Evaluation of Seed Treatments to Manage Interveinal Chlorosis in Soybeans

Venkat Chapara, Amanda Arens and Larissa Jennings

Objective: To evaluate seed treatments to manage interveinal chlorosis in soybeans.

Materials and Methods:

This research trial was conducted at the Langdon Research Extension Center with an objective to evaluate the performance of seed treatments to manage interveinal chlorosis in soybeans. The trial was planted on May 17, 2024 with fungicide seed treatments on the soybean cultivar 'ND21008GT20'. These treatments were then compared with non-treated seed. The design was randomized complete block with four replications. The trial followed state recommended practices for land preparation, fertilization, seeding rate, weed and insect control. The plot size was 5 ft. wide x 16 ft. long. Interveinal chlorosis was rated for foliar disease incidence (DI) and disease severity (DS) in the middle two rows of each plot at full seed to beginning maturity (R6 to R7) growth stages. DI refers to the percentage of plants with interveinal chlorosis foliar disease symptoms, and disease severity (DS) was rated using a 1–9 scale where 1 refers to low foliar disease pressure and 9 refers to the premature death of the plant. The foliar Interveinal Chlorosis disease index (FDX) was then calculated using the equation FDX = DI × DS/9 (Table 1). The plots were harvested with a Almaco plot combine, and yields were calculated and adjusted to 13% moisture prior to analysis. Data was subjected to analysis of variance using complete block, balanced orthogonal designs of Genovix Generation II software.

Table 1: Effect of fungicide seed treatments on mean plant stand, phytotoxicity, interveinal chlorosis (disease) incidence (FDX), yield and test weights.

Treatment	Rate Fl oz/100lbs seed	Interveinal Chlorosis FDX**	Plant Stand in 3ft length	Plant Vigor (1 to 5 scale)	Yield (bu/a)	Test Weight (lbs/bu)
Ilevo	3.62	5	5	3	42	58
Saltro	3.04	8	4	3	37	58
Trunemco	0.31	5	5	3	48	58
Dynasty	0.459	5	4	3	44	58
Non-Treated	CHK	21	5	3	37	58
Intego Solo	0.148782/ (140,000) seed	6	6	4	46	58
Rancona Summit	4	6	5	3	44	58
Trilex	1	16	4	3	39	58
	Mean	**8.8**	**4.5**	**3**	**42**	**58**
	CV%	**57**	**34**	**10.5**	**12**	**0.46**
	LSD	**7.4**	**2.2**	**0.48**	**7**	**0.4**
	P-Value	**0.0289***	**NS**	**0.0151***	**0.0252***	**NS**

* Indicates the treatments have significant differences at P-Value 0.05

**FDX: Normalized Disease Index: 0-100 scale incidence x severity/9

NS: Indicates the treatments have non-significant differences at P-Value 0.05

Results: Soybean seed treated with Trunemco®, Ilevo®, and Dynasty® had the lowest interveinal chlorosis FDX. These results are significantly statistically different from the other treatments tested. The seed treatments Trunemco® followed by Intego Solo®, Dynasty®, and Rancona Summit® showed significant difference in yield from the non-treated check (Table 1).

Figure 1: Interveinal chlorosis observed on soybean leaves in the seed treatment trial.

Acknowledgements: Special thanks to Brock Freer, Kartheek Chapara, Carter Mosher and Tucker Gellner.