

SOYBEAN (*Glycine max* 'Nu Tech 7288 or 6311')
 Pre- and post-emergence damping-off;
 Various seed and soilborne microorganisms
Macrophomina phaseolina
Fusarium virguliforme

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Effects of seed protection chemicals on stand and yield of soybean in Kansas, 2013.

Plots were established in a Eudora-Bismarckgrove silt loam at the Kansas River Valley Experiment Field, Topeka, KS and in a Parsons silt loam at the Southeast Kansas Agricultural Experiment Station, Parsons, KS. Chemical seed treatments were applied with a commercial seed treater. Plots were planted on 14 May at Topeka using Nu Tech 7288 soybeans and 14 June at Parsons using Nu Tech 6311 soybeans. Plots consisted of four 27-ft long rows at Topeka and four 25-ft long rows at Parsons with a between-row spacing of 30-in. and an in-row spacing of 1.5-in. at both locations. Four replications per treatment were arranged in a randomized complete-block design. Stand counts were made by counting plants in the middle five feet of the middle two rows at Topeka on 29 May and 7 Jun and the entire middle two rows at Parsons on 28 Jun and 12 Jul. Sudden death syndrome (SDS) (*Fusarium virguliforme*) occurred at the R5 growth stage in the Topeka plot only and incidence and severity ratings were taken. Severity was scored on a 1 to 9 scale with 1 = no disease and 9 = plant death. Charcoal rot (*Macrophomina phaseolina*) ratings were taken at both locations at harvest using the visual scale developed by Mengistu, et al. (Crop Science 47:2453-2461). Plots were harvested on 30 Sep at Topeka and 14 Nov at Parsons. Yields were adjusted to 13.0% moisture and 60 lb/bu. Data were analyzed by analysis of variance (ANOVA) and mean comparisons were performed using Tukey's HSD (Honestly Significant Difference) test ($P \leq 0.05$). Soil temperature and moisture conditions at planting were favorable for rapid germination at both locations. Some chlorosis and necrosis of the cotyledons and first true leaf were observed at the two highest rates of L 2026.

At Topeka, the first replicate was injured by herbicide run-off from an adjoining experiment and was not used in mean calculations. No significant differences in stand counts for either counting date at either location were observed. All rates of L 2026 had SDS DSI's that were significantly less ($P \leq 0.05$) compared to the untreated check. Regression analysis indicated a significant negative interaction between DSI and yield ($P = 0.007$, $R^2 = 44.2\%$). A significant negative interaction between charcoal rot rating and DSI ($P = 0.047$, $R^2 = 27.1\%$) was found suggesting that infection by *F. virguliforme* may inhibit charcoal rot development. Yields for the 0.25 and 0.15 mg rates of L 2026 were not different from the untreated check suggesting that the early season phytotoxicity may have affected yield.

Location	Treatment rate, mg a.i. /per seed ^z	Stand count (plants/10 ft)		SDS	Charcoal rot	Yield
		29 May	7 June	Disease index ^y	rating ^x	(bu/a)
Topeka	L 2026 0.25 mg.....	53.6	56.8	0.9 b ^w	4.1 a	49.3 ab
	L 2026 0.15 mg.....	55.3	62.3	0.4 b	4.3 a	48.3 ab
	L 2026 0.075 mg.....	58.5	62.3	3.3 b	2.5 b	56.1 a
	L 2026 0.0375 mg.....	57.5	62.5	7.2 b	3.6 ab	55.6 a
	Check	58.5	65.3	40.7 a	2.6 b	39.4 b
	MS	17.15	17.67	6.36	0.22	19.13
	P =	0.251	0.135	0.0001	0.004	0.009
	CV%	7.3	6.8	24.0	13.9	9.2
	Treatment rate, mg a.i. /per seed	Stand count (plants/10 ft.)				Yield
		28 Jun	12 Jul			(bu/a)
Parsons	L 2026 0.25 mg	58.1	62.3			36.5
	L 2026 0.15 mg.....	56.7	57.7			35.6
	L 2026 0.075 mg.....	59.8	54.8			34.7
	L 2026 0.0375 mg.....	61.8	61.4			35.5
	Untreated check	60.1	61.5			37.1
	MS	13.34	29.82			4.85
	P	0.386	0.31			0.589
	CV%	6.1	9.2			6.1

^zAll treatments including the check were also treated with EverGol Energy 1.0 fl oz + Allegiance FL 1.5 fl oz /cwt seed + Poncho/Votivo 0.13 mg per seed.

^yDisease severity index = (incidence*severity)/9.

^xCharcoal rot rating: 1 = no microsclerotia (MS) visible; 2 = very few MS and no vascular discoloration; 3 = vascular tissue partially discolored and MS have partially covered the tissue; 4 = vascular tissue discolored and numerous MS embedded in tissue; 5 = vascular tissue darkened due to high numbers of MS both inside and outside of the stem and root tissues.

^wMeans within columns at the same location followed by the same letter are not significantly different (Tukey's HSD $P \leq 0.05$).