
Crop Costs of Production

Fertilizer Efficiency Calculator

A Made-in-MB 4R Extension Model



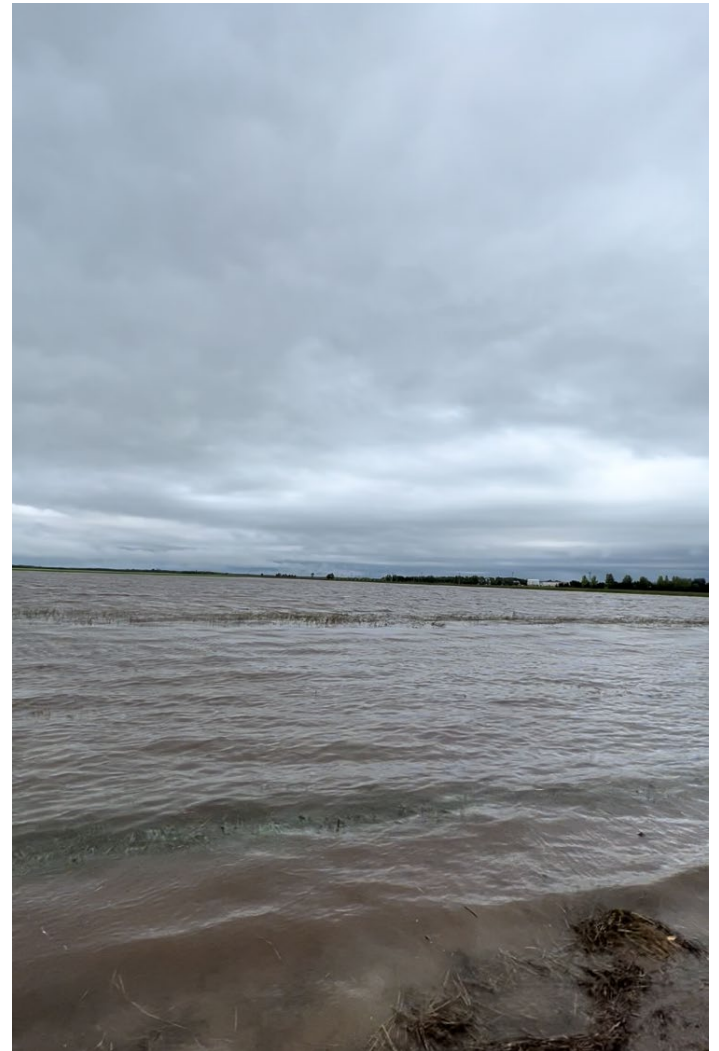
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Manitoba Agriculture

January 2023



2021.....vs.....2022



Road Map for Today's Discussion

- What drives our Farm Management Team:
 - Profitability
 - ✓ Yield - Price - Cost
 - Risk
 - ✓ Higher cost = Higher risk
 - Provide value to the ag industry to make better management decisions.
 - ✓ Sustainability – Economic, Environment, Business Continuity

What risks does the future hold?

- Are current grain prices and fertilizer prices “the new normal”?
- If grain prices soften, will there be a lag with input prices falling?
- If there is a recession, what happens to profitability?

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Production Economics

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Production Economics

Put data to work for your farm using our **Cost of Production** guides, interactive **Farm Software and Worksheets** and **Machinery Costs**.

[Cost of Production](#)

These estimates can act as a starting point for farm budgets. They can be adapted to your operation using your own farm records.

[Farm Software and Worksheets](#)

Make data to work for your farm using our interactive farm software and worksheets. This will help you make informed decisions for your farm and family.

[Machinery Costs](#)

Farm machinery makes up a significant part of the fixed and variable costs for any farm operation

2023 Cost of Production

Crops

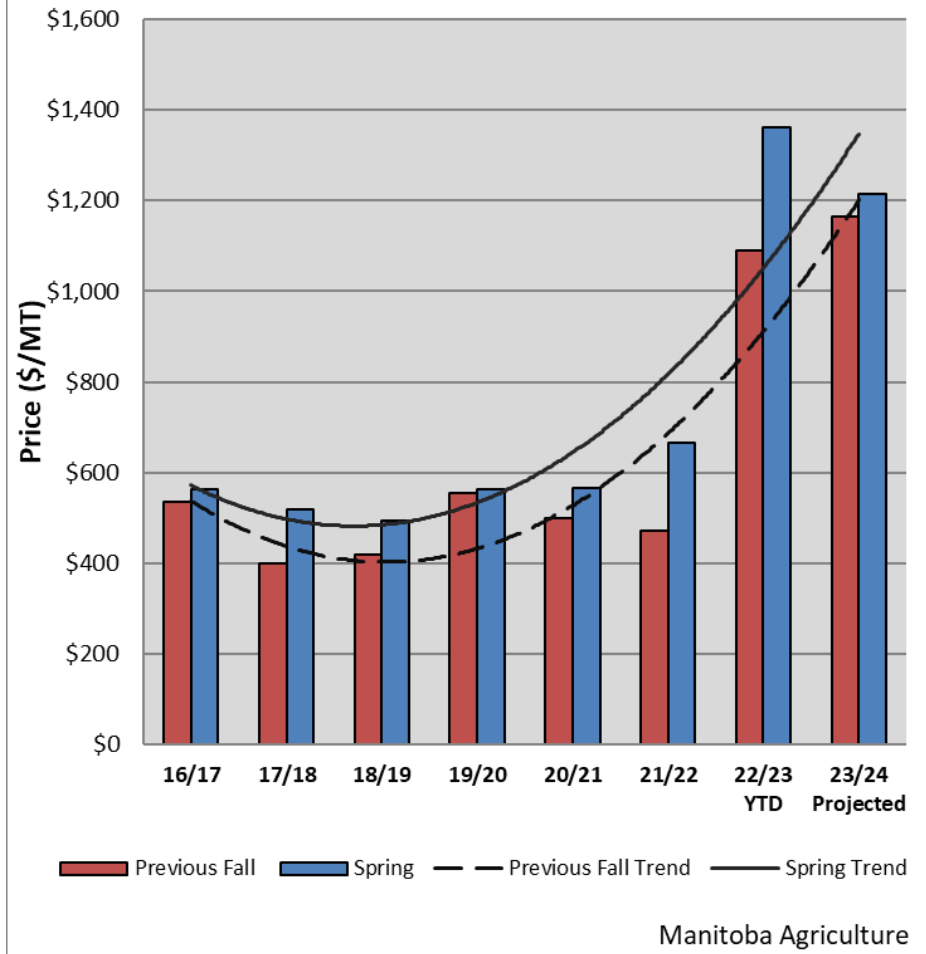


2021

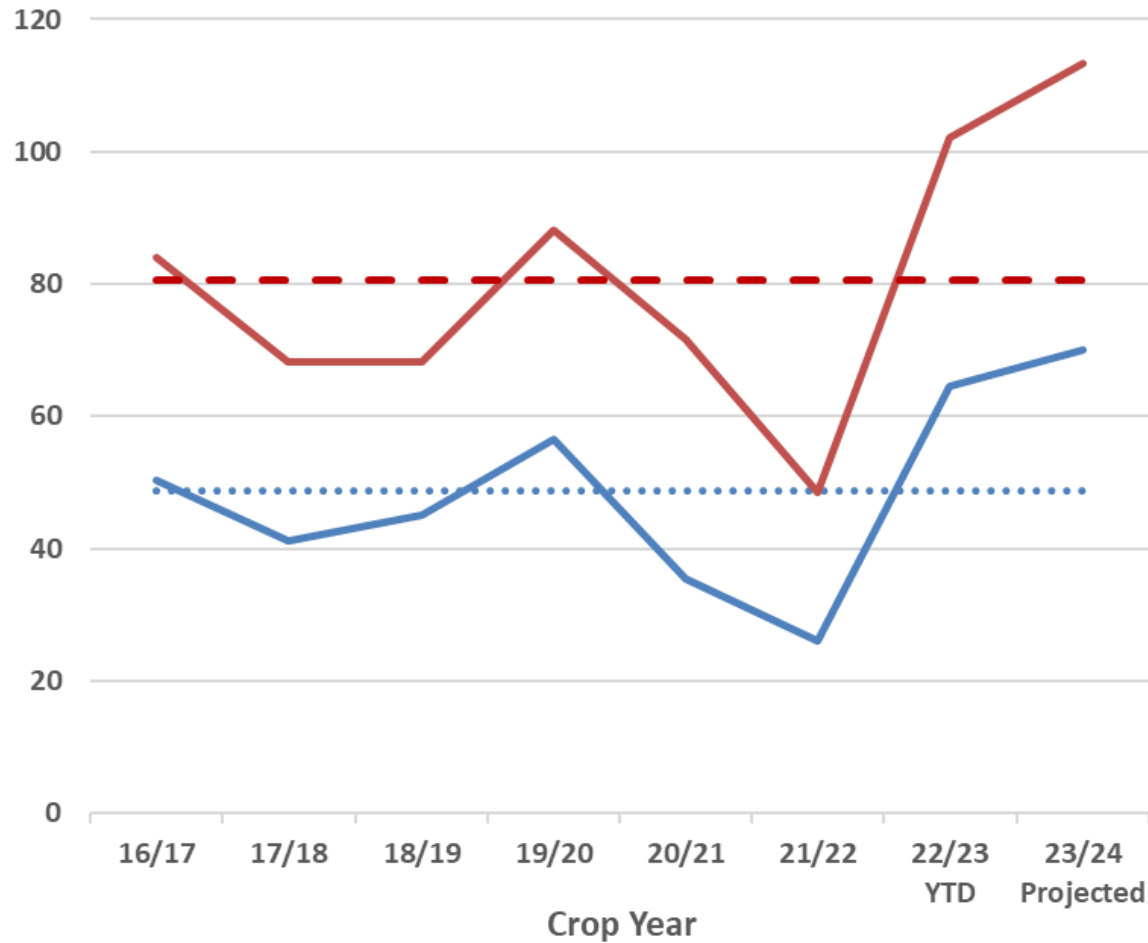
2023

	Canola	Wheat - Hard Red Spring	Soybeans	Canola	Wheat - Hard Red Spring	Soybeans
A. Operating Costs						
Seed & Treatment	\$67.50	\$29.00	\$93.38	\$77.50	\$34.00	\$97.10
Fertilizer	\$88.16	\$76.90	\$23.88	\$184.03	\$164.11	\$52.92
Pesticide	\$30.91	\$47.23	\$10.47	\$66.27	\$55.33	\$16.67
Fuel	\$20.82	\$21.64	\$18.71	\$44.54	\$45.78	\$40.78
Machinery Operating & Lease	\$12.88	\$12.88	\$12.88	\$25.00	\$25.00	\$25.00
Labour - Hired	\$4.80	\$4.80	\$4.80	\$5.20	\$5.20	\$5.20
Crop Insurance	\$7.77	\$6.64	\$12.16	\$13.73	\$10.65	\$20.26
Hail Insurance	\$6.35	\$6.35	\$8.26	\$12.50	\$12.50	\$16.25
Drying & Other Costs	\$7.75	\$7.75	\$7.75	\$17.75	\$17.75	\$17.75
Land Taxes	\$15.00	\$15.00	\$15.00	\$17.50	\$17.50	\$17.50
Storage Costs	\$5.11	\$6.93	\$4.20	\$11.43	\$16.63	\$9.35
Interest on Operating	\$6.01	\$5.29	\$4.76	\$18.42	\$15.67	\$12.35
Total Operating	\$273.06	\$240.40	\$216.25	\$493.87	\$420.13	\$331.13
B. Fixed Costs						
Land Costs	\$69.29	\$69.29	\$69.29	\$97.17	\$97.17	\$97.17
Machinery Costs	\$67.31	\$67.31	\$67.31	\$86.37	\$86.37	\$86.37
Total Fixed	\$136.60	\$136.60	\$136.60	\$183.54	\$183.54	\$183.54
C. Owners - Labour & Living	\$24.00	\$24.00	\$24.00	\$26.00	\$26.00	\$26.00
Total Costs	\$433.66	\$401.00	\$376.84	\$703.41	\$629.67	\$540.67

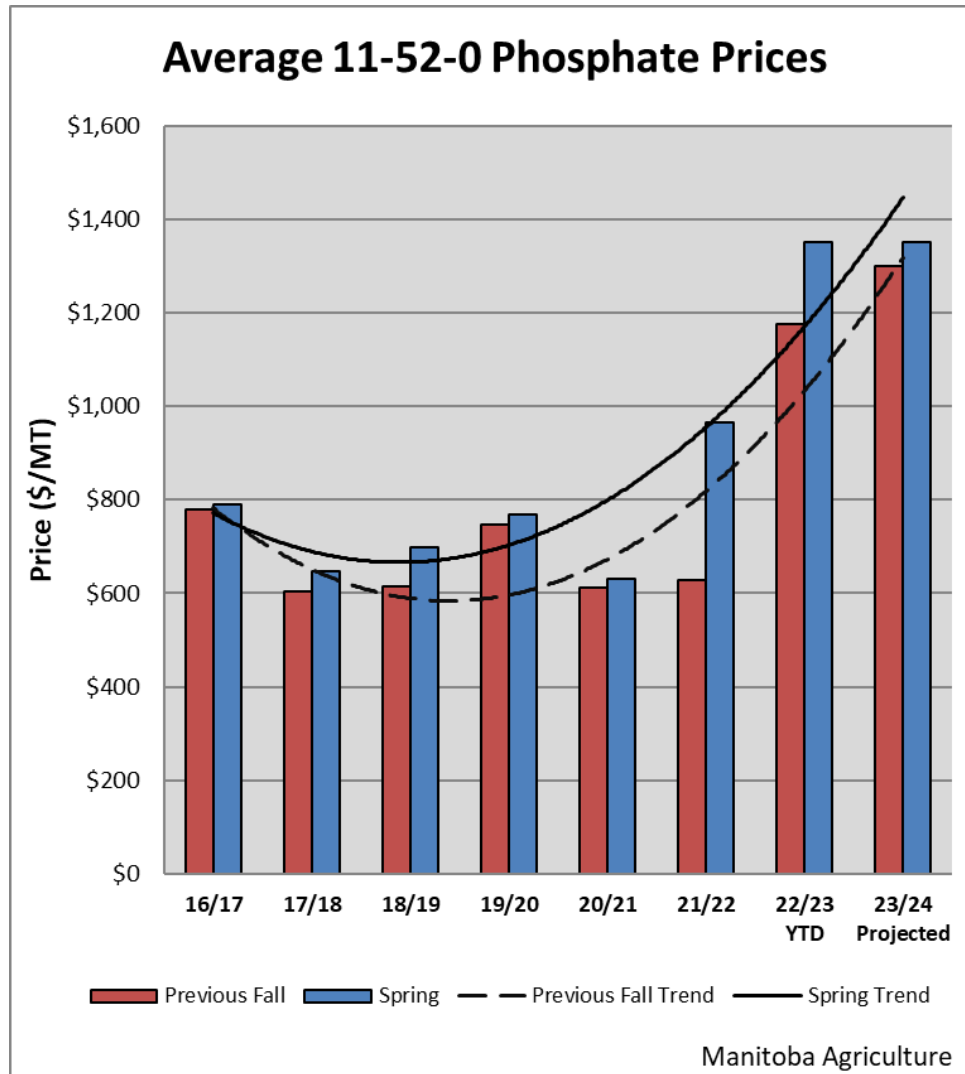
Average Urea Nitrogen Prices



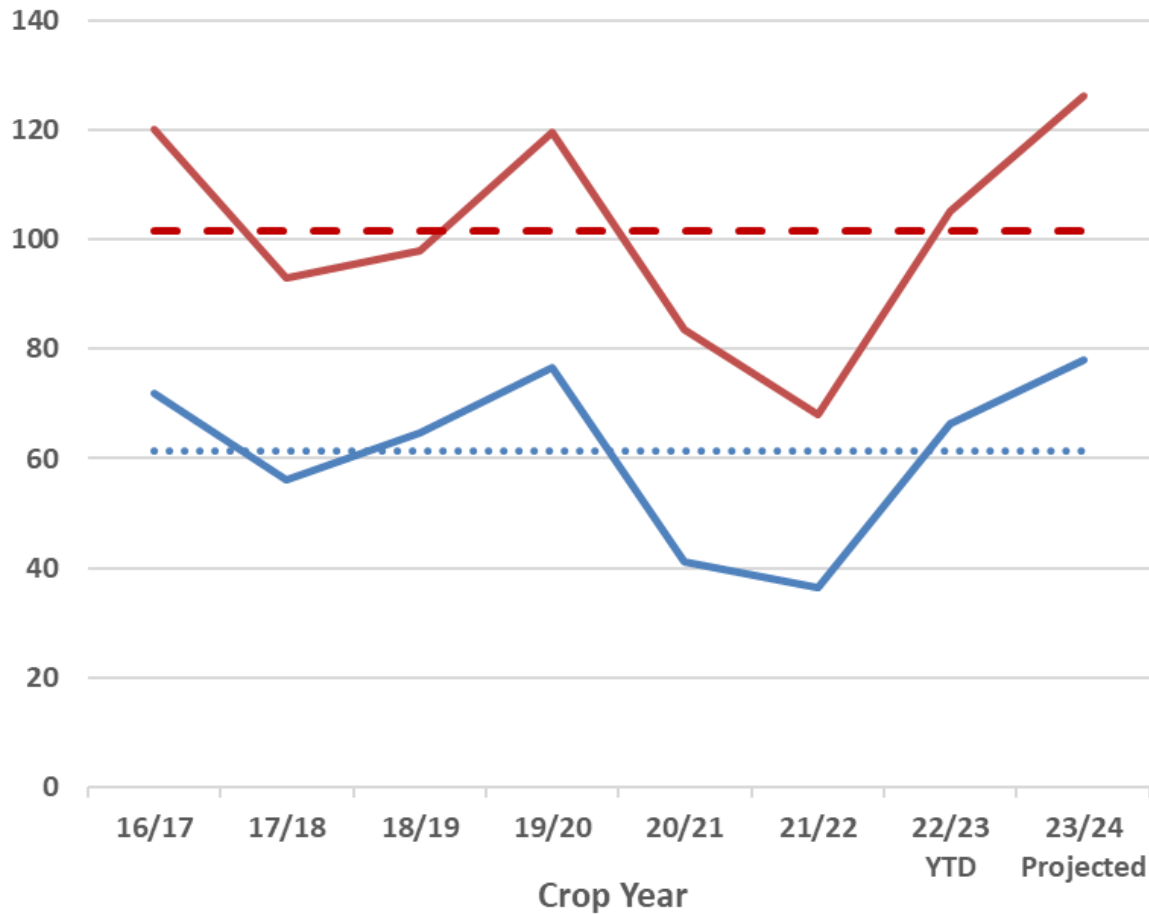
Long Term Fertilizer Affordability - Bushels of Grain Required to Purchase 1 Tonne of Urea



— Canola Avg. Canola — Wheat - - - Avg. Wheat



Long Term Fertilizer Affordability - Bushels of Grain Required to Purchase 1 Tonne of Phosphate



— Canola Avg. Canola — Wheat - - - Avg. Wheat

Fertilizer Management - The Need for Efficiency

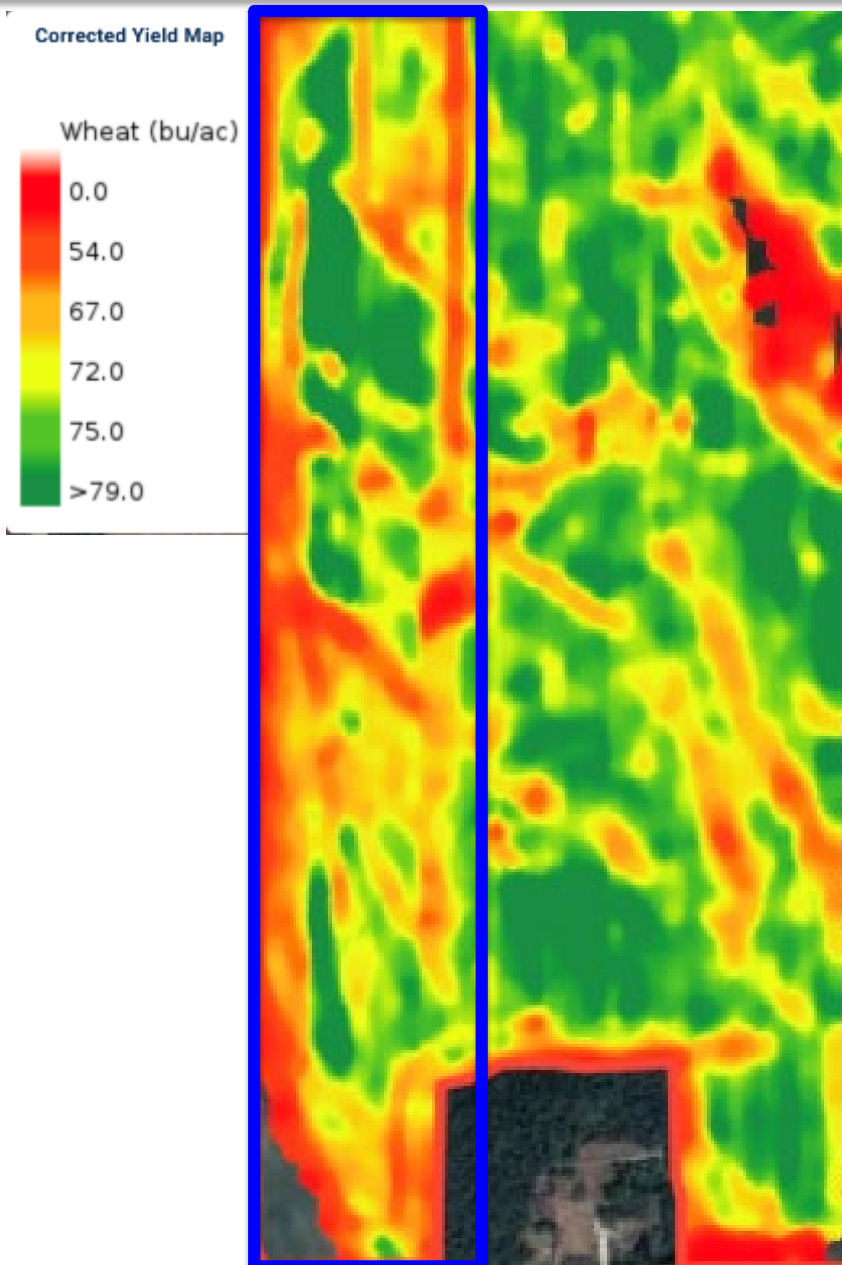
- Fertilizer costs are at a historically high price.
- Grain prices (and potential profitability) are also high.
- Current crop production practices and genetics have greatly increased crop yields which require more fertilizer.
- There's an increased focus on fertilizer and the environment.
- Need to integrate, recalibrate and optimize all these variables in order to maintain farm profitability.
- Need to easily assess the financial benefits to improving beneficial fertilizer management practices

Fertilizer Efficiency – Make it Work to Our Advantage

- Fertilizer has an efficiency factor based on application (**4R's**):
 - **Right Source** Different formulations carry different cost structures and rates
 - **Right Place** More fertilizer is required for a broadcast application for a comparable effect to banding
 - **Right Time** More fertilizer is required for a fall application compared to spring for a comparable rate
 - **Right Rate** Determining how much fertilizer to use is quite specific to each crop, farm, field and zone
- Make fertilizer efficiency work for us, not against us

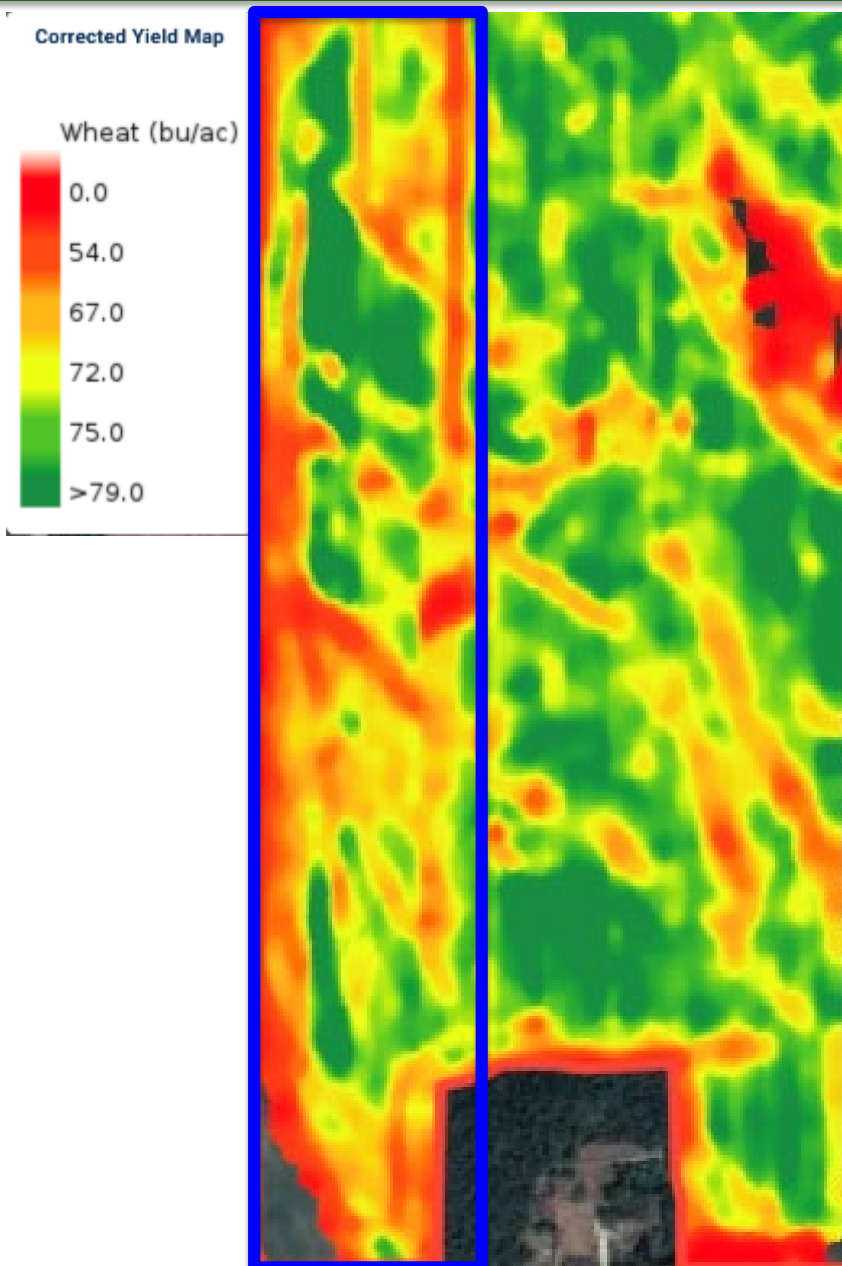
Costs are one thing, yield loss is another...

- Example on our farm (2022):
 - 85lb N in mid-row banders
 - With 45 ac left, ran out of N mid-row blend
 - Went back in after seeding (after emergence) with 85lb N broadcast with urease inhibitor
 - 1" rain 5 days after broadcast application



Costs are one thing, yield loss is another...

- **\$75/ac less revenue**
- **6.7 bu/ac less yield in broadcast area**
- Banded area yield was much more consistent
- \$0 profit on these acres
 - *“Everyone got paid except me!”*



A we have a calculator for that!

Scenario #1

Fertilizer Efficiency Calculator

Printed: 2023-01-09

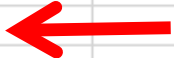

*** Enter changes to BLUE values only ***

Version 1.11

Fertilizer Cost Input (4R - Right Source)

Fertilizer Type	Bulk Price \$/tonne	Fertilizer Analysis				Actual Nutrient \$/lb
		N	P	K	S	
Nitrogen (46-0-0-0)	\$1,150	46	0	0	0	\$1.134
Nitrogen (82-0-0-0)	\$2,000	82	0	0	0	\$1.106
Nitrogen (28-0-0-0)	\$750	28	0	0	0	\$1.215
Phosphate (11-52-0-0)	\$1,325	11	52	0	0	\$0.916
Potash (0-0-60-0)	\$1,050	0	0	60	0	\$0.794
Sulphur (20.5-0-0-24)	\$700	20.5	0	0	24	\$0.354

Crop Selection

Crop to be Grown	Wheat	
Soil Moisture Zone	Moist	
Valid Yield Range	50 to 64 bu/ac	
Your Target Yield (bu/ac)	63	

Manitoba Soil Test & Fertilizer Recommendation (4R - Right Rate)

		Soil Test Analysis			
		N	P	K	S
		0 to 24 in. lb/acre	Olson Test ppm	ppm	0 to 24 in. lb/acre
Enter Field name or number (optional)		20	12	95	25
Soil Test Nutrient Recommendation Before Adjustments (lb/acre)		109	30	15	0
Adjustments		0	0	0	0
Nutrient Recommendation (lb/acre)		109	30	15	0



Nitrogen recommended rates based on spring broadcast PPI (pre-plant incorporated) application
 Phosphate recommended rates based on banded with the seed application
 Potassium recommended rates for cereals based on banded with seed and canola based on banded away from seed application

Fertilizer Application (4R - Right Time & Right Place)

		Fertilizer Efficiency - Based on Application Method & Timing				
		Spring N	Fall N	P	K	S
	Broadcast	100%	80%	50%	50%	100%
	Banded	120%	100%	100%	100%	100%



Note: Phosphate recommended rates for broadcast PPI (pre-plant incorporated) are 2X of banded rates.
 Note: Potassium recommended rates for broadcast PPI (preplant incorporated) are 2X of banded rates.
 Note: Sulphur recommended rates for broadcast PPI (preplant incorporated) are 1.5X of banded rates.

Fertilizer Application #2,

	Timing of Application	Spring				
	Method of Application	Banded				
	Nitrogen Source	Nitrogen (46-0-0-0)				Enhanced Efficiency N? <input type="checkbox"/> No
		N	P	K	S	TOTAL
	Application Method & Timing Efficiency Factor	120%	100%	100%	100%	
	Nutrient Recommendation - based on Application Method & Timing (lb/acre)	92	30	15	0	
	Nutrient Blend (actual lb/acre)	0	20	15	0	
	Effective Fertilizer Rate Applied (actual lb/acre)	4	20	15	0	
	Fertilizer Cost (\$/acre)	\$0.00	\$23.12	\$11.91	\$0.00	\$35.02
	Nutrient Requirement Balance Remaining (actual lb/acre)	105	10	0	0	

**Press to Reset
Nutrient Blend**

Fertilizer Application #3,

	Timing of Application	Spring				
	Method of Application	Broadcast				
	Nitrogen Source	Nitrogen (46-0-0-0)				Enhanced Efficiency N? <input type="checkbox"/> No
		N	P	K	S	TOTAL
	Application Method & Timing Efficiency Factor	100%	50%	50%	100%	
	Nutrient Recommendation - based on Application Method & Timing (lb/acre)	105	20	0	0	
	Nutrient Blend (actual lb/acre)	101	20	0	0	
	Effective Fertilizer Rate Applied (actual lb/acre)	105	10	0	0	
	Fertilizer Cost (\$/acre)	\$114.27	\$23.12	\$0.00	\$0.00	\$137.39
	Nutrient Requirement Balance Remaining (actual lb/acre)	0	0	0	0	

**Press to Reset
Nutrient Blend**

Fertilizer Efficiency Analysis

	Cost Efficiency		
	Most Efficient	Your Field	Least Efficient
Fertilizer Cost (\$/acre)	\$141.22	\$172.41	\$239.43
Fertilizer Cost Efficiency Score (%)	100%	68%	0%
Your Field Inefficiency Cost (\$/acre)		\$31.19 *	
Net Profit (\$/acre)	\$54.26	\$21.38	-\$49.29

Fertilizer Cost Efficiency Score (%)



Your Field Score - 68%

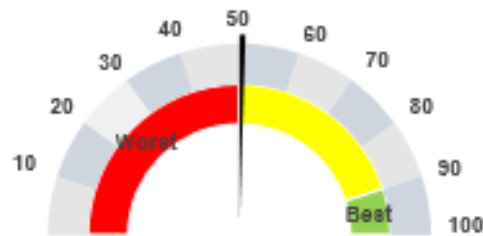
** Did you know? Your farm could save \$30.98/ac on Application #3 by improving your fertilizer efficiency through choosing better timing, placement and source!*

Nitrogen Fertilizer Greenhouse Gas Efficiency Score (%)



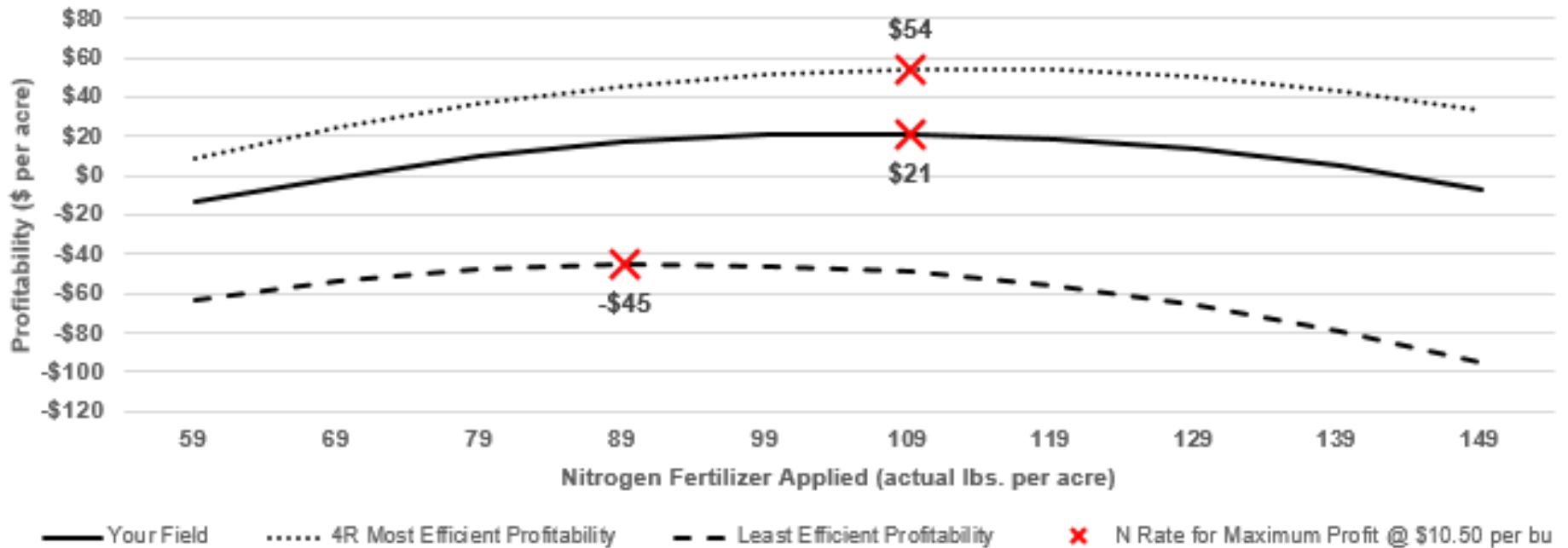
Your Field Score - 60%

Phosphate Fertilizer Environmental Safety Score (%)

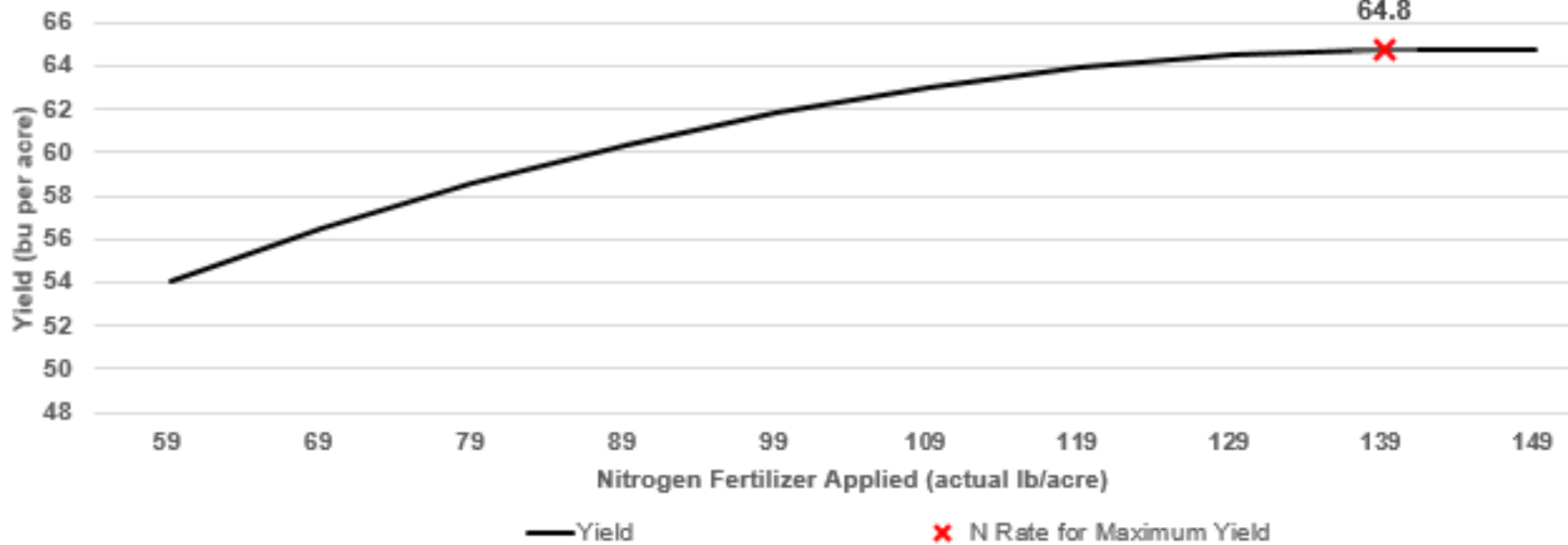


Your Field Score - 50%

Maximized Wheat Profitability - Moist Soil (based on 20 lb/acre soil test)



Wheat Yield Response to Nitrogen - Moist Soil (based on 20 lb/acre soil test)



Fertilizer Application #2,

Timing of Application	Spring					
Method of Application	Banded					
Nitrogen Source	Nitrogen (46-0-0-0)				Enhanced Efficiency N?	No
	N	P	K	S	TOTAL	
Application Method & Timing Efficiency Factor	120%	100%	100%	100%		
Nutrient Recommendation - based on Application Method & Timing (lb/acre)	92	30	15	0		
Nutrient Blend (actual lb/acre)	0	20	15	0		Press to Reset Nutrient Blend
Effective Fertilizer Rate Applied (actual lb/acre)	4	20	15	0		
Fertilizer Cost (\$/acre)	\$0.00	\$23.12	\$11.91	\$0.00	\$35.02	
Nutrient Requirement Balance Remaining (actual lb/acre)	105	10	0	0		

Fertilizer Application #3,

Timing of Application	Spring					
Method of Application	Broadcast					
Nitrogen Source	Nitrogen (46-0-0-0)				Enhanced Efficiency N?	Yes
	N	P	K	S	TOTAL	
Application Method & Timing Efficiency Factor	100%	50%	50%	100%		
Nutrient Recommendation - based on Application Method & Timing (lb/acre)	105	20	0	0		
Nutrient Blend (actual lb/acre)	101	20	0	0		Press to Reset Nutrient Blend
Effective Fertilizer Rate Applied (actual lb/acre)	105	10	0	0		
Fertilizer Cost (\$/acre)	\$114.27	\$23.12	\$0.00	\$0.00	\$137.39	
Nutrient Requirement Balance Remaining (actual lb/acre)	0	0	0	0		

Fertilizer Efficiency Analysis

	Cost Efficiency		
	Most Efficient	Your Field	Least Efficient
Fertilizer Cost (\$/acre)	\$141.22	\$172.41	\$239.43
Fertilizer Cost Efficiency Score (%)	100%	68%	0%
Your Field Inefficiency Cost (\$/acre)		\$31.19 *	
Net Profit (\$/acre)	\$54.26	\$21.38	-\$49.29

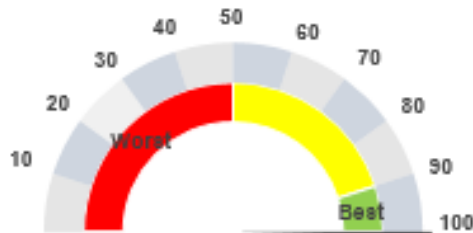
Fertilizer Cost Efficiency Score (%)



Your Field Score - 68%

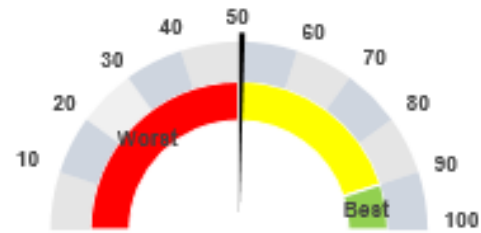
** Did you know? Your farm could save \$30.98/ac on Application #3 by improving your fertilizer efficiency through choosing better timing, placement and source!*

Nitrogen Fertilizer Greenhouse Gas Efficiency Score (%)



Your Field Score - 100%

Phosphate Fertilizer Environmental Safety Score (%)



Your Field Score - 50%

Fertilizer Application #2,

Timing of Application	Spring				
Method of Application	Banded				
Nitrogen Source	Nitrogen (46-0-0-0)				Enhanced Efficiency N? <input type="checkbox"/> No
	N	P	K	S	TOTAL
Application Method & Timing Efficiency Factor	120%	100%	100%	100%	
Nutrient Recommendation - based on Application Method & Timing (lb/acre)	92	30	15	0	
Nutrient Blend (actual lb/acre)	0	20	15	0	
Effective Fertilizer Rate Applied (actual lb/acre)	4	20	15	0	
Fertilizer Cost (\$/acre)	\$0.00	\$23.12	\$11.91	\$0.00	\$35.02
Nutrient Requirement Balance Remaining (actual lb/acre)	105	10	0	0	

Press to Reset
Nutrient Blend

Fertilizer Application #3,

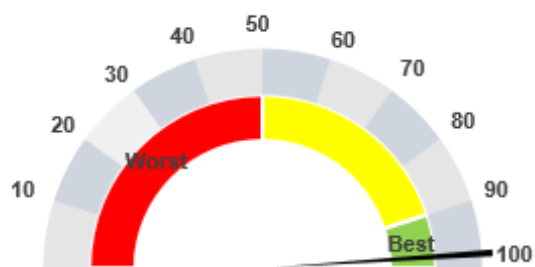
Timing of Application	Spring				
Method of Application	Banded				
Nitrogen Source	Nitrogen (46-0-0-0)				Enhanced Efficiency N? <input type="checkbox"/> No
	N	P	K	S	TOTAL
Application Method & Timing Efficiency Factor	120%	100%	100%	100%	
Nutrient Recommendation - based on Application Method & Timing (lb/acre)	88	10	0	0	
Nutrient Blend (actual lb/acre)	86	10	0	0	
Effective Fertilizer Rate Applied (actual lb/acre)	105	10	0	0	
Fertilizer Cost (\$/acre)	\$97.22	\$11.56	\$0.00	\$0.00	\$108.77
Nutrient Requirement Balance Remaining (actual lb/acre)	0	0	0	0	

Press to Reset
Nutrient Blend

Fertilizer Efficiency Analysis

		Cost Efficiency		
		Most Efficient	Your Field	Least Efficient
Fertilizer Cost (\$/acre)		\$141.22	\$143.80	\$239.43
Fertilizer Cost Efficiency Score (%)		100%	97%	0%
Your Field Inefficiency Cost (\$/acre)			\$2.58 *	
Net Profit (\$/acre)		\$54.26	\$51.54	-\$49.29

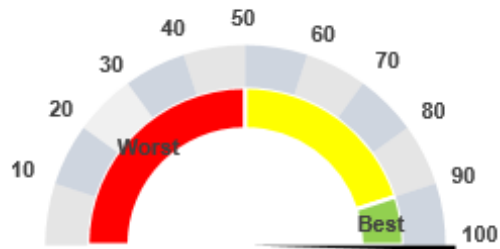
Fertilizer Cost Efficiency Score (%)



Your Field Score - 97%

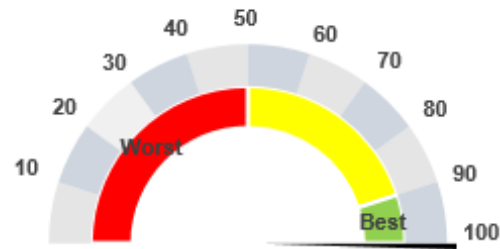
** Well done! Win-Win! You have achieved 97% fertilizer cost efficiency and 100% nitrogen fertilizer greenhouse gas efficiency!*

Nitrogen Fertilizer Greenhouse Gas Efficiency Score (%)



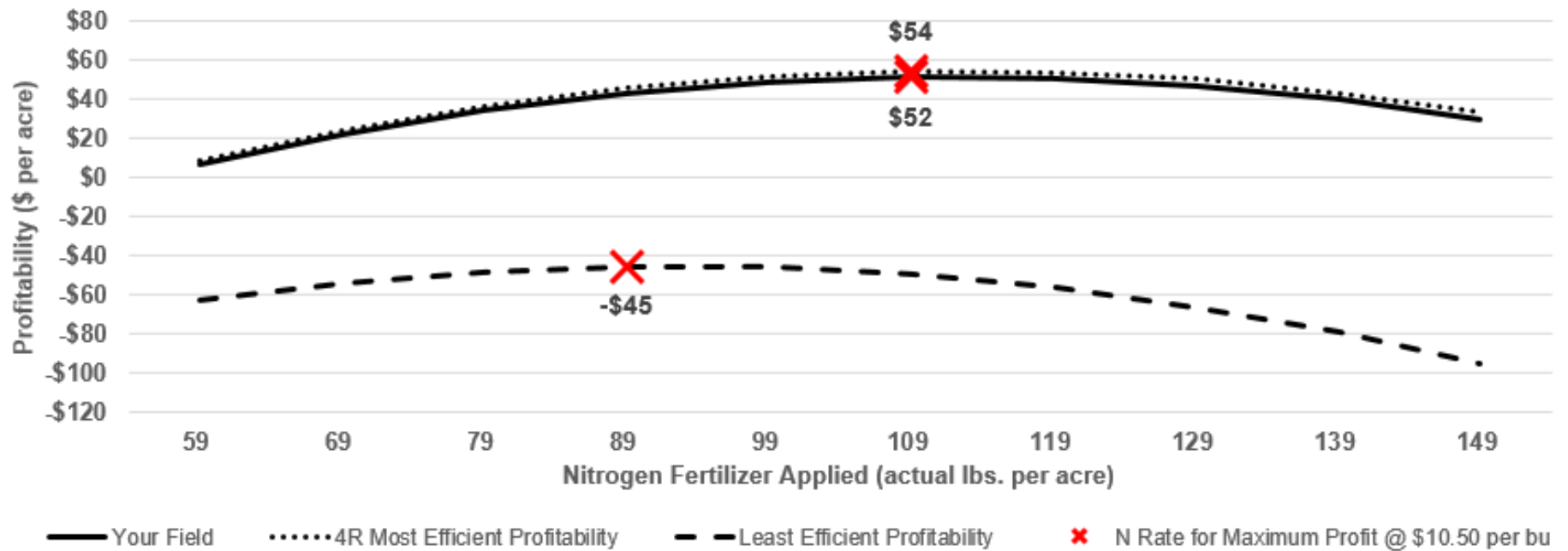
Your Field Score - 100%

Phosphate Fertilizer Environmental Safety Score (%)



Your Field Score - 100%

Maximized Wheat Profitability - Moist Soil (based on 20 lb/acre soil test)



Scenario #2

Fertilizer Efficiency Calculator

Printed: 2023-01-09

*** Enter changes to BLUE values only ***

Version 1.11

Fertilizer Cost Input (4R - Right Source)

Fertilizer Type	Bulk Price \$/tonne	Fertilizer Analysis				Actual Nutrient \$/lb
		N	P	K	S	
Nitrogen (46-0-0-0)	\$1,150	46	0	0	0	\$1.134
Nitrogen (82-0-0-0)	\$2,000	82	0	0	0	\$1.106
Nitrogen (28-0-0-0)	\$750	28	0	0	0	\$1.215
Phosphate (11-52-0-0)	\$1,325	11	52	0	0	\$0.916
Potash (0-0-60-0)	\$1,050	0	0	60	0	\$0.794
Sulphur (20.5-0-0-24)	\$700	20.5	0	0	24	\$0.354

Crop Selection

Crop to be Grown	Wheat
Soil Moisture Zone	Moist
Valid Yield Range	50 to 64 bu/ac
Your Target Yield (bu/ac)	63

Fertilizer Application #1,

Timing of Application	Fall				Enhanced Efficiency N? <input type="checkbox"/> No
Method of Application	Banded				
Nitrogen Source	Nitrogen (82-0-0-0)				
	N	P	K	S	TOTAL
Application Method & Timing Efficiency Factor	100%	100%	100%	100%	
Nutrient Recommendation - based on Application Method & Timing (lb/acre)	109	30	15	0	
Nutrient Blend (actual lb/acre)	90	0	0	0	
Effective Fertilizer Rate Applied (actual lb/acre)	90	0	0	0	
Fertilizer Cost (\$/acre)	\$99.57	\$0.00	\$0.00	\$0.00	\$99.57
Nutrient Requirement Balance Remaining (actual lb/acre)	19	30	15	0	

Fertilizer Application #2,

Timing of Application	Spring				Enhanced Efficiency N? <input type="checkbox"/> No
Method of Application	Banded				
Nitrogen Source	Nitrogen (46-0-0-0)				
	N	P	K	S	TOTAL
Application Method & Timing Efficiency Factor	120%	100%	100%	100%	
Nutrient Recommendation - based on Application Method & Timing (lb/acre)	17	30	15	0	
Nutrient Blend (actual lb/acre)	0	20	15	0	
Effective Fertilizer Rate Applied (actual lb/acre)	4	20	15	0	
Fertilizer Cost (\$/acre)	\$0.00	\$23.12	\$11.91	\$0.00	\$35.02
Nutrient Requirement Balance Remaining (actual lb/acre)	15	10	0	0	

Press to Reset
Nutrient Blend

Fertilizer Application #3,						
	Timing of Application	Spring				
	Method of Application	Banded				
	Nitrogen Source	Nitrogen (46-0-0-0)			Enhanced Efficiency N?	No
		N	P	K	S	TOTAL
	Application Method & Timing Efficiency Factor	120%	100%	100%	100%	
	Nutrient Recommendation - based on Application Method & Timing (lb/acre)	13	10	0	0	
	Nutrient Blend (actual lb/acre)	11	10	0	0	
	Effective Fertilizer Rate Applied (actual lb/acre)	15	10	0	0	
	Fertilizer Cost (\$/acre)	\$12.17	\$11.56	\$0.00	\$0.00	\$23.73
	Nutrient Requirement Balance Remaining (actual lb/acre)	0	0	0	0	

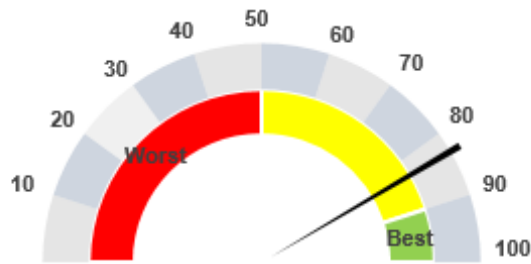
Press to Reset
Nutrient Blend

Fertilizer Efficiency Analysis

Cost Efficiency

	Most Efficient	Your Field	Least Efficient
Fertilizer Cost (\$/acre)	\$141.22	\$158.32	\$239.43
Fertilizer Cost Efficiency Score (%)	100%	83%	0%
Your Field Inefficiency Cost (\$/acre)		\$17.10 *	
Net Profit (\$/acre)	\$54.26	\$36.23	-\$49.29

Fertilizer Cost Efficiency Score (%)



Your Field Score - 83%

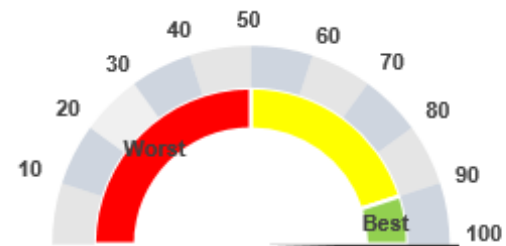
** Did you know? Your farm could save \$16.59/ac on Application #1 by improving your fertilizer efficiency through choosing better timing, placement and source!*

Nitrogen Fertilizer Greenhouse Gas Efficiency Score (%)



Your Field Score - 65%

Phosphate Fertilizer Environmental Safety Score (%)



Your Field Score - 100%

Fertilizer Application #1,

Timing of Application	Fall				
Method of Application	Banded				
Nitrogen Source	Nitrogen (82-0-0-0)				Enhanced Efficiency N? <input type="checkbox"/> Yes
	N	P	K	S	TOTAL
Application Method & Timing Efficiency Factor	100%	100%	100%	100%	
Nutrient Recommendation - based on Application Method & Timing (lb/acre)	109	30	15	0	
Nutrient Blend (actual lb/acre)	40	0	0	0	
Effective Fertilizer Rate Applied (actual lb/acre)	40	0	0	0	
Fertilizer Cost (\$/acre)	\$44.25	\$0.00	\$0.00	\$0.00	\$44.25
Nutrient Requirement Balance Remaining (actual lb/acre)	69	30	15	0	

Fertilizer Application #2,

Timing of Application	Spring				
Method of Application	Banded				
Nitrogen Source	Nitrogen (46-0-0-0)				Enhanced Efficiency N? <input type="checkbox"/> No
	N	P	K	S	TOTAL
Application Method & Timing Efficiency Factor	120%	100%	100%	100%	
Nutrient Recommendation - based on Application Method & Timing (lb/acre)	58	30	15	0	
Nutrient Blend (actual lb/acre)	0	20	15	0	
Effective Fertilizer Rate Applied (actual lb/acre)	4	20	15	0	
Fertilizer Cost (\$/acre)	\$0.00	\$23.12	\$11.91	\$0.00	\$35.02
Nutrient Requirement Balance Remaining (actual lb/acre)	65	10	0	0	

Press to Reset
Nutrient Blend

Fertilizer Application #3,

Timing of Application	Spring					
Method of Application	Banded					
Nitrogen Source	Nitrogen (46-0-0-0)				Enhanced Efficiency N?	No
	N	P	K	S	TOTAL	
Application Method & Timing Efficiency Factor	120%	100%	100%	100%		
Nutrient Recommendation - based on Application Method & Timing (lb/acre)	55	10	0	0		
Nutrient Blend (actual lb/acre)	52	10	0	0		
Effective Fertilizer Rate Applied (actual lb/acre)	65	10	0	0		
Fertilizer Cost (\$/acre)	\$59.42	\$11.56	\$0.00	\$0.00	\$70.98	
Nutrient Requirement Balance Remaining (actual lb/acre)	0	0	0	0		

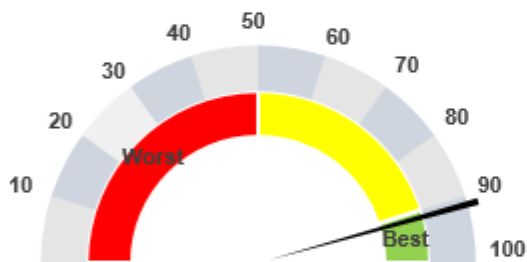
Press to Reset
Nutrient Blend

Fertilizer Efficiency Analysis

Cost Efficiency

	Most Efficient	Your Field	Least Efficient
Fertilizer Cost (\$/acre)	\$141.22	\$150.25	\$239.43
Fertilizer Cost Efficiency Score (%)	100%	91%	0%
Your Field Inefficiency Cost (\$/acre)		\$9.03 *	
Net Profit (\$/acre)	\$54.26	\$44.74	-\$49.29

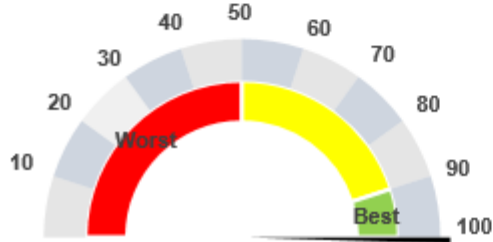
Fertilizer Cost Efficiency Score (%)



Your Field Score - 91%

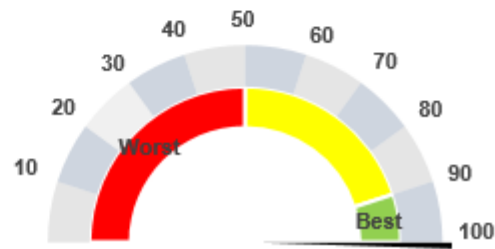
** Did you know? Your farm could save \$7.38/ac on Application #1 by improving your fertilizer efficiency through choosing better timing, placement and source!*

Nitrogen Fertilizer Greenhouse Gas Efficiency Score (%)



Your Field Score - 100%

Phosphate Fertilizer Environmental Safety Score (%)



Your Field Score - 100%

Fertilizer Application #3,						
	Timing of Application	Spring				
	Method of Application	Banded				
	Nitrogen Source	Nitrogen (46-0-0-0)				Enhanced Efficiency N? <input type="button" value="No"/>
		N	P	K	S	TOTAL
	Application Method & Timing Efficiency Factor	120%	100%	100%	100%	
	Nutrient Recommendation - based on Application Method & Timing (lb/acre)	55	10	0	0	
	Nutrient Blend (actual lb/acre)	20	10	0	0	
	Effective Fertilizer Rate Applied (actual lb/acre)	26	10	0	0	
	Fertilizer Cost (\$/acre)	\$22.68	\$11.56	\$0.00	\$0.00	\$34.24
	Nutrient Requirement Balance Remaining (actual lb/acre)	39	0	0	0	
		the yield target will not be met				

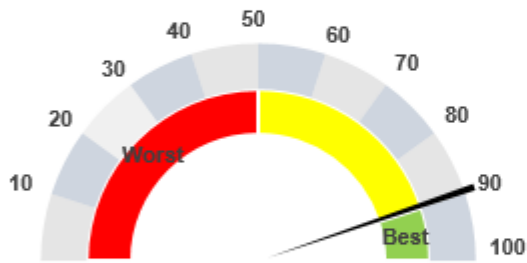
Press to Reset Nutrient Blend



Fertilizer Efficiency Analysis

	Cost Efficiency		
	Most Efficient	Your Field	Least Efficient
Fertilizer Cost (\$/acre)	\$105.27	\$113.51	\$180.20
Fertilizer Cost Efficiency Score (%)	100%	89%	0%
Your Field Inefficiency Cost (\$/acre)		\$8.24 *	
Net Profit (\$/acre)	\$25.73	\$17.04	-\$53.28

Fertilizer Cost Efficiency Score (%)

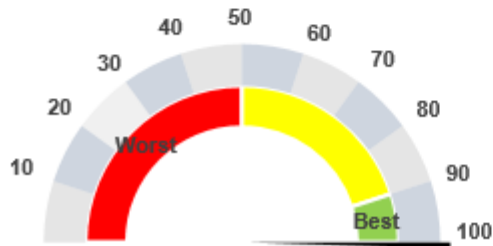


Your Field Score - 89%

** Did you know? Your farm could save \$7.38/ac on Application #1 by improving your fertilizer efficiency through choosing better timing, placement and source!*

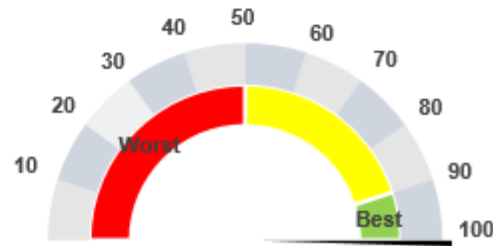
WARNING! N fertilizer applied (70 lb/ac.) does not meet target yield requirements. Your yield may be reduced 6.3 bu/ac (10%), which decreases revenue by \$66/ac and profit by \$26/ac (61%)!

Nitrogen Fertilizer Greenhouse Gas Efficiency Score (%)



Your Field Score - 100%

Phosphate Fertilizer Environmental Safety Score (%)

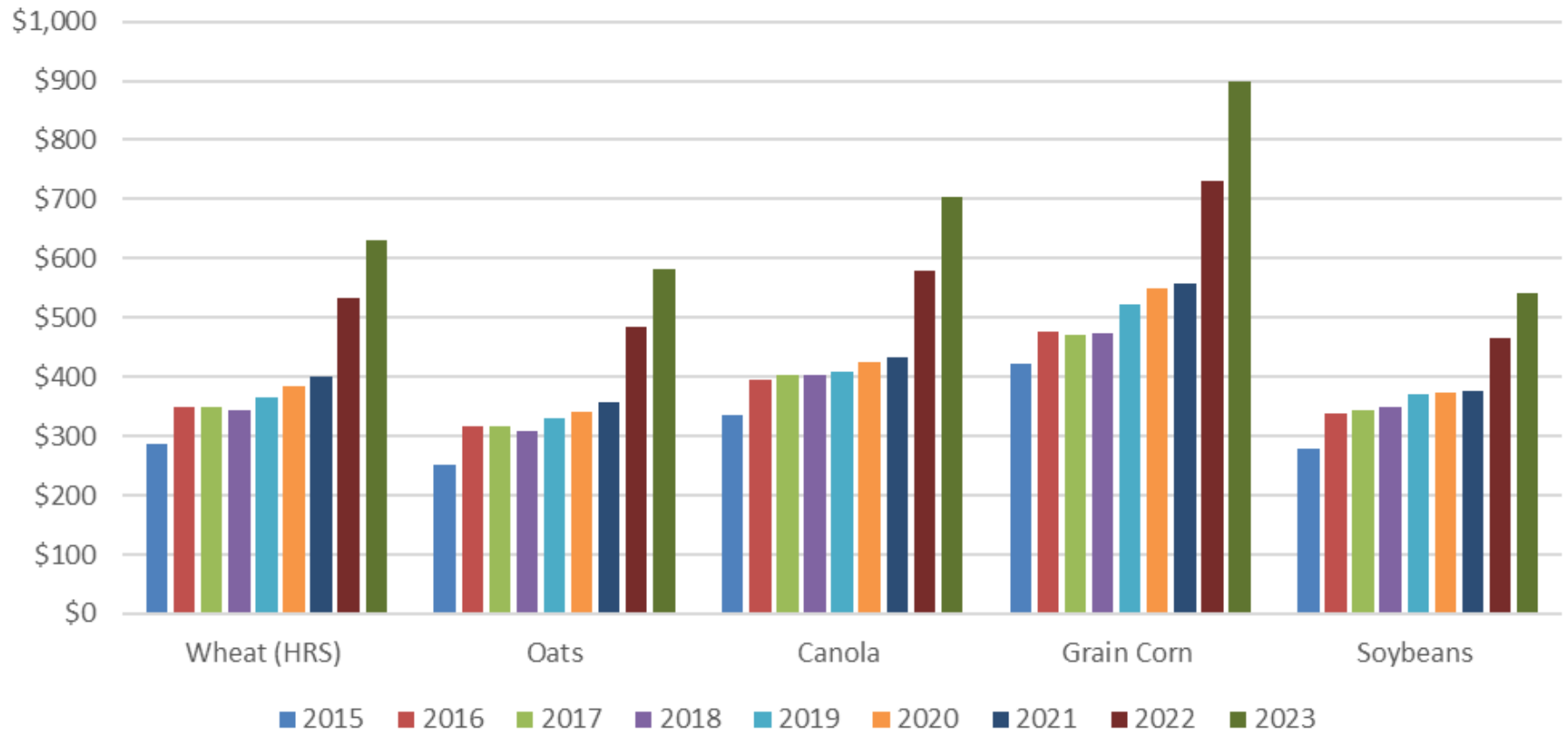


Your Field Score - 100%

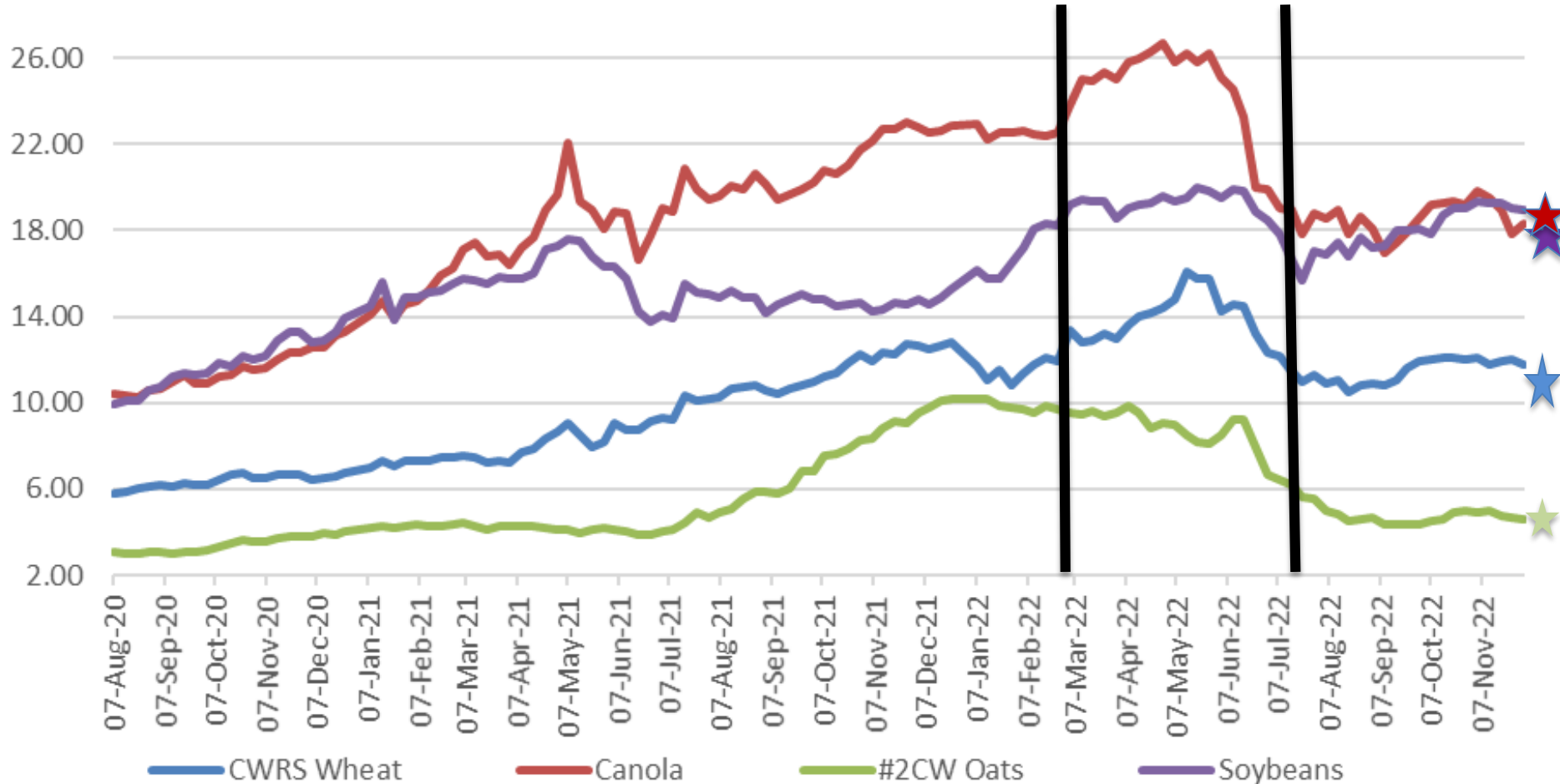
Fertilizer Efficiency Considerations

- A trade off between logistics/labour vs increased fertilizer efficiency in spring
- Risk – what if you don't get seeded?
 - Increased weather variability = increased risk of fertilizer loss

Manitoba Agriculture Crop Costs of Production Comparison 2015-2023 (\$/acre)



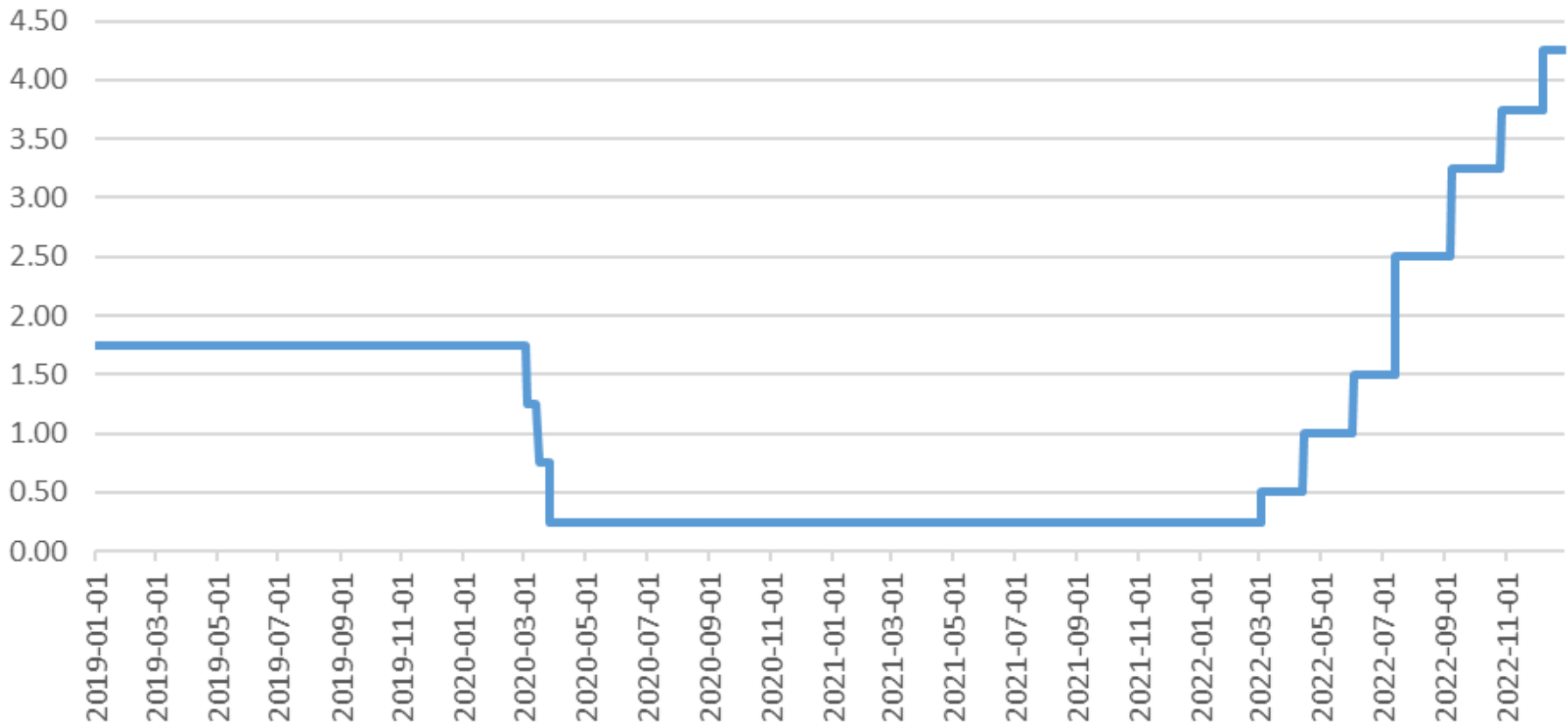
Average MB Crop Prices Aug 2020 - Dec 2022 (weekly close)



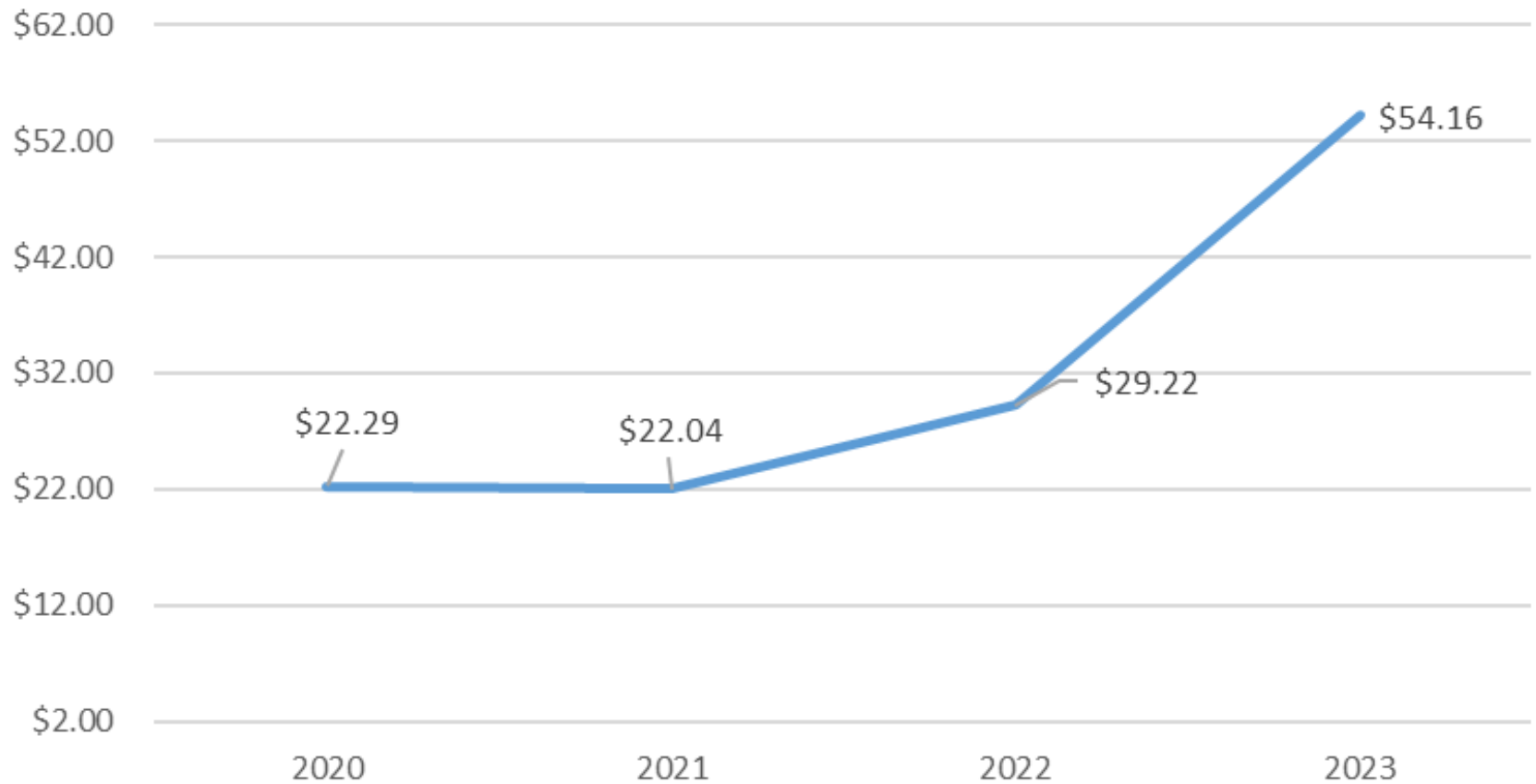
Source: Manitoba Agriculture

Interest rates

Bank of Canada Target for the overnight rate
(Jan 2019 - Dec 2022)



Manitoba Agriculture Costs of Production Interest Costs (canola/wheat/soybean average in \$/ac)



Net Profit Rankings (\$/acre)

1. Corn (\$113.91/ac)
2. Peas (\$45.62/ac)
3. Canola (\$44.59/ac)
4. HRS Wheat (\$42.33/ac)
5. Soybeans (\$35.33/ac)
6. Oats (\$17.82/ac)
7. Barley (-\$44.70/ac)

Breakeven calculations

- Breakeven price = Cost/Yield
- Breakeven yield = Cost/Price
- What can we do with breakeven numbers?
 - Assess risk
 - Assess profitability
 - Reveal strengths and weaknesses in our farm
 - Identify marketing opportunities

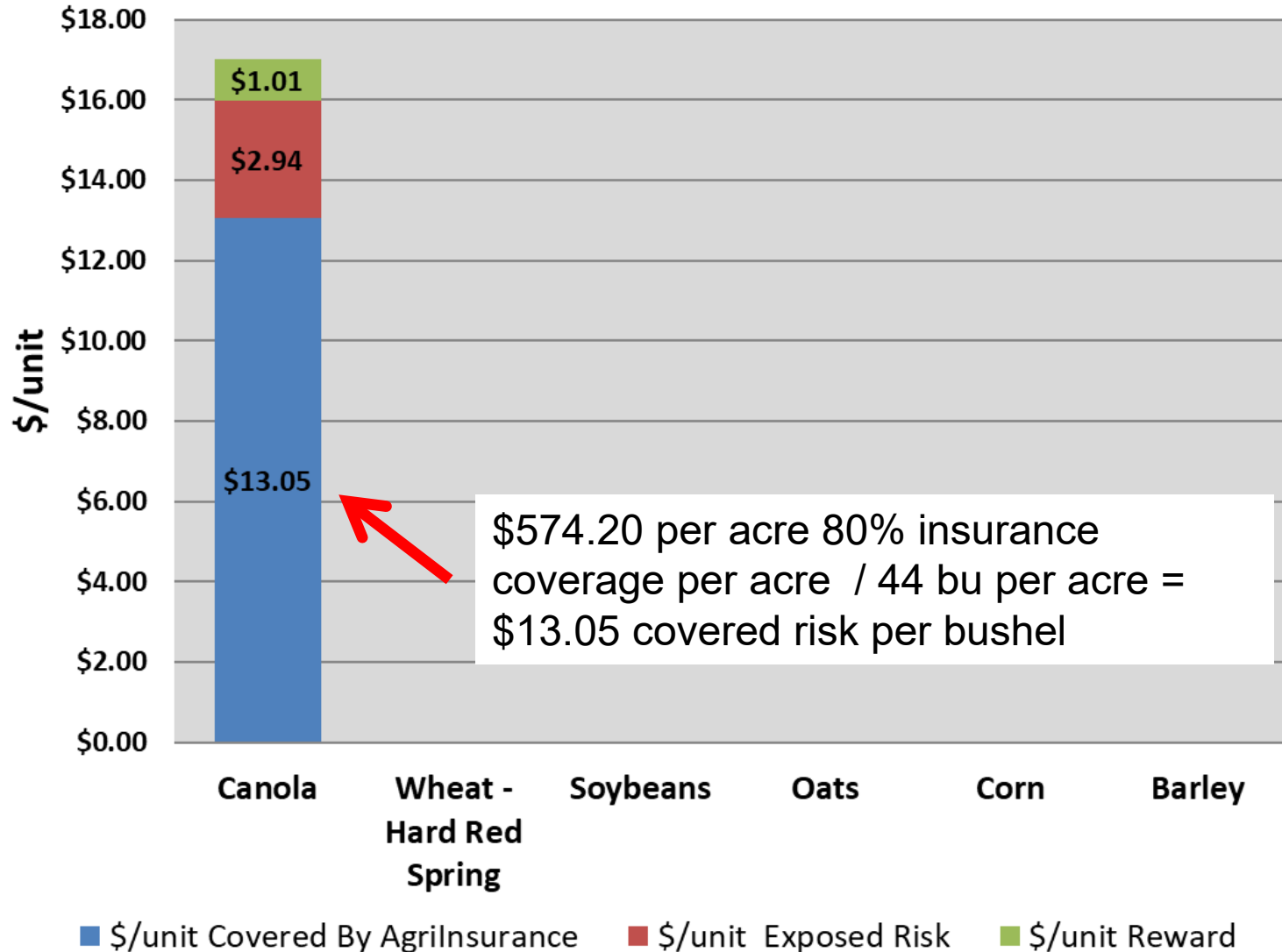
Crop Production Costs 2023 Guidelines (Dollars Per Acre)

	Canola	Wheat - Hard Red Spring	Soybeans	Oats	Corn	Barley
Total Costs	\$703.41	\$629.67	\$540.67	\$582.18	\$898.59	\$610.20
Target Price \$ per unit	\$17.00	\$10.50	\$16.00	\$5.00	\$7.50	\$7.25
Target Yield per acre	44	64	36	120	135	78
Unit type (bu. or lb.)	bu	bu	bu	bu	bu	bu
Breakeven Yield (Bu or lb.)						
Over Operating Costs	29.1	40.0	20.7	74.5	90.5	55.3
Over Land Costs	5.7	9.3	6.1	19.4	13.0	13.4
Over Machinery Costs	5.1	8.2	5.4	17.3	12.9	11.9
Over Owners Labour & Living	<u>1.5</u>	<u>2.5</u>	<u>1.6</u>	<u>5.2</u>	<u>3.5</u>	<u>3.6</u>
Over Total Costs	41.4	60.0	33.8	116.4	119.9	84.2

Crop Production Costs 2023 Guidelines (Dollars Per Acre)

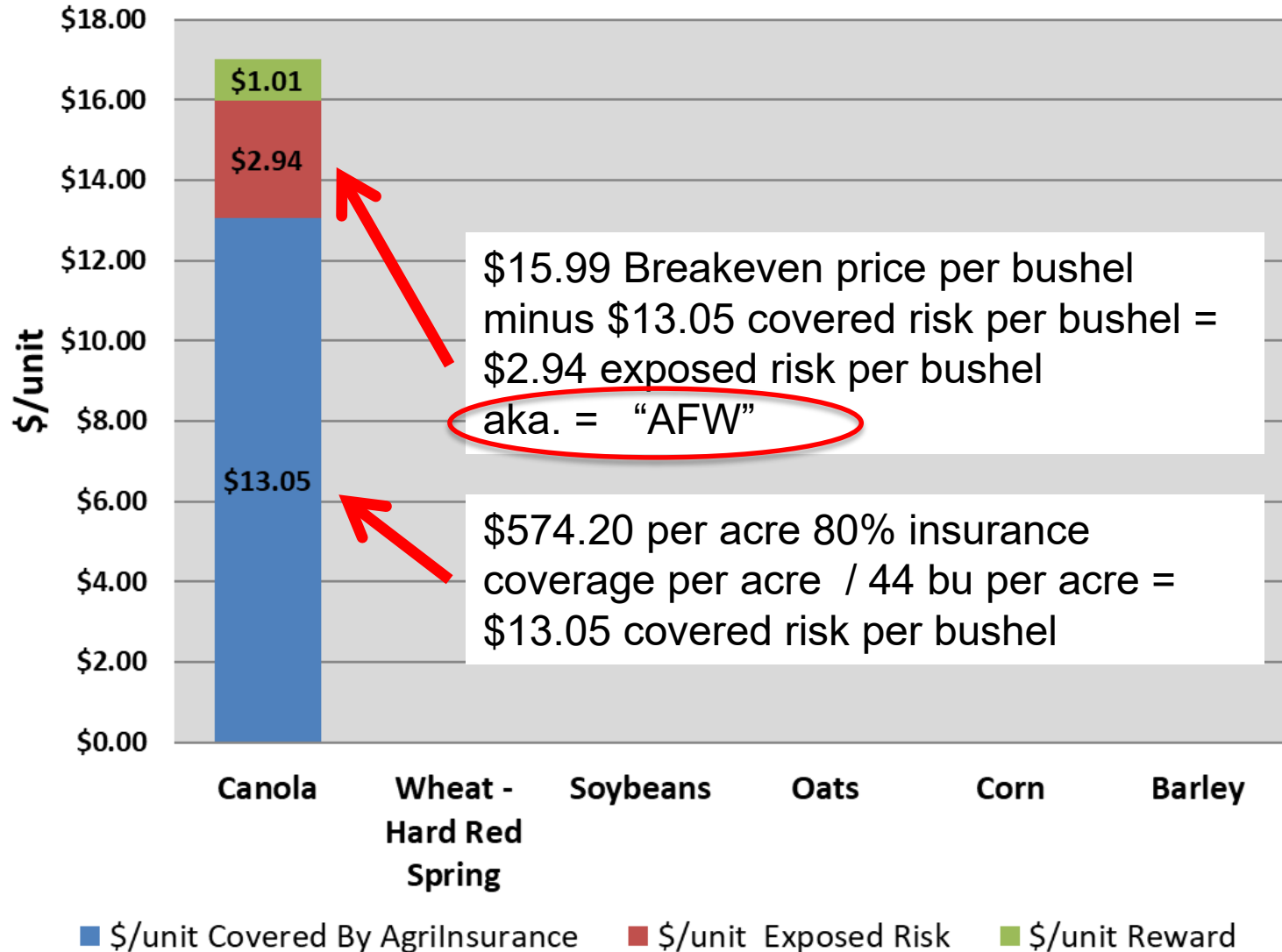
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Target Yield per acre	44	64	36	120	135	78
Unit type (bu. or lb.)	bu	bu	bu	bu	bu	bu
Breakeven Price Per Unit						
Over Operating Costs	\$11.22	\$6.56	\$9.20	\$3.11	\$5.03	\$5.14
Over Land Costs	\$2.21	\$1.52	\$2.70	\$0.81	\$0.72	\$1.25
Over Machinery Costs	\$1.96	\$1.35	\$2.40	\$0.72	\$0.72	\$1.11
Over Owners Labour & Living	<u>\$0.59</u>	<u>\$0.41</u>	<u>\$0.72</u>	<u>\$0.22</u>	<u>\$0.19</u>	<u>\$0.33</u>
Over Total Costs	\$15.99	\$9.84	\$15.02	\$4.85	\$6.66	\$7.82

Manitoba - Monetizing Risk & Reward (\$/unit) - 2023

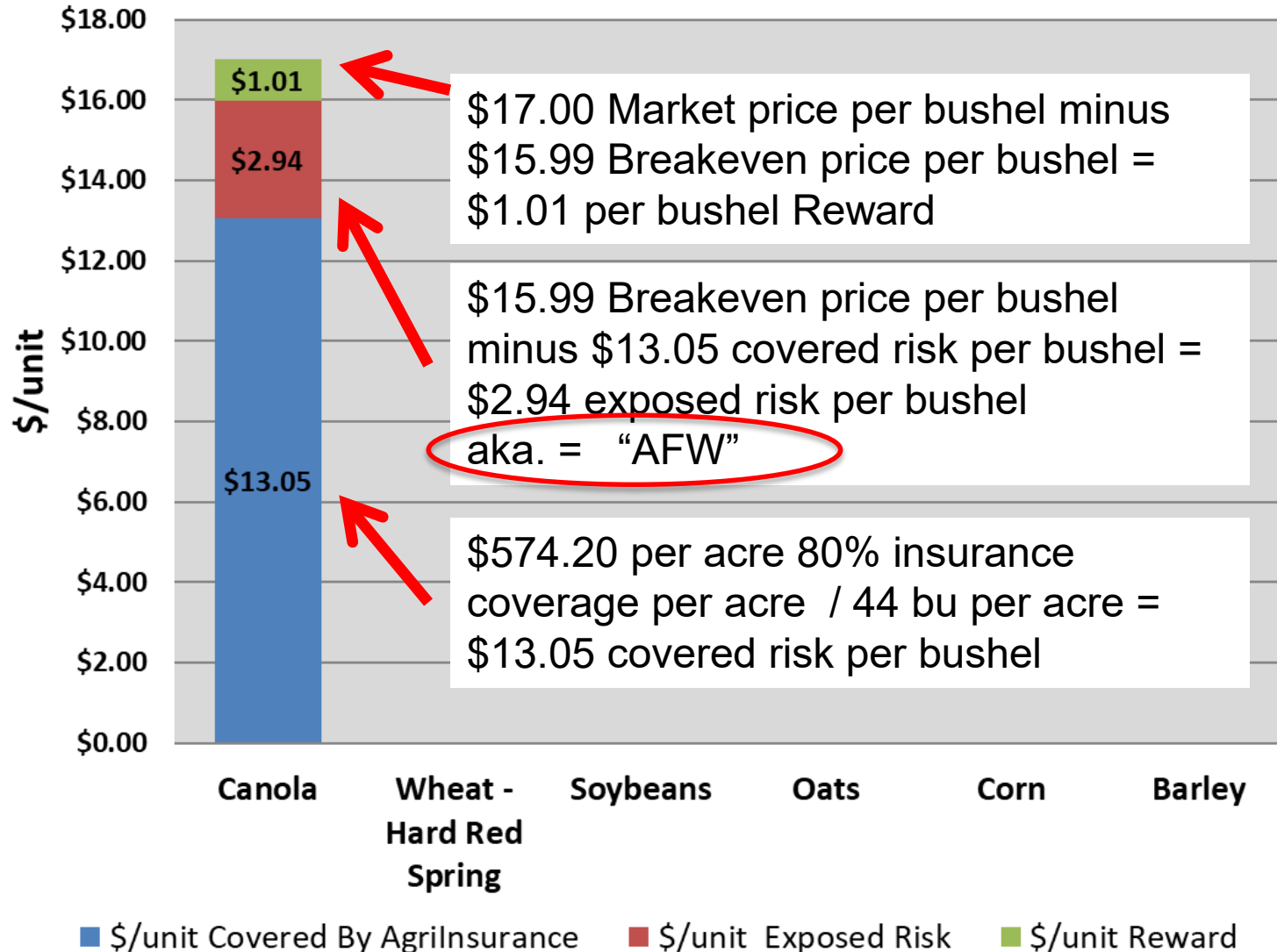


\$574.20 per acre 80% insurance coverage per acre / 44 bu per acre = \$13.05 covered risk per bushel

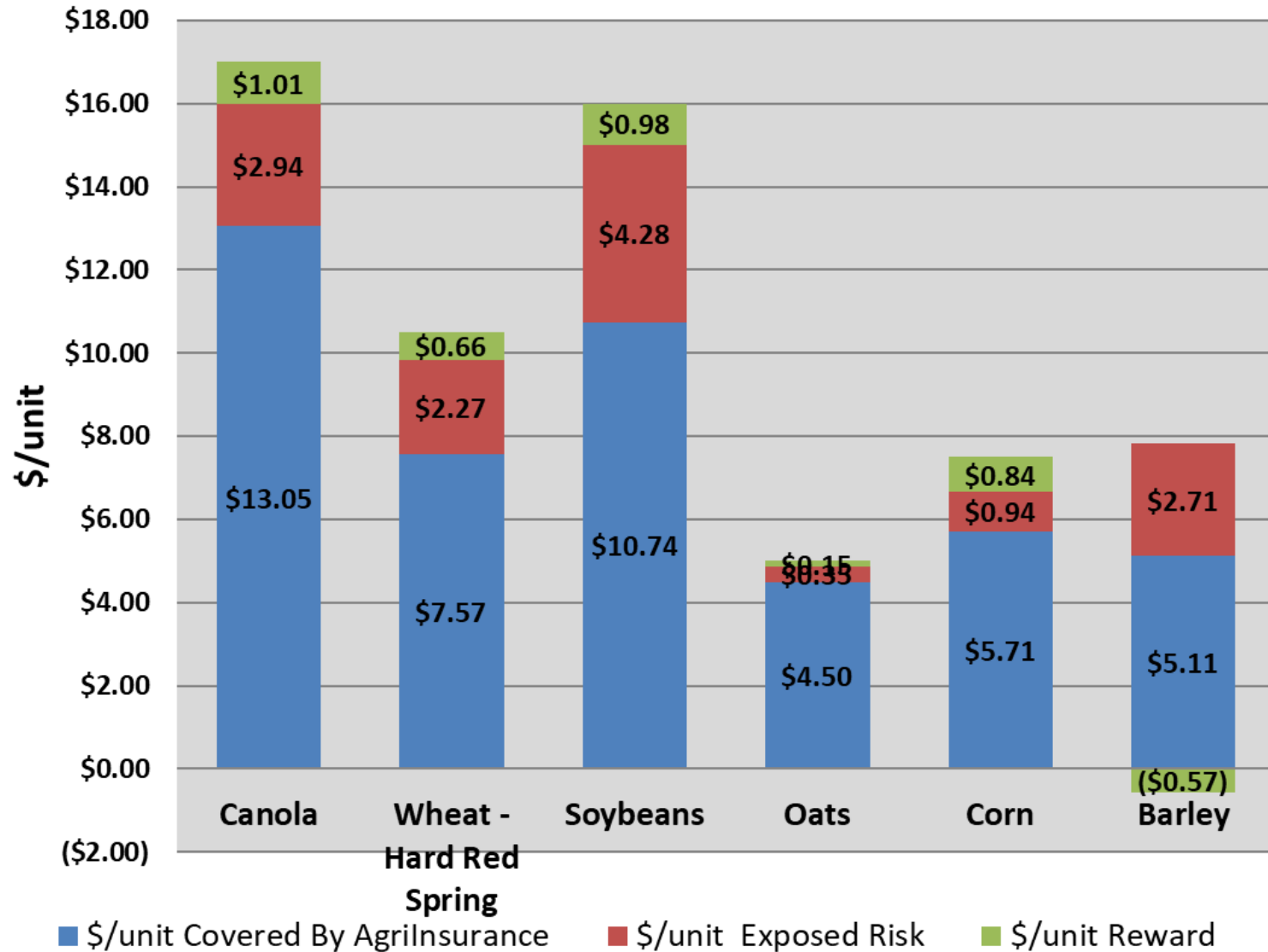
Manitoba - Monetizing Risk & Reward (\$/unit) - 2023



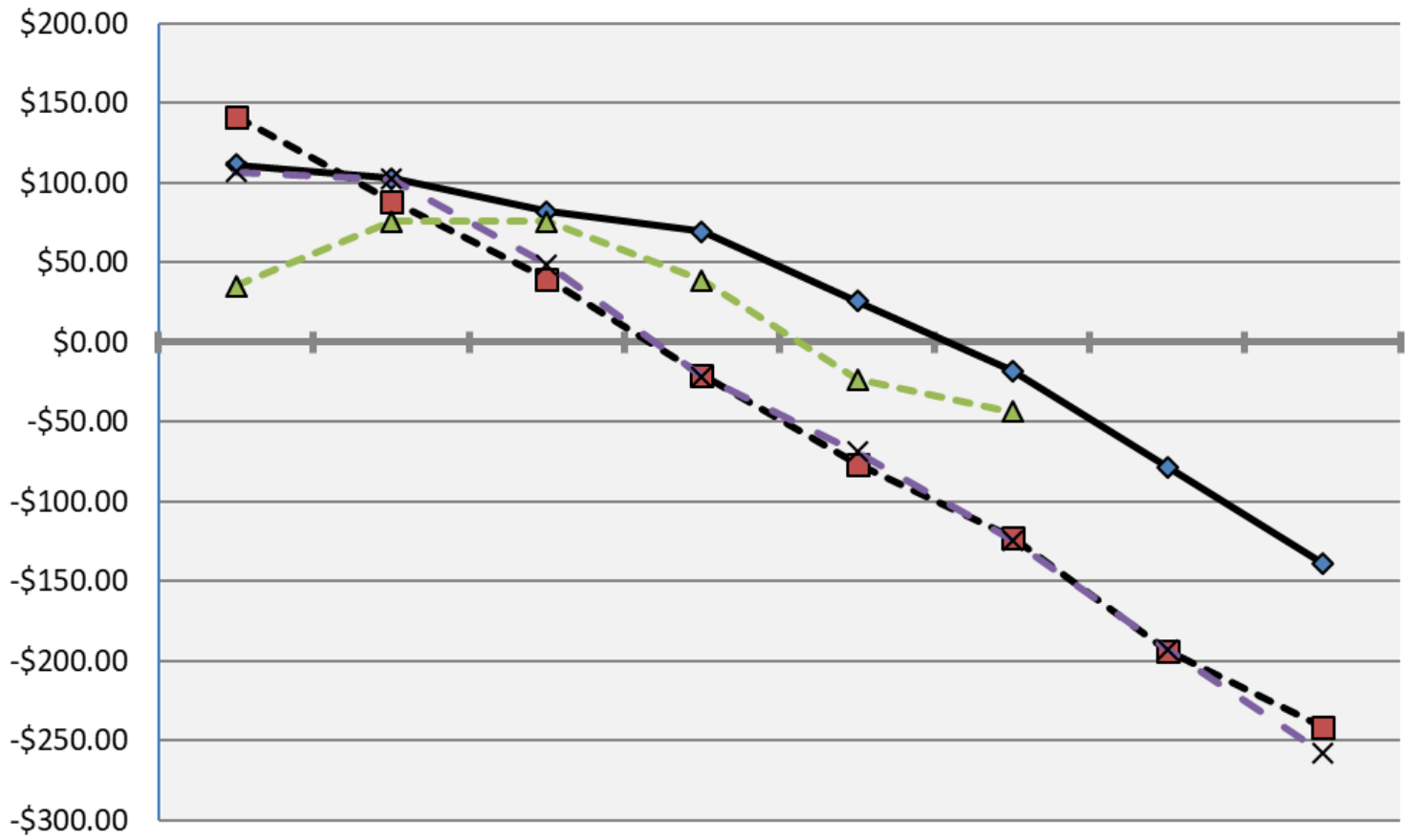
Manitoba - Monetizing Risk & Reward (\$/unit) - 2023



Manitoba - Monetizing Risk & Reward (\$/unit) - 2023



Manitoba Net Profit Based on Seeding Date - 2023



◆— Canola
 -■- Wheat - Hard Red Spring
 -▲- Soybeans
 -X- Oats

Increased profits through more diverse rotations

	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)	\$42.33	\$59.55	\$49.05	\$59.55	\$49.05	\$59.55	\$319

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)	\$35.33	\$96.09	\$59.55	\$35.33	\$96.09	\$59.55	\$382

Questions ?

For more information

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MASC website: www.masc.mb.ca

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