


<p>Farm Business Management Reports</p>		<p>EB1752</p>
	<p>1993 ENTERPRISE BUDGETS CORN SILAGE AND CORN GRAIN UNDER RILL IRRIGATION YAKIMA AND BENTON COUNTIES, WASHINGTON</p>	
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Online at: <http://farm.mngt.wsu.edu/irr.html>

NOTE

Enterprise costs and returns vary among farms and over time. Variability stems from differences in:

- @ Capital, labor, land, 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 corn silage and corn grain enterprises for farms in Benton and Yakima counties. To avoid drawing unwarranted conclusions for these enterprises, you must closely examine the assumptions used. If inappropriate for your situation, you should adjust the operations, costs, and/or returns.

CONTENTS

	<u>Page</u>
INTRODUCTION	1
OBJECTIVES	1
SOURCES OF INFORMATION	1
BUDGET ASSUMPTIONS	2
DISCUSSION OF BUDGET INFORMATION	2
Tables 1A-1B: Schedule of Operations and Estimated Cost Per Acre	2
Tables 2A-2B: Itemized Costs Per Acre	3
Tables 3A-3B: Break-Even Selling Price Per Ton	3
Tables 4A-4B: Summary of Receipts, Costs, and Profitability Per Acre	4
Table 5: Machinery and Building Complement	4
Table 6: Per Hour/Acre Machinery Cost	4
CONCLUDING NOTE	5
BUDGET TABLES	
Tables 1A-4A: Corn Grain	6-9
Tables 1B-4B: Corn Silage	10-13
Table 5: Machinery and Building Complement	14
Table 6: Per Hour/Acre Machinery Cost	15

1993 ENTERPRISE BUDGETS
CORN SILAGE AND CORN GRAIN
UNDER RILL IRRIGATION
YAKIMA AND BENTON COUNTIES,
WASHINGTON

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and Thomas Hoffmann*

INTRODUCTION

This publication presents 1993 projected cost and return information for corn silage and corn grain enterprises grown under rill irrigation in Benton and Yakima counties, Washington. The information should help you identify enterprise strengths and weaknesses, plan production adjustments, estimate financial requirements, and resolve numerous other business management problems.

OBJECTIVES

The specific objectives of this study were:

1. Identify production practices representative of corn silage and corn grain enterprises grown under rill irrigation in Benton and Yakima counties.
2. Estimate capital requirements, production costs, and returns.
3. Provide producers with a procedure for analyzing the profitability of corn silage and corn grain enterprises.

While representative for the area, the budgets are not representative of a particular operation. Therefore, use the blank spaces on the right-hand side of the budget tables to develop budgets representative of you own operation.

SOURCES OF INFORMATION

Assumptions in this study are based on the production practices and requirements for labor, equipment, and supplies from a group of Yakima and Benton county producers representative of well-managed farms. Local agricultural suppliers provided price information on materials and services. Machinery costs were based on current purchase prices and rates of annual use considered typical for the region.

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BUDGET ASSUMPTIONS

The following assumptions were used in developing the enterprise data:

1. The representative farm includes 800 acres, with 40 acres in corn grain production and/or 40 acres in corn silage production.
2. The cash rental rate for land is \$100 per acre. The landlord furnishes the gravity flow irrigation system (excluding tubes and dams); the operator pays the irrigation charge of \$45 per acre per year.
3. The estimated annual yield and average prices are:

	<u>Yield/Acre</u>	<u>Price/Ton</u>
Silage Corn	30 Ton	\$ 24
Grain Corn	5.5 Ton	\$102

4. Labor cost is \$10 per hour. This includes social security, labor and industry payments, and fringe benefits.
5. The interest rate is 9%.
6. Land is in continuous corn.
7. Land is owned and managed by the same person(s)

DISCUSSION OF BUDGET INFORMATION

Budget information for each enterprise is reported in seven tables. A discussion of the information comprised in each table is presented below.

Tables 1A-1B: Schedule of Operations and Estimated Costs Per Acre.

Table 1 outlines the schedule of field operations by month, type and size of machinery, hours of labor and machine use per acre, and total production cost.

Production costs are divided into two categories: (1) **fixed cost** which includes machinery ownership, land costs, and a management charge and (2) **variable costs** associated with operating machinery, hired labor, and purchasing services and materials. Total cost is the sum of fixed and variable costs.

Fixed Costs

Machinery fixed costs include depreciation, interest on the investment, property taxes, insurance, and housing. These costs are incurred whether or not a crop is grown and do not vary with the size of the enterprise. Machinery fixed costs for a specific field operation are determined by multiplying the machine hours per acre times the per-hour fixed cost. The per-hour fixed costs, shown in Table 6, are determined by dividing the total annual fixed cost by the annual hours of machinery use for all the enterprises in this representative farm. Fixed cost per acre for the machine shed and shop, shop tools, irrigation tubes and dams were determined by dividing the total annual fixed cost for these items by the number of acres.

Land fixed cost is assumed to equal the gross rental rates typical of the area. Most of the land used for corn production is rented. Although rental arrangements vary, the tenant generally pays a cash rent and the landowner pays the taxes.

An opportunity cost for management is reported in Table 1. As an estimation of the value of an operator's management skills, a management charge of 7% of gross receipts is used. This is representative of fees charged by farm management firms in central Washington.

Variable Costs

Variable costs depend on the number of crop acres and type of enterprise. These costs include fuel, oil, repairs, fertilizer, pesticides, custom work, overhead (telephone, utilities, legal, accounting, organization dues), and interest on operating capital. Operator labor and hired labor are also included as a variable cost.

Tables 2A-2B: Itemized Costs Per Acre.

Table 2 is an itemized list of the costs in Table 1. Most items are self-explanatory. However, "Tractor Interest" and "Machine Interest" warrant additional explanation. These costs represent an opportunity cost (a return foregone by investing in the machinery and building complement rather than in some alternative) or interest paid to finance machinery and buildings. Total interest cost on these capital purchases is calculated on the average value of the machinery over the respective years of use. The 9% interest charge against this "average" value represents the total interest cost.

Tables 3A-3B: Break-Even Selling Price Per Ton.

Table 3 shows break-even selling prices for different levels of enterprise costs. The first break-even price is the price needed to cover **total variable costs**--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 is uneconomical to produce, even in the short-run because the added costs of production are greater than the added returns.

The second break-even price is the price required to cover **total cash costs**, assuming no interest on machinery or building loans, is being paid. If other cash costs exist on your farm, you must identify and include these costs in the cash cost break-even calculation. Since a cash cost has been attributed to all labor and to land rent, you may wish to subtract the noncash costs for operator/family labor, along with the land rent for land that is owned and substitute ownership cash costs, before calculating the price needed to cover total cash costs.

The third break-even price is the price needed to cover **total cash costs, plus depreciation on machinery and buildings**. You must realize this price to stay in business over the long run.

The fourth break-even price is the price you must receive to recover **total costs including cash costs, depreciation, operator labor and management, and opportunity costs** for investments in machinery and buildings. Failure to receive this price means you will not realize a return on management, labor, and capital contributions equivalent to what could be earned in an alternative use. Realizing a price above the break-even level means that, in addition to covering all costs, you will earn a premium (profit) for the risk assumed in producing the crop.

Tables 4A-4B: Summary of Receipts, Costs, and Profitability Per Acre.

Receipts, costs, and various measures of profitability for the corn enterprise are summarized in Table 4. The corn price represents only an estimate of what the 1993 prices may be. Since profitability greatly depends on price received, recalculate profitability using your own predicted price.

The first profit measure is **return over variable costs**, calculated by subtracting total variable costs and land rent from total receipts. The second profit measure, **return to management and risk**, was calculated by subtracting the machinery fixed expenses and land rent from return over variable cost. This is the return you earn for management and risk after accounting for all costs including labor incurred in producing the crop.

Table 5: Machinery and Building Complement.

Table 5 identifies the machine complement used in producing corn, their replacement value, years of life before trade-in, salvage value, hours of annual use, annual repair cost, fuel type (if applicable), and gallons of fuel used per hour. For the irrigation tubes and dams, machine shop and shed, and the shop tools, the same information is provided; but, instead of specifying annual hours of use, the number of acres these assets provide for are specified.

Table 6: Per-Hour/Acre Machinery Cost.

Table 6 presents the estimated fixed and variable costs per hour of use for the machinery listed in Table 5. Costs are calculated on a per-acre basis for the irrigation tubes and dams, machine shop and shed, and the shop tools.

Equipment fixed costs include depreciation, interest on investment, property taxes, and insurance. Equipment prices reflect what you would currently pay to replace equipment. While

this assumption may result in an overstatement of production costs, it provides an indication of the enterprise's ability to generate the earnings needed to replace depreciable assets. An increase in the prices paid for replacement machinery and equipment due to inflation and improved technology means that depreciation claimed on assets purchased before 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.

Note that interest on investment represents a 9% opportunity cost to the enterprise. These are earnings foregone by investing in the equipment complement rather than in the next best alternative investment.

Equipment variable costs include equipment repair, fuel, and lubrication costs - costs that vary with the crop grown or the number of acres produced.

CONCLUDING NOTE

To use these budgets, you should fully comprehend the procedures and assumptions used in this study; the results should be interpreted accordingly. The authors and producers who organized this data recognize that these budgets do not represent any one particular operation. This material should be used as a general guide to help derive budgets for individual operations. Moreover, this publication does not recommend production practices. Rather, it presents current technology used to produce corn silage and corn grain in south central Washington.

TABLE 1A: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR PRODUCING SILAGE CORN FOLLOWING CORN IN CENTRAL WASHINGTON UNDER RILL IRRIGATION.

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.		
						\$	\$	\$	\$	\$	\$	\$	
SOIL SAMPLE	FIELD CONSULTANT	FALL	1992	.00	.00	.00	.00	.00	1.00	.00	.08	1.08	1.08
PLOW	155HP-WT, 4-BTM PLOW	FALL	1992	.33	.37	5.23	7.01	3.67	.00	.00	.88	11.56	16.79
ROLLER-HARROW	155HP-WT, 15' ROLLER-HARROW	MAR	1993	.20	.22	2.90	3.16	2.20	.00	.00	.28	5.64	8.54
HERBICIDE APPL.	CUSTOM APPLIED	APR	1993	.00	.00	.00	.00	.00	7.00	20.00	1.22	28.22	28.22
ROLLER-HARROW	155HP-WT, 15' ROLLER-HARROW	APR	1993	.20	.22	2.90	3.16	2.20	.00	.00	.24	5.60	8.50
ROLLER-HARROW*	155HP-WT, 15' ROLLER-HARROW	APR	1993	.10	.11	1.45	1.58	1.10	.00	.00	.12	2.80	4.25
FERTILIZE	CUSTOM APPLIED	MAY	1993	.00	.00	.00	.00	.00	7.00	90.00	3.64	100.64	100.64
PLANT	100HP-WT, 6-ROW PLANTER	MAY	1993	.17	.18	5.06	2.35	1.83	.00	25.00	1.09	30.28	35.33
CULTIVATE	155HP-WT, 6-ROW CULTIVATOR	MAY	1993	.20	.22	2.95	3.54	2.20	.00	.00	.22	5.96	8.91
CULTIVATE	155HP-WT, 6-ROW CULTIVATOR	JUN	1993	.17	.18	2.46	2.95	1.83	.00	.00	.14	4.93	7.39
DITCH	155HP-WT, 6-ROW DITCHER	JUN	1993	.17	.18	2.14	2.49	1.83	.00	.00	.13	4.46	6.60
HEADLAND PREP.	100HP-WT, 7' DISC	JUN	1993	.01	.01	.20	.10	.14	.00	.00	.01	.24	.45
MAKE HEAD DITCH	155HP-WT, V-DITCH	JUN	1993	.03	.03	.33	.38	.28	.00	.00	.02	.67	1.00
MAKE TAIL DRAIN	150HP-WT, 8' BLADE	JUN	1993	.01	.01	.17	.19	.14	.00	.00	.01	.34	.51
IRRIGATE (8X)	TUBES, DAMS AND HAND LABOR	SEA	1993	.00	2.50	3.72	.00	25.00	45.00	.00	3.15	73.15	76.87
KNOCK IN HD&TAIL	155HP-WT, 8' BLADE	SEP	1993	.05	.06	.70	.76	.55	.00	.00	.01	1.32	2.01
CHOP AND HAUL	CUSTOM CHOP AND HAUL	SEP	1993	.00	.00	.00	.00	.00	180.00	.00	1.35	181.35	181.35
DISC	155HP-WT, 15' DISC	SEP	1993	.20	.22	3.19	3.44	2.20	.00	.00	.04	5.68	8.88
DISC	155HP-WT, 15' DISC	OCT	1993	.20	.22	3.19	3.44	2.20	.00	.00	.00	5.64	8.83
SUBSOIL	200HP-WT, 12' SUBSOILER	OCT	1993	.33	.37	6.62	5.99	3.67	.00	.00	.00	9.66	16.28
MISC. USE	MANAGER'S PICKUP	ANN	1993	.75	.00	4.07	4.61	.00	.00	.00	.21	4.82	8.89
MISC. USE	LABOR'S PICKUP	ANN	1993	.75	.00	5.03	5.86	.00	.00	.00	.26	6.13	11.15
BUILDINGS	MACHINE SHED AND SHOP	ANN	1993	.00	.00	3.39	.31	.00	.00	.00	.01	.33	3.71
MISC. USE	SHOP TOOLS	ANN	1993	.00	.00	4.64	.00	.00	.00	.00	.00	.00	4.64
LAND COST	LAND RENT	ANN	1993	.00	.00	100.00	.00	.00	.00	.00	.00	.00	100.00
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	1993	.00	.00	.00	.00	.00	36.79	.00	.00	36.79	36.79
MANAGEMENT	7% OF GROSS RETURNS	ANN	1993	.00	.00	50.40	.00	.00	.00	.00	.00	.00	50.40
TOTAL PER ACRE				2.87	5.10	210.73	51.32	51.03	276.79	135.00	13.12	527.26	737.99

* THIS OPERATION IS DONE APPROXIMATELY 50% OF THE TIME.

TABLE 2A: ITEMIZED COST PER ACRE FOR PRODUCING SILAGE CORN FOLLOWING CORN IN CENTRAL WASHINGTON UNDER RILL IRRIGATION.

		PRICE OR	VALUE OR	YOUR
		UNIT COST/UNIT	QUANTITY	FARM

VARIABLE COSTS		\$		\$
SOIL SAMPLE	ACRE	1.00	1.00	1.00
PREPLANT HERBICIDE	ACRE	20.00	1.00	20.00
CUSTOM HERB APPLIC.	ACRE	7.00	1.00	7.00
FERTILIZER	ACRE	90.00	1.00	90.00
CUSTOM FERT APPLIC.	ACRE	7.00	1.00	7.00
PRETREATED SEED	ACRE	25.00	1.00	25.00
CUSTOM CHOP & HAUL	TON	6.00	30.00	180.00
IRRIGATION CHARGE	ACRE	45.00	1.00	45.00
TRACTOR REPAIR	ACRE	10.36	1.00	10.36
TRACTOR FUEL/LUBE	ACRE	23.72	1.00	23.72
MACHINERY REPAIRS	ACRE	10.52	1.00	10.52
MACHINE FUEL/LUBE	ACRE	6.73	1.00	6.73
LABOR	HOUR	10.00	5.10	51.03
OVERHEAD	ACRE	36.79	1.00	36.79
INTEREST ON OP. CAP.	ACRE	13.12	1.00	13.12

TOTAL VARIABLE COST				527.26

FIXED COSTS		\$		\$
TRACTOR DEPRECIATION	ACRE	11.77	1.00	11.77
TRACTOR INTEREST	ACRE	12.18	1.00	12.18
TRACTOR INSURANCE	ACRE	.81	1.00	.81
TRACTOR TAXES	ACRE	2.44	1.00	2.44
MACHINE DEPRECIATION*	ACRE	19.69	1.00	19.69
MACHINE INTEREST*	ACRE	10.61	1.00	10.61
MACHINE INSURANCE*	ACRE	.71	1.00	.71
MACHINE TAXES*	ACRE	2.12	1.00	2.12
LAND RENT	ACRE	100.00	1.00	100.00
MANAGEMENT CHARGE**	ACRE	50.40	1.00	50.40

TOTAL FIXED COST				210.73

TOTAL COST				737.99

* INCLUDES MACHINE SHED AND SHOP.

** 7% OF GROSS RETURNS (30 TONS X \$24.00 X .07 = \$50.40).

TABLE 3A: BREAK-EVEN SELLING PRICE PER TON OF CORN SILAGE PRODUCED IN CENTRAL WASHINGTON UNDER RILL IRRIGATION.

YOUR	COST PER	YOUR	BREAK-EVEN
	ACRE	FARM	PRICE (\$/TON)
			(30 TON)
\$	\$	\$	
1. TOTAL VARIABLE COST	527.26	_____	17.58
PLUS: TRACTOR & MACHINERY INSURANCE	1.52	_____	
TRACTOR & MACHINERY TAXES	4.56	_____	
LAND RENT	100.00	_____	
2. TOTAL CASH COSTS	633.34	_____	21.11
PLUS: TRACTOR & MACHINERY DEPRECIATION	31.46	_____	
3. TOTAL CASH COST & DEPRECIATION	664.80	_____	22.16
PLUS: TRACTOR & MACHINERY INTEREST	22.79	_____	
MANAGEMENT	50.40	_____	
4. TOTAL COST	737.99	_____	24.60

TABLE 4A: SUMMARY OF RECEIPTS, COSTS, AND PROFITABILITY PER ACRE FOR
 PRODUCING CORN SILAGE IN CENTRAL WASHINGTON UNDER RILL IRRIGATION.

	PRICE/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
GROSS RECEIPTS				
CORN SILAGE	\$24.00	30 TON	\$720.00	_____
1. TOTAL RECEIPTS			\$720.00	_____
LESS: TOTAL VARIABLE COST			\$527.26	_____
2. RETURNS OVER VARIABLE COST			\$192.74	_____
LESS: TRACTOR & MACHINERY FIXED COST			\$ 60.33	_____
LAND RENT			\$100.00	_____
3. NET RETURNS TO MANAGEMENT AND RISK			\$ 32.41	_____

TABLE 1B: SCHEDULE OF OPERATIONS AND ESTIMATED COSTS PER ACRE FOR PRODUCING GRAIN CORN FOLLOWING CORN IN CENTRAL WASHINGTON UNDER RILL IRRIGATION.

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.			
						\$	\$	\$	\$	\$	\$	\$	
SOIL SAMPLE	FIELD CONSULTANT	FALL	1992	.00	.00	.00	.00	.00	1.00	.00	.08	1.08	1.08
PLOW	155HP-WT, 4-BTM PLOW	FALL	1992	.33	.37	5.23	7.01	3.67	.00	.00	.88	11.56	16.79
ROLLER-HARROW	155HP-WT, 15' ROLLER-HARROW	MAR	1993	.20	.22	2.90	3.16	2.20	.00	.00	.28	5.64	8.54
HERBICIDE APPL.	CUSTOM APPLIED	APR	1993	.00	.00	.00	.00	.00	7.00	20.00	1.22	28.22	28.22
ROLLER-HARROW	155HP-WT, 15' ROLLER-HARROW	APR	1993	.20	.22	2.90	3.16	2.20	.00	.00	.24	5.60	8.50
ROLLER-HARROW*	155HP-WT, 15' ROLLER-HARROW	APR	1993	.10	.11	1.45	1.58	1.10	.00	.00	.12	2.80	4.25
FERTILIZE	CUSTOM APPLIED	MAY	1993	.00	.00	.00	.00	.00	7.00	90.00	3.64	100.64	100.64
PLANT	100HP-WT, 6-ROW PLANTER	MAY	1993	.17	.18	5.06	2.35	1.83	.00	24.00	1.06	29.24	34.30
CULTIVATE	155HP-WT, 6-ROW CULTIVATOR	MAY	1993	.20	.22	2.95	3.54	2.20	.00	.00	.22	5.96	8.91
CULTIVATE	155HP-WT, 6-ROW CULTIVATOR	JUN	1993	.17	.18	2.46	2.95	1.83	.00	.00	.14	4.93	7.39
DITCH	155HP-WT, 6-ROW DITCHER	JUN	1993	.17	.18	2.14	2.49	1.83	.00	.00	.13	4.46	6.60
HEADLAND PREP.	100HP-WT, 7' DISC	JUN	1993	.01	.01	.20	.10	.14	.00	.00	.01	.24	.45
MAKE HEAD DITCH	155HP-WT, V-DITCH	JUN	1993	.03	.03	.33	.38	.28	.00	.00	.02	.67	1.00
MAKE TAIL DRAIN	150HP-WT, 8' BLADE	JUN	1993	.01	.01	.17	.19	.14	.00	.00	.01	.34	.51
IRRIGATE (8X)	TUBES, DAMS AND HAND LABOR	SEA	1993	.00	2.50	3.72	.00	25.00	45.00	.00	3.15	73.15	76.87
KNOCK IN HD&TAIL	155HP-WT, 8' BLADE	SEP	1993	.05	.06	.70	.76	.55	.00	.00	.01	1.32	2.01
HARVEST CORN	CUSTOM HARVEST	SEP	1993	.00	.00	.00	.00	.00	40.00	.00	.30	40.30	40.30
HAUL CORN**	CUSTOM HAUL	SEP	1993	.00	.00	.00	.00	.00	22.00	.00	.16	22.16	22.16
DRY CORN	CUSTOM DRY	SEP	1993	.00	.00	.00	.00	.00	38.50	.00	.29	38.79	38.79
SHRED STALKS	155HP-WT, 15' FLAIL SHREDDER	OCT	1993	.20	.22	3.35	3.21	2.20	.00	.00	.00	5.41	8.76
DISC\PACK (5X)	155HP-WT, 15' DISC/PACKER	OCT	1993	1.00	1.10	17.42	17.64	11.00	.00	.00	.00	28.64	46.05
SUBSOIL	200HP-WT, 12' SUBSOILER	OCT	1993	.33	.37	6.62	5.99	3.67	.00	.00	.00	9.66	16.28
MISC. USE	MANAGER'S PICKUP	ANN	1993	.75	.00	4.07	4.61	.00	.00	.00	.21	4.82	8.89
MISC. USE	LABOR'S PICKUP	ANN	1993	.75	.00	5.03	5.86	.00	.00	.00	.26	6.13	11.15
BUILDINGS	MACHINE SHED AND SHOP	ANN	1993	.00	.00	3.39	.31	.00	.00	.00	.01	.33	3.71
MISC. USE	SHOP TOOLS	ANN	1993	.00	.00	4.64	.00	.00	.00	.00	.00	.00	4.64
LAND COST	LAND RENT	ANN	1993	.00	.00	100.00	.00	.00	.00	.00	.00	.00	100.00
OVERHEAD	LEGAL, UTILITIES, ACCT., ETC.	ANN	1993	.00	.00	.00	.00	.00	32.40	.00	.00	32.40	32.40
MANAGEMENT	7% OF GROSS RETURNS	ANN	1993	.00	.00	39.27	.00	.00	.00	.00	.00	.00	39.27
TOTAL PER ACRE				4.67	5.98	213.99	65.29	59.83	192.90	134.00	12.24	464.46	678.45

* THIS OPERATION IS DONE APPROXIMATELY 50% OF THE TIME.

** BASED ON A 10-MILE ROUND TRIP.

TABLE 2B: ITEMIZED COST PER ACRE FOR PRODUCING GRAIN CORN FOLLOWING CORN IN CENTRAL WASHINGTON UNDER RILL IRRIGATION.

		PRICE OR	VALUE OR	YOUR
		UNIT COST/UNIT	COST	FARM

VARIABLE COSTS		\$	\$	
SOIL SAMPLE	ACRE	1.00	1.00	1.00
PREPLANT HERBICIDE	ACRE	20.00	1.00	20.00
CUSTOM HERB APPLIC.	ACRE	7.00	1.00	7.00
FERTILIZER	ACRE	90.00	1.00	90.00
CUSTOM FERT APPLIC.	ACRE	7.00	1.00	7.00
PRETREATED SEED	ACRE	24.00	1.00	24.00
CUSTOM HARVEST	ACRE	40.00	1.00	40.00
CUSTOM HAUL	TON	4.00	5.50	22.00
CUSTOM DRY	TON	7.00	5.50	38.50
IRRIGATION CHARGE	ACRE	45.00	1.00	45.00
TRACTOR REPAIR	ACRE	13.99	1.00	13.99
TRACTOR FUEL/LUBE	ACRE	31.81	1.00	31.81
MACHINERY REPAIRS	ACRE	12.76	1.00	12.76
MACHINE FUEL/LUBE	ACRE	6.73	1.00	6.73
LABOR	HOUR	10.00	5.98	59.83
OVERHEAD	ACRE	32.40	1.00	32.40
INTEREST ON OP. CAP.	ACRE	12.44	1.00	12.44

TOTAL VARIABLE COST				464.46

FIXED COSTS		\$	\$	
TRACTOR DEPRECIATION	ACRE	15.64	1.00	15.64
TRACTOR INTEREST	ACRE	16.10	1.00	16.10
TRACTOR INSURANCE	ACRE	1.07	1.00	1.07
TRACTOR TAXES	ACRE	3.22	1.00	3.22
MACHINE DEPRECIATION*	ACRE	23.15	1.00	23.15
MACHINE INTEREST*	ACRE	12.27	1.00	12.27
MACHINE INSURANCE*	ACRE	.82	1.00	.82
MACHINE TAXES*	ACRE	2.45	1.00	2.45
LAND RENT	ACRE	100.00	1.00	100.00
MANAGEMENT CHARGE**	ACRE	39.27	1.00	39.27

TOTAL FIXED COST				213.99

TOTAL COST				678.45

* INCLUDES MACHINE SHED AND SHOP.

** 7% OF GROSS RETURNS (5.5 TONS X \$102.00 X .07).

TABLE 3B: BREAK-EVEN SELLING PRICE PER TON OF GRAIN CORN PRODUCED IN CENTRAL WASHINGTON UNDER RILL IRRIGATION.

YOUR	COST PER	YOUR	BREAK-EVEN
	ACRE	FARM	PRICE (\$/TON)
			(5.5 TON)
\$	\$	\$	
1. TOTAL VARIABLE COST	464.46	_____	84.45
PLUS: TRACTOR & MACHINERY INSURANCE	1.89	_____	
TRACTOR & MACHINERY TAXES	5.67	_____	
LAND RENT	100.00	_____	
2. TOTAL CASH COSTS	572.02	_____	104.00
PLUS: TRACTOR & MACHINERY DEPRECIATION	38.79	_____	
3. TOTAL CASH COST & DEPRECIATION	610.81	_____	111.06
PLUS: TRACTOR & MACHINERY INTEREST	28.37	_____	
MANAGEMENT	39.27	_____	
4. TOTAL COST	678.45	_____	123.35

TABLE 4B: SUMMARY OF RECEIPTS, COSTS, AND PROFITABILITY PER ACRE FOR
 PRODUCING CORN GRAIN IN CENTRAL WASHINGTON UNDER RILL IRRIGATION.

	PRICE/UNIT	QUANTITY	VALUE OR COST	YOUR FARM
GROSS RECEIPTS				
CORN GRAIN	\$102.00	5.5 TON	\$561.00	_____
1. TOTAL RECEIPTS			\$561.00	_____
LESS: TOTAL VARIABLE COST			\$464.46	_____
2. RETURNS OVER VARIABLE COST			\$ 96.54	_____
LESS: TRACTOR & MACHINERY FIXED COST			\$ 74.72	_____
LAND RENT			\$100.00	_____
3. NET RETURNS TO MANAGEMENT AND RISK			-\$ 78.18	_____

Table 5: Machinery and Building Complement.

Description	Replacement Value	Years to Trade	Salvage Value	Annual Hours of Use	Annual Repair	Fuel Type	Gal. Per Hour
	\$		\$		\$		
200 HP-Wheel Tractor (3)	80,000	15	16,000	700	3,100	Diesel	12
155 HP-Wheel Tractor	68,000	15	13,600	750	3,400	Diesel	10
100 HP-Wheel Tractor	48,600	20	9,720	450	1,200	Diesel	5
Manager's Pickup	16,000	5	6,000	600	1,000	Gas	3
Labor's Pickup (2)	6,000	3	1,200	300	1,000	Gas	3
4-Bottom Plow	10,200	7	2,040	400	2,550		
15' Roller-Harrow	7,600	7	1,520	400	450		
6-Row Planter	13,800	12	2,760	100	637		
6-Row Cultivator	6,600	8	1,320	300	916		
6-Row Ditcher	1,500	15	300	100	30		
V-Ditcher	1,700	15	340	100	53		
7' Disc	2,000	20	400	50	15		
8' Blade	2,000	20	400	75	35		
15' Disc	10,700	7	2,000	400	1,024		
15' Packer	3,200	7	640	400	170		
15' Flail Shredder	8,500	8	1,700	250	350		
12' Sub-Soiler	5,500	20	1,100	100	140		
				<u>Acreage Covered</u>			
Irrigation Tubes	500	10	0	40	0		
Irrigation Dams	126	2	0	40	0		
Machine Shop & Shed	30,000	30	0	800	250		
Shop Tools	30,000	15	0	800	0		

* Price of Diesel - \$0.88 Per Gallon.
Price of Gasoline - \$1.30 Per Gallon.

TABLE 6: PER HOUR/ACRE MACHINERY COST.

MACHINERY	PURCHASE PRICE	YEARS TO TRADE	ANNUAL HOURS	DEPREC-IATION	INTER-EST	INSUR-ANCE	TAXES	COST	REPAIR	FUEL AND LUBE	TOTAL VARIABLE COST	TOTAL COST	
	\$							-----COST PER HOUR-----					
200HP-WT	80,000.00	15	700	6.10	6.17	.41	1.23	13.91	4.43	12.14	16.57	30.48	
155HP-WT	68,000.00	15	750	4.84	4.90	.33	.98	11.04	4.53	10.12	14.65	25.69	
100HP-WT	48,600.00	20	450	4.32	5.83	.39	1.17	11.71	2.67	5.06	7.73	19.43	
MANAGER'S PICKUP	16,000.00	5	600	3.33	1.65	.11	.33	5.42	1.67	4.49	6.15	11.58	
LABOR'S PICKUP	6,000.00	3	300	5.33	1.08	.07	.22	6.70	3.33	4.49	7.82	14.52	
4BTM PLOW	10,200.00	7	400	2.91	1.38	.09	.28	4.66	6.37	.00	6.37	11.03	
15' ROLLER-HARRW	7,600.00	7	400	2.17	1.03	.07	.21	3.47	1.13	.00	1.13	4.60	
6-ROW PLANTER	13,800.00	12	100	9.20	7.45	.50	1.49	18.64	6.37	.00	6.37	25.01	
6-ROW CULTIVATOR	6,600.00	8	300	2.20	1.19	.08	.24	3.70	3.05	.00	3.05	6.76	
6-ROW DITCHER	1,500.00	15	100	.80	.81	.05	.16	1.83	.30	.00	.30	2.13	
V-DITCHER	1,700.00	15	100	.91	.92	.06	.18	2.07	.53	.00	.53	2.60	
7' DISC	2,000.00	20	50	1.60	2.16	.14	.43	4.34	.30	.00	.30	4.64	
8' BLADE	2,000.00	20	75	1.07	1.44	.10	.29	2.89	.47	.00	.47	3.36	
15' DISC	10,700.00	7	400	3.11	1.43	.10	.29	4.92	2.56	.00	2.56	7.48	
15' PACKER	3,200.00	7	400	.91	.43	.03	.09	1.46	.42	.00	.42	1.89	
15' FLAIL SHREDDER	8,500.00	8	250	3.40	1.84	.12	.37	5.73	1.40	.00	1.40	7.13	
12' SUBSOILER	5,500.00	20	100	2.20	2.97	.20	.59	5.96	1.40	.00	1.40	7.36	
			ACRES COVERED					-----COST PER ACRE-----					
IRRIGATION TUBES	500.00	10	40	1.25	.56	.04	.11	1.96	.00	.00	.00	1.96	
IRRIGATION DAMS	126.00	2	40	1.58	.14	.01	.03	1.75	.00	.00	.00	1.75	
MACH SHED & SHOP	30,000.00	30	800	1.25	1.69	.11	.34	3.39	.31	.00	.31	3.70	
SHOP TOOLS	30,000.00	15	800	2.50	1.69	.11	.34	4.64	.00	.00	.00	4.64	

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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