

# CROP ENTERPRISE

B U D G E T



## CONVENTIONAL IRRIGATED ALFALFA (ESTABLISHED), GOSHEN COUNTY, WYOMING

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This crop budget models a representative established irrigated alfalfa operation in southeast Wyoming. Alfalfa is a typical crop in this part of the state and in terms of acreage, alfalfa is the second most widely produced crop in the state behind only grass hay. The operations described in these budgets are typical for southeast Wyoming. Operations and figures are the best estimates available, taken from multiple sources in southeast Wyoming and the Nebraska Panhandle, including University of Nebraska state crop budgets (Klein et al., 2017a; Klein et al., 2017b). University of Minnesota machinery cost estimates were used to establish use-related costs (Lazarus, 2015).

### Land

This budget assumes the land base is owned by the producer. Real estate opportunity cost is assumed at 4 percent per acre. Real estate taxes are assumed to be 1 percent per acre. The per-acre land value is estimated as the average value of irrigated cropland in the state of Wyoming, according to the most current Wyoming Agricultural Statistics Service survey (USDA-NASS, 2017).

### Labor

This budget assumes labor is provided by the landowner at a rate of \$25 per hour for all field operations except the custom application of fertilizer, assumed at \$6.50 per acre by a chemical supply company or \$3.96 per acre if done by landowner.

### Capital

Interest on operating capital is included at 5.5 percent. This percentage represents interest paid to a lending institution on loaned capital. Interest is charged on operating capital for cash expenses for a 6-month window. This percentage should be adjusted based on the individual producer's situation.



EXTENSION

# Irrigated Alfalfa for Hay, Southeast Wyoming, 2017

Conventional Alfalfa, 5 ton/acre goal

Pivot Irrigated, 50 foot well, 13 acre inches

## Conventional Alfalfa

	Use Related Cost/Acre	Total Cost/Acre
<b>Field Operations</b>		
Pivot Irrigation, 50'	\$58.50	\$145.55
Self Propelled Swather	\$14.57	\$20.59
Large Rectangular Baler	\$11.12	\$13.41
Stack and Load	\$9.02	\$15.59
<b>Total Conventional Alfalfa Field Operations</b>	<b>\$93.21</b>	<b>\$195.14</b>

Materials and Services	Type	Rate	Unit	Per Unit Price	Total Cost
Fertilizer	0-44-0-7S-1Zn	\$75.00	lbs	\$0.39	\$29.32
Other	Twine Large Square	5	ton	\$1.81	\$9.03
Custom	Spread Fertilizer	1	acre	\$6.50	\$6.50
Total Materials and Services					\$44.85
Listed Operations, Materials and Services					\$239.99
Annual Interest on Operation Capital	Cash Related/Non Ownership	5.50%		\$138.06	\$7.59
<b>Total Operations, Materials, and Services</b>					<b>\$247.58</b>

Overhead	Insurance, Vehicles, Office				\$20.00
Real Estate Opportunity Cost	Wyoming Irrigated	\$2,200.00	acre	4.00%	\$88.00
Real Estate Taxes		\$2,200.00	acre	1.00%	\$22.00
<b>Total Cost Including Overhead</b>					<b>\$377.58</b>
<b>Cost per Ton</b>					<b>\$75.52</b>
<b>Cash Cost per Ton</b>					<b>\$33.53</b>

## Field Operations

The enterprise budget is based on a 5-ton per-acre annual yield on three swathing operations. Center pivot irrigation is assumed, and we consider the use of an electric motor and 50-foot well depth (Klein et al., 2017b). Pivot costs are separated into use-related and ownership related. Cost per acre of ownership is assumed to be \$87.05/acre, while use related differs by acre-inch of water (USDA-NRCS, 2017). A single fertilizer application (pre-plant 0-44-0-7S-1Zn, which is common for the area) is assumed in the enterprise budget. Per-acre use-related and total cost for implements, with associated power units, is averaged over all sizes by implement type in the operation portion of the budget. Using this approach encapsulates all possible tractor types and horsepower sizes.

## Sources:

Klein, Robert N., Roger K. Wilson, Jessica T. Groskopf, and Jim A. Jansen. 2017a. "2017 Nebraska Crop Budgets." Report No. EC872. University of Nebraska Lincoln, Institute of Agriculture and Natural Resources, Lincoln,

NE. <https://cropwatch.unl.edu/Economics-Real-Estate/2017-crop-budgets-alfalfa-establishment.pdf>

Klein, Robert N., Roger K. Wilson, Jessica T. Groskopf, and Jim A. Jansen. 2017b. "2017 Nebraska Crop Budgets." 2017 Crop Budgeting Procedures. <http://cropwatch.unl.edu/Economics-Real-Estate/2017-crop-development-tables.pdf>

Lazarus, William F. 2015. "Machinery Cost Estimates." University of Minnesota Extension, St. Paul, MN. <http://www3.extension.umn.edu/sites/default/files/download/Machinery%20Cost%20Estimates%20June%202015.pdf>

United States Department of Agriculture, National Agricultural Statistics Service USDA-NASS. 2017. Ag Land, Cropland, Irrigated-Asset Value, Wyoming. Quick Stats Online Tool. <https://quickstats.nass.usda.gov/>

United States Department of Agriculture, Natural Resource Conservation Service USDA-NRCS. 2017.160 Acre Center Pivot Example Estimating Annual Irrigation Operation Costs. [https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs141p2\\_024179.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs141p2_024179.pdf)

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