

1995 Crop Rotation Budgets for
Western Whitman County, Washington

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Note

Enterprise costs and returns vary from one farm to the next and over time for any particular farm. Variability stems from differences in the following:

- @ Capital, labor, and management resources
- @ Type and size of machinery complement
- @ Cultural practices
- @ Size of farm enterprise
- @ Crop yields
- @ Input prices
- @ Commodity prices

Costs can also be calculated differently depending on the intended use of the cost estimate. The information in this publication serves as a general guide for a modern, well-managed grain farm in western Whitman County. To avoid drawing unwarranted conclusions about any particular farm or group of farms, the reader must closely examine the assumptions used. If they are not appropriate for the situation at hand, adjustments in the costs and/or returns should be made.

Acknowledgments

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INTRODUCTION

This publication presents projected costs and returns for typical crop rotations in the 9- to 14-inch rainfall area of western Whitman County (Figure 1). The standard crop rotation for this area is summer fallow-winter wheat. Occasionally, a three-year rotation incorporating a spring crop such as spring barley into the rotation may be used on wetter ground, in years of higher rainfall, or in response to weed or pest problems.

Producers, agricultural lenders, and other agribusiness professionals will find this information helpful in identifying crop rotation strengths and weaknesses, planning production adjustments, determining financial requirements, making marketing decisions, and resolving other business management problems.

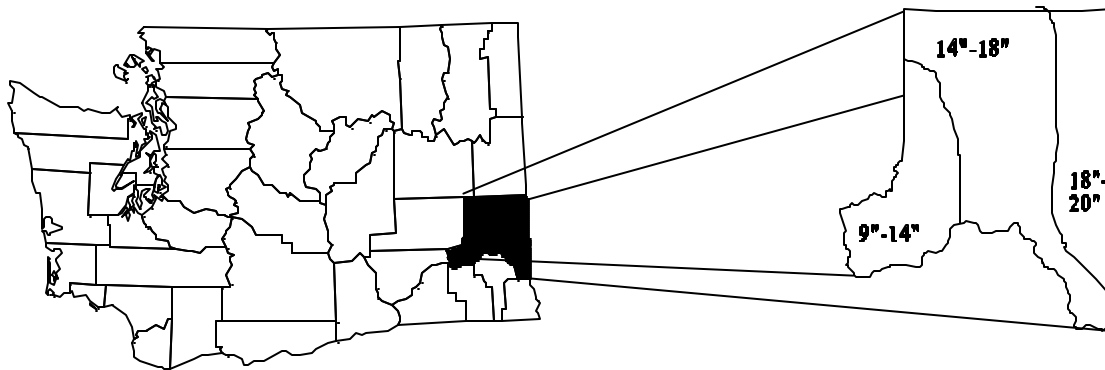


Figure 1. Rainfall Regions for Whitman County, Washington

These budgets do not represent a particular farm. Instead, they represent costs and returns under the specific assumptions adopted for the study. We recommend that individual growers use the blanks provided on the right-hand side of various budgets to estimate their own costs and returns. Also, local Cooperative Extension agents and fieldpersons should be consulted for recommendations on field operations and operating inputs.

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SOURCES OF INFORMATION

A group of experienced grain growers from the 9- to 14-inch rainfall area of western Whitman County identified field operations, machinery, and inputs commonly used on well managed operations. Local farm suppliers were contacted to obtain current price information on materials and services. Machinery costs were based on replacement prices and on typical rates of annual use.

BUDGET ASSUMPTIONS

The following assumptions were used in developing the enterprise budgets:

Farm Size

These budgets are based on an average farm size of 2,000 acres for the 9- to 14-inch rainfall zone in western Whitman County. Farms that deviate considerably from this average size may have different costs of production due to changes in the machinery complement and volume pricing on inputs. Typically, half of this acreage will be cropped and half will be fallowed in the standard winter wheat-summer fallow rotation. If a three-year rotation is used on a portion of the farm, a winter wheat-spring barley-summer fallow rotation is typically followed.

Yields

Expected yields are based primarily on a 1990 random sample survey of farmers in the Palouse. Additional yield data from research trials and county-wide statistics were also used in determining the yield figures listed below.

Wheat (bu/acre)	55.00
Barley (tons/acre)	1.25

Yield variability is common in this region and can have substantial impact on net returns.

Crop Prices

Wheat and barley are eligible for deficiency payments under government commodity programs. Nearly all producers in this area participate in these programs, so deficiency payments are included in the crop prices for this bulletin. Farmers receive deficiency payments based on the proven yield for their farm less any mandated set-aside acreage and a mandatory 15% "flex" reduction. Deficiency payments are determined at the national level as the difference between the target price for that commodity and the 12-month national average market price. The legislated target prices are currently \$4.00 per bushel for wheat and \$94.84 per ton for barley. These rates could change under provisions of a new farm bill, however. Farmers in the Palouse have a transportation advantage, so the local market price tends to be higher than the national average.

The estimated crop prices listed below reflect local market prices plus deficiency payments less transportation costs, which average \$0.46 per bushel for wheat and \$18 per ton for barley.

Winter Wheat (\$/bu)	3.80
Spring Barley (\$/ton)	85.00

Labor Costs

Labor cost, whether it represents hired labor or owner-operator labor, is valued at \$10.00 per hour. While many operators may not pay themselves at this rate, this figure represents a fair market valuation of their labor. Farmers may wish to subtract this cost when calculating out-of-pocket production costs.

Land Tax

The average land tax for this region is estimated at \$3.00 per acre.

Crop Insurance

The per-acre crop insurance premiums are for hail and fire protection only. Premiums are calculated on the expected value of the crop. The premium is \$1.00 per \$100 of crop value insured for wheat and barley. This type of insurance is popular among farmers as it represents 100% coverage on all fields enrolled.

It is also assumed that the producer purchases multi-peril insurance at the minimum level required to maintain eligible for federal programs. The cost for this coverage is \$50 per crop per county for each producer, so per-acre costs are minimal and will vary by producer. This cost is assumed to be covered under overhead costs discussed below.

Interest Costs

The effective annual interest rate on operating capital and machinery investment is 9.0%. This interest rate represents both the direct cost of borrowed operating capital and the rate of return foregone on equity capital that could have been earned had it been invested elsewhere.

Overhead Costs

Overhead costs include cover such items as shop cost, utilities, telephone, legal and accounting fees, and the minimum requirement of multi-peril crop insurance. They are estimated to be 5% of total variable costs.

Fertilizer Applicator and Pesticide Sprayer Rental

A 45-foot applicator is used for fertilizing. The rental fee is included in the cost of the fertilizer so no separate service charge is levied. An 80-foot sprayer is used for pesticide applications at a rental rate of \$1.15 per acre exclusive of material cost.

Net Rent

The typical lease agreement for wheat and barley in Whitman County is one-third landowner and two-thirds lessee crop share, with the landowner paying land taxes plus one-third of the fertilizer, storage and crop insurance expenses. The lessee covers all other production expenses. The landowner receives one-third of the crop returns, including deficiency payments. Based on the average expected price defined earlier, net rent for wheat and barley is calculated by the following formula:

$$\text{Net Rent} = 1/3 (\text{expected yield} \times \text{expected price}) - 1/3 \text{ crop insurance expense} - 1/3 \text{ storage expense} - 1/3 \text{ fertilizer expense} - \text{land tax}$$

No rent is charged for summer fallow. Interest on summer fallow costs is assigned to the next year's winter wheat crop, which requires the preceding fallow year in this region.

Net rent for summer fallow-winter wheat, calculated over a 2-year period, is:

\$70.00	(1/3 gross receipts from production)
- 6.00	(Land tax for summer fallow and winter wheat (2 years))
<u>- 11.20</u>	(1/3 fertilizer, crop insurance, and storage costs)
\$52.80	Net rent per acre

Net rent for spring barley is calculated as follows:

\$35.42	(1/3 gross receipts from production)
- 3.00	(Land tax)
<u>- 10.26</u>	(1/3 fertilizer, crop insurance, and storage costs)
\$22.16	Net rent per acre

While owner-operators obviously will not experience a land rental cost, the rent cost represents a minimum return owner-operators must have to justify growing this crop on the land themselves. This net rental return represents the income owner-operators forgo by not renting the land to a tenant. As a result of investing in land, farmers receive both current returns from farming and any long-term land value appreciation/depreciation. However, farmers would continue to receive land value appreciation/depreciation even if the land were rented. Consequently, the appropriate land charge is the net rent lost. As used in this publication, land cost is termed an opportunity cost indicating that it is a foregone return rather than an out-of-pocket expense.

Fixed and Variable Costs of Production

Costs for these budgets are divided into two categories. **Fixed costs** are those costs incurred whether or not a crop is grown, specifically land costs and machinery depreciation. These costs will vary from farm to farm based on individual land ownership and machinery complement characteristics.

Machinery fixed costs include depreciation, interest, property taxes and insurance for a typical machinery complement in this area. These costs do not vary with the crops produced and are incurred whether or not a crop is grown.

Machinery and tractor interest cost is calculated on the average annual investment in the equipment. The formula used to calculate the average annual machinery investment is

$$\frac{\text{Replacement Cost} + \text{Salvage Value}}{2}$$

Replacement cost may refer to new or used machinery (see Table A16 in Appendix). The 9% interest charge made against this average investment value represents interest paid on money borrowed to finance machine purchases or an opportunity cost on equity capital. Machinery interest cost for one acre of spring barley, summer fallow or winter wheat is determined by multiplying the respective machine hours per acre times per hour interest costs (Table A16).

Machinery fixed costs for a specific field operation are determined by multiplying the machine hours per acre times the per-hour fixed cost (Table A16). The per-hour fixed cost figures are determined by dividing the total fixed cost figures by the annual hours of machinery use for the representative farm.

Land fixed costs include taxes and land rent less expenditures typically covered by the landlord (see Net Rent, page 5).

Variable costs are those costs directly associated with crop production, including fuel, oil, repairs, fertilizer, chemicals, custom work, overhead, and interest on operating capital. The labor cost of machinery operation, including that provided by the owner-operator, is also included as a variable cost.

Total cost is the sum of fixed and variable costs.

Due to the information and procedure followed, the budget should be viewed as "typical" or "representative" of the given farm size in the area rather than a mathematical average of a large number of producers. Where such factors as farm size, machinery complement and use, cultural practices, and yield differ from those assumed in this publication, quite different enterprise costs and returns may result.

COSTS AND RETURNS SUMMARY

Table 1 presents variable, fixed and total costs of production and the break-even selling price for each crop in this bulletin. The break-even selling price is calculated as the price which would cover production costs using the yield and cost assumptions in this report. Labor and capital costs are included, but no charge is made for management services.

Table 1. Variable, Fixed and Total Costs of Production and Break-Even Selling Price by Crop¹

Crop	Variable Costs (\$/Acre)	Fixed Costs (\$/Acre)	Total Costs (\$/Acre)	Break-Even Selling Price (\$/Unit)
Rotation 1:				
Summer Fallow	57.85	16.24	74.09	
Winter Wheat	71.35	85.05	156.40	A 4.19
Rotation 2:				
Summer Fallow	52.99	12.95	65.94	
Winter Wheat	71.35	84.30	155.65	A 4.03
Spring Barley	110.77	50.57	161.34	129.07

¹Yield assumptions are 55 bu/acre for winter wheat and 1.25 tons/acre for spring barley.

²Total costs include one year's interest on summer fallow costs as there is no revenue during the summer fallow year.

NOTE: Summer fallow costs include fertilizer expenses for the following winter wheat crop.

Table 2 presents average annual net returns over variable and total costs of production (including \$10/hour for operator labor, 9% return on equity capital and a "net rent" opportunity cost for all land that is owned) by crop rotation under the assumptions used in this study. Negative net returns to management over total costs for both rotations indicates that, for the "typical" farm used in this study, the manager is earning lower returns to equity capital, land, and/or labor than the fair market rate used in this study. A willingness to accept less than \$10 per hour for operator labor and/or less than 9% return on equity investment may result in a positive net return.

Table 2. Average Annual Net Returns Over Variable and Total Costs of Production by Crop Rotation¹

	Average Annual Net Returns Over Variable Costs (\$/Acre/Year)	Average Annual Net Returns Over Total Costs (\$/Acre/Year)
Rotation 1:		
Summer Fallow-Winter Wheat	39.90	-10.75
Rotation 2:		
Summer Fallow-Winter Wheat- Spring Barley	26.71	-22.56

¹Yield assumptions are 55 bu/acre for winter wheat and 1.25 tons/acre for spring barley. Price assumptions are \$3.80/bu for winter wheat and \$85/ton for spring barley.

DISCUSSION OF BUDGET INFORMATION

The budget information for summer fallow-winter wheat and summer fallow-winter wheat-spring barley is reported in 16 separate tables in the Appendix.

Tables A1, A3, A7, A9, and A11: Schedule of Operations and Costs Per Acre

Tables A1, A3, A7, A9, and A11 outline the schedule of field operations by calendar month, the type of machinery used, and labor and machinery hours per acre for each crop and crop sequence in the two rotations in this study.

In Table A3, winter wheat fixed costs include the previous year's summer fallow costs plus a 9% interest charge. Summer fallow costs are allocated to winter wheat because the preceding fallow year is necessary to raise winter wheat in this semi-arid region. However, profitability is calculated by rotation in Tables A6 and A14, in which case summer fallow costs are assigned to the rotation and not specifically to the wheat enterprise.

Tables A2, A4, A8, A10, and A12: Summary of Production Costs Per Acre

These tables itemize the costs appearing in Tables A1, A3, A7, A9, and A11, respectively.

Tables A5 and A13: Schedule of Materials and Services by Rotation

Tables A5 and A13 list, by operation, the specific services and/or materials used, the quantities used and the prices paid for each rotation. The total dollar amount for each of these activities are listed under the "Service" and "Materials" columns in Tables A1, A3, A7, A9, and A11.

Tables A6 and A14: Summary of Receipts, Costs, and Profitability Per Acre

Tables A6 and A14 summarize the per-acre returns, costs, and profitability for the summer fallow-winter wheat rotation (Rotation #1), and the summer fallow-winter wheat-spring barley rotation (Rotation #2). An average annual return is calculated for each rotation.

The first income measure is gross receipts, which is total crop receipts over the rotational period. The second income measure, net returns to management, is gross receipts less total variable costs, machinery fixed expenses, interest on summer fallow costs, net rent, and land taxes. This represents returns to owner-operators after accounting for all costs, except management, including \$10.00 per hour for their labor related to crop production. The last income measure is average annual return to management, which divides net return to management by the number of years in the rotation. Under the given assumptions, Rotation #1 has an average annual return of -\$10.75 per acre and Rotation #2 has an average annual return of -\$22.56 per acre. These negative returns indicate that, for the "typical" farm and machinery complement used in this study, the manager is earning lower returns to equity capital, land, and/or labor than the fair market rate used in this study.

Table A15: Prices of Inputs

Prices for the material and services used in the production of the crops covered in this publication are listed in Table A15.

Table A16: Hourly Machinery Costs

Table A16 presents the estimated machinery fixed and variable costs per hour of machinery use for the machinery complement used in this study. It also lists their replacement value (new or used) and years of life before trade-in. Machinery fixed costs include depreciation, interest on investment, property taxes, and insurance. Machinery prices represent the current cost of replacing the machinery complement for the representative farm used in this study. This assumption provides an indication of the enterprise's ability to generate the earnings needed to replace depreciable assets. As the cost of replacement machinery increases, depreciation claimed on assets purchased prior to price advances understates the amount of capital currently required for asset replacement. When an enterprise is evaluated to determine its long-run viability, it is important to consider its ability to replace depreciable assets on a replaceable cost basis. It should also be noted that interest on investment represents a 9% opportunity cost to the enterprise. These are earnings foregone by investing in the machinery complement rather than in the next best alternative investment.

Machinery variable costs include repair, fuel, and lubrication costs. These are costs that vary with the crop grown or the number of acres produced.

CONCLUDING NOTE

The results of these budgets are entirely dependent upon the chosen procedures and assumptions. These budgets do not represent any one particular operation. They should be used as a general guide to help derive budgets for individual operations. Finally, this publication does not recommend production practices. Rather, it is an attempt to present current technology used to produce wheat and barley in western Whitman County, Washington.

APPENDIX

Detailed Budget Tables

TABLE A1: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR SUMMER FALLOW FOLLOWING WINTER WHEAT (2-YEAR ROTATION), WESTERN WHITMAN COUNTY; 9- TO 14-INCH RAINFALL.

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	VARIABLE COST						TOTAL VARIABLE COST	TOTAL COST
						TOTAL FIXED COST	FUEL, LUBE, & REPAIRS	LABOR	SERVICE MATER.	INTER.			
CHISEL/HARROW	180HP-CT, 20' CHISEL/FLEX HAR.	OCT	1994	.13	.14	\$ 1.47	\$ 2.59	\$ 1.44	\$.00	\$.00	\$.30	\$ 4.33	\$ 5.80
APPLY HERBICIDE	180HP-CT, 80' SPRAYER	MAR	1995	.03	.04	.21	.34	.38	1.15	5.75	.29	7.91	8.12
CULTIVATE/HARROW	180HP-CT, 36' CULT/TINE HARROW	APR	1995	.08	.10	2.68	1.56	.96	.00	.00	.08	2.59	5.27
CULTIVATE/HARROW	180HP-CT, 36' CULT/TINE HARROW	MAY	1995	.08	.10	2.68	1.56	.96	.00	.00	.06	2.58	5.25
FERTILIZE	180HP-CT, 50' FERT. APPLICATOR	MAY	1995	.06	.06	.35	.82	.64	.00	20.40	.49	22.35	22.71
RODWEED	180HP-CT, 40' RODWEEDER	JUN	1995	.06	.07	1.12	1.26	.72	.00	.00	.03	2.01	3.13
RODWEED	180HP-CT, 40' RODWEEDER	JUL	1995	.06	.07	1.12	1.26	.72	.00	.00	.01	2.00	3.12
RODWEED	180HP-CT, 40' RODWEEDER	AUG	1995	.06	.07	1.12	1.26	.72	.00	.00	.00	1.98	3.10
WEED CONTROL	4WD ATV W/SPRAYER	ANN	1995	.02	.02	.14	.04	.23	.00	.50	.03	.80	.94
MACHINE TRANSPT	2 TON TRUCK	ANN	1995	.01	.01	.14	.10	.11	.00	.00	.01	.23	.37
MISC USE	3/4 TON PICKUP	ANN	1995	.25	.29	1.56	2.29	2.87	.00	.00	.23	5.39	6.95
MISC USE	52HP-WT W/BUCKET	ANN	1995	.15	.17	.45	.51	1.72	.00	.00	.10	2.34	2.79
MISC USE	4WD ATV	ANN	1995	.04	.05	.21	.07	.49	.00	.00	.02	.58	.79
TAXES	LAND TAXES	ANN	1995	.00	.00	3.00	.00	.00	.00	.00	.00	.00	3.00
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	2.75	.00	2.75	2.75
TOTAL PER ACRE				1.04	1.20	16.24	13.67	11.97	1.15	29.40	1.66	57.85	74.09

NOTES:

¹ ASSUMED FARM SIZE IS APPROXIMATELY 2,000 ACRES INCLUDING LAND IN SUMMER FALLOW.

² LABOR COSTS ARE \$10.00 PER HOUR FOR OWNER-OPERATOR LABOR AND MACHINE OPERATOR LABOR, \$6.50 PER HOUR FOR TRUCK DRIVER LABOR, AND \$12.00 PER HOUR FOR COMBINE OPERATOR LABOR. OWNER-OPERATORS MAY WISH TO DELETE SOME OR ALL OF THE LABOR CHARGES AND CALCULATE RETURNS TO LABOR FROM THE RESIDUAL.

TABLE A2: ITEMIZED COST PER ACRE FOR SUMMER FALLOW FOLLOWING WINTER WHEAT (2-YEAR ROTATION), WESTERN WHITMAN COUNTY, 9- TO 14-INCH RAINFALL.

		PRICE OR		VALUE OR	YOUR
	UNIT	COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
NITROGEN (AI)	LB.	.26	65.00	16.90	_____
SULFUR (AI)	LB.	.35	10.00	3.50	_____
ROUNDUP-RT	OZ.	.34	12.00	4.08	_____
SURFACTANT	OZ.	.14	6.40	.86	_____
AMMONIUM SULFATE	LB.	.12	1.70	.20	_____
10 GAL. WATER	ACRE	.60	1.00	.60	_____
NON-SELECT HERBICIDE	ACRE	25.00	.02	.50	_____
80' SPRAYER RENTAL	ACRE	1.15	1.00	1.15	_____
LABOR (TRAC/MACH)	HOUR	10.00	1.20	11.97	_____
TRACTOR REPAIRS	ACRE	4.10	1.00	4.10	_____
TRACTOR FUEL/LUBE	ACRE	4.64	1.00	4.64	_____
MACHINERY REPAIRS	ACRE	3.85	1.00	3.85	_____
MACHINE FUEL/LUBE	ACRE	1.08	1.00	1.08	_____
INTEREST ON OP. CAP.	ACRE	1.66	1.00	1.66	_____
OVERHEAD	ACRE	2.75	1.00	2.75	_____

TOTAL VARIABLE COST				57.85	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	1.83	1.00	1.83	_____
TRACTOR INTEREST	ACRE	1.85	1.00	1.85	_____
TRACTOR INSURANCE	ACRE	.12	1.00	.12	_____
TRACTOR TAXES	ACRE	.37	1.00	.37	_____
TRACTOR HOUSING	ACRE	.21	1.00	.21	_____
MACHINE DEPRECIATION	ACRE	4.40	1.00	4.40	_____
MACHINE INTEREST	ACRE	3.23	1.00	3.23	_____
MACHINE INSURANCE	ACRE	.22	1.00	.22	_____
MACHINE TAXES	ACRE	.65	1.00	.65	_____
MACHINE HOUSING	ACRE	.36	1.00	.36	_____
LAND TAX	ACRE	3.00	1.00	3.00	_____

TOTAL FIXED COST				16.24	_____
TOTAL COST				74.09	_____

NOTES:

¹ ASSUMED FARM SIZE IS APPROXIMATELY 2,000 ACRES INCLUDING LAND IN SUMMER FALLOW.

TABLE A3: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR WINTER WHEAT FOLLOWING SUMMER FALLOW (2-YEAR ROTATION), WESTERN WHITMAN COUNTY, 9- TO 14-INCH RAINFALL.

OPERATION	TOOLING	MTH YEAR	MACH HOURS	LABOR HOURS	VARIABLE COST						TOTAL VARIABLE COST	TOTAL COST
					TOTAL FIXED COST	FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.		
RODWEED(1.25X)	180HP-CT, 40' RODWEED	SEP 1994	.08	.09	\$ 1.40	\$ 1.58	\$.90	\$.00	\$.00	\$.20	\$ 2.68	\$ 4.08
PLANT(1.25X)	180HP-CT, 36' DBL. DISC DRILL	SEP 1994	.14	.16	6.34	4.29	1.60	.00	10.50	1.35	17.74	24.08
HAUL SEED(1.25X)	2 TON TRUCK	SEP 1994	.03	.03	.35	.26	.29	.00	.00	.05	.59	.94
APPLY HERBICIDE	AERIAL APPLICATION	MAR 1995	.00	.00	.00	.00	.00	5.00	8.16	.49	13.65	13.65
CROP INSURANCE	FIRE AND HAIL	JUN 1995	.00	.00	.00	.00	.00	2.40	.00	.04	2.44	2.44
HARVEST	20' COMBINE	AUG 1995	.18	.21	6.18	4.49	2.48	.00	.00	.00	6.98	13.15
HAUL	2TON TRUCK (10 YR OLD OR MORE)	AUG 1995	.10	.21	1.04	1.08	1.35	.00	.00	.00	2.42	3.46
HAUL	2TON TRUCK (5 - 10 YEARS OLD)	AUG 1995	.10	.21	1.40	1.04	1.35	.00	.00	.00	2.39	3.79
WEED CONTROL	4 WD ATV W/SPRAYER	ANN 1995	.02	.02	.14	.04	.23	.00	.50	.03	.80	.94
MACHINE TRANSPT	2 TON TRUCK	ANN 1995	.01	.01	.14	.10	.11	.00	.00	.01	.23	.37
STORAGE	OFF FARM STORAGE COST	ANN 1995	.00	.00	.00	.00	.00	10.80	.00	.49	11.29	11.29
MISC USE	3/4 TON PICKUP	ANN 1995	.25	.29	1.56	2.29	2.87	.00	.00	.23	5.39	6.95
MISC USE	52HP-WT W/BUCKET	ANN 1995	.05	.06	.15	.17	.58	.00	.00	.03	.78	.93
MISC USE	4WD ATV	ANN 1995	.04	.05	.21	.07	.49	.00	.00	.02	.58	.79
LAND COST	NET RENT	ANN 1995	.00	.00	56.47	.00	.00	.00	.00	.00	.00	56.47
TAXES	LAND TAXES	ANN 1995	.00	.00	3.00	.00	.00	.00	.00	.00	.00	3.00
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN 1995	.00	.00	.00	.00	.00	.00	3.40	.00	3.40	3.40
SUMMER FALLOW	TOTAL COST PLUS INTEREST	ANN 1995	.00	.00	80.76	.00	.00	.00	.00	.00	.00	80.76
TOTAL PER ACRE			.99	1.34	159.14	15.40	12.25	18.20	22.55	2.95	71.35	230.49

NOTES:

¹ ASSUMED FARM SIZE IS APPROXIMATELY 2,000 ACRES INCLUDING LAND IN SUMMER FALLOW.

² ONE-FOURTH OF THE ACREAGE IS ASSUMED TO REQUIRE REPLANTING EACH YEAR DUE TO POOR EMERGENCE, WINTER CROP DAMAGE, AND OTHER ENVIRONMENTAL FACTORS.

³ LABOR COSTS ARE \$10.00 PER HOUR FOR OWNER-OPERATOR LABOR AND MACHINE OPERATOR LABOR, \$6.50 PER HOUR FOR TRUCK DRIVER LABOR, AND \$12.00 PER HOUR FOR COMBINE OPERATOR LABOR. OWNER-OPERATORS MAY WISH TO DELETE SOME OR ALL OF THE LABOR CHARGES AND CALCULATE RETURNS TO LABOR FROM THE RESIDUAL.

TABLE A4: ITEMIZED COST PER ACRE FOR WINTER WHEAT FOLLOWING
SUMMER FALLOW (2-YEAR ROTATION), WESTERN WHITMAN
COUNTY, 9- TO 14-INCH RAINFALL.

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
WHEAT SEED	LB.	.14	75.00	10.50	_____
FINESSE	OZ.	18.90	.25	4.72	_____
SURFACTANT	OZ.	.14	3.20	.43	_____
BUCTRIL	OZ.	.50	6.00	3.00	_____
NON-SELECT HERBICIDE	ACRE	25.00	.02	.50	_____
FIRE & HAIL INSURANCE	ACRE	2.40	1.00	2.40	_____
CUSTOM AERIAL	ACRE	5.00	1.00	5.00	_____
LABOR (TRAC/MACH)	HOUR	10.00	.71	7.07	_____
TRUCK DRIVER	HOUR	6.50	.42	2.70	_____
COMBINE DRIVER	HOUR	12.00	.21	2.48	_____
I/O STORAGE COST	BU.	.08	60.00	4.80	_____
MO. STORAGE COST	BU.	.10	60.00	6.00	_____
TRACTOR REPAIR	ACRE	1.59	1.00	1.59	_____
TRACTOR FUEL/LUBE	ACRE	1.68	1.00	1.68	_____
MACHINERY REPAIRS	ACRE	9.34	1.00	9.34	_____
MACHINE FUEL/LUBE	ACRE	2.80	1.00	2.80	_____
INTEREST ON OP. CAP.	ACRE	2.95	1.00	2.95	_____
OVERHEAD	ACRE	3.40	1.00	3.40	_____

TOTAL VARIABLE COST				71.35	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	.70	1.00	.70	_____
TRACTOR INTEREST	ACRE	.71	1.00	.71	_____
TRACTOR INSURANCE	ACRE	.05	1.00	.05	_____
TRACTOR TAXES	ACRE	.14	1.00	.14	_____
TRACTOR HOUSING	ACRE	.08	1.00	.08	_____
MACHINE DEPRECIATION	ACRE	8.90	1.00	8.90	_____
MACHINE INTEREST	ACRE	6.04	1.00	6.04	_____
MACHINE INSURANCE	ACRE	.40	1.00	.40	_____
MACHINE TAXES	ACRE	1.21	1.00	1.21	_____
MACHINE HOUSING	ACRE	.67	1.00	.67	_____
SUMMER FALLOW COST	ACRE	74.09	1.09	80.76	_____
NET RENT	ACRE	56.47	1.00	56.47	_____
LAND TAX	ACRE	3.00	1.00	3.00	_____

TOTAL FIXED COST				159.14	_____
TOTAL COST				230.49	_____

NOTES:

- ¹ FARM SIZE IS ASSUMED TO BE APPROXIMATELY 2,000 ACRES INCLUDING LAND IN SUMMER FALLOW.
- ² ONE-FOURTH OF THE ACREAGE IS ASSUMED TO REQUIRE REPLANTING EACH YEAR DUE TO POOR EMERGENCE, WINTER CROP DAMAGE, AND OTHER ENVIRONMENTAL FACTORS.
- ³ STORAGE COST ASSUMES GRAIN IS STORED FOR FIVE MONTHS.
- ⁴ NET RENT IS CALCULATED AS \$70.00 GROSS RENT LESS REAL ESTATE TAXES AND ONE-THIRD FERTILIZER, STORAGE, AND CROP INSURANCE COSTS.

Table A5: Schedule of Materials and Services for a Summer Fallow-Winter Wheat Rotation.

Operation	Month	Material and/or Service
Summer Fallow:		
Apply Herbicide	March	Rental of 80' sprayer @ \$1.15/acre 12 oz. of Roundup-RT @ \$0.34/oz. 6.4 oz. of Surfactant @ \$0.135/oz. 1.7 lbs. of ammonium sulfate @ \$0.12/lb. 10 gal. of water @ \$0.60/acre
Fertilize	May	65 lbs. of nitrogen @ \$0.26/lb. 10 lbs. of sulfur @ \$0.35/lb.
Weed Control (2% of Total Acreage)	Annual	Non-selective herbicide @ \$25.00/acre
Overhead	Annual	5% of variable cost
Winter Wheat:		
Plant	September	60 lbs. of seed @ \$0.14/lb.
Apply Herbicide	March	Aerial application @ \$5.00/acre 0.25 oz. of Finesse @ \$18.90/oz. 3.2 oz. of Surfactant @ \$0.135/oz. 6 oz. of Buctril @ \$0.50/oz.
Crop Insurance	June	Fire and Hail @ \$2.40/acre
Storage (Five months)	Annual	In/Out charge @ \$0.08/bu. Monthly charge @ \$0.02/bu./mo.
Weed Control (2% of total acreage)	Annual	Non-selective herbicide @ \$25.00/acre
Overhead	Annual	5% of variable cost

NOTE:

¹ One-fourth of winter wheat acreage is assumed to require replanting each year due to poor emergence, winter crop damage, and other environmental factors.

² Labor costs are \$10.00 per hour for owner-operator labor and machine operator labor, \$6.50 per hour for truck driver labor, and \$12.00 per hour for combine operator labor. Owner-operators may wish to delete some or all of the labor charges and calculate returns to labor from the residual.

Table A6: Summary of Receipts, Costs, and Profitability Per Acre for a Summer Fallow-Winter Wheat Rotation Over a 2-Year Period.

	Price/ Unit	Quantity	Value or Cost
	\$		\$
1. Gross Receipts From Production			
Wheat	3.80	55 Bu.	209.00
Less: Variable Cost For:			
Summer Fallow			57.85
Winter Wheat			71.35
Tractor & Machinery			
Fixed Cost For:			
Summer Fallow			13.24
Winter Wheat			18.91
Interest on Summer			
Fallow Cost			6.67
Net Land Rent for			
Summer Fallow/Winter Wheat			56.47
Land Taxes (2 Years)			<u>6.00</u>
2. Net Returns to Management			
Over a 2-Year Period			-21.49
3. Average Annual Net Returns			
to Management			<u>-10.75</u>

TABLE A7: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR SUMMER FALLOW FOLLOWING SPRING BARLEY (3-YEAR ROTATION), WESTERN WHITMAN COUNTY, 9- TO 14-INCH RAINFALL.

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	VARIABLE COST						TOTAL COST	
						TOTAL FIXED COST	FUEL, LUBE, & REPAIRS	LABOR	SERVICE MATER.	INTER.	TOTAL VARIABLE COST		
						\$	\$	\$	\$	\$	\$	\$	
APPLY HERBICIDE	180HP-CT, 80' SPRAYER	MAR	1995	.03	.04	.21	.34	.38	1.15	5.75	.29	7.91	8.12
CULTIVATE/HARROW	180HP-CT, 36' CULT/TINE HARROW	APR	1995	.08	.10	.85	1.27	.96	.00	.00	.07	2.30	3.15
CULTIVATE/HARROW	180HP-CT, 36' CULT/TINE HARROW	MAY	1995	.08	.10	2.68	1.56	.96	.00	.00	.06	2.58	5.25
FERTILIZE	180HP-CT, 50' FERT. APPLICATOR	MAY	1995	.06	.06	.35	.82	.64	.00	20.40	.49	22.35	22.71
RODWEED	180HP-CT, 40' RODWEEDER	JUN	1995	.06	.07	1.12	1.26	.72	.00	.00	.03	2.01	3.13
RODWEED	180HP-CT, 40' RODWEEDER	JUL	1995	.06	.07	1.12	1.26	.72	.00	.00	.01	2.00	3.12
RODWEED	180HP-CT, 40' RODWEEDER	AUG	1995	.06	.07	1.12	1.26	.72	.00	.00	.00	1.98	3.10
WEED CONTROL	4WD ATV W/SPRAYER	ANN	1995	.02	.02	.14	.04	.23	.00	.50	.03	.80	.94
MACHINE TRANSP	2 TON TRUCK	ANN	1995	.01	.01	.14	.10	.11	.00	.00	.01	.23	.37
MISC USE	3/4 TON PICKUP	ANN	1995	.25	.29	1.56	2.29	2.87	.00	.00	.23	5.39	6.95
MISC USE	52HP-WT W/BUCKET	ANN	1995	.15	.17	.45	.51	1.72	.00	.00	.10	2.34	2.79
MISC USE	4WD ATV	ANN	1995	.04	.05	.21	.07	.49	.00	.00	.02	.58	.79
TAXES	LAND TAXES	ANN	1995	.00	.00	3.00	.00	.00	.00	.00	.00	.00	3.00
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	2.52	.00	2.52	2.52
TOTAL PER ACRE				.92	1.05	12.95	10.79	10.53	1.15	29.17	1.35	52.99	65.94

NOTES:

¹ ASSUMED FARM SIZE IS APPROXIMATELY 2,000 ACRES INCLUDING LAND IN SUMMER FALLOW.

² LABOR COSTS ARE \$10.00 PER HOUR FOR OWNER-OPERATOR LABOR AND MACHINE OPERATOR LABOR, \$6.50 PER HOUR FOR TRUCK DRIVER LABOR, AND \$12.00 PER HOUR FOR COMBINE OPERATOR LABOR. OWNER-OPERATORS MAY WISH TO DELETE SOME OR ALL OF THE LABOR CHARGES AND CALCULATE RETURNS TO LABOR FROM THE RESIDUAL.

TABLE A8: ITEMIZED COST PER ACRE FOR SUMMER FALLOW FOLLOWING
 SPRING BARLEY (3-YEAR ROTATION), WESTERN WHITMAN
 COUNTY, 9- TO 14-INCH RAINFALL.

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
NITROGEN (AI)	LB.	.26	65.00	16.90	_____
SULFUR (AI)	LB.	.35	10.00	3.50	_____
ROUNDUP-RT	OZ.	.34	12.00	4.08	_____
SURFACTANT	OZ.	.14	6.40	.86	_____
AMMONIUM SULFATE	LB.	.12	1.70	.20	_____
10 GAL. WATER	ACRE	.60	1.00	.60	_____
NON-SELECT HERBICIDE	ACRE	25.00	.02	.50	_____
80' SPRAYER RENTAL	ACRE	1.15	1.00	1.15	_____
LABOR (TRAC/MACH)	HOURL	10.00	1.05	10.53	_____
TRACTOR REPAIR	ACRE	3.21	1.00	3.21	_____
TRACTOR FUEL/LUBE	ACRE	3.51	1.00	3.51	_____
MACHINERY REPAIRS	ACRE	3.00	1.00	3.00	_____
MACHINE FUEL/LUBE	ACRE	1.08	1.00	1.08	_____
INTEREST ON OP. CAP.	ACRE	1.35	1.00	1.35	_____
OVERHEAD	ACRE	2.52	1.00	2.52	_____

TOTAL VARIABLE COST				52.99	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	1.47	1.00	1.47	_____
TRACTOR INTEREST	ACRE	1.48	1.00	1.48	_____
TRACTOR INSURANCE	ACRE	.10	1.00	.10	_____
TRACTOR TAXES	ACRE	.30	1.00	.30	_____
TRACTOR HOUSING	ACRE	.16	1.00	.16	_____
MACHINE DEPRECIATION	ACRE	3.28	1.00	3.28	_____
MACHINE INTEREST	ACRE	2.30	1.00	2.30	_____
MACHINE INSURANCE	ACRE	.15	1.00	.15	_____
MACHINE TAXES	ACRE	.46	1.00	.46	_____
MACHINE HOUSING	ACRE	.26	1.00	.26	_____
LAND TAX	ACRE	3.00	1.00	3.00	_____

TOTAL FIXED COST				12.95	_____
TOTAL COST				65.94	_____

NOTES:

¹ ASSUMED FARM SIZE IS APPROXIMATELY 2,000 ACRES INCLUDING LAND
 IN SUMMER FALLOW.

TABLE A9: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR WINTER WHEAT FOLLOWING SUMMER FALLOW (3-YEAR ROTATION), WESTERN WHITMAN COUNTY, 9- TO 14-INCH RAINFALL.

OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	VARIABLE COST						TOTAL VARIABLE COST	TOTAL COST
						TOTAL FIXED COST	FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.		
						\$	\$	\$	\$	\$	\$	\$	\$
RODWEED(1.25X)	180HP-CT, 40' RODWEED	SEP	1994	.08	.09	1.40	1.58	.90	.00	.00	.20	2.68	4.08
PLANT(1.25X)	180HP-CT, 36' DBL. DISC DRILL	SEP	1994	.14	.16	6.34	4.29	1.60	.00	10.50	1.35	17.74	24.08
HAUL SEED(1.25X)	2 TON TRUCK	SEP	1994	.03	.03	.35	.26	.29	.00	.00	.05	.59	.94
APPLY HERBICIDE	AERIAL APPLICATION	MAR	1995	.00	.00	.00	.00	.00	5.00	8.16	.49	13.65	13.65
CROP INSURANCE	FIRE AND HAIL	JUN	1995	.00	.00	.00	.00	.00	2.40	.00	.04	2.44	2.44
HARVEST	20' COMBINE	AUG	1995	.18	.21	6.18	4.49	2.48	.00	.00	.00	6.98	13.15
HAUL	2TON TRUCK (10 YR OLD OR MORE)	AUG	1995	.10	.21	1.04	1.08	1.35	.00	.00	.00	2.42	3.46
HAUL	2TON TRUCK (5 - 10 YEARS OLD)	AUG	1995	.10	.21	1.40	1.04	1.35	.00	.00	.00	2.39	3.79
WEED CONTROL	4 WD ATV W/SPRAYER	ANN	1995	.02	.02	.14	.04	.23	.00	.50	.03	.80	.94
MACHINE TRANSP	2 TON TRUCK	ANN	1995	.01	.01	.14	.10	.11	.00	.00	.01	.23	.37
STORAGE	OFF FARM STORAGE COST	ANN	1995	.00	.00	.00	.00	.00	10.80	.00	.49	11.29	11.29
MISC USE	3/4 TON PICKUP	ANN	1995	.25	.29	1.56	2.29	2.87	.00	.00	.23	5.39	6.95
MISC USE	52HP-WT W/BUCKET	ANN	1995	.05	.06	.15	.17	.58	.00	.00	.03	.78	.93
MISC USE	4WD ATV	ANN	1995	.04	.05	.21	.07	.49	.00	.00	.02	.58	.79
LAND COST	NET RENT	ANN	1995	.00	.00	56.47	.00	.00	.00	.00	.00	.00	56.47
TAXES	LAND TAXES	ANN	1995	.00	.00	3.00	.00	.00	.00	.00	.00	.00	3.00
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	3.40	.00	3.40	3.40
SUMMER FALLOW	TOTAL COST PLUS INTEREST	ANN	1995	.00	.00	71.86	.00	.00	.00	.00	.00	.00	71.86
TOTAL PER ACRE				.99	1.34	150.24	15.40	12.25	18.20	22.55	2.95	71.35	221.59

NOTES:

¹ ASSUMED FARM SIZE IS APPROXIMATELY 2,000 ACRES INCLUDING LAND ON SUMMER FALLOW.

² ONE-FOURTH OF THE ACREAGE IS ASSUMED TO REQUIRE REPLANTING EACH YEAR DUE TO POOR EMERGENCE, WINTER CROP DAMAGE, AND OTHER ENVIRONMENTAL FACTORS.

³ LABOR COSTS ARE \$10.00 PER HOUR FOR OWNER-OPERATOR LABOR AND MACHINE OPERATOR LABOR, \$6.50 PER HOUR FOR TRUCK DRIVER LABOR, AND \$12.00 PER HOUR FOR TRUCK DRIVER LABOR, AND \$12.00 PER HOUR FOR COMBINE OPERATOR LABOR. OWNER-OPERATOR MAY WISH TO DELETE SOME OR ALL OF THE LABOR CHARGES AND CALCULATE RETURNS TO LABOR FROM THE RESIDUAL.

TABLE A10: ITEMIZED COST PER ACRE FOR WINTER WHEAT FOLLOWING
SUMMER FALLOW (3-YEAR ROTATION), WESTERN WHITMAN
COUNTY, 9- TO 14-INCH RAINFALL.

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
WHEAT SEED	LB.	.14	75.00	10.50	_____
FINESSE	OZ.	18.90	.25	4.72	_____
SURFACTANT	OZ.	.14	3.20	.43	_____
BUCTRIL	OZ.	.50	6.00	3.00	_____
NON-SELECT HERBICIDE	ACRE	25.00	.02	.50	_____
CUSTOM AERIAL	ACRE	5.00	1.00	5.00	_____
FIRE/HAIL INSURANCE	ACRE	2.40	1.00	2.40	_____
LABOR (TRAC/MACH)	ACRE	10.00	0.71	7.07	_____
TRUCK DRIVER	HOURL	6.50	.42	2.70	_____
COMBINE DRIVER	HOURL	12.00	.21	2.48	_____
I/O STORAGE COST	BU.	.08	60.00	4.80	_____
MO. STORAGE COST	BU.	.10	60.00	6.00	_____
TRACTOR REPAIR	ACRE	1.59	1.00	1.59	_____
TRACTOR FUEL/LUBE	ACRE	1.68	1.00	1.68	_____
MACHINERY REPAIRS	ACRE	9.34	1.00	9.34	_____
MACHINE FUEL/LUBE	ACRE	2.80	1.00	2.80	_____
INTEREST ON OP. CAP.	DOL.	.09	32.80	2.95	_____
OVERHEAD	HOURL	10.00	.71	3.40	_____

TOTAL VARIABLE COST				71.35	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	.70	1.00	.70	_____
TRACTOR INTEREST	ACRE	.71	1.00	.71	_____
TRACTOR INSURANCE	ACRE	.05	1.00	.05	_____
TRACTOR TAXES	ACRE	.14	1.00	.14	_____
TRACTOR HOUSING	ACRE	.08	1.00	.08	_____
MACHINE DEPRECIATION	ACRE	8.90	1.00	8.90	_____
MACHINE INTEREST	ACRE	6.04	1.00	6.04	_____
MACHINE INSURANCE	ACRE	.40	1.00	.40	_____
MACHINE TAXES	ACRE	1.21	1.00	1.21	_____
MACHINE HOUSING	ACRE	.67	1.00	.67	_____
SUM. FALLOW COST	ACRE	65.94	1.09	71.86	_____
NET RENT	ACRE	56.47	1.00	56.47	_____
LAND TAX	ACRE	3.00	1.00	3.00	_____

TOTAL FIXED COST				150.24	_____
TOTAL COST				221.59	_____

NOTES:

- ¹ FARM SIZE IS ASSUMED TO BE APPROXIMATELY 2,000 ACRES INCLUDING LAND IN SUMMER FALLOW.
- ² ONE-FOURTH OF THE ACREAGE IS ASSUMED TO REQUIRE REPLANTING EACH YEAR DUE TO POOR EMERGENCE, WINTER CROP DAMAGE, AND OTHER ENVIRONMENTAL FACTORS.
- ³ STORAGE COST ASSUMES GRAIN IS STORED FOR FIVE MONTHS.
- ⁴ NET RENT IS CALCULATED AS \$70.00 GROSS RENT LESS REAL ESTATE TAXES AND ONE-THIRD FERTILIZER, STORAGE, AND CROP INSURANCE COSTS.

TABLE A11: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR SPRING BARLEY FOLLOWING WINTER WHEAT (3-YEAR ROTATION), WESTERN WHITMAN COUNTY, 9- TO 14-INCH RAINFALL.

OPERATION	TOOLING	MTH YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	VARIABLE COST					TOTAL VARIABLE COST	TOTAL COST
						FUEL, LUBE, & REPAIRS	LABOR	SERVICE MATER.	INTER.			
						\$	\$	\$	\$	\$	\$	\$
DISC	180HP-CT, 20' OFFSET DISC	SEP 1994	.13	.14	2.82	2.44	1.44	.00	.00	.32	4.20	7.02
CHISEL	180HP-CT, 20' CHISEL	OCT 1994	.13	.14	1.36	2.56	1.44	.00	.00	.30	4.30	5.66
APPLY HERBICIDE	180HP-CT, 80' SPRAYER	MAR 1995	.01	.01	.07	.11	.13	.38	1.92	.10	2.64	2.71
CULT/HARROW	180HP-CT, 36' CULTIVATOR/TINE	APR 1995	.08	.10	2.68	1.56	.96	.00	.00	.08	2.59	5.27
FERTILIZE	180HP-CT, 50' FERT. APPLICATOR	APR 1995	.06	.06	.35	.82	.64	.00	20.40	.66	22.52	22.87
RODWEED/HARROW	180HP-CT, 40' RODWEED/TINE	APR 1995	.07	.08	1.26	1.41	.77	.00	.00	.07	2.24	3.51
PLANT	180HP-CT, 36' DBL. DISC DRILL	APR 1995	.11	.13	5.07	3.43	1.28	.00	10.80	.47	15.98	21.05
HAUL SEED	2 TON TRUCK	APR 1995	.02	.02	.28	.21	.23	.00	.00	.01	.45	.73
APPLY HERBICIDE	180HP-CT, 50' SPRAYER/TINE	APR 1995	.03	.04	.37	.42	.37	.38	4.58	.17	5.92	6.29
APPLY HERBICIDE	180HP-CT, 80' SPRAYER	MAY 1995	.00	.04	.21	.34	.38	1.15	7.94	.22	10.03	10.24
CROP INSURANCE	FIRE AND HAIL	MAY 1995	.00	.00	.00	.00	.00	1.00	.00	.02	1.02	1.02
HARVEST	20' COMBINE	JUL 1995	.18	.21	6.18	4.49	2.48	.00	.00	.05	7.03	13.20
HAUL	2TON TRUCK (10 YR OLD OR MORE)	JUL 1995	.10	.21	1.04	1.08	1.35	.00	.00	.02	2.44	3.47
HAUL	2TON TRUCK (5 - 10 YEARS OLD)	JUL 1995	.10	.21	1.40	1.04	1.35	.00	.00	.02	2.40	3.80
RUSS THSTL SPRAY	180HP-CT, 80' SPRAYER	AUG 1995	.02	.02	.13	.20	.23	.38	3.34	.00	4.16	4.29
WEED CONTROL	4 WD ATV W/SPRAYER	ANN 1995	.02	.02	.14	.04	.23	.00	.50	.03	.80	.94
MACHINE TRANSP	2 TON TRUCK	ANN 1995	.01	.01	.14	.10	.11	.00	.00	.01	.23	.37
STORAGE	OFF FARM STORAGE COST	ANN 1995	.00	.00	.00	.00	.00	9.37	.00	.42	9.80	9.80
MISC USE	3/4 TON PICKUP	ANN 1995	.25	.29	1.56	2.29	2.87	.00	.00	.23	5.39	6.95
MISC USE	52HP-WT W/BUCKET	ANN 1995	.05	.06	.15	.17	.58	.00	.00	.03	.78	.93
MISC USE	4WD ATV	ANN 1995	.04	.05	.21	.07	.49	.00	.00	.02	.58	.79
LAND COST	NET RENT	ANN 1995	.00	.00	22.16	.00	.00	.00	.00	.00	.00	22.16
TAXES	LAND TAXES	ANN 1995	.00	.00	3.00	.00	.00	.00	.00	.00	.00	3.00
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN 1995	.00	.00	.00	.00	.00	.00	5.29	.00	5.29	5.29
TOTAL PER ACRE			1.44	1.84	50.57	22.79	17.32	12.67	54.75	3.25	110.77	161.34

NOTES:

¹ ASSUMED FARM SIZE IS APPROXIMATELY 2,000 ACRES INCLUDING LAND IN SUMMER FALLOW.

² LABOR COSTS ARE \$10.00 PER HOUR FOR OWNER-OPERATOR LABOR AND MACHINE OPERATOR LABOR, \$6.50 PER HOUR FOR TRUCK DRIVER LABOR, AND \$12.00 PER HOUR FOR COMBINE OPERATOR LABOR. OWNER-OPERATORS MAY WISH TO DELETE SOME OR ALL OF THE LABOR CHARGES AND CALCULATE RETURNS TO LABOR FROM THE RESIDUAL.

TABLE A12: ITEMIZED COST PER ACRE FOR SPRING BARLEY FOLLOWING WINTER WHEAT (3-YEAR ROTATION), WESTERN WHITMAN COUNTY, 9- TO 14-INCH RAINFALL.

		PRICE OR		VALUE OR	YOUR
	UNIT	COST/UNIT	QUANTITY	COST	FARM

VARIABLE COSTS		\$		\$	
BARLEY SEED	LB.	.14	80.00	10.80	_____
NITROGEN (AI)	LB.	.26	65.00	16.90	_____
SULFUR (AI)	LB.	.35	10.00	3.50	_____
ROUNDUP-RT	OZ.	.34	4.00	1.36	_____
HARMONY-XTRA	OZ.	14.20	.30	4.26	_____
MCPA ESTER	PINT	2.25	1.25	2.81	_____
SUR-FIRE	PINT	4.50	.50	2.25	_____
SURFACTANT	OZ.	.14	12.80	1.73	_____
AMMONIUM SULFATE	LB.	.12	.57	.07	_____
FARGO	QT.	10.42	.42	4.38	_____
NON-SELECT HERBICIDE	ACRE	25.00	.02	.50	_____
RENTED SPRAYER	ACRE	1.15	2.00	2.30	_____
TANK FILL WATER	ACRE	.92	1.00	.92	_____
FIRE & HAILINSURANCE	ACRE	1.00	1.00	1.00	_____
I/O STORAGE COST	BU.	.08	52.08	4.17	_____
MO. STORAGE COST	BU.	.10	52.08	5.21	_____
LABOR (TRAC/MACH)	HOUR	10.00	1.21	12.14	_____
TRUCK DRIVER	HOUR	6.50	.42	2.70	_____
COMBINE DRIVER	HOUR	12.00	.21	2.48	_____
TRACTOR REPAIRS	ACRE	4.70	1.00	4.70	_____
TRACTOR FUEL/LUBE	ACRE	4.84	1.00	4.84	_____
MACHINERY REPAIRS	ACRE	10.46	1.00	10.46	_____
MACHINE FUEL/LUBE	ACRE	2.79	1.00	2.79	_____
INTEREST ON OP. CAP.	ACRE	3.25	1.00	3.25	_____
OVERHEAD	ACRE	5.27	1.00	5.27	_____

TOTAL VARIABLE COST				110.77	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	1.98	1.00	1.98	_____
TRACTOR INTEREST	ACRE	2.00	1.00	2.00	_____
TRACTOR INSURANCE	ACRE	.13	1.00	.13	_____
TRACTOR TAXES	ACRE	.40	1.00	.40	_____
TRACTOR HOUSING	ACRE	.22	1.00	.22	_____
MACHINE DEPRECIATION	ACRE	10.51	1.00	10.51	_____
MACHINE INTEREST	ACRE	7.38	1.00	7.38	_____
MACHINE INSURANCE	ACRE	.49	1.00	.49	_____
MACHINE TAXES	ACRE	1.48	1.00	1.48	_____
MACHINE HOUSING	ACRE	.82	1.00	.82	_____
LAND COST	ACRE	22.16	1.00	22.16	_____
LAND TAX	ACRE	3.00	1.00	3.00	_____

TOTAL FIXED COST				50.57	_____
TOTAL COST				161.34	_____

NOTES:

¹ ASSUMED FARM IS APPROXIMATELY 2,000 ACRES INCLUDING LAND IN SUMMER FALLOW.

² STORAGE COST ASSUMES GRAIN IS STORED FOR FIVE MONTHS.

³ NET RENT IS CALCULATED AS \$35.42 GROSS RENT LESS REAL ESTATE TAXES AND ONE-THIRD FERTILIZER, CROP INSURANCE, AND STORAGE COSTS.

Table A13: Schedule of Materials and Services for a Summer Fallow-Winter Wheat-Spring Barley Rotation.

Operation	Month	Material and/or Service
Summer Fallow:		
Apply Herbicide	March	Rental of 80' sprayer @ \$1.15/acre 12 oz. of Roundup-RT @ \$0.34/oz. 6.4 oz. of Surfactant @ \$0.135/oz. 1.7 lbs. of ammonium sulfate @ \$0.12/lb. 10 gal. of water @ \$0.60/acre
Fertilize	May	65 lbs. of nitrogen @ \$0.26/lb. 10 lbs. of sulfur @ \$0.35/lb.
Weed Control (2% of total acreage)	Annual	Non-selective herbicide @ \$25.00/acre
Overhead	Annual	5% of variable cost
Winter Wheat:		
Plant	September	60 lbs. of seed @ \$0.14/lb.
Apply Herbicide	March	Aerial application @ \$5.00/acre 0.25 oz. of Finesse @ \$18.90/oz. 3.2 oz. of Surfactant @ \$0.135/oz. 6 oz. of Buctril @ \$0.50/oz.
Crop Insurance	June	Fire and Hail @ \$2.40/acre
Storage (Five months)	Annual	In/Out charge @ \$0.08/bu. Monthly charge @ \$0.02/bu./mo.
Weed Control (2% of total acreage)	Annual	Non-selective herbicide @ \$25.00/acre
Overhead	Annual	5% of variable cost
Spring Barley:		
Apply Herbicide (One year in three)	March	Rental of 80' sprayer @ \$1.15/acre 12 oz. of Roundup-RT @ \$0.34/oz. 6.4 oz. of Surfactant @ \$0.135/oz. 1.7 lbs. of ammonium sulfate @ \$0.12/lb. 10 gal. of water @ \$0.60/acre
Fertilize	March	65 lbs. of nitrogen @ \$0.26/lb. 10 lbs. of sulfur @ \$0.35/lb.

Table A13: Schedule of Materials and Services for a Summer Fallow-Winter Wheat-Spring Barley Rotation (Continued).

Operation	Month	Material and/or Service
Plant	April	80 lbs. of seed @ \$0.135/lb.
Apply Herbicide (One-third of acreage)	April	Rental of 80' sprayer @ \$1.15/acre 1.25 qts. of Fargo @ \$10.42/qt. 10 gal. of water @ \$0.60/acre
Apply Herbicide	May	Rental of 80' sprayer @ \$1.15/acre 1.25 pts. of MCPA Ester @ \$2.25/pt. 0.3 oz. of Harmony-Xtra @ \$14.20/oz. 6.4 oz. of Surfactant @ \$0.135/oz.
Crop Insurance	May	Fire and Hail @ \$1.00/acre
Russian Thistle Spray (One-third of acreage)	August	Rental of 80' sprayer @ \$1.15/acre 1.5 pts. of Sur-Fire @ \$4.50/pt. 12.8 oz. of Surfactant @ \$0.135/oz. 20 gal. of water @ \$1.55/acre
Storage	Annual	In/Out charge @ \$0.08/bu. Monthly charge @ \$0.02/bu./mo.
Weed Control (2% of total acreage)	Annual	Non-selective herbicide @ \$25.00/acre
Overhead	Annual	5% of variable cost

NOTES:

¹ One-fourth of winter wheat acreage is assumed to require replanting each year due to poor emergence, winter crop damage, and other environmental factors.

² Storage cost assumes grain is stored for five months.

³ Applied an average of once in three years.

⁴ Applied on only one-third the acreage.

Table A14: Summary of Receipts, Costs, and Profitability Per Acre for a Summer Fallow-Winter Wheat-Spring Barley Rotation Over a 3-Year Period.

	Price/ Unit	Quantity	Value or Cost
	\$		\$
1. Gross Receipts From Production			
Barley	85.00	1.25 Tons	106.25
Wheat	3.80	55 Bu.	<u>209.00</u>
Total Receipts			315.25
Less: Variable Cost For:			
Summer Fallow			52.99
Winter Wheat			71.35
Spring Barley			110.77
Tractor & Machinery Fixed Cost For:			
Summer Fallow			9.95
Winter Wheat			18.91
Spring Barley			25.41
Interest on Summer Fallow Cost			5.92
Net Land Rent for			
Summer Fallow/Winter Wheat			56.47
Spring Barley			22.16
Land Taxes (3 Years)			<u>9.00</u>
2. Net Returns to Management Over a 3-Year Period			-67.69
3. Average Annual Net Returns to Management			-22.56

Table A15: Prices of Inputs

	Unit	Price
		\$
Services:		
Fire and Hail Insurance		
Wheat	Acre	2.40
Barley	Acre	1.00
Aerial Application	Acre	5.00
Rental of 80' Sprayer	Acre	1.15
In/Out Storage Charge	Bushel	0.08
Monthly Storage Charge	Bushel	0.02
Materials:		
Gasoline	Gallon	1.20
Diesel	Gallon	0.80
Nitrogen (A.I) (per Unit N)	Pound	0.26
Sulfur (A.I.) (per Unit S)	Pound	0.35
Ammonium Sulfate (per Units of N & S)	Pound	0.12
Roundup-RT	Ounce	0.34
Surfactant	Ounce	0.135
Finesse	Ounce	18.90
Buctril	Ounce	0.50
MCPA Ester	Pint	2.25
Harmony-Xtra	Ounce	14.20
Sur-Fire	Pint	4.50
Fargo	Quart	10.43
Wheat Seed	Pound	0.14
Barley Seed	Pound	0.135
Other:		
Land Taxes	Acre	3.00
Machine Operator Labor	Hour	10.00
Truck Driver Labor	Hour	6.50
Combine Driver Labor	Hour	12.00

TABLE A16: HOURLY MACHINERY COSTS

MACHINERY	REPLACEMENT COST	YEARS TO TRADE	ANNUAL HOURS	DEPRECIATION	INTEREST	INSURANCE	TAXES	HOUSING	TOTAL FIXED COST	REPAIR	FUEL AND LUBE	TOTAL VARIABLE COST	TOTAL COST
	\$												
				-----COST PER HOUR-----									
180HP-CT, USED	50,000.00	15	1000	2.67	2.70	.18	.54	.30	6.39	6.50	3.681	10.18	16.57
52HP-WT W/BUCKET	8,000.00	20	300	1.27	1.26	.08	.25	.14	3.00	.67	2.76	3.43	6.43
4WD ATV	4,000.00	10	125	2.56	1.73	.12	.35	.19	4.94	1.20	.35	1.54	6.49
20' COMBINE, USED	60,000.00	10	270	17.78	12.00	.80	2.40	1.33	34.31	18.52	6.44	24.96	59.27
2TON TRUCK, USED	25,000.00	20	200	6.25	5.63	.38	1.13	.63	14.00	8.10	2.30	10.40	24.40
2TON TRUCK, USED	10,000.00	10	150	5.49	3.53	.24	.71	.39	10.35	8.00	2.76	10.76	21.11
3/4 TON PICKUP	16,500.00	7	500	3.77	1.78	.12	.36	.20	6.23	5.00	4.14	9.14	15.37
20' OFFSET DISC	17,600.00	12	160	7.34	5.93	.40	1.19	.66	15.52	5.31	.00	5.31	20.83
20' CHISEL, USED	5,000.00	10	200	2.00	1.35	.09	.27	.15	3.86	4.25	.00	4.25	8.11
40' RODWEEDER	15,400.00	12	200	5.12	4.16	.28	.83	.46	10.86	6.00	.00	6.00	16.86
36' CULTIVATOR	14,000.00	15	75	11.29	9.18	.61	1.84	1.02	23.94	3.73	.00	3.73	27.67
36' DISK DRILL	30,000.00	10	120	20.00	13.50	.90	2.70	1.50	38.60	16.67	.00	16.67	55.27
ATV SPRAYER	500.00	10	40	1.25	.56	.04	.11	.06	2.03	.25	.00	.25	2.28
36' 3-BAR TINE HAR	1,200.00	15	130	.49	.50	.03	.10	.06	1.18	.77	.00	.77	1.95
40' 3-BAR TINE HAR	1,400.00	10	200	.56	.38	.03	.08	.04	1.08	.90	.00	.90	1.98
54' 5-BAR TINE HAR	6,400.00	12	200	2.13	1.73	.12	.35	.19	4.51	2.00	.00	2.00	6.51
20' 5-BAR FLEX HAR	600.00	20	80	.30	.41	.03	.08	.05	.86	.25	.00	.25	1.11
36' 5-BAR FLEX HAR	900.00	15	150	.32	.32	.02	.06	.04	.77	.20	.00	.20	.97

LEGEND:

CT = CRAWLER TRACTOR
 WT = WHEEL TRACTOR

NOTE:

¹ 180 HP-CT SHOWN AT A FUEL CONSUMPTION LEVEL OF 4 GALLONS PER HOUR. FUEL AND LUBE EXPENSES RISE TO \$6.44 AT 7 GALLONS PER HOUR AND TO \$8.28 AT 9 GALLONS PER HOUR.