

Soybean response to seed inoculation, Carrington, 2015.

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A field trial was conducted at the Carrington REC in cooperation with BASF to examine the response of soybean to selected seed inoculation formulations and strategies. Experimental design was a randomized complete block with four replications. Previous crop was spring wheat in 2014 and soybean in 2013. Spring 2015 analysis of the coarse loam soil indicated 48 lb nitrate N/acre, 12 ppm phosphorus (Olsen), 269 ppm potassium, 4.2% organic matter, 6.5 and 6.7 pH (0-6" and 6-24" depths), 0.2% carbonate, 0.2 mmho/cm soluble salts (0-24" depth) and 13.7 meq CEC. 'AG0231' Roundup Ready soybean was planted in 14-inch rows on May 22. Seed was harvested with a plot combine on September 21.

Plant emergence, first flower, canopy closure and physiological maturity dates were statistically similar among treatments including the untreated check (Table). Plant stand among seed inoculation treatments tended to be greater than the untreated check. Plant vigor [visually evaluated on June 12 (unifoliate stage) and September 4 (physiological maturity)] was similar among inoculation treatments and the untreated check (data not shown). Seed yield was similar among all treatments including the untreated check. Seed yield with 'double' seed inoculation [Vault HP (liquid formulation) plus Rhizo Flo [granular formulation]] was similar to yield with single product inoculation. Seed size tended to be larger with the untreated check compared to inoculated seed. Seed protein with Vault HP plus Rhizo Flo was greater than the untreated check but at the expense of oil, which was less than the untreated check.

Table.

Treatment			Plant					Seed				
Inoculant ^a	Product rate/acre	Application method	Stand (June 8) plt/A	Emergence Jday ^b	Flower	Canopy closure	Physiological maturity	Yield bu/A	Test weight lb/bu	Number /lb	Oil %	Protein %
Vault HP	2 fl oz	seed	139,440	154	185	192	246	28.7	58.4	3753	16.2	33.9
Vault HP + Rhizo Flo	2 fl oz + 6.5	seed + in-furrow	143,360	155	185	191	246	27.1	58.4	3891	16.0	33.8
Rhizo Flo	6.5 lb	in-furrow	147,980	154	185	192	246	25.3	58.7	3894	16.0	34.5
Vault HP + Vault NP	2 fl oz + 4.2 fl oz	seed	150,470	154	185	192	246	25.4	58.4	3845	15.8	34.2
Vault HP + Rhizo Flo	2 fl oz + 3.3 lb	seed + in-furrow	140,510	155	185	193	245	26.5	58.5	3856	15.3	34.9
untreated check	x	x	127,350	155	185	193	247	30.8	58.3	3636	16.3	33.6
mean			139,530	154	185	192	246	27.6	58.5	3814	15.9	34.1
CV (%)			11.9	0.4	x	0.7	0.5	15.9	0.7	5.3	2.4	1.9
LSD (0.05)			NS	NS	NS	NS	NS	NS	NS	NS	0.6	0.9

^aBASF products: Vault HP and NP=liquid; Rhizo Flo=granular.

^bJDay: 154=June 3; 185=July 4; 192=July 11; 246=September 3.