Evaluation of Seed Treatments to Manage Verticillium Stripe on Canola

Venkat Chapara, Amanda Arens and Larissa Jennings

This research trial was conducted at the Langdon Research Extension Center with an objective to evaluate the performance of seed treatments to manage Verticillium on canola. The trial was planted on May 23, 2024 with various fungicide treatments applied on the canola cultivar 'InVigor L233P'. These treatments were then compared with non-treated seed. The design was a randomized complete block with four replications. The trial followed state recommended practices for land preparation, fertilization, seeding rate, and weed control. The plot size was 5 ft. wide x 16 ft. long. Data of Verticillium infections were rated following the scale of 0-5 (same as the blackleg rating scale). Inoculum was prepared by inoculating Verticillium cultures/isolates onto wheat spawn in the lab during March 2024 and was applied at planting. Twenty-five canola stubbles were rated within each plot and the incidence (number of plants that had Verticillium infections out of twenty-five cut stems) and severity on each was recorded after swathing (August 18). A 0-5 scale was used to rate disease severity, where 0 = no disease tissue visible in the cross section; 1 = $\leq$ 25% of the cross section has disease tissue; 2 = 26 to 50% of the cross section has disease tissue; 3 = 51 to 75% of the cross section has disease tissue; 4 = > 75% of the cross section has disease tissue; 5 = 100% diseased tissue/plant dead. A Verticillium mean disease severity index was calculated using the weighted mean of incidence and number of plants in each severity rating. Data was subjected to analysis of variance using complete block, balanced orthogonal designs of Genovix Generation II software.

Table 1: Mean Verticillium stripe incidence, severity and effect on plant stand, yield and test weight on the application of different seed treatments on canola.

Treatments	Plant Stand 3 ft length	Verticillium Stripe			Yield lbs/a	Test Weight lbs/bu
		% Incidence	% Severity	Index		
Experimental	14	51	24	13	2525	51.5
Saltro	12	49	24	15	1812	52.0
Evergol Energy	14	67	34	25	1808	52.0
Intego Solo	11	55	30	17	1652	52.0
Rancona Summit	13	68	39	27	1875	51.9
Trilex	13	56	34	21	1835	51.7
Non-Treated	11	82	59	49	1685	52.0
Mean	13	61	35	24	1884	52
CV%	32	20	33	50	10	0.4
LSD	NS	18	17	17	285	0.3
P-Value (0.05)	NS	0.0158*	0.0063*	0.0071*	0.0001*	0.0028*

Results: The tested seed treatments had no effect on plant stand. There were significant differences observed for Verticillium stripe incidence, severity, yield and test weight (Table 1).