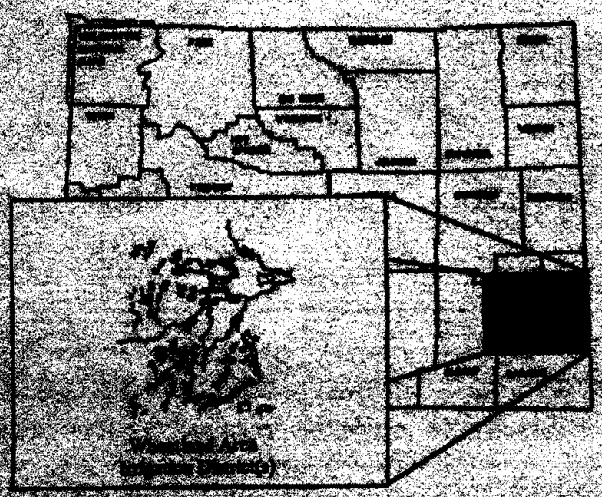
Crop Enterprise Budget

Corn for Grain, Wheatland Area

John P. Hewlett, Farm/Ranch Management Extension Specialist
Chris Bastian, Research Associate

MP-72.4

University of Wyoming - June, 1992



This enterprise budget estimates typical costs and returns for corn for grain in the Wheatland area of Wyoming. It should be used only as a guide. The data presented are not taken from an actual farm. The major assumptions used in this budget are presented below.

LAND

The budget is based on a 500-acre farm, with 62.5 acres of corn for grain grown each year. Other enterprises included on this farm are: alfalfa establishment, 17 acres; alfalfa hay, 100 acres; sugar beets, 100 acres; dry beans, 75 acres; corn for silage, 62.5 acres; and setaside program, 23 acres. The remaining 60 acres include roadways, fence lines, and farmsteads. Owned land is valued at $750 per acre for flood-irrigated land and $850 per acre for center pivot-irrigated land. Leased land is rented on a crop-share basis. With corn for grain, a 33 percent share of gross revenue is paid to the landowner. In turn, the landowner pays for all purchased irrigation water and 33 percent of the fertilizer, herbicide, and pesticide applied to the crop. In addition, the landowner pays $1.50 per ton of yield for hauling the grain.

LABOR

Labor on this farm is provided by the operator and one full-time employee. All labor, including operator labor, is valued at $5 per hour plus 7.65 percent to cover social security and federal withholding taxes. Labor charges for the owner/operator represent an opportunity cost for the time spent in this enterprise. Some part-time labor is used on the farm for labor-intensive operations such as harvest.

CAPITAL

The operator provides 50 percent of the long-term capital and 50 percent of the operating capital for this enterprise. Fifty percent of the long-term capital is borrowed at an interest rate of 9.75 percent APR (Annual Percentage Rate). Fifty percent of the operating capital is borrowed at an interest rate of 9 percent APR. The interest rates used here are for short-term planning. Real interest rates must be used for accurate long-term planning.

MACHINERY, EQUIPMENT, AND BUILDINGS

A complete list of the machinery, equipment, and buildings used in this enterprise and the associated values are provided in Table 1. All machinery are assumed to be half depreciated. Estimated operating and ownership costs are given in Table 3. Table 3 lists only the resources used in this enterprise. Other resources used on the farm are not included. However, the reader should note that the resources listed in Tables 1 and 3 may also be used in other enterprises on the farm.

Each irrigated acre on the farm is assumed to be irrigated by a combination of the flood irrigation system. The irrigation water provided by each irrigation system is broken down as follows: 30 percent spring pipe, 25 percent concrete ditch

and tubes, and 45 percent gated pipe (plastic and aluminum, 50 percent each). This method was employed because crops will normally be rotated onto all farmed land over time. Table 2 estimates the cost per acre-inch for providing irrigation water with each irrigation system.

OPERATIONS

Operations related to production of corn for grain are listed in chronological order in the enterprise budget. The ground is prepared in early April, including fertilization. The corn is planted in early May. Irrigation is started in early July, with a total of four irrigations per growing season. A total of 32 acre-inches of water is delivered per acre of corn.

Fifty percent of the corn crop is insured against weather damage/loss. Corn for grain harvest begins in late October. The budgeted yield is 120 bushel per acre (56 lbs/bu). Some of the grain harvest is stored on the farm in owned storage bins for marketing later in the year.

ENTERPRISE BUDGET

Economic costs and returns for corn for grain production are summarized by operation in the enterprise budget. Costs are broken down by stage of production. General overhead and operator management have been calculated at 5 percent and 10 percent of all cash costs, respectively.

Costs and returns for the crop share-lease arrangement are also summarized in the budget. Costs paid in whole or in part by the landowner are listed in the landowner column. The tenant column describes the tenant's share of the appropriate cost and return items. The far right column has been provided to calculate changes from this base budget for your operation.

Government program deficiency payments have been entered as a revenue item in the corn for grain budget. This revenue cannot be expected unless the producer fully participates in the program. Full participation includes idling 15 percent of the crop acreage base. (See setaside program enterprise budget.) In turn, a program payment will be made based on a historical yield base at the current program price. This corn for grain budget assumes a 100 bushel historic yield base and a program payment of $0.5892 per bushel.

SUMMARY

Gross income for the corn for grain enterprise is estimated at $327.72 per acre. Total variable costs are estimated at $287.52 per acre, with total fixed costs at $200.67 per acre. The total of all costs for corn for grain is estimated at $488.19 per acre, leaving a net projected return of ($160.47) per acre. The net projected returns for the share-lease arrangement are ($46.22) per acre for the landowner and ($114.25) per acre for the tenant. (The returns for the landowner share at $46.22 includes a $1.50 per ton charge for hauling the harvested corn.)

TABLE 1. Machinery, Equipment, and Building Value and Use Assumptions

Resource Name		Current List Price	Current Market Value	Salvage Value	Total Defined Annual Use	Useful Life	Remaining Life
100 HP TRACTOR	2WD	$45,054	$26,562	$8,070	635 Hours	10,160 Hours	5,080 Hours
140 HP TRACTOR	MFD	$59,492	$33,563	$7,634	496 Hours	9,920 Hours	4,960 Hours
70 HP TRACTOR	2WD	$27,245	$15,370	$3,496	323 Hours	6,460 Hours	3,230 Hours
COMBINE 100 BU		$70,835	$37,387	$3,938	69 Hours	1,380 Hours	690 Hours
6-ROW CULTIVATOR		$7,253	$4,552	$1,850	284 Hours	1,988 Hours	994 Hours
6-ROW PLANTER		$6,785	$3,862	$940	94 Hours	1,128 Hours	564 Hours
CORN HEAD	4-ROW	$11,048	$5,831	$614	32 Hours	640 Hours	320 Hours
FERTLIZER SPREDR	LEASED	----	----	----	42 Hours	504 Hours	252 Hours
FERTLIZER TRAILR	LEASED	----	----	----	21 Hours	252 Hours	126 Hours
FIELD CULTIVATOR	15 FT	$4,152	$2,184	$216	21 Hours	420 Hours	210 Hours
PIPE TRAILER	30 FT	$1,416	$745	$74	47 Hours	940 Hours	470 Hours
PLOW 2-WAY	5-18'S	$6,860	$3,632	$404	114 Hours	2,166 Hours	1,083 Hours
ROLLER HARROW		$7,973	$4,369	$765	134 Hours	2,010 Hours	1,005 Hours
ROTARY HOE	15 FT	$2,780	$1,462	$145	21 Hours	420 Hours	210 Hours
SPRAYER 12-ROW	PULL	$2,509	$1,367	$225	75 Hours	1,125 Hours	563 Hours
SUBSOILER	5-SHANK	$2,484	$1,307	$129	21 Hours	420 Hours	210 Hours
TANDEM DISK	21 FT	$11,959	$6,291	$623	68 Hours	1,360 Hours	680 Hours
WEED BURNER		$53	$28	$3	10 Hours	200 Hours	100 Hours
1/2 TON PICKUP	2WD	$14,279	$8,967	$3,656	10,000 Miles	75,000 Miles	37,500 Miles
1/2 TON PICKUP	4WD	$16,190	$10,167	$4,145	10,000 Miles	75,000 Miles	37,500 Miles
2 TON TRUCK	#1	$11,605	$6,055	$505	2,276 Miles	50,072 Miles	25,036 Miles
2 TON TRUCK	#2	$9,494	$4,890	$287	2,250 Miles	56,250 Miles	28,125 Miles
CENTER PIVOT		$29,337	$16,171	$3,004	2,929 AcIns	43,935 AcIns	21,968 AcIns
CONCRETE DITCH		$21,814	$10,907	$0	3,975 AcIns	99,375 AcIns	49,688 AcIns
GATED PIPE		$21,422	$11,808	$2,194	7,233 AcIns	108,495 AcIns	54,248 AcIns
GRND WATER WELL		$10,530	$5,424	$318	969 AcIns	24,225 AcIns	12,113 AcIns
GRAIN BIN-1500BU	#1		$1,500	$300		30 Years	15 Years
GRAIN BIN-1500BU	#2		$1,500	$300		30 Years	15 Years
METAL SHOP	20 X 20		$10,000	$1,000		30 Years	15 Years
POLE BARN	40 X 80		$16,500	$1,650		30 Years	15 Years

TABLE 2. Irrigation System Costs per Acre-Inch Delivered

	Center Pivot	Concrete Ditch	Gated Pipe	Ground Water Well
VARIABLE COSTS				
Fuel Cost	$0.81	$----	$----	$2.22
Repair and Maintenance (off-farm)	0.69	----	0.06	0.27
Owner Operation Labor	0.05	----	----	----
Hired Operation Labor	----	0.29	0.09	----
Purchased Water	----	0.64	0.64	----
FIXED COSTS				
Taxes	0.07	0.03	0.04	0.11
Interest on Investment	0.54	0.24	0.28	0.95
Depreciation	0.68	0.24	0.32	0.55
Insurance	0.05	0.02	0.02	0.07
TOTAL COST PER ACRE-INCH DELIVERED	$2.89	$1.46	$1.45	$4.17

Enterprise Budget
Economic Costs and Returns per Acre
Corn for Grain - Wheatland Area
62.5-Acre Enterprise

RETURNS SECTION

GROSS INCOME Description	Quantity	Unit	$/Unit	Owner-Operator 100% Total	Crop-Share: Land-owner 33% Total	Crop-Share: Tenant 67% Total	Your Return
GRAIN CORN	120.00	BUSHELS	2.24	$268.80	$83.66	$185.14	
DEFICIENCY PAYMENT - CORN	100.00	BUSHELS	0.59	$58.92	$19.44	$39.48	
Total GROSS Income				$327.72	$103.10	$224.62	

VARIABLE COSTS SECTION

VARIABLE COST Description		Dollars per Acre LABOR	MACHINERY	Materials Description	# Units Per Acre	Unit Type	$/unit	Materials Total Cost Per Acre	Owner-Operator	Crop-Share: Land-owner	Crop-Share: Tenant	Your Cost
ANNUAL												
METAL SHOP - 20 X 20									1.71	----	1.71	
POLE BARN - 40 X 80									0.99	----	0.99	
GRAIN BIN-1500BU #1									2.07	----	2.07	
GRAIN BIN-1500BU #2									2.07	----	2.07	
1/2 TON PICKUP - 2WD		3.96	3.44						7.40	----	7.40	
1/2 TON PICKUP - 4WD		3.96	3.86						7.82	----	7.82	
GENERAL OVERHEAD									11.49	----	11.49	
OPERATOR MANAGEMENT									22.99	----	22.99	
Total ANNUAL									56.54	0.00	56.54	
PRE-PLANT												
CLEAN DITCHES	Operation	0.26	0.02						0.28	----	0.28	
SPREAD FERTLIZER	Operation	0.59	0.40	FERTLIZER SPREDR	1.000	Acre	0.50	20.30	21.29	6.70	14.59	
				11-52-0	0.075	TON	264.00					
INJECT AMMONIA	Operation	0.99	2.10	FERTLIZER TRAILR	1.000	Acre	0.50	14.20	17.29	4.69	12.60	
				82-0-0	0.050	TON	274.00					
DISK	Operation	0.74	2.02						2.76	----	2.76	
PLOW	Operation	1.97	6.41						8.38	----	8.38	
ROLLER HARROW	Operation	1.18	2.31						3.49	----	3.49	
SPRAY CORN	Operation	0.99	1.00	ERADICANE	0.500	GAL	31.70	28.00	29.99	9.24	20.75	
				SUTAN	0.500	GAL	24.29					
FIELD CULTIVATE	Operation	0.99	2.24						3.23	----	3.23	
ROLLER HARROW	Operation	1.32	2.57						3.89	----	3.89	
Total PRE-PLANT									90.60	20.63	69.97	
PLANT												
CROP INSURANCE	CORN							2.70	2.70	----	2.70	
PLANT CORN	Operation	1.97	3.80	CORN SEED	20.000	LBS	1.26	36.72	42.49	----	42.49	
				THIMET	6.547	LBS	1.76					
Total PLANT									45.19	0.00	45.19	
GROW CORN												
ROTARY HOE	Operation	0.99	0.80						1.79	----	1.79	
SPRAY CORN	Operation	0.99	1.00	2,4-D	0.125	GAL	8.65	5.14	7.13	1.70	5.43	
				BANVEL	0.062	GAL	65.45					
CULTIVATE 6-ROWS	Operation	1.48	3.41						4.89	----	4.89	
CULTIVATE 6-ROWS	Operation	1.18	2.73						3.91	----	3.91	
LAY GATED PIPE	Operation	0.41	0.15						0.56	----	0.56	
CENTER PIVOT			2.76						2.76	----	2.76	
GRND WATER WELL			1.57						1.57	----	1.57	
CONCRETE DITCH		0.68	0.00	Purchased Water				1.53	2.21	1.53	0.68	
GATED PIPE		0.41	0.26	Purchased Water				2.78	3.45	2.78	0.67	
CENTER PIVOT		0.09	2.76						2.85	----	2.85	
GRND WATER WELL			1.57						1.57	----	1.57	
CONCRETE DITCH		0.68	0.00	Purchased Water				1.53	2.21	1.53	0.68	
GATED PIPE		0.41	0.26	Purchased Water				2.78	3.45	2.78	0.67	
CENTER PIVOT		0.09	2.76						2.85	----	2.85	
GRND WATER WELL			1.57						1.57	----	1.57	
CONCRETE DITCH		0.68	0.00	Purchased Water				1.53	2.21	1.53	0.68	
GATED PIPE		0.41	0.26	Purchased Water				2.78	3.45	2.78	0.67	
SPRAY CORN	Operation	0.00	0.00	CYGON	0.093	GAL	34.98	6.75	6.75	2.23	4.52	
				CUSTOM SPRAY	1.000	ACRE	3.50					
CENTER PIVOT		0.09	2.76						2.85	----	2.85	
GRND WATER WELL			1.57						1.57	----	1.57	

VARIABLE COSTS SECTION

VARIABLE COST Description	Dollars per Acre LABOR	MACHINERY	Materials Description	# Units Per Acre	Unit Type	$/unit	Materials Total Cost Per Acre	Owner-Operator	Crop-Share Land-owner	Crop-Share Tenant	Your Cost
CONCRETE DITCH	0.68	0.00	Purchased Water				1.53	2.21	1.53	0.68	
GATED PIPE	0.41	0.26	Purchased Water				2.78	3.45	2.78	0.67	
Total GROW CORN								65.26	21.17	44.09	
HARVEST											
PIKUP GATED PIPE Operation	0.41	0.15						0.56	----	0.56	
THRESH CORN Operation	2.96	9.01						11.97	----	11.97	
HAUL CROP 8TN/LD Operation	1.05	1.30						2.35	----	2.35	
HAUL CROP 8TN/LD Operation	1.05	1.30						2.35	----	2.35	
DISK Operation	0.74	2.02						2.76	----	2.76	
SUBSOIL Operation	0.99	2.54						3.53	----	3.53	
Total HARVEST								23.52	0.00	23.52	
Operating Interest								6.41	----	6.41	
Total VARIABLE COST								$287.52	$41.80	$245.72	
GROSS INCOME minus VARIABLE COST								$40.20	$61.30	($21.10)	

FIXED COSTS SECTION

FIXED COST Description	Unit	Owner-Operator	Crop-Share Land-owner	Crop-Share Tenant	Your Cost
Machinery and Equipment:					
Taxes	Acre	7.21	----	7.21	
Insurance	Acre	7.97	----	7.97	
Long-term Interest	Acre	40.23	----	40.23	
Depreciation	Acre	37.74	----	37.74	
Buildings and Improvements:					
Taxes	Acre	1.06	1.06	----	
Insurance	Acre	0.68	0.68	----	
Long-term Interest	Acre	9.57	9.57	----	
Depreciation	Acre	5.74	5.74	----	
Irrigation:					
Taxes	Acre	1.32	1.32	----	
Insurance	Acre	0.72	0.72	----	
Long-term Interest	Acre	13.37	13.37	----	
Depreciation	Acre	14.14	14.14	----	
Land:					
Taxes	Acre	8.78	8.78	----	
Long-term Interest	Acre	52.13	52.13	----	
Total FIXED Cost		$200.67	$107.52	$93.15	
Total of ALL Cost		$488.19	$149.32	$338.87	
NET PROJECTED RETURNS		($160.47)	($46.22)	($114.25)	

TABLE 3. Machinery, Equipment, and Building Cost Calculations

Machine/Vehicle		Unit	RESOURCE COST PER UNIT OF USE: Variable: Fuel and Lube	Variable: Operation Labor & Inputs	Variable: Repair and Maint.	Variable: Hourly Lease	Fixed: Deprec. and Interest	Fixed: Taxes and Insurance	TOTAL COST	ENTERPRISE: Resource Use per Acre	Resource Costs per Acre: Variable	Fixed	TOTAL
100 HP TRACTOR	2WD	$/Hour	$5.17	$0.00	$4.86	$0.00	$4.48	$0.72	$15.23	1.3722	$13.76	$7.14	$20.90
140 HP TRACTOR	MFD	$/Hour	7.24	0.00	6.20	0.00	6.66	1.17	21.27	0.9166	12.32	7.18	19.50
70 HP TRACTOR	2WD	$/Hour	3.62	0.00	1.85	0.00	4.69	0.82	10.98	0.6715	3.67	3.70	7.37
COMBINE 100 BU		$/Hour	10.38	0.00	8.21	0.00	53.44	9.35	81.38	0.5000	9.30	31.40	40.70
6-ROW CULTIVATOR		$/Hour	0.00	0.00	3.63	0.00	2.46	0.28	6.37	0.4501	1.63	1.23	2.86
6-ROW PLANTER		$/Hour	0.00	0.00	4.48	0.00	5.08	0.71	10.27	0.3333	1.49	1.93	3.42
CORN HEAD	4-ROW	$/Hour	0.00	0.00	0.06	0.00	17.97	3.15	21.18	0.5000	0.03	10.56	10.59
FERTLIZER SPREDR	LEASED	$/Hour	0.00	0.00	0.00	5.00	0.00	0.00	5.00	0.1000	0.50	0.00	0.50
FERTLIZER TRAILR	LEASED	$/Hour	0.00	0.00	0.00	3.00	0.00	0.00	3.00	0.1667	0.50	0.00	0.50
FIELD CULTIVATOR	15 FT	$/Hour	0.00	0.00	0.95	0.00	10.26	1.80	13.01	0.1667	0.16	2.01	2.17
PIPE TRAILER	30 FT	$/Hour	0.00	0.00	0.33	0.00	1.56	0.27	2.16	0.0714	0.02	0.13	0.15
PLOW 2-WAY	5-18'S	$/Hour	0.00	0.00	5.90	0.00	3.04	0.52	9.46	0.3333	1.97	1.19	3.16
ROLLER HARROW		$/Hour	0.00	0.00	1.69	0.00	3.66	0.56	5.91	0.4222	0.71	1.78	2.49
ROTARY HOE	15 FT	$/Hour	0.00	0.00	0.49	0.00	6.87	1.20	8.56	0.1667	0.08	1.35	1.43
SPRAYER 12-ROW	PULL	$/Hour	0.00	0.00	1.15	0.00	2.05	0.32	3.52	0.3334	0.38	0.79	1.17
SUBSOILER	5-SHANK	$/Hour	0.00	0.00	0.57	0.00	6.14	1.07	7.78	0.1667	0.10	1.20	1.30
TANDEM DISK	21 FT	$/Hour	0.00	0.00	2.89	0.00	9.12	1.60	13.61	0.2501	0.72	2.68	3.40
WEED BURNER		$/Hour	0.93	0.00	0.00	0.00	0.53	0.05	1.51	0.0240	0.02	0.01	0.03
1/2 TON PICKUP	2WD	$/Mile	0.10	0.00	0.06	0.00	0.26	0.07	0.49	22.0690	3.53	7.28	10.81
1/2 TON PICKUP	4WD	$/Mile	0.10	0.00	0.07	0.00	0.29	0.08	0.54	22.0690	3.75	8.17	11.92
2 TON TRUCK	#1	$/Mile	0.24	0.00	0.20	0.00	0.48	0.21	1.13	2.9400	1.29	2.03	3.32
2 TON TRUCK	#2	$/Mile	0.24	0.00	0.20	0.00	0.37	0.17	0.98	2.9400	1.29	1.59	2.88
CENTER PIVOT		$/Ac-In	0.81	0.05	0.87	0.00	1.76	0.12	3.61	7.0800	12.25	13.31	25.56
CONCRETE DITCH		$/Ac-In	0.00	0.93	0.00	0.00	0.91	0.06	1.90	9.6000	8.93	9.31	18.24
GATED PIPE		$/Ac-In	0.00	0.73	0.08	0.00	0.99	0.08	1.88	17.4800	14.16	18.70	32.86
GRND WATER WELL		$/Ac-In	2.22	0.00	0.52	0.00	2.58	0.23	5.55	2.3600	6.47	6.63	13.10
GRAIN BIN-1500BU	#1	$/Year	60.00	0.00	70.18	0.00	222.35	19.74	372.27	0.0160	2.08	3.87	5.95
GRAIN BIN-1500BU	#2	$/Year	60.00	0.00	70.18	0.00	222.35	19.74	372.27	0.0160	2.08	3.87	5.95
METAL SHOP	20 X 20	$/Year	720.00	0.00	140.37	0.00	1,545.75	131.63	2,537.75	0.0020	1.72	3.35	5.07
POLE BARN	40 X 80	$/Year	360.00	0.00	140.37	0.00	2,550.49	217.20	3,268.06	0.0020	1.00	5.54	6.54

Cooperative Extension Service
UNIVERSITY OF WYOMING
College of Agriculture

Trade or brand names used in this publication are used only for the purpose of educational information. The information given herein is supplied with the understanding that no discrimination is intended, and no endorsement information of products by the Agricultural Research Service, Federal Extension Service, or State Cooperative Extension Service is implied. Nor does it imply approval of products to the exclusion of others which may also be suitable.

Issued in furtherance of Cooperative Extension Work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Jim DeBree, Director, Cooperative Extension Service, University of Wyoming, Laramie, WY 82071.

Persons seeking admission, employment, or access to programs of the University of Wyoming shall be considered without regard to race, color, national origin, sex, age, religion, political belief, handicap or veteran status.