

SUMMARY

Soil Series: [164B Stoy]

Texture: [Fine-Silty Loam]

In years 2020 and 2021 a Corn Nitrogen Use Efficiency trial measured nitrate [NO₃-] losses and soil health improvements. This multi-year replicated complete strip trials were implemented in Martinsville, Illinois. The variables that were evaluated included: NO₃- leach sample reports [ppm] from the hydrological lysimeter wells, soil health reports [soil samples were taken before pre-emerged broadcast and side-dress (Y-Drop @ V4-5) applications and then two weeks later], and grain corn harvest yield data. The 2020-2021 studies also compared two rates of liquid urea-ammonium nitrate [UAN, 28%] and 10% inclusion rates of BOOST™ [4-0-3-2S]. The UAN 28% treatment had twenty more pounds of Nitrogen [N] applied per acre compared to 10% inclusion of BOOST™ treatment which resulted in yield advantage of thirteen bushels per acre [6.5% increase]. BOOST™ treatment prevented NO₃- losses on average by 10.5 ppm in leachate samples [17% reduction] collected over two seasons. Proven and repeated in multi-year study with BOOST™ treated UAN applications, QLF Agronomy demonstrated greater yields [with less N applied/Ac] and decreased the amount of NO₃- in the hydrological lysimeter wells with our carbon based approach to Nitrogen Use Efficiency [NUE].

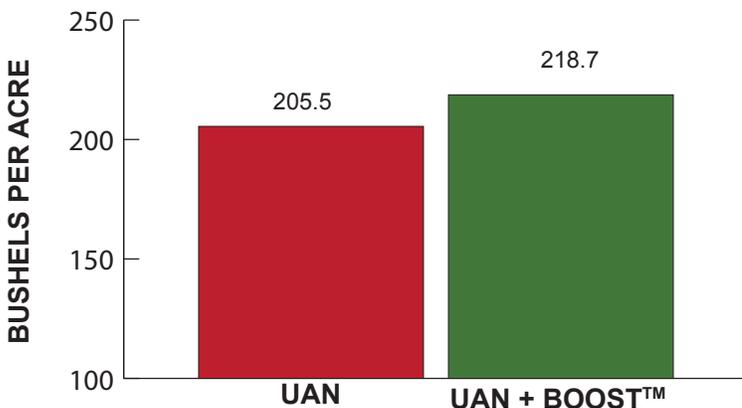
Broadcast [PPI] N	Side Dress N	Total N Applied
40 GPA UAN 28%	40 GPA UAN 28%	238 LBS N
36 GPA UAN 28% 4 GPA BOOST	36 GPA UAN 28% 4 GPA BOOST	218 LBS N

**+13
BUSHELS**

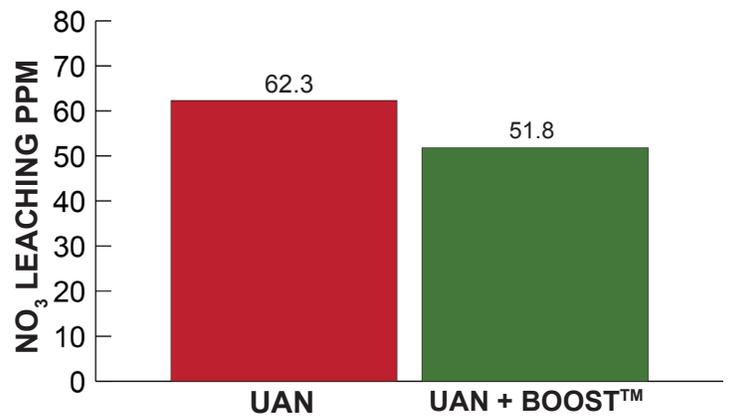
**-20 LBS
APPLIED N**

**-17%
NITRATES**

Corn Yields



Nitrate Concentration Reduction



Hydrological lysimeter wells were used in this study for collecting water samples from each treatment separately. Lysimeter wells are typically tanks that define a specific boundary to contain soil water and permit measurement of material found in the water. NO₃⁻ samples were collected from ten-foot-deep of the hydrological wells [Figure 1] on days where precipitation exceeded one and a half inches. In 2020, seven NO₃⁻ samples [per treatment] were collected while eight samples were collected in 2021 using a submersible pump after the water in the wells was recirculated. Afterwards, all wells were drained out.

Figure 1. Diagram of Lysimeter Well

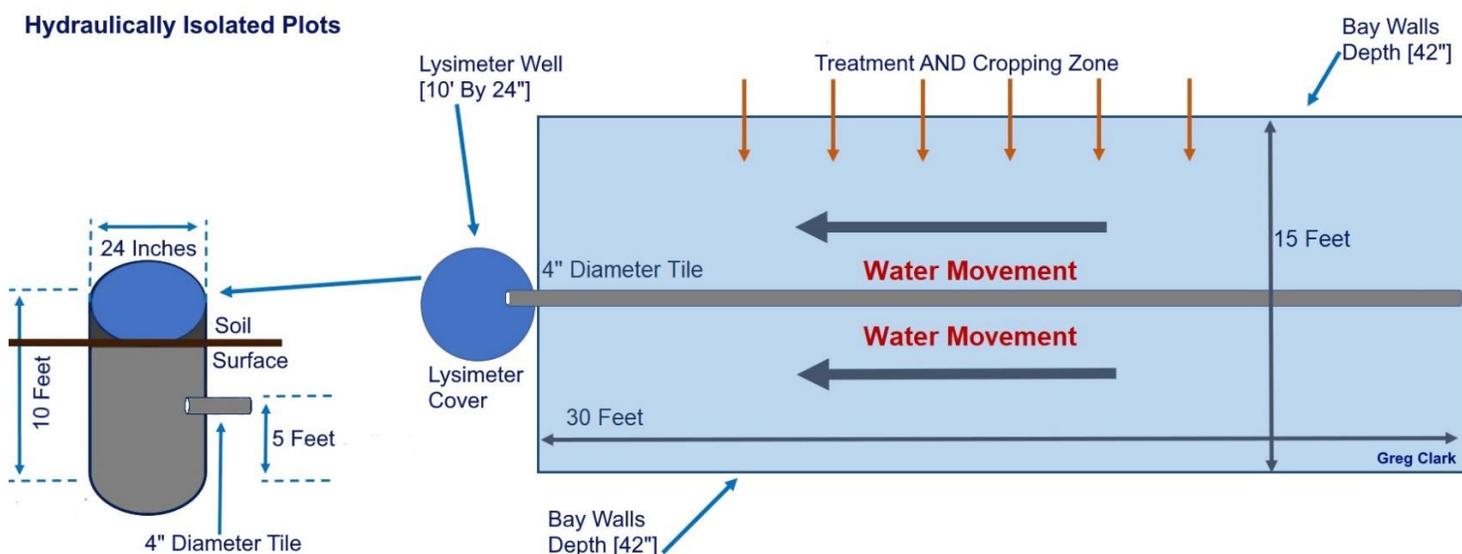


Table 1: Soil Analysis Report [Fall, 2020].
Nitrogen Efficiency Study [NO₃⁻ Leaching Study], Martinsville, IL.

pH	OM, %	CEC	P ppm	K ppm	Ca ppm	Mg ppm	S ppm	Mn ppm	Zn ppm
7.15	3.15	18.1	65	147.5	1,319	135	8.5	85	7.15