Farm Business Management Reports

EB 1437

1987 CROP ENTERPRISE BUDGETS, SELECTED TILLAGE SYSTEMS, EASTERN WHITMAN COUNTY, WASHINGTON

Arthur Kaplan
Herbert Hinman
Thomas Hoffmann
Donald McCool

Cooperative Extension
College of Agriculture
and Home Economics
Washington State
University
Pullman, Washington

NOTE

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

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

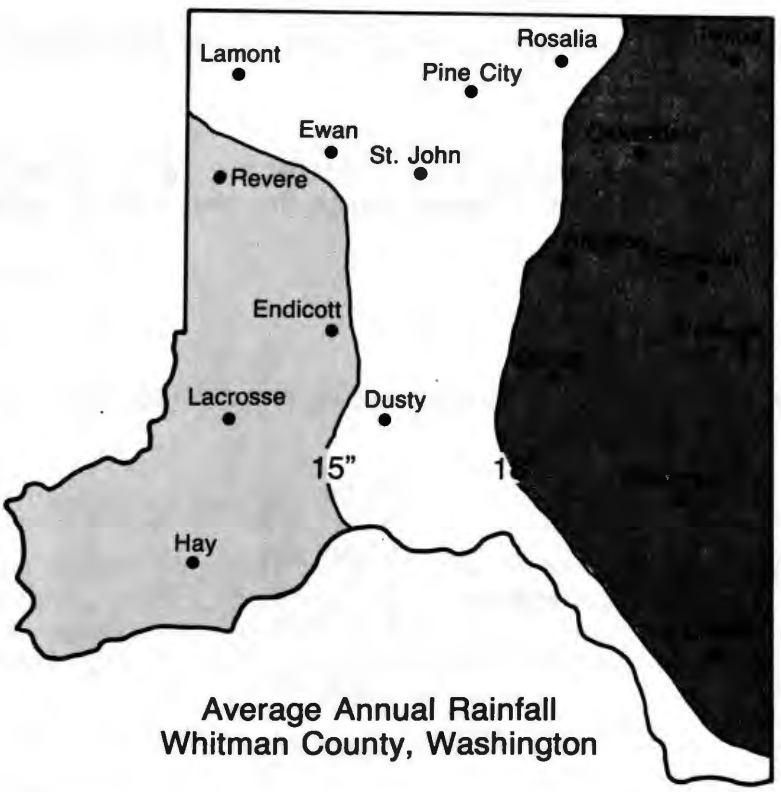
Costs can also be calculated differently depending on the intended use of the cost estimate. The information in this publication serves as a general guide for a modern and well-managed Eastern Whitman County farm as of 1987. To avoid drawing unwarranted conclusions about costs and returns for any particular farm or group of farms, the reader must closely examine the assumptions used in this publication. If they are not appropriate for the situation at hand, adjustments in the costs and/or returns should be made.

1987 CROP ENTERPRISE BUDGETS, SELECTED TILLAGE SYSTEMS, EASTERN WHITMAN COUNTY, WASHINGTON

Arthur Caplan, Herbert Hinman, Thomas Hoffmann, and Donald McCool*/

INTRODUCTION

This publication estimates 1987 costs, returns, and soil loss information for selected crops grown under alternative tillage systems in the 19- to 24-inch rainfall area (eastern region) of Whitman County, Washington (see map below). Production costs, returns, and profitability measures are calculated for winter wheat under conventional, minimum, and no-tillage schemes. The same three performance measures are calculated for dry peas, lentils, spring barley, and summer fallow-rapeseed under conventional tillage. Relative soil losses are also estimated for alternative tillage practices and crop rotations. The specific crop rotations evaluated are: (1) dry peas (CT) - winter wheat (CT); (2) dry peas (CT) - winter wheat (MT); (3) dry peas (CT) - winter wheat (NT); (4) dry peas (CT) - winter wheat (CT) - spring barley (CT); (5) lentils (CT) - winter wheat (CT) - spring barley (CT); and (6) summer fallow - rapeseed (CT).1/



Average Annual Rainfall
Whitman County, Washington

---

*/ Graduate Research Assistant, Department of Agricultural Economics; Extension Economist; Whitman County Extension Agent; Agricultural Engineer, USDA-ARS; respectively, Washington State University.

1/ CT = Conventional Tillage; MT = Minimum Tillage; NT = No-Tillage.

The enterprise data do not represent a particular farm. Instead, they represent costs, returns, profitability measures, and soil loss estimates under the specific assumptions adopted for the study. We recommend that the blank spaces provided on the right-hand side of the various budget tables and profitability worksheets be used to estimate costs, returns, and profitability measures for individual producers. Also, local Cooperative Extension agents and fieldmen should be consulted for recommendations on field operations and operating inputs.

SOURCES OF INFORMATION

Committees of area producers and Cooperative Extension faculty identified the field operations and machinery complement commonly used. The producers were considered to be representative of well-managed farms. The quantities and types of materials (seed, fertilizer, pesticide, etc.) used in the budgets were based on recommended and generally accepted practices. Local farm suppliers were contacted to obtain current price information on materials and other services commonly used by farmers. Machinery costs were based on current purchase prices and typical annual use.

BUDGET ASSUMPTIONS

The following assumptions were used in developing the enterprise data:

Precipitation

Nineteen to twenty-four inches of precipitation falls annually, 60% of which occurs from November through March in the form of snowmelt and low-intensity rainfall.

Yields

Yields are estimated on a per-acre basis and do not vary according to the tillage scheme utilized.

Winter Wheat	65 bu.
Dry Peas	1,740 lbs.
Spring Barley	1.8 tons
Lentils	1,000 lbs.
Rapeseed	2,000 lbs.

Commodity Prices

Average prices received including all government payments, are estimated to be the following:

Winter Wheat	$ 3.50/bu.
Dry Peas	.10/lb.
Spring Barley	70.00/ton
Lentils	.205/lb.
Rapeseed	.08/lb.

Labor Costs

The wage rate is estimated to be $6.50 per hour. Owner-operator labor is also valued at $6.50 per hour.

Land Tax

The land tax is estimated to be $3.90 per acre.

Crop Insurance

The following per-acre crop insurance premiums represent FCIC multi-peril insurance (which includes hail and fire protection) with a 75% yield coverage.

Winter Wheat	$3.24
Dry Peas	7.44
Spring Barley	3.95
Lentils	8.17

Hail and fire insurance for rapeseed is $2.72 per acre.

Interest on Operating Capital

An effective annual interest rate of 12% is assessed on average annual operating costs. 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 which cover such items as shop cost, utilities, telephone, legal, accounting fees, etc., are estimated to be 5% of total variable costs.

Rented Sprayer and Applicator

A 45-foot applicator is used for fertilization. The rental fee is included in the cost of the fertilizer, and therefore, no separate service charge is levied. A 60-foot sprayer is used for pesticide applications at a rental rate of $1.10 per acre exclusive of material cost.

Custom Work

The $29 per acre charge for no-till seeding includes the costs for tractor, no-till drill, fuel, and operator. A custom aerial rate of $4.00 per acre is assessed for pesticide application.

Net Rent

Land costs are estimated using a net rent concept. Net rent represents the minimum return the owner-operator must have to justify growing the crop himself rather than renting the land to another operator. As a result of investing capital in land, a farmer receives both current returns from crop production activities and long-term appreciation (depreciation) in land value. However, the farmer continues to realize land value appreciation (depreciation) even if the land is rented out. Consequently, the appropriate land charge for growing the crop is only the foregone net rent.

As applied in this publication, land cost is termed an opportunity cost, to indicate that it is not an out-of-pocket expense, but rather a return that is foregone by the producer as a result of choosing to grow the crop himself. The individual producer may wish to substitute interest payments on loans used to buy the land or rent payments if the land is rented.

The typical lease agreement for wheat, barley, and rapeseed in eastern Whitman County is a one-third landowner and two-thirds lessee crop share, with the landowner paying land taxes, one-third the fertilizer cost, and one-third the crop insurance. The lessee covers all other production expenses. Net rent for wheat, barley, and rapeseed is, therefore, calculated by the following formula:

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

For dry peas and lentils, the common lease arrangement is a one-fourth landowner and three-fourths lessee crop share, with the landowner paying land taxes, one-fourth the fertilizer cost, and one-fourth the crop insurance. Net rent for peas and lentils, therefore, is calculated as follows:

Net Rent = (1/4 expected yield x expected price) - 1/4 crop insurance expense - 1/4 fertilizer expense - land tax.

Summer Fallow Cost + Interest

This cost is added to the production cost for rapeseed following summer fallow under a conventional tillage scheme. The summer fallow cost plus interest accounts for the direct costs associated with summer fallowing before rapeseed, and the returns from foregone investments which could have been earned had a season of summer fallow not been implemented prior to the production year.

DISCUSSION OF TILLAGE SYSTEMS

The following distinctions are made between the alternative tillage systems.

Conventional Tillage

Conventional tillage is an inversion or intensive non-inversion tillage system which clears most of the soil surface of any residue and vegetative growth. In the eastern region of Whitman County the moldboard plow is typically used under the conventional tillage system. When the plow is not used, discing and chisel plowing are generally the primary tillage operations, followed by several secondary tillage operations, such as field cultivating and rodweeding.

Minimum Tillage

Minimum tillage generally reduces the loss of soil and increases water retention relative to conventional tillage. It is often a form of non-inversion tillage that retains a greater quantity of residue mulch on the soil surface. Although it may also include discing and chisel plowing as the primary tillage operation, a minimum tillage system typically includes fewer secondary tillage operations than does a conventional system.

No-Tillage

Similar to minimum tillage, no-tillage reduces the loss of soil or moisture relative to conventional tillage. Under a no-tillage system, primary and secondary tillage operations are not performed. Therefore, no-tillage leaves more residue on the surface than does minimum tillage.

DISCUSSION OF C-FACTOR RATIOS

The C-factor ratios (cover and management factors) estimate the comparative effects on soil loss caused by residue management, tillage operations, and crop rotation. Specifically, the ratios determine the relative erosiveness of the various tillage systems based on such variables as soil cloddiness, surface and shallow-buried residue, and vegetative cover over the winter months.

In calculating the C-factor ratios, region-specific variables, such as length and steepness of slope, precipitation pattern, soil characteristics, and other conservation practices are held constant. The C-factor ratios for the various crop rotations were estimated to be the following:

	C-Factor Ratio
Dry Peas (CT) - Winter Wheat (CT)	0.29
Dry Peas (CT) - Winter Wheat (MT)	0.19
Dry Peas (CT) - Winter Wheat (NT)	0.15
Dry Peas (CT) - Winter Wheat (CT) - Spring Barley (CT)	0.30
Lentils (CT) - Winter Wheat (CT) - Spring Barley (CT)	0.33
Summer Fallow (CT) - Rapeseed (CT)	0.14

The C-factor ratio for any given rotation may only be compared with those ratios for other rotations in the same region. The higher the C-factor ratio, the more erosive the rotation will likely be, given the various schedules of operations used in this study. For instance, the C-factor ratio for the Dry Peas (CT) - Winter Wheat (CT) rotation in eastern Whitman County is 0.29. For a Dry Peas (CT) - Winter Wheat (NT) rotation, the C-factor is estimated to be 0.15. This indicates that the Dry Peas (CT) - Winter Wheat (CT) system could potentially be approximately 2 times 0.29 ÷ 0.15 = 1.93 more erosive than the Dry Peas (CT) - Winter Wheat (NT) system.

DISCUSSION OF BUDGET INFORMATION

Based upon the above assumptions, total production costs per acre (excluding management) and break-even selling prices at total cost for the various crop enterprises were estimated to be the following:

	Total Cost/Acre	Break-Even Price/Unit
	$	$
Winter Wheat (Conventional Tillage)	215.48	3.32/bu.
Winter Wheat (Minimum Tillage)	215.83	3.32/bu.
Winter Wheat (No-Tillage)	220.04	3.39/bu.
Dry Peas (Conventional Tillage)	211.65	.122/lb.
Lentils (Conventional Tillage)	214.44	.214/lb.
Spring Barley (Conventional Tillage)	180.84	100.47/ton
Summer Fallow - Rapeseed (Conventional Tillage)	210.03[2/]	.105/lb.

In comparing the winter wheat tillage schemes, conventional and minimum tillage costs are virtually the same. In going from conventional to minimum tillage, a chisel plow is substituted for a disc as the primary tillage implement in the winter wheat portion of the rotation. The no-tillage method, however, is more expensive than either conventional or minimum tillage. The decrease in fixed costs incurred by using a no-tillage system is offset by increased chemical costs (pesticides and herbicides) and increased service charges, which is mainly accounted for by the hiring of the no-till drill.

The complete budget information is presented in eight sets of tables. The various tables represent the following production costs and profitability measures:

A Tables - Production Costs and Profitability Measures for Winter Wheat Under Conventional Tillage.

[2/] Total cost per acre for summer fallow - rapeseed includes the cost of the summer fallow year plus the cost of the production year.

B Tables - Production Costs and Profitability Measures for Winter Wheat Under Minimum Tillage.

C Tables - Production Costs and Profitability Measures for Winter Wheat Under No-Tillage.

D Tables - Production Costs and Profitability Measures for Dry Peas Under Conventional Tillage.

E Tables - Production Costs and Profitability Measures for Lentils Under Conventional Tillage.

F Tables - Production Costs and Profitability Measures for Spring Barley Under Conventional Tillage.

G Tables - Production Costs for Summer Fallow Before Rapeseed Under Conventional Tillage.

H Tables - Production Costs and Profitability Measures for Rapeseed after Summer Fallow Under Conventional Tillage.

Each set, with the exception of summer fallow, contains four separate tables. Summer fallow costs, which are included in the production costs associated with rapeseed, include only two tables (Tables 1 and 2). A summary of the information in each table is presented below.

Table 1: Schedule of Operations and Costs

Table 1 outlines the schedule of field operations by calendar month, the type of machinery used, and the machinery and labor hours used per acre for each of the given enterprises.

The costs of field operations are divided into two categories. The first is the fixed cost of owning equipment and land. The second category, variable costs, is associated with operating machinery, hired labor, and purchasing services and materials. Total cost is the sum of fixed costs and variable costs.

Machinery fixed costs include depreciation, interest on the average investment, property taxes, and insurance. These costs are incurred whether or not a crop is grown and do not vary, given the ownership of a specific equipment complement. Per-hour fixed costs for machinery are determined by dividing the total annual fixed cost per machine by the annual hours of machinery use. Machinery fixed costs for a specific field operation are determined by multiplying the machine hours per acre times the machinery per-hour fixed cost (Table 5).

Land fixed costs, as previously defined, include taxes and net rent, In addition, the previous year's summer fallow cost plus a 12% interest charge are included as part of the fixed cost of raising rapeseed. These are costs that must ultimately be covered by rapeseed returns if the enterprise is to be profitable.

Variable costs vary with the number of acres farmed and production inputs used. These costs include fuel, oil, repairs, fertilizer, chemicals, custom work, overhead, and interest on operating capital. Machinery labor is also included as a variable cost.

Table 2: Summary of Production Costs

Table 2 provides a more detailed itemization of the costs in the schedule of operations (Table 1). Most items are self-explanatory; however, "Machinery Interest" and "Tractor Interest" warrant additional explanation. These figures represent opportunity costs (returns foregone by investing in the given equipment complement rather than in alternative investments) or interest paid to debt finance the given equipment. Total interest cost on these capital purchases is calculated on the average value of the machinery over their respective years of use. The 12% interest charge multiplied by this "average" value represents the annual interest cost.

Table 3: Break-Even Selling Price per Unit of Crop Produced

Table 3 shows the break-even selling price for different levels of enterprise costs. The first break-even price is the price necessary to cover total variable costs for both summer fallow and crop production where appropriate--those costs that occur only if the crop is produced. If the price received does not equal or exceed the variable cost break-even price, the crop becomes uneconomical to produce, even in the short run, for the added costs of production are greater than the added returns.

The second break-even price is that needed to cover total cash costs, assuming all labor is paid, no interest on term loans and no land rent is being paid. If other cash costs exist on an individual's farm, these costs must be identified and included in the cash cost break-even calculations.

The third break-even price is total cash cost, plus depreciation on machinery. This price must be realized to stay in business over the long run.

The fourth break-even price is the price farmers must receive to recover their interest on summer fallow costs along with the opportunity costs they forego from their investments in land and machinery. Only if this break-even price is received will the owner-operator recover all his out-of-pocket expenses, plus realize the designated return to equity capital invested in land and equipment, and to operating capital. Failure to receive this break-even price means that the owner-operator will not realize a return on his capital contributions equivalent to what he could earn in an alternative use. Realization of a price above the break-even level means that in addition to covering all cash and opportunity costs, the operator will get a return to management and to the risk he assumed in producing the crop.

Table 4: Per-Acre Summary of Estimated Receipts, Costs, and Profitability

Table 4 summarizes per-acre receipts, costs, and profitability for the various crops at assumed commodity prices and yields. The first profit measure is returns over variable costs, which was calculated by subtracting total variable costs from total receipts. Returns to land and management are calculated by subtracting machinery and tractor fixed costs, interest on summer fallow, and real estate taxes from returns over variable costs.

The remaining two tables, Tables 5 and 6, contain information relevant to all budgets regardless of the crop enterprise.

Table 5: Machine Complement

Table 5 identifies the machine complement used to derive the budgets. It gives the type of machines used, their current purchase price, annual hours of use, acres per hour of use, and estimated per-hour fixed and variable costs. Machinery fixed costs include depreciation, interest on investment, property taxes, and insurance. Machinery variable costs include repair, fuel, and lubrication, costs that vary with the crop and the number of acres produced. Machinery prices are representative of what growers would currently pay to replace their machinery complement. While this assumption may result in an overstatement of production costs currently experienced by producers, it provides an indication of the enterprise's ability to generate the earnings needed to replace depreciable assets. Increases in the prices paid for replacement machinery and equipment mean that 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 12% opportunity cost to the enterprise. These are earnings foregone by investing in the machinery complement rather than in the next best alternative investment.

Table 6: Prices for Selected Inputs

The prices used for fuel, chemicals, and other inputs used in developing the budgets are listed in Table 6.

TABLE 1A: 1987 SCHEDULE OF OPERATIONS AND COSTS PER ACRE FOR WINTER WHEAT UNDER THE CONVENTIONAL TILLAGE SCHEME.

OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	FIXED COST	VARIABLE COST				TOTAL VARIABLE COST	TOTAL COST
						FUEL,OIL, LUBE AND REPAIRS	MACH. LABOR	SERVICE	MATERIALS		
					$	$	$	$	$	$	$
DISC	300HP-WT, 18' OFFSET DISC	SEPT	0.10	0.11	6.00	3.04	0.71	0.0	0.0	3.75	9.75
RODWEED	300HP-WT, 36' RODWEEDER	SEPT	0.08	0.08	3.30	2.01	0.55	0.0	0.0	2.56	5.86
HARROW	36' TINETOOTH W/ABOVE OPERATION	SEPT	0.08	0.0	0.15	0.05	0.0	0.0	0.0	0.05	0.20
FERTILIZE	200HP-CT, 45' APPLICATOR	SEPT	0.08	0.09	3.61	1.44	0.57	0.0	34.40	36.42	40.03
HAUL WATER	2 TON 18' TRUCK	SEPT	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
PLANT	200HP-CT, 36' DISC DRILL	SEPT	0.08	0.09	5.72	1.71	0.55	0.0	9.00	11.26	16.98
HAUL SEED	2 TON 18' TRUCK	SEPT	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
SPRAY WEEDS	300HP-WT, 60' RENTED SPRAYER	APR	0.05	0.06	1.75	1.22	0.36	1.10	23.32	26.00	27.74
HAUL WATER	2 TON 18' TRUCK	APR	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
SPRAY WEEDS*	CUSTOM AERIAL	APR	0.0	0.0	0.0	0.0	0.0	1.00	4.62	5.62	5.62
INSURANCE	CROP	JUNE	0.0	0.0	0.0	0.0	0.0	3.24	0.0	3.24	3.24
COMBINE	20' HILLSIDE	AUG	0.17	0.18	10.82	1.26	1.19	0.0	0.0	2.45	13.27
HAUL	2 TON 18' TRUCK	AUG	0.10	0.11	3.34	0.96	0.72	0.0	0.0	1.68	5.02
HAUL	2 TON 18' TRUCK, (10 YRS OLD)	AUG	0.10	0.11	1.84	1.42	0.72	0.0	0.0	2.14	3.98
PICK-UP	.75 TON	ANNUAL	0.25	0.28	1.56	1.24	1.79	0.0	0.0	3.03	4.59
MISC USE	85HP-WT (USED)	ANNUAL	0.09	0.10	1.09	0.25	0.64	0.0	0.0	0.89	1.98
INTEREST	OPERATING CAPITAL	ANNUAL	0.0	0.0	0.0	0.0	0.0	6.92	0.0	6.92	6.92
OVERHEAD	UTILITIES, LEGAL, ACCT., ETC.	ANNUAL	0.0	0.0	0.0	0.0	0.0	5.33	0.0	5.33	5.33
TAXES	LAND TAX	ANNUAL	0.0	0.0	3.90	0.0	0.0	0.0	0.0	0.0	3.90
LAND COST	NET RENT	ANNUAL	0.0	0.0	59.39	0.0	0.0	0.0	0.0	0.0	59.39
TOTAL PER ACRE			1.21	1.26	103.46	14.90	8.19	17.59	71.34	112.02	215.48

* 1/4 THE ACRES SPRAYED WITH HOELON.

TABLE 2A: SUMMARY OF 1987 ESTIMATED COSTS PER ACRE FOR WINTER WHEAT UNDER THE CONVENTIONAL TILLAGE SCHEME.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
PREHARVEST					
NITROGEN	LBS.	0.19	120.00	$ 22.80	
PHOSPHOROUS	LBS.	0.33	20.00	6.60	
SULFUR	LBS.	0.25	20.00	5.00	
WHEAT SEED	LBS.	0.12	75.00	9.00	
BROMOXYNIL + MCPA	PT.	6.70	1.50	10.05	
BENLATE	LBS.	13.27	1.00	13.27	
SPRAYER RENTAL	ACRE	1.10	1.00	1.10	
HOELON*	PT.	6.92	0.67	4.62	
CUSTOM AERIAL*	ACRE	4.00	0.25	1.00	
MACHINERY REPAIR	ACRE	1.56	1.00	1.56	
MACHINERY FUEL	ACRE	0.94	1.00	0.94	
MACHINERY LUBE	ACRE	0.14	1.00	0.14	
TRACTORS REPAIR	ACRE	3.32	1.00	3.32	
TRACTORS FUEL	ACRE	4.62	1.00	4.62	
TRACTORS LUBE	ACRE	0.69	1.00	0.69	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.86	5.57	
CROP INSURANCE	ACRE	3.24	1.00	3.24	
OVERHEAD COST	DOL.	0.05	106.67	5.33	
INTEREST ON OP. CAPITAL	DOL.	0.12	57.70	6.92	
SUBTOTAL, PREHARVEST				$ 105.77	
HARVEST COSTS					
MACHINERY REPAIR	ACRE	2.77	1.00	$ 2.77	
MACHINERY FUEL	ACRE	0.75	1.00	0.75	
MACHINERY LUBE	ACRE	0.11	1.00	0.11	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.40	2.62	
SUBTOTAL, HARVEST				$ 6.25	
TOTAL VARIABLE COST				$ 112.02	
FIXED COSTS					
MACHINERY DEPRECIATION	ACRE	10.23	1.00	$ 10.23	
MACHINERY INTEREST	ACRE	11.97	1.00	11.97	
MACHINERY INSURANCE	ACRE	0.60	1.00	0.60	
MACHINERY TAXES	ACRE	1.28	1.00	1.28	
TRACTORS DEPRECIATION	ACRE	7.12	1.00	7.12	
TRACTORS INTEREST	ACRE	7.72	1.00	7.72	
TRACTORS INSURANCE	ACRE	0.39	1.00	0.39	
TRACTORS TAXES	ACRE	0.86	1.00	0.86	
TAXES (LAND)	ACRE	3.90	1.00	3.90	
LAND (NET RENT)	ACRE	59.39	1.00	59.39	
TOTAL FIXED COSTS				$ 103.46	
TOTAL COSTS**				$ 215.48	

* 1/4 THE ACRES SPRAYED WITH HOELON.

** DOES NOT INCLUDE MANAGEMENT AND MARKETING COSTS.

Table 3A: Break-Even Selling Price per Unit for Winter Wheat Under the Conventional Tillage Scheme.

	Cost Per Acre	Your Farm	Break-Even Price ($/bu.) (65 bu./ac.)	Your Farm
	$	$		$
1. Total Variable Cost	112.02	_____	1.72	_____
Plus:				
Machinery Insurance	0.99	_____		
Machinery Taxes	2.14	_____		
Land Taxes	3.90	_____		
2. Total Cash Costs	119.05	_____	1.83	_____
Plus:				
Machinery Depreciation	17.35	_____		
3. Total Cash Cost + Depreciation	136.40	_____	2.10	_____
Plus:				
Machinery Interest	19.69	_____		
Land (net rent)	59.39	_____		
4. Total Cost*	215.48	_____	3.32	_____

* Does not include management and marketing cost.

Table 4A: Summary of Receipts, Costs, and Profitability per Acre for Winter Wheat Under the Conventional Tillage Scheme.

	Unit	Price or Cost/Unit	Quantity	Value or Cost	Your Farm
		$		$	$
Gross Receipts from Production					
Wheat	Bu.	3.50	65	227.50	_____
1. Total Receipts				227.50	_____
Less: Total Variable Cost				112.02	_____
2. Returns Over Variable Cost				115.48	_____
Less: Machinery Fixed Cost				40.17	_____
Real Estate Taxes				3.90	_____
3. Net Returns to Land and Management				71.41	_____

TABLE 1B: 1987 SCHEDULE OF OPERATIONS AND COSTS PER ACRE FOR WINTER WHEAT UNDER THE MINIMUM TILLAGE SCHEME.

OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	FIXED COST	VARIABLE COST: FUEL,OIL, LUBE AND REPAIRS	VARIABLE COST: MACH. LABOR	VARIABLE COST: SERVICE	VARIABLE COST: MATERIALS	TOTAL VARIABLE COST	TOTAL COST
					$	$	$	$	$	$	$
CHISEL	300HP-WT, 23' CHISEL PLOW	SEPT	0.13	0.14	6.94	3.49	0.89	0.0	0.0	4.38	11.32
FERTILIZE	200HP-CT, 45' APPLICATOR	SEPT	0.08	0.09	3.61	1.44	0.57	0.0	34.40	36.42	40.03
HAUL WATER	2 TON 18' TRUCK	SEPT	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
RODWEED	300HP-WT, 36' RODWEEDER	SEPT	0.08	0.08	3.30	2.01	0.55	0.0	0.0	2.56	5.86
HARROW	36' TINETOOTH W/ABOVE OPERATION	SEPT	0.08	0.0	0.15	0.05	0.0	0.0	0.0	0.05	0.20
PLANT	200HP-CT, 36' DISC DRILL	OCT	0.08	0.09	5.72	1.71	0.55	0.0	9.00	11.26	16.98
HAUL SEED	2 TON 18' TRUCK	OCT	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
SPRAY WEEDS*	CUSTOM AERIAL	APR	0.0	0.0	0.0	0.0	0.0	1.00	4.62	5.62	5.62
SPRAY WEEDS	300HP-WT, 60' RENTED SPRAYER	APR	0.05	0.06	1.75	1.22	0.36	1.10	22.12	24.80	26.54
HAUL WATER	2 TON 18' TRUCK	APR	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
INSURANCE	CROP	JUNE	0.0	0.0	0.0	0.0	0.0	3.24	0.0	3.24	3.24
COMBINE	20' HILLSIDE	AUG	0.17	0.18	10.82	1.26	1.19	0.0	0.0	2.45	13.27
HAUL	2 TON 18' TRUCK	AUG	0.10	0.11	3.34	0.96	0.72	0.0	0.0	1.68	5.02
HAUL	2 TON 18' TRUCK, (10 YRS OLD)	AUG	0.10	0.11	1.84	1.42	0.72	0.0	0.0	2.14	3.98
PICK-UP	.75 TON	ANNUAL	0.25	0.28	1.56	1.24	1.79	0.0	0.0	3.03	4.59
MISC USE	85HP-WT (USED)	ANNUAL	0.09	0.10	1.09	0.25	0.64	0.0	0.0	0.89	1.98
INTEREST	OPERATING CAPITAL	ANNUAL	0.0	0.0	0.0	0.0	0.0	6.92	0.0	6.92	6.92
OVERHEAD	UTILITIES, LEGAL, ACCT., ETC.	ANNUAL	0.0	0.0	0.0	0.0	0.0	5.31	0.0	5.31	5.31
TAXES	LAND TAX	ANNUAL	0.0	0.0	3.90	0.0	0.0	0.0	0.0	0.0	3.90
LAND COST	NET RENT	ANNUAL	0.0	0.0	59.39	0.0	0.0	0.0	0.0	0.0	59.39
TOTAL PER ACRE			1.24	1.29	104.40	15.35	8.37	17.57	70.14	111.43	215.83

* 1/4 THE ACRES ARE SPRAYED WITH HOELON.

TABLE 2B: SUMMARY OF 1987 ESTIMATED COSTS PER ACRE FOR WINTER WHEAT UNDER THE MINIMUM TILLAGE SCHEME.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
PREHARVEST					
NITROGEN	LBS.	0.19	120.00	$ 22.80	
PHOSPHOROUS	LBS.	0.33	20.00	6.60	
SULFUR	LBS.	0.25	20.00	5.00	
BENLATE	LBS.	13.27	1.00	13.27	
IGRAN	LBS.	5.40	0.75	4.05	
MCPA SODIUM SALT	QT.	2.40	2.00	4.80	
SPRAYER RENTAL	ACRE	1.10	1.00	1.10	
HOELON*	PT.	6.92	0.67	4.62	
CUSTOM AERIAL*	ACRE	4.00	0.25	1.00	
WHEAT SEED	LBS.	0.12	75.00	9.00	
MACHINERY REPAIR	ACRE	1.39	1.00	1.39	
MACHINERY FUEL	ACRE	0.94	1.00	0.94	
MACHINERY LUBE	ACRE	0.14	1.00	0.14	
TRACTORS REPAIR	ACRE	3.55	1.00	3.55	
TRACTORS FUEL	ACRE	4.96	1.00	4.96	
TRACTORS LUBE	ACRE	0.74	1.00	0.74	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.89	5.76	
CROP INSURANCE	ACRE	3.24	1.00	3.24	
OVERHEAD COST	DOL.	0.05	106.10	5.31	
INTEREST ON OP. CAPITAL	DOL.	0.12	57.63	6.92	
SUBTOTAL, PREHARVEST				$ 105.19	
HARVEST COSTS					
MACHINERY REPAIR	ACRE	2.77	1.00	$ 2.77	
MACHINERY FUEL	ACRE	0.75	1.00	0.75	
MACHINERY LUBE	ACRE	0.11	1.00	0.11	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.40	2.61	
SUBTOTAL, HARVEST				$ 6.24	
TOTAL VARIABLE COST				$ 111.43	
FIXED COSTS					
MACHINERY DEPRECIATION	ACRE	10.32	1.00	$ 10.32	
MACHINERY INTEREST	ACRE	11.95	1.00	11.95	
MACHINERY INSURANCE	ACRE	0.60	1.00	0.60	
MACHINERY TAXES	ACRE	1.27	1.00	1.27	
TRACTORS DEPRECIATION	ACRE	7.55	1.00	7.55	
TRACTORS INTEREST	ACRE	8.11	1.00	8.11	
TRACTORS INSURANCE	ACRE	0.41	1.00	0.41	
TRACTORS TAXES	ACRE	0.90	1.00	0.90	
TAXES (LAND)	ACRE	3.90	1.00	3.90	
LAND (NET RENT)	ACRE	59.39	1.00	59.39	
TOTAL FIXED COSTS				$ 104.40	
TOTAL COSTS**				$ 215.83	

* 1/4 THE ACRES ARE SPRAYED WITH HOELON.

** DOES NOT INCLUDE MANAGEMENT AND MARKETING COSTS.

Table 3B: Break-Even Selling Price per Unit for Winter Wheat Under the Minimum Tillage Scheme.

		Cost Per Acre	Your Farm	Break-Even Price ($/bu.) (65 bu./ac.)	Your Farm
		$	$		$
1.	Total Variable Cost	111.43	_____	1.71	_____
	Plus:				
	Machinery Insurance	1.01	_____		
	Machinery Taxes	2.17	_____		
	Land Taxes	3.90	_____		
2.	Total Cash Costs	118.51	_____	1.82	_____
	Plus:				
	Machinery Depreciation	17.87	_____		
3.	Total Cash Cost + Depreciation	136.38	_____	2.10	_____
	Plus:				
	Machinery Interest	20.06	_____		
	Land (net rent)	59.39	_____		
4.	Total Cost*	215.83	_____	3.32	_____

* Does not include management and marketing costs.

Table 4B: Summary of Receipts, Costs, and Profitability per Acre for Winter Wheat Under the Minimum Tillage Scheme.

	Unit	Price or Cost/Unit	Quantity	Value or Cost	Your Farm
		$		$	$
Gross Receipts from Production					
Wheat	Bu.	3.50	65.00	227.50	_____
1. Total Receipts				227.50	_____
Less: Total Variable Cost				111.43	_____
2. Returns Over Variable Cost				116.07	_____
Less: Machinery Fixed Cost				41.11	_____
Real Estate Taxes				3.90	_____
3. Net Returns to Land and Management				71.06	_____

TABLE 1C: 1987 SCHEDULE OF OPERATIONS AND COSTS PER ACRE FOR WINTER WHEAT UNDER THE NO-TILLAGE SCHEME.

OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	FIXED COST	VARIABLE COST				TOTAL VARIABLE COST	TOTAL COST
						FUEL, OIL, LUBE AND REPAIRS	MACH. LABOR	SERVICE	MATERIALS		
					$	$	$	$	$	$	$
PLANT	CUSTOM HIRE NO-TILL DRILL	OCT	0.0	0.0	0.0	0.0	0.0	29.00	10.20	39.20	39.20
FERTILIZE	W/ CUSTOM PLANT	OCT	0.0	0.0	0.0	0.0	0.0	0.0	36.30	36.30	36.30
HAUL SEED	2 TON 18' TRUCK	OCT	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
SPRAY WEEDS	300HP-WT, 60' RENTED SPRAYER	APR	0.05	0.06	1.75	1.22	0.36	1.10	23.27	25.95	27.69
HAUL WATER	2 TON 18' TRUCK	APR	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
SPRAY WEEDS*	CUSTOM AERIAL	APR	0.0	0.0	0.0	0.0	0.0	1.00	4.62	5.62	5.62
INSURANCE	CROP	JUNE	0.0	0.0	0.0	0.0	0.0	3.24	0.0	3.24	3.24
COMBINE	20' HILLSIDE	AUG	0.17	0.18	10.82	1.26	1.19	0.0	0.0	2.45	13.27
HAUL	2 TON TRUCK 18'	AUG	0.10	0.11	3.34	0.96	0.72	0.0	0.0	1.68	5.02
HAUL	2 TON 18' TRUCK, (10 YRS OLD)	AUG	0.10	0.11	1.84	1.42	0.72	0.0	0.0	2.14	3.98
PICK-UP	.75 TON	ANNUAL	0.25	0.28	1.56	1.24	1.79	0.0	0.0	3.03	4.59
MISC USE	85HP-WT (USED)	ANNUAL	0.09	0.10	1.09	0.25	0.64	0.0	0.0	0.89	1.98
INTEREST	OPERATING CAPITAL	ANNUAL	0.0	0.0	0.0	0.0	0.0	8.88	0.0	8.88	8.88
OVERHEAD	UTILITIES, LEGAL, ACCT., ETC.	ANNUAL	0.0	0.0	0.0	0.0	0.0	6.49	0.0	6.49	6.49
TAXES	LAND TAX	ANNUAL	0.0	0.0	3.90	0.0	0.0	0.0	0.0	0.0	3.90
LAND COST	NET RENT	ANNUAL	0.0	0.0	58.75	0.0	0.0	0.0	0.0	0.0	58.75
TOTAL PER ACRE			0.78	0.87	83.71	6.55	5.68	49.71	74.39	136.33	220.04

* 1/4 THE ACRES SPRAYED WITH HOELON.

TABLE 2C: SUMMARY OF 1987 ESTIMATED COSTS PER ACRE FOR WINTER WHEAT UNDER THE NO-TILLAGE SCHEME.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
PREHARVEST					
NITROGEN	LBS.	0.19	130.00	$ 24.70	
PHOSPHOROUS	LBS.	0.33	20.00	6.60	
SULFUR	LBS.	0.25	20.00	5.00	
WHEAT SEED	LBS.	0.12	85.00	10.20	
CUSTOM HIRE NO-TILL DRILL	ACRE	29.00	1.00	29.00	
KARMEX	LBS.	5.20	1.00	5.20	
MCPA SODIUM SALT	QT.	2.40	2.00	4.80	
BENLATE	LBS.	13.27	1.00	13.27	
SPRAYER RENTAL	ACRE	1.10	1.00	1.10	
HOELON*	PT.	6.92	0.67	4.62	
CUSTOM AERIAL*	ACRE	4.00	0.25	1.00	
MACHINERY REPAIR	ACRE	0.38	1.00	0.38	
MACHINERY FUEL	ACRE	0.92	1.00	0.92	
MACHINERY LUBE	ACRE	0.14	1.00	0.14	
TRACTORS REPAIR	ACRE	0.69	1.00	0.69	
TRACTORS FUEL	ACRE	0.68	1.00	0.68	
TRACTORS LUBE	ACRE	0.10	1.00	0.10	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.47	3.08	
CROP INSURANCE	ACRE	3.24	1.00	3.24	
OVERHEAD COST	DOL.	0.05	129.83	6.49	
INTEREST ON OP. CAPITAL	DOL.	0.12	73.97	8.88	
SUBTOTAL, PREHARVEST				$ 130.09	
HARVEST COSTS					
MACHINERY REPAIR	ACRE	2.78	1.00	$ 2.78	
MACHINERY FUEL	ACRE	0.75	1.00	0.75	
MACHINERY LUBE	ACRE	0.11	1.00	0.11	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.40	2.60	
SUBTOTAL, HARVEST				$ 6.24	
TOTAL VARIABLE COST				$ 136.33	
FIXED COSTS					
MACHINERY DEPRECIATION	ACRE	8.13	1.00	$ 8.13	
MACHINERY INTEREST	ACRE	8.71	1.00	8.71	
MACHINERY INSURANCE	ACRE	0.44	1.00	0.44	
MACHINERY TAXES	ACRE	0.94	1.00	0.94	
TRACTORS DEPRECIATION	ACRE	1.23	1.00	1.23	
TRACTORS INTEREST	ACRE	1.38	1.00	1.38	
TRACTORS INSURANCE	ACRE	0.07	1.00	0.07	
TRACTORS TAXES	ACRE	0.16	1.00	0.16	
TAXES (LAND)	ACRE	3.90	1.00	3.90	
LAND (NET RENT)	ACRE	58.75	1.00	58.75	
TOTAL FIXED COSTS				$ 83.71	
TOTAL COSTS**				$ 220.04	

* 1/4 THE ACRES SPRAYED WITH HOELON.

** DOES NOT INCLUDE MANAGEMENT AND MARKETING COSTS.

Table 3C: Break-Even Selling Price per Unit for Winter Wheat Under the No-Tillage, Eastern Region Scheme.

		Cost Per Acre	Your Farm	Break-Even Price ($/bu.) (65 bu./ac.)	Your Farm
		$	$		$
1.	Total Variable Cost	136.33	_____	2.10	_____
	Plus:				
	Machinery Insurance	.51	_____		
	Machinery Taxes	1.10	_____		
	Land Taxes	3.90	_____		
2.	Total Cash Costs	141.84	_____	2.18	_____
	Plus:				
	Machinery Depreciation	9.36	_____		
3.	Total Cash Cost + Depreciation	151.20	_____	2.33	_____
	Plus:				
	Machinery Interest	10.09	_____		
	Land (net rent)	58.75	_____		
4.	Total Cost*	220.04	_____	3.39	_____

* Does not include management and marketing costs.

Table 4C: Summary of Receipts, Costs, and Profitability per Acre for Winter Wheat Under the No-Tillage Scheme.

	Unit	Price or Cost/Unit	Quantity	Value or Cost	Your Farm
		$		$	$
Gross Receipts from Production					
Wheat	Bu.	3.50	65.00	227.50	_____
1. Total Receipts				227.50	_____
Less: Total Variable Cost				136.33	_____
2. Returns Over Variable Cost				91.17	_____
Less: Machinery Fixed Cost				21.06	_____
Real Estate Taxes				3.90	_____
3. Net Returns to Land and Management				66.21	_____

TABLE 1D: 1987 SCHEDULE OF OPERATIONS AND COSTS PER ACRE FOR DRY PEAS UNDER THE CONVENTIONAL TILLAGE SCHEME.

OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	FIXED COST	VARIABLE COST				TOTAL VARIABLE COST	TOTAL COST
						FUEL,OIL, LUBE AND REPAIRS	MACH. LABOR	SERVICE	MATERIALS		
					$	$	$	$	$	$	$
PLOW	300HP-WT, 10BTM PLOW	SEPT	0.17	0.19	8.72	4.92	1.23	0.0	0.0	6.15	14.87
CULTIVATE	300HP-WT, 35.5' FIELD CULTIVATOR	APR	0.08	0.08	3.39	2.06	0.55	0.0	13.37	15.98	19.37
HARROW	36' FLEX HARROW W/ABOVE OPER	APR	0.08	0.0	0.10	0.02	0.0	0.0	0.0	0.02	0.12
HARROW	300HP-WT, 60' FLEX HARROW	APR	0.07	0.08	3.07	1.82	0.49	0.0	0.0	2.31	5.38
SPRAY WEEDS	60' RENTED SPRAYER W/ABOVE OPER.	APR	0.0	0.0	0.0	0.0	0.0	1.10	11.40	12.50	12.50
HAUL WATER	2 TON 18' TRUCK	APR	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
CULTIWEED	300HP-WT, 35.5' CULTIVATOR	APR	0.08	0.08	3.39	2.06	0.55	0.0	0.0	2.61	6.00
PLANT	200HP-CT, 36' DISC DRILL	MAY	0.08	0.09	5.72	1.71	0.55	0.0	28.90	31.16	36.88
HAUL SEED	2 TON 18' TRUCK	MAY	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
PACK	200HP-CT, 40' PACKER	MAY	0.07	0.08	3.79	1.47	0.50	0.0	0.0	1.97	5.76
INSECT CONTROL	CUSTOM AERIAL	JUNE	0.0	0.0	0.0	0.0	0.0	4.00	4.95	8.95	8.95
INSURANCE	CROP	JUNE	0.0	0.0	0.0	0.0	0.0	7.44	0.0	7.44	7.44
INSECT CONTROL	CUSTOM AERIAL	JULY	0.0	0.0	0.0	0.0	0.0	4.00	3.53	7.53	7.53
COMBINE	20' HILLSIDE	AUG	0.25	0.28	16.23	1.88	1.79	0.0	0.0	3.67	19.90
HAUL	2 TON 18' TRUCK	AUG	0.10	0.11	3.34	0.96	0.72	0.0	0.0	1.68	5.02
HAUL	2 TON 18' TRUCK, (10 YRS OLD)	AUG	0.10	0.11	1.84	1.42	0.72	0.0	0.0	2.14	3.98
PICK-UP	.75 TON	ANNUAL	0.25	0.28	1.56	1.24	1.79	0.0	0.0	3.03	4.59
MISC USE	85HP-WT (USED)	ANNUAL	0.09	0.10	1.09	0.25	0.64	0.0	0.0	0.89	1.98
INTEREST	OPERATING CAPITAL	ANNUAL	0.0	0.0	0.0	0.0	0.0	3.04	0.0	3.04	3.04
OVERHEAD	UTILITIES, LEGAL, ACCT., ETC.	ANNUAL	0.0	0.0	0.0	0.0	0.0	5.58	0.0	5.58	5.58
TAXES	LAND TAX	ANNUAL	0.0	0.0	3.90	0.0	0.0	0.0	0.0	0.0	3.90
LAND COST	NET RENT	ANNUAL	0.0	0.0	37.74	0.0	0.0	0.0	0.0	0.0	37.74
TOTAL PER ACRE			1.44	1.51	94.54	20.01	9.79	25.16	62.15	117.11	211.65

TABLE 2D: SUMMARY OF 1987 ESTIMATED COSTS PER ACRE FOR DRY PEAS UNDER THE CONVENTIONAL TILLAGE SCHEME.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
PREHARVEST					
PEA SEED	LBS.	0.17	170.00	$ 28.90	
FARGO	QT.	10.70	1.25	13.37	
METRIBUZIN	LBS.	22.80	0.50	11.40	
SPRAYER RENTAL	ACRE	1.10	1.00	1.10	
IMIDAN	LBS.	3.30	1.50	4.95	
DIMETHOATE	PT.	2.35	1.50	3.53	
CUSTOM AERIAL	ACRE	4.00	2.00	8.00	
MACHINERY REPAIR	ACRE	2.16	1.00	2.16	
MACHINERY FUEL	ACRE	0.91	1.00	0.91	
MACHINERY LUBE	ACRE	0.14	1.00	0.14	
TRACTORS REPAIR	ACRE	4.73	1.00	4.73	
TRACTORS FUEL	ACRE	6.79	1.00	6.79	
TRACTORS LUBE	ACRE	1.02	1.00	1.02	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	1.01	6.57	
CROP INSURANCE	ACRE	7.44	1.00	7.44	
OVERHEAD COST	DOL.	0.05	111.51	5.58	
INTEREST ON OP. CAP.	DOL.	0.12	25.31	3.04	
SUBTOTAL, PREHARVEST				$ 109.63	
HARVEST COSTS					
MACHINERY REPAIR	ACRE	3.37	1.00	$ 3.37	
MACHINERY FUEL	ACRE	0.77	1.00	0.77	
MACHINERY LUBE	ACRE	0.12	1.00	0.12	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.50	3.22	
SUBTOTAL, HARVEST				$ 7.48	
TOTAL VARIABLE COST				$ 117.11	
FIXED COSTS					
MACHINERY DEPRECIATION	ACRE	12.90	1.00	$ 12.90	
MACHINERY INTEREST	ACRE	16.00	1.00	16.00	
MACHINERY INSURANCE	ACRE	0.80	1.00	0.80	
MACHINERY TAXES	ACRE	1.71	1.00	1.71	
TRACTORS DEPRECIATION	ACRE	9.76	1.00	9.76	
TRACTORS INTEREST	ACRE	10.10	1.00	10.10	
TRACTORS INSURANCE	ACRE	0.51	1.00	0.51	
TRACTORS TAXES	ACRE	1.12	1.00	1.12	
TAXES (LAND)	ACRE	3.90	1.00	3.90	
LAND (NET RENT)	ACRE	37.74	1.00	37.74	
TOTAL FIXED COSTS				$ 94.54	
TOTAL COSTS*				$ 211.65	

* DOES NOT INCLUDE MANAGEMENT AND MARKETING COSTS.

Table 3D: Break-Even Selling Price per Unit for Dry Peas Under the Conventional Tillage Scheme.

		Cost Per Acre	Your Farm	Break-Even Price ($/lb.) (1,740 lbs./ac.)	Your Farm
		$	$		$
1.	Total Variable Cost	117.11	_____	.067	_____
	Plus:				
	Machinery Insurance	1.31	_____		
	Machinery Taxes	2.83	_____		
	Land Taxes	3.90	_____		
2.	Total Cash Costs	125.15	_____	.072	_____
	Plus:				
	Machinery Depreciation	22.66	_____		
3.	Total Cash Cost + Depreciation	147.81	_____	.085	_____
	Plus:				
	Machinery Interest	26.10	_____		
	Land (net rent)	37.74	_____		
4.	Total Cost*	211.65	_____	.122	_____

* Does not include management and marketing costs.

Table 4D: Summary of Receipts, Costs, and Profitability per Acre for Dry Peas Under the Conventional Tillage Scheme.

	Unit	Price or Cost/Unit	Quantity	Value or Cost	Your Farm
		$		$	$
Gross Receipts from Production					
Dry Peas	Lb.	0.10	1,740	174.00	_____
1. Total Receipts				174.00	_____
Less: Total Variable Cost				117.11	_____
2. Returns Over Variable Cost				56.89	_____
Less: Machinery Fixed Cost				52.90	_____
Real Estate Taxes				3.90	_____
3. Net Returns to Land and Management				0.09	_____

TABLE 1E: 1987 SCHEDULE OF OPERATIONS AND COSTS PER ACRE FOR LENTILS UNDER THE CONVENTIONAL TILLAGE SCHEME.

OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	FIXED COST	VARIABLE COST				TOTAL VARIABLE COST	TOTAL COST
						FUEL,OIL, LUBE AND REPAIRS	MACH. LABOR	SERVICE	MATERIALS		
					$	$	$	$	$	$	$
PLOW	300HP-WT, 10BTM PLOW	SEPT	0.17	0.19	8.72	4.92	1.23	0.0	0.0	6.15	14.87
CULTIVATE	300HP-WT, 35.5' FIELD CULTIVATOR	APR	0.08	0.08	3.39	2.06	0.55	0.0	0.0	2.61	6.00
HARROW	36' FLEX HARROW W/ABOVE OPER.	APR	0.08	0.0	0.10	0.02	0.0	0.0	0.0	0.02	0.12
CULTIWEED	300HP-WT, 36' CULTIWEEDER	APR	0.08	0.09	3.68	2.23	0.60	0.0	13.37	16.20	19.87
HARROW	300HP-WT, 60' FLEX HARROW	APR	0.07	0.08	3.07	1.82	0.49	0.0	0.0	2.31	5.38
SPRAY WEEDS	60' RENTED SPRAYER W/ABOVE OPER.	APR	0.0	0.0	0.0	0.0	0.0	1.10	5.70	6.80	6.80
HAUL WATER	2 TON 18' TRUCK	APR	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
PLANT	200HP-CT, 36' DISC DRILL	MAY	0.08	0.09	5.72	1.71	0.55	0.0	24.75	27.01	32.73
HAUL SEED	2 TON 18' TRUCK	MAY	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
PACK	200HP-CT, 40' PACKER	MAY	0.07	0.08	3.79	1.47	0.50	0.0	0.0	1.97	5.76
INSECT CONTROL	CUSTOM AERIAL	JULY	0.0	0.0	0.0	0.0	0.0	4.00	3.53	7.53	7.53
SWATHING	300HP-WT, 14' SWATHER	JULY	0.14	0.16	8.96	4.06	1.02	0.0	0.0	5.08	14.04
INSURANCE	CROP	JULY	0.0	0.0	0.0	0.0	0.0	8.17	0.0	8.17	8.17
COMBINE	20' HILLSIDE	AUG	0.25	0.28	16.23	1.88	1.79	0.0	0.0	3.67	19.90
HAUL	2 TON 18' TRUCK	AUG	0.10	0.11	3.34	0.96	0.72	0.0	0.0	1.68	5.02
HAUL	2 TON 18' TRUCK, (10 YRS OLD)	AUG	0.10	0.11	1.84	1.42	0.72	0.0	0.0	2.14	3.98
PICK-UP	.75 TON	ANNUAL	0.25	0.28	1.56	1.24	1.79	0.0	0.0	3.03	4.59
MISC USE	85HP-WT (USED)	ANNUAL	0.09	0.10	1.09	0.25	0.64	0.0	0.0	0.89	1.98
INTEREST	OPERATING CAPITAL	ANNUAL	0.0	0.0	0.0	0.0	0.0	2.45	0.0	2.45	2.45
OVERHEAD	UTILITIES, LEGAL, ACCT., ETC.	ANNUAL	0.0	0.0	0.0	0.0	0.0	4.91	0.0	4.91	4.91
TAXES	LAND TAX	ANNUAL	0.0	0.0	3.90	0.0	0.0	0.0	0.0	0.0	3.90
LAND COST	NET RENT	ANNUAL	0.0	0.0	43.31	0.0	0.0	0.0	0.0	0.0	43.56
TOTAL PER ACRE			1.58	1.67	111.36	24.24	10.86	20.63	47.35	103.08	214.44

TABLE 2E: SUMMARY OF 1987 ESTIMATED COSTS PER ACRE FOR LENTILS UNDER THE CONVENTIONAL TILLAGE SCHEME.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
PREHARVEST					
FARGO	QT.	10.70	1.25	$ 13.37	
METRIBUZIN	LBS.	22.80	0.25	5.70	
SPRAYER RENTAL	ACRE	1.10	1.00	1.10	
LENTIL SEED	LBS.	0.45	55.00	24.75	
DIMETHOATE	PT.	2.35	1.50	3.53	
CUSTOM AERIAL	ACRE	4.00	1.00	4.00	
MACHINERY REPAIR	ACRE	2.75	1.00	2.75	
MACHINERY FUEL	ACRE	0.91	1.00	0.91	
MACHINERY LUBE	ACRE	0.14	1.00	0.14	
TRACTORS REPAIR	ACRE	6.06	1.00	6.06	
TRACTORS FUEL	ACRE	8.80	1.00	8.80	
TRACTORS LUBE	ACRE	1.32	1.00	1.32	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	1.17	7.61	
CROP INSURANCE	ACRE	8.17	1.00	8.17	
OVERHEAD COST	DOL.	0.05	98.17	4.91	
INTEREST ON OP. CAPITAL	DOL.	0.12	20.38	2.45	
SUBTOTAL, PREHARVEST				$ 95.57	
HARVEST COSTS					
MACHINERY REPAIR	ACRE	3.37	1.00	$ 3.37	
MACHINERY FUEL	ACRE	0.77	1.00	0.77	
MACHINERY LUBE	ACRE	0.12	1.00	0.12	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.50	3.25	
SUBTOTAL, HARVEST				$ 7.51	
TOTAL VARIABLE COST				$ 103.08	
FIXED COSTS					
MACHINERY DEPRECIATION	ACRE	14.98	1.00	$ 14.98	
MACHINERY INTEREST	ACRE	17.68	1.00	17.68	
MACHINERY INSURANCE	ACRE	0.88	1.00	0.88	
MACHINERY TAXES	ACRE	1.93	1.00	1.93	
TRACTORS DEPRECIATION	ACRE	12.26	1.00	12.26	
TRACTORS INTEREST	ACRE	12.43	1.00	12.43	
TRACTORS INSURANCE	ACRE	0.62	1.00	0.62	
TRACTORS TAXES	ACRE	1.37	1.00	1.37	
TAXES (LAND)	ACRE	3.90	1.00	3.90	
LAND (NET RENT)	ACRE	45.31	1.00	45.31	
TOTAL FIXED COSTS				$ 111.36	
TOTAL COSTS*				$ 214.44	

* DOES NOT INCLUDE MANAGEMENT AND MARKETING COSTS.

Table 3E: Break-Even Selling Price per Unit for Lentils Under the Conventional Tillage Scheme.

	Cost Per Acre	Your Farm	Break-Even Price ($/lb.) (1,000 lbs./ac.)	Your Farm
	$	$		$
1. Total Variable Cost	103.08	_____	.103	_____
Plus:				
Machinery Insurance	1.50	_____		
Machinery Taxes	3.30	_____		
Land Taxes	3.90	_____		
2. Total Cash Costs	111.78	_____	.112	_____
Plus:				
Machinery Depreciation	27.24	_____		
3. Total Cash Cost + Depreciation	139.02	_____	.139	_____
Plus:				
Machinery Interest	30.11	_____		
Land (net rent)	45.31	_____		
4. Total Cost*	214.44	_____	.214	_____

* Does not include management and marketing costs.

Table 4E: Summary of Receipts, Costs, and Profitability per Acre for Lentils Under the Conventional Tillage Scheme.

	Unit	Price or Cost/Unit	Quantity	Value or Cost	Your Farm
		$		$	$
Gross Receipts from Production					
Lentils	Lb.	.205	1,000	205.00	_____
1. Total Receipts				205.00	_____
Less: Total Variable Cost				103.08	_____
2. Returns Over Variable Cost				101.92	_____
Less: Machinery Fixed Cost				62.15	_____
Real Estate Taxes				3.90	_____
3. Net Returns to Land and Management				35.87	_____

TABLE 1F: 1987 SCHEDULE OF OPERATIONS AND COSTS PER ACRE FOR SPRING BARLEY UNDER THE CONVENTIONAL TILLAGE SCHEME.

OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	FIXED COST	VARIABLE COST				TOTAL VARIABLE COST	TOTAL COST
						FUEL,OIL, LUBE AND REPAIRS	MACH. LABOR	SERVICE	MATERIALS		
					$	$	$	$	$	$	$
PLOW	300HP-WT, 10BTM PLOW	OCT	0.17	0.19	8.72	4.92	1.23	0.0	0.0	6.15	14.87
CULTIVATE	300HP-WT, 35.5' CULTIVATOR	APR	0.08	0.08	3.39	2.06	0.55	0.0	0.0	2.61	6.00
HARROW	300HP-WT, 36' FLEX HARROW	APR	0.07	0.07	3.07	1.82	0.49	0.0	0.0	2.31	5.38
CULTIWEED	300HP-WT, 36' CULTIWEEDER	APR	0.08	0.08	3.68	2.23	0.60	0.0	13.37	16.20	19.87
FERTILIZE	300HP-WT, 45' APPLICATOR	MAY	0.05	0.06	1.75	1.22	0.36	0.0	25.55	27.13	28.87
HAUL WATER	2 TON 18' TRUCK	MAY	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
SPRAY WEEDS	300HP-WT, 60' RENTED SPRAYER	MAY	0.05	0.06	1.75	1.22	0.36	1.10	10.96	13.64	15.38
HAUL WATER	2 TON 18' TRUCK	MAY	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
PLANT	200HP-CT, 36' DISC DRILL	MAY	0.08	0.09	5.72	1.71	0.55	0.0	10.00	12.26	17.98
HAUL SEED	2 TON 18' TRUCK	MAY	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
INSURANCE	CROP	JUNE	0.0	0.0	0.0	0.0	0.0	3.95	0.0	3.95	3.95
COMBINE	20' HILLSIDE	AUG	0.14	0.16	9.28	1.08	1.02	0.0	0.0	2.10	11.38
HAUL	2 TON 18' TRUCK	AUG	0.10	0.11	3.34	0.96	0.72	0.0	0.0	1.68	5.02
HAUL	2 TON 18' TRUCK, (10 YRS OLD)	AUG	0.10	0.11	1.84	1.42	0.72	0.0	0.0	2.14	3.98
PICK-UP	.75 TON	ANNUAL	0.25	0.28	1.56	1.24	1.79	0.0	0.0	3.03	4.59
MISC USE	85HP-WT (USED)	ANNUAL	0.09	0.10	1.09	0.25	0.64	0.0	0.0	0.89	1.98
INTEREST	OPERATING CAPITAL	ANNUAL	0.0	0.0	0.0	0.0	0.0	2.83	0.0	2.83	2.83
OVERHEAD	UTILITIES, LEGAL, ACCT., ETC.	ANNUAL	0.0	0.0	0.0	0.0	0.0	4.88	0.0	4.88	4.88
TAXES	LAND TAX	ANNUAL	0.0	0.0	3.90	0.0	0.0	0.0	0.0	0.0	3.90
LAND COST	NET RENT	ANNUAL	0.0	0.0	28.27	0.0	0.0	0.0	0.0	0.0	28.27
TOTAL PER ACRE			1.29	1.45	78.35	20.43	9.42	12.76	59.88	102.49	180.84

TABLE 2F: SUMMARY OF 1987 ESTIMATED COSTS PER ACRE FOR SPRING BARLEY UNDER THE CONVENTIONAL TILLAGE SCHEME.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
PREHARVEST					
NITROGEN	LBS.	0.19	80.00	$ 15.20	
PHOSPHOROUS	LBS.	0.33	20.00	6.60	
SULFUR	LBS.	0.25	15.00	3.75	
BARLEY SEED	LBS.	0.125	80.00	10.00	
FARGO	QT.	10.70	1.25	13.37	
MCPA SODIUM SALT	QT.	2.40	2.00	4.80	
BROMOXYNIL	PT.	12.32	0.50	6.16	
SPRAYER RENTAL	ACRE	1.10	1.00	1.10	
MACHINERY REPAIR	ACRE	2.01	1.00	2.01	
MACHINERY FUEL	ACRE	0.96	1.00	0.96	
MACHINERY LUBE	ACRE	0.14	1.00	0.14	
TRACTORS REPAIR	ACRE	5.22	1.00	5.22	
TRACTORS FUEL	ACRE	7.52	1.00	7.52	
TRACTORS LUBE	ACRE	1.13	1.00	1.13	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	1.07	6.95	
CROP INSURANCE	ACRE	3.95	1.00	3.95	
OVERHEAD COST	DOL.	0.05	97.57	4.88	
INTEREST ON OP. CAPITAL	DOL.	0.12	23.60	2.83	
SUBTOTAL, PREHARVEST				$ 96.57	
HARVEST COSTS					
MACHINERY REPAIR	ACRE	2.60	1.00	$ 2.60	
MACHINERY FUEL	ACRE	0.74	1.00	0.74	
MACHINERY LUBE	ACRE	0.11	1.00	0.11	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.38	2.47	
SUBTOTAL, HARVEST				$ 5.92	
TOTAL VARIABLE COST				$ 102.49	
FIXED COSTS					
MACHINERY DEPRECIATION	ACRE	9.85	1.00	$ 9.85	
MACHINERY INTEREST	ACRE	12.35	1.00	12.35	
MACHINERY INSURANCE	ACRE	0.62	1.00	0.62	
MACHINERY TAXES	ACRE	1.32	1.00	1.32	
TRACTORS DEPRECIATION	ACRE	10.24	1.00	10.24	
TRACTORS INTEREST	ACRE	10.17	1.00	10.17	
TRACTORS INSURANCE	ACRE	0.51	1.00	0.51	
TRACTORS TAXES	ACRE	1.12	1.00	1.12	
TAXES (LAND)	ACRE	3.90	1.00	3.90	
LAND (NET RENT)	ACRE	28.27	1.00	28.27	
TOTAL FIXED COSTS				$ 78.35	
TOTAL COSTS*				$ 180.84	

* DOES NOT INCLUDE MANAGEMENT AND MARKETING COSTS.

Table 3F: Break-Even Selling Price per Unit for Spring Barley Under the Conventional Tillage Scheme.

	Cost Per Acre	Your Farm	Break-Even Price ($/ton) (1.8 ton/ac.)	Your Farm
	$	$		$
1. Total Variable Cost	102.49	_____	56.94	_____
Plus:				
Machinery Insurance	1.13	_____		
Machinery Taxes	2.44	_____		
Land Taxes	3.90	_____		
2. Total Cash Costs	109.96	_____	61.09	_____
Plus:				
Machinery Depreciation	20.09	_____		
3. Total Cash Cost + Depreciation	130.05	_____	72.25	_____
Plus:				
Machinery Interest	22.52	_____		
Land (net rent)	28.27	_____		
4. Total Cost*	180.84	_____	100.47	_____

* Does not include management and marketing costs.

Table 4F: Summary of Receipts, Costs, and Profitability per Acre for Spring Barley Under the Conventional Tillage Scheme.

	Unit	Price or Cost/Unit	Quantity	Value or Cost	Your Farm
		$		$	$
Gross Receipts from Production					
Spring Barley	Ton	70.00	1.8	126.00	
1. Total Receipts				126.00	
Less: Total Variable Cost				102.49	
2. Returns Over Variable Cost				23.51	
Less: Machinery Fixed Cost				46.18	
Real Estate Taxes				3.90	
3. Net Returns to Land and Management				- 26.57	

TABLE 1G: 1987 SCHEDULE OF OPERATIONS AND COSTS PER ACRE FOR SUMMER FALLOW BEFORE RAPESEED UNDER THE CONVENTIONAL TILLAGE SCHEME.

OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	FIXED COST	VARIABLE COST				TOTAL VARIABLE COST	TOTAL COST
						FUEL,OIL, LUBE,AND, REPAIRS	MACH. LABOR	SERVICE	MATERIALS		
					$	$	$	$	$	$	$
SPRAY WEEDS	300HP-WT, 60' RENTED SPRAYER	OCT	0.05	0.06	1.75	1.22	0.36	1.10	7.56	10.24	11.98
HAUL WATER	2 TON 18' TRUCK	OCT	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
DISC	300HP-WT, 18' OFFSET DISC	MAY	0.10	0.11	6.00	3.04	0.71	0.0	0.0	3.75	9.75
CULTIVATE	300HP-WT, 35.5' FIELD CULTIVATOR	MAY	0.08	0.08	3.39	2.06	0.55	0.0	0.0	2.61	6.00
CULTIVATE	300HP-WT, 35.5' FIELD CULTIVATOR	JUNE	0.08	0.08	3.39	2.06	0.55	0.0	0.0	2.61	6.00
RODWEED	300HP-WT, 36' RODWEEDER	JUNE	0.08	0.08	3.30	2.01	0.55	0.0	0.0	2.56	5.87
FERTILIZE	300HP-WT, 45' APPLICATOR	JULY	0.05	0.06	1.75	1.22	0.36	0.0	18.60	20.18	21.92
HAUL WATER	2 TON 18' TRUCK	JULY	0.01	0.02	0.33	0.10	0.13	0.0	0.0	0.23	0.56
CULTIVATE	300HP-WT, 35.5' FIELD CULTIVATOR	JULY	0.08	0.08	3.39	2.06	0.55	0.0	0.0	2.61	6.00
PICK-UP	.75 TON	ANNUAL	0.25	0.28	1.56	1.24	1.79	0.0	0.0	3.03	4.59
MISC USE	85HP-WT (USED)	ANNUAL	0.09	0.10	1.09	0.25	0.64	0.0	0.0	0.89	1.98
INTEREST	OPERATING CAPITAL	ANNUAL	0.0	0.0	0.0	0.0	0.0	1.39	0.0	1.39	1.39
OVERHEAD	UTILITIES, LEGAL, ACCT., ETC.	ANNUAL	0.0	0.0	0.0	0.0	0.0	2.52	0.0	2.52	2.52
TAXES	LAND TAX	ANNUAL	0.0	0.0	3.90	0.0	0.0	0.0	0.0	0.0	3.90
TOTAL PER ACRE			0.88	0.97	30.18	15.36	6.32	5.01	26.16	52.85	83.03

TABLE 2G: SUMMARY OF 1987 ESTIMATED COSTS PER ACRE FOR SUMMER FALLOW BEFORE RAPESEED UNDER THE CONVENTIONAL TILLAGE SCHEME.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
PREHARVEST					
NITROGEN	LBS.	0.19	50.00	$ 9.50	
PHOSPHOROUS	LBS.	0.33	20.00	6.60	
SULFUR	LBS.	0.25	10.00	2.50	
GLYPHOSPHATE	OZ.	0.63	12.00	7.56	
SPRAYER RENTAL	ACRE	1.10	1.00	1.10	
MACHINERY REPAIR	ACRE	1.65	1.00	1.65	
MACHINERY FUEL	ACRE	0.91	1.00	0.91	
MACHINERY LUBE	ACRE	0.14	1.00	0.14	
TRACTORS REPAIR	ACRE	4.75	1.00	4.75	
TRACTORS FUEL	ACRE	6.88	1.00	6.88	
TRACTORS LUBE	ACRE	1.03	1.00	1.03	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.97	6.32	
OVERHEAD COST	DOL.	0.05	50.31	2.52	
INTEREST ON OP. CAPITAL	DOL.	0.12	11.58	1.39	
TOTAL VARIABLE COST				$ 52.85	
FIXED COSTS					
MACHINERY DEPRECIATION	ACRE	3.22	1.00	$ 3.22	
MACHINERY INTEREST	ACRE	3.68	1.00	3.68	
MACHINERY INSURANCE	ACRE	0.18	1.00	0.18	
MACHINERY TAXES	ACRE	0.40	1.00	0.40	
TRACTORS DEPRECIATION	ACRE	8.92	1.00	8.92	
TRACTORS INTEREST	ACRE	8.52	1.00	8.52	
TRACTORS INSURANCE	ACRE	0.43	1.00	0.43	
TRACTORS TAXES	ACRE	0.93	1.00	0.93	
TAXES (LAND)	ACRE	3.90	1.00	3.90	
TOTAL FIXED COSTS				$ 30.18	
TOTAL COSTS				$ 83.03	

TABLE 1H: 1987 SCHEDULE OF OPERATIONS AND COSTS PER ACRE FOR RAPESEED AFTER SUMMER FALLOW UNDER THE CONVENTIONAL TILLAGE SCHEME.

						VARIABLE COST						
OPERATION	TOOLING	MONTH	MACH. HOURS	LABOR HOURS	FIXED COST	FUEL, OIL, LUBE AND REPAIRS	MACH. LABOR	SERVICE	MATERIALS		TOTAL VARIABLE COST	TOTAL COST
					$	$	$	$	$		$	$
PLANT	200 HP-CT, 36' DISC DRILL	AUG	0.06	0.07	4.61	1.37	0.44	0.0	7.00		8.81	13.42
HAUL SEED	2 TON TRUCK 18'	AUG	0.01	0.02	0.33	0.10	0.13	0.0	0.0		0.23	0.56
FERTILIZE	CUSTOM AERIAL	MAR	0.0	0.0	0.0	0.0	0.0	4.00	9.50		13.50	13.50
INSURANCE	CROP	APR	0.0	0.0	0.0	0.0	0.0	2.72	0.0		2.72	2.72
PARATHION APP.	CUSTOM AERIAL	MAY	0.0	0.0	0.0	0.0	0.0	4.00	3.86		7.86	7.86
COMBINE	20' HILLSIDE	JULY	0.25	0.28	16.23	1.88	1.79	0.0	0.0		3.67	19.90
HAUL	2 TON 18' TRUCK	JULY	0.10	0.11	3.34	0.96	0.72	0.0	0.0		1.68	5.02
HAUL	2 TON 18' TRUCK, (10 YRS OLD)	JULY	0.10	0.11	1.84	1.42	0.72	0.0	0.0		2.14	3.98
PICK-UP	.75 TON	ANNUAL	0.25	0.28	1.56	1.24	1.79	0.0	0.0		3.03	4.59
MISC USE	85HP-WT (USED)	ANNUAL	0.09	0.10	1.09	0.25	0.64	0.0	0.0		0.89	1.98
INTEREST	OPERATING CAPITAL	ANNUAL	0.0	0.0	0.0	0.0	0.0	2.00	0.0		2.00	2.00
OVERHEAD	UTILITIES, LEGAL, ACCT., ETC.	ANNUAL	0.0	0.0	0.0	0.0	0.0	2.33	0.0		2.33	2.33
TAXES	LAND TAX	ANNUAL	0.0	0.0	3.90	0.0	0.0	0.0	0.0		0.0	3.90
LAND COST	NET RENT	ANNUAL	0.0	0.0	35.28	0.0	0.0	0.0	0.0		0.0	35.28
S.F. COST	S.F. COST + INTEREST	ANNUAL	0.0	0.0	92.99	0.0	0.0	0.0	0.0		0.0	92.99
TOTAL PER ACRE			0.86	0.96	161.17	7.22	6.23	15.05	20.36		48.86	210.03

TABLE 2H: SUMMARY OF 1987 ESTIMATED COSTS PER ACRE FOR RAPESEED AFTER SUMMER FALLOW UNDER THE CONVENTIONAL TILLAGE SCHEME.

	UNIT	PRICE OR COST/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
VARIABLE COSTS					
PREHARVEST					
RAPESEED	LBS.	1.00	7.00	$ 7.00	
NITROGEN	LBS.	0.19	50.00	9.50	
PARATHION	PT.	3.86	1.00	3.86	
CUSTOM AERIAL	ACRE	4.00	2.00	8.00	
MACHINERY REPAIR	ACRE	0.57	1.00	0.57	
MACHINERY FUEL	ACRE	0.89	1.00	0.89	
MACHINERY LUBE	ACRE	0.13	1.00	0.13	
TRACTORS REPAIR	ACRE	0.66	1.00	0.66	
TRACTORS FUEL	ACRE	0.62	1.00	0.62	
TRACTOR LUBE	ACRE	0.09	1.00	0.09	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.46	2.98	
CROP INSURANCE	ACRE	2.72	1.00	2.72	
OVERHEAD COST	DOL.	0.05	46.53	2.33	
INTEREST ON OP. CAPITAL	DOL.	0.12	16.63	2.00	
SUBTOTAL, PREHARVEST				$ 41.35	
HARVEST COSTS					
MACHINERY REPAIR	ACRE	3.37	1.00	$ 3.37	
MACHINERY FUEL	ACRE	0.77	1.00	0.77	
MACHINERY LUBE	ACRE	0.12	1.00	0.12	
LABOR(TRACTOR & MACHINERY)	HOUR	6.50	0.50	3.25	
SUBTOTAL, HARVEST				$ 7.51	
TOTAL VARIABLE COST				$ 48.86	
FIXED COSTS					
MACHINERY DEPRECIATION	ACRE	10.85	1.00	$ 10.85	
MACHINERY INTEREST	ACRE	12.33	1.00	12.33	
MACHINERY INSURANCE	ACRE	0.62	1.00	0.62	
MACHINERY TAXES	ACRE	1.31	1.00	1.31	
TRACTORS DEPRECIATION	ACRE	1.54	1.00	1.54	
TRACTORS INTEREST	ACRE	2.02	1.00	2.02	
TRACTORS INSURANCE	ACRE	0.10	1.00	0.10	
TRACTORS TAXES	ACRE	0.23	1.00	0.23	
TAXES (LAND)	ACRE	3.90	1.00	3.90	
LAND (NET RENT)	ACRE	35.28	1.00	35.28	
S.F. COST + INTEREST	ACRE	1.12	83.03	92.99	
TOTAL FIXED COSTS				$ 161.17	
TOTAL COSTS*				$ 210.03	

* DOES NOT INCLUDE MANAGEMENT AND MARKETING COSTS.

Table 3H: Break-Even Selling Price per Unit for Summer Fallow Rapeseed Under the Conventional Tillage Scheme.

	Cost Per Acre	Your Farm	Break-Even Price ($/cwt.) (2,000 lb./ac.)	Your Farm
	$	$		$
1. Total Variable Cost	101.71	_____	.051	_____
Plus:				
Machinery Insurance	1.33	_____		
Machinery Taxes	2.87	_____		
Land Taxes	7.80	_____		
2. Total Cash Costs	113.71	_____	.057	_____
Plus:				
Machinery Depreciation	24.53	_____		
3. Total Cash Cost + Depreciation	138.24	_____	.069	_____
Plus:				
Machinery Interest	26.55	_____		
Land (net rent)	35.28	_____		
Interest on S. F. Cost	9.96	_____		
4. Total Cost*	210.03	_____	.105	_____

* Does not include management and marketing costs.

Table 4H: Summary of Receipts, Costs, and Profitability per Acre for Summer Fallow-Rapeseed Under the Conventional Tillage Scheme.

	Unit	Price or Cost/Unit	Quantity	Value or Cost	Your Farm
		$		$	$
Gross Receipts from Production					
Rapeseed	Lb.	0.08	2,000	160.00	_____
1. Total Receipts				160.00	_____
Less: Total Variable Cost				101.71	_____
2. Returns Over Variable Cost				58.29	_____
Less: Machinery Fixed Cost				55.28	_____
Real Estate Taxes				7.80	_____
Interest on S. F. Cost				9.96	_____
3. Net Returns to Land and Management				- 14.75	_____

Table 5: Machinery Complement Prices, Uses, and Costs per Hour.

Item	Purchase Price	Hours Used Annually	Acres per Hour	Fixed Cost					Variable Cost			Total Cost
				Depr.	Interest	Taxes	Ins.	Total	Repair	Fuel/Lube	Total	
	$			$	$	$	$	$	$	$	$	$
300 HP Wheel Tractor	85,000	450	-	16.83	15.60	1.70	0.78	34.91	8.89	15.52	24.41	59.32
200 HP Crawler Tractor	85,000	300	-	18.67	22.80	2.55	1.14	45.16	6.66	11.38	18.04	63.20
150 HP Crawler Tractor	65,000	300	-	13.67	17.80	1.95	0.89	34.31	5.00	9.31	14.32	48.63
85 HP Wheel Tractor	22,000	250	-	4.27	6.72	0.79	0.34	12.12	2.70	0.07	2.77	14.89
20' Hillside Combine	95,000	250	6*/	27.50	32.40	3.42	1.62	64.94	7.22	0.31	7.53	72.47
2 Ton Truck, 18'	25,000	120	-	14.17	16.50	1.88	0.83	33.37	6.62	2.94	9.56	42.93
2 Ton Truck, 18' Used	9,000	100	-	10.00	7.20	0.81	0.36	18.37	9.00	5.17	14.17	32.54
.75 Ton Pickup	14,500	500	-	3.40	2.46	0.26	0.12	6.24	0.99	3.97	4.96	11.20
18' Offset Disc	16,000	140	12	5.50	9.43	1.03	0.47	16.42	6.08	0.0	6.08	22.50
23' Chisel Plow	12,000	100	8	8.75	10.20	1.08	0.51	20.54	3.50	0.0	3.50	24.04
10 BTM Plow	14,000	120	7	3.89	10.50	1.05	0.53	15.96	4.27	0.0	4.27	20.23
36' Tinetooth Harrow	1,500	100	14	0.57	1.29	0.14	0.06	2.06	0.75	0.0	0.75	2.81
60' Flex Harrow	1,500	200	10	3.89	5.00	0.64	0.25	9.78	2.07	0.0	2.07	11.85
36' Rodweeder	14,000	270	13	2.78	4.56	0.47	0.23	8.03	1.76	0.0	1.76	9.79
35.5' Cultivator	14,000	250	13	3.78	4.68	0.50	0.23	9.20	2.30	0.0	2.30	11.50
36' Cultiweeder	14,000	250	12	3.78	4.68	0.50	0.23	9.20	2.30	0.0	2.30	11.50
36' Disc Drill	23,000	120	13	9.17	17.50	1.73	0.88	29.27	4.14	0.0	4.14	33.41
40' Packer	7,000	100	6	3.33	4.80	0.63	0.24	9.00	3.00	0.0	3.00	12.00
14' Swather	25,000	150	7	14.33	11.40	1.50	0.57	27.80	4.00	0.0	4.00	31.80

*/ These are the acres per hour covered for wheat production. For rapeseed, lentil, and dry pea production, 4 acres per hour are covered and for spring barley, 8 acres per hour are covered.

Table 6: 1987 Prices for Selected Inputs.

Item	Unit	Price/Unit
		$
Fuel		
Gasoline	Gal.	0.92
Diesel	Gal.	0.72
Fertilizer		
Nitrogen (liquid)	Lb.	0.19
Phosphate (liquid)	Lb.	0.33
Sulfur	Lb.	0.25
Pesticide		
Fargo	Qt.	10.70
Bromoxynil + MCPA (Bronate)	Pt.	6.70
Kerb	Lb.	15.00
Glyphosphate (Roundup)	Oz.	0.63
Hoelon	Pt.	6.92
Bromoxynil	Pt.	12.32
Karmex	Lb.	5.20
MCPA Sodium Salt	Qt.	2.40
Imidan	Lb.	3.30
Dimethoate	Pt.	2.35
Benlate	Lb.	13.27
Igran	Lb.	5.40
Metribuzin	Lb.	22.80
Parathion	Pt.	3.86
Seeds		
Winter Wheat	Lb.	0.12
Spring Barley	Lb.	0.125
Dry Peas	Lb.	0.17
Lentils	Lb.	0.45
Rape Seed	Lb.	1.00
Custom Rates		
No-Till Drilling	Acre	29.00
Aerial Application	Acre	4.00
Misc. Inputs		
Machinery Labor	Hr.	6.50
Interest Rate	%	0.12
Property Tax Rate Levied on Machinery	%	0.018
Insurance Rate Levied on Machinery	%	0.006

Issued by Washington State University Cooperative Extension, F.L. Poston, Director, and the U.S. Department of Agriculture in furtherance of the Acts of May 8 and June 30, 1914. Cooperative Extension programs and policies are consistent with federal and state laws and regulations on nondiscrimination regarding race, color, national origin, religion, gender, age, disability, and gender preference. Reprinted July 1989. $1.00