Finding Profit in 2024

Manitoba Crop Costs of Production

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Manitoba Agriculture

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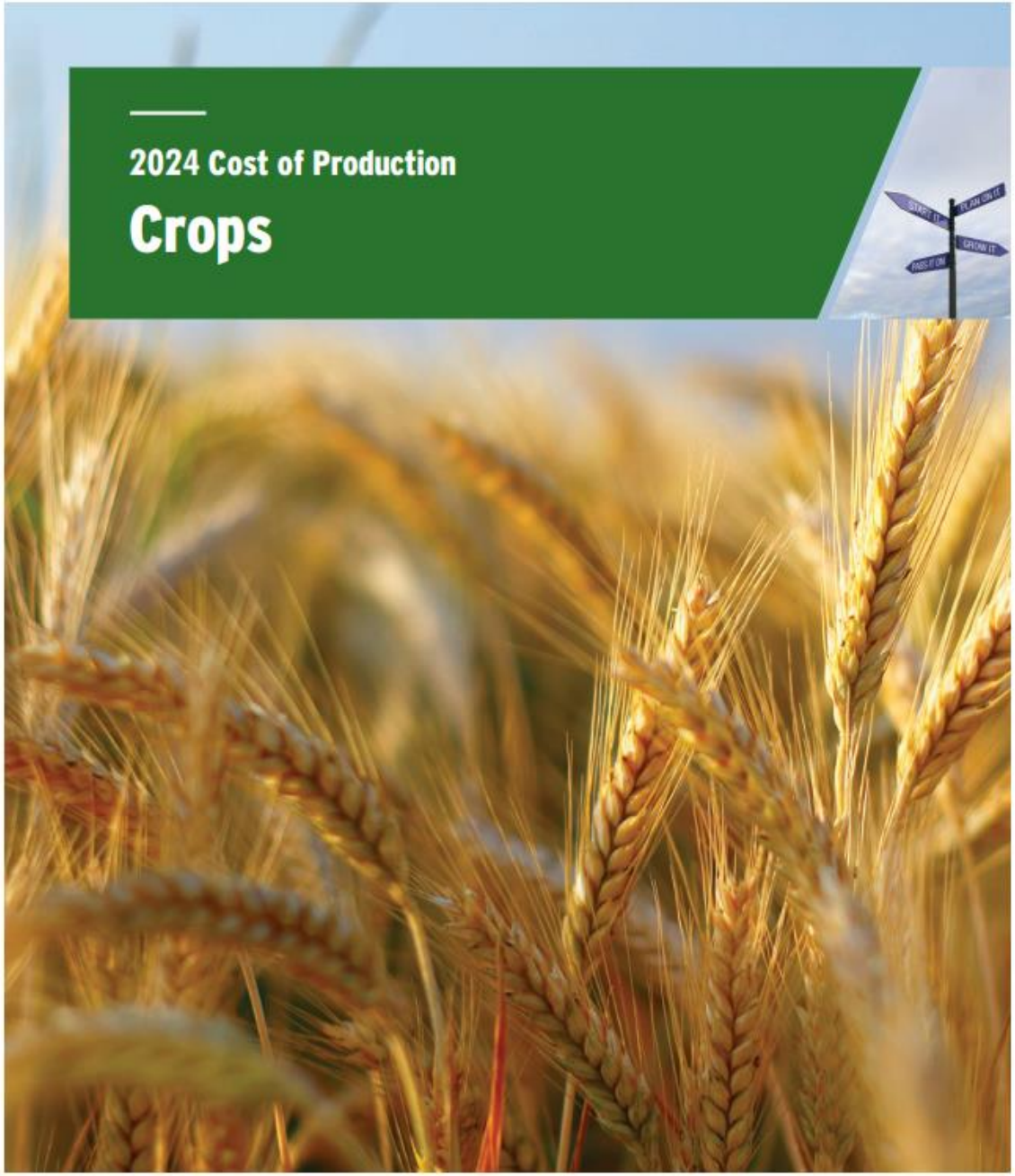
Manitoba


BRAKE CHECK
AREA

Overview

- 2024 Crop Costs of Production
- Equipment costs
  - 2024/25 Machinery Guide
- Fertilizer costing
  - Increasing profit using 4R fertilizer BMP's



2024 Cost of Production

Crops

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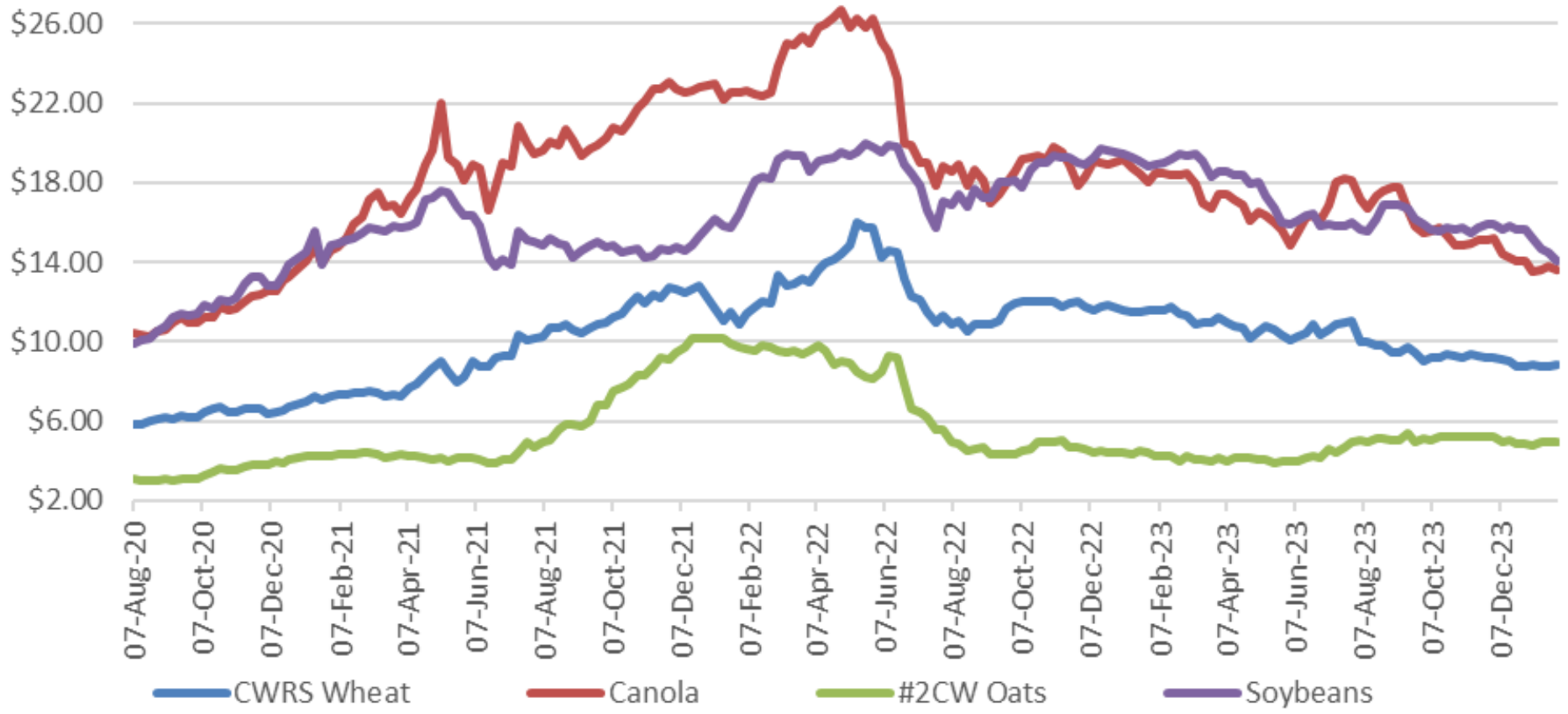
Average MB Crop Prices per bushel Aug 2020 - Jan 2024 (weekly close)



Source: Manitoba Agriculture

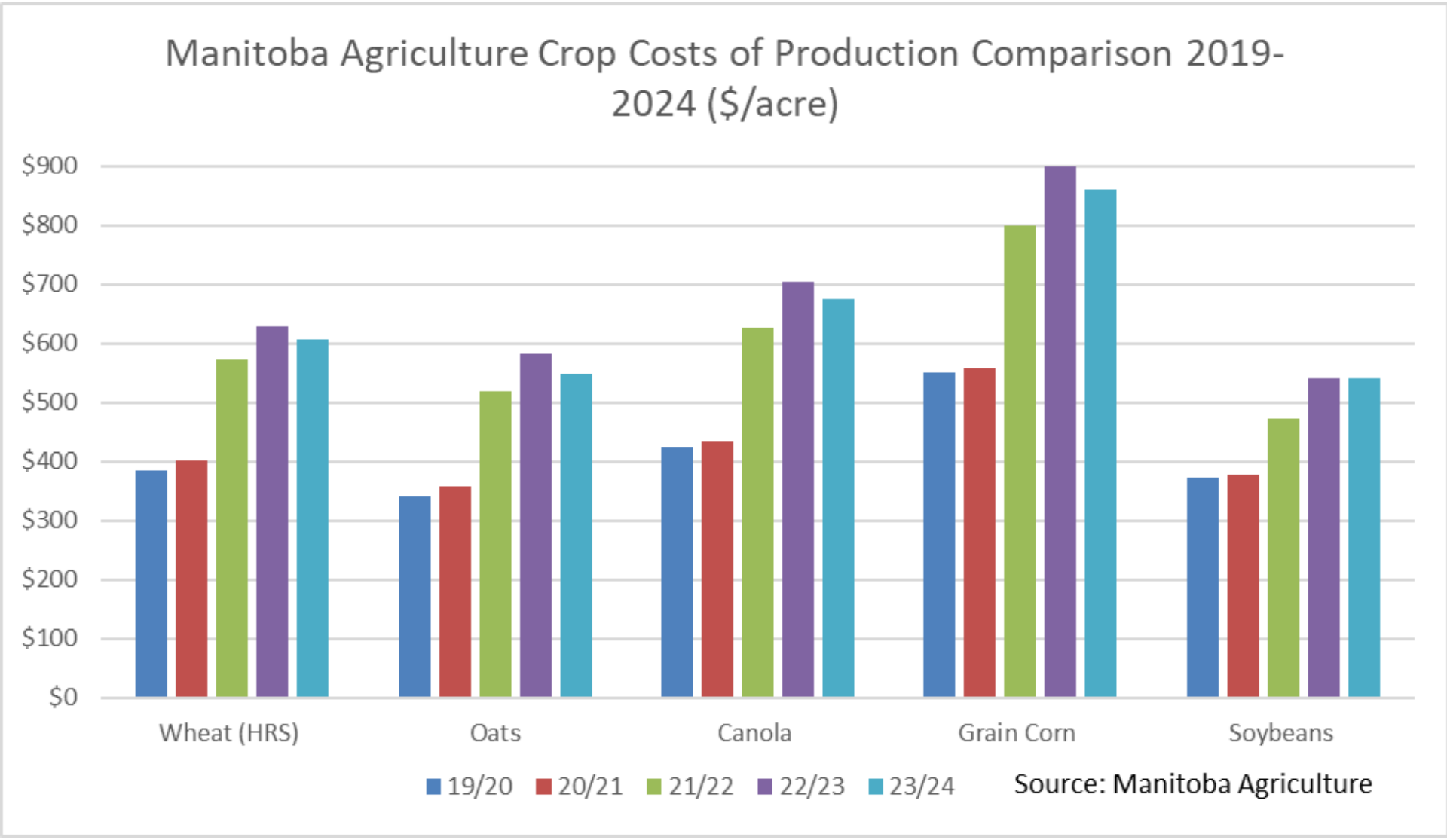
New crop prices – Fall 2024

2024 Crop COP (as of Dec 1/23)

- HRS Wheat - $9.25/bu
- Oats - $5.00/bu
- Canola – $15.75/bu
- Corn – $6.25/bu
- Soybeans - $15.25/bu

As of February 5, 2024

- HRS Wheat - $8.25/bu
- Oats - $4.75/bu
- Canola - $13.00/bu
- Corn - $5.25/bu
- Soybeans - $13.50/bu


Manitoba Agriculture Crop Costs of Production Comparison 2019-2024 ($/acre)
$900
$800
$700
$600
$500
$400
$300
$200
$100
$0
Wheat (HRS)
Oats
Canola
Grain Corn
Soybeans
19/20
20/21
21/22
22/23
23/24
Source: Manitoba Agriculture

Profitability Ranking (top 8 acreage crops)

Grain prices as of Feb 5/24	**Net Profit**	*Margin over Operating*
1 – Oats	**($2.49)/ac**	*$215.09/ac*
2 – Soybeans	**($27.22)/ac**	*$190.36/ac*
3 – NHR Wheat	**($63.59)/ac**	*$153.99/ac*
4 – HRS Wheat	**($69.79)/ac**	*$147.79/ac*
5 – Canola	**($88.83)/ac**	*$128.74/ac*
6 – Peas	**($102.44)/ac**	*$115.14/ac*
7 – Corn	**($150.86)/ac**	*$86.60/ac*
8 – Barley	**($191.21)/ac**	*$26.37/ac*

Profitability Ranking (top 8 acreage crops)

Grain prices in COP (Dec 1/23)

1 – Soybeans $39.28/ac

2 – Canola $34.92/ac

3 – Oats $26.26/ac

4 – HRS Wheat ($4.79)/ac

5 – NHR Wheat ($11.09)/ac

6 – Corn ($15.86)/ac

7 – Barley ($74.21)/ac

8 – Peas ($77.44)/ac

Grain prices as of Feb 5/24

1 – Oats ($2.49)/ac

2 – Soybeans ($27.22)/ac

3 – NHR Wheat ($63.59)/ac

4 – HRS Wheat ($69.79)/ac

5 – Canola ($88.83)/ac

6 – Peas ($102.44)/ac

7 – Corn ($150.86)/ac

8 – Barley ($191.21)/ac

Risk?

- AgriInsurance coverage = insured yield x insured price

Risk?

2023 AgriInsurance crop dollar values:

- Canola $19.62/bu
- Corn $8.00/bu
- HRS Wheat $11.29/bu
- Oats $4.94/bu
- Soybeans $16.06/bu

2024 AgriInsurance crop dollar values:

- Canola $16.44/bu
- Corn $6.86/bu
- HRS Wheat $8.98/bu
- Oats $4.40/bu
- Soybeans $14.42/bu

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

Breakeven Yields

	Wheat - Hard Red Spring	Oats	Corn	Canola	Soybeans
Breakeven Analysis					
Breakeven Yield (Bu or lb.)					
Over Operating Costs	42.0	66.2	100	29.0	21
Over Land Costs	11.0	20.3	16.2	6.4	6.7
Over Machinery Costs	9.6	17.8	17.4	5.7	5.8
Over Owners Labour & Living	2.9	5.4	4.3	1.7	1.8
Over Total Costs	**65.5**	**109.7**	**137.9**	**42.8**	**35.3**

Breakeven Price ($/bu)

	Wheat - Hard Red Spring	Oats	Corn	Canola	Soybeans
Breakeven Analysis					
Breakeven Price Per Unit					
Over Operating Costs	$5.98	$2.88	$4.61	$10.14	$8.49
Over Land Costs	$1.56	$0.88	$0.75	$2.25	$2.67
Over Machinery Costs	$1.37	$0.78	$0.81	$1.98	$2.35
Over Owners Labour & Living	$0.42	$0.23	$0.20	$0.60	$0.71
Over Total Costs	**$9.32**	**$4.77**	**$6.37**	**$14.97**	**$14.22**

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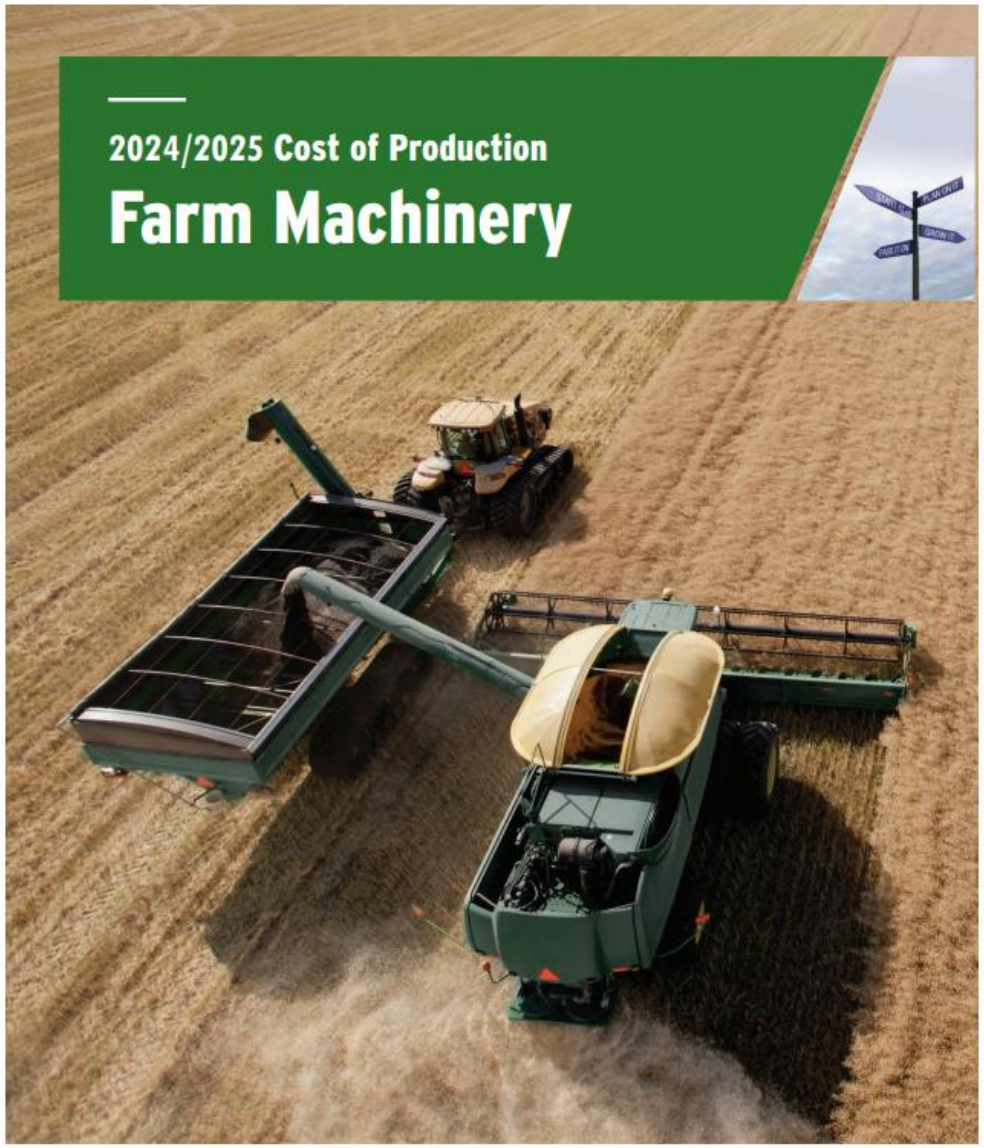

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Equipment values have increased…

- Medium FWA Tractor (160-224 hp)
  - ↑35%
- Large 4WD Tractor (550+ hp)
  - ↑28%
- Class 9 Combine
  - ↑27%
- Flex auger header (35’)
  - ↑23%
- Large Air Drill with Independent Openers (66-86’)
  - ↑62%
- High Clearance Sprayer (1200 gal 120’ booms)
  - ↑31%

Uses for the guide & calculator

- Neighbour to neighbour
- Family end of season equipment reconciling
- Printed guide, Excel & Online calculators
- Not intended to be used to establish rates for companies that rent equipment out/custom farm as a business
  - This is a cost basis calculation

How costs are determined

- Cost of ownership
  - Equipment value & depreciation
  - Financing costs
  - Insurance & housing
- Operating costs
  - Repair & maintenance (R&M)
  - Fuel Costs
  - Labour

How costs are determined

- Margin
  - On ownership & R&M (for rental rates & custom rates)
  - On labour and fuel (for custom rates)
- Work rate
  - Acres per hour
- Hours of use per year

Impacts of changes

- Let's take a Class 8 combine with 35' flex auger header:
  - Class 8 combine value - $750,000
  - 35' flex auger header value - $80,000
  - Total equipment value - $830,000
  - Finance rate – 50% financed @ 8.5%
  - Opportunity cost – 50% equity @ 1.5%
  - Repair & maintenance – 2.63% of equipment value/year
  - Work rate – 15 ac/hr (4.5 mph @ 35' @ 80% field efficiency)
  - Annual hours of use – 250 hours
  - Rental rate - $418/hr or $28/ac
  - Custom rate - $563/hr or $38/ac

What if we take 50% of the equipment cost?

- Change from $830,000 to $415,000
  - Represent a used combine & header
  - Same size; same work rates
- Rental rate $209/hr or $14/ac (↓50%)
- Custom rate $354/hr or $24/ac (↓ 37%)
  - Fuel and labour remain the same
- Caution – need to account for higher repair and maintenance costs

What if we finance 75% of the equipment cost?

- Total equipment value $830,000
  - But 75% financed with 25% down payment/equity
- Rental rate $437/hr or $29/ac (↑5%)
- Custom rate $582/hr or $39/ac (↑3%)
  - Fuel and labour remain the same
- Notes:
  - Combine 12 year lifespan before major rebuild
  - Headers 15 year lifespan before major rebuild
  - 33% salvage value after above lifespan

What if we decrease the interest rate to 4%?

- Total equipment value $830,000
  - But interest rate 4% instead of 8.5%; 50% financed
- Rental rate $388/hr or $26/ac (↓ 8%)
- Custom rate $534/hr or $36/ac (↓ 5%)
  - Fuel and labour remain the same
- Notes:
  - If we finance more of the equipment, this number will ↑

What if we decrease the work rate by 1/3?

- Total equipment value $830,000
  - But work rate now 10 ac/hr (instead of 15 ac/hr)
- Rental rate:
  - $/hr is the same
  - but $/ac is now $60/ac (↑ 114%)
- Custom rate
  - $/hr is the same
  - but $/ac is now $80/ac (↑ 111%)
- Notes:
  - Rates/hr unaffected by work rates

What if we reduce the annual hours of use by 50%?

- Total equipment value $830,000
  - But annual hours of use are 125 (instead of 250)
- Rental rate $863/hr or $56/ac (↑100%)
- Custom rate $981/hr or $65/ac (↑ 74%)

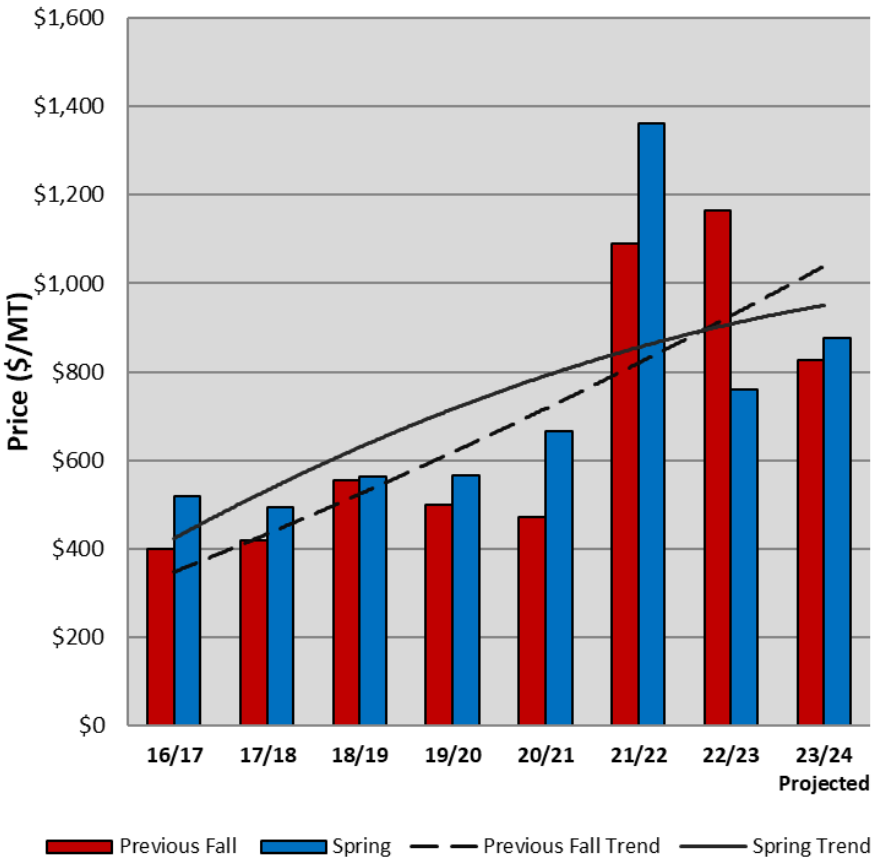
- Caution – need to get the use out of equipment to justify the costs.

Sample of rates in the guide

- Combine with header
  - Rental rate: $268-$764/hr
  - Custom rate: $355-$661/hr or $31-$44/ac
- Air drill
  - Rental rate: $175-$582/hr (excludes tractor)
  - Custom rate: $454-$933/hr or $28-$37/ac (includes tractor)
- SP Sprayer
  - Rental rate: $496-$756/hr
  - Custom rate: $593-$900/hr (no water hauling), or
  - $10-$11/ac (with water hauling)
- Land roller
  - Rental rate: $75-$110/ac or $3-$4/ac (excludes tractor)
  - Custom rate: $288-$389/ac or $10-$11/ac (includes tractor)

Fertilizer Costing

Average Urea Nitrogen Prices



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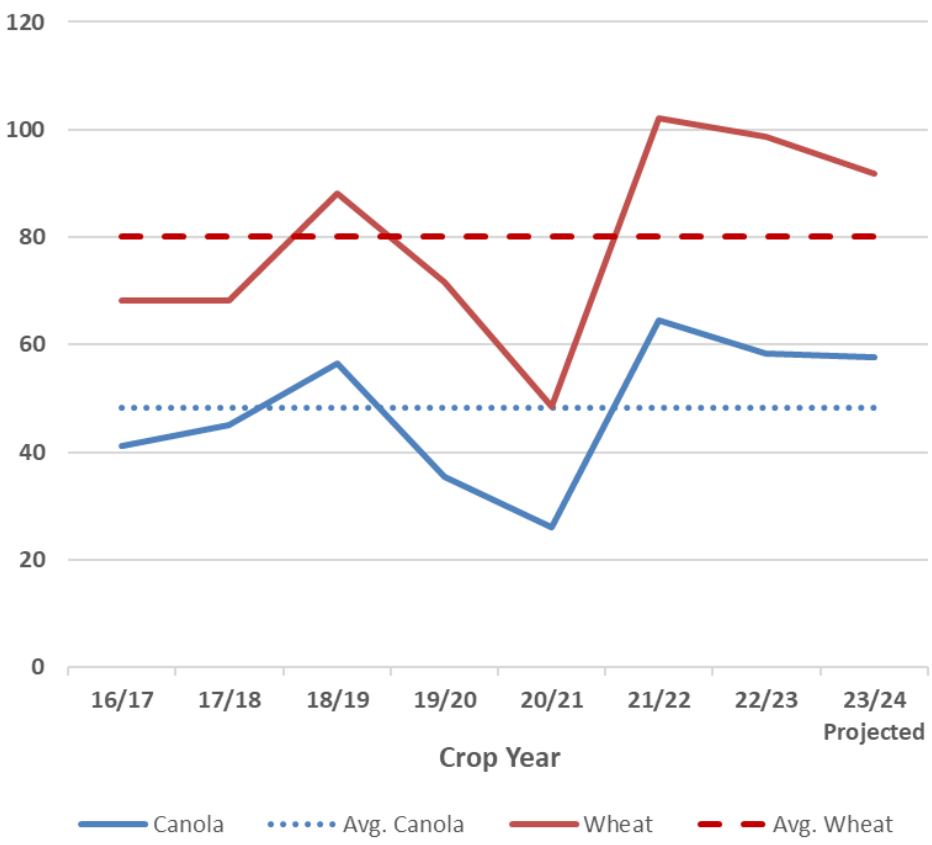
Long Term Fertilizer Affordability - Bushels of Grain Required to Purchase 1 Tonne of Urea



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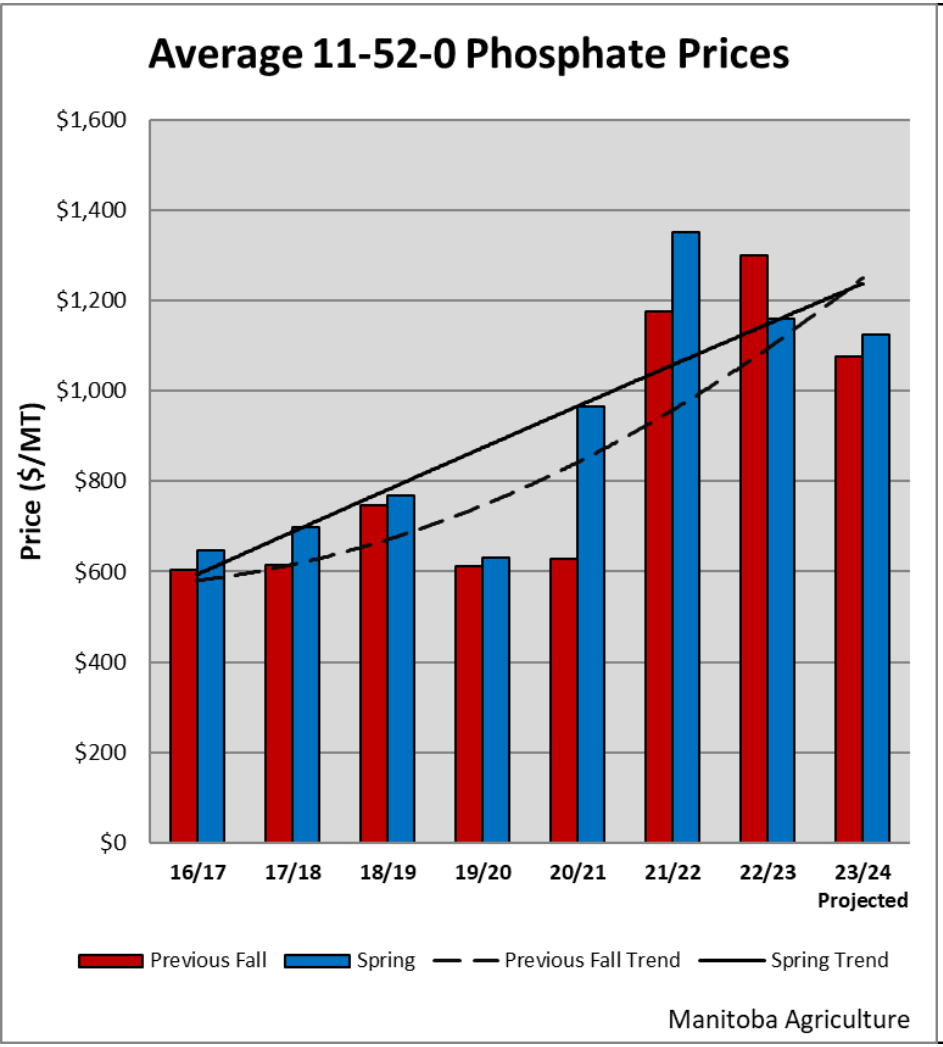
Average 11-52-0 Phosphate Prices
$1,600
$1,400
$1,200
$1,000
$800
$600
$400
$200
$0
Price ($/MT)
16/17
17/18
18/19
19/20
20/21
21/22
22/23
23/24 Projected
Previous Fall
Spring
Previous Fall Trend
Spring Trend
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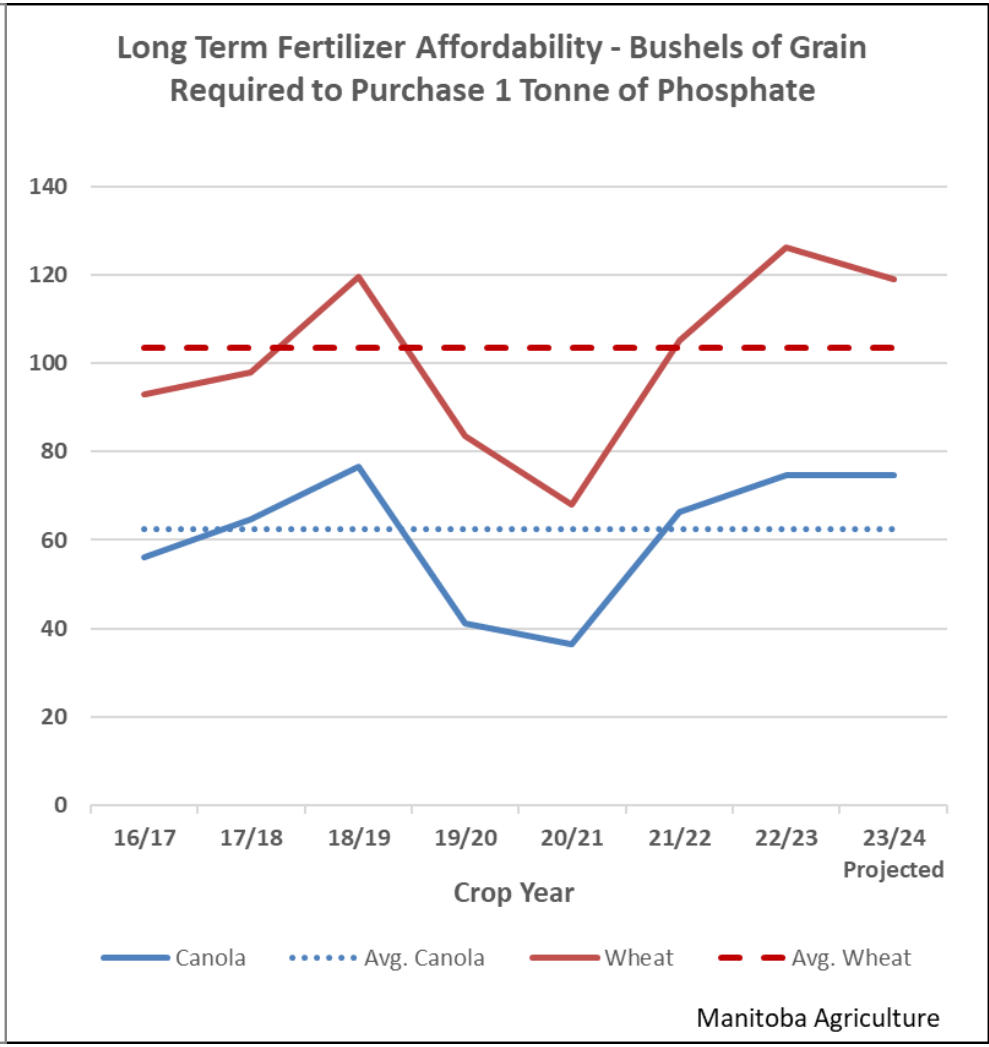
Long Term Fertilizer Affordability - Bushels of Grain Required to Purchase 1 Tonne of Phosphate
140
120
100
80
60
40
20
0
16/17
17/18
18/19
19/20
20/21
21/22
22/23
23/24 Projected
Crop Year
Canola
Avg. Canola
Wheat
Avg. Wheat
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Grain Prices vs Fertilizer Prices

Grain Prices (2022 Q4 average)

- Canola - $19.03/bu
- HRS Wheat - $11.91/bu
- Oats - $4.69/bu
- Corn - $9.07/bu

Fertilizer Prices (Fall 2022)

- Nitrogen
  - Urea - $1,150/t ($1.13/lb)
  - NH3 - $1,960/t ($1.08/lb)
- Phosphorous
  - 11-52 - $1,310/t

Grain Prices vs Fertilizer Prices

Grain Prices (2023 Q4 average)

- Canola - $14.95/bu
- HRS Wheat - $9.19/bu
- Oats - $5.14/bu
- Corn - $6.21/bu

Fertilizer Prices (Fall 2023)

- Nitrogen
  - Urea - $810/t ($0.80/lb)
  - NH3 - $1,290/t ($0.71/lb)
- Phosphorous
  - 11-52 - $1,070/t

Grain Prices vs Fertilizer Prices

Grain Prices (2023 Q4 average)

- Canola - $14.95/bu (⬇21%)
- HRS Wheat - $9.19/bu (⬇23%)
- Oats - $5.14/bu (⬆10%)
- Corn - $6.21/bu (⬇32%)

Fertilizer Prices (Fall 2023)

- Nitrogen
  - Urea - $810/t ($0.80/lb) ⬇30%
  - NH3 - $1,290/t ($0.71/lb) ⬇34%
- Phosphorous
  - 11-52 - $1,070/t - ⬇18%

Grain Prices vs Fertilizer Prices

Grain Prices (2023 Q4 average)

- Canola - $14.95/bu (⬇21%)
- HRS Wheat - $9.19/bu (⬇23%)
- Oats - $5.14/bu (⬆10%)
- Corn - $6.21/bu (⬇32%)

Fertilizer Prices (Fall 2023)

- Nitrogen
  - Urea - $810/t ($0.80/lb) ⬇30%
  - NH3 - $1,290/t ($0.71/lb) ⬇34%
- Phosphorous
  - 11-52 - $1,070/t - ⬇18%

Gross Revenue decrease:

- Canola – ($184/ac) on 45 bu/ac
- HRS Wheat – ($177/ac) on 65 bu/ac
- Corn – ($386/ac) on 135 bu/ac

Operating expense decrease:

- Nitrogen
  - Urea - $40/ac on a 120 lb/ac app
  - NH3 - $45/ac on a 120 lb/ac app
- Phosphorous
  - 11-52 - $8/ac on a 40 lb/ac app

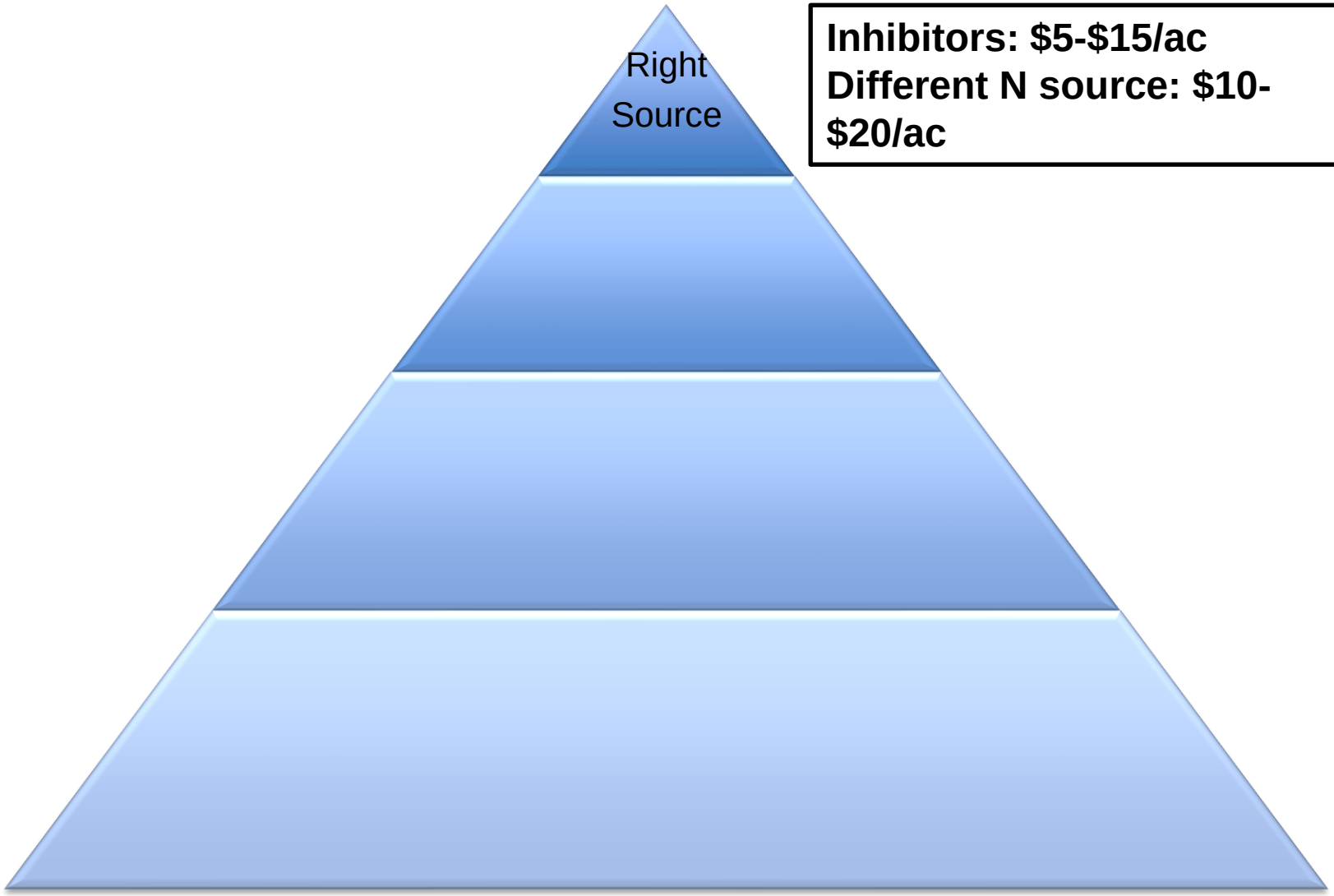
Using 4R's to Profit on the Farm

- It's too expensive to band:
- Challenges:
  - Increased fertilizer losses
  - Increased potential to under-fertilize crops
  - Increased potential for off-target nutrient movement
  - Increased costs when using inhibitors

Using 4R's to Profit on the Farm

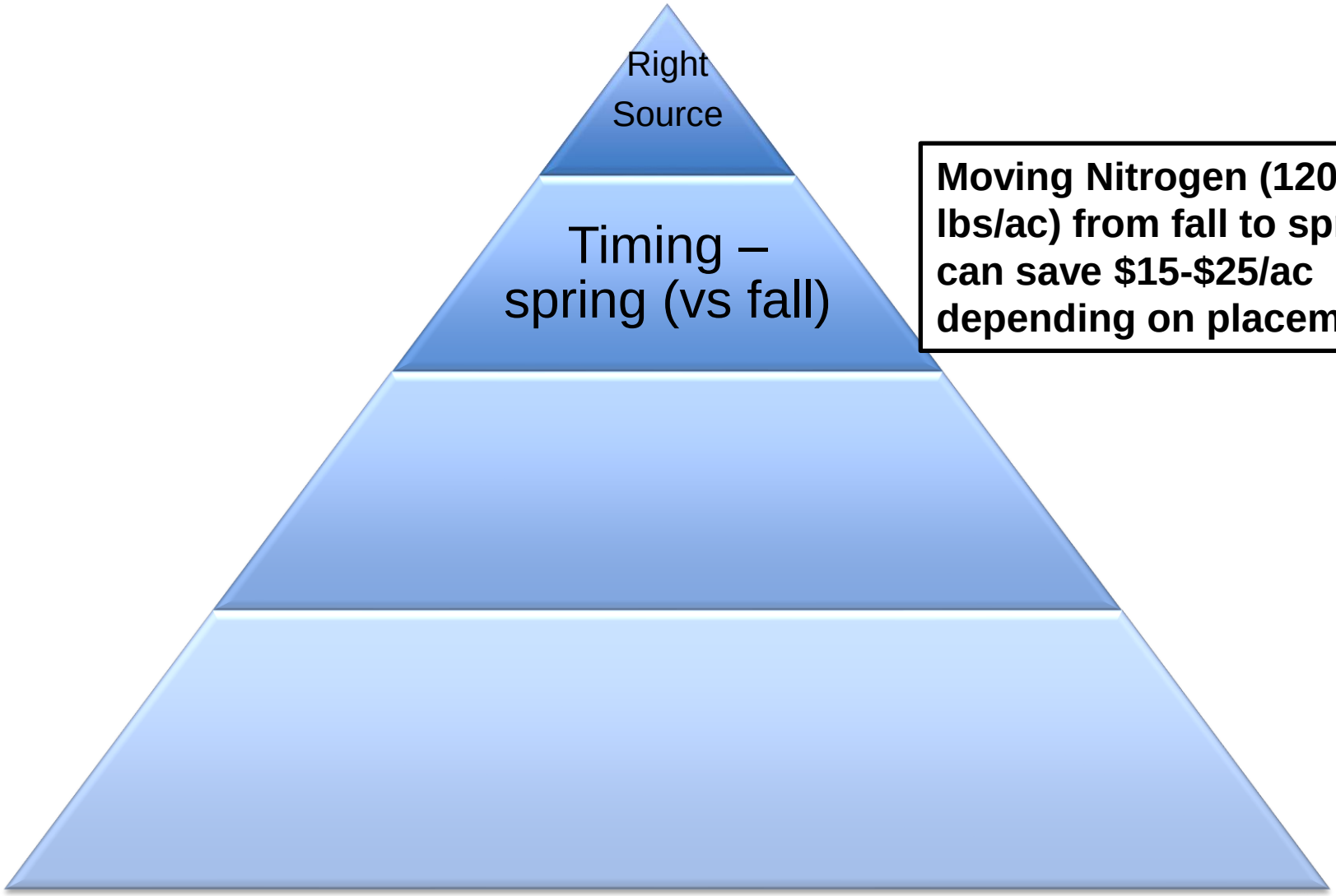
- It's too expensive not to band:
- Challenges:
  - Higher equipment investment
  - Workload (especially spring banding)
  - Longer seeding period when spring applying
  - Sensitive to fertilizer interruptions

4R $$ Impact on the Bottom Line



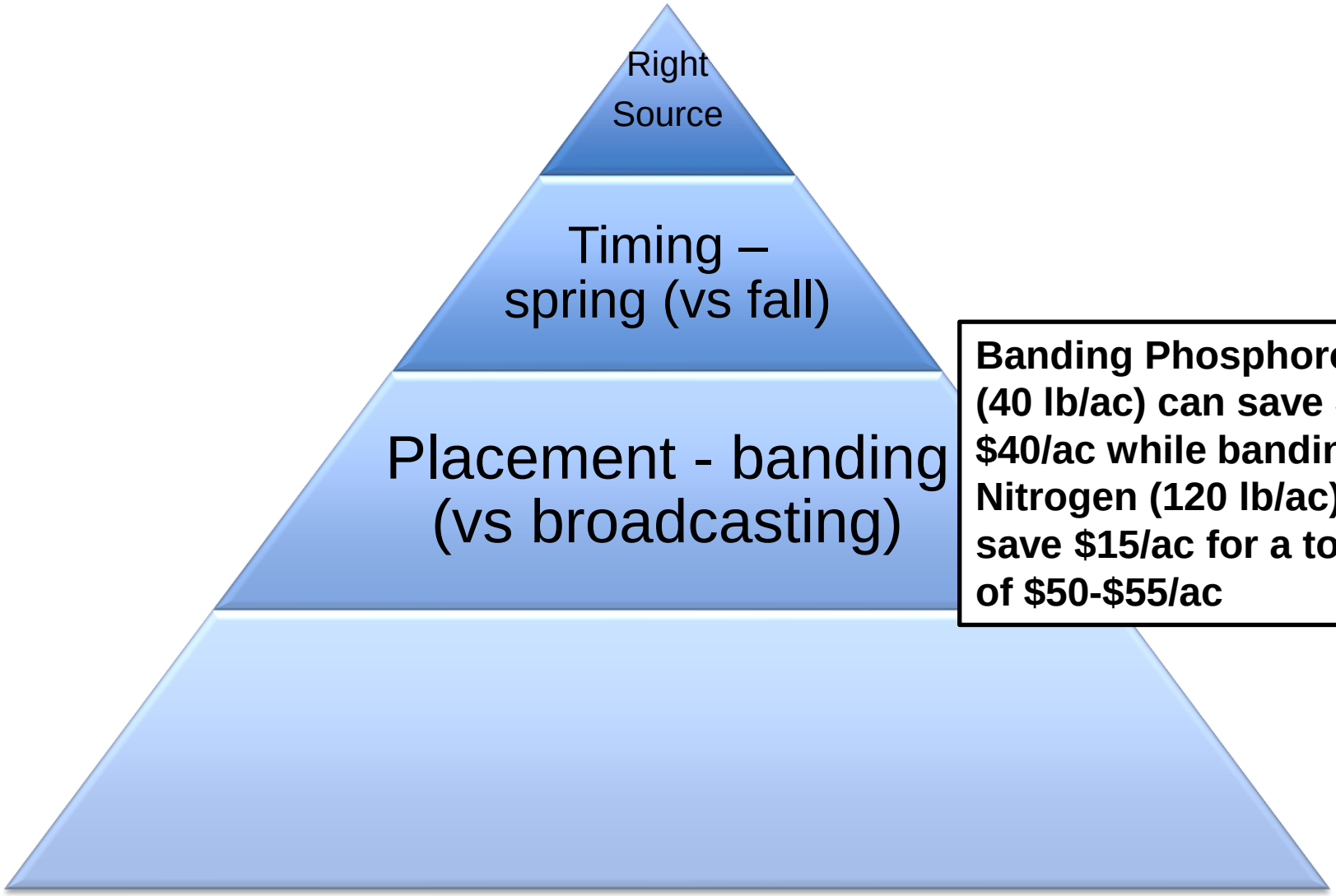
Inhibitors: $5-$15/ac
Different N source: $10-$20/ac

4R $$ Impact on the Bottom Line



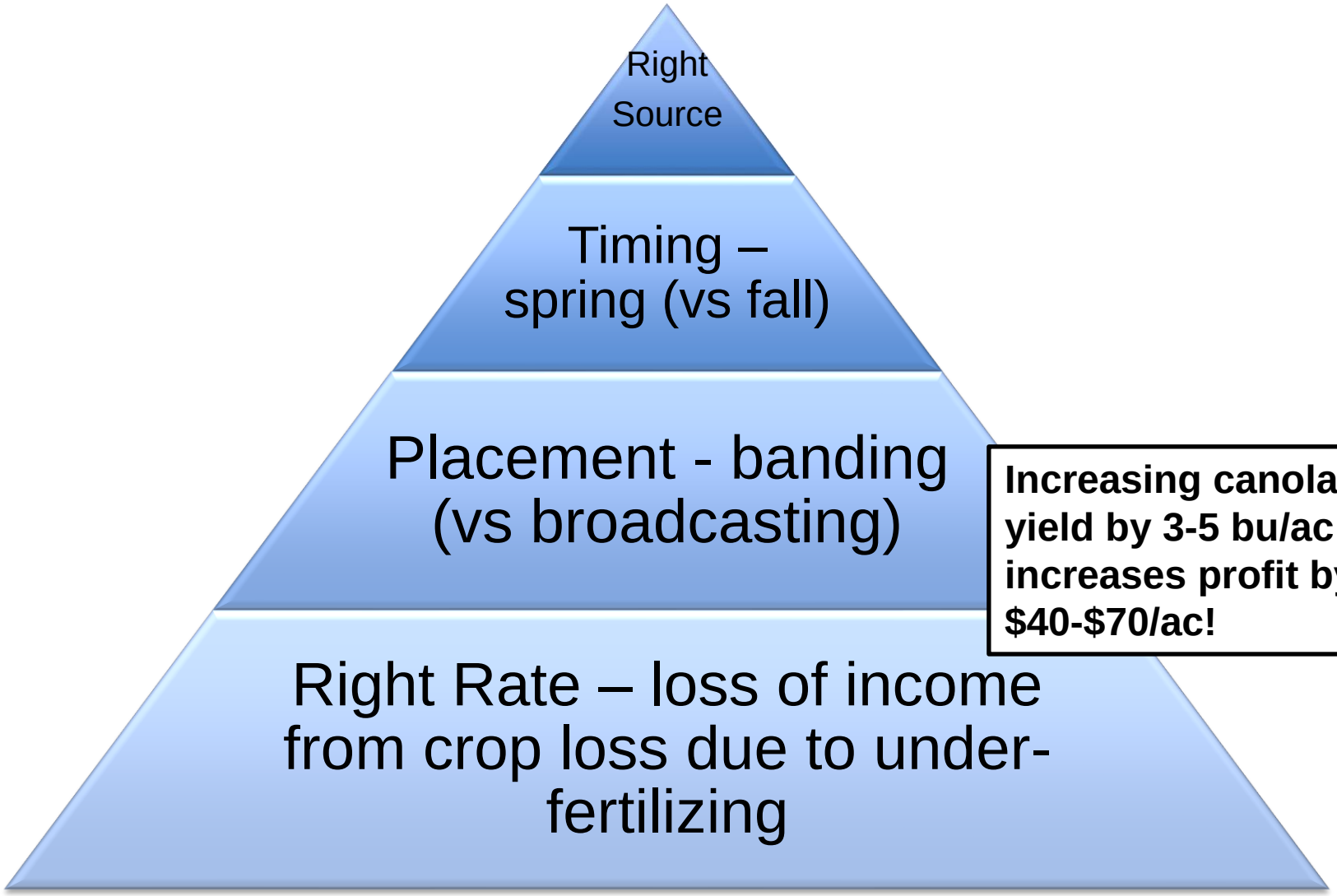
Moving Nitrogen (120 lbs/ac) from fall to spring can save $15-$25/ac depending on placement

4R $$ Impact on the Bottom Line



Banding Phosphorous (40 lb/ac) can save $35-$40/ac while banding Nitrogen (120 lb/ac) can save $15/ac for a total of $50-$55/ac

4R $$ Impact on the Bottom Line



Increasing canola yield by 3-5 bu/ac increases profit by $40-$70/ac!

Using 4R's to Profit on the Farm

- Nothing is free in life:
  - Higher equipment investment
    - **Potentially $50,000 - $400,000 investment**
    - **$3.50 - $28.50/ac (10 years; 2,000 ac/year)**
  - Workload (especially spring banding)
    - **Extra seasonal labour**
    - **$15.00/ac ($30,000 extra labour; 2,000 ac/year)**
  - Longer seeding period when spring applying
    - **Wheat 500 ac seeded 1 week later than usual**
    - **$60/ac (90% yield factor at 65 bu/ac = 10% yield loss)**
  - Sensitive to fertilizer supply interruptions
    - **$ - $$$$**

What if we switch to spring banding from fall banding?

Equipment Purchase for Nitrogen Spring Banding Cost Benefit Analysis

Baseline Fertilizer Application

Timing of Application	Fall
Method of Application	Banded
Nitrogen Source	Nitrogen (82-0-0-0)

$1,300 per tonne
$0.719 per lb. actual N

Proposed Fertilizer Application

Timing of Application	Spring
Method of Application	Banded
Nitrogen Source	Nitrogen (46-0-0-0)

$580 equivalent per tonne
$0.572 per lb. actual N
*($0.147 savings per lb. N)

Assumptions:

$ 0.00 storage cost per tonne (if required)

-$27.35 interest cost per tonne

Fertilizer cost, formulation and efficiency factoring can be changed in the 'Calculator' tab.

Cost Benefit Analysis:

60 lbs. actual N per acre (being changed to spring banded)

1,750 acres applied per year (only N fertilizer acres)

What if we switch to spring banding from fall banding?

Calculation #1 - Breakeven Equipment Upgrade

5	payback period (in years)
8.5 %	interest rate

Banding Equipment Upgrade Paid For By Fertilizer Efficiency:

$60,824 Breakeven Capital to Spend (based on $15,435 annual fertilizer savings over 5 years @ 8.5%)

* If the actual cost of banding equipment is less, then it likely beneficial to invest in upgrades.

Calculation #2 - Payback Period for Equipment Upgrade

$ 50,000	equipment upgrade cost
8.5 %	interest rate

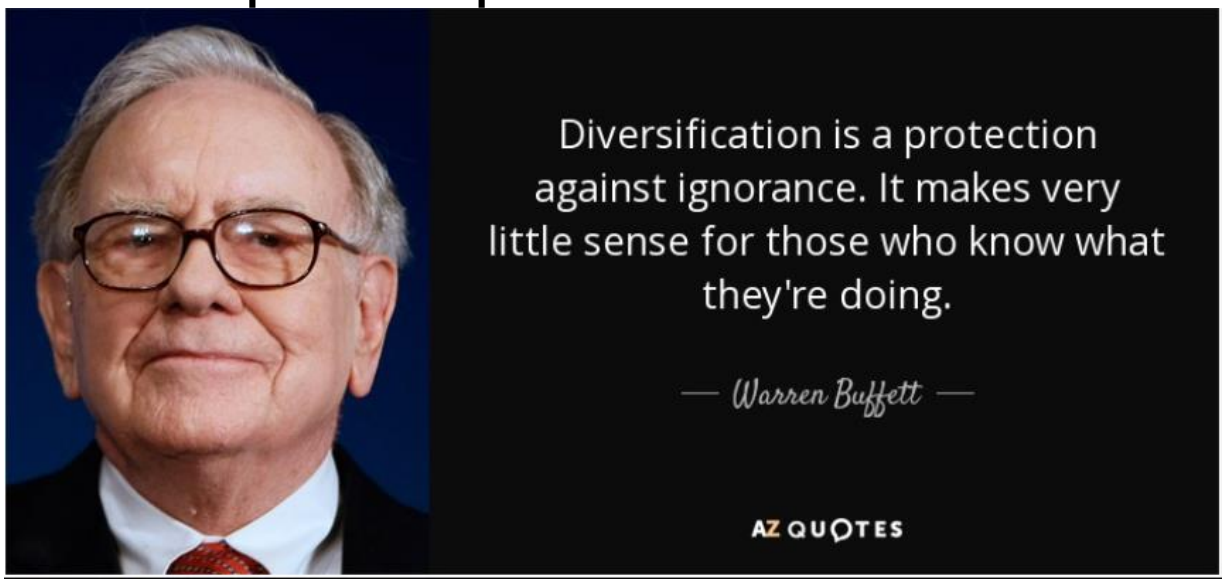
Banding Equipment Upgrade Paid For By Fertilizer Efficiency:

3.9 Years breakeven payback period (based on $15,435 annual fertilizer savings @ 8.5%)

* If the actual payback period of banding equipment is less, then it likely beneficial to invest in upgrades.

Take home messages…

- Don’t party like its 2022 (or 2023)…2024 looks like a return to historically tighter margins
- Investments in equipment and technology must generate returns exceeding the investment cost
- Focus on crops that provide a return



Take home messages…

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- Investments in equipment and technology must generate returns exceeding the investment cost
- Focus on crops that provide a return

Profitability will be with those who produce but keep costs in check

Questions ?

For more information

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