

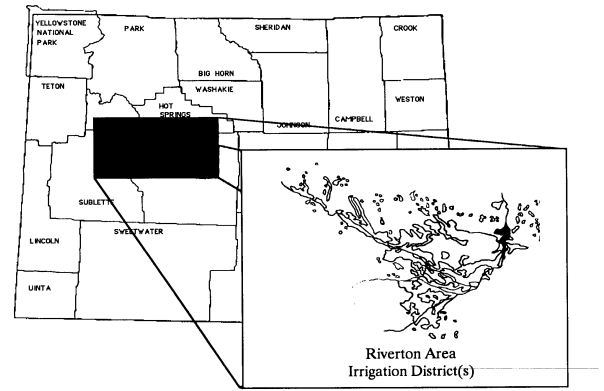
# Crop Enterprise Budget

## Alfalfa Establishment, Riverton Area

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This enterprise budget presents estimated typical costs and returns for establishing alfalfa hay in the Riverton area of Wyoming. Data presented are not taken from an actual farm situation. A panel of Fremont County producers assisted in outlining the “representative” farm situation described by the budget. Thus, the budget provides a guide to determining costs and returns for specific operations. Production practices presented in the budget are not necessarily “best” management practices. The major assumptions used in this budget are presented below.

### LAND

The budget is based on a 480 acre farm, with 40 acres of alfalfa hay established each year using an oat and field pea companion (nurse) crop. Other enterprises included on this farm are: alfalfa hay, 200 acres; dry beans, 40 acres; sugar beets, 120 acres; feed barley, 50 acres; and 273 head of cattle grazed on crop aftermath. The remaining 30 acres include roadways, fence lines, and farmsteads. All owned land is valued at \$800 per acre. Leased land is rented on a cash-lease basis for \$75 per acre. The land owner pays for irrigation water, taxes, insurance, long term interest, and depreciation for owned land and improvements.

### LABOR

Labor 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 may be 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 8.0 percent APR (Annual Percentage Rate). Fifty percent of the operating capital is borrowed at an interest rate of 8.5 percent APR. The interest rates used here are for short-term planning. Real interest rates (interest rates adjusted for expected inflation) should be used for accurate long-term planning.

### ESTABLISHMENT COSTS

This budget estimates the cost of establishing a stand of alfalfa hay with a companion (nurse) crop of oats and field peas. 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 1.

### 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 2. 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 2 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: 18 percent concrete ditch and 82 percent gated pipe (50 percent aluminum and 50 percent plastic). This method was employed because crops will normally be rotated onto all farmed land over time. Table 3 presents an estimate of the cost per acre-inch for providing irrigation water for each type of irrigation.

## OPERATIONS

Operations related to establishing alfalfa hay are listed in chronological order in the enterprise budget. Ground preparation begins in mid March, including custom fertilization. Planting usually occurs toward the end of the month, with irrigation beginning immediately thereafter. A total of 3 irrigations are scheduled over the growing season. The first two are necessary for producing a cutting of oat/pea/alfalfa hay, while the third is attributed to a second cutting of alfalfa hay. A total of 56 acre-inches of water is assumed delivered per acre of alfalfa establishment.

Typically, two cuttings of hay are harvested: in early July and at the end of August. The first cutting is cut and custom baled in large-square bales. These are then hauled and stacked within a mile of the field. The second cutting is cut, baled in small square bales, and custom stacked. The first cutting produces 2 tons per acre, while the second cutting yields about 1.5 tons 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 cash lease arrangement are also summarized in the budget. Costs paid/received by the tenant, including the cash land rent are listed in the tenant column. Items paid/received by the landowner, including the cash land rent income are included in the landowner column. 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 \$231.09 per acre. Total variable costs are estimated at \$192.87 per acre, with total fixed costs at \$119.23 per acre. The total of all costs for alfalfa establishment is estimated at \$312.10 per acre, leaving a net projected return of (\$81.01) per acre. The net projected returns for the lease arrangement are (\$9.56) per acre for the landowner and (\$82.70) per acre for the tenant. As shown in Table 1, the cost of establishing the alfalfa stand totals \$21.48 per acre of growing alfalfa each year. These costs are estimated for a five year stand life assuming 200 acres of growing alfalfa.

# Alfalfa Establishment

## Enterprise Budget Economic Costs and Returns per Acre Alfalfa Establishment - Riverton Area 40 Acre Enterprise

RETURNS SECTION -----							
GROSS INCOME Description	Quantity	Unit	\$ /Unit	Owner-	--- Crop-Share ---		Your
				Operator	Land-	Tenant	
				100%	owner	100%	
				Total	Total	Total	Return
=====	=====	=====	=====	=====	=====	=====	=====
ALF-MIX HAY	2.00	TON	65.00	\$130.00	\$0.00	\$130.00	
ALFALFA HAY	1.50	TON	67.39	101.09	0.00	101.09	
CASH LAND RENT	1.00	ACRES	75.00	----	75.00	0.00	
=====	=====	=====	=====	=====	=====	=====	=====
Total GROSS Income				\$231.09	\$75.00	\$231.09	

VARIABLE COSTS SECTION			----- M a t e r i a l s -----					--- Crop-Share ---				
VARIABLE	COST	Description	Dollars per Acre		Description	# Units	Unit	Materials	Owner-	Land-	Tenant	Your
			LABOR	MACHINERY		Per Acre	Type	Total Cost	Operator	owner		Cost
=====												
**ANNUAL**												
		METAL SHOP							2.30	----	2.30	
		LOAFING SHED							0.30	----	0.30	
		4-WHEELER	3.72	6.58					10.30	----	10.30	
		1/2 TON PICKUP - 2WD	5.38	1.77					7.15	----	7.15	
		1/2 TON PICKUP - 4WD	5.38	1.77					7.15	----	7.15	
		CASH LAND RENT						75.00	----	----	75.00	
		GENERAL OVERHEAD							7.18	----	10.93	
		OPERATOR MANAGEMENT							14.35	----	21.85	
-----												
Total		ANNUAL							\$48.73	\$0.00	\$134.98	
**PREPLANT-SPRING**												
		CUSTOM FERTILIZE 70-70-0						21.57	21.57	----	21.57	
		FIELD CULTIVATE Operation	0.99	1.70					2.69	----	2.69	
		ROLLER HARROW Operation	0.85	1.65					2.50	----	2.50	
-----												
Total		PREPLANT-SPRING							\$26.76	\$0.00	\$26.76	
**PLANT**												
		PLANT ALF MIX Operation	1.48	1.93	ALFALFA SEED	0.12	Cwt	174.50	34.47	37.88	----	37.88
					OAT SEED	0.20	Cwt	12.66			----	0.00
					FIELD PEA SEED	0.50	Cwt	22.00			----	0.00
-----												
Total		PLANT							\$37.88	\$0.00	\$37.88	
**GROW 1ST CUT**												
		CORRUGATE 6-ROW Operation	1.48	2.13					3.61	----	3.61	
		LAY GATED PIPE Operation	0.46	0.25					0.71	----	0.71	
		CONCRETE DITCH	0.76		Purchased Water			1.04	1.80	1.04	0.76	
		GATED PIPE	1.87		Purchased Water			4.82	6.69	4.82	1.87	
		CONCRETE DITCH	0.76		Purchased Water			1.04	1.80	1.04	0.76	
		GATED PIPE	1.87		Purchased Water			4.82	6.69	4.82	1.87	
-----												
Total		GROW 1ST CUT							\$21.30	\$11.72	\$9.58	
**HARVEST 1ST CUT**												
		PIKUP GATED PIPE Operation	0.46	0.25					0.71	----	0.71	
		SWATH Operation	0.77	1.29					2.06	----	2.06	
		CUSTOM BALE LRG-SQR						12.50	12.50	----	12.50	
		HAUL/STACK BALES Operation	4.74	9.93					14.67	----	14.67	
-----												
Total		HARVEST 1ST CUT							\$29.94	\$0.00	\$29.94	
**GROW 2ND CUT**												
		LAY GATED PIPE Operation	0.46	0.25					0.71	----	0.71	
		CONCRETE DITCH	0.76		Purchased Water			1.04	1.80	1.04	0.76	
		GATED PIPE	1.87		Purchased Water			4.82	6.69	4.82	1.87	
-----												
Total		GROW 2ND CUT							\$9.20	\$5.86	\$3.34	

## Alfalfa Establishment

VARIABLE COSTS SECTION											
			----- M a t e r i a l s -----				Materials		--- Crop-Share ---		
VARIABLE COST Description	Dollars per Acre		Description	# Units	Unit	\$/unit	Total Cost	Owner-	Land-	Tenant	Your
	LABOR	MACHINERY		Per Acre	Type		Per Acre	Operator	owner		Cost
=====											
**HARVEST 2ND CUT**											
PIKUP GATED PIPE Operation	0.46	0.25						0.71	----	0.71	
SWATH Operation	1.08	1.80						2.88	----	2.88	
BALE - 1 TON/AC Operation	1.97	3.77	BALING TWINE	0.05	Box	21.63	1.12	6.86	----	6.86	
CSTM STACK BALES SM-SQR							6.25	6.25	----	6.25	
-----											
Total HARVEST 2ND CUT								\$16.70	\$0.00	\$16.70	
-----											
OPERATING INTEREST								2.36	2.36	----	2.36
=====											
Total VARIABLE COST								\$192.87	\$17.58	\$261.54	
-----											
GROSS INCOME minus VARIABLE COST								\$38.22	\$57.42	(\$30.45)	
-----											
FIXED COSTS SECTION											
-----											
		--- Crop-Share ---									
FIXED COST Description	Unit	Owner-	Land-	Tenant	Your						
		Operator	owner		Cost						
=====											
Machinery and Equipment:											
Taxes	Acre	2.33	----	2.33							
Insurance	Acre	3.73	----	3.73							
Long Term Interest	Acre	18.08	----	18.08							
Depreciation	Acre	28.12	----	28.12							
Buildings and Improvements:											
Taxes	Acre	0.52	0.52	----							
Insurance	Acre	0.24	0.24	----							
Long Term Interest	Acre	4.98	4.98	----							
Depreciation	Acre	4.30	4.30	----							
Irrigation:											
Taxes	Acre	0.60	0.60	----							
Insurance	Acre	0.28	0.28	----							
Long Term Interest	Acre	5.08	5.08	----							
Depreciation	Acre	7.70	7.70	----							
Land:											
Taxes	Acre	4.31	4.31	----							
Long Term Interest	Acre	38.98	38.98	----							
=====											
Total FIXED Cost		\$119.23	\$66.98	\$52.25							
-----											
Total of ALL Cost		\$312.10	\$84.56	\$313.79							
-----											
*****											
NET PROJECTED RETURNS		(\$81.01)	(\$9.56)	(\$82.70)							
*****											

TABLE 1. Alfalfa Establishment Costs Per Acre of Growing Alfalfa

	Owner- Operator
ESTABLISHMENT COSTS Per Acre Of Alfalfa Establishment.....	\$ 81.01
Assuming a 5 year stand life gives:	
\$81.01 ÷ 5 year stand life = \$16.20/year depreciation cost	
DEPRECIATION COST Per Acre Of Growing Alfalfa.....	\$ 16.20
LONG-TERM INTEREST COST Per Acre Of Growing Alfalfa.....	5.28
TOTAL ESTABLISHMENT COST Per Acre of Growing Alfalfa.....	\$ 21.48

Alfalfa Establishment

TABLE 2. 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	\$43,409	\$29,279	\$15,149	986 Hours	7,888 Hours	3,944 Hours
140 HP TRACTOR 2WD	\$55,430	\$31,271	\$7,112	223 Hours	4,460 Hours	2,230 Hours
4-WHEELER 2WD	\$1,729	\$1,127	\$526	1,000 Hours	5,000 Hours	2,500 Hours
SWATHER-14 FT	\$38,298	\$20,214	\$2,129	130 Hours	2,600 Hours	1,300 Hours
CORRUGATOR 6-ROW	\$5,601	\$2,946	\$292	73 Hours	1,460 Hours	730 Hours
FIELD CULTIVATOR 18 FT	\$4,530	\$2,383	\$236	25 Hours	500 Hours	250 Hours
FRONT LOADER 2-TON	\$4,014	\$2,112	\$209	375 Hours	7,500 Hours	3,750 Hours
GRAIN DRILL 12 FT	\$7,449	\$4,240	\$1,032	23 Hours	276 Hours	138 Hours
PIPE TRAILER	\$1,213	\$616	\$19	78 Hours	2,340 Hours	1,170 Hours
PTO TWINE BALER 3 AC/HR	\$12,860	\$6,743	\$626	80 Hours	1,600 Hours	800 Hours
ROLLER HARROW 15 FT	\$7,733	\$4,068	\$403	93 Hours	1,860 Hours	930 Hours
1/2 TON PICKUP 4WD	\$12,437	\$7,810	\$3,184	10,000 Miles	75,000 Miles	37,500 Miles
2 TON TRUCK	\$10,974	\$6,452	\$1,931	4,730 Miles	50,000 Miles	25,000 Miles
3/4 TON PICKUP 4WD	\$15,315	\$9,618	\$3,921	10,000 Miles	75,000 Miles	37,500 Miles
TANDEM TRUCK	\$16,628	\$9,458	\$2,289	3,975 Miles	50,000 Miles	25,000 Miles
CONCRETE DITCH	\$2,812	\$1,666	\$520	3,913 Ac-In	39,750 Ac-In	19,875 Ac-In
GATED PIPE	\$51,140	\$27,759	\$5,237	18,180 Ac-In	272,700 Ac-In	136,350 Ac-In
FENCES		\$7,207	\$721		30 Years	15 Years
LOAFING SHED 16 x 40		\$5,000	\$500		30 Years	15 Years
METAL SHOP 40 x 80		\$20,000	\$2,000		30 Years	15 Years

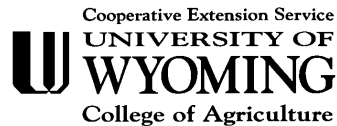
TABLE 3. Irrigation System Costs per Acre-Inch Delivered

	Concrete <u>Ditch</u>	Gated <u>Pipe</u>
Variable Costs		
Repair and Maintenance (Off-Farm).....	\$ - -	\$0.04
Owner Operation Labor.....	0.23	0.08
Purchased Water.....	0.31	0.31
Fixed Costs		
Taxes.....	- - -	0.01
Interest on Investment.....	0.03	0.10
Depreciation.....	0.06	0.15
Insurance.....	- - -	0.01
Total Cost per Acre-Inch of Irrigation Water Delivered.....	\$0.63	\$0.70

# Alfalfa Establishment

TABLE 4. Machinery, Equipment, and Building Cost Calculations

Machine/Vehicle	Unit		-----Variable-----				-----Fixed-----		TOTAL COST	----- ENTERPRISE -----			
			Fuel and Lube	Operation Labor & Inputs	Repair and Maint.	Hourly Lease	Deprec. and Interest	Taxes and Insurance		Resource Use per Acre	-----Costs per Acre-----		
											Variable	Fixed	TOTAL
100 HP TRACTOR	2WD	\$/Hour	\$4.76	\$0.00	\$3.85	\$0.00	\$4.11	\$0.35	\$13.07	1.9405	\$16.71	\$8.65	\$25.36
140 HP TRACTOR	2WD	\$/Hour	6.66	0.00	2.60	0.00	15.23	1.64	26.13	0.1668	1.54	2.81	4.35
4-WHEELER	2WD	\$/Hour	2.27	0.00	1.28	0.00	0.19	0.01	3.75	2.9100	10.33	0.58	10.91
SWATHER-14 FT		\$/Hour	2.75	0.00	6.27	0.00	18.43	1.82	29.27	0.3430	3.09	6.95	10.04
CORRUGATOR 6-ROW		\$/Hour	0.00	0.00	1.89	0.00	4.84	0.47	7.20	0.2500	0.47	1.33	1.80
FIELD CULTIVATOR	18 FT	\$/Hour	0.00	0.00	1.11	0.00	11.42	1.12	13.65	0.1668	0.19	2.09	2.28
FRONT LOADER	2-TON	\$/Hour	0.00	0.00	4.97	0.00	0.67	0.07	5.71	0.8000	3.98	0.59	4.57
GRAIN DRILL	12 FT	\$/Hour	0.00	0.00	1.20	0.00	26.27	2.16	29.63	0.2500	0.30	7.11	7.41
PIPE TRAILER		\$/Hour	0.00	0.00	0.59	0.00	0.80	0.09	1.48	0.1645	0.10	0.15	0.25
PTO TWINE BALER		\$/Hour	0.00	0.00	4.63	0.00	10.21	0.99	15.83	0.3333	1.54	3.73	5.27
ROLLER HARROW	15 FT	\$/Hour	0.00	0.00	1.60	0.00	5.24	0.51	7.35	0.1430	0.23	0.82	1.05
1/2 TON PICKUP	4WD	\$/Mile	0.07	0.00	0.00	0.00	0.24	0.05	0.36	25.0000	1.75	7.25	9.00
2 TON TRUCK		\$/Mile	0.23	0.00	0.00	0.00	0.35	0.09	0.67	1.3530	0.31	0.60	0.91
3/4 TON PICKUP	4WD	\$/Mile	0.07	0.00	0.00	0.00	0.30	0.06	0.43	25.0000	1.75	9.00	10.75
TANDEM TRUCK		\$/Mile	0.17	0.00	0.00	0.00	0.54	0.16	0.87	0.6665	0.11	0.47	0.58
CONCRETE DITCH		\$/Ac-In	0.00	0.54	0.00	0.00	0.09	0.00	0.63	9.9900	5.39	0.90	6.29
GATED PIPE		\$/Ac-In	0.00	0.39	0.04	0.00	0.25	0.02	0.70	46.3200	19.92	12.51	32.43
FENCES	3.0 MILES	\$/Year	0.00	0.00	0.00	0.00	1,199.24	84.44	1,283.68	0.0020	0.00	2.57	2.57
LOAFING SHED	16 X 40	\$/Year	0.00	0.00	153.80	0.00	688.00	58.58	900.38	0.0020	0.31	1.49	1.80
METAL SHOP	40 X 80	\$/Year	1,000.00	0.00	153.80	0.00	2,752.00	234.33	4,140.13	0.0020	2.31	5.97	8.28



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