
2021 Cost of Production Crops



Guidelines For Estimating Crop Production Costs - 2021

Date: January, 2021

The following budgets are estimates of the cost of producing the most commonly grown field crops in Manitoba. General Manitoba Agriculture and Resource Development recommendations are assumed in using fertilizers and chemical inputs. These figures provide an economic evaluation of the crops and estimated yields required to cover all costs. Costs include labour, investment and depreciation, but do not include management costs, nor do they necessarily represent the average cost of production in Manitoba.

These budgets may be adjusted by putting in your own figures. As a producer you are encouraged to calculate your own costs of production for various crops. On each farm, costs and yields differ due to soil type, climate and agronomic practices.

This tool is available as an Excel worksheet at: www.manitoba.ca/agriculture or at your local [Manitoba Agriculture and Resource Development office](#). [The Farm Machinery Custom and Rental Rate Guide](#) is also available to help determine machinery costs.



The [CropPlan Production Cost Calculator](#) is also available for producers to estimate the cash cost of producing field crops on their farm on an annual basis. CropPlan calculates marginal returns, breakeven yields, breakeven crop prices on total production and remaining unsold inventory, land and machinery cost analysis and cash based financial ratios.

Note: This budget is only a guide and is not intended as an in depth study of the cost of production of this industry. Interpretation and use of this information is the responsibility of the user. If you need help with a budget, contact your local Manitoba Agriculture and Resource Development office.

Crop Production Costs 2021 Guidelines (Dollars Per Acre)								
	Canola	Wheat - Hard Red Spring	Soybeans	Oats	Corn	Barley	Wheat - Northern Hard Red	Peas
A. Operating Costs								
Seed & Treatment	\$67.50	\$29.00	\$93.38	\$19.38	\$96.00	\$18.00	\$27.00	\$50.49
Fertilizer	\$88.16	\$76.90	\$23.88	\$57.42	\$112.21	\$62.53	\$83.87	\$18.82
Pesticide	\$30.91	\$47.23	\$10.47	\$19.63	\$27.45	\$51.50	\$47.23	\$34.25
Fuel	\$20.82	\$21.64	\$18.71	\$25.79	\$26.59	\$23.30	\$22.38	\$17.93
Machinery Operating & Lease	\$12.88	\$12.88	\$12.88	\$12.88	\$12.88	\$12.88	\$12.88	\$12.88
Labour - Hired	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80
Crop Insurance	\$7.77	\$6.64	\$12.16	\$11.12	\$21.29	\$8.30	\$8.78	\$8.47
Hail Insurance	\$6.35	\$6.35	\$8.26	\$6.35	\$6.35	\$6.35	\$6.35	\$12.70
Drying & Other Costs	\$7.75	\$7.75	\$7.75	\$7.75	\$42.75	\$7.75	\$7.75	\$7.75
Land Taxes	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00
Storage Costs	\$5.11	\$6.93	\$4.20	\$12.49	\$15.33	\$9.09	\$7.95	\$5.22
Interest on Operating	<u>\$6.01</u>	<u>\$5.29</u>	<u>\$4.76</u>	<u>\$4.33</u>	<u>\$8.56</u>	<u>\$4.94</u>	<u>\$5.49</u>	<u>\$4.24</u>
Total Operating	\$273.06	\$240.40	\$216.25	\$196.94	\$389.21	\$224.44	\$249.49	\$192.55
B. Fixed Costs								
Land Costs	\$69.29	\$69.29	\$69.29	\$69.29	\$69.29	\$69.29	\$69.29	\$69.29
Machinery Costs	<u>\$67.31</u>	<u>\$67.31</u>	<u>\$67.31</u>	<u>\$67.31</u>	<u>\$75.38</u>	<u>\$67.31</u>	<u>\$67.31</u>	<u>\$67.31</u>
Total Fixed	\$136.60	\$136.60	\$136.60	\$136.60	\$144.68	\$136.60	\$136.60	\$136.60
C. Owners - Labour & Living								
	\$24.00	\$24.00	\$24.00	\$24.00	\$24.00	\$24.00	\$24.00	\$24.00
Total Costs	\$433.66	\$401.00	\$376.84	\$357.54	\$557.89	\$385.03	\$410.09	\$353.15
Profitability Analysis								
Estimated Farmgate								
Target Price \$ per unit	\$11.25	\$6.75	\$11.40	\$3.75	\$4.75	\$4.75	\$6.25	\$8.00
Premium \$ per unit	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Target Yield per acre	45	61	37	110	135	80	70	46
Unit type (bu. or lb.)	bu	bu	bu	bu	bu	bu	bu	bu
Gross Revenue / acre	\$506.25	\$411.75	\$421.80	\$412.50	\$641.25	\$380.00	\$437.50	\$368.00
Operating Expense Ratio	53.9%	58.4%	51.3%	47.7%	60.7%	59.1%	57.0%	52.3%
Marginal Returns								
Over Operating Costs	\$233.19	\$171.35	\$205.55	\$215.56	\$252.04	\$155.56	\$188.01	\$175.45
Over Total Costs (Net Profit)	\$72.59	\$10.75	\$44.96	\$54.96	\$83.36	(\$5.03)	\$27.41	\$14.85
Profitability Ranking	4	12	6	5	3	15	7	10
Return on Investment (ROI)	16.74%	2.68%	11.93%	15.37%	14.94%	(1.31%)	6.68%	4.21%
Return on Asset (ROA)	5.03%	3.34%	4.28%	4.55%	5.55%	2.91%	3.80%	3.45%
Breakeven Analysis								
Breakeven Price Per Unit								
Over Operating Costs	\$6.07	\$3.94	\$5.84	\$1.79	\$2.88	\$2.81	\$3.56	\$4.19
Over Land Costs	\$1.54	\$1.14	\$1.87	\$0.63	\$0.51	\$0.87	\$0.99	\$1.51
Over Machinery Costs	\$1.50	\$1.10	\$1.82	\$0.61	\$0.56	\$0.84	\$0.96	\$1.46
Over Owners Labour & Living	<u>\$0.53</u>	<u>\$0.39</u>	<u>\$0.65</u>	<u>\$0.22</u>	<u>\$0.18</u>	<u>\$0.30</u>	<u>\$0.34</u>	<u>\$0.52</u>
Over Total Costs	\$9.64	\$6.57	\$10.18	\$3.25	\$4.13	\$4.81	\$5.86	\$7.68
Breakeven Yield (Bu or lb.)								
Over Operating Costs	24.3	35.6	19.0	52.5	81.9	47.2	39.9	24
Over Land Costs	6.2	10.3	6.1	18.5	14.6	14.6	11.1	8.7
Over Machinery Costs	6.0	10.0	5.9	17.9	15.9	14.2	10.8	8.4
Over Owners Labour & Living	<u>2.1</u>	<u>3.6</u>	<u>2.1</u>	<u>6.4</u>	<u>5.1</u>	<u>5.1</u>	<u>3.8</u>	<u>3.0</u>
Over Total Costs	38.6	59.5	33.1	95.3	117.5	81.1	65.6	44.1
Breakeven Yield Risk Ratio	117%	103%	112%	115%	115%	99%	107%	104%
(Target Yield per Acre / BE Yield)								

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Crop Production Costs 2021 Guidelines (Dollars Per Acre)									
Hybrid Fall Rye	Wheat - Winter	Beans - Pinto	Wheat - Prairie Spring	Flaxseed	Sunflower Oil	Beans - White	Sunflower Confection	Wheat - Other Spring	Your Farm
\$12.00	\$25.00	\$82.50	\$27.00	\$25.20	\$40.00	\$78.10	\$49.50	\$27.00	
\$93.17	\$79.22	\$47.74	\$83.87	\$38.44	\$72.58	\$52.39	\$72.58	\$76.90	
\$7.50	\$30.98	\$96.23	\$47.23	\$35.13	\$28.59	\$100.39	\$72.32	\$47.23	
\$18.81	\$22.13	\$17.50	\$22.38	\$19.67	\$21.36	\$17.30	\$21.03	\$21.80	
\$12.88	\$12.88	\$12.88	\$12.88	\$12.88	\$21.38	\$12.88	\$29.88	\$12.88	
\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	\$4.80	
\$11.68	\$6.39	\$22.66	\$6.66	\$10.32	\$13.86	\$19.38	\$26.27	\$8.37	
\$6.35	\$6.35	\$11.11	\$6.35	\$6.35	\$6.35	\$11.11	\$6.35	\$6.35	
\$7.75	\$7.75	\$7.75	\$7.75	\$7.75	\$17.75	\$7.75	\$17.75	\$7.75	
\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	
\$8.29	\$7.61	\$3.60	\$7.95	\$2.84	\$8.18	\$3.31	\$7.72	\$7.16	
<u>\$4.46</u>	<u>\$4.91</u>	<u>\$7.24</u>	<u>\$5.44</u>	<u>\$4.01</u>	<u>\$5.62</u>	<u>\$7.25</u>	<u>\$7.27</u>	<u>\$5.29</u>	
\$202.69	\$223.02	\$329.01	\$247.31	\$182.39	\$255.46	\$329.66	\$330.47	\$240.52	
\$69.29	\$69.29	\$69.29	\$69.29	\$69.29	\$69.29	\$69.29	\$69.29	\$69.29	
<u>\$67.31</u>	<u>\$67.31</u>	<u>\$72.69</u>	<u>\$67.31</u>	<u>\$67.31</u>	<u>\$75.38</u>	<u>\$72.69</u>	<u>\$75.38</u>	<u>\$67.31</u>	
\$136.60	\$136.60	\$141.98	\$136.60	\$136.60	\$144.68	\$141.98	\$144.68	\$136.60	
\$24.00	\$24.00	\$24.00	\$24.00	\$24.00	\$24.00	\$24.00	\$24.00	\$24.00	
\$363.28	\$383.62	\$494.99	\$407.91	\$342.99	\$424.14	\$495.65	\$499.14	\$401.12	
Profitability Analysis									
\$5.25	\$5.75	\$0.33	\$5.75	\$14.00	\$0.25	\$0.35	\$0.30	\$5.75	
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
73	67	1,900	70	25	1,800	1,750	1,700	63	
bu	bu	lb	bu	bu	lb	lb	lb	bu	
\$383.25	\$385.25	\$627.00	\$402.50	\$350.00	\$450.00	\$612.50	\$510.00	\$362.25	
52.9%	57.9%	52.5%	61.4%	52.1%	56.8%	53.8%	64.8%	66.4%	
\$180.56	\$162.23	\$297.99	\$155.19	\$167.61	\$194.54	\$282.84	\$179.53	\$121.73	
\$19.97	\$1.63	\$132.01	(\$5.41)	\$7.01	\$25.86	\$116.85	\$10.86	(\$38.87)	
9	14	1	16	13	8	2	11	17	
5.50%	0.42%	26.67%	(1.33%)	2.04%	6.10%	23.58%	2.17%	(9.69%)	
3.59%	3.09%	6.80%	2.90%	3.24%	3.98%	6.39%	3.57%	1.99%	
Breakeven Analysis									
\$2.78	\$3.33	\$0.17	\$3.53	\$7.30	\$0.14	\$0.19	\$0.19	\$3.82	
\$0.95	\$1.03	\$0.04	\$0.99	\$2.77	\$0.04	\$0.04	\$0.04	\$1.10	
\$0.92	\$1.00	\$0.04	\$0.96	\$2.69	\$0.04	\$0.04	\$0.04	\$1.07	
<u>\$0.33</u>	<u>\$0.36</u>	<u>\$0.01</u>	<u>\$0.34</u>	<u>\$0.96</u>	<u>\$0.01</u>	<u>\$0.01</u>	<u>\$0.01</u>	<u>\$0.38</u>	
\$4.98	\$5.73	\$0.26	\$5.83	\$13.72	\$0.24	\$0.28	\$0.29	\$6.37	
38.6	39	997	43.0	13.0	1022	942	1101.6	42	
13.2	12.1	210.0	12.1	4.9	277.2	198.0	231.0	12.1	
12.8	11.7	220.3	11.7	4.8	301.5	207.7	251.3	11.7	
<u>4.6</u>	<u>4.2</u>	<u>72.7</u>	<u>4.2</u>	<u>1.7</u>	<u>96.0</u>	<u>68.6</u>	<u>80.0</u>	<u>4.2</u>	
69.2	67.0	1500.0	71.0	24.4	1696.7	1416.3	1663.9	70.0	
105%	100%	127%	99%	102%	106%	124%	102%	90%	

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Agrilinsurance Analysis

	Canola	Wheat - Hard Red Spring	Soybeans	Oats	Corn	Barley	Wheat - Northern Hard Red	Peas
Agrilinsurance								
80% Insured Value	\$360.41	\$312.70	\$299.03	\$309.49	\$440.50	\$231.12	\$289.82	\$215.84
Premium Cost (% of Insured)	2.2%	2.1%	4.1%	3.6%	4.8%	3.6%	3.0%	3.9%
Costs Not Covered By Agrilinsurance								
Operating Costs	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operating & Fixed Costs	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total Costs	\$73.24	\$88.29	\$77.81	\$48.05	\$117.39	\$153.91	\$120.27	\$137.30
Agrilinsurance Risk Ratio	(Agrilinsurance Coverage / Cost)							
Operating Costs	132%	130%	138%	157%	113%	103%	116%	112%
Total Costs	83%	78%	79%	87%	79%	60%	71%	61%
Risk Ranking	10	9	11	17	5	2	6	4
<i>(Lower number indicates increasing risk)</i>								

Risk & Sensitivity Analysis (Stress Test)

Percent Market Price Change	(2%)	Change in Equipment Change in Owned Acres (Purchase or
Percent Crop Yield Change	0%	

	Canola	Wheat - Hard Red Spring	Soybeans	Oats	Corn	Barley	Wheat - Northern Hard Red	Peas
Change in Profit (Loss) \$/acre	(\$15.62)	(\$13.73)	(\$13.93)	(\$13.74)	(\$18.32)	(\$13.09)	(\$14.24)	(\$12.85)
Adjusted Net Profit (Loss) \$/acre	\$56.97	(\$2.97)	\$31.03	\$41.22	\$65.05	(\$18.13)	\$13.17	\$2.00
Adjusted Profitability Ranking	4	11	6	5	3	15	7	10

Stress Test - Total Farm Debt (\$/acre) = \$742 (land debt of \$465/acre + machinery debt of \$277/acre, farm equity = compared to baseline - Total Farm Debt (\$/acre) = \$717 land debt of \$465/acre + machinery debt of \$252/acre, farm equity = 80.4%)

Rotation Economic Analysis

Data Source – MASC Harvest Production Reports (2010-2015)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Example Rotation #1	Wheat - Hard Red Spring	Canola	Wheat - Hard Red Spring	Canola	Wheat - Hard Red Spring	Canola	Rotation Total Marginal Return
Rotation Yield Premium	100%	102%	101%	102%	101%	102%	-
Net Profit (Loss)	\$10.75	\$82.72	\$14.87	\$82.72	\$14.87	\$82.72	\$289
Example Rotation #2	Corn	Canola	Wheat - Hard Red Spring	Soybeans	Corn	Canola	Rotation Total Marginal Return
Rotation Yield Premium	100%	112%	101%	101%	103%	112%	-
Net Profit (Loss)	\$83.36	\$133.34	\$14.87	\$49.17	\$102.60	\$133.34	\$517

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AgrInsurance Analysis

Hybrid Fall Rye	Wheat - Winter	Beans - Pinto	Wheat - Prairie Spring	Flaxseed	Sunflower Oil	Beans - White	Sunflower Confection	Wheat - Other Spring	Your Farm
\$304.68	\$285.78	\$469.63	\$263.38	\$260.55	\$353.47	\$471.94	\$427.11	\$245.06	
3.8%	2.2%	4.8%	2.5%	4.0%	3.9%	4.1%	6.2%	3.4%	
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
\$58.60	\$97.84	\$25.36	\$144.54	\$82.43	\$70.67	\$23.71	\$72.03	\$156.06	
150%	128%	143%	106%	143%	138%	143%	129%	102%	
84%	74%	95%	65%	76%	83%	95%	86%	61%	
16	7	13	3	14	12	15	8	1	

Risk & Sensitivity Analysis (Stress Test)

Investment (\$/Acre) = \$5.49 increased equipment cost /acre
 Sale @ \$3,100/acre) = \$0.00 increased land cost /acre

Hybrid Fall Rye	Wheat - Winter	Beans - Pinto	Wheat - Prairie Spring	Flaxseed	Sunflower Oil	Beans - White	Sunflower Confection	Wheat - Other Spring	Your Farm
(\$13.16)	(\$13.20)	(\$18.03)	(\$13.54)	(\$12.49)	(\$14.49)	(\$17.74)	(\$15.69)	(\$12.74)	
\$6.81	(\$11.57)	\$113.98	(\$18.95)	(\$5.48)	\$11.37	\$99.11	(\$4.84)	(\$51.61)	
9	14	1	16	13	8	2	12	17	

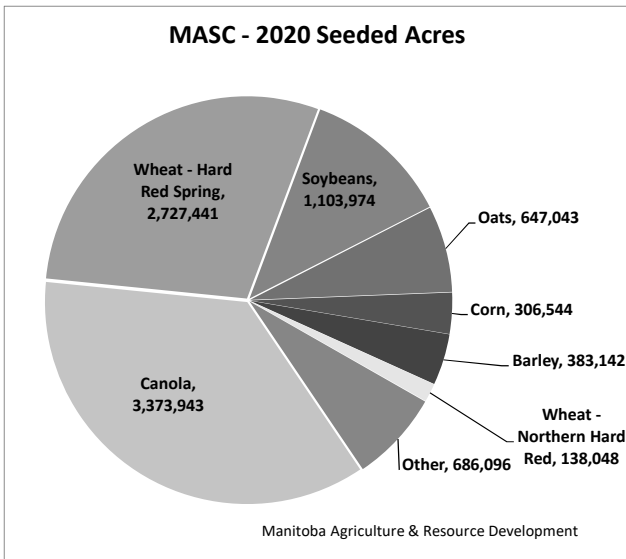
79.9%)

Rotation Economic Analysis

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Example Rotation #3	Wheat - Hard Red Spring	Canola	Oats	Soybeans	Corn	Sunflower Confection	Rotation Total Marginal Return
Rotation Yield Premium	100%	102%	101%	100%	103%	119%	-
Net Profit (Loss)	\$10.75	\$82.72	\$59.09	\$44.96	\$102.60	\$107.76	\$408

Your Farm Rotation	Soybeans	Wheat - Hard Red Spring	Canola	Soybeans	Wheat - Hard Red Spring	Canola	Rotation Total Marginal Return
Rotation Yield Premium	100%	108%	102%	100%	108%	102%	-
Net Profit (Loss)	\$44.96	\$43.69	\$82.72	\$44.96	\$43.69	\$82.72	\$343

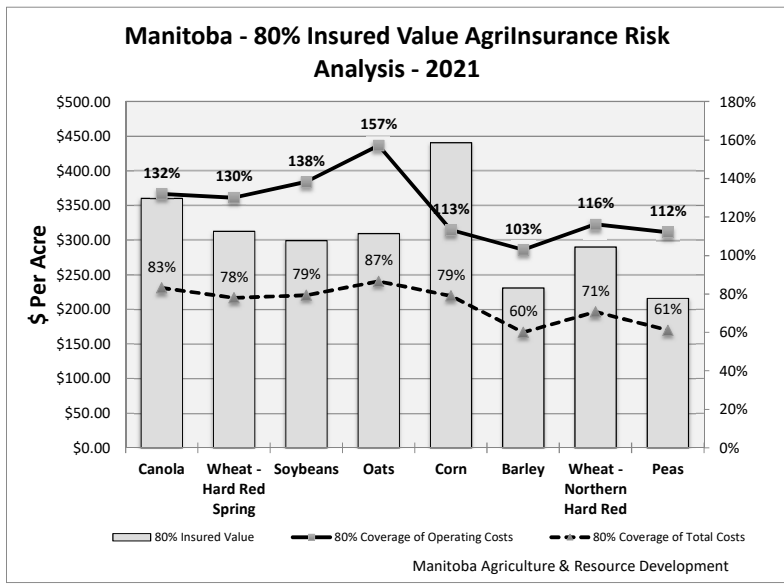
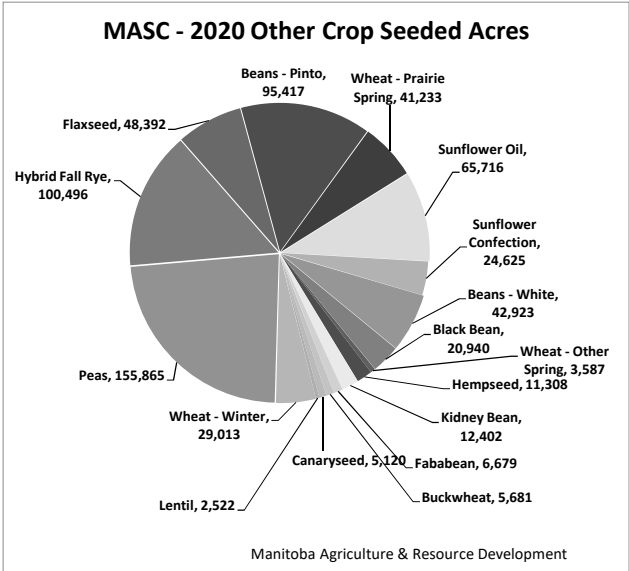
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Canola, Wheat - Hard Red Spring and Soybeans total 77% of the 2020 Seeded Acres and 78% of the 5 Year Average Seeded Acres

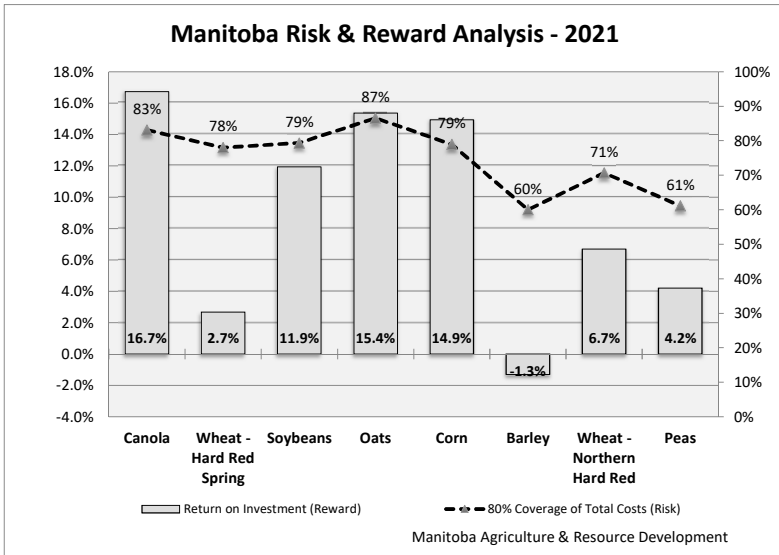


Other Crops are 7% of the 2020 Seeded Acres



Analysis of your AgrilInsurance Coverage of Operating and Total Costs is an important step in Risk Management Planning for your farm.

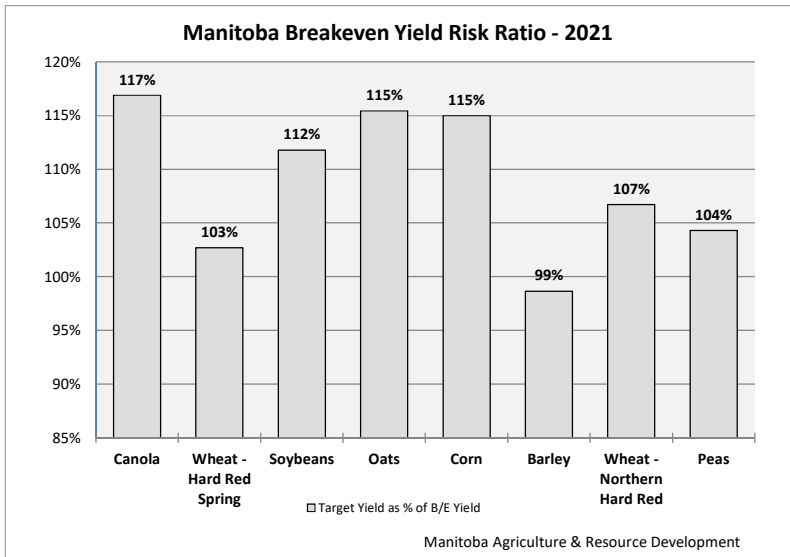




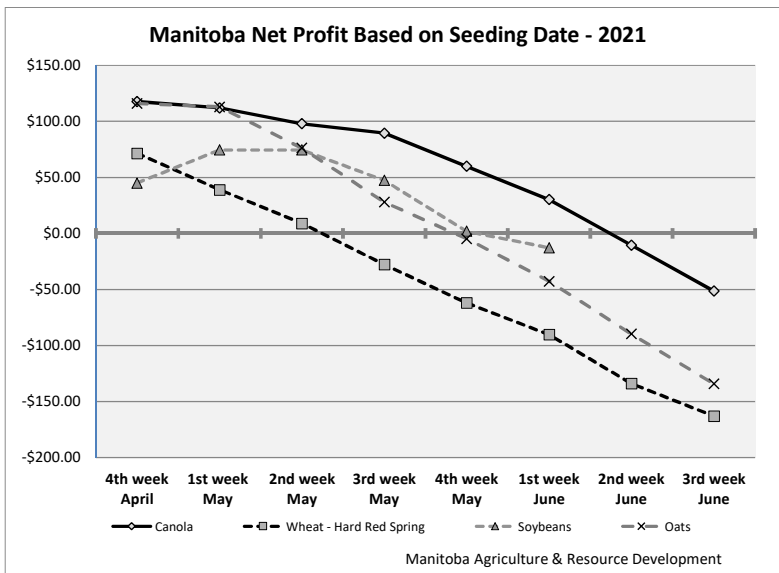
Analysis of ROI (Reward) and the associated Agrinsurance Coverage of Total Costs (Risk) is useful in comparing the profitability and cost efficiency alongside the production cost risk when evaluating crops to include in your rotation and is an important step in Risk Management Planning for your farm.



Analysis of your Breakeven Yields compared to Target (or average) Yields gives an indication of how close to B/E (\$0 profit = 100%) each crop in your rotation is if faced with potential production or market price challenges and is an important step in Risk Management Planning.



Seeding Date can have a significant impact on crop yields and net profitability. Analysis of seeding dates will highlight potential windows of profitability to seed crops in your rotation and is an important step in Risk Management Planning.



Seed & Treatment

<u>Crop</u>	<u>Seeding Rate</u> <u>per Acre</u>	<u>Price</u> <u>per Unit</u>	<u>Cost</u> <u>per Acre</u>
Canola	5 lb	\$13.50 /lb	\$67.50
* Soybeans	1.43 units	\$65.30 /unit	\$93.38
Wheat - Hard Red Spring	2.0 bu	\$14.50 /bu	\$29.00
Wheat - Northern Hard Red	2.0 bu	\$13.50 /bu	\$27.00
Wheat - Other Spring	2.0 bu	\$13.50 /bu	\$27.00
Wheat - Prairie Spring	2.0 bu	\$13.50 /bu	\$27.00
Wheat - Winter	2.0 bu	\$12.50 /bu	\$25.00
Barley	2.0 bu	\$9.00 /bu	\$18.00
Oats	2.5 bu	\$7.75 /bu	\$19.38
Corn	32,000 plants	\$0.0030 /plant	\$96.00
Peas	3 bu	\$16.83 /bu	\$50.49
Hybrid Fall Rye	1.5 bu	\$8.00 /bu	\$12.00
Flaxseed	60 lb	\$0.42 /lb	\$25.20
Beans - Pinto	0.75 units	\$110.00 /unit	\$82.50
Beans - White	1.10 units	\$71.00 /unit	\$78.10
Sunflower Oil	20,000 plants	\$0.0020 /plant	\$40.00
Sunflower Confection	18,000 plants	\$0.00275 /plant	\$49.50

* If row cropping, change seeding rate to 1.3 units/acre which reduces seed cost by 10%

Fertilizer

<u>Fertilizer Type</u>	<u>Bulk Price</u> <u>\$/tonne</u>	<u>Actual Nutrient</u> <u>\$/lb</u>	<u>Nitrogen</u> <u>Usage</u>	<u>Sulphur</u> <u>Usage</u>
Nitrogen: (urea) 46-0-0	\$500	\$0.493	50%	-
Nitrogen: (NH3) 82-0-0	\$790	\$0.437	50%	-
Nitrogen: (liquid) 28-0-0	\$320	\$0.518	0%	-
Phosphorus: 11-52-0	\$700	\$0.506	-	-
Potash: 0-0-60	\$480	\$0.363	-	-
Sulphur: 20.5-0-0-24	\$420	\$0.373	-	100%
MES S15: 13-33-0-15	\$650	\$0.424	-	0%

Amount of Actual Pounds of Elements Applied Per Acre

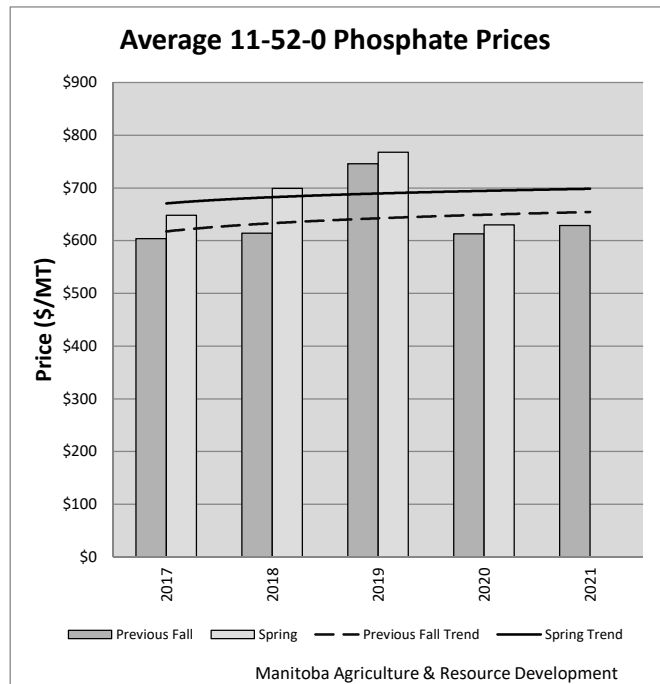
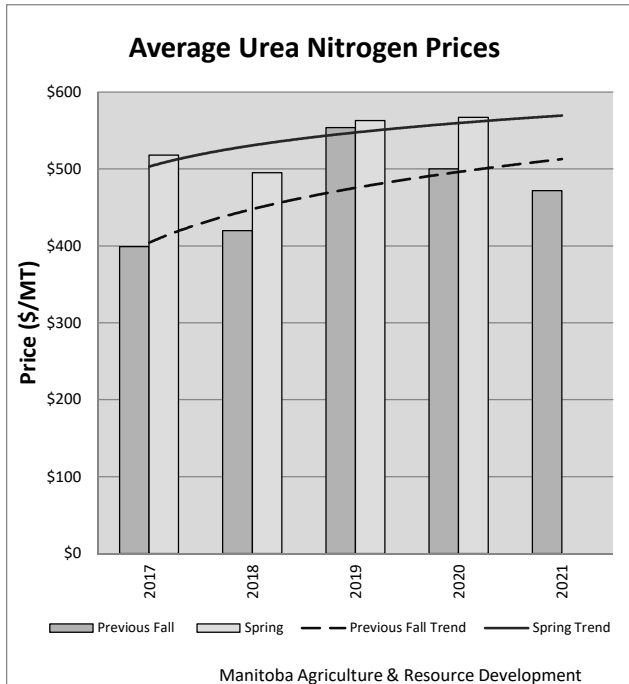
<u>Crop</u>	<u>Nitrogen</u>		<u>Phosphorus</u>		<u>Potash</u>		<u>Sulphur</u>		<u>Total</u> <u>\$/acre</u>
	<u>lbs</u>	<u>\$/acre</u>	<u>lbs</u>	<u>\$/acre</u>	<u>lbs</u>	<u>\$/acre</u>	<u>lbs</u>	<u>\$/acre</u>	
Canola	130	\$60.45	40	\$20.25	0	\$0.00	20	\$7.45	\$88.16
Soybeans	0	\$0.00	40	\$20.25	10	\$3.63	0	\$0.00	\$23.88
Wheat - Hard Red Spring	110	\$51.15	40	\$20.25	10	\$3.63	5	\$1.86	\$76.90
Wheat - Northern Hard Red	125	\$58.13	40	\$20.25	10	\$3.63	5	\$1.86	\$83.87
Wheat - Other Spring	110	\$51.15	40	\$20.25	10	\$3.63	5	\$1.86	\$76.90
Wheat - Prairie Spring	125	\$58.13	40	\$20.25	10	\$3.63	5	\$1.86	\$83.87
Wheat - Winter	115	\$53.48	40	\$20.25	10	\$3.63	5	\$1.86	\$79.22
Barley	90	\$41.85	30	\$15.19	10	\$3.63	5	\$1.86	\$62.53
Oats	75	\$34.88	30	\$15.19	10	\$3.63	10	\$3.73	\$57.42
Corn	135	\$62.78	65	\$32.91	25	\$9.07	20	\$7.45	\$112.21
Peas	0	\$0.00	30	\$15.19	10	\$3.63	0	\$0.00	\$18.82
Hybrid Fall Rye	145	\$67.43	40	\$20.25	10	\$3.63	5	\$1.86	\$93.17
Flaxseed	50	\$23.25	30	\$15.19	0	\$0.00	0	\$0.00	\$38.44
Beans - Pinto	70	\$32.55	30	\$15.19	0	\$0.00	0	\$0.00	\$47.74
Beans - White	80	\$37.20	30	\$15.19	0	\$0.00	0	\$0.00	\$52.39
Sunflower Oil	100	\$46.50	30	\$15.19	30	\$10.89	0	\$0.00	\$72.58
Sunflower Confection	100	\$46.50	30	\$15.19	30	\$10.89	0	\$0.00	\$72.58

* The fertilizer recommendation will vary depending on the soil type, climate and crop rotation. MARD recommends that soil test sampling and analysis be conducted each year to produce a better baseline for fertility. It costs \$1.00 to \$2.00/acre for custom sampling and analysis.

* For more information on fertilizer rates and recommendations - [Nitrogen Rate Calculator](#)

* Note: phosphorus amounts are allotted to each crop in the above examples. Sometimes this amount may not be practical or safe to apply with the seed of some crops like soybean or canola. Options for meeting these needs and phosphorus balance through the rotation are provided at:

[Phosphorus Balance Calculator](#)



Chemicals

Crop	Weed	Disease	Insect	Total
	Control	Control	Control	Cost
	\$/acre	\$/acre	\$/acre	\$/acre
Canola	\$14.41	\$16.50	\$0.00	\$30.91
Soybeans	\$10.47	\$0.00	\$0.00	\$10.47
Wheat - Hard Red Spring	\$30.73	\$16.50	\$0.00	\$47.23
Wheat - Northern Hard Red	\$30.73	\$16.50	\$0.00	\$47.23
Wheat - Other Spring	\$30.73	\$16.50	\$0.00	\$47.23
Wheat - Prairie Spring	\$30.73	\$16.50	\$0.00	\$47.23
Wheat - Winter	\$14.48	\$16.50	\$0.00	\$30.98
Barley	\$35.00	\$16.50	\$0.00	\$51.50
Oats	\$9.38	\$10.25	\$0.00	\$19.63
Corn	\$27.45	\$0.00	\$0.00	\$27.45
Peas	\$14.75	\$19.50	\$0.00	\$34.25
Hybrid Fall Rye	\$7.50	\$0.00	\$0.00	\$7.50
Flaxseed	\$20.63	\$14.50	\$0.00	\$35.13
Beans - Pinto	\$67.66	\$28.57	\$0.00	\$96.23
Beans - White	\$67.66	\$32.73	\$0.00	\$100.39
Sunflower Oil	\$28.59	\$0.00	\$0.00	\$28.59
Sunflower Confection	\$46.19	\$20.50	\$5.63	\$72.32

Note:

Pre-emergent burn off and/or pre-harvest desiccation not included in weed control costs. (except for wheat, win. wheat and sunflowers).

Chemical costs do not include year end rebates or bundling discounts

Disease Control costs (except for sunflowers listed on Operating Cost Page) do not include custom application costs

Operating Costs

Interest Rate on Operating	4.50%
Land Taxes (\$/acre)	\$15.00
Labour rate (\$/hour)	\$24.00
Machinery Operating (\$/acre)	\$10.00
Other Costs (\$/acre)	\$7.75
Fuel Cost (\$/litre)	\$0.85
Owners - Labour & Living (hrs/acre)	1.0

<u>Grain Hauling</u>		
Distance to storage	6	miles roundtrip
Distance to market	45	miles roundtrip
Grain truck fuel use	5	Miles per Imp. Gallon
Grain truck size	475	bushels

Operating Cost (\$/Acre)

Crop	Hired Labour (hrs/acre)	Fuel	Crop*		Drying Costs	Storage \$/acre**	Rental and Custom Costs					Total
			Insurance	Insurance			Seeding	Application	Swathing	Harvest	General	
Canola	0.2	\$20.82	\$7.77	\$6.35	-	\$5.11	-	-	-	-	-	\$0.00
Soybeans	0.2	\$18.71	\$12.16	\$8.26	-	\$4.20	-	-	-	-	-	\$0.00
Wheat - Hard Red Spring	0.2	\$21.64	\$6.64	\$6.35	-	\$6.93	-	-	-	-	-	\$0.00
Wheat - Northern Hard Red	0.2	\$22.38	\$8.78	\$6.35	-	\$7.95	-	-	-	-	-	\$0.00
Wheat - Other Spring	0.2	\$21.80	\$8.37	\$6.35	-	\$7.16	-	-	-	-	-	\$0.00
Wheat - Prairie Spring	0.2	\$22.38	\$6.66	\$6.35	-	\$7.95	-	-	-	-	-	\$0.00
Wheat - Winter	0.2	\$22.13	\$6.39	\$6.35	-	\$7.61	-	-	-	-	-	\$0.00
Barley	0.2	\$23.30	\$8.30	\$6.35	-	\$9.09	-	-	-	-	-	\$0.00
Oats	0.2	\$25.79	\$11.12	\$6.35	-	\$12.49	-	-	-	-	-	\$0.00
Corn	0.2	\$26.59	\$21.29	\$6.35	\$35.00	\$15.33	-	-	-	-	-	\$0.00
Peas	0.2	\$17.93	\$8.47	\$12.70	-	\$5.22	-	-	-	-	-	\$0.00
Hybrid Fall Rye	0.2	\$18.81	\$11.68	\$6.35	-	\$8.29	-	-	-	-	-	\$0.00
Flaxseed	0.2	\$19.67	\$10.32	\$6.35	-	\$2.84	-	-	-	-	-	\$0.00
Beans - Pinto	0.2	\$17.50	\$22.66	\$11.11	-	\$3.60	-	-	-	-	-	\$0.00
Beans - White	0.2	\$17.30	\$19.38	\$11.11	-	\$3.31	-	-	-	-	-	\$0.00
Sunflower Oil	0.2	\$21.36	\$13.86	\$6.35	\$10.00	\$8.18	-	\$8.50	-	-	-	\$8.50
Sunflower Confection	0.2	\$21.03	\$26.27	\$6.35	\$10.00	\$7.72	-	\$17.00	-	-	-	\$17.00

* 80% Insured Value - Based on MASC Risk Areas 2, 5, 6, & 12

** Storage costs are listed under Fixed Costs on the Summary Page.

Field Fuel Usage

Crop	Total L/acre	Number of Field Operations & Litres Fuel Per Acre Per Operation								Trucks L/acre	
		cultivator or tandem disk	high speed disk	harrow or land roller	air drill	row planter	SP sprayer	swather	combine & grain cart	3/4 ton pickup	grain hauling
Canola	24.49	2	1	1	1	1	4	1	1	2	4.39
Soybeans	22.01	2	1	1	1	1	2	1	1	2	3.61
Wheat - Hard Red Spring	25.45	1	1	1	1	1	4	1	1	2	5.95
Wheat - Northern Hard Red	26.33	1	1	1	1	1	4	1	1	2	6.83
Wheat - Other Spring	25.65	1	1	1	1	1	4	1	1	2	6.15
Wheat - Prairie Spring	26.33	1	1	1	1	1	4	1	1	2	6.83
Wheat - Winter	26.04	1	1	1	1	1	4	1	1	2	6.54
Barley	27.41	2	1	1	1	1	3	1	1	2	7.81
Oats	30.34	2	1	1	1	1	3	1	1	2	10.74
Corn	31.28	1	1	1	1	1	3	1	1	2	13.18
Peas	21.09	1	1	2	1	1	3	1	1	2	4.49
Hybrid Fall Rye	22.13	1	1	1	1	1	2	1	1	2	7.13
Flaxseed	23.14	2	1	2	1	1	3	1	1	2	2.44
Beans - Pinto	20.59	1	1	2	1	1	3	1	1	2	3.09
Beans - White	20.35	1	1	2	1	1	3	1	1	2	2.85
Sunflower Oil	25.13	1	1	1	1	1	3	1	1	2	7.03
Sunflower Confection	24.74	1	1	1	1	1	3	1	1	2	6.64

Guidelines: Crop Production Costs

Fixed Costs				
Land				
Average Land value (\$/acre)	\$3,100			
Conventional Crop acres	2,000			
Special Crop acres	500			
Owned Land Equity	85%			
Land Financed (\$465 per acre)	15%			
Land Opportunity Cost (Investment Rate)	1.50%			
Land cost (\$/acre)				
Finance Rate & Term	4.000%	25 Years		
Principle & Interest Cost	\$29.77			
Owned Land Opportunity Cost	\$39.53			
Total Cost	\$69.29			
Grain Storage		Usage %	Cost	
Non-aeration bins	15%	\$1.75 /bu		
Aeration bins	70%	\$2.40 /bu		
Hopper bins	15%	\$4.20 /bu		
Storage Financed	60%			
Machinery			Conventional Crop	Special Crop
Total Investment (\$/acre)			\$500.00	\$60.00
Residual Value (End of Useful Life)			25%	
Useful Life (years)			15	
Owned Equipment Equity			55%	
Equipment Financed (\$252 per acre)			45%	
Machinery Opportunity Cost (Investment Rate)			1.50%	
Machinery Cost (\$/acre)				
Finance Rate & Term	4.500%	7 Years		
Principle & Interest Cost			\$38.18	\$4.58
Machinery Depreciation Cost			\$25.00	\$3.00
Owned Machinery Opportunity Cost			\$4.13	\$0.50
			\$67.31	\$8.08
Total Land & Machinery Debt (\$/acre)			\$717	
Machinery Lease cost (\$/acre)			\$2.88	

Conventional Crop Equipment Inventory and Current Values							
	Market Value	Grain Usage %	Grain Allocation		Market Value	Grain Usage %	Grain Allocation
Power Equipment				Harvest Equipment			
4WD Tractor 475HP	\$250,000	100%	\$250,000	Combine	\$260,000	100%	\$260,000
MFWD Tractor 150HP	\$100,000	100%	\$100,000	Swather 35 ft	\$30,000	100%	\$30,000
2WD Tractor 60HP	\$30,000	100%	\$30,000	Harvest Header	\$50,000	100%	\$50,000
ATV Quad	\$5,000	100%	\$5,000	Tandem grain truck	\$60,000	100%	\$60,000
	\$0	0%	\$0	Grain cart	\$35,000	100%	\$35,000
	\$0	0%	\$0		\$0	0%	\$0
	\$0	0%	\$0		\$0	0%	\$0
Total Inv. = \$385,000 (\$154/acre or 31% of Total)				Total Inv. = \$435,000 (\$174/acre or 35% of Total)			
	Market Value	Grain Usage %	Grain Allocation		Market Value	Grain Usage %	Grain Allocation
Seeding & Tillage				Spraying & Misc.			
Cultivator	\$15,000	100%	\$15,000	SP sprayer	\$175,000	100%	\$175,000
Harrow 80ft	\$27,000	100%	\$27,000	Miscellaneous	\$9,000	100%	\$9,000
Air tank	\$60,000	100%	\$60,000	PTO Auger 13x70	\$15,000	100%	\$15,000
Air drill	\$125,000	100%	\$125,000	Auger 8x35	\$4,000	100%	\$4,000
	\$0	0%	\$0		\$0	0%	\$0
	\$0	0%	\$0		\$0	0%	\$0
Total Inv. = \$227,000 (\$91/acre or 18% of Total)				Total Inv. = \$203,000 (\$81/acre or 16% of Total)			
Owned Equipment TOTAL \$1,250,000							

Special Crop Equipment Inventory and Current Values							
	Market Value	Grain Usage %	Grain Allocation		Market Value	Grain Usage %	Grain Allocation
Seeding, Tillage, Spraying				Harvest Equipment			
Planter	\$100,000	100%	\$100,000	Harvest Header	\$50,000	100%	\$50,000
	\$0	0%	\$0		\$0	0%	\$0
Total \$100,000				Total \$50,000			
Special Equipment TOTAL \$150,000							

Leased Equipment Inventory							
	Annual Lease	Grain Usage %	Grain Allocation		Annual Lease	Grain Usage %	Grain Allocation
Seeding, Tillage, Spraying				Trucks & Trailers			
enter equipment here	\$0	0%	\$0	3/4 ton pickup	\$9,600	75%	\$7,200
	\$0	0%	\$0		\$0	0%	\$0
	\$0	0%	\$0		\$0	0%	\$0
Total \$0				Total \$7,200			
Leased Equipment TOTAL \$7,200 \$2.88 per acre							

* Leased equipment costs are listed under Operating Costs on the Summary Page.

Other Assumptions

Fuel Costs: Includes fuel used for field work, trucking in inputs and trucking out production.

Machinery Operating Costs: Includes costs for maintenance, repairs, licenses and insurance.

Crop Insurance: (2020 rates)

80% Insured Value coverage, \$50/acre excess moisture Insurance, and additional hail insurance at \$200/acre coverage for all crops. Coverage and costs based on MASC Risk Areas #2, 5, 6, and 12.

Other Costs: Includes overhead expenses - hydro, telephone, accounting, buildings, supplies and insurance, etc.

Land Taxes: The average cost based on land tax assessment and mill rates of a sample of municipalities growing crops less provincial tax rebate.

Drying Costs: Budget allocates costs only for corn and sunflowers. However, drying costs may be incurred in some years for the other crops.

Interest On Operating: Interest charges on operating costs are calculated at 4.5% for six months.

Land Cost:

Based on approximate average land values. Budget assumed 15% financed at 4% for 25 years, plus 1.5% land equity opportunity cost. Budget can be used to estimate cashflow by removing investment cost.

P&I Cost (based on \$1,162,500 Mortgage) = \$74,414 payments per year / 2500 acres = \$29.77/acre)

Investment = (Total Investment x Owned Equity %) x Investment Rate % (eg. ((\$3,100 x 85%) x 1.5%) = \$39.53/acre)

Machinery Cost:

Based on approximate average machinery values. Budget assumed 45% financed at 4.5% for 7 years, depreciation costs over 15 years with a 25% residual value, plus 1.5% machinery equity opportunity cost. Budget can be used to estimate cashflow by removing depreciation and investment cost.

P&I Cost (based on \$562,500 + \$67,500 Loans) = \$95,457 + \$11,455 payments per year / 2500 acres = \$38.18 and \$4.58/acre)

Depreciation (Useage Cost) = (Total Investment - Residual Value) / Years Useful Life (eg. (\$500 - (\$500 x 25%)) / 15 = \$25.00/acre)

Investment = (Total Investment x Owned Equity %) x Investment Rate % (eg. (\$500 x 55%) x 1.5%) = \$4.13/acre)

Depreciation Cost = $\frac{\text{Original Cost} - \text{Salvage Value}}{\text{Useful Life}}$

Investment Cost = $\frac{\text{Original Cost} + \text{Salvage Value}}{2} \times \text{Investment Rate}$

Estimated Farmgate Values:

Target crop prices are based on deferred delivery contract prices for fall 2020.

Target yields are estimated based on 5 year MASC average yields.

Storage Cost:

Storage costs for each crop are based on estimated yields entered on the Summary page.

Budget assumed 60% financed at 4% for 20 years.

Farm storage requirements were assumed to cost \$1.75/bushel for 15% of the storage, \$2.40/bushel for 70% aerated storage and \$4.20/bushel for 15% hopper storage.

Profitability, Breakeven & Risk Analysis Formulas:

Gross Revenue = Price per unit x Yield per acre (eg. wheat: \$6.75/bu x 61bu/ac = \$411.75/ac)

Net Profit = Gross Revenue - Total Cost (eg. wheat: \$411.75 gross revenue - \$401 total cost = \$10.75 per acre)

Operating Expense Ratio = (Operating Cost / Gross Revenue) x 100 (eg. wheat: \$240.40 operating expense / \$401 total cost = 58.4%)

\$ Revenue Per \$ Cost = Gross Revenue / Total Cost (eg. wheat: \$411.75 gross revenue / \$401 total cost = \$1.03)

Return on Investment (ROI) = (Gross Revenue - Total Cost) / Total Cost (eg. wheat: (\$411.75 gross revenue-\$401 total cost) / \$401 total cost = 2.7%)

Estimated Return on Asset (ROA) = (Margin Over Operating - Labour - Machinery Depreciation) / (Land Investment Cost + Machinery Investment Cost)

(eg. wheat: (\$171.35 margin - \$4.80 labour - \$25.00 dep.) / (\$3100 land cost + \$500.00 conv. machinery + \$60.00 special crop. mach.) = 3.34%)

Breakeven Price = Cost / Target Yield (eg. wheat cost \$401.00 / 61 bu = \$6.57 per bu)

Breakeven Yield = Cost / Target Price per Unit (eg. wheat cost \$401.00 / \$6.75 bu = 59.4 bu)

Breakeven Yield Risk Ratio = (Target Yield per Acre / Breakeven Yield) x 100 (eg. wheat yield 61 bu/ac / 59.4 bu BE = 103 %)

AgriInsurance Risk Ratio = (AgriInsurance Coverage / Operating Cost) x 100 (eg. wheat coverage \$312.70/ac / \$240.40 operating expense = 130 %)

Created and maintained by [Manitoba Agriculture and Resource Development Farm Management](#)

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