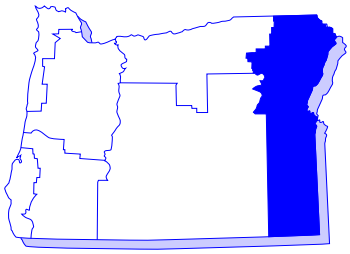
Enterprise Budget

Irrigated Winter Wheat, Eastern Oregon Region

Dian Vermilyea, undergraduate student,
Gordon Cook, Extension agent, Union County,
Arthur Greer, Associate professor, Eastern Oregon State College, and
Kathy Vermilyea, research assistant,
Oregon State University



EM 8607, July 1995

This enterprise budget estimates the typical costs and returns associated with irrigated winter wheat production in northeast Oregon's Union County. While efforts were made to reflect common practices, it is not representative of any particular farm and should thus be used only as a guide to estimate actual costs. The major assumptions used in constructing this budget are discussed below. Assistance provided by area producers is greatly appreciated.

Cropping Pattern

This budget is based on a 1,200-acre farm with 400 acres in winter wheat production. Crops produced on the remaining land include grass seed and peppermint. Typical yield in this budget is 100 bushels per acre.

Land and Irrigation

A land lease charge of $80 per acre is included to represent the annual cost of renting land. Irrigation system costs are based upon a wheel-line irrigation system valued at $412.50 per acre, including pump and well costs. The straight-line depreciation method is used to calculate depreciation. The wheel lines have a 10-year life with a salvage value of $15,800, resulting in an annual depreciation charge of $15.80 per acre. The well has a 15-year life with a salvage value of $5,200, resulting in an annual depreciation charge of $3.47 per acre. The three pumps have a 5-year life with salvage value of $12,000, resulting in an annual depreciation charge of $24 per acre. Interest on the average investment is calculated to be 10 percent of $247.50 per acre, or another $24.75 per acre.

Irrigation operating costs are based on labor, electricity, repair, and maintenance at a cost of $2 per inch of water applied.

Labor

Hired labor typically costs approximately $10 per hour, including social security, FICA, and other payroll expenses. For this study, all labor is treated as owner/operator labor valued at $10 per hour and is assumed to be a noncash cost.

Capital

Opportunity costs of capital are charged at a rate of 8 percent for current and intermediate capital provided by the owner.

Machinery and Equipment

The machinery complement is sufficient to establish and harvest the 400 acres of wheat on the farm in a timely manner. A detailed breakdown of machinery values used in this budget is shown in Table 1. January 1994 replacement costs are used, assuming the machinery is half depreciated. Estimated machinery costs are shown in Table 2.

The hours of annual use for machinery are calculated based on the machinery's field capacity in acres per hour. The annual use values from Table 1 represent the hours the machinery is used to maintain and harvest the 400 acres.

Operations

Cultural operations are listed in the budget in the order they are performed, beginning with flail chopping the wheat stubble around the first of September. In mid-September, 319 lb of a custom blend fertilizer containing 70 lb of nitrogen, 50 lb of phosphorus, 10 lb of potash, and 20 lb of sulfur is custom applied at a rate of $5 per acre. Planting begins in late September using a 145-hp tractor and two 10-ft grain drills. Seed is applied at the rate of 100 lb per acre. Fertilizer is applied in the spring in the form of 250 lb of 30-0-0-6 at a custom rate of $5 per acre. Herbicide is custom applied in the spring at a rate of $5 per acre. Fungicide is assumed to be necessary 1 out of every 2 years. Therefore, a custom aerial application is shown at one-half the total operation cost. Throughout the growing season, 12 acre-inches of water is applied. Four inches is applied in the fall, followed by two sets of 4 inches each in the summer. Harvesting begins in early August using a combine with a 20-ft header. The grain is delivered to Portland, Oregon at a rate of $0.46 per bushel. There is a storage cost of $0.03 per bushel/month (3-month storage), and a wheat tax charge of $0.03 per bushel.

Other

A pickup is driven 20,000 miles annually with 2,500 miles charged to the wheat crop. Fire and hail insurance is purchased at a cost of $1 for every $100 worth of value. This results in a cost of approximately $3 per acre.

OREGON STATE UNIVERSITY EXTENSION SERVICE

ECONOMIC COSTS and RETURNS
Eastern Oregon Region
Irrigated Winter Wheat, 400 acres ($/acre)

GROSS INCOME Description	Quantity	Unit	$/Unit	Total	Your Returns
Winter Wheat	100.00	bu	3.45	345.00	
Total GROSS Income				345.00	

VARIABLE COST Description		Labor	Machinery	Materials	Total	Your Cost
LAND PREPARATION AND SEED						
Chop Stubble		1.21	3.26	0.00	4.47	
Irrigate Fall		0.00	0.00	8.00	8.00	
Lab/Elec/Rep&Maint	4 in x 2.00 = 8.00					
Plow		3.03	8.41	0.00	11.44	
Roller Harrow (2)		6.05	14.13	0.00	20.18	
Fall Fertilizer		0.00	0.00	39.05	39.05	
Custom Blend	319.46 lb x 0.106 = 34.05					
Custom Application	1 ac x 5.00 = 5.00					
Cultivate		0.81	1.95	0.00	2.76	
Plant		1.21	3.39	15.00	19.60	
Wheat Seed	100 lb x 0.15 = 15.00					
Total LAND PREPARATION AND SEED					105.50	
GROWING SEASON						
Spring Fertilize		0.00	0.00	28.88	28.88	
30-0-0-6	250 lb x 0.0955 = 23.88					
Custom Application	1 ac x 5.00 = 5.00					
Weed Control		0.00	0.00	21.00	21.00	
Herbicide	0.25 gal x 64.00 = 16.00					
Custom Application	1 ac x 5.00 = 5.00					
Fungicide		0.00	0.00	9.14	9.14	
Fungicide	0.015 gal x 400.00 = 6.24					
Custom Aerial Appl.	0.5 ac x 5.80 = 2.90					
Irrigate Summer		0.00	0.00	16.00	16.00	
Lab/Elec/Rep&Maint	8 in x 2.00 = 16.00					
Total GROWING SEASON					75.02	
HARVEST						
Combine		2.85	10.02	0.00	12.87	
Trans/Storage/Wheat Comm		0.00	0.00	58.00	58.00	
Transportation	100 bu x 0.46 = 46.00					
Storage	100 bu x 0.09 = 9.00					
Wheat Commission	100 bu x 0.03 = 3.00					
Total HARVEST					70.87	
MISCELLANEOUS						
Pickup		1.53	0.70	0.00	2.23	
Operating Capital Interest		0.00	0.00	14.40	14.40	
Total MISCELLANEOUS					16.63	
Total VARIABLE COST					268.02	
GROSS INCOME minus VARIABLE COST					76.98	

ECONOMIC COSTS and RETURNS
Eastern Oregon Region
Irrigated Winter Wheat, 400 acres ($/acre)

FIXED COST Description	Unit	Total	Your Cost
CASH Cost			
Fire & Hail Insurance	acre	3.00	
Machinery & Equipment Insurance	acre	3.21	
Land Rental	acre	80.00	
Total CASH Cost		86.21	
NONCASH Cost			
Machinery & Equipment Depreciation & Interest	acre	45.44	
Irrigation System Depreciation & Interest	acre	68.02	
Total NONCASH Cost		113.46	
Total FIXED Cost		199.67	
Total of ALL Cost		467.69	
NET PROJECTED RETURNS		-122.69	
Break-even Price, Total Variable Cost		$2.68 per bu	
Break-even Price, Total Cost		$4.68 per bu	

Table 1. Machinery Cost Assumptions

Machine	Size	List Price	Current Market Value	Salvage Value	Useful Life	Remaining Life	Annual Use
Tractor	145 hp	$75,000	$48,750	$22,500	10,000 hr	5,000 hr	447 hr
Combine		130,000	84,500	39,000	2,000 hr	1,000 hr	94 hr
Grain Drill (2)	10 ft	8,000	4,800	1,600	1,200 hr	600 hr	80 hr
Flail Chopper	20 ft	12,000	7,200	2,400	2,000 hr	1,000 hr	40 hr
Roller Harrow	28 ft	24,000	14,400	4,800	2,000 hr	1,000 hr	200 hr
Field Cultivaltor	40 ft	15,000	9,000	3,000	2,000 hr	1,000 hr	27 hr
Plow	6-bottom	12,500	7,500	2,500	2,000 hr	1,000 hr	100 hr
Pickup	4 wd	19,000	12,350	5,700	100,000 mi	50,000 mi	2,500 mi

Table 2. Machinery Cost Calculations

		Costs per Hour or Mile						Costs per Acre		
		Variable		Fixed						
Machine	Size	Fuel & Lube	Repair & Maint.	Depr. & Interest	Insurance	Total Cost	Hours or Miles per Acre	Variable	Fixed	Total
Tractor	145 hp	$8.11	$9.45	$12.64	$0.98	$31.18	1.12 hr	$19.62	$15.22	$34.84
Combine		9.06	33.54	90.03	5.63	138.26	0.24 hr	10.01	22.48	32.49
Grain Drill (2)	10 ft	0.00	5.53	9.19	0.60	15.32	0.20 hr	1.10	1.96	3.06
Flail Chopper	20 ft	0.00	9.65	13.26	0.90	23.81	0.10 hr	0.96	1.42	2.38
Roller Harrow	28 ft	0.00	5.29	5.51	0.38	11.18	0.50 hr	2.64	2.95	5.59
Field Cultivator	40 ft	0.00	6.37	25.52	1.67	33.55	0.07 hr	0.43	1.84	2.26
Plow	6-bottom	0.00	10.83	4.59	0.30	15.72	0.25 hr	2.71	1.22	3.93
Pickup	4 wd	0.08	0.03	0.22	0.04	0.36	6.25 mi	0.70	1.57	2.27
Total								$38.18	$48.65	$86.83

Extension Service, Oregon State University, Corvallis, Lyla Houglum, interim director. This publication was produced and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties.