No-till HRS wheat response to nitrogen application methods, Juanita, 2007.
(Greg Endres and Kevin 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 ammonium nitrate (AN). 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. Spring soil analysis indicated 3.0% organic matter, 7.6 pH, 61 lb/A nitrate-N, and 9 ppm phosphorus. 'Briggs' was direct-seeded into soybean stubble with 50 lb/A of 11-52-0 applied in-furrow on April 29. Anhydrous ammonia at 58 lb/A was applied with an Exactrix system during crop seeding. AN was broadcast on May 1 at N rates of 28, 58, and 88 lb/A. Wheat plant population was measured at the 2-leaf stage on May 16. The trial was harvested with a plot combine on August 17. Soil samples were taken at 0- to 24-inch depth on August 31 with analysis indicating nitrate-N at 79 lb/A in the untreated plots, 36 lb/A with Exactrix-applied N, and 80 lb/A with broadcast AN applied at 58 lb/A.

Plant stand tended to be less with the Exactrix-applied N and similar with the broadcast N compared to the untreated check (Table). Plant height and lodge, and test weight with N treatments were similar to the untreated check. All N treatments generally improved seed yield and protein compared to the untreated check. The high rate of broadcast N improved yield and protein compared to Exactrix N.

Table. No-till wheat response to N application methods, Juanita, 2007.

N application		Plant			Seed			
Method	Rate	Stand	Height	Lodge	Yield	Test weight	1000 KWT	Protein
	lb N/ac	plt/A	cm	0-9	bu/A	lb/bu	g	%
Exactrix N	58	942,915	81	0.5	42.2	59.7	34.01	12.3
untreated check	0	1,018,615	79	0.6	32.2	59.4	33.36	11.9
broadcast N	28	1,005,335	82	0.5	47.0	59.8	34.14	12.5
broadcast N	58	1,123,530	88	0.5	45.9	59.4	32.46	13.6
broadcast N	88	1,035,880	88	0.5	52.6	59.6	33.13	14.2
Exactrix N	58	946,900	84	0.6	42.5	59.9	34.78	13.1
mean		1,012,195	84	0.5	43.7	59.6	33.65	12.9
C.V. (%)		14.7	5.7	27.5	9.2	0.5	2.1	2.6
LSD (0.05)		NS	NS	NS	6.1	NS	1.06	0.5