

FACTS FROM THE FIELD

ESN Smart Nitrogen

Consistent Performance and Reduced N Loss in Variable Weather

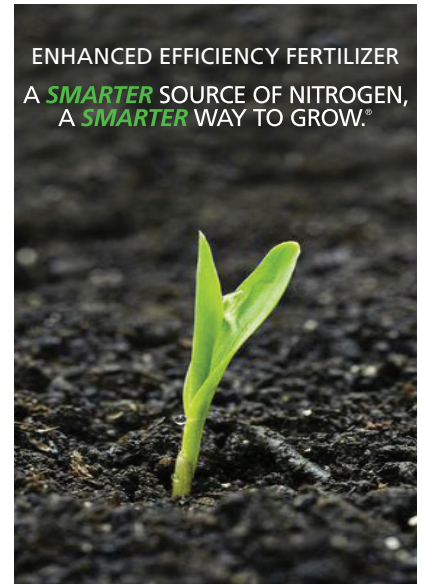
The percentage of rain occurring in large events has increased. It's reported that 37% of the total rainfall comes from severe weather events in the Corn Belt. And climatologists are forecasting increasing weather volatility in the future. Unpredictable, severe rainfall events create greater chance for N-loss conditions and special N-management challenges.

ESN Smart Nitrogen performs more consistently in variable weather than other nitrogen (N) products. ESN's controlled release reduces N loss from large rainfall events. A three-year study by University of Nebraska demonstrates ESN's consistent performance and yield stability in varying weather conditions.

- Growing-season rainfall during the study was 43% below normal in 2009; 9% above normal in 2010 but much above normal early in the season; and 39% above normal in 2011 with several large rainfall/N-loss events.
- ESN produced similar yield response in all three years of different rainfall patterns.
- Conventional N sources, even recommended split application, failed to provide the same consistency under variable conditions of N loss.
- Nitrogen loss in 2009 was primarily as volatilization since rainfall following N application in 2009 was minimal. Nitrogen losses in 2010 and 2011 occurred in large leaching events.
- Pre-plant ESN at 150 lbs N/acre averaged 197 bu/acre over the three years; split-applied UAN at 175 lbs N/acre averaged 180 bu/acre; pre-plant UAN at 150 lbs N/acre averaged 125 bu/acre.

Year		2009	2010	2011	
		Inches			
Water Inputs	Growing season rainfall (1 May-30 Sept)	9.5	18.1	22.8	
	Rain + irrigation in first month after fertilizer	1.6	10.1	5.4	
	Total growing season rain + irrigation	21.7	28.3	32.4	
		Corn Grain Yield (bu/acre)			
Nitrogen Timing, Source, and Rate	Pre Plant	ESN	216	196	180
		UAN	148	130	96
		UAN + Instinct		144	94
		UAN + Nutrisphere		152	95
	Split (2x)	UAN	175 lbs N/ac*	207	197

*Rate for split UAN was determined from UNL nitrogen recommendations for corn. "After planting" treatments applied all the N in one broadcast application without incorporation approximately at corn emergence (within two to three weeks after planting). Split UAN was comprised of 30% of total N at corn emergence and 70% of total N at V6 growth stage. Split UAN was applied at 175 lbs N/ac in 2009 and 2010 and 180 lbs N/ac in 2011. Source: Dr. R. Ferguson, University of Nebraska-Lincoln. Reference: Maharjan, et al. 2016, Agronomy Journal 108:509-518.



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