

No-till HRS wheat response to nitrogen application methods, Grace City, 2006 (G. Endres and K. Black).

The objective of this study was to compare HRS wheat performance with nitrogen (N) applied as anhydrous ammonia through an Exactrix system compared to surface application of urea ammonium nitrate (UAN). The field study was conducted by the NDSU Carrington Research Extension Center in cooperation with Kevin Black, Grace City. Experimental design was a randomized complete block with four replications. The previous year's crop was soybean. 'Briggs' was direct-seeded into soybean stubble in early May. Spring soil analysis indicated 3.5% organic matter, 6.9 pH, 81 lb/A nitrate-N, and 12 ppm phosphorus. N as anhydrous ammonia at 65 lb/A was applied during crop seeding with an Exactrix system. Ammonium Nitrate (AN) was broadcast on May 11 at N rates of 45, 65, and 85 lb/A. Plant population was measured on May 26 with wheat at the 2-leaf stage. Flag-leaf stage wheat received a POST N application of 30 lb/A as UAN. The trial was harvested with a plot combine on August 9. Soil samples were taken on November 9 with analysis indicating nitrate-nitrogen at 0-24 inch depth was 71 lb/A in the untreated plots and 77 lb/A with Extactrix-applied N.

Plant height, seed yield, and seeds/lb with N treatments were similar to the untreated check (Table). Plant stand tended to be less with the Exactrix-applied N and higher with AN compared to the untreated check. Test weight decreased with application of N. Protein with Exactrix-applied N was similar to the untreated check. However, protein increased with AN.

Table. No-till wheat response N application methods, Grace City, 2006.

N application		Plant		Wheat			
Method	Rate	Stand	Height	Yield	Test weight	Seeds/ lb	Protein
	lb N/ac	plt/A	cm	bu/A	lb/bu		%
untreated check	0	767612	95	47.2	62.2	12818	13.9
PRE AN	45	905729	98	51.7	61.6	12384	14.8
PRE AN	65	852607	96	48.5	61.0	12824	15.2
PRE AN	85	828703	96	47.1	61.0	13016	15.6
Exactrix NH3	65	725115	96	50.4	61.6	12889	14.2
mean		815953	96	49.0	61.5	12786	14.7
C.V. (%)		16.2	2.2	12.0	0.6	2.4	3.0
LSD (0.05)		NS	NS	NS	0.5	NS	0.7