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| <p>Farm Business Management Reports</p> | | <p>EB 1114</p> |
| | <p>1990 CROP ENTERPRISE BUDGETS SPRING BARLEY - SUMMER FALLOW - WINTER WHEAT ROTATION GARFIELD COUNTY, WASHINGTON</p> | |
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EB 1114E

1990 CROP ENTERPRISE BUDGETS SPRING
BARLEY - SUMMER FALLOW -
WINTER WHEAT ROTATION
GARFIELD COUNTY, 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 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 Garfield 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.

**1990 CROP ENTERPRISE BUDGETS
SPRING BARLEY - SUMMER FALLOW - WINTER WHEAT ROTATION
GARFIELD COUNTY, WASHINGTON**

Herbert R. Hinman and David Bragg*

INTRODUCTION

This publication presents projected costs and returns for Garfield County for crops commonly grown in a three-year rotation, spring barley after winter wheat and winter wheat after summer fallow. Producers, agricultural lenders, and others 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 are representative of the 15- to 20-inch rainfall area of Garfield County. They do not represent a particular farm. Instead, they represent costs and returns under the specific assumptions adopted for the study. We recommend that individual growers use the blanks provided on the right-hand side of various budgets to estimate their own costs and returns. Also, local Cooperative Extension agents and fieldpersons should be consulted for recommendations on field operations and operating inputs.

SOURCES OF INFORMATION

A committee of experienced Garfield County wheat growers was assembled at the request of the county agent. They identified the machinery complement, field operations, 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 rates of annual use considered typical for a 1,200-acre farm.

BUDGET ASSUMPTIONS

The following assumptions were made:

1. The representative farm includes 1,200 acres with 400 acres in winter wheat, 400 acres in spring barley, and 400 acres in summer fallow, annually.
2. Per acre yields are 65 bushels for wheat and 1.5 tons for barley. It should be realized, however, that yield variability

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is quite common in Garfield County and that variable yields can have a substantial impact on per unit costs.

3. Prices received for the budgeted crops are \$4.00 per bushel for winter wheat and \$100.00 per ton for spring barley.
4. Machinery is valued at costs incurred if the item was to be replaced. Machine items on farms of the representative size in Garfield County are typically replaced used. While valuing machinery at replacement cost may overstate current production costs, it provides an indication of the enterprise's ability to generate the earnings needed to replace depreciable assets. Increases in prices mean that depreciation claimed on assets purchased prior to price advances understates the amount of capital 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.
5. Twenty-five percent of the pickup and truck use is allocated to livestock enterprises, leaving 75% to be allocated to the crop enterprises.
6. The interest rate is 12%.
7. The farm is owned, managed, and operated by the same person.

Due to the information and procedure followed the budget should be viewed as "typical" or "representative," rather than a mathematical average of a large number of producers. Where such factors as farm size, machinery complement and use, cultural practices, and yield differ from those assumed in this publication, quite different enterprise costs and returns may result. Also, this budget includes only production costs and does not include storage, handling, transportation, and interest costs associated with marketing the crop.

DISCUSSION OF BUDGET INFORMATION

The budget information for the spring barley, summer fallow, and winter wheat enterprises is reported in 12 separate tables.

Tables 1, 5, and 7: Schedule of Operations and Costs per Acre

Tables 1, 5, and 7 outline the schedule of field operations by calendar month, the type of machinery used, and the hours used per acre for spring barley following winter wheat, summer fallow

following spring barley, and winter wheat following summer fallow, respectively. The costs are divided into two categories. The first is machinery and land fixed costs. The second category, variable costs, is associated with operating machinery, labor, and purchasing services and materials. Total cost is the sum of fixed and variable costs.

Machinery fixed costs include depreciation, interest on the average investment, property taxes, and insurance. These costs do not vary with the crops produced, given the ownership of a specific machinery complement, and are incurred whether or not a crop is grown.

Machinery fixed costs for a specific field operation are determined by multiplying the machine hours per acre times the per-hour fixed cost (Table 11). 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 net rent that is based on rental agreements typical for the area minus expenditures typically covered by the landlord. The typical lease agreement is one-third landlord and two-thirds tenant crop share with the landlord paying land taxes, one-third the fertilizer cost, and one-third the crop insurance. The tenant covers all other production expenses.

Thus, net rent for spring barley is calculated as follows:

\$50.00 (1/3 gross receipts from production)
- \$ 5.00 (land tax)
- \$ 9.33 (1/3 fertilizer, and crop insurance costs)
\$35.67 Net Rent per Acre

Net rent for winter wheat is calculated as follows:

\$86.67 (1/3 gross receipts from production)
- \$10.00 (land tax; for summer fallow and winter wheat)
- \$ 9.33 (1/3 fertilizer, and crop insurance costs)
\$67.34 Net Rent per Acre

While the owner-operator obviously will not experience a land rental cost, the cost represents the minimum returns the owner-operator must have to justify growing this crop on the land himself. This net rental return represents the income the owner-operator forgoes by producing this crop himself rather than renting the land to a tenant. As a result of investing in land, the farmer receives both current returns from farming and any long-term land value appreciation. However, the farmer would continue to receive land value appreciation even if the land was rented out. Consequently, the appropriate land charge is only the net rent lost. As used in this publication, land cost is termed an opportunity cost to indicate that it is not an out-of-pocket expense, but rather a foregone return. To determine the profitability of crop production relative to other activities, the owner-operator may want to consider these foregone returns, or opportunity costs, along with the usual production expenses. Of course, for the individual producer, any land costs that are actual cash costs, such as interest payments on loans outstanding on land or land rent payments, must be identified and treated as cash costs.

In Table 7, the previous year's summer fallow costs, plus a 12% interest charge, are included as part of the fixed cost of raising winter wheat. Summer fallow costs are allocated entirely to winter wheat because of the need to conserve moisture in order to support winter wheat. These costs must ultimately be covered by wheat returns if the enterprise is to remain profitable.

Variable costs vary directly with the crop grown and the number of acres produced. Variable costs include fuel, oil, repairs, fertilizer, chemicals, custom work, overhead, and interest on operating capital. Machine operating labor, including that provided by the owner-operator, is also included as a variable cost.

Tables 2, 6, and 8: Summary of Production Costs per Acre

Tables 2, 6, and 8 itemize the costs appearing in the "Schedule of Operations and Costs per Acre" for spring barley, summer fallow, and winter wheat, respectively. Most of the items are self-explanatory or have been previously explained. Two entries, "Machinery Interest" and "Tractor Interest," warrant additional explanation.

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:

Purchase Cost + Salvage Value

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The 12% interest charge made against this average investment value represents an opportunity cost or interest paid on money borrowed to finance machine purchases, or both. Machinery interest cost for one acre of spring barley, summer fallow, or winter wheat is determined by multiplying the respective machine hours per acre times per hour interest costs (Table 11).

Tables 3 and 9: Break-Even Selling Prices per Unit

Tables 3 and 9 present the break-even selling prices for different levels of enterprise costs for spring barley and summer fallow - winter wheat, respectively.

The first break-even price is that necessary to cover total variable costs--those costs that occur only if the crop is produced. If the price received does not exceed this price, it 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 the price needed to cover total cash costs, assuming no interest on outstanding loans or land rent are being paid. If other cash costs exist on an individual's farm, such as interest payments or land rents, these costs must be identified and included in the cash cost break-even price. This price may be viewed as that price necessary to economically produce in the short run.

The third break-even price is the price that covers total cash cost plus depreciation on machinery. This price must be realized to stay in business over the long run. However, if farmers do not also consider the opportunity costs they forego from their investments in land and machinery in calculating their total cost break-even price, presented as the fourth break-even price, they are overlooking the profitability of farming relative to alternative uses of their own resources.

Only if the break-even price required to cover total cost is received, will the owner-operator be able to cover all out-of-pocket expenses, plus realize a fair return to his labor, equity capital invested in land and machinery, and operating capital. Failure to realize the break-even price means the owner-operator will not realize a return on his labor and capital equivalent to what could be earned 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 the management and risk assumed in producing the crop(s).

Tables 4 and 10: Summary of Receipts, Costs, and Profitability Per Acre

Tables 4 and 10 summarize the per-acre returns, costs, and profitability for barley and winter wheat after summer fallow, respectively. The first profit measure is returns over variable costs, calculated by subtracting total variable costs from total receipts. An important use for return over variable costs is selecting the most profitable crop mix. By selecting the crop with the greatest return over variable costs, farm profits are maximized (or losses minimized). The second profit measure, net returns to land and management, was calculated by subtracting machinery fixed expenses, summer fallow costs (for wheat only), and real estate taxes from returns over variable cost. This is the return the owner-operator realizes to investment in land and management after accounting for all costs including \$10.00 per hour for any labor contributed to the production of the crop.

Table 11: Machinery Prices, Annual Use, and Cost per Hour of Use

This table identifies the machine complement used to derive the budget. Typically, most pieces of machinery on Garfield County farms of the representative size are purchased used. Pickups are generally replaced new. Farmers in this area farming approximately 1,200 acres will typically have two tractors which, when replaced, are replaced with 8- to 10-year old used tractors. It is also typical to have one main truck, with an older truck that is used primarily only during harvest. Table 11 presents the types of machines used on the representative farm, their current replacement price, if replaced new or used, annual hours of use, and estimated per-hour fixed and variable costs.

Table 12: Prices for Selected Inputs

The prices for fuel, chemicals, and other inputs are listed in Table 12.

TABLE 1: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR SPRING BARLEY FOLLOWING WINTER WHEAT, 3-YEAR ROTATION, 15- TO 20-INCH RAINFALL AREA, GARFIELD COUNTY, WASHINGTON.*

| OPERATION | TOOLING | MTH | YEAR | MACH HOURS | LABOR HOURS | TOTAL FIXED COST | VARIABLE COST | | | | | TOTAL VARIABLE COST | TOTAL COST |
|-----------------|--------------------------------|-----|------|------------|-------------|------------------|-----------------------|------------|---------|--------|--------|---------------------|------------|
| | | | | | | | FUEL, LUBE, & REPAIRS | MACH LABOR | SERVICE | MATER. | INTER. | | |
| | | | | | | \$ | \$ | \$ | \$ | \$ | \$ | \$ | |
| PLOW | 250HP-WT, 10BTM PLOW | OCT | 1989 | .22 | .24 | 5.50 | 5.42 | 2.44 | .00 | .00 | .79 | 8.65 | 14.15 |
| INSURANCE | FEDERAL CROP INSURANCE | NOV | 1989 | .00 | .00 | .00 | .00 | .00 | 4.00 | .00 | .36 | 4.36 | 4.36 |
| CULT-HARROW | 250HP-WT, 36' CULT-HARROW | APR | 1990 | .07 | .08 | 2.15 | 1.16 | .79 | .00 | .00 | .08 | 2.03 | 4.18 |
| FERTILIZE | 150HP-CT, 45'RENTED APPLICATOR | APR | 1990 | .07 | .07 | .58 | .86 | .73 | 1.00 | 22.00 | 1.00 | 25.60 | 26.17 |
| RODWEED-HARROW | 250HP-WT, 36' RODWEED-HARROW | APR | 1990 | .08 | .09 | 1.64 | 1.64 | .92 | .00 | .00 | .10 | 2.66 | 4.30 |
| PLANT | 150HP-WT, 30' DISC DRILL | APR | 1990 | .10 | .11 | 2.34 | 2.28 | 1.10 | .00 | 10.00 | .54 | 13.92 | 16.26 |
| HAUL SEED | 2 TON TRUCK | APR | 1990 | .02 | .02 | .27 | .27 | .22 | .00 | .00 | .02 | .51 | .77 |
| HARROW | 250HP-WT, 60' FLEX HARROW | APR | 1990 | .05 | .06 | .90 | .76 | .55 | .00 | .00 | .05 | 1.37 | 2.27 |
| APPLY HERBICIDE | 150HP-CT, 65'RENTED APPLICATOR | MAY | 1990 | .05 | .06 | .43 | .64 | .55 | 1.00 | 12.00 | .43 | 14.62 | 15.05 |
| HAUL WATER | 2 TON TRUCK | MAY | 1990 | .02 | .02 | .27 | .27 | .22 | .00 | .00 | .01 | .50 | .77 |
| SPOT SPRAY (1%) | PICKUP & PORTABLE SPRAYER** | JUN | 1990 | .01 | .01 | .15 | .11 | .11 | .00 | .04 | .01 | .27 | .42 |
| INSURANCE | FIRE & HAIL INSURANCE | JUN | 1990 | .00 | .00 | .00 | .00 | .00 | 2.00 | .00 | .04 | 2.04 | 2.04 |
| COMBINE | 20' HILLSIDE COMBINE | AUG | 1990 | .17 | .18 | 6.80 | 2.98 | 1.83 | .00 | .00 | .00 | 4.81 | 11.61 |
| HAUL | 2 TON TRUCK, 5 YRS. OLD | AUG | 1990 | .09 | .09 | 1.13 | 1.13 | .94 | .00 | .00 | .00 | 2.07 | 3.20 |
| HAUL | 2 TON TRUCK, 9 YRS. OLD | AUG | 1990 | .09 | .09 | .99 | 1.05 | .94 | .00 | .00 | .00 | 1.99 | 2.97 |
| MISC USE | 3/4 TON PICKUP | ANN | 1990 | .15 | .17 | 1.31 | 1.33 | 1.65 | .00 | .00 | .18 | 3.16 | 4.46 |
| MACH TRANSPORT | 2 TON TRUCK | ANN | 1990 | .02 | .02 | .27 | .27 | .22 | .00 | .00 | .03 | .52 | .78 |
| OVERHEAD | UTILITIES, LEGAL, ACCT., ETC. | ANN | 1990 | .00 | .00 | .00 | .00 | .00 | 4.40 | .00 | .00 | 4.40 | 4.40 |
| TAXES | LAND | ANN | 1990 | .00 | .00 | 5.00 | .00 | .00 | .00 | .00 | .00 | .00 | 5.00 |
| LAND COST | NET RENT | ANN | 1990 | .00 | .00 | 35.67 | .00 | .00 | .00 | .00 | .00 | .00 | 35.67 |
| TOTAL PER ACRE | | | | 1.20 | 1.32 | 65.39 | 20.18 | 13.20 | 12.40 | 44.04 | 3.63 | 93.45 | 158.84 |

* ASSUMES 1,200 ACRES; 400 ACRES IN SPRING BARLEY, 400 ACRES IN SUMMER FALLOW, AND 400 ACRES IN WINTER WHEAT, ANNUALLY.

** ASSUMES 1% OF THE CROP AREA IS SPOT SPRAYED.

TABLE 2: ITEMIZED COST PER ACRE FOR SPRING BARLEY FOLLOWING WINTER WHEAT, 3-YEAR ROTATION, 15- TO 20-INCH RAINFALL AREA, GARFIELD COUNTY, WASHINGTON*

| | | PRICE OR | QUANTITY | VALUE OR | YOUR |
|-----------------------|------|----------------|----------|----------|-------|
| | | UNIT COST/UNIT | | COST | FARM |
| VARIABLE COSTS | | \$ | | \$ | |
| BARLEY SEED | LB. | .13 | 80.00 | 10.00 | _____ |
| NITROGEN | LB. | .20 | 80.00 | 16.00 | _____ |
| SULFUR | LB. | .40 | 15.00 | 6.00 | _____ |
| FERTILIZER APPLICATOR | ACRE | 1.00 | 1.00 | 1.00 | _____ |
| HERBICIDE APPLICATOR | ACRE | 1.00 | 1.00 | 1.00 | _____ |
| HERBICIDE | ACRE | 12.00 | 1.00 | 12.00 | _____ |
| HERB.-SPOT SPY. | ACRE | 4.00 | .01 | .04 | _____ |
| FED. CROP INS. | ACRE | 4.00 | 1.00 | 4.00 | _____ |
| FIRE & HAIL INS | ACRE | 2.00 | 1.00 | 2.00 | _____ |
| TRACTOR REPAIR | ACRE | 3.89 | 1.00 | 3.89 | _____ |
| TRACTOR FUEL/LUBE | ACRE | 4.70 | 1.00 | 4.70 | _____ |
| MACHINERY REPAIRS | ACRE | 10.18 | 1.00 | 10.18 | _____ |
| MACHINE FUEL/LUBE | ACRE | 1.41 | 1.00 | 1.41 | _____ |
| LABOR(TRAC/MACH) | ACRE | 13.20 | 1.00 | 13.20 | _____ |
| OVERHEAD COST | ACRE | 4.40 | 1.00 | 4.40 | _____ |
| INTEREST ON OP. CAP. | DOL. | .12 | 30.26 | 3.63 | _____ |
| TOTAL VARIABLE COST | | | | 93.45 | _____ |
| FIXED COSTS | | \$ | | \$ | |
| TRACTOR DEPRECIATION | ACRE | 2.48 | 1.00 | 2.48 | _____ |
| TRACTOR INTEREST** | ACRE | 2.72 | 1.00 | 2.72 | _____ |
| TRACTOR INSURANCE | ACRE | .14 | 1.00 | .14 | _____ |
| TRACTOR TAXES | ACRE | .41 | 1.00 | .41 | _____ |
| TRACTOR HOUSING | ACRE | .23 | 1.00 | .23 | _____ |
| MACHINE DEPRECIATION | ACRE | 9.22 | 1.00 | 9.22 | _____ |
| MACHINE INTEREST** | ACRE | 7.43 | 1.00 | 7.43 | _____ |
| MACHINE INSURANCE | ACRE | .37 | 1.00 | .37 | _____ |
| MACHINE TAXES | ACRE | 1.11 | 1.00 | 1.11 | _____ |
| MACHINE HOUSING | ACRE | .62 | 1.00 | .62 | _____ |
| LAND TAXES | ACRE | 5.00 | 1.00 | 5.00 | _____ |
| NET RENT*** | ACRE | 35.67 | 1.00 | 35.67 | _____ |
| TOTAL FIXED COST | | | | 65.39 | _____ |
| TOTAL COST | | | | 158.84 | _____ |

* ASSUMES 1,200 ACRES; 400 ACRES IN SPRING BARLEY, 400 ACRES IN SUMMER FALLOW, AND 400 ACRES IN WINTER WHEAT, ANNUALLY.

** 12% OPPORTUNITY COST ON THE AVERAGE VALUE OF MACHINERY INVESTMENT OVER THE USEFUL LIFE.

*** \$50.00 GROSS RENT LESS LAND TAXES, AND ONE-THIRD FERTILIZER AND CROP INSURANCE COSTS.

TABLE 3: BREAK-EVEN SELLING PRICE PER UNIT FOR SPRING BARLEY FOLLOWING WINTER WHEAT; 15- to 20-INCH RAINFALL AREA OF GARFIELD COUNTY, WASHINGTON.

| YOUR | COST PER | YOUR | BREAK-EVEN | |
|---|----------|-------|----------------|-------|
| | ACRE | FARM | PRICE (\$/TON) | FARM |
| \$ | \$ | \$ | (1.5 TONS/AC.) | |
| 1. TOTAL VARIABLE COST | 93.45 | _____ | 62.30 | _____ |
| PLUS: TRACTOR & MACHINERY INSURANCE | .51 | _____ | | |
| TRACTOR & MACHINERY TAXES | 1.52 | _____ | | |
| LAND TAXES | 5.00 | _____ | | |
| 2. TOTAL CASH COSTS | 100.48 | _____ | 66.99 | _____ |
| PLUS: TRACTOR & MACHINERY DEPRECIATION | 11.70 | _____ | | |
| 3. TOTAL CASH COST & DEPRECIATION | 112.12 | _____ | 74.75 | _____ |
| PLUS: TRACTOR & MACHINERY INTEREST | 10.14 | _____ | | |
| TRACTOR & MACHINERY HOUSING | .85 | _____ | | |
| LAND (NET RENT) | 35.67 | _____ | | |
| 4. TOTAL COST | 158.84 | _____ | 105.89 | _____ |

TABLE 4: SUMMARY OF RECEIPTS, COSTS, AND PROFITABILITY PER ACRE OF SPRING BARLEY; 15- TO 20-INCH RAINFALL AREA OF GARFIELD COUNTY, WASHINGTON.

| | UNIT | PRICE OR COST/UNIT | QUANTITY | VALUE OR COST | YOUR FARM |
|---------------------------------------|------|-----------------------|----------|------------------|--------------|
| GROSS RECEIPTS FROM PRODUCTION | | | | | |
| BARLEY | TON | \$100.00 | 1.5 | \$150.00 | _____ |
| 1. TOTAL RECEIPTS | | | | \$150.00 | _____ |
| LESS: TOTAL VARIABLE COST | | | | \$ 93.45 | _____ |
| 2. RETURNS OVER VARIABLE COST | | | | \$ 56.55 | _____ |
| LESS: TRACTOR & MACHINERY FIXED COST | | | | \$ 24.72 | _____ |
| LAND TAXES | | | | \$ 5.00 | _____ |
| 3. NET RETURNS TO LAND AND MANAGEMENT | | | | \$ 26.83 | _____ |

TABLE 5: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR SUMMER FALLOW FOLLOWING SPRING BARLEY,
3-YEAR ROTATION, 15- TO 20-INCH RAINFALL AREA, GARFIELD COUNTY, WASHINGTON.*

| OPERATION | TOOLING | MTH | YEAR | MACH HOURS | LABOR HOURS | TOTAL FIXED COST | VARIABLE COST | | | | | TOTAL VARIABLE COST | TOTAL COST |
|-----------------|--------------------------------|-----|------|---------------|----------------|------------------------|-----------------------------|---------------|---------|--------|--------|---------------------------|---------------|
| | | | | | | | FUEL, LUBE, & REPAIRS | MACH LABOR | SERVICE | MATER. | INTER. | | |
| | | | | | | \$ | \$ | \$ | \$ | \$ | \$ | \$ | |
| CHISEL PLOW | 250HP-WT, 21' CHISEL PLOW | OCT | 1989 | .20 | .22 | 2.86 | 3.66 | 2.20 | .00 | .00 | .59 | 6.44 | 9.30 |
| DISC | 250 HP-WT, 21' OFFSET DISC | MAR | 1990 | .17 | .18 | 3.00 | 3.23 | 1.83 | .00 | .00 | .25 | 5.31 | 8.32 |
| CULTI-HARROW | 250HP-WT, 36' CULT-HARROW | MAY | 1990 | .07 | .08 | 2.15 | 1.16 | .79 | .00 | .00 | .06 | 2.01 | 4.16 |
| RODWEED-HARROW | 150HP-CT, 36' RODWEED-HARROW | JUN | 1990 | .07 | .08 | 1.42 | 1.47 | .79 | .00 | .00 | .05 | 2.30 | 3.72 |
| RODWEED-HARROW | 150HP-CT, 36' RODWEED-HARROW | JUL | 1990 | .07 | .08 | 1.42 | 1.47 | .79 | .00 | .00 | .02 | 2.28 | 3.70 |
| FERTILIZE | 150HP-CT, 45'RENTED APPLICATOR | JUL | 1990 | .07 | .07 | .58 | .86 | .73 | 1.00 | 22.00 | .25 | 24.84 | 25.42 |
| PICK-UP | 3/4 TON | ANN | 1990 | .15 | .17 | 1.31 | 1.33 | 1.65 | .00 | .00 | .18 | 3.16 | 4.46 |
| MACHINE TRANSPT | 2 TON TRUCK | ANN | 1990 | .02 | .02 | .27 | .27 | .22 | .00 | .00 | .03 | .52 | .78 |
| OVERHEAD | UTILITIES, LEGAL, ACCT, ETC. | ANN | 1990 | .00 | .00 | .00 | .00 | .00 | 2.34 | .00 | .00 | 2.34 | 2.34 |
| TAXES | LAND | ANN | 1990 | .00 | .00 | 5.00 | .00 | .00 | .00 | .00 | .00 | .00 | 5.00 |
| TOTAL PER ACRE | | | | .82 | .90 | 18.01 | 13.44 | 8.99 | 3.34 | 22.00 | 1.42 | 49.20 | 67.21 |

* ASSUMES 1,200 ACRES; 400 ACRES IN SPRING BARLEY, 400 ACRES IN SUMMER FALLOW AND 400 ACRES IN WINTER WHEAT, ANNUALLY.

TABLE 6: ITEMIZED COST PER ACRE FOR SUMMER FALLOW FOLLOWING
 SPRING BARLEY, 3-YEAR ROTATION, 15- TO 20-INCH RAINFALL
 AREA, GARFIELD COUNTY, WASHINGTON.*

| | | PRICE OR | UNIT QUANTITY | VALUE OR | YOUR |
|----------------------|------|----------------|---------------|----------|-------|
| | | UNIT COST/UNIT | | COST | FARM |
| ----- | | | | | |
| VARIABLE COSTS | | \$ | | \$ | |
| NITROGEN | LB. | .20 | 80.00 | 16.00 | _____ |
| SULFUR | LB. | .40 | 15.00 | 6.00 | _____ |
| FERT APPLICATOR | ACRE | 1.00 | 1.00 | 1.00 | _____ |
| TRACTOR REPAIR | ACRE | 3.93 | 1.00 | 3.93 | _____ |
| TRACTOR FUEL/LUBE | ACRE | 4.77 | 1.00 | 4.77 | _____ |
| MACHINERY REPAIRS | ACRE | 4.07 | 1.00 | 4.07 | _____ |
| MACHINE FUEL/LUBE | ACRE | .66 | 1.00 | .66 | _____ |
| LABOR(TRAC/MACH) | ACRE | 8.99 | 1.00 | 8.99 | _____ |
| OVERHEAD COST | ACRE | 2.34 | 1.00 | 2.34 | _____ |
| INTEREST ON OP. CAP. | DOL. | .12 | 11.82 | 1.42 | _____ |
| | | | | ----- | |
| TOTAL VARIABLE COST | | | | 49.20 | _____ |
| | | | | | |
| FIXED COSTS | | \$ | | \$ | |
| TRACTOR DEPRECIATION | ACRE | 2.51 | 1.00 | 2.51 | _____ |
| TRACTOR INTEREST** | ACRE | 2.75 | 1.00 | 2.75 | _____ |
| TRACTOR INSURANCE | ACRE | .14 | 1.00 | .14 | _____ |
| TRACTOR TAXES | ACRE | .41 | 1.00 | .41 | _____ |
| TRACTOR HOUSING | ACRE | .23 | 1.00 | .23 | _____ |
| MACHINE DEPRECIATION | ACRE | 3.41 | 1.00 | 3.41 | _____ |
| MACHINE INTEREST** | ACRE | 2.78 | 1.00 | 2.78 | _____ |
| MACHINE INSURANCE | ACRE | .14 | 1.00 | .14 | _____ |
| MACHINE TAXES | ACRE | .42 | 1.00 | .42 | _____ |
| MACHINE HOUSING | ACRE | .23 | 1.00 | .23 | _____ |
| LAND TAXES | ACRE | 5.00 | 1.00 | 5.00 | _____ |
| | | | | ----- | |
| TOTAL FIXED COST | | | | 18.01 | _____ |
| | | | | | |
| TOTAL COST | | | | 67.21 | _____ |
| ----- | | | | | |

* ASSUMES 1,200 ACRES; 400 ACRES IN SPRING BARLEY, 400 ACRES IN
 SUMMER FALLOW, 400 ACRES IN WINTER WHEAT, ANNUALLY.

** 12% OPPORTUNITY COST ON THE AVERAGE VALUE OF MACHINERY
 INVESTMENT OVER THE USEFUL LIFE.

TABLE 7: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR WINTER WHEAT FOLLOWING SUMMER FALLOW, 3-YEAR ROTATION, 15- TO 20-INCH RAINFALL AREA, GARFIELD COUNTY, WASHINGTON *

| | | VARIABLE COST | | | | | | | | | | |
|------------------|--------------------------------|---------------|------------|-------------|------------------|-----------------------|------------|---------|--------|--------|---------------------|------------|
| OPERATION | TOOLING | MTH YEAR | MACH HOURS | LABOR HOURS | TOTAL FIXED COST | ----- | | | | | TOTAL VARIABLE COST | TOTAL COST |
| | | | | | | FUEL, LUBE, & REPAIRS | MACH LABOR | SERVICE | MATER. | INTER. | | |
| | | | | | | \$ | \$ | \$ | \$ | \$ | \$ | \$ |
| RODWEED-HARROW | 250HP-WT, 36' RODWEED-HARROW | SEP 1989 | .07 | .08 | 1.41 | 1.41 | .79 | .00 | .00 | .24 | 2.43 | 3.84 |
| PLANT | 150HP-CT, 30' DISC DRILL | SEP 1989 | .10 | .11 | 2.34 | 2.28 | 1.10 | .00 | 9.45 | 1.41 | 14.24 | 16.58 |
| HAUL SEED | 2 TON TRUCK | SEP 1989 | .02 | .02 | .27 | .27 | .22 | .00 | .00 | .05 | .54 | .81 |
| APPLY PEST.(25%) | RUSSIAN WHT. APHID (AERIAL)** | NOV 1989 | .00 | .00 | .00 | .00 | .00 | 1.25 | 1.00 | .20 | 2.45 | 2.45 |
| INSURANCE | FEDERAL CROP INSURANCE | NOV 1989 | .00 | .00 | .00 | .00 | .00 | 4.00 | .00 | .36 | 4.36 | 4.36 |
| APPLY HERBICIDE | 250HP-WT, 65' APPLIC. (RENTAL) | MAR 1990 | .05 | .06 | .43 | .60 | .55 | 1.00 | 12.00 | .71 | 14.86 | 15.29 |
| HAUL WATER | 2 TON TRUCK | MAR 1990 | .02 | .02 | .27 | .27 | .22 | .00 | .00 | .02 | .51 | .78 |
| SPOT SPRAY (1%) | PICKUP & PORTABLE SPRAYER*** | JUN 1990 | .01 | .01 | .15 | .11 | .10 | .00 | .04 | .01 | .26 | .41 |
| INSURANCE | FIRE & HAIL INSURANCE | JUN 1990 | .00 | .00 | .00 | .00 | .00 | 2.00 | .00 | .04 | 2.04 | 2.04 |
| COMBINE | 20' HILLSIDE COMBINE | JUL 1990 | .25 | .28 | 10.20 | 4.46 | 2.75 | .00 | .00 | .07 | 7.29 | 17.49 |
| HAUL | 2 TON TRUCK, 5 YRS. OLD | JUL 1990 | .10 | .11 | 1.33 | 1.33 | 1.10 | .00 | .00 | .02 | 2.45 | 3.79 |
| HAUL | 2 TON TRUCK, 9 YEARS OLD | JUL 1990 | .10 | .11 | 1.16 | 1.24 | 1.10 | .00 | .00 | .02 | 2.36 | 3.52 |
| MISC. | 3/4 TON PICKUP | ANN 1990 | .15 | .17 | 1.31 | 1.33 | 1.65 | .00 | .00 | .18 | 3.16 | 4.46 |
| MACH TRANSPORT | 2 TON TRUCK | ANN 1990 | .02 | .02 | .27 | .27 | .22 | .00 | .00 | .03 | .52 | .78 |
| OVERHEAD | UTILITIES, LEGAL, ACCT., ETC. | ANN 1990 | .00 | .00 | .00 | .00 | .00 | 2.87 | .00 | .00 | 2.87 | 2.87 |
| TAXES | LAND | ANN 1990 | .00 | .00 | 5.00 | .00 | .00 | .00 | .00 | .00 | .00 | 5.00 |
| INVESTMENT | SUMMER FAL. COST PLUS INTEREST | ANN 1990 | .00 | .00 | 75.28 | .00 | .00 | .00 | .00 | .00 | .00 | 75.28 |
| LAND COST | NET RENT | ANN 1990 | .00 | .00 | 67.34 | .00 | .00 | .00 | .00 | .00 | .00 | 67.34 |
| TOTAL PER ACRE | | | .89 | .98 | 166.74 | 13.57 | 9.80 | 11.12 | 22.49 | 3.37 | 60.35 | 227.08 |

* ASSUMES 1200 ACRES; 400 ACRES OF SPRING BARLEY, 400 ACRES OF SUMMER FALLOW, 400 ACRES OF WINTER WHEAT.

** ASSUMES 25% OF THE CROP IS SPRAYED FOR RUSSIAN WHEAT APHID.

*** ASSUMES 1% OF THE CROP AREA IS SPOT SPRAYED.

TABLE 8: ITEMIZED COST PER ACRE FOR WINTER WHEAT FOLLOWING
 SUMMER FALLOW, 3-YEAR ROTATION, 15- TO 20-INCH RAINFALL
 AREA, GARFIELD COUNTY, WASHINGTON *

| | | PRICE OR | UNIT QUANTITY | VALUE OR | YOUR |
|----------------------|------|----------------|---------------|----------|-------|
| | | UNIT COST/UNIT | | COST | FARM |
| | | | | | |
| ----- | | | | | |
| VARIABLE COSTS | | \$ | | \$ | |
| WHEAT SEED | LB. | .13 | 70.00 | 9.45 | _____ |
| PESTICIDE | ACRE | 4.00 | .25 | 1.00 | _____ |
| CUSTOM AERIAL | ACRE | 5.00 | .25 | 1.25 | _____ |
| HERBICIDE | ACRE | 12.00 | 1.00 | 12.00 | _____ |
| HERB APPLICATOR | ACRE | 1.00 | 1.00 | 1.00 | _____ |
| HERB.-SPOT SPY. | ACRE | 4.00 | .01 | .04 | _____ |
| FED. CROP INS. | ACRE | 4.00 | 1.00 | 4.00 | _____ |
| FIRE & HAIL INS | ACRE | 2.00 | 1.00 | 2.00 | _____ |
| TRACTOR REPAIR | ACRE | 1.39 | 1.00 | 1.39 | _____ |
| TRACTOR FUEL/LUBE | ACRE | 1.58 | 1.00 | 1.58 | _____ |
| MACHINERY REPAIRS | ACRE | 9.09 | 1.00 | 9.09 | _____ |
| MACHINE FUEL/LUBE | ACRE | 1.51 | 1.00 | 1.51 | _____ |
| LABOR(TRAC/MACH) | ACRE | 9.80 | 1.00 | 9.80 | _____ |
| OVERHEAD COST | ACRE | 2.87 | 1.00 | 2.87 | _____ |
| INTEREST ON OP. CAP. | DOL. | .12 | 28.11 | 3.37 | _____ |
| | | | | ----- | |
| TOTAL VARIABLE COST | | | | 60.35 | _____ |
| | | | | | |
| FIXED COSTS | | \$ | | \$ | |
| TRACTOR DEPRECIATION | ACRE | .85 | 1.00 | .85 | _____ |
| TRACTOR INTEREST ** | ACRE | .93 | 1.00 | .93 | _____ |
| TRACTOR INSURANCE | ACRE | .05 | 1.00 | .05 | _____ |
| TRACTOR TAXES | ACRE | .14 | 1.00 | .14 | _____ |
| TRACTOR HOUSING | ACRE | .08 | 1.00 | .08 | _____ |
| MACHINE DEPRECIATION | ACRE | 8.53 | 1.00 | 8.53 | _____ |
| MACHINE INTEREST ** | ACRE | 6.65 | 1.00 | 6.65 | _____ |
| MACHINE INSURANCE | ACRE | .33 | 1.00 | .33 | _____ |
| MACHINE TAXES | ACRE | 1.00 | 1.00 | 1.00 | _____ |
| MACHINE HOUSING | ACRE | .55 | 1.00 | .55 | _____ |
| LAND TAXES | ACRE | 5.00 | 1.00 | 5.00 | _____ |
| SUM. FAL. COST *** | ACRE | 67.21 | 1.12 | 75.28 | _____ |
| NET RENT **** | ACRE | 67.34 | 1.00 | 67.34 | _____ |
| | | | | ----- | |
| TOTAL FIXED COST | | | | 166.74 | _____ |
| | | | | | |
| TOTAL COST | | | | 227.08 | _____ |
| ----- | | | | | |

* ASSUMES 1200 ACRES: 400 ACRES OF SPRING BARLEY, 400 ACRES
 OF SUMMER FALLOW, 400 ACRES OF WINTER WHEAT, ANNUALLY.

** 12% OPPORTUNITY COST ON THE AVERAGE VALUE OF MACHINERY
 INVESTMENT OVER THE USEFUL LIFE.

*** SUMMER FALLOW COST OF PREVIOUS YEAR PLUS 12% INTEREST.

**** \$86.67 GROSS RENT LESS REAL ESTATE TAXES AND ONE-THIRD
 FERTILIZER AND CROP INSURANCE COSTS.

TABLE 9: BREAK-EVEN SELLING PRICE PER UNIT FOR WINTER WHEAT FOLLOWING SUMMER FALLOW; 15- to 20-INCH RAINFALL AREA OF GARFIELD COUNTY, WASHINGTON.

| | COST PER ACRE | YOUR FARM | BREAK-EVEN PRICE (\$/BU.) | YOUR FARM |
|---|------------------|--------------|------------------------------|--------------|
| \$ | \$ | \$ | (65 BU./AC.) | |
| 1. TOTAL VARIABLE COST | 109.55 | _____ | 1.68 | _____ |
| PLUS: TRACTOR & MACHINERY INSURANCE | .66 | _____ | | |
| TRACTOR & MACHINERY TAXES | 1.97 | _____ | | |
| LAND TAXES | 10.00 | _____ | | |
| 2. TOTAL CASH COSTS | 122.18 | _____ | 1.88 | _____ |
| PLUS: TRACTOR & MACHINERY DEPRECIATION | 15.30 | _____ | | |
| 3. TOTAL CASH COST & DEPRECIATION | 137.48 | _____ | 2.12 | _____ |
| PLUS: TRACTOR & MACHINERY INTEREST | 13.10 | _____ | | |
| TRACTOR & MACHINERY HOUSING | 1.09 | _____ | | |
| INTEREST ON SUMMER FALLOW COST | 8.07 | _____ | | |
| LAND (NET RENT) | 67.34 | _____ | | |
| 4. TOTAL COST | 227.08 | _____ | 3.49 | _____ |

Use pesticides with care. Apply them only to plants, animals, or sites listed on the label. When mixing and applying pesticides, follow all label precautions to protect yourself and others around you. It is violation of law to disregard label directions. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of the reach of children, pets, and livestock.

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