owner/operator represent an opportunity cost for the time spent in this enterprise. Some part-time labor is used on the farm for labor-intensive operations such as harvest.

CAPITAL

The operator provides 50 percent of the long-term capital and 50 percent of the operating capital for this enterprise. Fifty percent of the long-term capital is borrowed at an interest rate of 9.75 percent APR (Annual Percentage Rate). Fifty percent of the operating capital is borrowed at an interest rate of 9 percent APR. The interest rates used here are for short-term planning. Real interest rates must be used for accurate long-term planning.

ESTABLISHMENT COSTS

This budget estimates the cost of establishing a stand of alfalfa hay with a nurse crop of oat hay. Costs of producing alfalfa hay from an existing stand are estimated in a separate alfalfa hay budget. The establishment cost estimated by the projected net return in this budget is included in the alfalfa hay budget. It is entered as a fixed cost for the alfalfa stand. Costs of establishing a stand of alfalfa are listed in Table 3.

MACHINERY, EQUIPMENT, AND BUILDINGS

A complete list of the machinery, equipment, and buildings used in this enterprise and the associated values are provided in Table 1. All

resources are assumed to be half depreciated. Estimated operating and ownership costs are given in Table 4. Table 4 lists only the resources used in this enterprise. Other resources used on the farm are not included. However, the reader should note that the resources listed in Tables 1 and 4 may also be used in other enterprises on the farm.

Each irrigated acre on the farm is assumed to be irrigated by a fraction of the total irrigation system. The irrigation water provided by each irrigation system is broken down as follows: 30 percent center pivot, 25 percent concrete ditch and tubes, and 45 percent gated pipe (plastic and aluminum, 50 percent each). This method was employed because crops will normally be rotated onto all farmed land over time. Table 2 estimates the cost per acre-inch for providing irrigation water with each irrigation system.

The alfalfa establishment budget also includes a charge for corrugation, a charge for cleaning dirt cross-ditches, and charges for laying out and picking up gated pipe before and after each hay cutting.

OPERATIONS

Operations related to establishing alfalfa hay are listed in chronological order in the enterprise budget. Ground preparation begins in early April, including fertilization. Planting usually occurs around the middle of the month, with irrigation beginning a month thereafter. A total of four irrigations are scheduled over the growing season. The first three are necessary for producing two cuttings of oat hay, while the final irrigation is attributed to only the alfalfa stand. A total of 43 acre-inches of water is assumed delivered per acre of alfalfa establishment.

Typically, two cuttings of hay are harvested: in early July and mid August. The hay is cut and baled in 1,000 pound round bales. These are then hauled and stacked within a mile of the field. Each cutting yields 1 ton per acre.

ENTERPRISE BUDGET

Economic costs and returns for establishing alfalfa hay are summarized by operation in the enterprise budget. Costs are broken down by stage of production. General overhead and operator management have been calculated at 5 percent and 10 percent of all cash costs, respectively.

Costs and returns for the crop share-lease arrangement are also summarized in the budget. Costs paid in whole or in part by the landowner are listed in the landowner column. The tenant column describes the tenant's share of the appropriate cost and return items. The far right column has been provided to calculate changes from this base budget for your operation.

SUMMARY

Gross income for the alfalfa establishment enterprise is estimated at $120 per acre. Total variable costs are estimated at $232.45 per acre, with total fixed costs at $200.66 per acre. The total of all costs for alfalfa establishment is estimated at $433.11 per acre, leaving a net projected return of ($313.11) per acre. The net projected returns for the share-lease arrangement are ($103.48) per acre for the landowner and ($209.64) per acre for the tenant. As shown in Table 3, the cost of establishing the alfalfa stand totals $11.92 per acre of growing alfalfa each year. These costs are estimated for a six-year stand life for 100 acres of growing alfalfa.

TABLE 1. Machinery, Equipment, and Building Value and Use Assumptions

Resource Name		Current List Price	Current Market Value	Salvage Value	Total Defined Annual Use	Useful Life	Remaining Life
100 HP TRACTOR	2WD	$45,054	$26,562	$8,070	635 Hours	10,160 Hours	5,080 Hours
140 HP TRACTOR	MFD	$59,492	$33,563	$7,634	496 Hours	9,920 Hours	4,960 Hours
70 HP TRACTOR	2WD	$27,245	$15,370	$3,496	323 Hours	6,460 Hours	3,230 Hours
SWATHER-14 FT		$34,519	$18,219	$1,919	100 Hours	2,000 Hours	1,000 Hours
FERTLIZER SPREDR	LEASED	----	----	----	42 Hours	504 Hours	252 Hours
FRONT LOADER	2-TON	$3,679	$1,935	$192	132 Hours	2,640 Hours	1,320 Hours
GRAIN DRILL	12 FT	$7,095	$4,039	$983	8 Hours	96 Hours	48 Hours
LEVELER	12 FT	$6,832	$3,594	$356	48 Hours	960 Hours	480 Hours
PIPE TRAILER	30 FT	$1,416	$745	$74	47 Hours	940 Hours	470 Hours
PLOW 2-WAY	5-18'S	$6,860	$3,632	$404	114 Hours	2,166 Hours	1,083 Hours
ROLLER HARROW		$7,973	$4,369	$765	134 Hours	2,010 Hours	1,005 Hours
ROUND BALE SPIKE		$1,044	$549	$54	112 Hours	2,240 Hours	1,120 Hours
ROUND BALER		$14,686	$7,799	$912	112 Hours	2,016 Hours	1,008 Hours
TANDEM DISK	21 FT	$11,959	$6,291	$623	68 Hours	1,360 Hours	680 Hours
V-DITCHER	8 FT	$1,902	$1,001	$99	6 Hours	120 Hours	60 Hours
WEED BURNER		$53	$28	$3	10 Hours	200 Hours	100 Hours
1/2 TON PICKUP	2WD	$14,279	$8,967	$3,656	10,000 Miles	75,000 Miles	37,500 Miles
1/2 TON PICKUP	4WD	$16,190	$10,167	$4,145	10,000 Miles	75,000 Miles	37,500 Miles
2 TON TRUCK	#1	$11,605	$6,055	$505	2,276 Miles	50,072 Miles	25,036 Miles
CENTER PIVOT		$29,337	$16,171	$3,004	2,929 AcIns	43,935 AcIns	21,968 AcIns
CONCRETE DITCH		$21,814	$10,907	$0	3,975 AcIns	99,375 AcIns	49,688 AcIns
GATED PIPE		$21,422	$11,808	$2,194	7,233 AcIns	108,495 AcIns	54,248 AcIns
GRND WATER WELL		$10,530	$5,424	$318	969 AcIns	24,225 AcIns	12,113 AcIns
METAL SHOP	20 X 20		$10,000	$1,000		30 Years	15 Years
POLE BARN	40 X 80		$16,500	$1,650		30 Years	15 Years

TABLE 2. Irrigation System Costs per Acre-Inch Delivered

	Center Pivot	Concrete Ditch	Gated Pipe	Ground Water Well
VARIABLE COSTS				
Fuel Cost	$0.81	$----	$----	$2.22
Repair and Maintenance (off-farm)	0.69	----	0.06	0.27
Owner Operation Labor	0.05	----	----	----
Hired Operation Labor	----	0.29	0.09	----
Purchased Water	----	0.64	0.64	----
FIXED COSTS				
Taxes	0.07	0.03	0.04	0.11
Interest on Investment	0.54	0.24	0.28	0.95
Depreciation	0.68	0.24	0.32	0.55
Insurance	0.05	0.02	0.02	0.07
TOTAL COST PER ACRE-INCH DELIVERED	$2.89	$1.46	$1.45	$4.17

Enterprise Budget
Economic Costs and Returns per Acre
Alfalfa Establishment - Wheatland Area
17-Acre Enterprise

RETURNS SECTION

GROSS INCOME Description	Quantity	Unit	$/Unit	Owner-Operator 100% Total	Crop-Share Landowner 50% Total	Crop-Share Tenant 50% Total	Your Return
OAT HAY	2.00	TON	60.00	$120.00	$60.00	$60.00	
Total GROSS Income				$120.00	$60.00	$60.00	

VARIABLE COSTS SECTION

VARIABLE COST Description		Dollars per Acre LABOR	Dollars per Acre MACHINERY	Materials Description	Materials # Units Per Acre	Materials Unit	Materials $/unit	Materials Total Cost Per Acre	Crop-Share Owner-Operator	Crop-Share Landowner	Crop-Share Tenant	Your Cost
ANNUAL												
METAL SHOP - 20 X 20									3.16	----	3.16	
POLE BARN - 40 X 80									1.83	----	1.83	
1/2 TON PICKUP - 2WD		7.28	6.32						13.60	----	13.60	
1/2 TON PICKUP - 4WD		7.28	7.10						14.38	----	14.38	
GENERAL OVERHEAD									9.27	----	9.27	
OPERATOR MANAGEMENT									18.53	----	18.53	
Total ANNUAL									60.77	0.00	60.77	
PRE-PLANT												
CLEAN DITCHES	Operation	0.26	0.02						0.28	----	0.28	
DISK	Operation	0.74	2.02						2.76	----	2.76	
SPREAD FERTLIZER	Operation	0.59	0.40	FERTLIZER SPREDR	1.000	Acre	0.50	13.70	14.69	6.85	7.84	
				11-52-0	0.050	TON	264.00					
PLOW	Operation	1.97	6.41						8.38	----	8.38	
ROLLER HARROW	Operation	1.32	2.57						3.89	----	3.89	
LEVEL	Operation	1.32	4.12						5.44	----	5.44	
Total PRE-PLANT									35.44	6.85	28.59	
PLANT												
PLANT OATS & ALF	Operation	1.18	1.18	ALFALFA SEED	12.000	LBS	2.50	33.15	35.51	----	35.51	
				OAT SEED	35.000	LBS	0.09					
Total PLANT									35.51	0.00	35.51	
GROW OATS & ALF												
CUSTM CORRUGATE								5.00	5.00	----	5.00	
OPEN DITCHES	Operation	0.30	0.22						0.52	----	0.52	
LAY GATED PIPE	Operation	0.41	0.15						0.56	----	0.56	
CANVAS DAMS								0.65	0.65	----	0.65	
CENTER PIVOT		0.11	3.48						3.59	----	3.59	
GRND WATER WELL			1.97						1.97	----	1.97	
CONCRETE DITCH		0.86	0.00	Purchased Water				1.92	2.78	1.92	0.86	
GATED PIPE		0.52	0.33	Purchased Water				3.50	4.35	3.50	0.85	
CENTER PIVOT		0.11	3.48						3.59	----	3.59	
GRND WATER WELL			1.97						1.97	----	1.97	
CONCRETE DITCH		0.86	0.00	Purchased Water				1.92	2.78	1.92	0.86	
GATED PIPE		0.52	0.33	Purchased Water				3.50	4.35	3.50	0.85	
Total GROW OATS & ALF									32.11	10.84	21.27	
HARVEST 1ST CUT												
PIKUP GATED PIPE	Operation	0.41	0.15						0.56	----	0.56	
SWATH	Operation	1.48	2.85						4.33	----	4.33	
BALE - 1 TON/AC	Operation	1.97	5.08	BALING TWINE	0.063	BOX	15.50	0.98	8.03	6.42	1.61	
HAUL BALES	Operation	0.12	0.15						0.27	----	0.27	
STACK BALES	Operation	1.97	2.50						4.47	3.58	0.89	
Total HARVEST 1ST CUT									17.66	10.00	7.66	
GROW OATS & ALF												
LAY GATED PIPE	Operation	0.41	0.15						0.56	----	0.56	
CENTER PIVOT		0.11	3.48						3.59	----	3.59	
GRND WATER WELL			1.97						1.97	----	1.97	
CONCRETE DITCH		0.86	0.00	Purchased Water				1.92	2.78	1.92	0.86	
GATED PIPE		0.52	0.33	Purchased Water				3.50	4.35	3.50	0.85	
Total GROW OATS & ALF									13.25	5.42	7.83	

VARIABLE COSTS SECTION

VARIABLE COST Description	Dollars per Acre LABOR	MACHINERY	Materials Description	# Units Per Acre	Unit Type	$/unit	Materials Total Cost Per Acre	Crop-Share Owner-Operator	Crop-Share Land-owner	Crop-Share Tenant	Your Cost
HARVEST 2ND CUT											
PIKUP GATED PIPE Operation	0.41	0.15						0.56	----	0.56	
SWATH Operation	1.48	2.85						4.33	----	4.33	
BALE - 1 TON/AC Operation	1.97	5.08	BALING TWINE	0.063	BOX	15.50	0.98	8.03	6.42	1.61	
HAUL BALES Operation	0.12	0.15						0.27	----	0.27	
STACK BALES Operation	1.97	2.50						4.47	3.58	0.89	
Total HARVEST 2ND CUT								17.66	10.00	7.66	
GROW ALFALFA											
LAY GATED PIPE Operation	0.41	0.15						0.56	----	0.56	
CENTER PIVOT	0.11	3.48						3.59	----	3.59	
GRND WATER WELL		1.97						1.97	----	1.97	
CONCRETE DITCH	0.86	0.00	Purchased Water				1.92	2.78	1.92	0.86	
GATED PIPE	0.52	0.33	Purchased Water				3.50	4.35	3.50	0.85	
PIKUP GATED PIPE Operation	0.41	0.15						0.56	----	0.56	
Total GROW ALFALFA								13.81	5.42	8.39	
Operating Interest								6.24	----	6.24	
Total VARIABLE COST								$232.45	$48.53	$183.92	
GROSS INCOME minus VARIABLE COST								($112.45)	$11.47	($123.92)	

FIXED COSTS SECTION

FIXED COST Description	Unit	Crop-Share Owner-Operator	Crop-Share Land-owner	Crop-Share Tenant	Your Cost
Machinery and Equipment:					
Taxes	Acre	5.76	----	5.76	
Insurance	Acre	8.42	----	8.42	
Long-term Interest	Acre	33.90	----	33.90	
Depreciation	Acre	37.63	----	37.63	
Buildings and Improvements:					
Taxes	Acre	1.03	1.03	----	
Insurance	Acre	0.66	0.66	----	
Long-term Interest	Acre	9.27	9.27	----	
Depreciation	Acre	5.88	5.88	----	
Irrigation:					
Taxes	Acre	1.66	1.66	----	
Insurance	Acre	0.91	0.91	----	
Long-term Interest	Acre	16.82	16.82	----	
Depreciation	Acre	17.79	17.79	----	
Land:					
Taxes	Acre	8.78	8.78	----	
Long-term Interest	Acre	52.13	52.13	----	
Total FIXED Cost		$200.66	$114.95	$85.72	
Total of ALL Cost		$433.11	$163.48	$269.64	
NET PROJECTED RETURNS		($313.11)	($103.48)	($209.64)	

TABLE 3. Alfalfa Establishment Costs Per Acre of Growing Alfalfa

	Owner-Operator
ESTABLISHMENT COSTS per acre of alfalfa establishment:	$313.11

$313.11 ÷ 6 year stand life = $52.19/year
17 acres of establishment alfalfa per 100 acres of growing alfalfa
(17 ÷ 100) = 17.00%; $52.19 X 17.00% = $8.87/ac depreciation charge

DEPRECIATION COST per acre of growing alfalfa:	$8.87
LONG-TERM INTEREST COST per acre of growing alfalfa:	+ 3.05
TOTAL ESTABLISHMENT COST per acre of growing alfalfa:	$11.92

TABLE 4. Machinery, Equipment, and Building Cost Calculations

Machine/Vehicle		Unit	RESOURCE COST PER UNIT OF USE: Variable: Fuel and Lube	Variable: Operation Labor & Inputs	Variable: Repair and Maint.	Variable: Hourly Lease	Fixed: Deprec. and Interest	Fixed: Taxes and Insurance	TOTAL COST	ENTERPRISE: Resource Use per Acre	ENTERPRISE: Costs per Acre: Variable	ENTERPRISE: Costs per Acre: Fixed	ENTERPRISE: Costs per Acre: TOTAL
100 HP TRACTOR	2WD	$/Hour	$5.17	$0.00	$4.86	$0.00	$4.48	$0.72	$15.23	0.2224	$2.23	$1.16	$3.39
140 HP TRACTOR	MFD	$/Hour	7.24	0.00	6.20	0.00	6.66	1.17	21.27	1.3471	18.10	10.55	28.65
70 HP TRACTOR	2WD	$/Hour	3.62	0.00	1.85	0.00	4.69	0.82	10.98	1.2306	6.73	6.78	13.51
SWATHER-14 FT		$/Hour	7.06	0.00	4.35	0.00	17.97	3.15	32.53	0.5000	5.71	10.56	16.27
FERTLIZER SPREDR	LEASED	$/Hour	0.00	0.00	0.00	5.00	0.00	0.00	5.00	0.1000	0.50	0.00	0.50
FRONT LOADER	2-TON	$/Hour	0.00	0.00	1.98	0.00	1.45	0.25	3.68	0.6665	1.32	1.13	2.45
GRAIN DRILL	12 FT	$/Hour	0.00	0.00	0.40	0.00	62.44	8.72	71.56	0.2000	0.08	14.23	14.31
LEVELER	12 FT	$/Hour	0.00	0.00	1.64	0.00	7.39	1.29	10.32	0.2224	0.36	1.93	2.29
PIPE TRAILER	30 FT	$/Hour	0.00	0.00	0.33	0.00	1.56	0.27	2.16	0.2141	0.07	0.39	0.46
PLOW 2-WAY	5-18'S	$/Hour	0.00	0.00	5.90	0.00	3.04	0.52	9.46	0.3335	1.97	1.19	3.16
ROLLER HARROW		$/Hour	0.00	0.00	1.69	0.00	3.66	0.56	5.91	0.2224	0.38	0.94	1.32
ROUND BALE SPIKE		$/Hour	0.00	0.00	0.47	0.00	0.48	0.09	1.04	0.6665	0.31	0.38	0.69
ROUND BALER		$/Hour	0.00	0.00	6.39	0.00	7.21	1.20	14.80	0.6665	4.26	5.61	9.87
TANDEM DISK	21 FT	$/Hour	0.00	0.00	2.89	0.00	9.12	1.60	13.61	0.1253	0.36	1.34	1.70
V-DITCHER	8 FT	$/Hour	0.00	0.00	0.26	0.00	16.45	2.88	19.59	0.0500	0.01	0.97	0.98
WEED BURNER		$/Hour	0.93	0.00	0.00	0.00	0.53	0.05	1.51	0.0241	0.02	0.01	0.03
1/2 TON PICKUP	2WD	$/Mile	0.10	0.00	0.06	0.00	0.26	0.07	0.49	40.5682	6.49	13.39	19.88
1/2 TON PICKUP	4WD	$/Mile	0.10	0.00	0.07	0.00	0.29	0.08	0.54	40.5682	6.90	15.01	21.91
2 TON TRUCK	#1	$/Mile	0.24	0.00	0.20	0.00	0.48	0.21	1.13	0.6665	0.29	0.46	0.75
CENTER PIVOT		$/Ac-In	0.81	0.05	0.87	0.00	1.76	0.12	3.61	8.9200	15.43	16.77	32.20
CONCRETE DITCH		$/Ac-In	0.00	0.93	0.00	0.00	0.91	0.06	1.90	12.0800	11.23	11.72	22.95
GATED PIPE		$/Ac-In	0.00	0.73	0.08	0.00	0.99	0.08	1.88	21.9600	17.79	23.50	41.29
GRND WATER WELL		$/Ac-In	2.22	0.00	0.52	0.00	2.58	0.23	5.55	2.9600	8.11	8.32	16.43
METAL SHOP	20 X 20	$/Year	720.00	0.00	140.37	0.00	1,545.75	131.63	2,537.75	0.0020	1.72	3.35	5.07
POLE BARN	40 X 80	$/Year	360.00	0.00	140.37	0.00	2,550.49	217.20	3,268.06	0.0020	1.00	5.54	6.54

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