

AgriProfit\$

2013

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

Irrigated Soil Zone

Alberta 
Government



TABLE OF CONTENTS

2013 Irrigated Soil Zones

OVERVIEW.....	1
CROPS	
Spring Wheat	2
Soft Wheat	3
Sugar Beets	4
FORAGES	
Alfalfa Hay.....	6
DEFINITIONS AND ALLOCATIONS.....	7

OVERVIEW

2013 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.

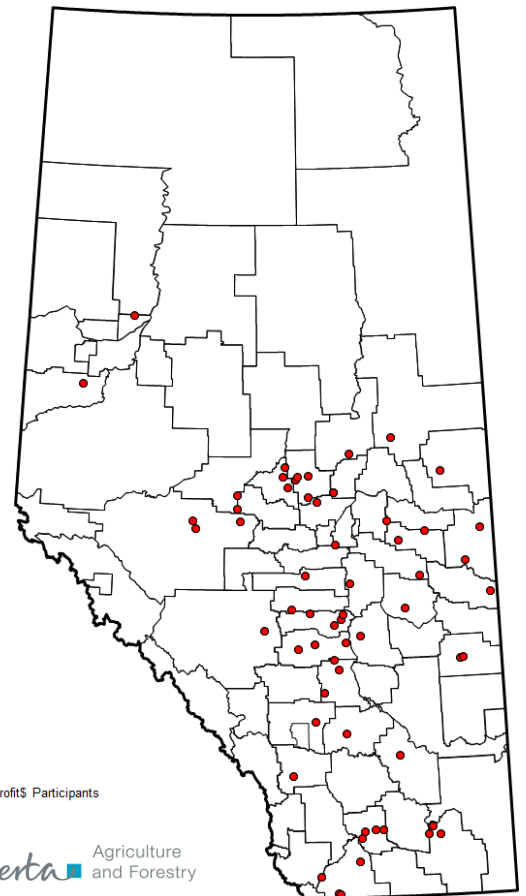
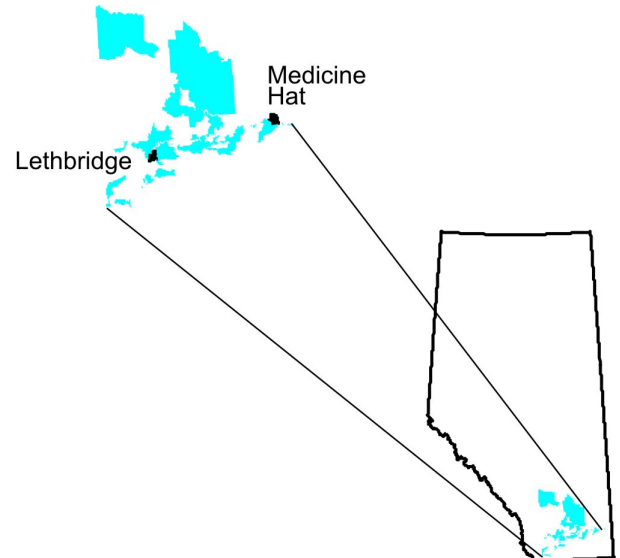
The top map shows the Irrigated Soil Zone in Alberta; this is the grouping method used for this study. Please note that farms highlighted within these zones may contain characteristics of neighbouring soil zones. The map on the bottom shows the distribution of the 2013 participants.

Questions or Comments:

Rawlin Thangaraj
Production Crop Economist
Alberta Agriculture and Rural Development
Phone: (780) 422-4056 Fax: (780) 427-5220
Email: rawlin.thangaraj@gov.ab.ca

Acknowledgements:

Pauline Van Biert, Shukun Guan, Lorraine Kohlman, Dale Kaliel, Diane McCann-Hiltz, Todd Bergen-Henengouwen, Guangzhi Liu, Interviewers and Participants



2013 AgriProfit\$ Participants

Alberta Agriculture and Forestry

2013 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	533.36	--	5.52	--	
	2. Crop Insurance Receipts	25.61	--	0.27	--	
	3. Other Receipts	0.00	--	0.00	--	
	Gross Receipts	558.98	0.00	5.79	0.00	
(B)	Cost Items					
	1. Seed	37.05	--	0.38	--	
	2. Fertilizer	83.45	--	0.86	--	
	3. Chemical	39.47	--	0.41	--	
	4. Hail/Crop Insurance Premium	21.57	--	0.22	--	
	5. Trucking and Marketing	10.02	--	0.10	--	
	6. Fuel	51.18	--	0.53	--	
	7. Irrigation Fuel and Electricity	14.79	--	0.15	--	
	8. Repairs - Machinery	19.43	--	0.20	--	
	9. Repairs - Buildings	2.74	--	0.03	--	
	10. Utilities and Miscellaneous	25.28	--	0.26	--	
	11. Custom Work	6.83	--	0.07	--	
	12. Operating Interest Paid	0.00	--	0.00	--	
	13. Paid Labour	32.86	--	0.34	--	
	14. Unpaid Labour	27.04	--	0.28	--	
Variable Costs	371.70	0.00	3.85	0.00		
(C)	1. Cash/ Share Land Rent	36.23	--	0.38	--	
	2. Taxes, Water Rates, License & Ins.	35.93	--	0.37	--	
	3. Equipment and Building:	a) Depreciation	118.15	--	1.22	--
		b) Lease Payments	0.00	--	0.00	--
	4. Paid Capital Interest	2.10	--	0.02	--	
Capital Costs	192.42	0.00	1.99	0.00		
(D)	Cash Costs	418.93	--	4.34	--	
(E)	Total Production Costs	564.12	--	5.84	--	
	Gross Margin	140.05	--	1.45	--	
	Return to Unpaid Labour	21.89	--	0.23	--	
	Return to Investment	(3.04)	--	(0.03)	--	
	Return to Equity	(5.14)	--	(0.05)	--	

Investment

Buildings	527.56	--
Machinery	1029.68	--
Irrigation Machinery	0.00	--
Total (incl. Land)	5243.77	--

Management

Average Yield	(Bushel/acre)	96.56	--
Expected Market Price	(\$/Bushel)	5.52	--

2013 Crop Enterprise Analysis

AgriProfit\$

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

		----- \$/Acre -----		---- \$/Bushel ----	
		Average	Top 1/3	Average	Top 1/3
(A)	1. Crop Sales	663.54	--	5.89	--
	2. Crop Insurance Receipts	161.00	--	1.43	--
	3. Other Receipts	129.37	--	1.15	--
	Gross Receipts	953.92	0.00	8.47	0.00
(B)	Cost Items				
	1. Seed	23.80	--	0.21	--
	2. Fertilizer	62.40	--	0.55	--
	3. Chemical	42.67	--	0.38	--
	4. Hail/Crop Insurance Premium	65.21	--	0.58	--
	5. Trucking and Marketing	1.09	--	0.01	--
	6. Fuel	28.80	--	0.26	--
	7. Irrigation Fuel and Electricity	7.75	--	0.07	--
	8. Repairs - Machinery	27.54	--	0.24	--
	9. Repairs - Buildings	11.76	--	0.10	--
	10. Utilities and Miscellaneous	38.10	--	0.34	--
	11. Custom Work	60.56	--	0.54	--
	12. Operating Interest Paid	3.11	--	0.03	--
	13. Paid Labour	20.29	--	0.18	--
	14. Unpaid Labour	13.52	--	0.12	--
	Variable Costs	406.61	0.00	3.61	0.00
(C)	1. Cash/ Share Land Rent	94.30	--	0.84	--
	2. Taxes, Water Rates, License & Ins.	27.05	--	0.24	--
	3. Equipment and Building: a) Depreciation	58.47	--	0.52	--
	b) Lease Payments	0.00	--	0.00	--
	4. Paid Capital Interest	31.72	--	0.28	--
	Capital Costs	211.54	0.00	1.88	0.00
(D)	Cash Costs (B+C-B14-C3a)	546.16	--	4.85	--
(E)	Total Production Costs (B+C)	618.15	--	5.49	--
	Gross Margin (A-D)	407.76	--	3.62	--
	Return to Unpaid Labour (A-E+B14)	349.29	--	3.10	--
	Return to Investment (A-E+C4)	367.49	--	3.26	--
	Return to Equity (A-E)	335.77	--	2.98	--

Investment

Buildings	237.44	--
Machinery	355.05	--
Irrigation Machinery	162.65	--
Total (incl. Land)	3612.28	--

Management

Average Yield (Bushel/acre)	112.62	--
Expected Market Price (\$/Bushel)	5.89	--

2013 Crop Enterprise Analysis

AgriProfit\$

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

		----- \$/Acre -----		----- \$/Tonne -----		
		Average	Top 1/3	Average	Top 1/3	
(A)	1. Crop Sales	1384.91	1584.06	50.74	50.74	
	2. Crop Insurance Receipts	34.03	0.00	1.25	0.00	
	3. Other Receipts	9.67	0.00	0.35	0.00	
	Gross Receipts	1428.62	1584.06	52.34	50.74	
(B)	Cost Items					
	1. Seed	149.50	149.50	5.48	4.79	
	2. Fertilizer	78.46	69.68	2.87	2.23	
	3. Chemical	36.39	28.40	1.33	0.91	
	4. Hail/Crop Insurance Premium	58.92	75.00	2.16	2.40	
	5. Trucking and Marketing	126.87	145.47	4.65	4.66	
	6. Fuel	65.29	67.20	2.39	2.15	
	7. Irrigation Fuel and Electricity	54.48	25.35	2.00	0.81	
	8. Repairs - Machinery	43.46	30.71	1.59	0.98	
	9. Repairs - Buildings	26.42	41.11	0.97	1.32	
	10. Utilities and Miscellaneous	64.86	57.29	2.38	1.83	
	11. Custom Work	30.95	34.10	1.13	1.09	
	12. Operating Interest Paid	7.02	2.89	0.26	0.09	
	13. Paid Labour	48.75	53.75	1.79	1.72	
	14. Unpaid Labour	41.15	44.98	1.51	1.44	
	Variable Costs	832.51	825.41	30.50	26.44	
(C)	1. Cash/ Share Land Rent	55.56	0.00	2.04	0.00	
	2. Taxes, Water Rates, License & Ins.	32.06	38.69	1.17	1.24	
	3. Equipment and Building:	a) Depreciation	129.48	139.24	4.74	4.46
		b) Lease Payments	2.34	0.00	0.09	0.00
	4. Paid Capital Interest	30.05	37.53	1.10	6.90	
	Capital Costs	249.49	215.46	9.14	12.60	
(D)	Cash Costs	(B+C-B14-C3a)	911.37	856.65	33.39	33.14
(E)	Total Production Costs	(B+C)	1082.01	1040.87	39.64	39.04
	Gross Margin	(A-D)	517.24	727.40	18.95	17.60
	Return to Unpaid Labour	(A-E+B14)	387.76	588.16	14.21	13.14
	Return to Investment	(A-E+C4)	376.66	580.71	13.80	18.60
	Return to Equity	(A-E)	346.61	543.18	12.70	11.70

Investment

Buildings	331.08	401.86
Machinery	753.96	646.23
Irrigation Machinery	534.41	764.95
Total (incl. Land)	4348.86	5405.63

Management

Average Yield	(Tonne/acre)	27.29	31.22
Expected Market Price	(\$/Tonne)	50.74	50.74

2013 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	1496.33	--	50.74	--	
	2. Crop Insurance Receipts	9.92	--	0.34	--	
	3. Other Receipts	0.78	--	0.03	--	
	Gross Receipts	1507.02	0.00	51.10	0.00	
(B)	Cost Items					
	1. Seed	149.50	--	5.07	--	
	2. Fertilizer	88.81	--	3.01	--	
	3. Chemical	23.95	--	0.81	--	
	4. Hail/Crop Insurance Premium	69.35	--	2.35	--	
	5. Trucking and Marketing	137.66	--	4.67	--	
	6. Fuel	71.58	--	2.43	--	
	7. Irrigation Fuel and Electricity	52.19	--	1.77	--	
	8. Repairs - Machinery	44.25	--	1.50	--	
	9. Repairs - Buildings	34.89	--	1.18	--	
	10. Utilities and Miscellaneous	73.28	--	2.48	--	
	11. Custom Work	41.48	--	1.41	--	
	12. Operating Interest Paid	9.10	--	0.31	--	
	13. Paid Labour	41.58	--	1.41	--	
	14. Unpaid Labour	52.12	--	1.77	--	
	Variable Costs	889.73	0.00	30.17	0.00	
(C)	1. Cash/ Share Land Rent	0.00	--	0.00	--	
	2. Taxes, Water Rates, License & Ins.	41.51	--	1.41	--	
	3. Equipment and Building:	a) Depreciation	159.25	--	5.40	--
		b) Lease Payments	3.25	--	0.11	--
	4. Paid Capital Interest	41.42	--	1.40	--	
	Capital Costs	245.43	0.00	8.32	0.00	
(D)	Cash Costs	(B+C-B14-C3a)	923.79	--	31.33	--
(E)	Total Production Costs	(B+C)	1135.17	--	38.49	--
	Gross Margin	(A-D)	583.23	--	19.78	--
	Return to Unpaid Labour	(A-E+B14)	423.98	--	14.38	--
	Return to Investment	(A-E+C4)	413.28	--	14.01	--
	Return to Equity	(A-E)	371.86	--	12.61	--

Investment

Buildings	360.57	--
Machinery	873.46	--
Irrigation Machinery	741.97	--
Total (incl. Land)	5765.48	--

Management

Average Yield	(Tonne/acre)	29.49	--
Expected Market Price	(\$/Tonne)	50.74	--

2013 Crop Enterprise Analysis

AgriProfit\$

Crop: *Alfalfa Hay - All*
Soil Zone: *All - Irrigated*
Unit: *Tonne*

		----- \$/Acre -----		----- \$/Tonne -----	
		Average	Top 1/3	Average	Top 1/3
(A)	1. Crop Sales	598.97	--	206.61	--
	2. Crop Insurance Receipts	0.00	--	0.00	--
	3. Other Receipts	17.26	--	5.95	--
	Gross Receipts	616.23	0.00	212.56	0.00
(B)	Cost Items				
	1. Seed	0.00	--	0.00	--
	2. Fertilizer	20.72	--	7.15	--
	3. Chemical	0.00	--	0.00	--
	4. Hail/Crop Insurance Premium	0.00	--	0.00	--
	5. Trucking and Marketing	0.00	--	0.00	--
	6. Fuel	23.23	--	8.01	--
	7. Irrigation Fuel and Electricity	4.11	--	1.42	--
	8. Repairs - Machinery	19.65	--	6.78	--
	9. Repairs - Buildings	0.00	--	0.00	--
	10. Utilities and Miscellaneous	26.91	--	9.28	--
	11. Custom Work	46.95	--	16.19	--
	12. Operating Interest Paid	6.64	--	2.29	--
	13. Paid Labour	1.92	--	0.66	--
14. Unpaid Labour	6.13	--	2.12	--	
	Variable Costs	156.25	0.00	53.90	0.00
(C)	1. Cash/ Share Land Rent	86.33	--	29.78	--
	2. Taxes, Water Rates, License & Ins.	13.26	--	4.58	--
	3. Equipment and Building: a) Depreciation	68.95	--	23.79	--
	b) Lease Payments	6.59	--	2.27	--
4. Paid Capital Interest	7.99	--	2.75	--	
	Capital Costs	183.12	0.00	63.17	0.00
(D)	Cash Costs (B+C-B14-C3a)	264.28	--	91.16	--
(E)	Total Production Costs (B+C)	339.37	--	117.07	--
	Gross Margin (A-D)	351.94	--	121.40	--
	Return to Unpaid Labour (A-E+B14)	282.99	--	97.62	--
	Return to Investment (A-E+C4)	284.84	--	98.25	--
	Return to Equity (A-E)	276.85	--	95.50	--

Investment

Buildings	326.04	--
Machinery	524.39	--
Irrigation Machinery	0.00	--
Total (incl. Land)	850.43	--

Management

Average Yield (Tonne/acre)	2.90	--
Expected Market Price (\$/Tonne)	206.61	--

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