



**NORTHERN  
NUTRIENTS**

ARCTIC S 11-0-0  
WITH 75% SULPHUR  
Sulphur Made Easy  
[NorthernNutrients.com](http://NorthernNutrients.com)





# What is Arctic S

Created by Shell Thiogro Technologies

Micronized Elemental Sulphur evenly dispersed in melted urea

Micronized particle size allows for quick breakdown & conversion from elemental S to plant available S<sub>03</sub>

## SPECIAL-S DISOLUTION/DISPERSION

Dispersion mechanism involves urea dissolving in water leaving clusters of sulphur particles which then 'crumble'

Timeframe: minutes (3-5)

## SULPHUR BENTONITE SWELLING/DISPERSION

Dispersion mechanism consist of the swelling clay expand, breaking the solid elemental sulphur matrix in small pieces

Timeframe: hours (24-48)





# ARCTIC S HANDLING



Physical Properties	Sample		
	Urea Pastilles	Super-S	Sulphur Pastille
<b>Crushing Strength</b> (Average*, kg/pastille)	1.46	3.48	2.31
<b>Crushing Strength</b> (Range*, kg/pastille)	0.90 – 2.05	1.05 – 6.35	1.60 – 3.10
<b>Abrasion Resistance</b> (% degradation)	1.31	1.94	4.25
<b>Impact Resistance</b> (% shattered pastilles)	0.44	1.14	16.23

## + APPLICATION FEATURES

Blends well with most conventional dry fertilizer

SGN : 300

Bulk Density : 62.5 lbs/ft<sup>3</sup>

Angle of Repose : 32 Low

Salt Index : 17.8

# TECHNICAL FEATURES

Analysis:

11% Nitrogen

75% Elemental Sulphur

Arctic S Salt index of 17.8

Ammonium sulphate: 68.3

Ammonium thiosulphate: 90.4





# SAFETY FEATURES

Non Hazardous Fertilizer as per OSHA

Strong prills create a fraction of the dust compared to Sulphur bentonite

\*IFDC test results available on request

Self extinguishing material- Class 3 compared to Sulphur bentonite which is Class 5 which mitigates fire risk





Low salt index for safer seed placement  
& improved phos uptake



Provides a season long source of Sulphur  
\*SNOWBALL EFFECT helping early season  
availability



Save time & money with less product to  
handle.

# Benefits



# BENEFITS CONTINUED



Seed row, sideband, MRB  
and broadcast  
application

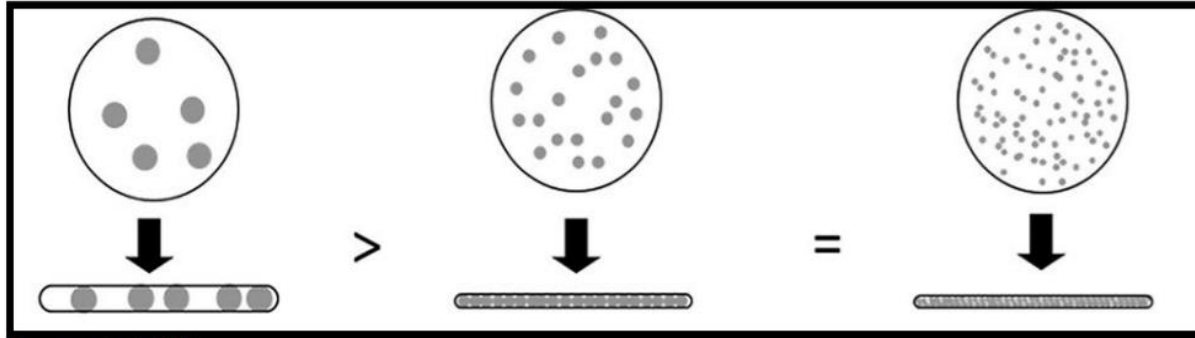


Less prone to caking than  
Ammonium Sulphate



Less leaching in wet  
seasons resulting in more  
S available during pod fill





Degryse et al. 2016

Particle Size (microns)	% S Oxidized	
	2 Weeks	4 Weeks
> 2,000	1	2
840 – 2,000	2	5
420 – 840	5	14
180 – 420	15	36
125 – 180	36	68
90 – 125	61	81
60	80	82

Canola.okstate.edu

	Super S	Sulphur 90	Human Hair
Micron Size Average	30-40um	200-300um	80um

**TECHNICAL FEATURES**  
 PARTICLE SIZE IS KEY TO THE TRANSITION TO SULPHATE  
 \*CONVERSION RATES SUBJECT TO ENVIRONMENTAL & SOIL CONDITIONS





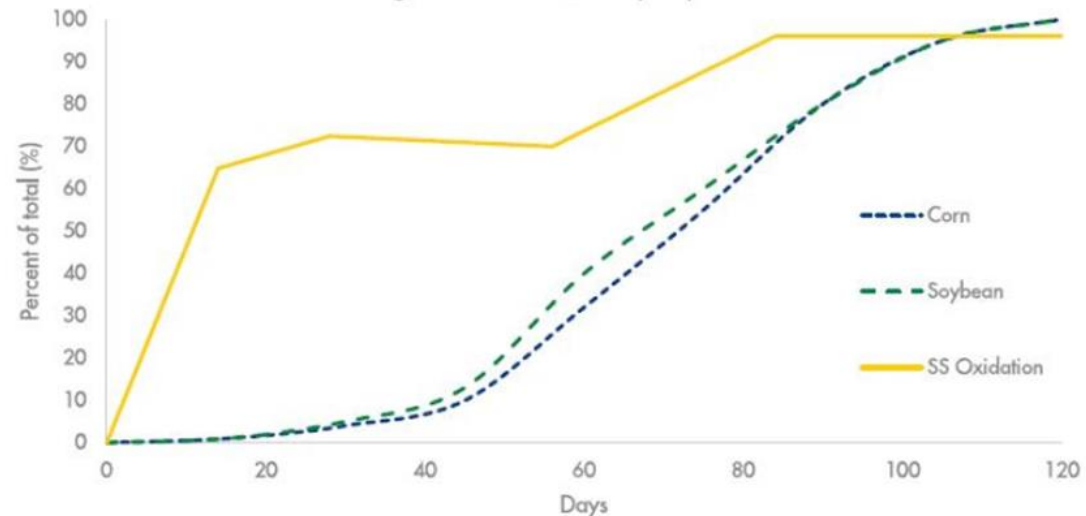
## CIRRUS TRIALS 2018 – SPECIAL-S OXIDATION (Probe Test)

By applying elemental Sulphur in Micronized form, growers can access the in season availability of a Sulphate product while reducing the risk of losses through leaching.

*Delivering Sulphur when your crops needs it most ensures you see a return on your fertilizer investment!*

### Special-S Oxidation Compared with Crop Need

*Measured Using PRS Probes, Crop Uptake Source IPNI*



Oxidation test conducted in controlled environment to determine maximum oxidation potential of Special-S. Variable climatic conditions in first 40 days would likely show Special-S availability closer to uptake curves.





EXCELLENT FOR  
BLENDS



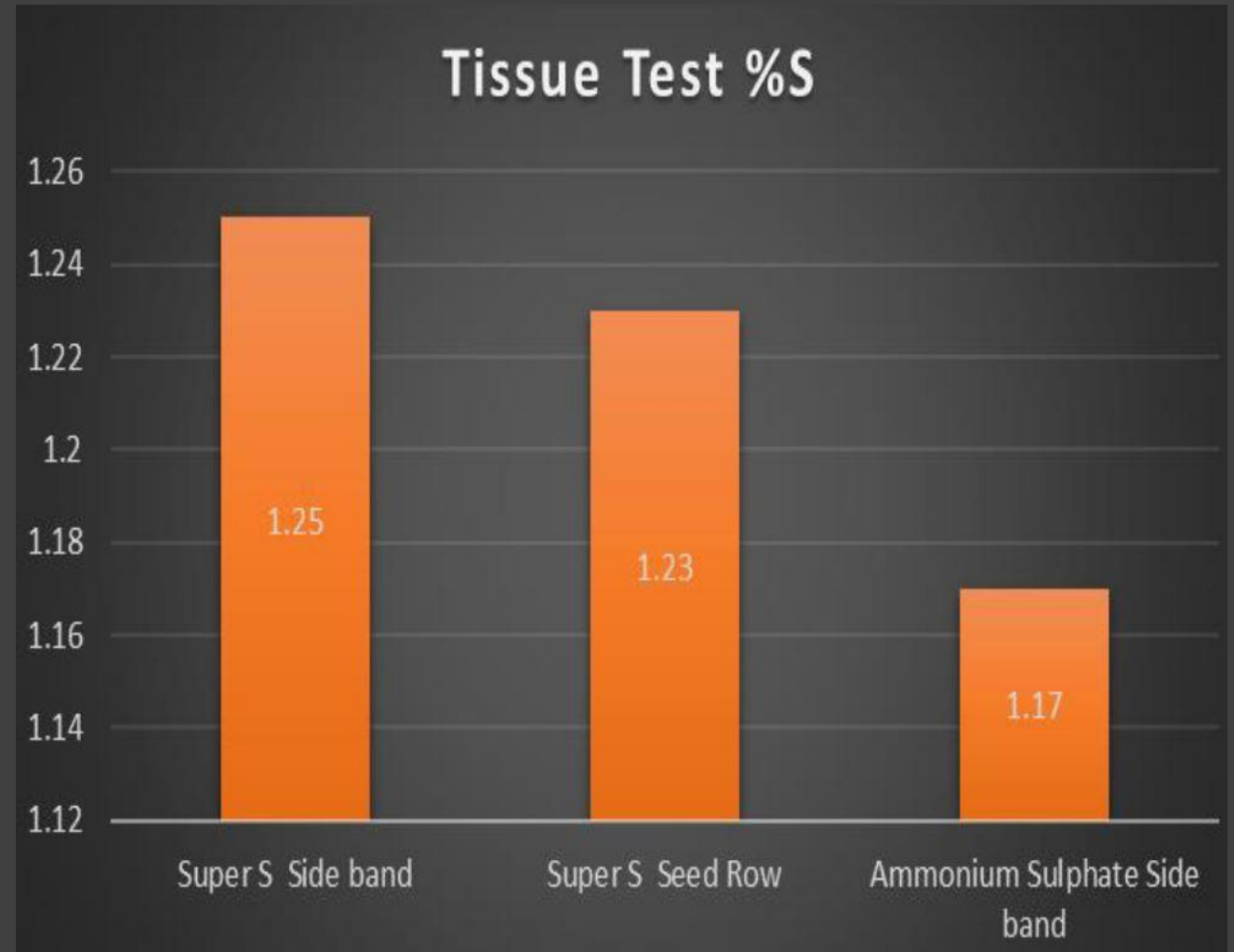
# When & how to use Arctic S?

- Replacing fields with previous application history of elemental
- Replacing ammonium sulphate fields with adequate fertilization history
- Spring Blended or broadcast with Urea, phosphate, potash as your sole source of sulphur
- Blended with S15, 40 Rock, or Polar 42 for two forms of sulphur
- Blended with Ammonium sulphate
  
- Strategies to implement from retailers over the last 4 years include:
  - Cold turkey switches from AMS in spring blends
  - First year all sulphur in pulses in cereals with Arctic S and most of canola blends from Arctic S
  - Fall spreading annually with Super U or other Nitrogen for all crops
  - In season top dress alone, with Urea or with Urea and AMS

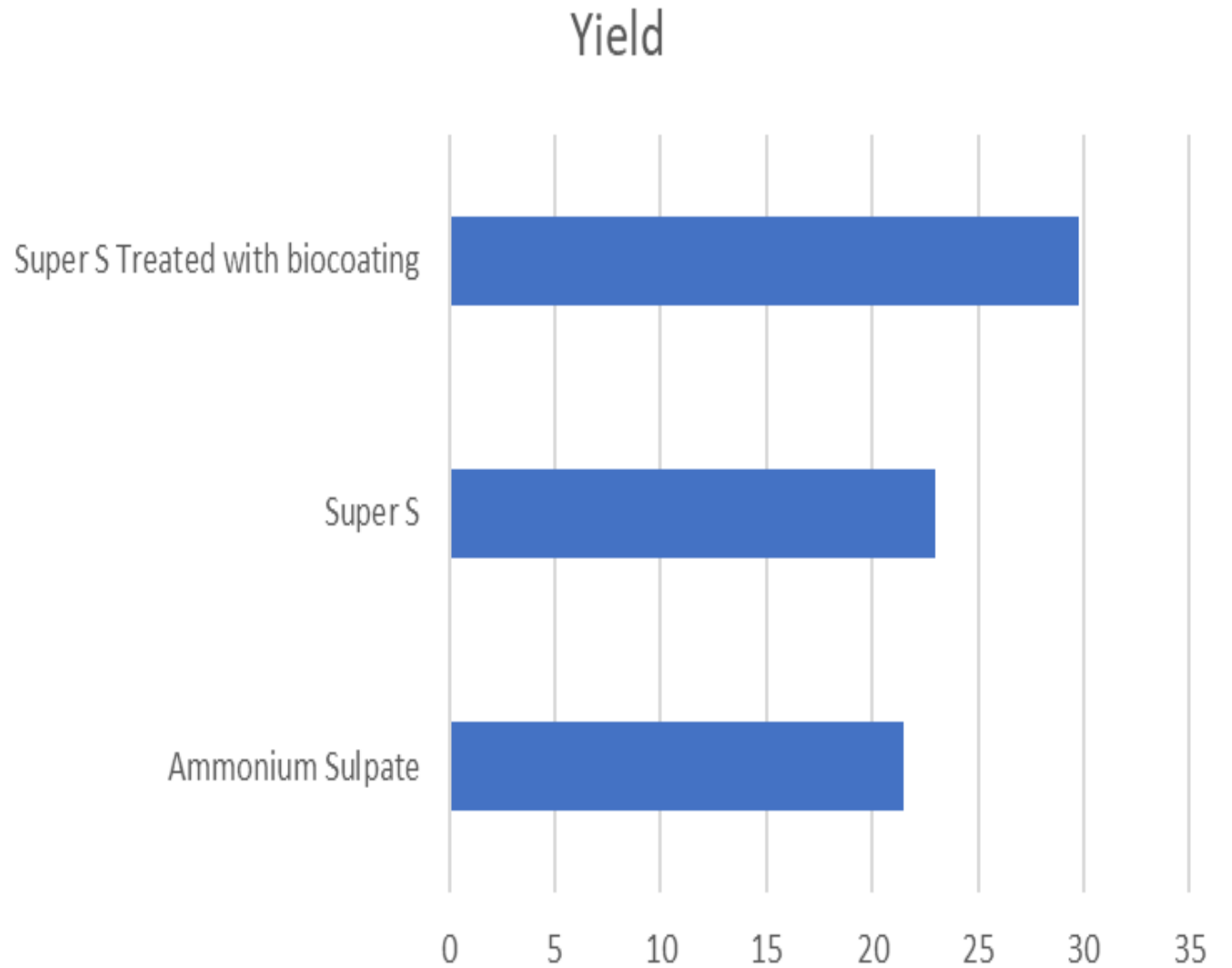
# When to consider a supplemental form of S with Arctic S?

- Field with zero residual Sulphur, such as a converted hayfield or a conventional field that has been severely under fertilized with Sulphur historically
- Expected conditions that would not allow for the dissolving of a phosphate granule could leave undissolved prills of all fertilizers including Arctic S

# TISSUE RESULTS ICMS TRIALS 2018 SASKATOON

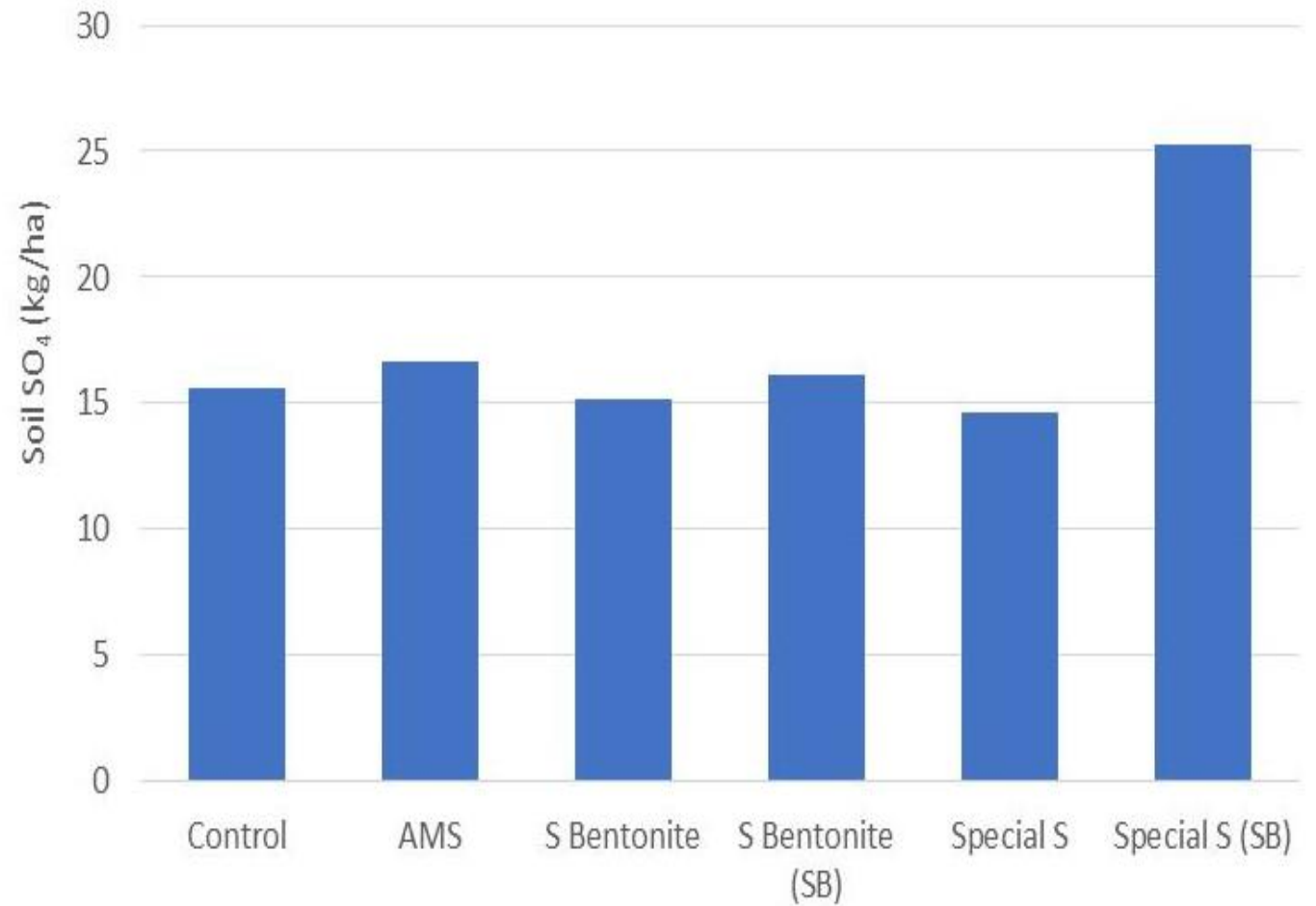


# YIELD TRIALS 2020 SASKATOON (PIKE LAKE)



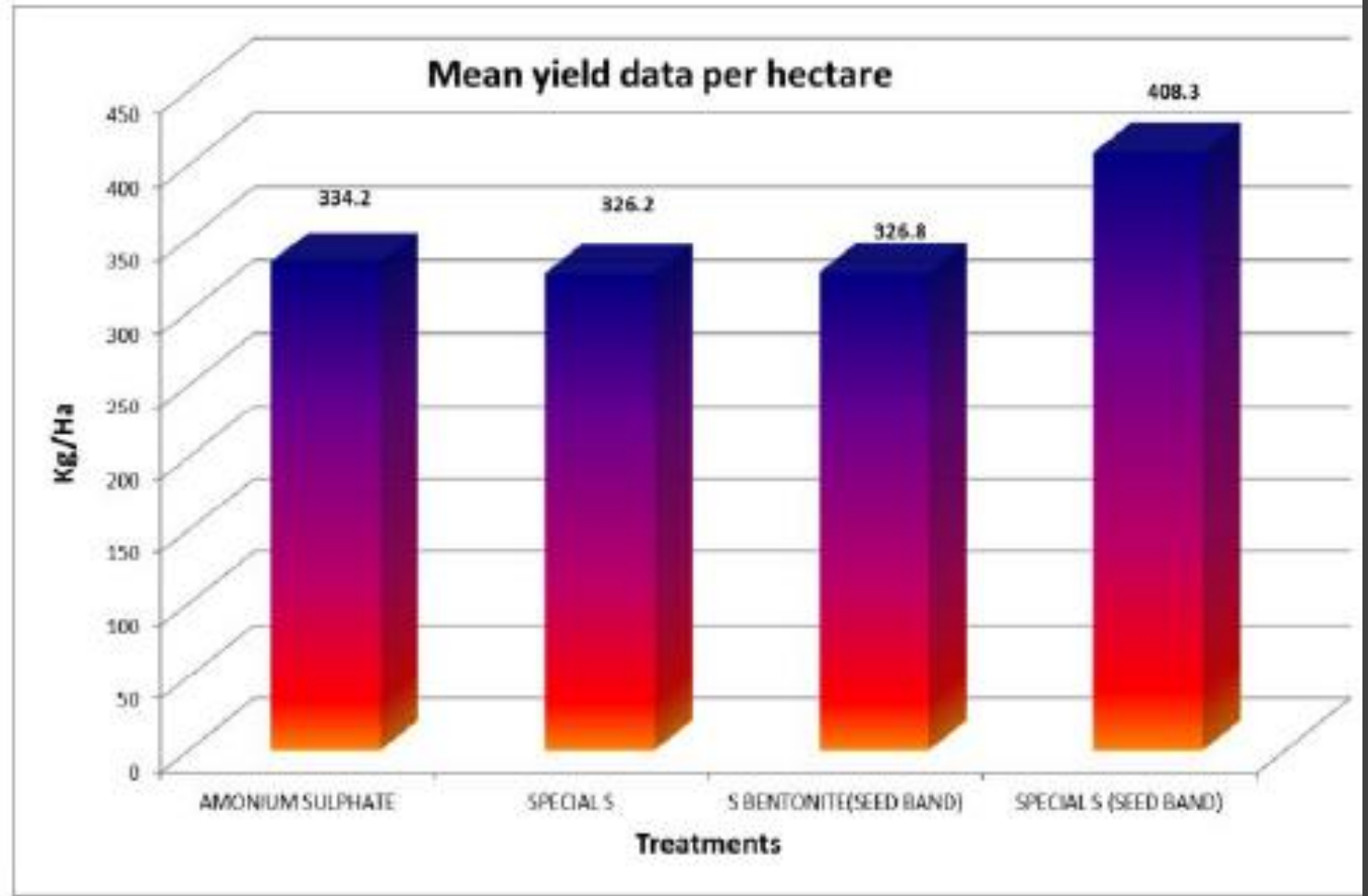
# YIELD TRIALS 2018 SWIFT CURRENT

Final Soil SO<sub>4</sub>  
Swift Current, SK



# CANOLA YIELD TRIALS 2019 AUSTRALIA

Eurofins Agrosience Services Summary of Results - Corowa, NSW  
Mean Canola Yield (kg/ha)

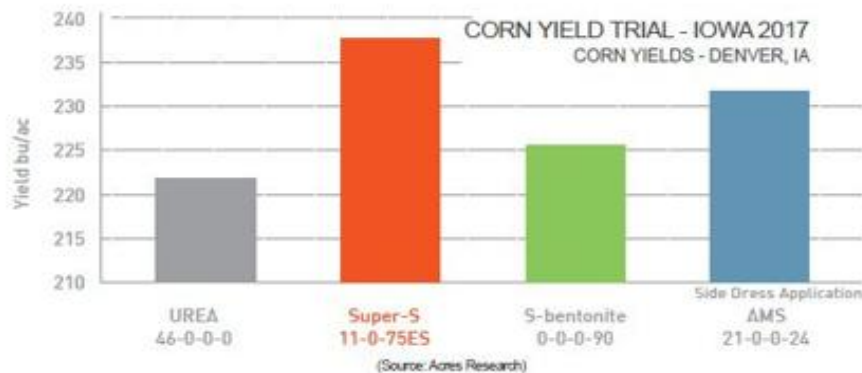




# CORN YIELD TRIALS 2017 IOWA, USA

## 4 'Super S' Increases Crop Yields

Continuous Sulphur supply increases crop yield



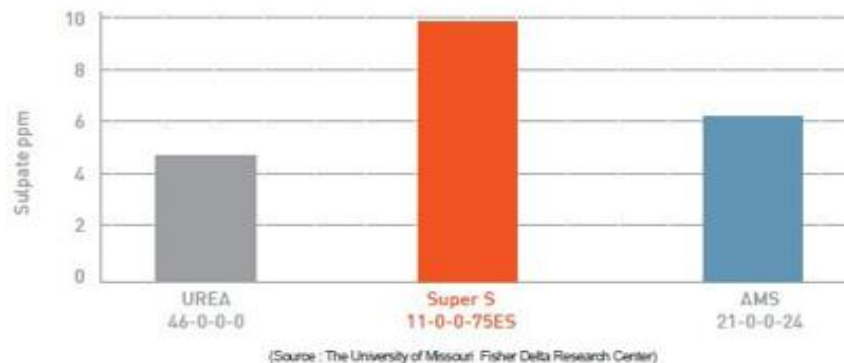
Soil Type : Loamy Fine Sand

Treatments tested provide Sulphur requirement to crop. N,P,K and S rate were applied uniformly for all treatments and at the recommended rates for the region, the exception being a control treatment with no S:Urea.

## 5 High Levels Of Residual Soil Sulphate After Harvest

Super S – Economical and sustainable

Residual soil Sulphate levels post harvest combined with comparable yield results suggest sufficient oxidation for Super-S within the growing season, while offering residual benefits for future crops.



BREAKDOWN  
10 MINUTES  
AFTER  
APPLICATION  
IN BONE DRY  
CONDITIONS  
ASSINIBOIA,  
SK



That suphur is paste 10min  
after hitting the ground



## TESTIMONIALS

“WE ARE NOW ON OUR THIRD SEASON OF USING ARCTIC S. THE LOW SALT INDEX AND HIGH S CONTENT ARE A PERFECT FIT FOR OUR GROWERS” MATT OWENS, EMERGE AG

“WE LIKED HANDLING LESS PRODUCT & OUR CANOLA IS PROBABLY THE BEST WE HAVE EVER SEEN ON THE FARM” BRANDON SUNDQUIST, WATROUS, SK

“WE HAD A CUSTOMER WHOSE AMS BLENDS WERE CAUSING TROUBLES IN HIS DRILL THIS SPRING. AFTER SWITCHING HIS BLEND OVER TO ARCTIC S, ALL THE PROBLEMS WENT AWAY” SASKATCHEWAN RETAILER





WHERE TO BUY?



THANK YOU

NORTHERN NUTRIENTS LTD.  
#720, 45TH STREET WEST  
SASKATOON, SK, S7N 5X1

1-306-244-2006

[INFO@NORTHERNNUTRIENTS.COM](mailto:INFO@NORTHERNNUTRIENTS.COM)

[WWW.NORTHERNNUTRIENTS.COM](http://WWW.NORTHERNNUTRIENTS.COM)

