



# VersaLime

2016 Your Way To Grow



American  
Crystal  
Sugar  
Company

# Agenda

- How is it made?
- Current usage
- University research data
- Recommendations/Lessons learned
- 2016 VersaLime web site  
[www.crystalsugar.com](http://www.crystalsugar.com)

# 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

# Lime Analysis - Moorhead

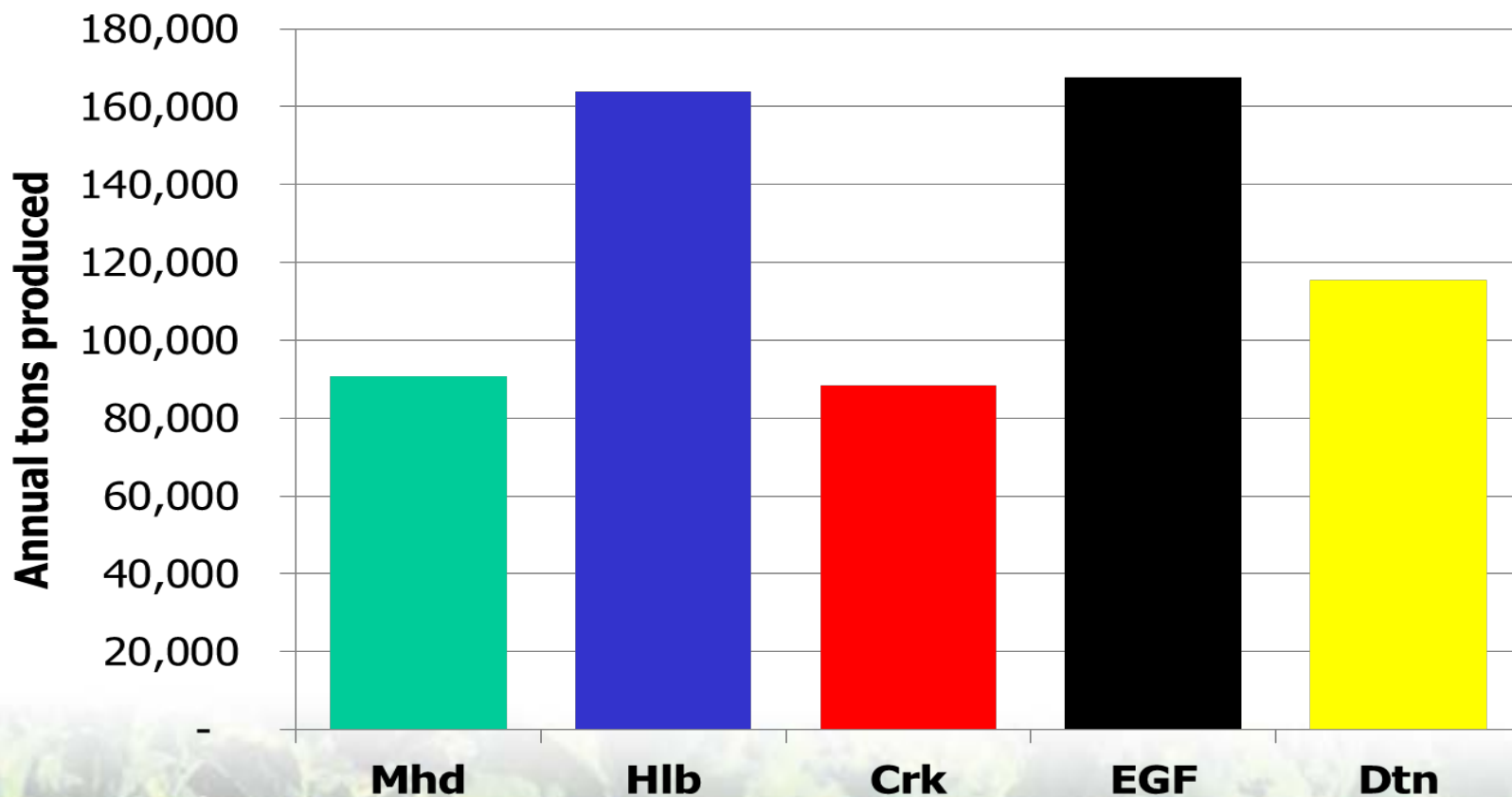
	Total N	Phosphate	Potash	Sulfur
Date	lb/ton	lb/ton	lb/ton	lb/ton
2/9/2016	4.6	16.0	0.9	4.4
2/17/2016	4.8	14.0	1.3	4.8
2/23/2016	4.9	14.0	0.8	4.5
2/29/2016	5.2	13.0	1.1	5.3
3/7/2016	5.6	20.0	1.0	6.4
<b>Average</b>	<b>5.0</b>	<b>15.4</b>	<b>1.0</b>	<b>5.1</b>

# VersaLime Analysis

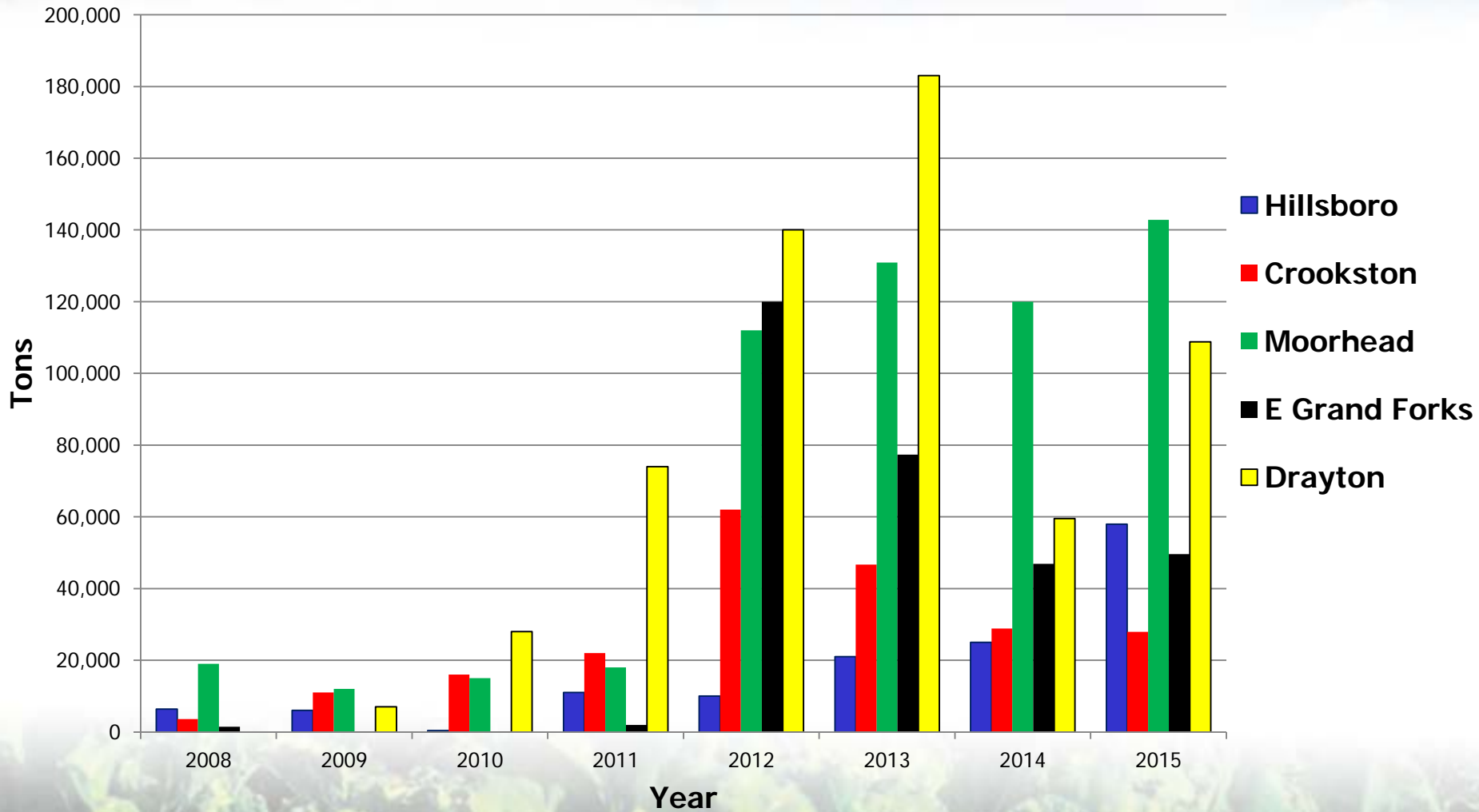
- Currently sampling weekly & will update numbers at end of campaign
- 10 ton rate gives approximately;
  - 50 lbs Nitrogen = \$20/A
  - 154 lbs Phosphate=\$80/A
  - 51 lbs Sulfur = \$26/A
  - Total Nutrient value=**\$126/A**



# VersaLime Production



# VersaLime Tons Utilized (by Factory)



# 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  $\frac{1}{2}$  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

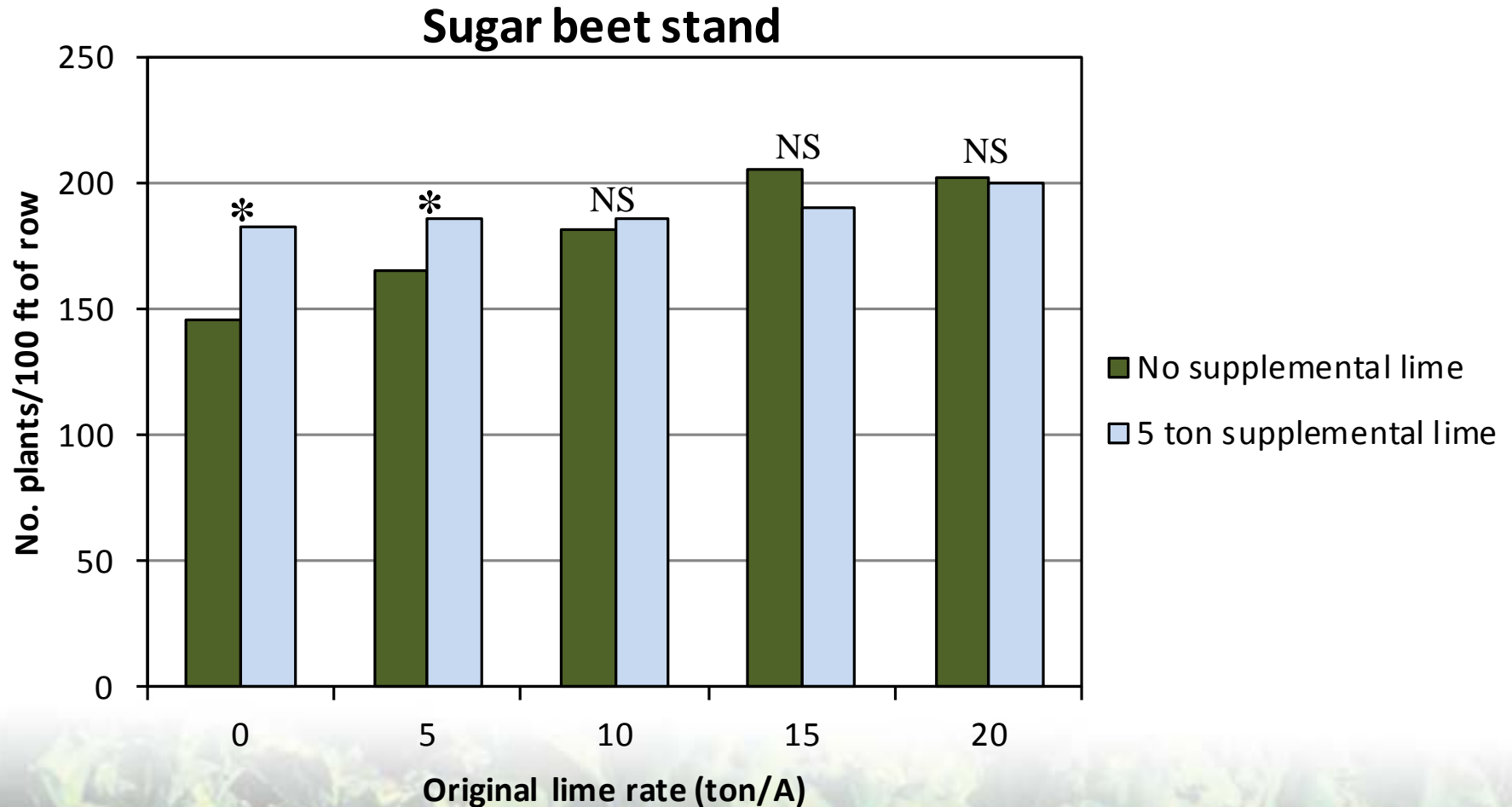
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Lime rate (Tons/Acre)	Aphanomyces rating (0-7)		Recoverable sucrose (lb/A)	
	Res. + Tach	Susc. No Tach	Res. + Tach	Susc. No Tach
0	2.4	4.8	7450	4575
5	1.8	3.6	8091	7451
10	1.8	3.0	8346	8037
15	1.6	2.2	8646	8873
20	1.6	2.3	8949	9236

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Data supplied by Dr Ashok Chanda and Jason Brantner NWRORC

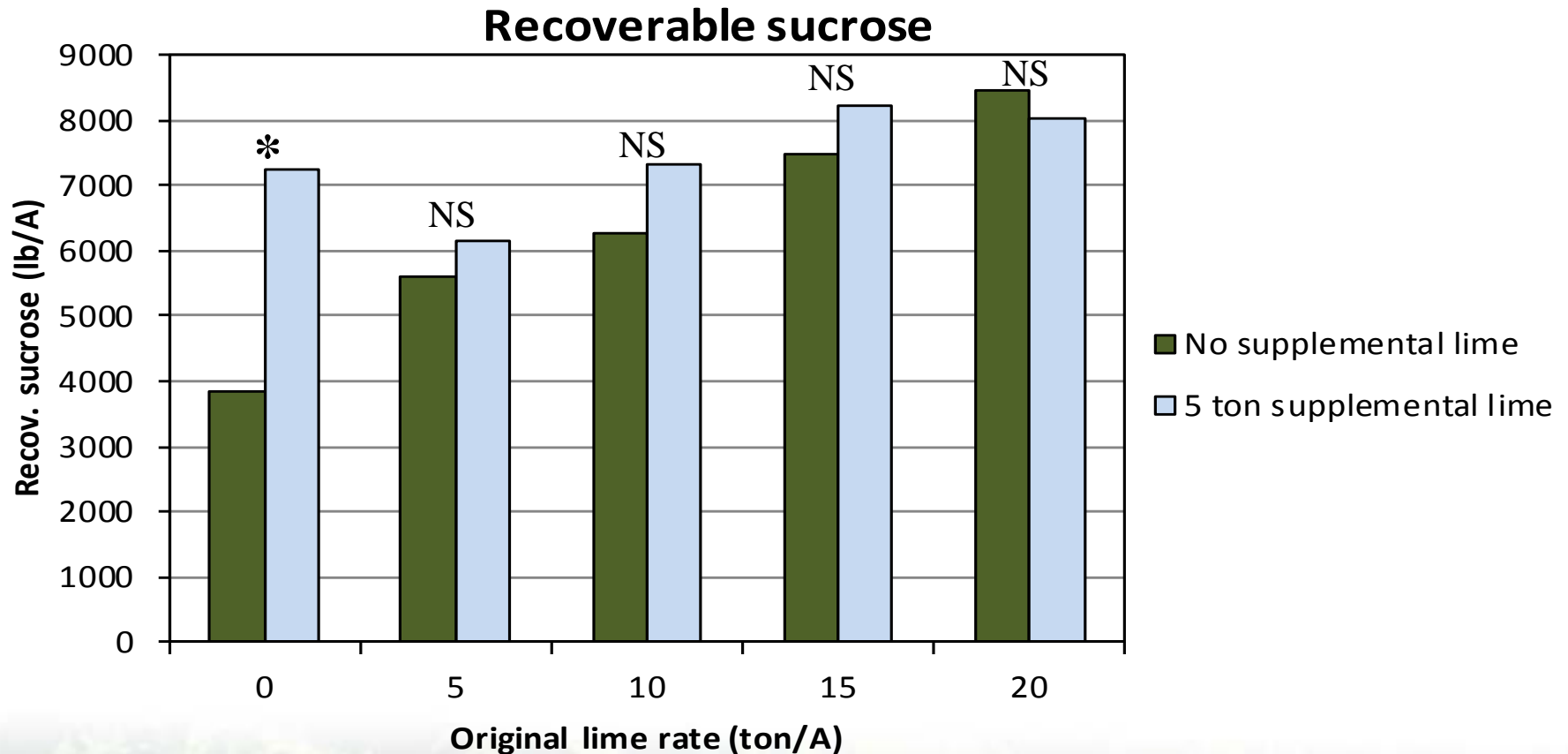
# 2015 Original by Supplemental Lime Interaction



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

# ACSC Web Site

The image displays a composite of the ACSC website and its Facebook page. At the top left is the Crystal Sugar Company logo. The website navigation menu includes: CRYSTAL CAREERS, COOPERATIVE PROFILE, SUGARBEET AGRONOMY, SUGAR & AGRI-PRODUCTS (highlighted with a yellow circle), SUGAR PROCESSING, and MEMBERS ONLY. Below the navigation is a large Facebook 'f' icon. The Facebook page for American Crystal Sugar Company is shown, featuring a cover photo with the text "GROW WITH US" and a post that reads "Like us on Facebook! American Crystal Sugar Launches Its Own Facebook Site." The page also shows a "Recent" tab with "2015" and "Founded" listed. The Facebook page header includes "American Crystal Sugar Company Food/Beverages" and navigation options like "Timeline", "About", "Photos", "Reviews", and "More".

Crystal Sugar Company

CRYSTAL CAREERS COOPERATIVE PROFILE SUGARBEET AGRONOMY SUGAR & AGRI-PRODUCTS SUGAR PROCESSING MEMBERS ONLY

f

GROW WITH US

American Crystal Sugar Company Food/Beverages

Like us on Facebook!  
American Crystal Sugar Launches Its Own Facebook Site.

ACSC'S FACEBOOK SITE

Recent  
2015  
Founded

Timeline About Photos Reviews More



# ACSC Web Site

The screenshot displays the ACSC website interface. At the top left is the American Crystal Sugar Company logo. The main navigation bar includes links for News & Media, Company Store, Classifieds, Links, and Contact Us, along with a search bar. Below this is a secondary menu with categories: CRYSTAL CAREERS, COOPERATIVE PROFILE, SUGARBEET AGRONOMY, SUGAR & AGRI-PRODUCTS (highlighted with a red line), SUGAR PROCESSING, and MEMBERS ONLY. The main content area is divided into four columns: SUGAR PRODUCTS (with links for Industrial and Retail Sugar), AGRI-PRODUCTS (with links for Overview, Versalime, and Agri-Product SDS), SERVICES (with a link for Product Quality), and SUGAR FACTS (with links for Sugar FAQs and Healthy Truth). A sidebar on the left lists various site sections, with 'Sugar & Agri-Products' selected and 'Versalime' circled in red. The main content area shows the VersaLime logo and two sections: 'Hauling/ Spreading Services' with links for Lime Spreading and Lime Hauling Service Providers, and 'Environmental Considerations' with a link for Guidelines for Land Application of By-Product Limes.

**American Crystal Sugar Company**

News & Media   Company Store   Classifieds   Links   Contact Us   Search...

CRYSTAL CAREERS   COOPERATIVE PROFILE   SUGARBEET AGRONOMY   **SUGAR & AGRI-PRODUCTS**   SUGAR PROCESSING   MEMBERS ONLY


**SUGAR PRODUCTS**  
Industrial Sugar  
Retail Sugar

**AGRI-PRODUCTS**  
Overview  
**Versalime**  
Agri-Product SDS

**SERVICES**  
Product Quality

**SUGAR FACTS**  
Sugar FAQs  
Healthy Truth

Cooperative Profile  
Sugarbeet Agronomy  
**Sugar & Agri-Products**  
- Industrial Sugar  
- Retail Sugar  
- Agri-Products  
**- Versalime**  
- Product Quality  
- Sugar FAQs  
Sugar Processing

  
**VersaLime**

**Hauling/ Spreading Services**

- Lime Spreading Service Providers
- Lime Hauling Service Providers

**Environmental Considerations**

- Guidelines for Land Application of By-Product Limes

# ACSC Web Site



[CRYSTAL CAREERS](#)

[COOPERATIVE PROFILE](#)

[SUGARBEET AGRONOMY](#)

[SUGAR & AGRI-PRODUCTS](#)

[SUGAR PROCESSING](#)

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## VERSALIME



[Home](#) / [Sugar & Agri-Products](#) / [Versalime](#)

[Crystal Careers](#)

[Cooperative Profile](#)

[Sugarbeet Agronomy](#)

### Sugar & Agri-Products

- [Industrial Sugar](#)
- [Retail Sugar](#)
- [Agri-Products](#)
- [Versalime](#)
- [Product Quality](#)
- [Sugar FAQs](#)

[Sugar Processing](#)

[Members Only](#)



## Versalime

### Hauling/ Spreading Services

- [Lime Spreading Service Providers](#)
- [Lime Hauling Service Providers](#)

### Environmental Considerations

- [Guidelines for Land Application of By-Product Limes](#)

### Versalime Locations

[Crookston - Versalime](#) >

[Drayton - Versalime](#) >

[East Grand Forks - Versalime](#) >

[Hillsboro - Versalime](#) >

[Moorhead - Versalime](#) >



# VersaLime Procedures

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

# Procedure to Acquire VersaLime


- Use ACSC Byproducts Management System from your cell phone to reserve your VersaLime loads

http://localhost:3402/a.aspx?a=10122&b=MHD&c=299512 - Windows I...

http://localhost:3402/a.aspx?a=10122&

localhost

File Edit View Favorites Tools Help

 **By-Product Hauling Reservation for Big Wheel Trucking**

**Moorhead Products in Stock 2/23/2016**

Select the product to reserve.

Product	Price \$/ton	Est. Tons	
Versalime	\$ 2.00	250	Reserve Load(s)

[Unsubscribe\\*](#) [View My Reservations](#)

\* Click this button to quit receiving by-product messages from this factory. Please call the factory office coordinator if you wish to enable by-product availability messages in the future.

# 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)
- ACSC will provide VersaLime nutrient analysis from outside laboratory
  - Benefits are to be determined by each grower

Any Questions



**American  
Crystal  
Sugar  
Company**