

2016
Cost and Return Benchmarks
Crops and Forages
Peace Region (Thin Black Soil Zone)



The AgriProfit\$ Business Analysis and Research Program

Alberta Agriculture and Forestry, Government of Alberta
August 2018
2016 Cost and Return Benchmarks
Crops and Forages
Thin Black Soil Zone

Manglai
Crop Economist
Economics Section
Economics and Competitiveness Branch
Phone: (780) 422-4056
Fax: (780) 427-5220
ml.manglai@gov.ab.ca

Acknowledgements:

Farmer Participants, Emmanuel Laate, Neil Blue, Pauline Van Biert, Shukun Guan, Lorraine Kohlman, Guangzhi Liu, Anatoliy Oginsky, Rawlin Thangaraj, Jayden Kohlman, Philippa Rodrigues, and Interviewers

Table of Contents

Overview	4
Forages	5
Alfalfa/ Grass Hay	5
Definitions	7

Overview

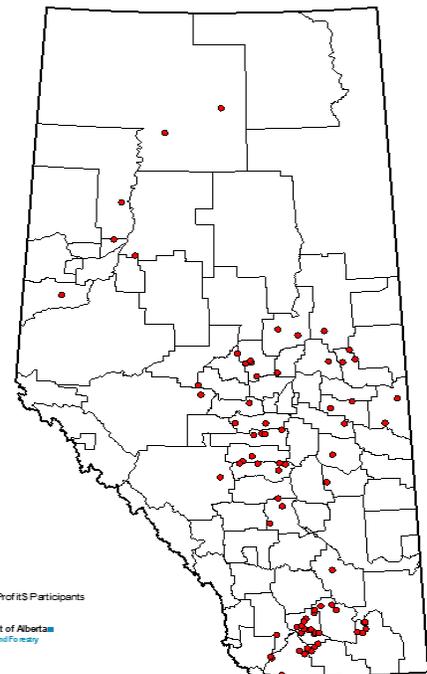
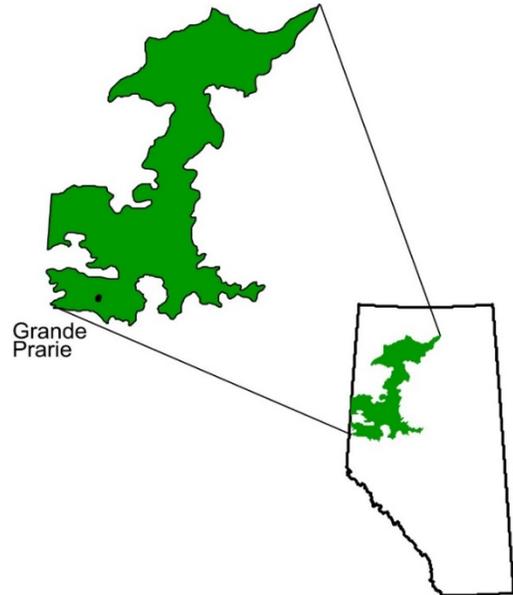
2016 Peace Region (Thin Black Soil Zone)

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

The **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 danger 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 Thin Black Soil Zones 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 2016 participants.



2016 Crop Enterprise Analysis

Crop: Alfalfa/Grass Hay
 Soil: Thin Black
 Dryland/Irrigation: Dryland

Tenure: All
 Yield units: Tonne

		\$/Acre		\$/Tonne	
		Average	Top 1/3	Average	Top 1/3
(A)	1 Crop Sales	\$77.82	\$110.84	\$98.29	\$106.04
	2 Crop Insurance Receipts	\$2.98	\$0.00	\$3.76	\$0.00
	3 Misc. Receipts	\$0.15	\$0.01	\$0.19	\$0.01
	4 Government Program	\$0.00	\$0.00	\$0.00	\$0.00
	5 Additional Revenue From Straw / Grazing	\$0.00	\$0.00	\$0.00	\$0.00
Gross Return		\$80.95	\$110.85	\$102.25	\$106.05
(B)	1 Seed & Seed Cleaning	\$0.00	\$0.00	\$0.00	\$0.00
	2 Fertilizer	\$14.25	\$0.00	\$18.00	\$0.00
	3 Chemicals	\$0.00	\$0.00	\$0.00	\$0.00
	4 Hail/Crop Insurance Premium	\$0.69	\$0.00	\$0.88	\$0.00
	5 Trucking and Marketing	\$0.00	\$0.00	\$0.00	\$0.00
	6 Fuel	\$9.37	\$6.10	\$11.84	\$5.84
	7 Irrigation Fuel and Electricity	\$0.00	\$0.00	\$0.00	\$0.00
	8 Machinery Repairs	\$13.99	\$8.39	\$17.67	\$8.02
	9 Buildings Repairs	\$0.05	\$0.00	\$0.06	\$0.00
	10 Utilities and Miscellaneous	\$5.32	\$2.91	\$6.72	\$2.78
	11 Custom Work	\$4.30	\$0.00	\$5.43	\$0.00
	12 Operating Interest Paid	\$0.00	\$0.00	\$0.00	\$0.00
	13 Paid Labour & Benefits	\$16.85	\$9.87	\$21.29	\$9.44
	14 Unpaid Labour & Benefits	\$2.38	\$3.52	\$3.01	\$3.36
Variable Costs		\$67.21	\$30.78	\$84.90	\$29.45
(C)	1 Cash/Share Land Rent	\$0.83	\$0.00	\$1.05	\$0.00
	2 Taxes, Water Rates, License and Ins.	\$8.99	\$4.80	\$11.36	\$4.59
	3 Equipment and Building: a) Depreciation	\$18.18	\$18.27	\$22.96	\$17.48
	b) Lease Payments	\$0.00	\$0.00	\$0.00	\$0.00
	4 Paid Capital Interest	\$0.00	\$0.00	\$0.00	\$0.00
Capital Costs		\$28.00	\$23.08	\$35.37	\$22.08
(D)	Cash Costs (B+C-B14-C3a)	\$74.65	\$32.07	\$94.29	\$30.68
(E)	Total Production Costs (B+C)	\$95.21	\$53.86	\$120.26	\$51.52
	Gross Margin (A-D)	\$6.30	\$78.78	\$7.95	\$75.37
	Return to Unpaid Labour (A-E+B14)	(\$11.88)	\$60.51	(\$15.01)	\$57.89
	Return to Investment (A-E+C4)	(\$14.26)	\$56.99	(\$18.02)	\$54.52
	Return to Equity (A-E)	(\$14.26)	\$56.99	(\$18.02)	\$54.52
Investment					
	Land	\$1,073.38	\$544.33		
	Buildings	\$68.90	\$70.18		
	Machinery (excluding Irrigation Machinery)	\$153.18	\$154.85		
	Irrigation Machinery	\$0.00	\$0.00		
	Total	\$1,295.47	\$769.36		
Management					
	Average Yield (Tonne/Acre)	0.79	1.05		
	Expected Price (\$/Tonne)	\$98.29	\$106.04		

2016 Crop Enterprise Analysis

Crop: Alfalfa/Grass Hay
 Soil: Thin Black
 Dryland/Irrigation: Dryland

Tenure: Own
 Yield units: Tonne

		\$/Acre		\$/Tonne	
		Average	Top 1/3	Average	Top 1/3
(A)	1 Crop Sales	\$78.06	\$117.68	\$99.00	\$105.36
	2 Crop Insurance Receipts	\$3.05	\$0.00	\$3.87	\$0.00
	3 Misc. Receipts	\$0.14	\$0.01	\$0.18	\$0.01
	4 Government Program	\$0.00	\$0.00	\$0.00	\$0.00
	5 Additional Revenue From Straw / Grazing	\$0.00	\$0.00	\$0.00	\$0.00
Gross Return		\$81.25	\$117.69	\$103.05	\$105.37
(B)	1 Seed & Seed Cleaning	\$0.00	\$0.00	\$0.00	\$0.00
	2 Fertilizer	\$13.14	\$0.00	\$16.66	\$0.00
	3 Chemicals	\$0.00	\$0.00	\$0.00	\$0.00
	4 Hail/Crop Insurance Premium	\$0.71	\$0.00	\$0.90	\$0.00
	5 Trucking and Marketing	\$0.00	\$0.00	\$0.00	\$0.00
	6 Fuel	\$9.17	\$6.12	\$11.63	\$5.48
	7 Irrigation Fuel and Electricity	\$0.00	\$0.00	\$0.00	\$0.00
	8 Machinery Repairs	\$13.58	\$8.95	\$17.22	\$8.01
	9 Buildings Repairs	\$0.05	\$0.00	\$0.06	\$0.00
	10 Utilities and Miscellaneous	\$5.15	\$2.79	\$6.53	\$2.50
	11 Custom Work	\$4.12	\$0.00	\$5.23	\$0.00
	12 Operating Interest Paid	\$0.00	\$0.00	\$0.00	\$0.00
	13 Paid Labour & Benefits	\$16.41	\$10.02	\$20.81	\$8.97
	14 Unpaid Labour & Benefits	\$2.40	\$3.90	\$3.05	\$3.49
Variable Costs		\$64.73	\$31.78	\$82.09	\$28.45
(C)	1 Cash/Share Land Rent	\$0.00	\$0.00	\$0.00	\$0.00
	2 Taxes, Water Rates, License and Ins.	\$8.82	\$4.96	\$11.19	\$4.44
	3 Equipment and Building: a) Depreciation	\$18.12	\$18.78	\$22.98	\$16.82
	b) Lease Payments	\$0.00	\$0.00	\$0.00	\$0.00
	4 Paid Capital Interest	\$0.00	\$0.00	\$0.00	\$0.00
Capital Costs		\$26.95	\$23.74	\$34.18	\$21.25
(D)	Cash Costs (B+C-B14-C3a)	\$71.15	\$32.84	\$90.24	\$29.40
(E)	Total Production Costs (B+C)	\$91.67	\$55.52	\$116.27	\$49.71
	Gross Margin (A-D)	\$10.10	\$84.85	\$12.82	\$75.97
	Return to Unpaid Labour (A-E+B14)	(\$8.02)	\$66.07	(\$10.17)	\$59.15
	Return to Investment (A-E+C4)	(\$10.42)	\$62.17	(\$13.22)	\$55.66
	Return to Equity (A-E)	(\$10.42)	\$62.17	(\$13.22)	\$55.66
Investment					
	Land	\$1,098.93	\$672.30		
	Buildings	\$68.52	\$73.97		
	Machinery (excluding Irrigation Machinery)	\$152.93	\$157.70		
	Irrigation Machinery	\$0.00	\$0.00		
	Total	\$1,320.38	\$903.97		
Management					
	Average Yield (Tonne/Acre)	0.79	1.12		
	Expected Price (\$/Tonne)	\$99.00	\$105.36		

Definitions & Explanations to Accompany the Crop and Forages Enterprise Overview

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 Alberta Agriculture and Forestry
 1. **Trucking and Marketing** – allocated to specific cropping acres by producer
 2. **Fuel** – Summer fallow – allocation of 0.3:1 compared to crop acres; Sugar beets – allocation of 2.96:1 compared to other irrigated crop acres
 3. **Irrigation Fuel** – allocation based on total pumping hours for each crop
 4. **Machinery Repairs** – allocated equally to all acres except summer fallow (0.3:1) and special crops (as specified by producer)
 5. **Building Repairs** – allocated to all acres equally except for special crops buildings
 6. **Operating Interest** – interest paid on operating loans allocated equally
 7. **Paid Labour** – based on allocations between crops as specified by producer
 8. **Unpaid and Operator Labour** – operator - \$10/hour, other unpaid labour - \$7.50/hour
 9. **Land Taxes** – allocated equally to all owned cropped acres
 10. **Water Rates** – allocated equally to all owned irrigated acres
 11. **Equipment Depreciation** – imputed at 8.5% for power equipment, 11% for non-power, based on current market value
 12. **Insurance and Licenses** – allocated to all cropped acres equally
 13. **Building Depreciation** – imputed at 5% on the current market value
 14. **Paid Capital Interest** – allocated to all owned cropped acres equally except summer fallow (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 summer fallow (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