

2022 Enterprise Budget for Oats in Western Idaho

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Background

Until 2019, faculty in the Department of Agricultural Economics and Rural Sociology (AERS) and County Extension Educators at the University of Idaho (UI) would update enterprise budgets every other year. However, due to several AERS faculty who led these activities leaving the department, these updates have been delayed, and so an update for 2021 was not done. Additionally, the portfolio of crops for which enterprise budgets evolved over time. The last enterprise budget for oats in the AERS enterprise budget archive was from 2005, and for Northern Idaho under dryland production rather than Southern Idaho under irrigation. Given this background, several decisions were made to obtain enterprise budget estimates for oat production in Western Idaho for 2022.

Approach and Assumptions

First, it was assumed that the UI enterprise budget for 2019 Southwestern Idaho: Treasure Valley, Soft White Spring Wheat by Ben Eborn, UI 2019 wheat budget hereafter, would apply to large degree for oat production for the main farm structure details. These include assumptions for the model farm size, with 1,200 acres in grain, irrigation system used, fertilizer type and application method, and machinery used. Thus, the budget values that were in the UI 2019 wheat budget served as the basis for several of the input cost categories. The other reference that was used as a budget model for identifying cost categories was the “Guidelines for Estimating Crop Production Costs – 2022” published by Manitoba Agriculture, for which one of the crops was oats.

Data and methods

Most of the values in the UI 2019 wheat budget needed adjustment since inputs such as seed vary for oats and wheat, and because the inputs that are common to both production of wheat and oats (e.g., fuel) changed between 2019 and 2022. The value for non-cash overhead costs was assumed the same as in the UI 2019 wheat budget.

Several differences between oat and wheat production were accounted for by relying on the estimates for several oat budget elements from the “Guidelines for Estimating Crop Production Costs – 2022” published by Manitoba Agriculture. The cost categories from which data from the Manitoba report were relied upon include seeds with treatment, storage costs, and labor and living costs. The fertilizer quantities and target yields were also adjusted to equal the values in the Manitoba report.

For the inputs that are expected as common for both oat and wheat production, including fertilizer, fungicide, irrigation repairs, machinery repairs, custom application rates, crop

insurance, general overhead, management fees, and crop insurance, the values in the UI 2019 wheat budgets were used as a base and then multiplied by index adjustment factor values for several indexes obtained from the Federal Reserve Bank of St. Louis Federal Reserve Economic Data (FRED) data base. These indexes include those for: fertilizers; agricultural machinery; and a broader producer price index (PPI) for grains. Fuel prices were obtained from AAA. Land rental values were obtained from the U.S. Department of Agriculture (USDA) National Agricultural Statistics Service for Gem County. The target price is the 2022/23 marketing year average farm price from the USDA World Agricultural Supply and Demand Estimates (WASDE) report for October 2022.

The UI Idaho Crop Input Price Summary for 2022 was relied upon for cost estimates for herbicides, irrigation power, irrigation water assessment fees, and interest on operating costs.

The specific estimation method for each category of input costs is listed in the table in the Appendix.

Oat production Costs 2022, Western Idaho				
Operating costs				
	Quantity per acre	Unit	Cost/unit	Cost/acre
Seed & treatment	2.5	bu	14	35
Fertilizer				
Dry Nitrogen - Pre-plant	75	lbs	0.89	67.10
Dry P2O5	30	lbs	0.87	26.20
K2O	10	lbs	0.66	6.60
Herbicide				
Axial XL	16.4	fl oz	1.33	21.78
Affinity TankMix	0.6	oz	10	6.00
Starane Ultra	0.3	pint	32	9.60
Fungicide (Twinline)	7	fl oz	3.51	24.60
Irrigation				
Irrigation Power - Center Pivot	20	ac-in	1.73	34.60
Irrigation Water Assessment	1	acre	64.92	64.92
Irrigation Repairs	20	ac-in	0.69	13.72
Machinery				
Fuel - Gas	2.88	gal	4.4	12.67
Fuel - Diesel	5.32	gal	5.08	27.03
Fuel - Road Diesel	0.16	gal	5.4	0.86
Lube				4.69
Machinery repair				18.80
Custom				
Custom Fertilize: 0 - 400 lbs	2	acre	14.44	28.87
Custom Air Spray - 5 gal. rate	1	acre	14.44	14.44
Custom Haul: oats	115	bu	0.67	77.47
Crop Insurance				28.87
Land Taxes				0
Storage Costs				18.77
Interest on Operating Costs				35.27
Total operating (per acre)				577.87

Cash overhead costs	
General overhead	23.10
Land rent	147.00
Management Fee	75.07
Property Taxes	0
Property Insurance	2.83
Investment repairs	0
Total cash overhead costs (per acre)	247.99
Non-cash overhead costs	
Equipment (capital recovery)	48.53
Ownership costs	
Labor & living	25.00
Total cost (per acre)	899.39
Profitability analysis	
Estimated Farmgate	
Target Price (\$/bu)	5.70
Target Yield (bu/acre)	115
Gross revenue (\$/acre)	655.50
Marginal returns	
Over operating costs	77.63
Over total costs	-243.89
% over operating costs	13%
Breakeven analysis	
Breakeven prices (\$/bu)	
Over operating costs	5.02
Over total costs	7.82
Breakeven yields (bu)	
Over operating costs	99
Over total costs	164

Profitability analysis - expanded						
Range of prices, with constant yields						
Estimated Farmgate						
Target Price (\$/bu)	4.50	5.00	5.50	6.00	6.50	7.00
Target Yield (bu/acre)	115	115	115	115	115	115
Gross revenue (\$/acre)	517.50	575.00	632.50	690.00	747.50	805.00
Marginal returns						
Over operating costs	-60.37	-2.87	54.63	112.13	169.63	227.13
Over total costs	-381.89	-324.39	-266.89	-209.39	-151.89	-94.39
% over operating costs	-10%	0%	9%	19%	29%	39%
Range of yields, with constant prices						
Estimated Farmgate						
Target Price (\$/bu)	5.70	5.70	5.70	5.70	5.70	5.70
Target Yield (bu/acre)	110	120	130	140	150	160
Gross revenue (\$/acre)	627.00	684.00	741.00	798.00	855.00	912.00
Marginal returns						
Over operating costs	49.13	106.13	163.13	220.13	277.13	334.13
Over total costs	-272.39	-215.39	-158.39	-101.39	-44.39	12.61
% over operating costs	9%	18%	28%	38%	48%	58%

Appendix: Estimation Methods

The following table includes details regarding the estimation method used for each cost category

Reference key:

- **Manitoba value:** obtained from the “Guidelines for Estimating Crop Production Costs – 2022” published by Manitoba Agriculture
- **UI 2019 value:** obtained from the UI enterprise budget for 2019 Eastern Idaho: Soft White Spring Wheat
- **FRED fertilizer index:** Dataset WPS0652, Producer Price Index, Fertilizer Materials, Index 2019 = 100
- **FRED ag. machinery index:** Dataset WPU111, Producer Price Index, Machinery and Equipment, Agricultural, Index 2019 = 100
- **FRED PPI grains index:** Dataset WPS012, Producer Price Index, Farm Products: Grains, Index 2019 = 100
- **UI 2022 Input Cost summary value:** obtained from the UI “Idaho Crop Input Price Summary for 2022”

Cost category	Source and estimation method
Seed & treatment	Manitoba value
Fertilizer	UI 2019 value x FRED fertilizer index
Herbicide	UI 2022 Input Cost summary value
Fungicide	UI 2019 value x FRED fertilizer index
Irrigation power & assessments	UI 2022 Input Cost summary value
Irrigation repairs	UI 2019 value x FRED ag. machinery index
Fuel	AAA (E ID prices as of October 2022, adjusted)
Lube & machinery repair	UI 2019 value x FRED ag. machinery index
Custom hiring	UI 2019 value x FRED PPI grains index
Crop insurance	UI 2019 value x FRED PPI grains index
Storage costs	Manitoba value
Interest on Operating Costs	Kansas City Federal Reserve survey data
Overhead costs, except land rent	UI 2019 value x FRED PPI grains index
Land rent	USDA-NASS value for Gem County 2022
Non-cash overhead costs	UI 2019 value
Ownership costs	Manitoba value
Target price	USDA WASDE report for October 2022
Target yield	Manitoba value