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In-furrow Product Evaluation in Soybean in 2015

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To evaluate the effectiveness and compatibility of various in-furrow products for soybean, field research trials were conducted at 2 locations in Wisconsin in 2015. These trials were conducted in a randomized complete block design with 18 in-furrow soybean treatments and a non-treated control that was replicated 4 times. The plots were planted in 15" rows at 140,000 seeds/a using soybean variety Asgrow 2035 treated with Acceleron® insecticide and fungicide seed treatments. Individual agronomic site data is shown in Table 1.

Table 1. Agronomic site details of location, soils, and dates of planting and harvest in 2015.

	Arlington, WI	Hancock, WI
Soil series/irrigation	Plano silt loam Non-irrigated	Plainfield sand Irrigated
Soil fertility		
Phosphorus (ppm)	37	132
Potassium (ppm)	157	51
pH	7.1	6.1
Organic matter (%)	3.4	2.7
Tillage	No-till	Chisel plow
Previous crop	Corn	Corn
Planting date	14-May	19-May
Harvest date	19-Oct	7-Oct

Products evaluated were selected based on grower, researcher, and company recommendations. A custom built plot planter with seed cone divider was used to plant the plots. All in-furrow treatments were liquid and were planted using a 5 gallon/a carrier rate. Product combinations were mixed in 3 liter plastic bottles and loaded on the planter one at a time. Statistically valid randomization was used and all 4 reps of each treatment were planted sequentially. A May Wes Rebounder with Y-not Split-it® seed firmer/fertilizer tube was used in the furrow to deliver the product to each side of the furrow above the seed. We did not observe any mixing or compatibility issues with the various products used.

Treatment data, significance of F values, and LSD (0.10) for soybean seed, protein, and oil yield, and plant density at two locations are shown in Table 2. Impact of in-furrow treatments varied by location. Significant differences in yield of grain and plant density were found at the Arlington location, and protein and oil at the Hancock location (Table 2). This research was funded by the Wisconsin Soybean Marketing Board.

Table 2. Grain yield, protein, oil, and plant density at Arlington and Hancock. 2015

				Arlington				Hancock			
				Grain			Plant density	Grain			Plant density
Company	Product	Application rate		yield	protein	oil	V1 stage	yield	protein	oil	V1 stage
				bu/a	%	%	ppa/1000	bu/a	%	%	ppa/1000
	NTC			63.3	34.8	19.8	122.0	65.9	34.7	19.9	99.3
	Natur'l Oil	32	fl oz/a	64.1	35.3	19.8	128.1	69.6	34.6	19.9	108.5
BASF	Priaxor	4	fl oz/a	67.8	35.1	19.6	146.4	68.8	34.5	19.9	114.1
Bio-Gro	Amino-CYT	2	gal/a	66.4	35.4	19.6	111.5	70.7	35.8	19.6	109.8
Bio-Gro	Cal-Hy	2	gal/a	63.4	35.1	19.8	98.0	73.4	36.1	19.4	105.0
Bio-Gro	Root SB	2	gal/a	63.6	35.3	19.7	138.5	69.2	36.0	19.3	95.4
Helena	HM-1008	3	gal/a	62.1	35.2	19.8	145.9	65.8	35.2	19.7	107.6
Helena	HM-1103	3	gal/a	63.3	35.3	19.6	129.8	67.1	34.7	19.9	92.4
NACHURS	HKW6	2	gal/a	57.4	35.1	19.9	146.4	67.7	34.8	19.9	92.8
NACHURS	HKW6	2	gal/a	69.8	35.0	19.8	137.2	66.9	34.5	19.9	98.9
NACHURS	MicroBolt Ca	16	fl oz/a								
NACHURS	MicroBolt Zn	16	fl oz/a								
NACHURS	Rhyzo-Link 3-10-13	2	gal/a	62.4	35.3	19.7	122.4	68.5	34.7	19.9	112.0
Novozymes	Cell-Tech	0.75	fl oz/ 1000 ft row	59.6	35.4	19.6	118.9	64.5	34.7	19.9	113.7
UW	10-34-0	2	gal/A	58.9	34.7	20.0	142.5	67.4	34.6	19.9	115.0
UW	10-34-0	2	gal/A	61.0	35.2	19.7	121.5	70.5	35.0	19.6	96.7
Novozymes	Cell-Tech on-seed	2.1	fl oz/ 50 lbs seed								
Novozymes	Cell-Tech	0.75	fl oz/ 1000 ft row								
Stoller	10-34-0	2	gal/A	64.7	35.5	19.8	142.0	66.2	34.7	20.0	98.0
Stoller	Bio-Forge	16	fl oz/a								
Stoller	Natur'l Oil	32	fl oz/a								
Stoller	10-34-0	2	gal/A	62.0	35.0	19.9	143.8	68.3	35.2	19.7	116.3
Stoller	Stimulate	4	fl oz/a								
Stoller	Natur'l Oil	32	fl oz/a								
Stoller	10-34-0	2	gal/A	68.3	35.1	19.8	142.0	67.4	34.7	19.9	89.8
Stoller	PowerUp	32	fl oz/a								
Stoller	Natur'l Oil	32	fl oz/a								
Stoller	10-34-0	2	gal/A	62.2	35.4	19.6	149.4	66.7	34.7	19.8	111.5
Stoller	GrowMass	16	fl oz/a								
Stoller	Natur'l Oil	32	fl oz/a								
Stoller	10-34-0	2	gal/A	63.5	35.0	19.9	135.1	68.1	34.7	19.8	109.8
Stoller	X-tra Power	32	fl oz/a								
Stoller	Bio-forge	8	fl oz/a								
	Means			63.4	35.2	19.8	132.7	68.0	34.9	19.8	104.5
	Pr>F			0.0854	0.4708	0.1920	0.0886	0.9358	<0.0001	<0.0001	0.6478
	LSD 10%			5.9	NS	NS	25.9	NS	0.5	0.2	NS