

FACTS FROM THE FIELD

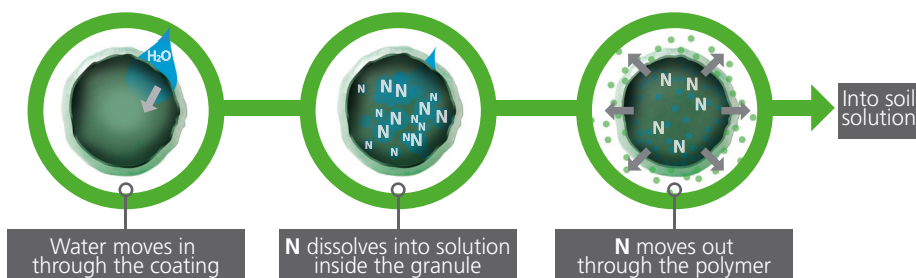
ESN Technology and the Benefits of Seed Safety on Cereal Grains

Why Should I Care About Seed Safety?

In today's world, we all search for ways to make our operations more efficient. For nitrogen management, many markets have pursued options for one-pass systems to increase efficiencies. Over the past 10 years, the introduction of the mid-row bander and side banding equipment was essential to help growers apply fertilizer in a single pass. This equipment was required specifically because excessive unprotected nitrogen harmed the seed. High salt and free ammonia was preventing germination and burning small seedlings, causing stand loss. Data shows that yields were and still are dramatically reduced. Growers simply were limited to an amount of fertilizer that could be applied using a single shoot system.

ESN technology protects your nitrogen (N) investment and protects your seed, allowing you to increase your efficiencies by using a single shoot system, pulling more feet with less horsepower. In addition, you get the N efficiency benefits provided by using ESN.

How does ESN technology protect my seed? ESN technology uses a flexible polymer coating to encapsulate an N granule. The coating protects the N from loss mechanisms and releases nitrogen based on temperature and soil moisture. Another important benefit of this coating is providing a physical barrier between your N source and your seed, ensuring that your seedlings are not damaged, while providing N when the crop needs it most.



ENHANCED EFFICIENCY FERTILIZER
A **SMARTER** SOURCE OF NITROGEN,
A **SMARTER** WAY TO GROW.®



How can we help?

To make ESN a part of your nitrogen management program, contact an authorized retailer or ESN representative.

For more information:
www.SmartNitrogen.com

ESN Representative:

ESN protects your nitrogen investment from N loss mechanisms, helping you:



- Maximize yield and quality (increase protein levels in wheat, maximize grain quality, etc.)
- With a wider application window, increased convenience and ease of use
- Environmentally Responsible
- Backed by independent research

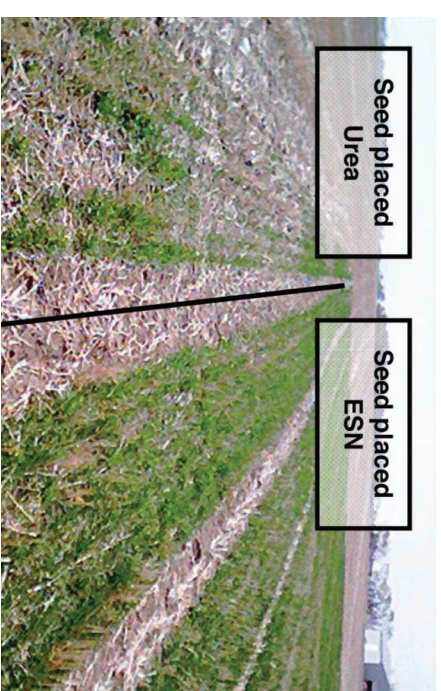


Table of Safe Nitrogen Rates When Applying ESN

CEREAL GRAINS																			
		1 inch				2 inch				3 inch									
		Knife/Disc				Spoon or Hoe				Sweep									
Row Spacing		6 in	9 in	12 in	6 in	9 in	12 in	6 in	9 in	12 in									
Seed Bed Utilization (SBU)		17%	11%	8%	33%	22%	17%	50%	33%	25%									
Pounds of N per acre																			
	Seed Placed Fertilizer	MB	SK/AB	MB	SK/AB	MB	SK/AB	MB	SK/AB	MB	SK/AB	MB	SK/AB	MB	SK/AB	MB	SK/AB		
Light (Sandy Loam)	100% ESN Blend	30	60	0	45	0	45	60	90	45	75	30	60	90	120	60	90	45	75
Medium (Loam to Clay Loam)	100% ESN Blend	60	90	45	75	30	60	90	120	75	105	60	90	120	150	90	120	75	105
Heavy (Clay to Heavy Clay)	100% ESN Blend	75	120	60	105	30	90	120	150	90	120	75	105	150	180	120	150	90	120
All ESN applied with cereal seed is in addition to 50 lbs/ac actual of 11-52 seed placed or a combination of P and K to that rate																			

*Lbs per acre of Nitrogen as ESN shown to be safe when applied with the seed. Based on 2x - 3x the safe rate of urea applied to cereal grains. Values are representative. Make sure to check the local seed safe rates for your geography and crop or contact an ESN marketing rep for more information.

**The width of spread of fertilizer and seed depends on the type of opener, soil type and moisture content, air flow, etc. Some openers give less than 1" spread(e.g., double disc).

***Recommended rates are based on proper handling of ESN. Visit www.smartnitrogen.com for ESN handling recommendations, which can impact the seed safety characteristics of ESN.

