

1995 Crop Rotation Budgets for  
Central 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 Central 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.

## Acknowledgements

The authors would like to thank the numerous farmers and employees of various farm supply companies whose assistance was vital to the production of these budgets. In addition, the authors thank Douglas Young, Gayle Willett, and David Hennessy for their helpful review comments.

# 1995 Crop Rotation Budgets for Central Whitman County, Washington

Kathleen Painter, Herbert Hinman and John Burns\*

## INTRODUCTION

This publication presents projected costs and returns for five rotations in the 15- to 18-inch rainfall area of Whitman County. These rotations include:

- summer fallow/winter wheat/spring barley (SF-WW-SB)
- summer fallow/winter wheat/soft white spring wheat (SF-WW-SWSW)
- summer fallow/winter wheat/hard red spring wheat (SF-WW-HRSW)
- winter wheat/dry peas (WW-DP)
- winter wheat/lentils (WW-L)

Producers, agricultural lenders, and others in the agribusiness community should find this information helpful in identifying enterprise strengths and weaknesses, planning production adjustments, determining financial requirements, making marketing decisions, and in resolving other business management problems.

The 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 specific recommendations on field operations and operating inputs.

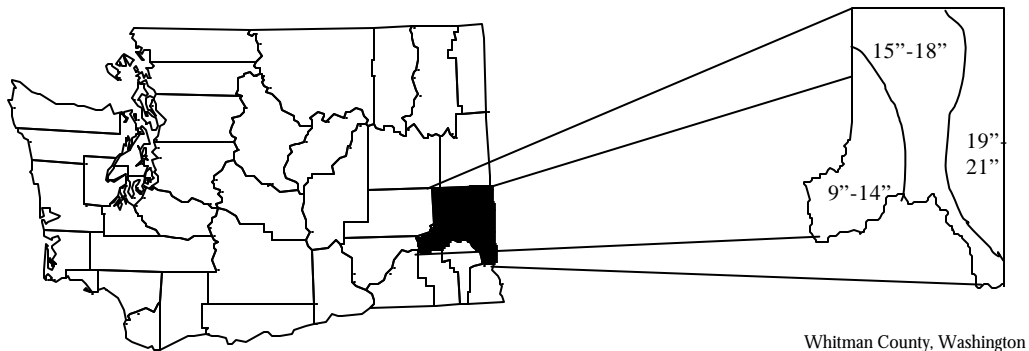


Figure 1. Rainfall Regions for Whitman County, Washington

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## SOURCES OF INFORMATION

A group of experienced grain growers from the 15- to 18-inch rainfall area of 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 1,500 acres for the 15- to 18-inch rainfall zone in central Whitman County. Farms that deviate from this average may have different costs of production due to changes in the machinery complement and volume pricing on inputs.

### **Yields**

Expected yields, listed below, are based primarily on the Washington State University Extension varietal nursery trials on farms near St. John and county statistics.

Winter wheat after fallow .....	70 (bu/acre)
Winter wheat after peas/lentils .....	60 (bu/acre)
Spring barley .....	1.75 (tons/acre)
Soft white spring wheat .....	45 (bu/acre)
Hard red spring wheat .....	38 (bu/acre)
Dry peas .....	16 (cwt/acre)
Lentils.....	9.50 (cwt/acre)

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

### **Crop Prices**

Crop prices used in this report are the Washington State marketing year averages for 1989-90 through 1993-94. Nearly all producers in this area participate in the government commodity programs for wheat and barley, so government deficiency payments are added to the market prices for these crops. Farmers receive deficiency payments based on the proven yield for their farm. Proven yield is assumed equal to current expected yield, although a particular farmer's proven yield may no longer reflect current production since proven yield were frozen at 1985 levels. For this bulletin, average 1990-1994 deficiency payments and set-aside levels are used. The permitted base reflects the 15% reduction for the mandatory flex provision in the 1990 Farm Bill less the mandated set-aside amount. The crop prices for wheat and barley in this bulletin are calculated using the following formula:

Price received for program crops = average market price  
 + (deficiency payment)(permitted base %) – transportation cost.

The marketing year average Washington State price for 1989-90 through 1993-94 was \$3.50 per bushel for wheat and \$89.42 per ton for barley. Deficiency payments have averaged \$1.01 per bushel for wheat and \$21.67 per ton for barley for 1990-1994. Over this same five-year period, set-aside averaged 5% for wheat and 5% for barley. Transportation costs are assumed to be \$0.46 per bushel for wheat and \$18 per ton for barley. Assuming the minimum protein requirement is met, prices for hard red spring wheat typically average \$0.50 per bushel higher than soft white winter or spring wheat. If weather conditions are unfavorable to achieving this protein requirement, the producer will typically receive the soft white spring wheat price. Due to large fluctuations in the prices for peas and lentils during this time period, average returns for rotations using these crops are calculated using the below listed prices plus the range of prices listed in Table 5.

Winter wheat .....	\$3.85/bu
Spring barley .....	88.68/ton
Soft white spring wheat .....	3.85/bu
Hard red spring wheat .....	4.35/bu
Dry peas .....	8.94/cwt
Lentils.....	18.40/cwt

**Labor Costs**

Labor cost, including social security and labor and industrial payments, whether it represents hired labor or owner-operator labor, is valued at \$10.00 per hour.

**Land Tax**

The average land tax for this region is estimated to be \$4.25 per acre.

**Insurance**

Premiums for hail and fire protection are calculated on the expected value of the crop. The premium is \$1.00 per \$100 of crop value insured for wheat and barley, \$1.70 per \$100 of crop value insured for lentils and \$1.40 per \$100 of crop value insured for dry peas. This type of insurance is popular among farmers as it covers any crop losses greater than 5%.

In order to participate in the government farm programs, producer must purchase a minimum amount of multi-peril crop insurance. This minimum amount cost \$50 per crop per county. Since this is a relatively small per-acre cost, it is included in the overhead cost.

## **Interest Costs**

The effective annual interest rate on operating capital and machinery is 10.25%. 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 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 Rented Sprayer**

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. A 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, as estimated by the average expected price defined earlier. Net rent for wheat and barley is estimated by the following formula:

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

No rent is charged for summer fallow. Interest on the production costs for that year is assigned to the following year's winter wheat crop because the fallow year is generally necessary to produce a good stand of winter wheat in this region.

The typical lease agreement for dry peas and lentils in this region is one-fourth landowner and three-fourths lessee crop share, with the landowner paying land taxes plus one-fourth of crop insurance expense. The lessee covers all other production expenses. Net rent for dry peas and lentils, presented in Table 2, is estimated by the following formula:

$$\text{Net Rent} = 1/4 (\text{expected crop revenue} - \text{crop insurance expense}) - \text{land tax}$$

Table 1. Net Rent Calculations for Sharecropping Grain Crops (\$/Acre)

	One-Third Crop Revenue (1)	Land Tax (2)	One-Third Expenses <sup>1</sup> (3)	Net Rent (1)-(2)-(3)
Winter Wheat (after Fallow)	89.83	4.25	12.62	72.96
Winter Wheat (after peas or lentils)	77.00	4.25	12.62	60.13
Spring Barley	51.73	4.25	12.19	35.29
Spring Wheat				
Soft Whiate	57.75	4.25	12.32	41.18
Hard Red	48.77	4.25	15.82	28.70

<sup>1</sup>Expenses include fertilizer, crop insurance, and storage.

Table 2. Net Rent Calculations for Sharecropping Pea and Lentil Crops (\$/Acre)

	One-Fourth Crop Revenue (1)	Land Tax (2)	One-Fourth Expenses <sup>1</sup> (3)	Net Rent (1)-(2)-(3)
Dry Peas	37.76	4.25	0.84	30.67
Lentils	43.70	4.25	0.76	38.68

<sup>1</sup>Crop insurance expenses only.

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. However, farmers would continue to receive land value appreciation 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 Variable Costs of Production

Costs for these budgets are divided into two categories. **Fixed costs** are those 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

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

Replacement cost may refer to new or used machinery (see Appendix Table 30 in Appendix). The 10.25% interest charge made against this average investment value represents interest paid on money borrowed to finance machine purchases or an opportunity cost for having the grower's own money tied up in machinery. 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-acre interest costs (Appendix Table 30).

Machinery fixed costs for a specific field operation are determined by multiplying the machine hours per acre times the per-hour fixed cost (Appendix Table 30). 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 4).

**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.

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 different from those assumed in this publication, quite different enterprise costs and returns may result.

## COSTS AND RETURNS SUMMARY

Table 3 presents variable, fixed and total costs of production and the break-even selling price for each crop in this bulletin. While these budgets include a labor charge for all operations as outlined in the assumptions, they do not include a specific charge for management. All budget assumptions need to be carefully studied in order to determine their relevance for a specific situation.

Table 3: Variable, Fixed and Total Costs of Production and Break-Even Selling Price by Crop and Rotation<sup>1</sup>

Rotation/Crop	Variable Costs (\$/acre)	Fixed Costs (\$/acre)	Total Costs (\$/acre)	Break-Even Selling Price (\$/unit)
Rotation 1:				
Summer Fallow	67.73	19.72	87.45	
Winter Wheat (bu) <sup>2</sup>	66.12	110.07	176.19	3.77
Spring Barley (ton)	131.00	70.43	201.43	115.10
Rotation 2:				
Summer Fallow	67.73	19.72	87.45	
Winter Wheat (bu) <sup>2</sup>	66.12	110.07	176.19	3.77
Soft White Spring Wheat (bu)	132.35	76.32	208.67	4.64
Rotation 3:				
Summer Fallow	67.73	19.72	87.45	
Winter Wheat (bu) <sup>2</sup>	66.12	110.07	176.19	3.77
Hard Red Spring Wheat (bu)	143.76	63.84	207.60	5.46
Rotation 4:				
Winter Wheat (bu)	109.86	92.33	202.19	3.37
Dry Peas (cwt)	126.66	74.63	201.29	12.58
Rotation 5:				
Winter Wheat (bu)	109.86	92.33	202.19	3.37
Lentils (cwt)	101.12	82.76	183.88	19.36

<sup>1</sup> Yield assumptions are 70 bu/acre for winter wheat following summer fallow, 60 bu/acre for winter wheat following peas or lentils, 1.75 tons/acre for spring barley, 45 bu/acre for soft white spring wheat, 38 bu/acre for hard red spring wheat, 16 cwt/acre for dry peas and 9.5 cwt/acre for lentils.

<sup>2</sup> Includes one year's interest on summer fallow costs.

The break-even selling price in Table 3 is calculated as the price which would cover total production costs using the yield assumptions for this study. The break-even selling price of \$3.77 for winter wheat preceded by summer fallow is the sum of the total cost of winter wheat production and summer fallow plus one year's interest on the summer fallow divided by the yield estimate of 70 bushels per acre, or  $(\$167.23 + \$87.45 + \$8.96)/70$ . In other words, the per bushel average price, including government payments, must be at least \$3.77 to cover all production costs listed in these budgets.

The break-even price for winter wheat preceded by dry peas or lentils is slightly lower at \$3.37/bu as revenue from this wheat crop does not have to cover a previous fallow year's expenses. However, wheat yields average approximately 15 % lower for annual cropping in this rainfall range. The break-even price for all of the wheat crops in these budgets, including spring wheat, is below the estimated net price to grower of \$3.85/bu. This implies there is some residual to the grower after paying all expenses outlined in these budgets. Unfortunately, none of the crops rotated with wheat meet this criterion. The average market price used in these budgets for dry peas and lentils and the average returns including deficiency payments and net of transportation for spring barley do not cover total production costs. Using these budget assumptions, both winter and spring wheat are profitable. However, in order to maintain this profitability wheat must be rotated with other crops that are not profitable. Thus, instead of analyzing the profitability of individual crops, it is necessary to analyze the profitability of different rotations.

Table 4 presents average annual net returns over variable and total costs of production by crop rotation. A negative net return figure means that the producer is not covering all costs which includes \$10 per hour for operator labor and 10.25% return on equity capital. The 10.25 % return on equity and borrowed capital is represented by the interest charge on variable production costs as well as the tractor and machinery interest in the fixed costs portion of the budgets. A willingness to accept less than \$10 per hour for operator labor or less than 10.25% return on equity capital may result in a positive net return. Rotation 5, winter wheat-spring lentils, has the highest returns over variable and total costs at \$97.41/acre and \$9.86/acre respectively. This result must be interpreted with caution, however, as the five-year average lentil price of \$18.40/cwt is much higher than the price at the time of this writing (December 1994) of \$13.35/cwt. Due to price fluctuations in the pea and lentil markets, returns over total and variable costs for these rotations are presented at various price levels in Table 5.

Spring wheat appears to be a promising alternative crop for this region. As shown in Table 4, rotations with spring wheat (SF-WW-SWSW and SF-WW-HRSW) compete well with the more conventional three-year rotation with spring barley (SF-WW-SB). However, spring wheat requires more moisture than spring barley, so raising a profitable crop of spring wheat may be limited to years with higher than normal precipitation. Hard red spring wheat (HRSW) is less profitable than soft white spring wheat (SWSW) despite an average \$0.50/bu higher price. This result can be attributed to higher fertilizer costs and the assumption of a 15 % lower yield. Spring wheat breeders are currently working on developing varieties with higher expected yields for this region.

Table 4 presents average annual net returns over variable and total costs of production by crop rotation under the assumptions used in this study.

Table 4: Average Annual Net Returns Over Variable and Total Costs of Production by Crop Rotation

Rotation	Average Annual Net Returns Over Variable Costs (\$/acre/year)	Average Annual Net Returns Over Total Costs (\$/acre/year)
Rotation 1:		
SF-WW-SB	53.28	-13.46
Rotation 2:		
SF-WW-SWSW	58.85	-9.85
Rotation 3:		
SF-WW-HRSW	52.40	-12.15
Rotation 4:		
WW-DP	68.76	-14.72
Rotation 5:		
WW-L	97.41	9.86

LEGEND: SF = Summer Fallow, WW = Winter Wheat, SB = Spring Barley, SWSW = Soft White Spring Wheat, HRSW = Hard Red Spring wheat, DP = Dry Peas and L = Lentils

NOTE: Yield assumptions are 70 bu/acre for winter wheat following summer fallow, 60 bu/acre for winter wheat following peas or lentils, 1.75 tons/acre for spring barley, 45 bu/acre for soft white spring wheat, 38 bu/acre for hard red spring wheat, 16 cwt/acre for dry peas and 9.5 cst/acre for lentils. Price assumptions are \$3.85/bu for winter wheat, \$88.68/ton for spring barley, \$3.85/bu for soft white spring wheat, \$4.35/bu for hard red spring wheat, \$8.94/cwt for dry peas and \$18.40/cwt for lentils.

Table 5 allows comparison of returns for rotations with dry peas and lentils for prices other than the 1989-1993 average market price assumption used in this study. At the time of this writing, current (December 1994) market prices are closer to the highest price level in Table 5 for peas and the lowest price level for lentils. At \$12/cwt for dry peas and \$13/cwt for lentils, average annual returns over total production costs of \$9.76/acre for WW-DP and -\$15.78/acre for WW-L are nearly the reverse of the returns using the 1989-1993 average market returns in Table 4 of -\$14.72/acre for WW-DP and \$9.86/acre for WW-L. Obviously, market price fluctuations influence the relative profitability of these two non-program crops.

Table 5: Average Annual Net Returns Above Variable and Total Costs per Rotation Acre for a Range of Pea and Lentil Prices

Rotation	Price of Peas or Lentils (\$/cwt)	Average Annual Net Returns Over Variable Costs (\$/acre/year)	Average Annual Net Returns Over Total Costs (\$/acre/year)
Rotation 4:			
WW-DP	8.00	61.24	-22.24
	10.00	77.24	-6.24
	12.00	93.24	9.76
Rotation 5:			
WW-L	13.00	71.76	-15.78
	15.00	81.26	-6.28
	17.00	90.76	3.22

LEGEND: WW = Winter Wheat, DP = Dry Peas and L = Lentils

NOTE: Yield assumptions are 60 bu/acre for winter wheat following peas or lentils, 16 cwt/acre for dry peas and 9.5 cwt/acre for lentils. The price assumption for winter wheat is \$3.85/bu.

#### NOTE ON BUDGET INFORMATION

The budget information for these five rotations is reported in 31 separate tables in the Appendix.

#### Appendix Tables 1, 4, 7, 10, 13, 19, 22 and 25: Schedule of Operations and Costs Per Acre

These tables outline the schedule of field operations by calendar month, the type of machinery used, and labor and machinery hours per acre for the five rotations in this study.

In Appendix Table 4, winter wheat fixed costs include the previous year's summer fallow costs plus a 10.25% 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 16, 17 and 18, so summer fallow costs are assigned to the rotation and not specifically to the wheat enterprise.

Appendix Tables 2, 5, 8, 11, 14, 20, 23 and 26: Materials and Services:

These tables list specific services and materials used, quantities used and prices paid for material and services listed under the "Service" and "Materials" columns in Appendix Tables 1, 4, 7, 10, 13, 19, 22 and 25.

Appendix Tables 3, 6, 9, 12, 15, 21, 24 and 27: Summary of Production Costs Per Acre

These tables itemize the costs appearing in Appendix Tables 1, 4, 7, 10, 13, 19, 22 and 25.

Appendix Tables 16, 17, 18, 28 and 29: Summary of Receipts, Costs and Profitability Per Acre

These tables summarize the per-acre returns, costs and profitability over the rotational period for each rotation.

The first profit measure is gross receipts, which is total crop receipts over the rotational period. The second profit 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 the owner-operator after accounting for all costs including \$10.00 per hour for labor plus 10.25% return on equity capital.

Appendix Table 30: Hourly Machine Costs

Appendix Table 30 presents the estimated fixed and variable costs per hour of 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. It should also be noted that interest on investment represents a 10.25% 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 machinery repair, fuel and lubrication costs. These are costs that vary with the crop grown or the number of acres produced.

Appendix Table 31: Prices of Inputs

This table lists the prices for the material and services used in these budgets.

### 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 the standard crops grown in central Whitman County, Washington.

## APPENDIX

### Detailed Budget Tables

APPENDIX TABLE 1: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR SUMMER FALLOW FOLLOWING A SPRING GRAIN CROP (3-YEAR ROTATION).

-----													
VARIABLE COST													
-----													
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL	FUEL, LUBE, &					TOTAL	TOTAL
						FIXED COST	REPAIRS	LABOR	SERVICE	MATER.	INTER.	VARIABLE COST	COST
-----													
						\$	\$	\$	\$	\$	\$	\$	\$
APPLY HERBICIDE	300HP-WT, 80' RENTED SPRAYER	APR	1995	.04	.05	.72	.64	.46	1.15	5.95	.35	8.55	9.27
CHISEL	300HP-WT, 20' CHISEL PLOW	MAY	1995	.12	.14	3.33	2.54	1.38	.00	.00	.34	4.26	7.59
CULTIVATE/HARROW	300HP-WT, 42' CULT/FLEX HARROW	JUN	1995	.06	.07	3.14	1.31	.69	.00	.00	.02	2.02	5.17
CULTIVATE/HARROW	300HP-WT, 42' CULT/FLEX HARROW	JUL	1995	.06	.07	3.14	1.31	.69	.00	.00	.03	2.03	5.16
FERTILIZE	300HP-WT, RENTED FERT. APP.	JUL	1995	.05	.06	.90	.80	.60	.00	34.70	.31	36.41	37.31
RODWEED	300HP-WT, 40' RODWEEDER	AUG	1995	.05	.06	1.60	1.18	.60	.00	.00	.00	1.78	3.38
MACHINE TRANSPT	2 TON TRUCK	ANN	1995	.01	.01	.15	.10	.11	.00	.00	.01	.23	.38
WEED CONTROL	4WD ATV W/SPRAYER	ANN	1995	.02	.02	.15	.04	.23	.00	.50	.04	.81	.95
MISC USE	3/4 TON PICKUP	ANN	1995	.25	.29	1.62	2.37	2.87	.00	.00	.27	5.52	7.13
MISC USE	52HP-WT W/BUCKET	ANN	1995	.15	.17	.49	.49	1.72	.00	.00	.11	2.33	2.81
MISC USE	4WD ATV	ANN	1995	.04	.05	.22	.07	.49	.00	.00	.03	.58	.80
TAXES	LAND TAXES	ANN	1995	.00	.00	4.25	.00	.00	.00	.00	.00	.00	4.25
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	3.23	.00	3.23	3.23
-----													
TOTAL PER ACRE				.85	.99	19.72	10.84	9.85	1.15	44.37	1.51	67.73	87.45
-----													

Appendix Table 2: Materials and Services for Summer Fallow Following a Spring Grain Crop (3-Year Rotation).

Operation	Month	Material and/or Service
Apply Herbicide	March	Rental of 80' sprayer @ \$1.15/acre 12.0 ounces of Roundup-RT @ \$0.34/ounce 6.4 ounces of surfactant @ \$0.135/ounce 1.7 lbs. of ammonium sulfate @ \$0.12/lb. 10.0 gallons of water @ \$0.08/gallon
Fertilize	July	80.0 lbs. of nitrogen @ \$0.26/lb. 14.0 lbs. of sulfur @ \$0.35/lb. 20.0 lbs. of phosphate @ \$0.45/lb.
Weed Control <sup>1</sup>	Annual	Non-selective herbicide @ \$25.00/applied acre
Overhead	Annual	5% of variable cost

<sup>1</sup> 2% of the total acreage is actually sprayed.

APPENDIX TABLE 3: ITEMIZED COST PER ACRE FOR SUMMER FALLOW  
 FOLLOWING A SPRING GRAIN CROP (3-YEAR  
 ROTATION).

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM
-----					
VARIABLE COSTS		\$		\$	
ROUNDUP-RT	OZ.	.34	12.00	4.08	_____
SURFACTANT	OZ.	.14	6.40	.86	_____
AMMON. SULFATE	LB.	.12	1.70	.20	_____
WATER	GAL.	.08	10.00	.80	_____
80' SPRAYER	ACRE	1.15	1.00	1.15	_____
NITROGEN (AI)	LB.	.26	80.00	20.80	_____
SULFUR (AI)	LB.	.35	14.00	4.90	_____
PHOSPHATE (AI)	LB.	.45	20.00	9.00	_____
NON-SELECT HERB	ACRE	25.00	.02	.50	_____
LABOR (TRAC/MACH)	HOUR	10.00	.98	9.85	_____
TRACTOR REPAIR	ACRE	3.14	1.00	3.14	_____
TRACTOR FUEL/LUBE	ACRE	3.92	1.00	3.92	_____
MACHINERY REPAIRS	ACRE	2.62	1.00	2.62	_____
MACHINE FUEL/LUBE	ACRE	1.17	1.00	1.17	_____
INTEREST ON OP. CAP.	ACRE	1.51	1.00	1.51	_____
OVERHEAD	DOL.	.05	64.50	3.23	_____
				-----	
TOTAL VARIABLE COST				67.73	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	3.97	1.00	3.97	_____
TRACTOR INTEREST	ACRE	3.60	1.00	3.60	_____
TRACTOR INSURANCE	ACRE	.21	1.00	.21	_____
TRACTOR TAXES	ACRE	.63	1.00	.63	_____
TRACTOR HOUSING	ACRE	.35	1.00	.35	_____
MACHINE DEPRECIATION	ACRE	3.32	1.00	3.32	_____
MACHINE INTEREST	ACRE	3.21	1.00	3.21	_____
MACHINE INSURANCE	ACRE	.19	1.00	.19	_____
MACHINE TAXES	ACRE	.56	1.00	.56	_____
MACHINE HOUSING	ACRE	.31	1.00	.31	_____
LAND TAX	ACRE	4.25	1.00	4.25	_____
				-----	
TOTAL FIXED COST				19.72	_____
TOTAL COST				87.45	_____
-----					

APPENDIX TABLE 4: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR WINTER WHEAT FOLLOWING SUMMER FALLOW (3-YEAR ROTATION).

-----													
VARIABLE COST													
-----													
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL	FUEL,					TOTAL	TOTAL
						FIXED COST	LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.	VARIABLE COST	COST
-----													
						\$	\$	\$	\$	\$	\$	\$	\$
RODWEED	300HP-WT, 40' RODWEEDER	SEP	1994	.05	.06	1.60	1.18	.58	.00	.00	.16	1.92	3.52
HAUL SEED	2 TON TRUCK	SEP	1994	.03	.03	.38	.26	.29	.00	.00	.05	.60	.98
PLANT	200HP-CT, 36' DBL. DISC DRILL	SEP	1994	.11	.13	7.55	3.73	1.27	.00	12.60	1.65	19.25	26.80
APPLY HERBICIDE	AERIAL APPLICATION	APR	1995	.00	.00	.00	.00	.00	5.00	14.40	.66	20.06	20.06
CROP INSURANCE	FIRE AND HAIL	JUN	1995	.00	.00	.00	.00	.00	3.15	.00	.05	3.20	3.20
HARVEST	24' COMBINE	AUG	1995	.15	.17	9.47	3.65	2.07	.00	.00	.00	5.72	15.18
HAUL	2 TON TRUCK (5 - 10 YEARS OLD)	AUG	1995	.10	.17	1.52	1.03	1.12	.00	.00	.00	2.15	3.67
HAUL	2 TON TRUCK (10 YR OLD OR MORE)	AUG	1995	.10	.17	1.08	1.06	1.12	.00	.00	.00	2.18	3.26
MACHINE TRANSPT	2 TON TRUCK	ANN	1995	.01	.01	.15	.10	.11	.00	.00	.01	.23	.38
WEED CONTROL	4WD ATV W/SPRAYER	ANN	1995	.02	.02	.15	.04	.23	.00	.50	.04	.81	.95
MISC USE	3/4 TON PICKUP	ANN	1995	.25	.29	1.62	2.37	2.87	.00	.00	.27	5.52	7.13
MISC USE	52HP-WT W/BUCKET	ANN	1995	.05	.06	.16	.16	.58	.00	.00	.04	.78	.94
MISC USE	4WD ATV	ANN	1995	.04	.05	.22	.07	.49	.00	.00	.03	.58	.80
TAXES	LAND TAXES	ANN	1995	.00	.00	4.25	.00	.00	.00	.00	.00	.00	4.25
LAND COST	NET RENT	ANN	1995	.00	.00	72.96	.00	.00	.00	.00	.00	.00	72.96
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	3.15	.00	3.15	3.15
ESTAB. COST	SUMMER FAL. COST PLUS INTEREST	ANN	1995	.00	.00	96.41	.00	.00	.00	.00	.00	.00	96.41
-----													
TOTAL PER ACRE				.91	1.15	197.52	13.63	10.72	8.15	30.65	2.97	66.12	263.64
-----													

Appendix Table 5: Materials and Services for Winter Wheat Following Summer Fallow (3-Year Rotation).

Operation	Month	Material and/or Service
Plant	September	90 lbs. of wheat seed @ \$0.14/lb.
Apply Herbicide	April	Custom aerial application @ \$5.00/acre 0.33 ounce of Harmony-Xtra @ \$14.20/ounce 16.0 ounces of Buctril @ \$0.50/ounce 6.4 ounces of surfactant @ \$0.135/ounce 10.0 gallons of water @ \$0.08/gallon
Crop Insurance	June	Fire and hail insurance @ \$3.15/acre
Weed Control <sup>1</sup>	Annual	Non-selective herbicide @ \$25.00/applied acre
Overhead	Annual	5% Of variable cost.

<sup>1</sup> 2% of the total acreage is actually sprayed.

APPENDIX TABLE 6: ITEMIZED COST PER ACRE FOR WINTER WHEAT  
FOLLOWING SUMMER FALLOW (3-YEAR ROTATION).

	PRICE OR		VALUE OR	YOUR
	UNIT COST/UNIT	QUANTITY	COST	FARM
-----				
VARIABLE COSTS				
			\$	\$
WHEAT SEED	LB.	.14	90.00	12.60
HARMONY-XTRA	OZ.	14.20	.33	4.73
BUCTRIL	OZ.	.50	16.00	8.00
SURFACTANT	OZ.	.14	6.40	.86
WATER	GAL.	.08	10.00	.80
CUSTOM AERIAL	ACRE	5.00	1.00	5.00
NON-SELECT HERB	ACRE	25.00	.02	.50
FIRE & HAIL INS	ACRE	3.15	1.00	3.15
LABOR (TRAC/MACH)	HOUR	10.00	.64	6.41
COMBINE DRIVER	HOUR	12.00	.17	2.07
TRUCK DRIVER	HOUR	6.50	.34	2.24
TRACTOR REPAIR	ACRE	1.50	1.00	1.50
TRACTOR FUEL/LUBE	ACRE	1.33	1.00	1.33
MACHINERY REPAIRS	ACRE	8.46	1.00	8.46
MACHINE FUEL/LUBE	ACRE	2.34	1.00	2.34
INTEREST ON OP CAP	ACRE	2.97	1.00	2.97
OVERHEAD	DOL.	.05	62.97	3.15
				-----
TOTAL VARIABLE COST				66.12
FIXED COSTS			\$	\$
TRACTOR DEPRECIATION	ACRE	1.15	1.00	1.15
TRACTOR INTEREST	ACRE	1.34	1.00	1.34
TRACTOR INSURANCE	ACRE	.08	1.00	.08
TRACTOR TAXES	ACRE	.24	1.00	.24
TRACTOR HOUSING	ACRE	.13	1.00	.13
MACHINE DEPRECIATION	ACRE	8.90	1.00	8.90
MACHINE INTEREST	ACRE	9.06	1.00	9.06
MACHINE INSURANCE	ACRE	.53	1.00	.53
MACHINE TAXES	ACRE	1.59	1.00	1.59
MACHINE HOUSING	ACRE	.88	1.00	.88
SUMMER FALLOW COST	ACRE	87.45	1.1025	96.41
LAND TAX	ACRE	4.25	1.00	4.25
LAND COST <sup>2</sup>	ACRE	72.96	1.00	72.96
				-----
TOTAL FIXED COST				197.52
TOTAL COST				263.64
-----				

<sup>1</sup> \$89.83 GROSS RENT MINUS REAL ESTATE TAXES AND ONE-THIRD FERTILIZER, STORAGE, AND CROP INSURANCE COSTS.

APPENDIX TABLE 7: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR SPRING BARLEY FOLLOWING WINTER WHEAT (3-YEAR ROTATION).

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	300HP-WT, 20' CHISEL PLOW	OCT	1994	.12	.14	3.33	2.54	1.38	.00	.00	.34	4.26	7.59
APPLY HERBICIDE	300HP-WT, 80' RENTED SPRAYER	MAR	1995	.04	.05	.72	.64	.46	1.15	7.31	.41	9.97	10.69
CULTIVATE/HARROW	300HP-WT, 42' CULT/HARROW	MAR	1995	.06	.07	3.14	1.31	.69	.00	.00	.09	2.08	5.22
FERTILIZE	300HP-WT, 50' FERT. APPLICATOR	MAR	1995	.05	.06	.90	.80	.58	.00	34.70	1.54	37.62	38.52
HAUL SEED	2TON TRUCK (5 - 10 YEARS OLD)	MAR	1995	.01	.02	.15	.10	.20	.00	.00	.01	.32	.47
PLANT	200HP-CT, 36' DBL. DISC DRILL	APR	1995	.11	.13	7.55	3.73	1.27	.00	10.80	.54	16.33	23.89
APPLY HERBICIDE	300HP-WT, 80' RENTED SPRAYER	MAY	1995	.04	.05	.72	.64	.46	1.15	31.13	.86	33.06	33.78
CROP INSURANCE	FIRE & HAIL	MAY	1995	.00	.00	.00	.00	.00	1.86	.00	.05	1.91	1.91
HARVEST	24' COMBINE	JUL	1995	.15	.17	9.47	3.65	2.07	.00	.00	.00	5.72	15.18
HAUL	2 TON TRUCK (5 - 10 YEARS OLD)	JUL	1995	.10	.17	1.52	1.03	1.12	.00	.00	.00	2.15	3.67
HAUL	2 TON TRUCK (10 YR OLD OR MORE)	JUL	1995	.10	.17	1.08	1.06	1.12	.00	.00	.00	2.18	3.26
MACHINE TRANSP	2 TON TRUCK	ANN	1995	.01	.01	.15	.10	.11	.00	.00	.01	.23	.38
WEED CONTROL	4WD ATV W/SPRAYER	ANN	1995	.02	.02	.15	.04	.23	.00	.50	.04	.81	.95
MISC USE	3/4 TON PICKUP	ANN	1995	.25	.29	1.62	2.37	2.87	.00	.00	.27	5.52	7.13
MISC USE	52HP-WT W/BUCKET	ANN	1995	.05	.06	.16	.16	.58	.00	.00	.04	.78	.94
MISC USE	4WD ATV	ANN	1995	.04	.05	.22	.07	.49	.00	.00	.03	.58	.80
TAXES	LAND TAXES	ANN	1995	.00	.00	4.25	.00	.00	.00	.00	.00	.00	4.25
LAND COST	NET RENT	ANN	1995	.00	.00	35.29	.00	.00	.00	.00	.00	.00	35.29
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	7.37	.00	7.37	7.37
TOTAL PER ACRE				1.15	1.44	70.43	18.24	13.62	4.16	90.68	4.30	131.00	201.43

Appendix Table 8: Materials and Services Provided by Operation for Spring Barley following Winter Wheat (3-Rotation)

Operation	Month	Material and/or Service
Apply Herbicide	March	Rental of 80' Sprayer @ \$1.15/acre 16.0 ounces of Roundup-RT @ \$0.34/ounce 6.4 ounces of surfactant @ \$0.135/ounce 1.7 lbs. of ammonium sulfate @ \$0.12/lb. 10.0 gallons of water @ \$0.08/gallon
Fertilizer	March	80.0 lbs. of nitrogen @ \$0.26/lb. 14.0 lbs. of sulfur @ \$0.35/lb. 20.0 lbs. of phosphate @ \$0.45/lb.
Plant	April	80.0 lbs. of barley seed @ \$0.135/lb.
Apply Herbicide	May	Rental of 80' sprayer @ \$1.15/acre 16.0 ounces of Buctril @ \$0.50/ounce 6.4 ounces of surfactant @ \$0.135/ ounce 0.33 ounces of Harmony-Xtra @ \$14.20/ounce 2.0 pints of Hoelon @ \$8.39/pint 10.0 gallons of water @ \$0.08/gallon
Crop Insurance	June	Fire and hail insurance at \$1.72/acre
Weed Control <sup>1</sup>	Annual	Nonselective herbicide @ \$25.00/applied acre
Overhead	Annual	5% of variable cost

<sup>1</sup> 2% of the total acreage is actually sprayed.

APPENDIX TABLE 9: ITEMIZED COST PER ACRE FOR SPRING BARLEY  
FOLLOWING WINTER WHEAT (3-YEAR ROTATION).

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM
-----					
VARIABLE COSTS		\$		\$	
ROUNDUP-RT	OZ.	.34	16.00	5.44	_____
SURFACTANT	OZ.	.14	6.40	.86	_____
AMMON. SULFATE	LB.	.12	1.70	.20	_____
BUCTRIL	OZ.	.50	16.00	8.00	_____
HARMONY-XTRA	OZ.	14.20	.33	4.69	_____
HOELON	PT.	8.39	2.00	16.78	_____
NON-SELECT HERB	ACRE	25.00	.02	.50	_____
WATER	GAL.	.08	10.00	.80	_____
80' SPRAYER	ACRE	1.15	2.00	3.30	_____
NITROGEN (AI)	LB.	.26	80.00	20.80	_____
PHOSPHATE (AI)	LB.	.45	20.00	9.00	_____
SULFUR (AI)	LB.	.35	14.00	4.90	_____
BARLEY SEED	LB.	.14	80.00	10.80	_____
FIRE & HAIL INS	ACRE	1.86	1.00	1.86	_____
LABOR (TRAC/MACH)	HOUR	.93	10.00	9.31	_____
COMBINE DRIVER	HOUR	12.00	.17	2.07	_____
TRUCK DRIVERS	HOUR	6.53	.34	2.24	_____
TRACTOR REPAIR	ACRE	3.53	1.00	3.53	_____
TRACTOR FUEL/LUBE	ACRE	3.69	1.00	4.69	_____
MACHINERY REPAIRS	ACRE	8.71	1.00	8.71	_____
MACHINE FUEL/LUBE	ACRE	2.31	1.00	2.31	_____
INTEREST ON OP. CAP.	DOL.	4.30	1.00	4.30	_____
OVERHEAD	DOL.	.05	124.75	6.24	_____
-----					
TOTAL VARIABLE COST				131.00	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	3.07	1.00	3.07	_____
TRACTOR INTEREST	ACRE	3.58	1.00	3.58	_____
TRACTOR INSURANCE	ACRE	.21	1.00	.21	_____
TRACTOR TAXES	ACRE	.63	1.00	.63	_____
TRACTOR HOUSING	ACRE	.35	1.00	.35	_____
MACHINE DEPRECIATION	ACRE	9.72	1.00	9.72	_____
MACHINE INTEREST	ACRE	9.99	1.00	9.99	_____
MACHINE INSURANCE	ACRE	.58	1.00	.58	_____
MACHINE TAXES	ACRE	1.75	1.00	1.75	_____
MACHINE HOUSING	ACRE	.97	1.00	.97	_____
LAND TAX	ACRE	4.25	1.00	4.25	_____
LAND COST <sup>2</sup>	ACRE	35.29	1.00	35.29	_____
-----					
TOTAL FIXED COST				70.43	_____
TOTAL COST				201.43	_____
-----					

<sup>1</sup> \$51.73 GROSS RENT MINUS REAL ESTATE TAXES AND ONE-THIRD FERTILIZER, STORAGE AND CROP INSURANCE COST.

APPENDIX TABLE 10. SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR SOFT WHITE SPRING WHEAT FOLLOWING WINTER WHEAT (3-YEAR ROTATION)

		VARIABLE COST											
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL	FUEL, LUBE, & REPAIRS					TOTAL	TOTAL
						FIXED COST	LABOR	SERVICE	MATER.	INTER.	VARIABLE COST	COST	
						\$	\$	\$	\$	\$	\$	\$	\$
APPLY HERBICIDE	300HP-WT, 80' RENTED SPRAYER	SEP	1994	.04	.05	.68	.64	.46	1.15	4.88	.59	7.72	8.40
CHISEL	300HP-WT, 20' CHISEL PLOW	OCT	1994	.12	.14	3.15	2.54	1.38	.00	.00	.29	4.22	7.37
APPLY HERBICIDE	300HP-WT, 80' RENTED SPRAYER	MAR	1995	.04	.05	.68	.64	.46	1.15	6.47	.33	9.05	9.73
CULTIVATE/HARROW	300HP-WT, 42' CULT/FLEX HARROW	APR	1995	.06	.07	2.96	1.31	.69	.00	.00	.06	2.06	5.02
FERTILIZE	300HP-WT, FERTILIZER APPLICATR	APR	1995	.05	.06	.85	.80	.58	.00	34.70	1.08	37.16	38.01
HAUL SEED	2TON TRUCK (5 - 10 YEARS OLD)	APR	1995	.01	.02	.14	.10	.20	.00	.00	.01	.31	.45
PLANT	200HP-CT, 36' DBL DSC DRILL	APR	1995	.11	.13	7.16	3.73	1.27	.00	12.60	.53	18.12	25.28
APPLY HERBICIDE	300HP-WT, 80' RENTED SPRAYER	APR	1995	.04	.05	.68	.64	.46	1.15	31.18	1.00	34.43	35.11
CROP INSURANCE	FIRE & HAIL	JUN	1995	.00	.00	.00	.00	.00	2.00	.00	.03	2.03	2.03
HARVEST	24' COMBINE	AUG	1995	.15	.17	8.94	3.65	2.07	.00	.00	.00	5.72	14.66
HAUL	2TON TRUCK (5 - 10 YEARS OLD)	AUG	1995	.10	.17	1.43	1.03	1.12	.00	.00	.00	2.15	3.58
HAUL	2TON TRUCK (10 YR OLD OR MORE)	AUG	1995	.10	.17	1.03	1.06	1.12	.00	.00	.00	2.18	3.21
STORAGE	OFF FARM STORAGE COST	ANN	1995	.00	.00	.00	.00	.00	9.00	.00	.41	9.41	9.41
MACHINE TRANSPT	2TON TRUCK	ANN	1995	.01	.01	.14	.10	.11	.00	.00	.01	.23	.37
WEED CONTROL	4WD ATV W/SPRAYER	ANN	1995	.02	.02	.14	.04	.23	.00	.50	.03	.80	.94
MISC USE	3/4 TON PICKUP	ANN	1995	.25	.29	1.56	2.37	2.87	.00	.00	.24	5.48	7.04
MISC USE	52HP-WT W/BUCKET	ANN	1995	.05	.06	.15	.16	.58	.00	.00	.03	.77	.92
MISC USE	4WD ATV	ANN	1995	.04	.05	.21	.07	.49	.00	.00	.03	.58	.79
TAXES	LAND TAXES	ANN	1995	.00	.00	4.25	.00	.00	.00	.00	.00	.00	4.25
LAND COST	NET RENT	ANN	1995	.00	.00	40.52	.00	.00	.00	.00	.00	.00	40.52
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	7.09	.00	7.09	7.12
TOTAL PER ACRE				1.19	1.49	74.66	18.88	14.09	14.45	97.45	4.67	149.51	224.17

Appendix Table 11: Materials and Services for Soft White Spring Wheat following Winter Wheat (3-Year Rotation)

Operation	Month	Material and/or Service
Apply Herbicide	September	Rental of 80' sprayer @ \$1.15/acre 12.0 ounces of Roundup-RT @ \$0.34/ounce 10.0 gallons of water @ \$0.08/gallon
Apply Herbicide	March	Rental of 80' Sprayer @ \$1.15/acre 1.0 pint of Gromoxyn-Xtra @ \$4.81/pint 6.4 ounces of surfactant @ \$0.135/ounce 10.0 gallons of water @ \$0.08/gallon
Fertilizer	March	80.0 lbs. of nitrogen @ \$0.26/lb. 14.0 lbs. of sulfur @ \$0.35/lb. 20.0 lbs. of phosphate @ \$0.45/lb.
Plant	April	90.0 lbs. of wheat seed @ \$0.14/lb.
Apply Herbicide	May	Rental of 80' sprayer @ \$1.15/acre 16.0 ounces of Buctril @ \$0.50/ounce 6.4 ounces of surfactant @ \$0.135/ounce 0.33 ounces of Harmony-Xtra @ \$14.20/ounce 2.0 pints of Hoelon @ \$8.39/pint 10.0 gallons of water @ \$0.08/gallon
Crop Insurance	June	Fire and hail insurance at \$2.00/acre
Storage	Annual	In/out charge for 50 bushels @ \$0.08/bushel 5.0 months of storage for 50 bushels @ \$0.02/bushel/month
Weed Control <sup>1</sup>	Annual	Nonselective herbicide @ \$25.00/applied acre
Overhead	Annual	5% of variable cost

<sup>1</sup> 2% of the total acreage is actually sprayed.

APPENDIX TABLE 12: ITEMIZED COST PER ACRE FOR SOFT WHITE SPRING  
WHEAT WINTER WHEAT (3-YEAR ROTATION).

		PRICE OR	VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	FARM
				COST
VARIABLE COSTS		\$		\$
ROUNDUP-RT	OZ.	.34	12.00	4.08 _____
GROMOXYN EXTRA	PT.	4.81	1.00	4.81 _____
BUCTRIL	OZ.	.50	16.00	8.00 _____
SURFACTANT	OZ.	.14	12.80	1.72 _____
HOELON	PT.	8.39	2.00	16.78 _____
HARMONY-XTRA	OZ.	14.20	.33	4.73 _____
WATER	GAL.	.08	30.00	2.40 _____
NON-SELECT HERB	ACRE	25.00	.02	.50 _____
80' SPRAYER	ACRE	1.15	3.00	3.45 _____
NITROGEN (AI)	LB.	.26	80.00	20.80 _____
SULFUR (AI)	LB.	.35	14.00	4.90 _____
PHOSPHATE (AI)	LB.	.45	20.00	9.00 _____
WHEAT SEED	LB.	.14	90.00	12.60 _____
FIRE & HAIL INS	ACRE	2.00	1.00	2.00 _____
LABOR(TRAC/MACH)	HOUR	10.00	.98	9.77 _____
COMBINE DRIVER	HOUR	12.00	.17	2.07 _____
TRUCK DRIVER	HOUR	6.50	.17	1.12 _____
TRUCK DRIVER	HOUR	6.50	.17	1.12 _____
I/O STORAGE COST	BU.	.08	50.00	4.00 _____
MO. STORAGE COST <sup>1</sup>	BU.	.10	50.00	5.00 _____
TRACTOR REPAIR	ACRE	3.82	1.00	3.82 _____
TRACTOR FUEL/LUBE	ACRE	4.03	1.00	4.03 _____
MACHINERY REPAIRS	ACRE	8.71	1.00	8.71 _____
MACHINE FUEL/LUBE	ACRE	2.31	1.00	2.31 _____
INTEREST ON OP. CAP.	ACRE	4.67	1.00	4.67 _____
OVERHEAD	DOL.	.05	142.41	7.12 _____
TOTAL VARIABLE COST				149.51 _____
FIXED COSTS		\$		\$
TRACTOR DEPRECIATION	ACRE	3.37	1.00	3.37 _____
TRACTOR INTEREST	ACRE	3.43	1.00	3.43 _____
TRACTOR INSURANCE	ACRE	.23	1.00	.23 _____
TRACTOR TAXES	ACRE	.69	1.00	.69 _____
TRACTOR HOUSING	ACRE	.38	1.00	.38 _____
MACHINE DEPRECIATION	ACRE	9.72	1.00	9.72 _____
MACHINE INTEREST	ACRE	8.77	1.00	8.77 _____
MACHINE INSURANCE	ACRE	.58	1.00	.58 _____
MACHINE TAXES	ACRE	1.75	1.00	1.75 _____
MACHINE HOUSING	ACRE	.97	1.00	.97 _____
LAND TAX	ACRE	4.25	1.00	4.25 _____
LAND COST <sup>2</sup>	ACRE	40.52	1.00	40.52 _____
TOTAL FIXED COST				74.66 _____
TOTAL COST				224.17 _____

<sup>1</sup> \$60.00 GROSS RENT MINUS REAL ESTATE TAXES AND ONE-THIRD FERTILIZER, STORAGE AND CROP INSURANCE COST.

APPENDIX TABLE 13: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR HARD RED SPRING WHEAT FOLLOWING WINTER WHEAT (3-YEAR ROTATION).

-----													
VARIABLE COST													
-----													
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL FIXED COST	FUEL, LUBE, & REPAIRS	LABOR	SERVICE	MATER.	INTER.	TOTAL VARIABLE COST	TOTAL COST
-----													
						\$	\$	\$	\$	\$	\$	\$	\$
APPLY HERBICIDE	300HP-WT, 80' RENTED SPRAYER	SEP	1994	.04	.05	.68	.64	.46	1.15	4.88	.59	7.72	8.40
CHISEL	300HP-WT, 20' CHISEL PLOW	OCT	1994	.12	.14	3.15	2.54	1.38	.00	.00	.29	4.22	7.37
APPLY HERBICIDE	300HP-WT, 80' RENTED SPRAYER	MAR	1995	.04	.05	.68	.64	.46	1.15	6.47	.33	9.05	9.73
CULTIVATE/HARROW	300HP-WT, 42' CULT/FLEX HARROW	APR	1995	.06	.07	2.96	1.31	.69	.00	.00	.06	2.06	5.02
FERTILIZE	300HP-WT, FERTILIZER APPLICATR	APR	1995	.05	.06	.85	.80	.58	.00	45.20	1.40	47.98	48.83
HAUL SEED	2TON TRUCK (5 - 10 YEARS OLD)	APR	1995	.01	.02	.14	.10	.20	.00	.00	.01	.31	.45
PLANT	200HP-CT, 36' DBL DSC DRILL	APR	1995	.11	.13	7.16	3.73	1.27	.00	12.60	.53	18.12	25.28
APPLY HERBICIDE	300HP-WT, 80' RENTED SPRAYER	APR	1995	.04	.05	.68	.64	.46	1.15	31.18	1.00	34.43	35.11
CROP INSURANCE	FIRE & HAIL	JUN	1995	.00	.00	.00	.00	.00	2.00	.00	.03	2.03	2.03
HARVEST	24' COMBINE	AUG	1995	.15	.17	8.94	3.65	2.07	.00	.00	.00	5.72	14.66
HAUL	2TON TRUCK (5 - 10 YEARS OLD)	AUG	1995	.10	.17	1.43	1.03	1.12	.00	.00	.00	2.15	3.58
HAUL	2TON TRUCK (10 YR OLD OR MORE)	AUG	1995	.10	.17	1.03	1.06	1.12	.00	.00	.00	2.18	3.21
STORAGE	OFF FARM STORAGE COST	ANN	1995	.00	.00	.00	.00	.00	8.10	.00	.36	8.46	8.46
MACHINE TRANSPT	2TON TRUCK	ANN	1995	.01	.01	.14	.10	.11	.00	.00	.01	.23	.37
WEED CONTROL	4WD ATV W/SPRAYER	ANN	1995	.02	.02	.14	.04	.23	.00	.50	.03	.80	.94
MISC USE	3/4 TON PICKUP	ANN	1995	.25	.29	1.56	2.37	2.87	.00	.00	.24	5.48	7.04
MISC USE	52HP-WT W/BUCKET	ANN	1995	.05	.06	.15	.16	.58	.00	.00	.03	.77	.92
MISC USE	4WD ATV	ANN	1995	.04	.05	.21	.07	.49	.00	.00	.03	.58	.79
TAXES	LAND TAXES	ANN	1995	.00	.00	4.25	.00	.00	.00	.00	.00	.00	4.25
LAND COST	NET RENT	ANN	1995	.00	.00	38.82	.00	.00	.00	.00	.00	.00	38.82
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	7.61	.00	7.61	7.61
TOTAL PER ACRE				1.19	1.49	72.99	18.88	14.08	13.55	108.45	4.94	159.90	232.89
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Appendix Table 14: Materials and Services Provided by Operation for Hard Red Spring Wheat following Winter Wheat (3-Year Rotation)

Operation	Month	Material and/or Service
Apply Herbicide	September	Rental of 80' sprayer @ \$1.15/acre 12.0 ounces of Roundup-RT @ \$0.34/ounce 10.0 gallons of water @ \$0.08/gallon
Apply Herbicide	March	Rental of 80' sprayer @ \$1.15/acre 1.0 pint of Gromoxyn-Xtra @ \$4.81/pint 6.4 ounces of surfactant @ \$0.135/ounce 10.0 gallons of water @ \$0.08/gallon
Fertilizer	March	95.0 lbs. of nitrogen @ \$0.26/lb. 20.0 lbs. of sulfur @ \$0.35/lb. 30.0 lbs. of phosphate @ \$0.45/lb.
Plant	April	90.0 lbs. of wheat seed @ \$0.14/lb.
Apply Herbicide	May	Rental of 80' Sprayer @ \$1.15/acre 16.0 ounces of Buctril @ \$0.50/ounce 6.4 ounces of surfactant @ \$0.135/ounce 0.33 ounces of Harmony-Xtra @ \$14.20/ounce 2.0 pints of Hoelon @ \$8.39/pint 10.0 gallons of water @ \$0.08/gallon
Crop Insurance	June	Fire and hail insurance at \$2.00/acre
Storage	Annual	In/out charge for 45 bushels @ \$0.08/ bushel 5.0 months of storage for 45 bushels @ \$0.02/bushel/month
Weed Control <sup>1</sup> acre	Annual	Nonselective herbicide @ \$25.00/applied
Overhead	Annual	5% of variable cost

<sup>1</sup> 2% of the total acreage is actually sprayed.

APPENDIX TABLE 15. ITEMIZED COST PER ACRE FOR HARD RED SPRING WHEAT FOLLOWING WINTER WHEAT (3-YEAR ROTATION).

		PRICE OR		VALUE OR	YOUR	
		UNIT	COST/UNIT	QUANTITY	COST	FARM
VARIABLE COSTS			\$	\$		
ROUNDUP-RT	OZ.	.34	12.00	4.08	_____	
GROMOXYN EXTRA	PT.	4.81	1.00	4.81	_____	
BUCTRIL	OZ.	.50	16.00	8.00	_____	
SURFACTANT	OZ.	.14	6.40	.86	_____	
HOELON	PT.	8.39	2.00	16.78	_____	
HARMONY-XTRA	OZ.	14.20	.33	4.73	_____	
WATER	GAL.	.08	30.00	2.40	_____	
NON-SELECT HERB	ACRE	25.00	.02	.50	_____	
80' SPRAYER	ACRE	1.15	3.00	3.45	_____	
NITROGEN (AI)	LB.	.26	95.00	24.70	_____	
SULFUR (AI)	LB.	.35	20.00	7.00	_____	
PHOSPHATE (AI)	LB.	.45	30.00	13.50	_____	
WHEAT SEED	LB.	.14	90.00	12.60	_____	
FIRE & HAIL INS	ACRE	2.00	1.00	2.00	_____	
LABOR (TRAC/MACH)	HOUR	10.00	.98	9.77	_____	
COMBINE DRIVER	HOUR	12.00	.17	2.07	_____	
TRUCK DRIVER	HOUR	6.50	.34	2.24	_____	
I/O STORAGE COST	BU.	.08	45.00	3.60	_____	
MO. STORAGE COST <sup>1</sup>	BU.	.10	45.00	4.50	_____	
TRACTOR REPAIR	ACRE	3.82	1.00	3.82	_____	
TRACTOR FUEL/LUBE	ACRE	4.03	1.00	4.03	_____	
MACHINERY REPAIRS	ACRE	8.71	1.00	8.71	_____	
MACHINE FUEL/LUBE	ACRE	2.31	1.00	2.31	_____	
INTEREST ON OP. CAP.	ACRE	4.94	1.00	4.94	_____	
OVERHEAD	DOL.	.05	152.29	7.61	_____	
TOTAL VARIABLE COST				159.90	_____	
FIXED COSTS			\$	\$		
TRACTOR DEPRECIATION	ACRE	3.37	1.00	3.37	_____	
TRACTOR INTEREST	ACRE	3.43	1.00	3.43	_____	
TRACTOR INSURANCE	ACRE	.23	1.00	.23	_____	
TRACTOR TAXES	ACRE	.69	1.00	.69	_____	
TRACTOR HOUSING	ACRE	.38	1.00	.38	_____	
MACHINE DEPRECIATION	ACRE	9.72	1.00	9.72	_____	
MACHINE INTEREST	ACRE	8.77	1.00	8.77	_____	
MACHINE INSURANCE	ACRE	.58	1.00	.58	_____	
MACHINE TAXES	ACRE	1.75	1.00	1.75	_____	
MACHINE HOUSING	ACRE	.97	1.00	.97	_____	
LAND TAX	ACRE	4.25	1.00	4.25	_____	
LAND COST <sup>2</sup>	ACRE	38.82	1.00	38.82	_____	
TOTAL FIXED COST				72.99	_____	
TOTAL COST				232.89	_____	

<sup>1</sup> \$61.50 GROSS RENT MINUS REAL ESTATE TAXES AND ONE-THIRD FERTILIZER, STORAGE AND CROP INSURANCE COST.

Appendix Table 16: 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			
Winter Wheat	3.60	68 bu.	244.80
Spring Barley	80.00	1.75 tons	<u>140.00</u>
Total Receipts			384.80
Less:			
Variable Cost For:			
Summer Fallow			77.28
Winter Wheat			81.15
Spring Barley			154.81
Tractor & Machinery Fixed Costs For:			
Summer Fallow			15.76
Winter Wheat			25.60
Spring Barley			30.14
Interest on Summer Fallow Cost			8.76
Land Cost For:			
Summer Fallow/Winter Wheat			60.80
Spring Barley			25.90
Land Taxes (3 Years)			<u>12.75</u>
2. Net Returns to Management Over a 3-Year Period			<u>-108.15</u>

Appendix Table 17: Summary of Receipts, Costs and Profitability Per Acre for a Summer Fallow-Winter Wheat-Soft White Spring Wheat Rotation Over a 3-Year Period.

	Price/Unit	Quantity	Value or Cost
	\$		\$
1. Gross Receipts From Production			
Winter Wheat	3.60	68 bu.	244.80
Soft White Spring Wheat	3.60	50 bu.	<u>180.00</u>
Total Receipts			424.80
Less:			
Variable Cost For:			
Summer Fallow			77.28
Winter Wheat			81.15
Soft White Spring Wheat			149.51
Tractor & Machinery Fixed Costs For:			
Summer Fallow			15.76
Winter Wheat			25.60
Soft White Spring Wheat			29.89
Interest on Summer Fallow Cost			8.76
Land Cost For:			
Summer Fallow/Winter Wheat			60.80
Soft White Spring Wheat			40.52
Land Taxes (3 Years)			<u>12.75</u>
2. Net Returns to Management Over a 3-Year Period			<u>- 77.22</u>

Appendix Table 18: Summary of Receipts, Costs and Profitability Per Acre for a Summer Fallow-Winter Wheat-Hard Red Spring Wheat Rotation Over a 3-Year Period.

	Price/Unit	Quantity	Value or Cost
	\$		\$
1. Gross Receipts From Production			
Winter Wheat	3.60	68 bu.	244.80
Hard Red Spring Wheat	4.10	45 bu.	<u>184.50</u>
Total Receipts			429.30
Less:			
Variable Cost For:			
Summer Fallow			77.28
Winter Wheat			81.15
Hard Red Spring Wheat			159.90
Tractor & Machinery Fixed Costs For:			
Summer Fallow			15.76
Winter Wheat			25.60
Hard Red Spring Wheat			29.92
Interest on Summer Fallow Cost			8.76
Land Cost For:			
Summer Fallow/Winter Wheat			60.80
Hard Red Spring Wheat			38.82
Land Taxes (3 Years)			<u>12.75</u>
2. Net Returns to Management Over a 3-Year Period			<u>- 81.44</u>

APPENDIX TABLE 19: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR WINTER WHEAT FOLLOWING PEAS OR LENTILS (2-YEAR ROTATION).

-----													
VARIABLE COST													
-----													
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL	FUEL,	-----				TOTAL	TOTAL
						FIXED	LUBE, &	REPAIRS	LABOR	SERVICE	MATER.	INTER.	VARIABLE
						\$	\$	\$	\$	\$	\$	\$	
RODWEED	300HP-WT, 40' RODWEEDER	SEP	1994	.05	.06	1.52	1.18	.58	.00	.00	.14	1.90	3.41
CULTIVATE/HARROW	300HP-WT, 42' CULT/FLEX HARROW	SEP	1994	.06	.07	2.96	1.31	.69	.00	.00	.16	2.16	5.13
FERTILIZE	300HP-WT, RENTED FERT APPLIC.	SEP	1994	.05	.06	.85	.80	.58	.00	34.70	2.98	39.05	39.91
HAUL SEED	2TON TRUCK	SEP	1994	.03	.03	.36	.26	.29	.00	.00	.04	.59	.95
PLANT	200HP-CT, 36' DBL. DISC DRILL	SEP	1994	.11	.13	7.16	3.73	1.27	.00	12.60	1.45	19.04	26.21
APPLY HERBICIDE	AERIAL APPLICATION	APR	1995	.00	.00	.00	.00	.00	5.00	14.40	.58	19.98	19.98
CROP INSURANCE	FIRE AND HAIL	JUN	1995	.00	.00	.00	.00	.00	2.72	.00	.04	2.76	2.76
HARVEST	24' COMBINE	AUG	1995	.15	.17	8.94	3.65	2.07	.00	.00	.00	5.72	14.66
HAUL	2TON TRUCK (5 - 10 YEARS OLD)	AUG	1995	.10	.17	1.43	1.03	1.12	.00	.00	.00	2.15	3.58
HAUL	2TON TRUCK (10 YR OLD OR MORE)	AUG	1995	.10	.17	1.03	1.06	1.12	.00	.00	.00	2.18	3.21
STORAGE	OFF FARM STORAGE COST	ANN	1995	.00	.00	.00	.00	.00	12.24	.00	.55	12.79	12.79
MACHINE TRANSPT	2TON TRUCK	ANN	1995	.01	.01	.14	.10	.11	.00	.00	.01	.23	.37
WEED CONTROL	4WD ATV W/SPRAYER	ANN	1995	.02	.02	.14	.04	.23	.00	.50	.03	.80	.94
MISC USE	3/4 TON PICKUP	ANN	1995	.25	.29	1.56	2.37	2.87	.00	.00	.24	5.48	7.04
MISC USE	52HP-WT W/BUCKET	ANN	1995	.05	.06	.15	.16	.58	.00	.00	.03	.77	.92
MISC USE	4WD ATV	ANN	1995	.04	.05	.21	.07	.49	.00	.00	.03	.58	.79
TAXES	LAND TAXES	ANN	1995	.00	.00	4.25	.00	.00	.00	.00	.00	.00	4.25
LAND COST	NET RENT	ANN	1995	.00	.00	60.80	.00	.00	.00	.00	.00	.00	60.80
OVERHEAD	UTILITIES, LEGAL, ACCT, ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	5.81	.00	5.81	5.81
TOTAL PER ACRE				1.02	1.28	91.50	15.74	11.99	19.96	68.01	6.29	121.99	213.49
-----													

Appendix Table 20: Materials and Services for Winter Wheat Following Peas or Lentils (2-Year Rotation).

Operation	Month	Material and/or Service
Fertilize	September	80 lbs. of nitrogen @ \$0.26/lb. 14 lbs. of sulfur @ \$0.35/lb. 20 lbs. of phosphate @ \$0.45/lb.
Plant	September	90 lbs. of wheat seed @ \$0.14/lb.
Apply Herbicide	April	Custom aerial application @ \$5.00/acre 0.33 ounce of Harmony-Xtra @ \$14.20/ounce 16.0 ounces of Buctril @ \$0.50/ounce 6.4 ounces of surfactant @ \$0.135/ounce 10.0 gallons of water @ \$0.08/gallon
Crop Insurance	June	Fire and hail insurance @ \$3.15/acre
Weed Control <sup>1</sup>	Annual	Non-selective herbicide @ \$25.00/applied acre
Overhead	Annual	5% Of variable cost.

<sup>1</sup> 2% Of the total acreage is actually sprayed.

APPENDIX TABLE 21: ITEMIZED COST PER ACRE FOR WINTER WHEAT  
FOLLOWING PEAS OR LENTILS (2-YEAR ROTATION).

		PRICE OR	VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	FARM
VARIABLE COSTS		\$		\$
NITROGEN (AI)	LB.	.26	80.00	20.80 _____
SULFUR (AI)	LB.	.35	14.00	4.90 _____
PHOSPHATE (AI)	LB.	.45	20.00	9.00 _____
WHEAT SEED	LB.	.14	90.00	12.60 _____
HARMONY-XTRA	OZ.	14.20	.33	4.73 _____
BUCTRIL	OZ.	.50	16.00	8.00 _____
SURFACTANT	OZ.	.14	6.40	.86 _____
WATER	GAL.	.08	10.00	.80 _____
CUSTOM AERIAL	ACRE	5.00	1.00	5.00 _____
NON-SELECT HERB	ACRE	25.00	.02	.50 _____
FIRE & HAIL INS	ACRE	3.15	1.00	3.15 _____
LABOR (TRAC/MACH)	HOURL	10.00	.77	7.68 _____
COMBINE DRIVER	HOURL	12.00	.17	2.07 _____
TRUCK DRIVER	HOURL	6.50	.34	2.24 _____
TRACTOR REPAIR	ACRE	2.36	1.00	2.36 _____
TRACTOR FUEL/LUBE	ACRE	2.33	1.00	2.33 _____
MACHINERY REPAIRS	ACRE	8.71	1.00	8.71 _____
MACHINE FUEL/LUBE	ACRE	2.34	1.00	2.34 _____
INTEREST ON OP.CAP.	ACRE	6.55	1.00	6.55 _____
OVERHEAD	DOL.	.05	104.63	5.23 _____
TOTAL VARIABLE COST				109.86 _____
FIXED COSTS		\$		\$
TRACTOR DEPRECIATION	ACRE	1.97	1.00	1.97 _____
TRACTOR INTEREST	ACRE	2.30	1.00	2.30 _____
TRACTOR INSURANCE	ACRE	.13	1.00	.13 _____
TRACTOR TAXES	ACRE	.40	1.00	.40 _____
TRACTOR HOUSING	ACRE	.22	1.00	.22 _____
MACHINE DEPRECIATION	ACRE	9.66	1.00	9.66 _____
MACHINE INTEREST	ACRE	9.95	1.00	9.95 _____
MACHINE INSURANCE	ACRE	.58	1.00	.58 _____
MACHINE TAXES	ACRE	1.75	1.00	1.75 _____
MACHINE HOUSING	ACRE	.97	1.00	.97 _____
LAND TAX	ACRE	4.25	1.00	4.25 _____
LAND COST <sup>2</sup>	ACRE	60.13	1.00	60.13 _____
TOTAL FIXED COST				92.33 _____
TOTAL COST				202.19 _____

<sup>1</sup> \$77.00 GROSS RENT MINUS REAL ESTATE TAXES AND ONE-THIRD FERTILIZER, STORAGE AND CROP INSURANCE COSTS.

APPENDIX TABLE 22: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR DRY PEAS FOLLOWING WHEAT (2-YEAR ROTATION).

-----													
VARIABLE COST													
-----													
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL	FUEL, LUBE, &					TOTAL	TOTAL
						FIXED COST	REPAIRS	LABOR	SERVICE	MATER.	INTER.	VARIABLE COST	COST
-----													
						\$	\$	\$	\$	\$	\$	\$	\$
DISC	300HP-WT, 24' TANDEM DISC	SEP	1994	.10	.12	5.64	2.07	1.15	.00	.00	.30	3.52	9.16
CHISEL	300HP-WT, 20' CHISEL	SEP	1994	.12	.14	3.33	2.54	1.38	.00	.00	.37	4.29	7.63
HARROW	300HP-WT, 60' FLEX HARROW	APR	1995	.03	.04	.78	.56	.35	.00	.00	.03	.94	1.72
CULT/SPRAY/HAR	300HP-WT, 42' CULT/SPRAYER/HAR	APR	1995	.06	.07	3.14	1.31	.69	1.15	19.33	.77	23.24	26.38
CULTIVATE/HARROW	300HP-WT, 42' CULT/TINE HARROW	APR	1995	.06	.07	3.13	1.34	.69	.00	.00	.07	2.09	5.22
HAUL SEED	2TON TRUCK (5 -10 YEARS OLD)	MAY	1995	.01	.02	.15	.10	.20	.00	.00	.01	.31	.46
PLANT	200HP-CT, 36' DOUBLE DISC DRIL	MAY	1995	.11	.13	7.55	3.73	1.27	.00	36.00	1.05	42.04	49.60
PACK	300HP-WT, 40' PACKER	MAY	1995	.05	.06	1.72	.92	.60	.00	.00	.04	1.56	3.28
INSURANCE	FIRE & HAIL	JUN	1995	.00	.00	.00	.00	.00	3.36	.00	.06	3.42	3.42
INSECT CONTROL	CUSTOM AERIAL, IMIDAN	JUN	1995	.00	.00	.00	.00	.00	5.00	5.76	.18	10.94	10.94
INSECT CONTROL	CUSTOM AERIAL, DIMETHOATE	JUL	1995	.00	.00	.00	.00	.00	5.00	5.61	.09	10.70	10.70
COMBINE	24' HILL COMBINE	AUG	1995	.15	.17	8.94	3.65	2.07	.00	.00	.00	5.72	14.66
HAUL	2TON TRUCK (5 - 10 YEARS OLD)	AUG	1995	.10	.17	1.43	1.03	1.12	.00	.00	.00	2.15	3.58
HAUL	2TON TRUCK (10 YR OLD OR MORE)	AUG	1995	.10	.17	1.03	1.06	1.12	.00	.00	.00	2.18	3.21
MACHINE TRANSPT	2TON TRUCK	ANN	1995	.01	.01	.15	.10	.11	.00	.00	.01	.23	.38
WEED CONTROL	4WD ATV W/SPRAYER	ANN	1995	.02	.02	.15	.04	.23	.00	.50	.04	.81	.95
MISC USE	3/4 TON 4WD PICKUP	ANN	1995	.25	.29	1.62	2.37	2.87	.00	.00	.27	5.52	7.13
MISC USE	52HP-WT W/BUCKET	ANN	1995	.05	.06	.16	.16	.58	.00	.00	.04	.78	.94
MISC USE	4WD ATV	ANN	1995	.04	.05	.22	.07	.49	.00	.00	.03	.58	.80
TAXES	LAND TAX	ANN	1995	.00	.00	4.25	.00	.00	.00	.00	.00	.00	4.25
LAND COST	NET RENT	ANN	1995	.00	.00	30.67	.00	.00	.00	.00	.00	.00	30.67
OVERHEAD	UTIL., LEGAL, ACCT., ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	6.03	.00	6.03	6.03
TOTAL PER ACRE				1.24	1.54	74.63	20.99	14.92	14.51	73.23	3.33	126.66	201.29
-----													

Appendix Table 23: Materials and Services Provided for Peas Following Winter Wheat (2-Year Rotation).

Operation	Month	Material and/or Service
Cult/Spray/Harrow	April	Rented sprayer @ \$1.15/acre 1.25 quarts of Fargo @ \$10.42/qt. 3.0 ounces of Pursuit @ \$5.50/oz. 10.0 gallons of water @ \$0.08/gal.
Plant	May	180 lbs. of pea seed @ \$0.20/lb.
Insurance	June	Fire and hail insurance @ \$3.36/acre
Insect Control	June	Custom aerial @ \$5.00/acre 1.5 lbs. of Imidan @ \$3.84/lb.
Insect Control	July	Custom aerial @ \$5.00/acre 1.5 pints of Dimethoade @ \$3.74/pint
Weed Control <sup>1</sup>	Annual	Non-selective herbicide @ \$25.00/applied acre
Overhead	Annual	5% of variable cost
Overhead	Annual	5% of variable cost.

<sup>1</sup> 2% of the total acreage is actually sprayed.

APPENDIX TABLE 24: ITEMIZED COST PER ACRE FOR DRY PEAS FOLLOWING WHEAT (2-YEAR ROTATION).

		PRICE OR		VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	COST	FARM
-----					
VARIABLE COSTS		\$		\$	
FARGO	QT.	10.42	1.25	13.03	_____
PURSUIT	OZ.	5.50	1.00	5.50	_____
WATER	GAL.	.08	10.00	.80	_____
80' SPRAYER	ACRE	1.15	1.00	1.15	_____
PEA SEED	LB.	.20	180.00	36.00	_____
IMIDAN	LB.	3.84	1.50	5.76	_____
DIMETHOATE	PT.	3.74	1.50	5.61	_____
CUSTOM AERIAL	ACRE	5.00	2.00	10.00	_____
NON-SELECT HERB	ACRE	25.00	.02	.50	_____
FIRE & HAIL INS	ACRE	3.36	1.00	3.36	_____
LABOR (TRAC/MACH)	HOUR	10.00	1.03	10.28	_____
COMBINE DRIVER	HOUR	12.00	.17	2.07	_____
TRUCK DRIVER	HOUR	6.50	.34	2.24	_____
TRACTOR REPAIR	ACRE	4.52	1.00	4.52	_____
TRACTOR FUEL/LUBE	ACRE	4.84	1.00	4.84	_____
MACHINERY REPAIRS	ACRE	9.32	1.00	9.32	_____
MACHINE FUEL/LUBE	ACRE	2.30	1.00	2.30	_____
INTEREST ON OP. CAP.	DOL.	3.33	1.00	3.33	_____
OVERHEAD	DOL.	.05	120.63	6.03	_____
				-----	
TOTAL VARIABLE COST				126.66	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	4.04	1.00	4.04	_____
TRACTOR INTEREST	ACRE	4.68	1.00	4.68	_____
TRACTOR INSURANCE	ACRE	.27	1.00	.27	_____
TRACTOR TAXES	ACRE	.82	1.00	.82	_____
TRACTOR HOUSING	ACRE	.46	1.00	.46	_____
MACHINE DEPRECIATION	ACRE	11.94	1.00	11.94	_____
MACHINE INTEREST	ACRE	13.13	1.00	13.13	_____
MACHINE INSURANCE	ACRE	.77	1.00	.77	_____
MACHINE TAXES	ACRE	2.31	1.00	2.31	_____
MACHINE HOUSING	ACRE	1.28	1.00	1.28	_____
LAND TAX	ACRE	4.25	1.00	4.25	_____
LAND COST	ACRE	30.67	1.00	30.67	_____
				-----	
TOTAL FIXED COST				74.52	_____
TOTAL COST				199.40	_____
-----					

<sup>1</sup> \$35.76 Gross rent minus real estate taxes and one-fourth crop insurance cost.

APPENDIX TABLE 25: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR LENTILS FOLLOWING WINTER WHEAT (2-YEAR ROTATION).

-----													
VARIABLE COST													
-----													
OPERATION	TOOLING	MTH	YEAR	MACH HOURS	LABOR HOURS	TOTAL	FUEL, LUBE, &					TOTAL	TOTAL
						FIXED COST	REPAIRS	LABOR	SERVICE	MATER.	INTER.	VARIABLE COST	COST
-----													
						\$	\$	\$	\$	\$	\$	\$	\$
DISC	300HP-WT, 24' TANDEM DISC	SEP	1994	.10	.12	5.64	2.07	1.15	.00	.00	.30	3.52	9.16
CHISEL	300HP-WT, 20' CHISEL	SEP	1994	.12	.14	3.33	2.54	1.38	.00	.00	.37	4.29	7.63
HARROW	300HP-WT, 60' FLEX HARROW	APR	1995	.03	.04	.78	.56	.35	.00	.00	.03	.93	1.72
CULT/SPRAY/HAR	300HP-WT, 42' CULT/SPRAYER/HAR	APR	1995	.06	.07	3.14	1.31	.69	1.15	19.33	.77	23.24	26.38
CULTIVATE/HARROW	300HP-WT, 42' CULT/TINE HARROW	APR	1995	.06	.07	3.13	1.34	.69	.00	.00	.07	2.09	5.22
HAUL SEED	2TON TRUCK (5 -10 YEARS OLD)	MAY	1995	.01	.02	.15	.10	.20	.00	.00	.01	.31	.46
PLANT	200HP-CT, 36' DOUBLE DISC DRIL	MAY	1995	.11	.13	7.55	3.73	1.27	.00	22.95	.72	28.66	36.21
PACK	300HP-WT, 40' PACKER	MAY	1995	.05	.06	1.72	.92	.60	.00	.00	.04	1.55	3.28
INSURANCE	FIRE & HAIL	JUN	1995	.00	.00	.00	.00	.00	3.06	.00	.05	3.11	3.11
INSECT CONTROL	CUSTOM AERIAL, DIMETHOATE	JUL	1995	.00	.00	.00	.00	.00	5.00	5.61	.08	10.69	10.69
HARVEST	24' COMBINE	AUG	1995	.15	.17	9.47	3.65	2.07	.00	.00	.00	5.72	15.18
HAUL	2TON TRUCK (5 - 10 YEARS OLD)	AUG	1995	.10	.17	1.52	1.03	1.12	.00	.00	.00	2.15	3.67
HAUL	2TON TRUCK (10 YR OLD OR MORE)	AUG	1995	.10	.17	1.08	1.06	1.12	.00	.00	.00	2.18	3.26
MACHINE TRANSPT	2TON TRUCK	ANN	1995	.01	.01	.15	.10	.11	.00	.00	.01	.23	.38
WEED CONTROL	4WD ATV W/SPRAYER	ANN	1995	.02	.02	.15	.04	.23	.00	.50	.04	.81	.95
MISC USE	3/4 TON 4WD PICKUP	ANN	1995	.25	.28	1.62	2.37	2.80	.00	.00	.27	5.44	7.05
MISC USE	52HP-WT W/BUCKET	ANN	1995	.05	.06	.16	.16	.58	.00	.00	.04	.78	.94
MISC USE	4WD ATV	ANN	1995	.04	.05	.22	.07	.49	.00	.00	.03	.58	.80
TAXES	LAND TAX	ANN	1995	.00	.00	4.25	.00	.00	.00	.00	.00	.00	4.25
LAND COST	NET RENT	ANN	1995	.00	.00	38.68	.00	.00	.00	.00	.00	.00	38.68
OVERHEAD	UTIL., LEGAL, ACCT., ETC.	ANN	1995	.00	.00	.00	.00	.00	.00	4.76	.00	4.76	4.76
TOTAL PER ACRE				1.26	1.51	82.76	21.02	14.85	9.21	53.20	2.83	101.12	183.88
-----													

Appendix Table 26: Materials and Services for Lentils Following Winter Wheat (2-Year Rotation).

Operation	Month	Material and/or Service
Cult/Spray/Harrow	April	Rented sprayer @ \$1.15/acre 1.25 quarts of Fargo @ \$10.42/qt. 3.0 ounces of Pursuit @ \$5.50/oz. 10.0 gallons of water @ \$0.08/gal.
Plant	May	85 lbs. of lentil seed @ \$0.27/lb.
Insurance	June	Fire and hail insurance @ \$3.06/acre
Insect Control	June	Custom aerial @ \$5.00/acre 1.5 lbs. of Imidan @ \$3.84/lb.
Insect Control	July	Custom aerial @ \$5.00/acre 1.5 pints of Dimethoate @ \$3.74/pint
Weed Control <sup>1</sup>	Annual	Non-selective herbicide @ \$25.00/applied acre
Overhead	Annual	5% of variable cost
Overhead	Annual	5% of variable cost.

<sup>1</sup> 2% Of the total acreage is actually sprayed.

APPENDIX TABLE 27: ITEMIZED COST PER ACRE FOR LENTILS FOLLOWING WINTER WHEAT (2-YEAR ROTATION).

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
-----					
VARIABLE COSTS		\$		\$	
FARGO	QT.	10.42	1.25	13.03	_____
PURSUIT	OZ.	5.50	1.00	5.50	_____
WATER	GAL.	.08	10.00	.80	_____
80' SPRAYER	ACRE	1.15	1.00	1.15	_____
LENTIL SEED	LB.	.27	85.00	22.95	_____
DIMETHOATE	PT.	3.74	1.50	5.61	_____
CUSTOM AERIAL	ACRE	5.00	1.00	5.00	_____
NON-SELECT HERB	ACRE	25.00	.02	.50	_____
FIRE & HAIL INS	ACRE	3.06	1.00	3.06	_____
LABOR (TRAC/MACH)	HOUR	10.00	1.05	10.54	_____
COMBINE DRIVER	HOUR	12.00	.17	2.07	_____
TRUCK DRIVER	HOUR	6.50	.34	2.24	_____
TRACTOR REPAIR	ACRE	4.52	1.00	4.52	_____
TRACTOR FUEL/LUBE	ACRE	4.84	1.00	4.84	_____
MACHINERY REPAIRS	ACRE	9.35	1.00	9.35	_____
MACHINE FUEL/LUBE	ACRE	2.31	1.00	2.31	_____
INTEREST ON OP CAP. DOL.		2.83	1.00	2.83	_____
OVERHEAD	DOL.	.05	96.30	4.82	_____
-----					
TOTAL VARIABLE COST				101.12	_____
FIXED COSTS		\$		\$	
TRACTOR DEPRECIATION	ACRE	4.04	1.00	4.04	_____
TRACTOR INTEREST	ACRE	4.68	1.00	4.68	_____
TRACTOR INSURANCE	ACRE	.27	1.00	.27	_____
TRACTOR TAXES	ACRE	.82	1.00	.82	_____
TRACTOR HOUSING	ACRE	.46	1.00	.46	_____
MACHINE DEPRECIATION	ACRE	12.00	1.00	12.00	_____
MACHINE INTEREST	ACRE	13.18	1.00	13.18	_____
MACHINE INSURANCE	ACRE	.77	1.00	.77	_____
MACHINE TAXES	ACRE	2.31	1.00	2.31	_____
MACHINE HOUSING	ACRE	1.29	1.00	1.29	_____
LAND TAX	ACRE	4.25	1.00	4.25	_____
LAND COST <sup>1</sup>	ACRE	38.68	1.00	38.68	_____
-----					
TOTAL FIXED COST				82.76	_____
TOTAL COST				183.881	_____
-----					

<sup>1</sup> \$43.70 GROSS RENT MINUS REAL ESTATE TAXES AND ONE-FOURTH CROP INSURANCE COST.

Appendix Table 28: Summary of Receipts, Costs and Profitability Per Acre for a Winter Wheat-Dry Pea Rotation Over a 2-Year Period.

	Price/Unit	Quantity	Value or Cost
	\$		\$
1. Gross Receipts From Production			
Winter Wheat	3.85	60 bu.	231.80
Dry Peas	8.94	16 cwt.	<u>143.04</u>
Total Receipts			374.04
Less:			
Variable Cost For:			
Winter Wheat			109.86
Dry Peas			126.66
Tractor & Machinery Fixed Costs For:			
Winter Wheat			27.95
Dry Peas			39.71
Land Cost For:			
Winter Wheat			60.13
Dry Peas			32.67
Land Taxes (2 Years)			<u>8.50</u>
2. Net Returns to Management Over a 2-Year Period			<u>- 29.44</u>

Appendix Table 29: Summary of Receipts, Costs and Profitability Per Acre for a Winter Wheat-Lentil Rotation Over a 2-Year Period.

	Price/Unit	Quantity	Value or Cost
	\$		\$
1. Gross Receipts From Production			
Winter Wheat	3.85	60 bu.	231.00
Lentils	18.40	9.5 cwt.	<u>174.80</u>
Total Receipts			405.80
Less:			
Variable Cost For:			
Winter Wheat			109.86
Lentils			101.12
Tractor & Machinery Fixed Costs For:			
Winter Wheat			27.95
Lentils			39.83
Land Cost For:			
Winter Wheat			60.13
Lentils			38.68
Land Taxes (2 Years)			<u>8.50</u>
2. Net Returns to Management Over a 2-Year Period			<u>19.73</u>

APPENDIX TABLE 30: HOURLY MACHINERY COSTS

MACHINERY	PURCHASE PRICE	YEARS		ANNUAL HOURS	DEPRECIATION	INTEREST	INSURANCE	TAXES	HOUSING	TOTAL		FUEL AND LUBE	TOTAL VARIABLE COST	TOTAL COST
		TO TRADE	EST							FIXED COST	REPAIR	COST	COST	
	\$									-----COST PER HOUR-----				
300HP-WT, USED	70,000.00	15	525	7.11	8.20	.48	1.44	.80	18.03	7.43	8.63	16.05	34.08	
200HP-CT, USED	60,000.00	15	550	5.82	6.71	.39	1.18	.65	14.75	8.73	6.04	14.76	29.52	
2TON TRUCK, USED	25,000.00	20	200	5.00	7.69	.45	1.35	.75	15.24	8.10	2.16	10.26	25.49	
2TON TRUCK, USED	10,000.00	10	150	5.33	4.10	.24	.72	.40	10.79	8.00	2.59	10.59	21.38	
3/4 TON PICKUP	16,500.00	7	500	3.77	2.03	.12	.36	.20	6.47	5.00	4.49	9.49	15.96	
52HP-WT W/BUCKET	8,000.00	20	300	1.07	1.64	.10	.29	.16	3.25	.67	2.59	3.25	6.50	
4WD ATV	4,000.00	10	125	2.56	1.97	.12	.35	.19	5.18	1.20	.37	1.57	6.75	
24' COMBINE, USED	70,000.00	15	150	24.89	28.70	1.68	5.04	2.80	63.11	20.00	4.31	24.31	87.42	
40' RODWEEDER	15,400.00	15	170	4.82	5.58	.33	.98	.54	12.25	5.88	.00	5.88	18.13	
36' DBL DISK DRILL	30,000.00	12	85	23.53	21.71	1.27	3.81	2.12	52.44	17.65	.00	17.65	70.08	
20' CHISEL, USED	5,000.00	15	85	3.14	3.62	.21	.64	.35	7.95	3.53	.00	3.53	11.48	
42' FLEX HARROW	1,000.00	20	95	.42	.65	.04	.11	.06	1.28	.42	.00	.42	1.70	
24' TAND DISC, USED	15,000.00	20	50	12.00	18.45	1.08	3.24	1.80	36.57	3.00	.00	3.00	39.57	
42' CULTIVATOR	15,000.00	15	65	12.31	13.19	.83	2.49	1.38	31.21	3.69	.00	3.69	34.0-	
60' FLEX HARROW	1,800.00	20	35	2.06	3.16	.19	.56	.31	6.27	.86	.00	.86	7.13	
40' PACKER	12,000.00	20	100	4.80	7.38	.43	1.30	.72	14.63	.70	.00	.70	15.33	
ATV SPRAYER	500.00	10	40	1.25	.64	.04	.11	.06	2.10	.25	.00	.25	2.35	

Appendix Table 31: Princes of Inputs

	Unit	Price
		\$
Services:		
Fire and Hail Insurance		
Winter Wheat	Acre	3.15
Spring Barley	Acre	1.86
Soft White Spring Wheat	Acre	2.25
Hard Red Spring Wheat	Acre	2.25
Dry Peas	Acre	3.36
Lentils	Acre	3.06
Aerial Application	Acre	5.00
Rental of 80' Sprayer	Acre	1.15
Materials:		
Gasoline	Gallon	1.20
Diesel	Gallon	0.80
Nitrogen (A.I.)	Pound	0.26
Sulfur (A.I.)	Pound	0.35
Phosphate	Pound	0.45
Ammonium Sulfate	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
Pursuit	Ounce	5.50
Imidan	Pound	3.84
Dimethoate	Pint	3.74
Wheat Seed	Pound	0.14
Barley Seed	Pound	0.135
Pea Seed	Pound	0.20
Lentil Seed	Pound	0.27
Other:		
Land Taxes	Acre	4.25
Machine Operator Labor	Hour	10.00
Truck Driver Labor	Hour	6.50
Combine Driver Labor	Hour	12.00