



# VersaLime

Your Way To Grow



American  
Crystal  
Sugar  
Company

# WHAT IS VersaLime

- Calcium Carbonate Limestone Is Heated And Injected Into The Sugar Purification Process
- Captures and Absorbs The Impurities In The Juice
- By-Product Left Behind Is Spent Lime
- American Crystal Sugar Produces 600,000 Tons Of Spent Lime Annually

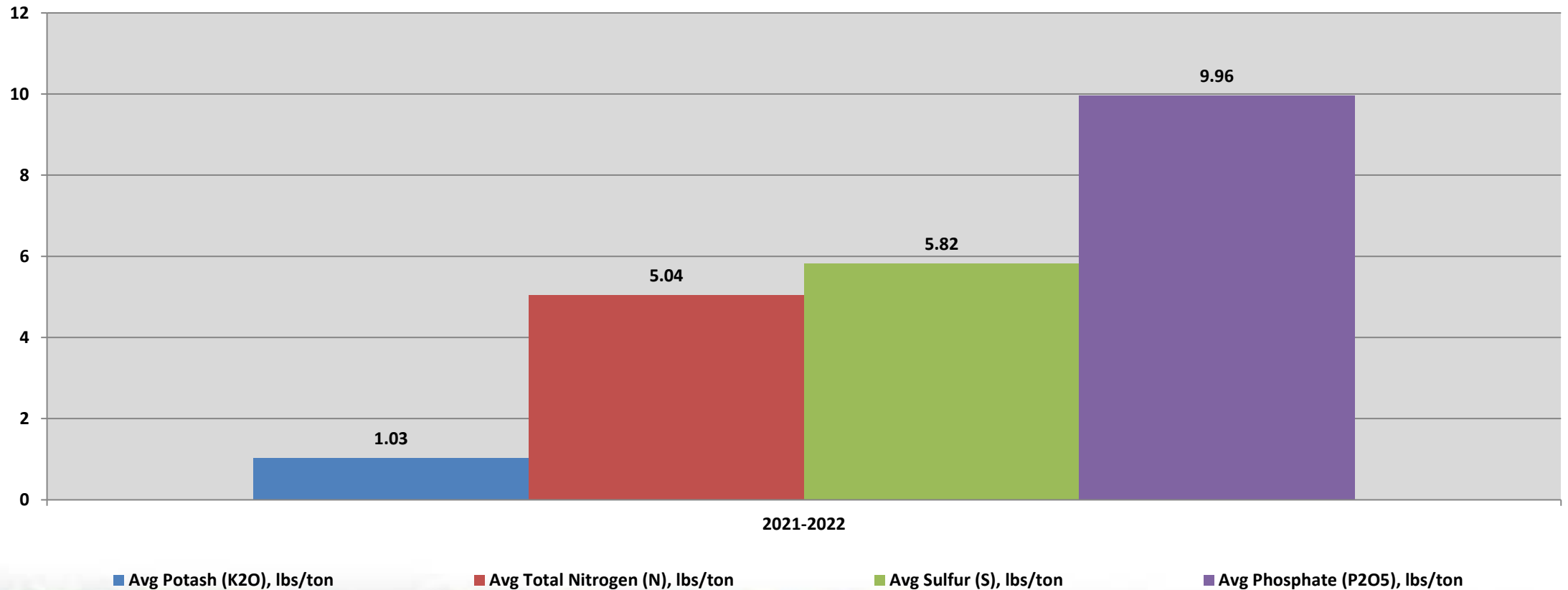
# VersaLime Nutrient Analysis

- Nutrient Analysis values are averaged throughout calendar year – analysis may vary
- Fertilizer prices were sourced early February 2023 from local co-op in RRV

Urea (46-0-0): \$605/ton	.66\$/lb. of N
MAP (11-52-0): \$805/ton	.77\$/lb. of P
Potash (0-0-60): \$650/ton	.54\$/lb. of K
AMS (21-0-0-24): \$ 510/ton	.94\$/lb. of S

# 2022 VersaLime Analysis - Moorhead

Average Versalime Nutrients (lb/ton) Per Campaign



# 2022 VersaLime Analysis - Moorhead

## Nutrient Analysis

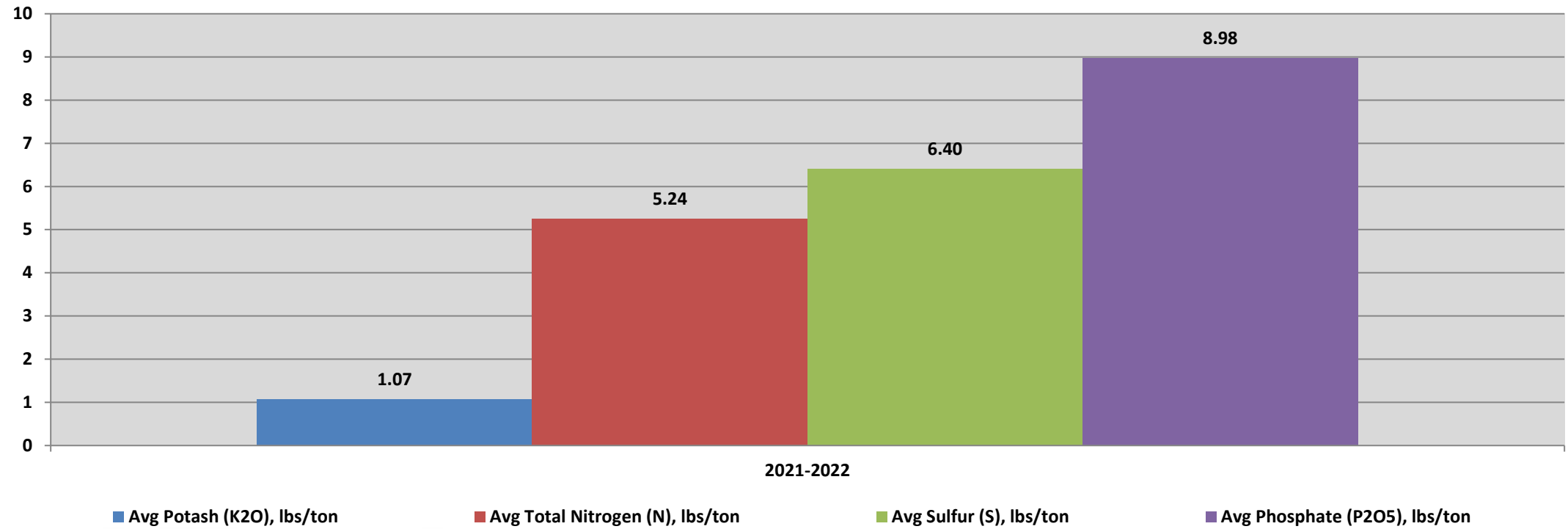
**10 ton rate gives approximately;**

- 50 lbs Nitrogen = \$33/acre
- 100 lbs Phosphate = \$77/acre \*11-52-0 analysis
- 10 lbs Potassium = \$5/acre
- 58 lbs Sulfur = \$54/acre \*21-0-0-24 analysis

**Total Nutrient Value = \$169/acre**

# 2022 VersaLime Analysis – Hillsboro

Average Versalime Nutrients (lb/ton) Per Campaign



# 2022 VersaLime Analysis - Hillsboro

## Nutrient Analysis

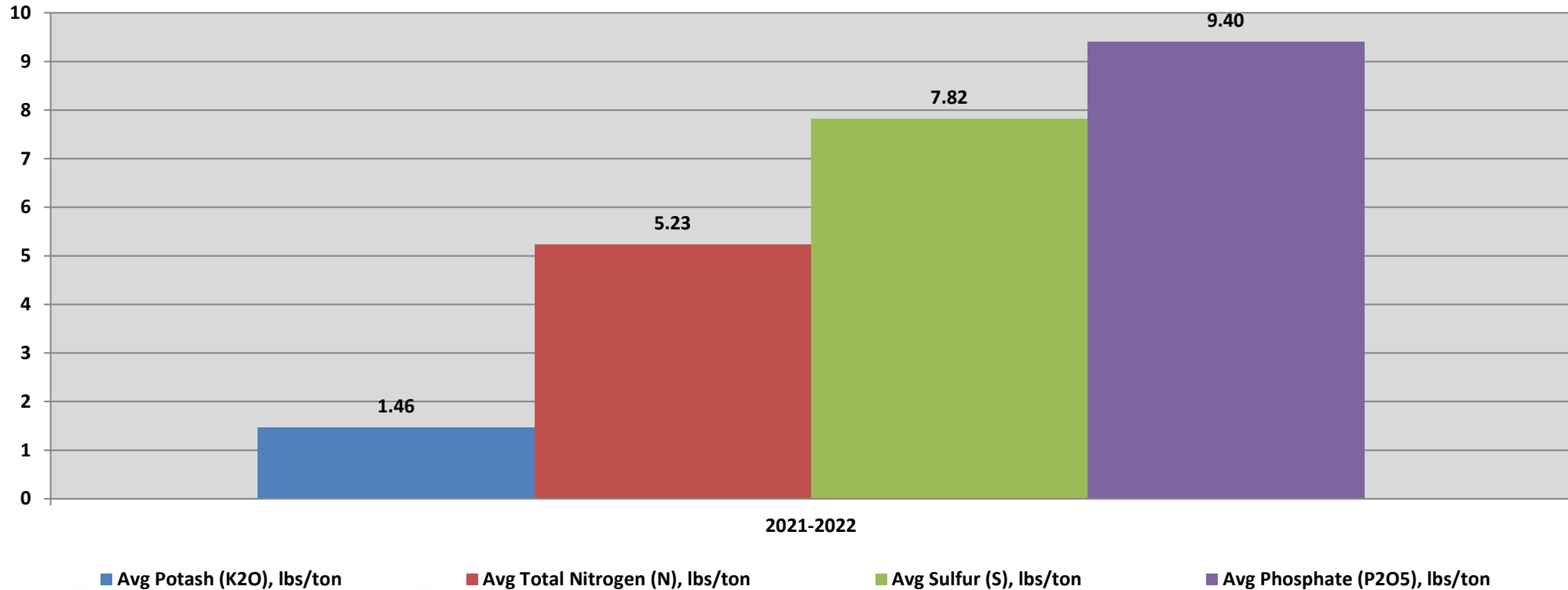
### 10 ton rate gives approximately;

- 52 lbs Nitrogen = \$34/acre
- 90 lbs Phosphate = \$69/acre \*11-52-0 analysis
- 11 lbs Potassium = \$6/acre
- 64 lbs Sulfur = \$60/acre \*21-0-0-24 analysis

Total Nutrient Value = \$169/acre

# 2022 VersaLime Analysis - Crookston

Average Versalime Nutrients (lb/ton) Per Campaign





# 2022 VersaLime Analysis - Crookston

## Nutrient Analysis

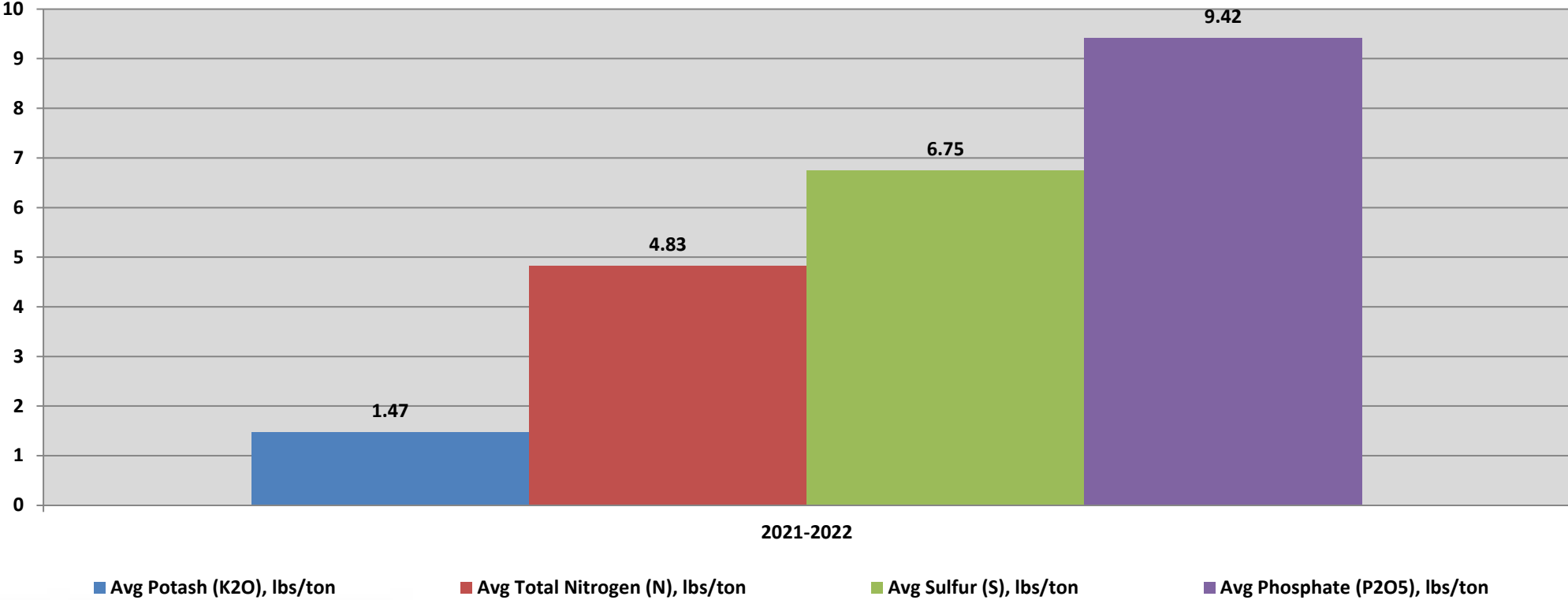
**10 ton rate gives approximately;**

- 52 lbs Nitrogen = \$34/acre
- 94 lbs Phosphate = \$72/acre \*11-52-0 analysis
- 15 lbs Potassium = \$8/acre
- 78 lbs Sulfur = \$73/acre \*21-0-0-24 analysis

**Total Nutrient Value = \$187/acre**

# 2022 VersaLime Analysis – East Grand Forks

Average Versalime Nutrients (lb/ton) Per Campaign



# 2022 VersaLime Analysis – East Grand Forks

## Nutrient Analysis

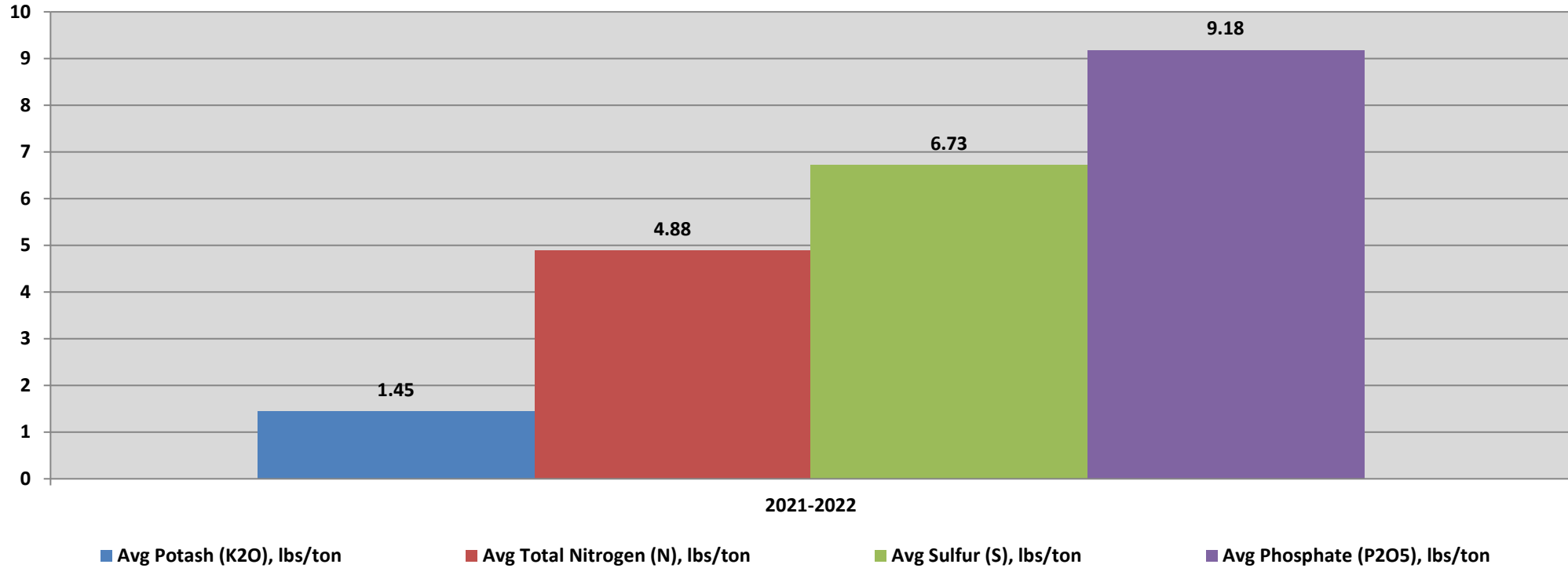
**10 ton rate gives approximately;**

- 48 lbs Nitrogen = \$32/acre
- 94 lbs Phosphate = \$72/acre \*11-52-0 analysis
- 15 lbs Potassium = \$8/acre
- 68 lbs Sulfur = \$64/acre \*21-0-0-24 analysis

**Total Nutrient Value = \$176/acre**

# 2022 VersaLime Analysis - Drayton

Average Versalime Nutrients (lb/ton) Per Campaign



# 2022 VersaLime Analysis – Drayton

## Nutrient Analysis

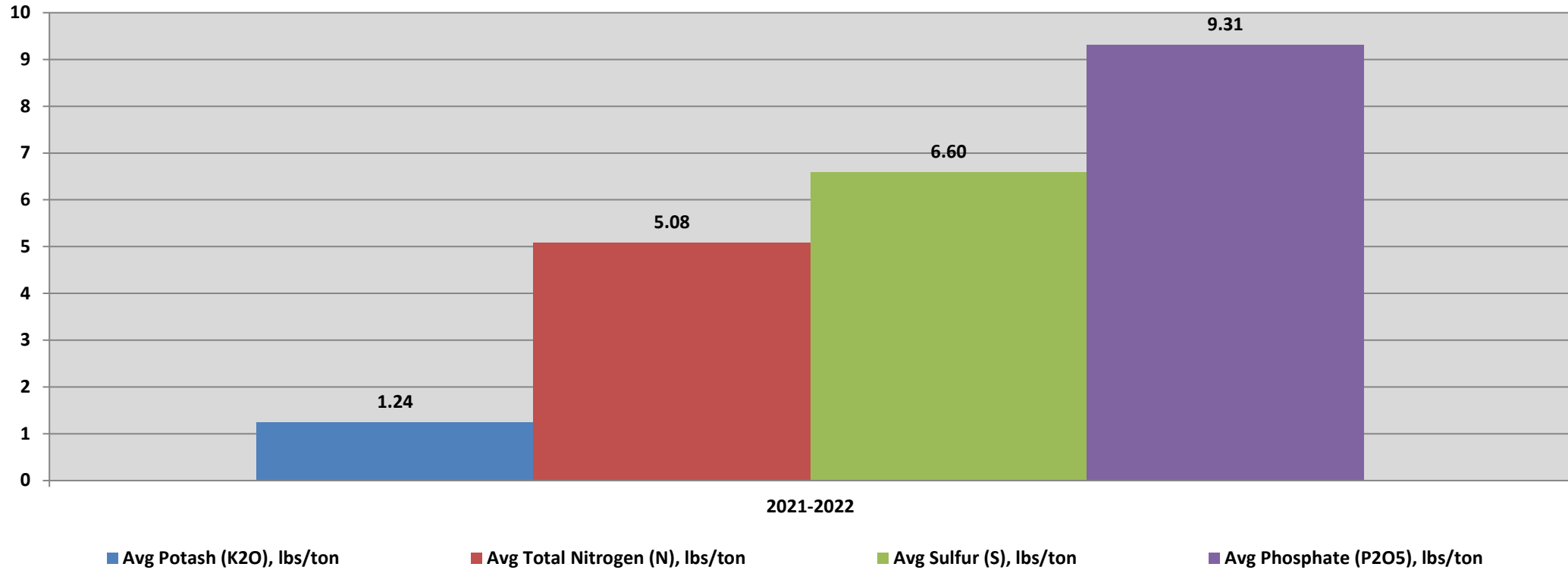
### 10 ton rate gives approximately;

- 49 lbs Nitrogen = \$32/acre
- 92 lbs Phosphate = \$71/acre \*11-52-0 analysis
- 15 lbs Potassium = \$8/acre
- 67 lbs Sulfur = \$63/acre \*21-0-0-24 analysis

Total Nutrient Value = \$174/acre

# 2022 VersaLime Analysis – Red River Valley

Average Versalime Nutrients (lb/ton) Per Campaign



# 2022 VersaLime Analysis – Red River Valley

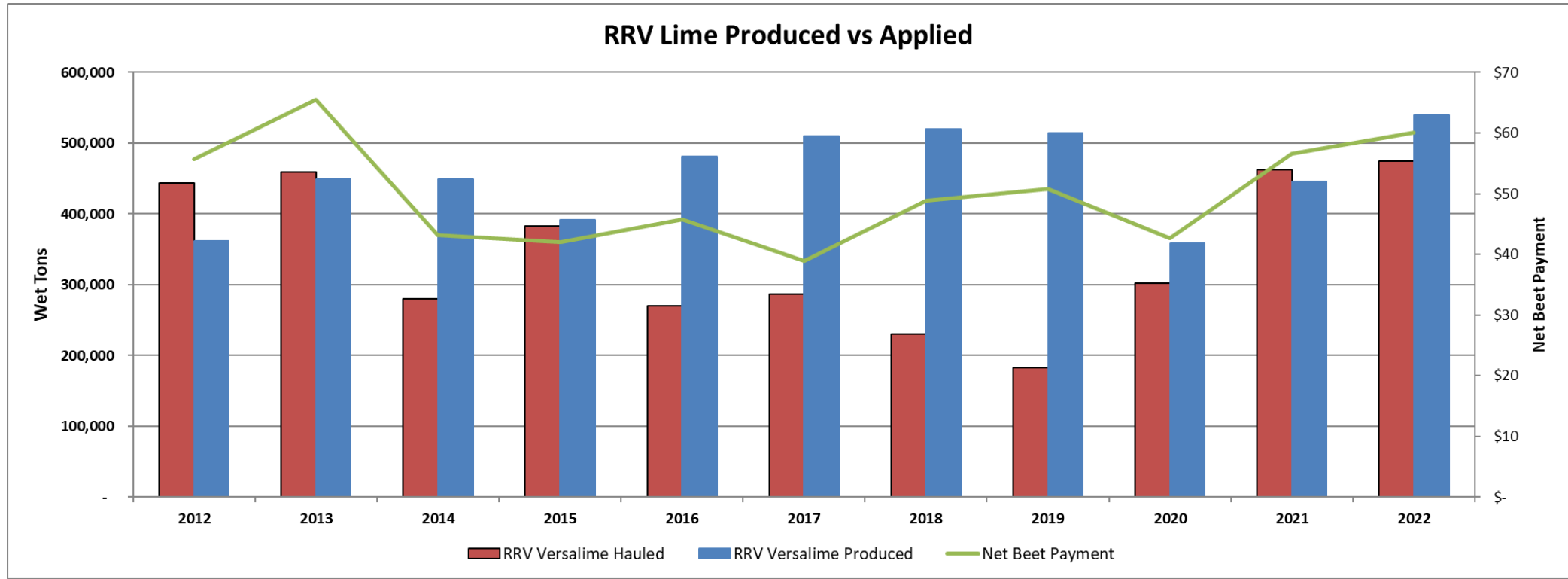
## Nutrient Analysis

**10 ton rate gives approximately;**

- 51 lbs Nitrogen = \$34/acre
- 93 lbs Phosphate = \$72/acre \*11-52-0 analysis
- 13 lbs Potassium = \$7/acre
- 66 lbs Sulfur = \$62/acre \*21-0-0-24 analysis

**Total Nutrient Value = \$175/acre**

# Versalime Produced vs Applied





# NWROC Lime Trials

## Breckenridge, MN

- Trial began in 2004 with lime applied at 0, 5, 10, 15, 20 tons per acre rates
- 3 crops between beets (corn, soybeans, wheat)
- Combined data 2012-2014
- 2015 data-only used susceptible variety
- In 2015, 5 ton lime added to 1/2 of each previous plot

Data supplied by Dr Ashok Chanda and Jason Brantner NWROC

# No Lime

**Resistant Variety**  
**45 g Tachigaren**

**Susceptible Variety**  
**No Tachigaren**



# 5 Ton Lime



**Resistant Variety**  
**45 g Tachigaren**

**Susceptible Variety**  
**No Tachigaren**

# 10 Ton Lime

**Resistant Variety**  
**45 g Tachigaren**

**Susceptible Variety**  
**No Tachigaren**



# 15 Ton Lime

**Resistant Variety**  
**45 g Tachigaren**

**Susceptible Variety**  
**No Tachigaren**



# 20 Ton Lime

**Resistant Variety**  
**45 g Tachigaren**

**Susceptible Variety**  
**No Tachigaren**

# Root Comparison With Spent Lime Applied



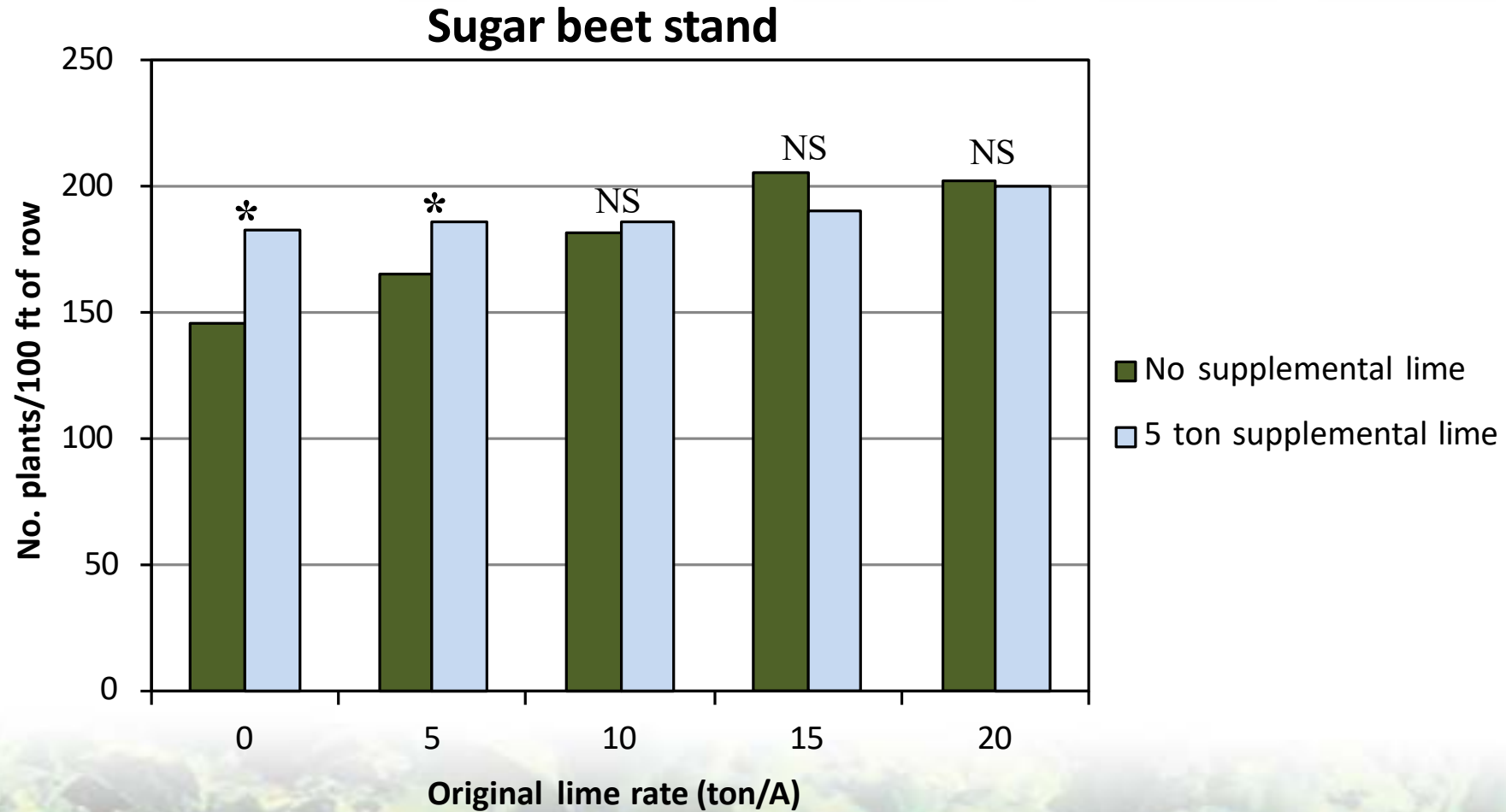
# Breckenridge Lime Trial Results: 2012-2014

Lime rate (Tons/Acre)	Aphanomyces rating (0-7)		Recoverable sucrose (lb/A)	
	Res. + Tach	Susc. No Tach	Res. + Tach	Susc. No Tach
0	2.4	4.8	7450	4575
5	1.8	3.6	8091	7451
10	1.8	3.0	8346	8037
15	1.6	2.2	8646	8873
20	1.6	2.3	8949	9236

Data supplied by Dr Ashok Chanda and Jason Brantner NWRORC

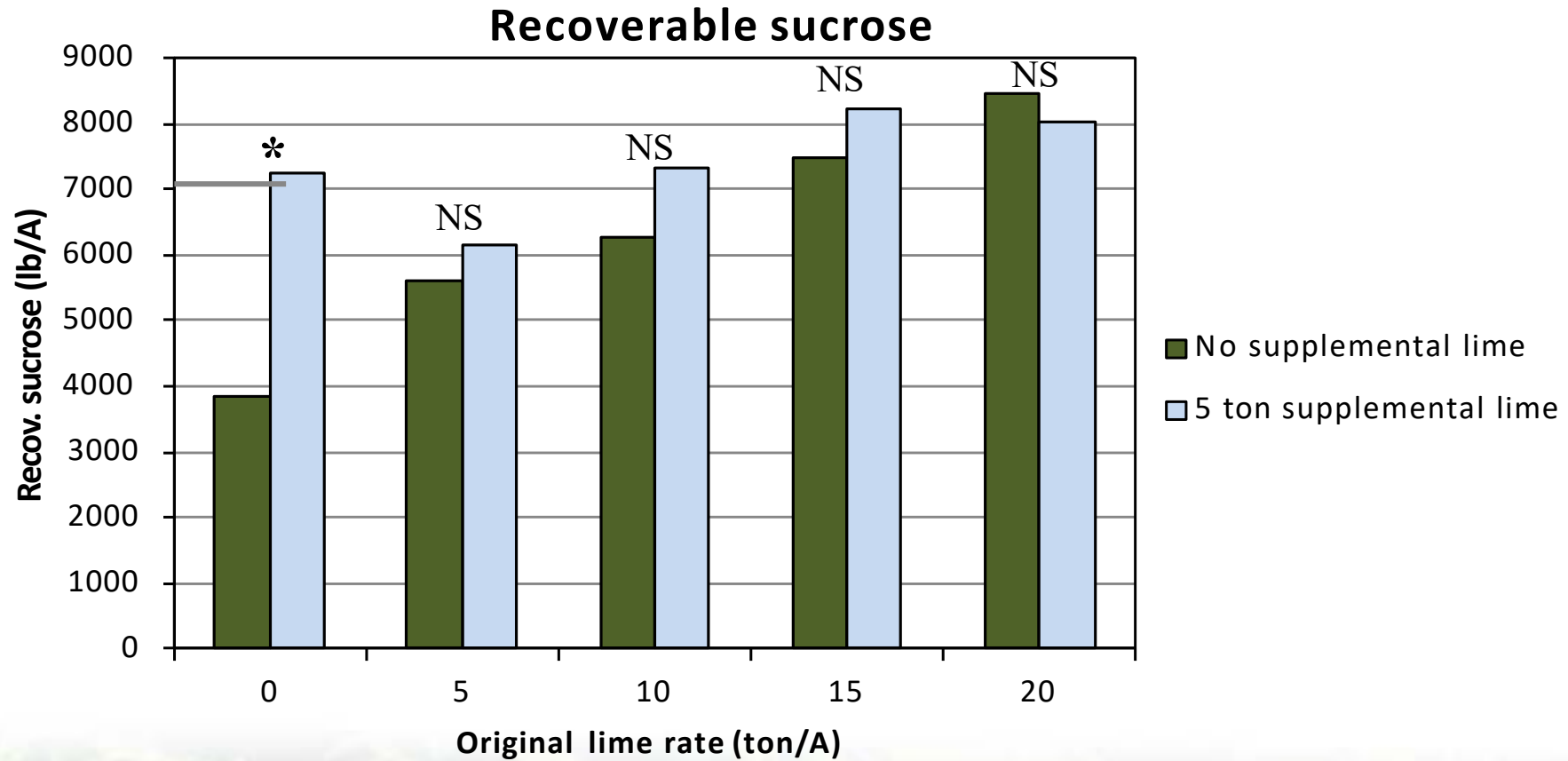


# 2015 Original by Supplemental Lime Interaction



Data supplied by Dr Ashok Chanda and Jason Brantner NWORC

# 2015 Original by Supplemental Lime Interaction



Data supplied by Dr Ashok Chanda and Jason Brantner NWROC

# VersaLime Recommendations

- 10 ton rate – better control and longer lasting than 5 ton rate
- If already applied 5 ton rate, add additional 5 ton
- Use Aphanomyces Resistant variety with VersaLime for best return

# VersaLime Application Recommendations

- Apply 10 tons/acre
- Apply 1 year prior to sugarbeets for best results
- Spread as evenly as possible
- Incorporate thoroughly with tillage
- Contact Ag Staff for assistance with procedure

# Additional Benefits

- Windels/Brantner noted limed soil screened better than non-limed
- Better downward percolation and drainage
- Raise pH of acidic soils
- May increase beneficial soil microorganisms

# VersaLime Procedures

- Required forms
  - Factory Specific Instructions
    - Contacts
    - Load-out locations
    - Times
  - VersaLime agreement
  - Site suitability checklist
- Environmental regulation



MEMBERS ONLY

- Versalime
- Pulp & Tailings
- Our Agri-Products
- Safety
- Quality

# The Sweet Life Is a Good Life.

JOIN OUR TEAM >



## Our Cooperative Grows Opportunity.



MEMBERS ONLY



## VersaLime

Availability (typically): March 15 through November 1, weather permitting.

### Required Forms

- [Lime Removal Agreement](#)
- [Lime Removal Terms and Conditions](#)
- [Site Suitability Checklist](#)

### Submit To:

American Crystal Sugar Company  
Attn: Byproduct Reservations  
101 North 3rd Street  
Moorhead, MN 56560

or

Email: [dcjenson@crystalsugar.com](mailto:dcjenson@crystalsugar.com)  
Fax: 218-236-4702



### Environmental Considerations

- [Guidelines for Land Application of Byproduct Limes](#)
- [Ag-Lime Analysis](#)

Crookston - VersaLime	▼
Drayton - VersaLime	▼
East Grand Forks - VersaLime	▼
Hillsboro - VersaLime	▼
Moorhead - VersaLime	▼





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**Environmental Considerations**

- [Guidelines for Land Application of Byproduct Limes](#)
- [Ag-Lime Analysis](#)

Crookston - VersaLime ^

Contact Info  
Phil Scramm: 218-280-3288  
Lynn Overend: 218-289-4222  
1201 Highway 75 S.  
Crookston, MN 56716

- [Factory Info Sheet](#)
- [SDS](#)

\$0 per load.

Drayton - VersaLime v

East Grand Forks - VersaLime v

Hillsboro - VersaLime v

Moorhead - VersaLime v



# TAKE HOME MESSAGE

- No detrimental effects on rotational crops
- Increase yields of Sugarbeet crops when severe *Aphanomyces* is present
- Every ton of lime applied will increase soil test P by approximately 1 ppm
- Increase soil pH of acidic soils
- Addition of numerous micro-nutrients to soil
- Benefits of VersaLime have been demonstrated to last more than 10 years
- VersaLime is free

# Final Notes

- ACSC does not provide fertilizer or pesticide and is not registered as such
- Loading fees may apply (at some factories – Contact Ag Staff)
- ACSC will provide VersaLime nutrient analysis from outside laboratory
  - Benefits are to be determined by each grower

Any Questions



American  
Crystal  
Sugar  
Company