



CONVENTIONAL IRRIGATED SUGARBEET, GOSHEN COUNTY, WYOMING

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This crop budget models a representative irrigated sugarbeet operation in southeast Wyoming. The operations described in this budget are typical for a southeast Wyoming operation. Irrigated sugarbeet is a typical crop in southeast Wyoming. The budget contains one year of sugarbeet production and its representative operations. Operations and values used in the budget represent the best estimates 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 and total power use costs (Lazarus, 2015).

Sugarbeet production typically requires irrigation throughout the growing season in Wyoming. Almost all of the sugarbeets planted in the state, and in the nation currently, are considered biotech species (Kniss, 2010). For sugarbeets, this means cultivars are glyphosate resistant (GR), that is, genetically engineered to be unaffected by glyphosate herbicides. Accordingly, the budget uses this commonly occurring seed and herbicide combination. In Wyoming, 30,000 acres of sugarbeet were reported in the March planting forecast for 2017 (USDA/NASS 2017b).

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, according to the most current Wyoming Agricultural Statistics Service survey (USDA-NASS, 2017a).

Labor

This budget assumes labor is provided by the landowner at \$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 time period. This percentage should be adjusted based on the individual producer's situation.

Field Operations

The enterprise budget is based on an assumed yield of 25 tons per acre. Two fertilizer applications are included in this budget, a pre-plant 10-34-0 and a 28-0-0 application. Two glyphosate herbicide applications are included post-planting. 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). Sugarbeets are planted in May with a 12-row planter on 30-inch rows. The beets are topped and harvested in September. Per-acre, use-related,



Conventional Irrigated Sugarbeet, Southeast Wyoming, 2017

Conventional Sugarbeet, 25 ton/acre goal
 Pivot Irrigated, 50 foot well, 13 acre inches

Conventional Sugarbeet		Use Related	Total
Field Operations		Cost/Acre	Cost/Acre
Disc		\$11.16	\$14.07
Spray		\$3.03	\$3.96
Field Cultivate		\$4.87	\$6.24
Plant		\$11.97	\$16.10
Spray		\$3.03	\$3.96
Field cultivate		\$4.87	\$6.24
Pivot Irrigation, 50'		\$58.50	\$145.55
Spray		\$3.03	\$3.96
Top Sugarbeet	Custom		
Sugarbeet Harvester, 6 row	Custom		
Subsoil V-Ripper		\$11.16	\$14.07
Total Conventional Sugarbeet Field Operations		\$111.62	\$214.15

Materials and Services	Type	Rate	Unit	Per Unit Price	Total Cost
Pre-Plant	10-34-0	13.40	gallon	\$2.40	\$32.16
	28-0-0	160.00	lbs N	\$0.43	\$68.80
Custom Herbicide	Spray	1.00	acre	\$7.00	\$7.00
	Glyphosate w/Surf	36.00	ounce	\$0.11	\$3.96
	21-0-0-24S	1.70	lbs N	\$0.35	\$0.60
Plant	Sugarbeet RR Betashield Plus	0.52	unit/ac.	\$430.00	\$223.60
Custom Herbicide	Spray	1.00	acre	\$7.00	\$7.00
	Glyphosate w/Surf	36.00	ounce	\$0.11	\$3.96
	21-0-0-24S	1.70	lbs N	\$0.35	\$0.60
Custom Herbicide	Spray	1.00	acre	\$7.00	\$7.00
	Glyphosate w/Surf	36.00	ounce	\$0.11	\$3.96
	21-0-0-24S	1.70	lbs N	\$0.35	\$0.60
Custom Aerial Herbicide	Aerial Spray	1.00	acre	\$10.00	\$10.00
	Quadris	7.00	ounce	\$2.34	\$16.38
Top and Harvest Sugarbeet	Custom	25.00	ton	\$5.00	\$125.00
Haul Sugarbeet		25.00	ton	\$5.00	\$125.00
Total Materials and Services					\$635.61
Listed Operations, Materials, and Services					\$849.76
Annual Interest on Operation Capital	Cash Related/Non Ownership	5.50%		\$747.23	\$41.10

Total Operations, Materials, and Services					\$1,105.00
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
Total Cost Including Overhead					\$1,235.00
Cost per Ton					\$49.40
Cash Cost per Ton					\$32.41

and total cost for implements, with associated power units, are 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>

Kniss, Andrew, W. 2010. "Comparison of Conventional and Glyphosate-Resistant Sugarbeet the Year of Commercial Introduction in Wyoming." *Journal of Sugarbeet Research* 47(3,4):127-134. [https://](https://www.bsdf-assbt.org/wp-content/uploads/2017/04/JSBRVol473and4p-127to134CompassionofConventionalandGlyphosate-ResistantSugarbeettheYearofCommercialIntroductioninWyoming.pdf)

www.bsdf-assbt.org/wp-content/uploads/2017/04/JSBRVol473and4p-127to134CompassionofConventionalandGlyphosate-ResistantSugarbeettheYearofCommercialIntroductioninWyoming.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). 2017a. Ag Land, Cropland, Irrigated-Asset Value, Wyoming. Quick Stats Online Tool. <https://quickstats.nass.usda.gov/>

United States Department of Agriculture, National Agricultural Statistics Service (USDA-NASS). 2017b. Sugarbeet, Acres Planted, 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