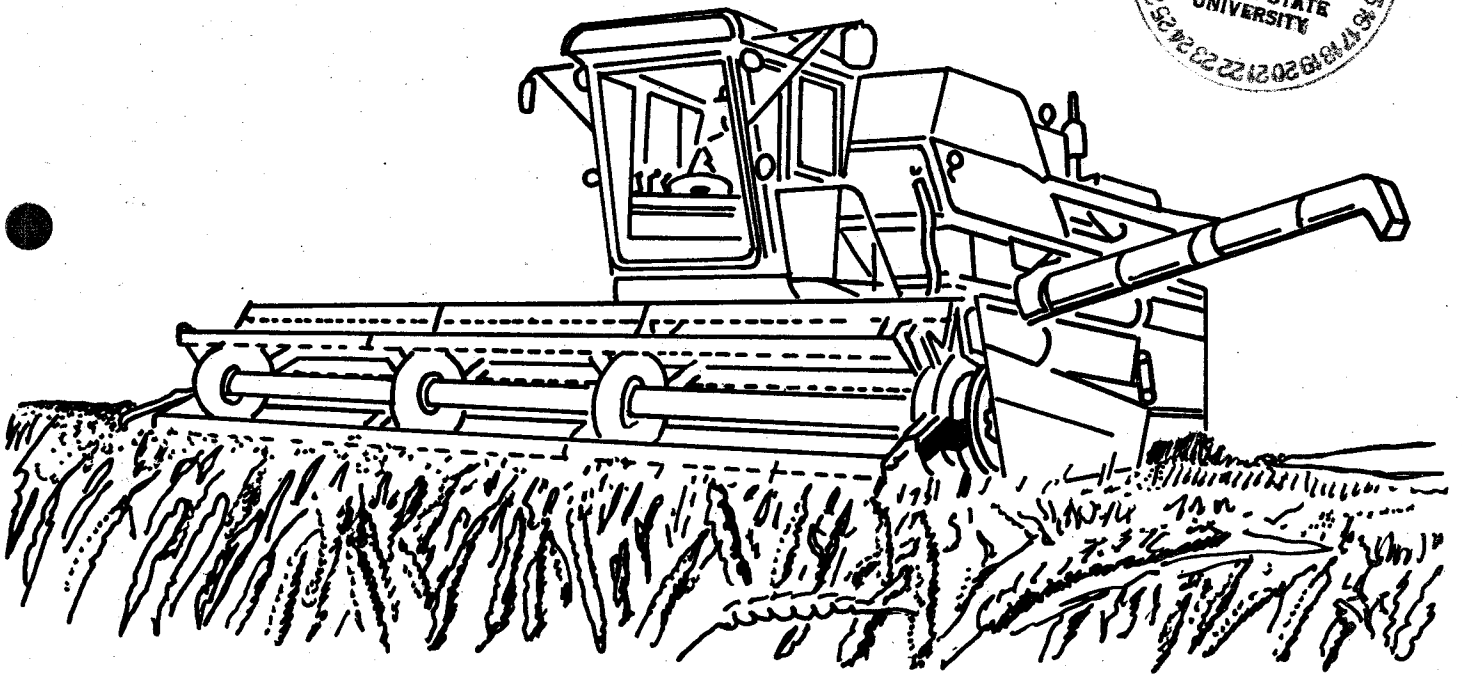


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Estimated Wheat Production and Marketing Costs on a 2,000-Acre Dryland Farm, Oregon Columbia Plateau, 1979-80



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ESTIMATED WHEAT PRODUCTION AND MARKETING COSTS
ON A 2,000-ACRE DRYLAND FARM,
OREGON COLUMBIA PLATEAU, 1979-80

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The purpose of this study is to provide a guide for estimating wheat production and marketing costs for the Columbia Plateau counties of Wasco, Sherman, Gilliam, Morrow, and Umatilla. Information on the current costs of wheat production is important for deciding whether to acquire additional land, purchase machinery, participate in government programs, change production practices, and for developing marketing strategies to sell wheat. This information can also be used as standards against which wheat growers can compare their operations.

The specific objectives of the study are to:

1. estimate inputs and costs for producing and marketing wheat on a typical owner-operated farm; and
2. determine monthly cash flow requirements.

A committee of wheat growers provided the basic information regarding the size of the study farm; production practices followed; machinery, labor, and material requirements; land values; and overhead expenses. Additional information was obtained from local suppliers, machinery dealers, lenders, and others familiar with wheat production in the area. The data were then analyzed and summarized for review by the committee members, county agents, and other wheat producers in the study area.

The information presented is an example of wheat production and marketing costs for a typical farm on the Oregon Columbia Plateau. It has been prepared to represent costs as of October 1979 and normal yields for a specific soil

The authors are Union County Extension Agent, Extension Economics Assistant, and Sherman County Extension Agent. The help of wheat growers, county extension agents, and others in developing the data for the study is gratefully acknowledged.

and climate situation, using the production practices described below. The figures should not be interpreted as "average" costs for wheat production in the area because of the wide variety of situations and practices which exist.

The study farm is a one-man operation with 2,000 acres of cropland, specializing in wheat production. The normal wheat yield is 33 bushels per acre, but large year-to-year variations in yield are common. A wheat-fallow rotation is followed with 1,000 acres in wheat and 1,000 acres in fallow each year. This study includes only the costs for the acre planted for harvest and the corresponding acre in fallow. The costs and benefits associated with participation in the government program are not considered here.

Estimated Costs for Owner-Operated Farm

Several different tillage methods are practiced in this area, including various stubble-mulch fallow systems and mold-board plowing. The practice of mold-board plowing was chosen for this study. All machinery is assumed owned except for the fertilizer applicator which is included in the cost of the fertilizer and the airplane hired on a custom basis to apply herbicide. The cost of herbicides is an average of lower-cost and more expensive chemicals.

Machinery values are based on October 1979 replacement rates assuming that the machines are half depreciated. Costs for each machine include depreciation, interest on current value at 12-1/4 percent, insurance, property taxes, repairs (labor and parts), fuel, and lubrication (Appendix Tables). In addition to the specified machines, costs for "other machinery" (such as a second tractor, trap wagon, disc, rotary hoe, harrow, and chisel plow) normally found on wheat farms, are included.

The operator is assumed to provide all of the labor required except for 470 hours of labor hired for harvest and other work during the summer. The operator's labor is charged at \$7.50 per hour. The cost for hired labor, including wages, social security, workman's compensation, and benefits is charged at \$4.75 per hour. Labor requirements include machinery operation and other activities such as servicing and moving machinery, and checking fields. A management charge of \$6.00 per acre is also included.

Diversion terraces, grass waterways, and silt dams are examples of conservation practices. Annual installation and maintenance essential to the conservation program were assumed to cost \$750 for the farm.

Other charges included crop insurance expense (hail, fire, and Federal) and interest at 12-1/4 percent on operating capital required to finance the production process. The miscellaneous expense category includes general insurance, tools, shop, utilities, accounting fees, office, miscellaneous supplies, etc.

The marketing charge covers put-through charges at the elevator, storage for an average of six months, transportation to Portland, and the Oregon Wheat Commission assessment. Although many growers in this area have on-farm storage, the study farm is assumed to haul grain directly from the combine to the local elevator. The labor and trucking costs are included for this haul.

For the owner-operator, property taxes and interest on land investment are charged. The interest is treated as an opportunity cost, that is the operator is assumed to have an alternative investment opportunity with a 10 percent annual return. The value of the land is based on what the farmer could net from the sale of the land for agricultural purposes.

The total value of all of the assets for this typical owner operated farm is \$754,950 based on the October 1979 values. The value of the land is \$600,000 and \$154,950 is invested in machinery. House and building values are not included.

The total estimated production and marketing costs for white winter wheat produced on this owner-operated farm is \$174.42 per planted acre, including the corresponding fallow costs (Table 1). With a normal yield of 33 bushels, the total cost of producing, hauling to storage, and marketing the grain in Portland is \$5.29 per bushel.

In Table 1 the labor hours, labor costs, machinery costs, and material costs are indicated for each cultural and harvest operation. The number of times-over for a particular operation (e.g., 1.5x) is indicated in parenthesis if it is other than one. Table 2 shows the estimated costs for the owner operator by category allowing growers to insert their costs in the blanks and compare them with those for the study farm.

Table 1. Estimated Inputs and Costs Per Planted Acre (including fallow costs) for White Winter Wheat on an Owner-Operated 2,000-Acre Dryland Farm, Oregon Columbia Plateau, 1979-80.

	Labor		Machinery Cost		Other		Total cost
	Hrs.	Value	Operating ^{a/}	Ownership ^{b/}	Item	Cost	
		(\$)	(\$)	(\$)		(\$)	(\$)
<u>Cultural Operations</u>							
Mold-board plow, 10-16 in.	.240	1.80	2.31	4.34			8.45
Springtooth, 44' (1.5x)...	.114	.86	1.17	2.68			4.71
Rod weed, 48' (3x).....	.200	1.50	2.32	3.92			7.74
Fertilize.....	.067	.50	.52	.82	30#N	5.10 ^{c/}	6.94
Drill seed, 4-8' (1.1x)...	.110	.83	1.24	3.72	55# seed	6.16	11.95
Haul seed.....	.008	.06	.06 ^{d/}	.15			.27
Spray herbicide ^{e/}					Chemicals	3.59	
					Custom	2.25	5.84
<u>Harvest</u>							
Combine, 20' hillside.....	.180	1.35	3.34	10.18			14.87
Haul, grain.....	.180	.86 ^{f/}	1.54 ^{d/}	3.76			6.16
<u>Other Charges</u>							
Other labor ^{g/}580	3.55					3.55
Pickup truck.....			1.88 ^{d/}	1.97			3.85
Other machinery.....			.78	3.15			3.93
Conservation practices....						.75	.75
Crop insurance ^{h/}						3.66	3.66
Marketing ^{i/}						13.20	13.20
Operating capital interest (12.25%).....						3.61	3.61
Miscellaneous ^{j/}						3.90	3.90
Interest on land (2 a. @ \$300 @ 10%).....						60.00	60.00
Taxes on land (2 a. @ \$2.52).....						5.04	5.04
Management.....						6.00	6.00
TOTAL COST PER PLANTED ACRE^{i/}		11.31	15.16	34.69		113.26	174.42

^{a/} Machinery operating costs include repairs (parts and labor), maintenance, oil, and lubrication.

^{b/} Machinery ownership costs include depreciation, interest on average investment @ 12-1/4%, property taxes @ 0.2%, and insurance.

^{c/} Fertilizer cost includes use of the applicator.

^{d/} Based on the following mileages: 200 miles on trucks hauling seed, 5,000 miles on trucks hauling grain, 10,000 miles on pickup.

^{e/} Where Morning Glory control is necessary, add \$6.19 for herbicide plus \$2.25 for application.

^{f/} Hired labor cost (wages and benefits) for hauling grain is based on 180 hours @ \$4.75.

^{g/} Other labor includes such items as moving and servicing machinery, checking fields, etc. Half of this labor is hired @ \$4.75 per hour.

^{h/} Crop insurance includes hail and fire at \$1.70 and Federal Crop Insurance at \$1.96.

^{i/} Marketing costs included elevator put-through @ 9¢ bu., storage for an average of 6 months @ 10.5¢/bu., transportation to Portland @ 19.5¢/bu., and wheat commission assessment @ 1¢/bu.

^{j/} Miscellaneous expenses, include general insurance, tools, shop, utilities, accounting fees, office bookkeeping supplies, etc.

Table 2. Estimated Inputs and Costs Per Planted Acre (including fallow costs) for White Winter Wheat on an Owner-Operated 2,000-Acre Dryland Farm, Oregon Columbia Plateau, 1979-80.

	Per planted acre	Per bushel ^{a/}	Your costs
<u>Cash Operating Costs</u>			
Fertilizer (30# @ 17¢)	5.10	\$.15	\$ _____
Wheat seed (55# @ 11.2¢)	6.16	.19	_____
Herbicide and application	5.84	.18	_____
Diesel fuel (5.9 gal. @ 80¢)	4.72	.14	_____
Gasoline (2.3 gal. @ 92¢)	2.12	.06	_____
Lubricants	.95	.03	_____
Machinery repair	7.37	.22	_____
Crop insurance	3.66	.11	_____
Conservation practices	.75	.02	_____
Hired labor (0.47 hrs. @ \$4.75)	2.23	.07	_____
Miscellaneous	3.90	.12	_____
Operating capital interest (12-1/4%)	3.61	.11	_____
Subtotal	\$ 46.41	\$ 1.40	\$ _____
<u>Cash Ownership Costs</u>			
Taxes on land	\$ 5.04	\$.15	\$ _____
Taxes on machinery (0.2%)	.37	.01	_____
Machinery insurance	.92	.03	_____
Subtotal	\$ 6.33	\$.19	\$ _____
<u>Other Ownership Costs</u>			
Interest on land (10%)	\$ 60.00	\$ 1.82	\$ _____
Interest on machinery (12-1/4%)	18.98	.58	_____
Machinery depreciation	14.42	.44	_____
Subtotal	\$ 93.40	\$ 2.84	\$ _____
<u>Operator Labor and Management</u>			
Operator labor (1.21 hrs. @ \$7.50)	\$ 9.08	\$.28	\$ _____
Management	6.00	.18	_____
Subtotal	\$ 15.08	\$.46	\$ _____
Marketing (33 bu. @ 40¢)	\$ 13.20	\$.40	\$ _____
TOTAL COST	\$174.42	\$ 5.29	_____

^{a/} Based on normal yield of 33 bushels per planted acre.

Monthly Cash Expenses for Owner-Operated Farm

The information presented in Table 3 provides a guide for budgeting cash flows and planning credit needs. This information is based on the cash costs for operating, ownership, and marketing from Table 2. The expenses have been indicated according to the months that they would normally be incurred. The total cash expenses for each month are shown and the accumulated cash expense is calculated for each month beginning in October and ending in September.

To develop their own cash budget for the next year, growers can use this information as a guide for projecting cash expenses. In addition, they will need to estimate their cash income from wheat sales and government payments and their other cash requirements for machinery purchases, family living expenses, income taxes, debt repayment, and interest to complete the budgeting process.

This cash flow budget when completed will allow growers to anticipate how much they will need to borrow and when so that they can arrange their credit needs in advance. It will also allow them to schedule their debt repayment. To be most useful, the budget should be compared to actual income and expenses as the year progresses and updated to reflect changes. In this way, needed revisions in financing plans can be anticipated and new arrangements made with lenders.

Conclusion

The costs of wheat production and marketing are affected by a variety of factors including farm size, location, crop yield, production practices, machinery, material costs, labor costs, and other unique factors. Because of the differences in wheat farms, growers are encouraged to estimate the costs for their own operations. The information and procedures presented here can be used as a guide for that purpose.

Table 3. Estimated Monthly Cash Expenses Per Planted Acre (including fallow costs), for Owner Operator, White Winter Wheat on a 2,000-Acre Dryland Farm, Oregon Columbia Plateau, 1979-80.

COST ITEM	O	N	D	J	F	M	A	M	J	J	A	S	Total
Seed	6.16												6.16
Fertilizer								5.10					5.10
Herbicide & appl.						5.84							5.84
Hired labor: Harvest									.86				.86
Other								.93	.10		.34		1.37
Fuel & repairs: Harvest									4.88				4.88
Other	1.63	.07	.07	.07	.07	2.89	1.49	.99	1.25	.70	.07	.98	10.28
Conservation practices							.75						.75
Crop insurance		3.66											3.66
Machinery insurance & fees			.92										.92
Taxes on land & machinery		5.41											5.41
Miscellaneous	.10	.10	.29	.10	.10	.47	.29	.19	.94	.19	.94	.19	3.90
Operating capital interest													
Marketing ^{a/}		4.40				4.40						3.61	3.61
Total Cash Expenses ^{b/}	7.89	13.64	1.28	.17	.17	13.60	2.53	1.18	6.92	8.03	1.35	9.18	65.94
Accumulated Expenses	7.89	21.53	22.81	22.98	23.15	36.75	39.28	40.46	47.38	55.41	56.76	65.94	65.94

a/ Marketing costs are excluded from operating capital interest calculation.

b/ Includes cash costs for operating, ownership, and marketing (see Table 2). Does not include cash for machinery purchases, family living expenses, income taxes, debt repayment, and interest for machinery loans and mortgages.

APPENDIX

Table A-1. Annual Machinery Costs for the 2,000-Acre Dryland Wheat Farm, Oregon Columbia Plateau, 1979-80.

	Depreciation ^{a/}	Interest ^{b/} (12-1/4%)	Insurance	Taxes ^{c/} (0.2%)	Repairs ^{d/}	Fuel ^{d/}	Lube ^{d/}	Total machinery cost
Crawler tractor, 90 DBHP....	\$ 3,013	\$ 5,684	\$167	\$ 97	\$1,045	\$4,094	\$526	\$14,626
Mold-board plow, 10-16"....	400	980	--	16	454	--	--	1,850
Springtooth, 44'.....	513	753	--	12	285	--	--	1,563
Rod weeder, 48'.....	770	692	--	11	778	--	--	2,251
Grain drills, 4-8' ^{e/}	980	1,366	--	23	392	--	--	2,761
Combine, 20' hillside.....	4,442	5,310	325	91	2,563	648	130	13,509
Trucks, 2-ton ^{f/}	1,680	1,911	250	84 ^{g/}	520	957	125	5,527
Pickup, 3/4-ton, 4x4.....	1,033	747	180	10 ^{g/}	560	1,150	170	3,850
Other machinery ^{h/}	<u>1,590</u>	<u>1,537</u>	--	25	776	--	--	<u>3,928</u>
TOTAL.....	\$14,421	\$18,980	\$922	\$369	\$7,373	\$6,849	\$951	\$49,865

^{a/} Calculated by subtracting the salvage value from the current value and dividing this difference by the remaining life of the machine (Table A-2).

^{b/} Calculated as interest on the current value from Table A-2.

^{c/} Personal property is taxed at 10 percent of true cash value in 1979.

^{d/} Based on assumptions in Table A-2.

^{e/} There are two sets of drills, one deep furrow and one older disc drill.

^{f/} There are two 2-ton trucks, one relatively new and one older.

^{g/} No property taxes, but appropriate license fees are figured.

^{h/} Includes items such as: second tractor, trap wagon, disc, rotary hoe, harrow, and chisel plow.

Table A-2. Machinery Cost Assumptions for the 2,000-Acre Dryland Wheat Farm, Oregon Columbia Plateau, 1979-80.

	Current value ^{a/} (\$)	Remaining life ^{b/} (yrs.)	Salvage value (\$)	Annual Use	Repairs ^{c/} (\$)	Fuel ^{d/}	Lube (\$)
Crawler tractor, 90 DBHP....	46,400	7.5	23,800	731 hrs.	1.43/hr.	7.0 gal./hr.	0.72/hr.
Mold-board plow, 10-16".....	8,000	7.5	5,000	240 hrs.	1.89/hr.	--	--
Springtooth, 44'.....	6,150	7.5	2,300	114 hrs.	2.50/hr.	--	--
Rod Weeder, 48'.....	5,650	5	1,800	200 hrs.	3.89/hr.	--	--
Grain drills, 4-8' ^{e/}	11,150	7.5	3,800	110 hrs.	3.56/hr.	--	--
Combine, 20' hillside.....	43,350	6	16,700	180 hrs.	14.24/hr.	4.5 gal./hr.	0.72/hr.
Trucks, 2-ton ^{f/}	15,600	5	7,200	5,200 mi.	10.0¢/mi.	5 mi./gal.	2.4¢/mi.
Pickup, 3/4-ton, 4x4.....	6,100	3	3,000	10,000 mi.	5.6¢/mi.	8 mi./gal.	1.7¢/mi.
Other machinery ^{g/}	12,550	5	4,600	--	--	--	--

a/ Calculated by adding the 1979 estimated purchase cost to the salvage value and dividing the sum by two, assuming one-half of useful life left.

b/ Assumes machine is at one-half its useful life.

c/ Includes costs for parts and labor, both paid and unpaid.

d/ Fuel cost was figured at 80¢ per gallon for diesel fuel and 92¢ per gallon for gasoline.

e/ There are two sets of drills, one deep furrow and one older disc drill.

f/ There are two 2-ton trucks, one relatively new and one older.

g/ Includes items such as: second tractor, trap wagon, disc, rotary hoe, harrow, and chisel plow.