

AgriProfit\$

2011

**Cost and Return Benchmarks
for Crops and Forages**

Irrigated Soil Zone

Alberta 
Government



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OVERVIEW

2011 Irrigated Soil Zone

The *AgriProfit\$* Business Analysis and Research Program provides a provincial overview of costs and returns for field crops and forages. The Economics Branch collects cost of production information annually from Alberta producers to generate regional benchmarks. Producer participants are critical to providing a financial representation of Alberta's cropping industry.

AgriProfit\$ cropping benchmarks are analyzed by soil zone group, top third producers, and owned land versus rented land where available. Top third averages are calculated from fields that have the highest return to equity. Analyzing crops by owned versus rented also provides insight into differences in management.

Benchmarks allow for comparison of individual crop costs and returns to other farms in a similar production area. Benchmarks should not replace individual cropping and financial records. There is a risk of over or underestimating costs and returns if basing them on regional benchmarks and forecasts. Strategic planning is more effective when individual costs are used. Managing unit costs of production is one of the most significant strategies to ensure profitability in a mature commodity market.

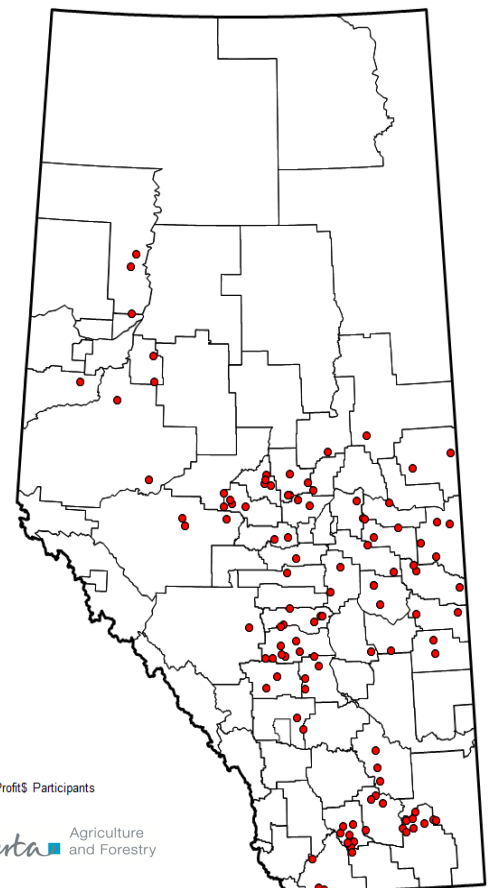
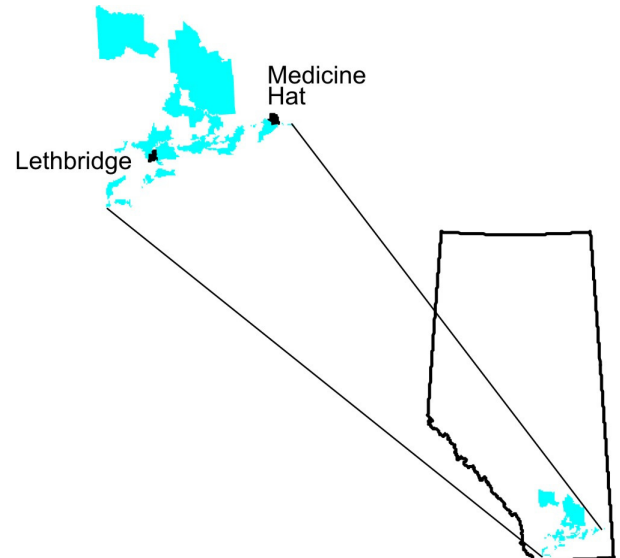
The top map shows the Irrigated Soil Zone in Alberta; this is the grouping method used for this study. Please note that farms highlighted within these zones may contain characteristics of neighbouring soil zones. The map on the bottom shows the distribution of the 2011 participants.

Questions or Comments:

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Acknowledgements:

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2011 AgriProfit\$ Participants

Alberta Agriculture and Forestry

2011 Crop Enterprise Analysis

AgriProfit\$

Crop: *Spring Wheat - All*
Soil Zone: *All - Irrigated*
Unit: *Bushel*

		----- \$/Acre -----		---- \$/Bushel ----	
		Average	Top 1/3	Average	Top 1/3
(A)	1. Crop Sales	515.64	562.34	6.54	6.70
	2. Crop Insurance Receipts	8.57	0.90	0.11	0.01
	3. Other Receipts	13.89	22.39	0.18	0.27
	Gross Receipts	538.10	585.63	6.82	6.98
(B)	Cost Items				
	1. Seed	23.69	22.59	0.30	0.27
	2. Fertilizer	104.25	98.82	1.32	1.18
	3. Chemical	37.99	37.71	0.48	0.45
	4. Hail/Crop Insurance Premium	22.25	21.43	0.28	0.26
	5. Trucking and Marketing	4.73	9.13	0.06	0.11
	6. Fuel	21.77	23.45	0.28	0.28
	7. Irrigation Fuel and Electricity	3.91	5.17	0.05	0.06
	8. Repairs - Machinery	28.43	27.52	0.36	0.33
	9. Repairs - Buildings	0.46	0.56	0.01	0.01
	10. Utilities and Miscellaneous	24.31	24.34	0.31	0.29
	11. Custom Work	8.11	13.56	0.10	0.16
	12. Operating Interest Paid	2.27	2.01	0.03	0.02
	13. Paid Labour	19.04	21.69	0.24	0.26
	14. Unpaid Labour	11.95	13.70	0.15	0.16
	Variable Costs	313.17	321.67	3.97	3.83
(C)	1. Cash/ Share Land Rent	48.05	12.82	0.61	0.15
	2. Taxes, Water Rates, License & Ins.	20.24	31.95	0.26	0.38
	3. Equipment and Building: a) Depreciation	68.31	62.71	0.87	0.75
	b) Lease Payments	1.03	0.00	0.01	0.00
4. Paid Capital Interest	22.37	21.92	0.28	1.54	
	Capital Costs	160.01	129.40	2.03	2.82
(D)	Cash Costs (B+C-B14-C3a)	392.92	374.66	4.98	5.75
(E)	Total Production Costs (B+C)	473.18	451.07	6.00	6.66
	Gross Margin (A-D)	145.18	210.97	1.84	1.23
	Return to Unpaid Labour (A-E+B14)	76.87	148.26	0.97	0.49
	Return to Investment (A-E+C4)	87.29	156.47	1.11	1.87
	Return to Equity (A-E)	64.92	134.55	0.82	0.32

Investment

Buildings	288.48	255.17
Machinery	503.50	498.64
Irrigation Machinery	115.88	87.39
Total (incl. Land)	2881.15	4095.44

Management

Average Yield (Bushel/acre)	78.85	83.88
Expected Market Price (\$/Bushel)	6.54	6.70

2011 Crop Enterprise Analysis

AgriProfit\$

Crop: Spring Wheat - Own
Soil Zone: All - Irrigated
Unit: Bushel

		----- \$/Acre -----		---- \$/Bushel ----		
		Average	Top 1/3	Average	Top 1/3	
(A)	1. Crop Sales	507.21	--	6.60	--	
	2. Crop Insurance Receipts	12.17	--	0.16	--	
	3. Other Receipts	10.07	--	0.13	--	
	Gross Receipts	529.45	0.00	6.89	0.00	
(B)	Cost Items					
	1. Seed	23.69	--	0.31	--	
	2. Fertilizer	103.43	--	1.35	--	
	3. Chemical	39.31	--	0.51	--	
	4. Hail/Crop Insurance Premium	23.52	--	0.31	--	
	5. Trucking and Marketing	3.18	--	0.04	--	
	6. Fuel	20.94	--	0.27	--	
	7. Irrigation Fuel and Electricity	4.58	--	0.06	--	
	8. Repairs - Machinery	28.07	--	0.37	--	
	9. Repairs - Buildings	0.58	--	0.01	--	
	10. Utilities and Miscellaneous	25.36	--	0.33	--	
	11. Custom Work	8.34	--	0.11	--	
	12. Operating Interest Paid	2.27	--	0.03	--	
	13. Paid Labour	18.76	--	0.24	--	
	14. Unpaid Labour	11.35	--	0.15	--	
Variable Costs	313.40	0.00	4.08	0.00		
(C)	1. Cash/ Share Land Rent	0.00	--	0.00	--	
	2. Taxes, Water Rates, License & Ins.	29.95	--	0.39	--	
	3. Equipment and Building:	a) Depreciation	73.97	--	0.96	--
		b) Lease Payments	1.82	--	0.02	--
	4. Paid Capital Interest	22.04	--	0.29	--	
Capital Costs	127.78	0.00	1.66	0.00		
(D)	Cash Costs (B+C-B14-C3a)	355.86	--	4.63	--	
(E)	Total Production Costs (B+C)	441.18	--	5.74	--	
	Gross Margin (A-D)	173.59	--	2.26	--	
	Return to Unpaid Labour (A-E+B14)	99.62	--	1.30	--	
	Return to Investment (A-E+C4)	110.31	--	1.44	--	
	Return to Equity (A-E)	88.27	--	1.15	--	

Investment

Buildings	290.03	--
Machinery	476.71	--
Irrigation Machinery	203.82	--
Total (incl. Land)	4441.22	--

Management

Average Yield	(Bushel/acre)	76.82	--
Expected Market Price	(\$/Bushel)	6.60	--

2011 Crop Enterprise Analysis

AgriProfit\$

Crop: Spring Wheat - Rent
Soil Zone: All - Irrigated
Unit: Bushel

		----- \$/Acre -----		---- \$/Bushel ----		
		Average	Top 1/3	Average	Top 1/3	
(A)	1. Crop Sales	526.75	--	6.46	--	
	2. Crop Insurance Receipts	3.82	--	0.05	--	
	3. Other Receipts	18.93	--	0.23	--	
	Gross Receipts	549.50	0.00	6.74	0.00	
(B)	Cost Items					
	1. Seed	23.70	--	0.29	--	
	2. Fertilizer	105.32	--	1.29	--	
	3. Chemical	36.26	--	0.44	--	
	4. Hail/Crop Insurance Premium	20.58	--	0.25	--	
	5. Trucking and Marketing	6.78	--	0.08	--	
	6. Fuel	22.85	--	0.28	--	
	7. Irrigation Fuel and Electricity	3.04	--	0.04	--	
	8. Repairs - Machinery	28.90	--	0.35	--	
	9. Repairs - Buildings	0.30	--	0.00	--	
	10. Utilities and Miscellaneous	22.92	--	0.28	--	
	11. Custom Work	7.81	--	0.10	--	
	12. Operating Interest Paid	2.26	--	0.03	--	
	13. Paid Labour	19.41	--	0.24	--	
	14. Unpaid Labour	12.74	--	0.16	--	
Variable Costs	312.87	0.00	3.84	0.00		
(C)	1. Cash/ Share Land Rent	111.37	--	1.37	--	
	2. Taxes, Water Rates, License & Ins.	7.45	--	0.09	--	
	3. Equipment and Building:	a) Depreciation	60.86	--	0.75	--
		b) Lease Payments	0.00	--	0.00	--
	4. Paid Capital Interest	22.80	--	0.28	--	
Capital Costs	202.48	0.00	2.48	0.00		
(D)	Cash Costs	441.75	--	5.42	--	
(E)	Total Production Costs	515.35	--	6.32	--	
	Gross Margin	107.75	--	1.32	--	
	Return to Unpaid Labour	46.89	--	0.58	--	
	Return to Investment	56.95	--	0.70	--	
	Return to Equity	34.15	--	0.42	--	

Investment

Buildings	286.43	--
Machinery	538.80	--
Irrigation Machinery	0.00	--
Total (incl. Land)	825.23	--

Management

Average Yield	(Bushel/acre)	81.53	--
Expected Market Price	(\$/Bushel)	6.46	--

2011 Crop Enterprise Analysis

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Crop: Sugar Beets - All
Soil Zone: All - Irrigated
Unit: Tonne

		----- \$/Acre -----		----- \$/Tonne -----	
		Average	Top 1/3	Average	Top 1/3
(A)	1. Crop Sales	1260.91	1323.13	53.52	53.52
	2. Crop Insurance Receipts	9.87	0.00	0.42	0.00
	3. Other Receipts	2.85	7.41	0.12	0.30
Gross Receipts		1273.63	1330.54	54.06	53.82
(B)	Cost Items				
	1. Seed	130.62	130.62	5.54	5.28
	2. Fertilizer	93.18	84.61	3.95	3.42
	3. Chemical	11.53	12.74	0.49	0.52
	4. Hail/Crop Insurance Premium	41.42	36.91	1.76	1.49
	5. Trucking and Marketing	88.88	72.56	3.77	2.93
	6. Fuel	67.35	66.92	2.86	2.71
	7. Irrigation Fuel and Electricity	36.56	31.85	1.55	1.29
	8. Repairs - Machinery	54.19	50.35	2.30	2.04
	9. Repairs - Buildings	4.22	2.61	0.18	0.11
	10. Utilities and Miscellaneous	42.87	53.26	1.82	2.15
	11. Custom Work	36.51	41.22	1.55	1.67
	12. Operating Interest Paid	11.89	0.89	0.50	0.04
	13. Paid Labour	38.77	50.64	1.65	2.05
	14. Unpaid Labour	24.50	20.70	1.04	0.84
Variable Costs		682.47	655.88	28.97	26.53
(C)	1. Cash/ Share Land Rent	46.46	45.07	1.97	1.82
	2. Taxes, Water Rates, License & Ins.	30.45	22.68	1.29	0.92
	3. Equipment and Building: a) Depreciation	92.92	55.46	3.94	2.24
	b) Lease Payments	0.00	0.00	0.00	0.00
	4. Paid Capital Interest	17.02	14.29	0.72	5.56
Capital Costs		186.84	137.50	7.93	10.54
(D)	Cash Costs (B+C-B14-C3a)	751.91	717.23	31.91	33.99
(E)	Total Production Costs (B+C)	869.32	793.38	36.90	37.07
	Gross Margin (A-D)	521.72	613.31	22.14	19.82
	Return to Unpaid Labour (A-E+B14)	428.80	557.86	18.20	17.58
	Return to Investment (A-E+C4)	421.33	551.45	17.88	22.30
	Return to Equity (A-E)	404.31	537.16	17.16	16.74

Investment

Buildings	240.19	149.57
Machinery	678.22	509.16
Irrigation Machinery	247.05	33.82
Total (incl. Land)	4871.06	4873.67

Management

Average Yield (Tonne/acre)	23.56	24.72
Expected Market Price (\$/Tonne)	53.52	53.52

2011 Crop Enterprise Analysis

AgriProfit\$

Crop: Sugar Beets - Own
Soil Zone: All - Irrigated
Unit: Tonne

		----- \$/Acre -----		----- \$/Tonne -----	
		Average	Top 1/3	Average	Top 1/3
(A)	1. Crop Sales	1279.84	1319.29	53.52	53.52
	2. Crop Insurance Receipts	7.74	0.00	0.32	0.00
	3. Other Receipts	3.97	10.37	0.17	0.42
	Gross Receipts	1291.55	1329.65	54.01	53.94
(B)	Cost Items				
	1. Seed	130.62	130.62	5.46	5.30
	2. Fertilizer	94.58	95.47	3.95	3.87
	3. Chemical	12.17	12.23	0.51	0.50
	4. Hail/Crop Insurance Premium	37.37	34.26	1.56	1.39
	5. Trucking and Marketing	95.03	85.74	3.97	3.48
	6. Fuel	73.29	73.25	3.06	2.97
	7. Irrigation Fuel and Electricity	39.67	33.86	1.66	1.37
	8. Repairs - Machinery	55.75	49.66	2.33	2.01
	9. Repairs - Buildings	5.28	3.65	0.22	0.15
	10. Utilities and Miscellaneous	37.44	38.38	1.57	1.56
	11. Custom Work	29.49	37.27	1.23	1.51
	12. Operating Interest Paid	15.08	1.24	0.63	0.05
	13. Paid Labour	41.08	59.16	1.72	2.40
	14. Unpaid Labour	23.78	18.11	0.99	0.73
	Variable Costs	690.63	672.91	28.88	27.30
(C)	1. Cash/ Share Land Rent	0.00	0.00	0.00	0.00
	2. Taxes, Water Rates, License & Ins.	39.24	30.11	1.64	1.22
	3. Equipment and Building: a) Depreciation	107.47	48.24	4.49	1.96
	b) Lease Payments	0.00	0.00	0.00	0.00
	4. Paid Capital Interest	22.27	19.98	0.93	3.99
	Capital Costs	168.98	98.33	7.07	7.17
(D)	Cash Costs				
		(B+C-B14-C3a)	728.36	704.89	30.46
(E)	Total Production Costs	(B+C)	859.61	771.24	35.94
	Gross Margin	(A-D)	563.18	624.76	23.55
	Return to Unpaid Labour	(A-E+B14)	455.72	576.52	19.06
	Return to Investment	(A-E+C4)	454.21	578.39	18.99
	Return to Equity	(A-E)	431.94	558.41	18.06

Investment

Buildings	272.21	133.30
Machinery	728.26	415.29
Irrigation Machinery	344.83	47.29
Total (incl. Land)	6517.43	6442.68

Management

Average Yield	(Tonne/acre)	23.92	24.65
Expected Market Price	(\$/Tonne)	53.52	53.52

2011 Crop Enterprise Analysis

AgriProfit\$

Crop: Sugar Beets - Rent
Soil Zone: All - Irrigated
Unit: Tonne

		----- \$/Acre -----		----- \$/Tonne -----		
		Average	Top 1/3	Average	Top 1/3	
(A)	1. Crop Sales	1213.09	--	53.52	--	
	2. Crop Insurance Receipts	15.26	--	0.67	--	
	3. Other Receipts	0.00	--	0.00	--	
	Gross Receipts	1228.35	0.00	54.19	0.00	
(B)	Cost Items					
	1. Seed	130.62	--	5.76	--	
	2. Fertilizer	89.64	--	3.95	--	
	3. Chemical	9.92	--	0.44	--	
	4. Hail/Crop Insurance Premium	51.67	--	2.28	--	
	5. Trucking and Marketing	73.33	--	3.23	--	
	6. Fuel	52.32	--	2.31	--	
	7. Irrigation Fuel and Electricity	28.70	--	1.27	--	
	8. Repairs - Machinery	50.24	--	2.22	--	
	9. Repairs - Buildings	1.53	--	0.07	--	
	10. Utilities and Miscellaneous	56.58	--	2.50	--	
	11. Custom Work	54.25	--	2.39	--	
	12. Operating Interest Paid	3.84	--	0.17	--	
	13. Paid Labour	32.92	--	1.45	--	
	14. Unpaid Labour	26.30	--	1.16	--	
Variable Costs	661.86	0.00	29.20	0.00		
(C)	1. Cash/ Share Land Rent	163.85	--	7.23	--	
	2. Taxes, Water Rates, License & Ins.	8.23	--	0.36	--	
	3. Equipment and Building:	a) Depreciation	56.15	--	2.48	--
		b) Lease Payments	0.00	--	0.00	--
	4. Paid Capital Interest	3.76	--	0.17	--	
Capital Costs	231.99	0.00	10.23	0.00		
(D)	Cash Costs	(B+C-B14-C3a)	811.40	--	35.80	--
(E)	Total Production Costs	(B+C)	893.85	--	39.43	--
	Gross Margin	(A-D)	416.95	--	18.39	--
	Return to Unpaid Labour	(A-E+B14)	360.80	--	15.92	--
	Return to Investment	(A-E+C4)	338.26	--	14.92	--
	Return to Equity	(A-E)	334.50	--	14.76	--

Investment

Buildings	159.29	--
Machinery	551.79	--
Irrigation Machinery	0.00	--
Total (incl. Land)	711.08	--

Management

Average Yield	(Tonne/acre)	22.67	--
Expected Market Price	(\$/Tonne)	53.52	--

DEFINITIONS AND ALLOCATIONS

I INCOME

- A Imputed Value of Production** – total of estimated yields/acre X estimated final prices
- B Crop Insurance Receipts** – added regardless of when payment is received
- C Miscellaneous Receipts** – such as patronage dividends or input rebates
- D Government Program Receipts** – allocated to all cropped acres equally
- E Straw/Aftermath Grazing Revenue** – value of straw + imputed value of grazing

II EXPENSES

- A Crop Specific Inputs** – allocated by producer to each crop as documented on the survey form
 - 1. **Seed**
 - 2. **Fertilizer**
 - 3. **Chemical**
 - 4. **Hail and Crop Insurance**
 - 5. **Custom Work and Specialized Labour**
 - 6. **Land Rent** – cash rent or crop share (converted to a cash basis)
- B Allocated Crop Inputs** – allocation ratios based on research from AAFRD
 - 1. **Irrigation to Dryland Ratio** – allocated to crops at a 3:1 ratio
 - 2. **Trucking and Marketing** – allocated to specific cropping acres by producer
 - 3. **Fuel** – Summerfallow – allocation of 0.3:1 compared to crop acres; Sugar beets – allocation of 2.96:1 compared to other irrigated crop acres
 - 4. **Irrigation Fuel** – allocation based on total pumping hours for each crop
 - 5. **Machinery Repairs** – allocated equally to all acres except summerfallow (0.3:1) and special crops (as specified by producer)
 - 6. **Building Repairs** – allocated to all acres equally except for special crops buildings
 - 7. **Operating Interest** – interest paid on operating loans allocated equally
 - 8. **Paid Labour** – based on allocations between crops as specified by producer
 - 9. **Unpaid and Operator Labour** – operator - \$10/hour, other unpaid labour - \$7.50/hour
 - 10. **Land Taxes** – allocated equally to all owned cropped acres
 - 11. **Water Rates** – allocated equally to all owned irrigated acres
 - 12. **Water Rates** – allocated equally to all owned irrigated acres
 - 13. **Equipment Depreciation** – imputed at 8.5% for power equipment, 11% for non-power, based on current market value

- 14. **Insurance and Licenses** – allocated to all cropped acres equally
- 15. **Building Depreciation** – imputed at 5% on the current market value
- 16. **Paid Capital Interest** – allocated to all owned cropped acres equally except summerfallow (0.25:1)

III CAPITAL INVESTMENT

- A Land** – producer estimate of bare land value for both irrigated and dryland owned acreage
- B Buildings** – allocated equally to all acreage except special crops buildings (allocated to the crop)
- C Equipment**
 - 1. **General Use** – allocated to all acres equally, except summerfallow (0.3:1)
 - 2. **Crop Specific** – allocated by producer to each crop based on percentage of use
 - 3. **Irrigation** – allocated according to pumping hours as specified by producer

IV SUMMARY CALCULATION

- A Gross Return** = imputed value of production + crop insurance receipts + miscellaneous receipts + government program payments + straw/grazing revenue
- B Variable Costs** = seed + fertilizer + chemicals + crop insurance + trucking and marketing + fuel + machinery and building repairs + utilities + miscellaneous overhead + custom work + operating interest + paid and unpaid labour
- C Total Capital Costs** = land rent + land taxes + water rates + insurance + depreciation + paid capital interest
- D Cash Costs** = variable costs + capital costs – unpaid labour – depreciation
- E Total Production Costs** = variable costs + total capital costs
- F Gross Margin** (returns left to cover total capital costs and operator equity) = gross return – total cash costs
- G Return to Unpaid Labour** (funds remaining after all expenses have been paid except unpaid labour) = gross return – total production costs + unpaid labour
- H Return to Investment** (shows the operation's ability to earn a return on its total assets) = gross return – total production costs + paid capital interest
- I Return to Equity** (amount remaining from operations used to provide a return to individual or shareholder equity) = gross return – total production costs