2022 Soybean Stem Canker Inoculated Variety Trial Evaluations

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All of the entries contained in the 2022 Mississippi State University Official Variety Trials (OVT) were evaluated for their reaction to the stem canker fungus. In addition, a few varieties (n=7; not including the checks used) were added to supplement the trials and obtain information on those particular varieties that were not entered by the seed respective companies in the MSU-OVT. Trials consisted of single rows of each cultivar planted in 10 foot plots and replicated 4 times. Within each row, a total of 10 plants were inoculated with a single toothpick that contained the fungus that causes stem canker (four isolates of the fungus were used for a fungal cocktail on toothpicks). Plants were inoculated approximately 8 weeks post-planting. Evaluations of stem canker severity were conducted between R6 and R6.5 by observing the stem of each inoculated plant for the presence of a canker. Observations of each variety were conducted using a modified 0-9 scale. Information contained within each table contain the analyzed stem canker rating as an average of all inoculated plants within the four replicate plots. In addition, each cultivar includes a stem canker designation: R=resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible. In field situations where stem canker has previously been observed, select soybean cultivars that have been

observed to contain resistance to stem canker. However, with that said, stem canker can occur anywhere soybean has been planted with or without rotation. In fact, MSU Extension suggestions state that stem canker-resistant cultivars should be planted to reduce the likelihood of losses associated with stem canker. In addition, keep in mind that observations of stem canker tend to be more obvious when the environment is conducive for disease development. Therefore, over time, and in years when the environment may not be conducive for the development of stem canker, it is possible that stem canker designations change between years. Moreover, as additional fungal isolates are added to the collection, it is possible that the rating as well as cultivar designation can change accordingly.

Response of maturity group IV early Conventional soybean cultivars to stem canker, 2022.

Company/Cultivar[1]	Stem Canker rating [2,3]	Cultivar designation[4]
J77-339 (check)	6.5 b	MS
Petrus 4916GT (check)	7.1 ab	S
R18-10379 (check)	7.6 a	S
R18-10376 (check)	7.7 a	S
Univ. of Missouri S19-3530RY	2.7 c	R
Univ. of Missouri S16-13165C	0.0 d	R
Univ. of Missouri S17-2066C	0.0 d	R
MSE	13.0	-
CV (%)	24.8	-
P-value for F-statistic	<0.0001	-

[1]An asterisk denotes an entry that was added to supplement the set of entries evaluated through toothpick inoculation. Information from the given entry will only be included in these data tables and may not represent the greater set of data generated by the Mississippi State University Official Variety Testing Program as this entry was not provided for comparison in the greater 2022 soybean OVT program conducted throughout Mississippi.
[2]Stem Canker Reaction-Ten plants per plot were inoculated with fungus-infested toothpicks. Ratings were given by individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average for the ten plants. Where a lesion did not appear, a rating of 0 (Resistant) was assessed. Ratings were assessed based on the presence of a lesion whereby a reaction that produced a visible lesion that did not expand up the length of the stem was assessed as a 1. Dead plants with lesions that extended up most of the plant's length received a score of 9.
[3]Means followed by the same letter(s) within a column are not significantly different according to Fisher's Protected LSD (P=0.05).
[4]By using the Mean Disease Rating, a standardized designation system is as follows: 1 = Resistant, 3 = Moderately Resistant, 5 = Moderately Susceptible and 7 = Susceptible.

Response of maturity group IV early Xtend soybean cultivars to stem canker, 2022.

Company/Cultivar[1]	Stem Canker rating[2,3]	Cultivar designation[4]
J77-339 (check)	4.9 a	MR/MS
Petrus 4916GT (check)	5.1 a	MS
Armor 44-D49	0.0 b	R
Armor 45-F02	0.4 b	R
Armor 46-F13	0.0 b	R
Armor 46-F96	0.0 b	R
Asgrow AG42XF2	0.1 b	R
*Asgrow AG43X0	0.0 b	R
*Asgrow AG43XF2	0.0 b	R
Asgrow AG45XF3	0.0 b	R
Asgrow AG46X0	0.0 b	R
*Beck's Hybrids 4443XF	0.0 b	R
Beck's Hybrids 4553XF	0.0 b	R
Delta Grow 44XF41	0.0 b	R
Delta Grow 46X65STS	0.0 b	R
Delta Grow 46XF18	0.0 b	R
Dyna-Gro S43XS70	0.0 b	R
Dyna-Gro S45XF02	0.2 b	R
Dyna-Gro S46XF31S	0.0 b	R
Dyna-Gro S46XS60	0.1 b	R
Gateway Seed 453RXS	0.0 b	R
Gateway Seed 465RXS	0.2 b	R
Gateway Seed 469XF	0.0 b	R
Great Heart Seed GT-4255XS	0.0 b	R
Great Heart Seed GT-4344XF	0.2 b	R
Great Heart Seed GT-4677XS	0.0 b	R
Great Heart Seed GT-4681XFS	0.0 b	R
Innvictis A4632XF	5.4 a	MS
Innvictis A4642XF	0.1 b	R
Innvictis A4662XF	0.0 b	R
Innvictis A4690XF	0.0 b	R
*Local Seed LS4299XS	0.0 b	R
Local Seed LS4128XFS	0.0 b	R
Local Seed LS4415XF	0.0 b	R
Local Seed LS4526XF	0.0 b	R
Local Seed LS4606XFS	0.0 b	R
MorSoy MS 4681	0.0 b	R
*NK NK39-T5E3S	0.0 b	R
NK NK42-T5XF	0.0 b	R
NK NK43-V8XF	0.0 b	R
NK NK43-Y9XFS	0.0 b	R
NK NK44-J4XFS	0.0 b	R
NK NK45-P9XF	0.0 b	R
NK 46-B4XFS	0.3 b	R
Progeny P 4200XS	0.0 b	R
Progeny P 4202XFS	0.0 b	R
Progeny P 4444RXS	0.2 b	R
Progeny P 4505RXS	0.0 b	R
Progeny P 4521XFS	0.0 b	R
Progeny P 4604XFS	0.0 b	R
Progeny P 4691XFS	0.0 b	R
MSE	541.4	-
CV (%)	22.8	-

	P-value for F-statistic	<0.0001	-

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Response of maturity group IV Enlist soybean cultivars to stem canker, 2022.

Company/Cultivar[1]	Stem Canker rating[2,3]	Cultivar designation[4]
J77-339 (check)	5.7 a	MS
Petrus 4916 GT (check)	5.3 a	MS
Delta Grow 45E33	0.0 b	R
Delta Grow 46E10	0.0 b	R
*Delta Grow 47E20	0.0 b	R
Delta Grow 48E59	0.0 b	R
Delta Grow 48E60	0.1 b	R
*Dyna-Gro S46ES91	0.0 b	R
*Dyna-Gro S49EN12	0.0 b	R
Local Seed LS4737E3	0.2 b	R
*NK39-T5E3S	0.0 b	R
*NK40-P5E3	0.0 b	R
*NK44-Q5E3S	0.0 b	R
*NK 45-V9ES	0.0 b	R
*NK49-T6E3S	0.0 b	R
*Pioneer 42A84E	0.0 b	R
*Pioneer 44A91E	0.0 b	R
*Pioneer 45A79E	0.0 b	R
*Pioneer 46A09E	0.0 b	R
*Pioneer 46A67E	2.3 a	R
*Pioneer 48A14E	0.4 b	R
Progeny P 4775E3S	0.0 b	R
*Stine 46EB22	0.0 b	R
*Stine 46EE20	0.0 b	R
*Stine 47EB23	0.0 b	R
*Stine 47EB32	0.0 b	R
*Stine 48EE20	0.0 b	R
MSE	89.1	-
CV (%)	17.5	-
P-value for F-statistic	<0.0001	-

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Response of maturity group IV late Xtend soybean cultivars to stem canker, 2022.

Company/Cultivar[1]	Stem Canker rating [2,3]	Cultivar designation[4]
J77-339 (check)	4.9 a	MR/MS
Petrus 4916 GT (check)	6.9 a	MS/S
Armor 48-D25	0.2 bc	R
Armor 48-F22	0.2 bc	R
Armor 49-F37	0.0 c	R
Asgrow AG47XF3	0.0 c	R
Asgrow AG48XF3	0.0 c	R
Asgrow AG48X9	0.0 c	R
Asgrow AG49XF3	0.2 bc	R
Beck's Hybrids 4885XF	0.0 c	R
Delta Grow 48X45	0.0 c	R
Delta Grow 48XF33/STS	0.0 c	R
Delta Grow 49XF29/STS	0.0 c	R
Dyna-Gro S47XF23S	0.0 c	R
Dyna-Gro S47XF52	0.0 c	R
Dyna-Gro S48XF61S	0.0 c	R
Dyna-Gro S48XT90	0.2 bc	R
Dyna-Gro S49XF43S	0.0 c	R
Dyna-Gro S49XF82S	6.0 a	MS
Dyna-Gro S49XT70	0.3 b	R
Gateway Seed 471XF	0.0 c	R
Great Heart Seed GT-4756XF	0.0 c	R
Great Heart Seed GT-4762XF	0.0 c	R
Great Heart Seed GT-4828X	0.1 bc	R
Great Heart Seed GT-4979X	0.0 c	R
Innvictis A4742XF	0.0 c	R
Innvictis A4850XF	0.0 c	R
Innvictis A4950X	0.0 c	R
Local Seed LS4727XF	0.0 c	R
Local Seed LS4795XS	0.0 c	R
*Local Seed LS4805 XFS	0.0 c	R
Local Seed LS4806XS	0.0 c	R
Local Seed LS4826XFS	0.0 c	R
Local Seed LS4925XF	0.0 c	R
MorSoy MS 4846	0.1 bc	R
MorSoy MS 4852	5.3 a	MS
NK NK47-Z1XF	0.0 c	R
NK 48-H3XFS	0.0 c	R
*NK S49-F5X	0.0 c	R
Pioneer P47A64X	0.0 c	R
*Pioneer P48A32X	0.0 bc	R
Progeny P 4732XF	0.0 c	R
Progeny P 4798XF	0.0 c	R
Progeny P 4806XFS	0.0 bc	R
Progeny P 4821RX	0.0 c	R
Progeny P 4844XFS	0.0 c	R
Progeny P 4951XFS	0.0 c	R
MSE	364.6	-
CV (%)	20.6	-
P-value for F-statistic	<0.0001	-

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[3]Means followed by the same letter(s) within a column are not significantly different according to Fisher's Protected LSD (P=0.05).
[4]By using the Mean Disease Rating, a standardized designation system is as follows: 1 = Resistant, 3 = Moderately Resistant, 5 = Moderately Susceptible and 7 = Susceptible.

Response of maturity group V Conventional soybean cultivars to stem canker, 2022.

Company/Cultivar[1]	Stem Canker rating [2,3]	Cultivar designation[4]
J77-339 (check)	4.7 a	MR
Petrus 4916GT (check)	6.5 a	MS
Univ. of Missouri S18-6097C	0.2 b	R
Univ. of Missouri S17-2509C	0.0 b	R
Univ. of Missouri S18-6328C	0.2 b	R
MSE	4.4	-
CV (%)	19.9	-
P-value for F-statistic	<0.0001	-

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[3]Means followed by the same letter(s) within a column are not significantly different according to Fisher's Protected LSD (P=0.05).
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Response of maturity group V Enlist soybean cultivars to stem canker, 2022.

Company/Cultivar[1]	Stem Canker rating [2,3]	Cultivar designation[4]
J77-339 (check)	6.0 a	MS
Petrus 4916GT (check)	6.3 a	MS
Delta Grow 52E80	0.0 b	R
Delta Grow 53E30	0.0 b	R
*NK NK52-D6E3	0.0 b	R
*Pioneer P52A14SE	0.0 b	R
*Pioneer 53T90E	0.0 b	R
Pioneer 56A71E	0.0 b	R
*Progeny Ag P 5521 E3	0.0 b	R
MSE	1.6	-
CV (%)	6.8	-
P-value for F-statistic	<0.0001	-

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Response of maturity group V early Xtend soybean cultivars to stem canker, 2022.

Company/Cultivar[1]	Stem Canker rating [2,3]	Cultivar designation[4]
J77-339 (check)	5.1 a	MS
Petrus 4916GT (check)	5.7 a	MS
Armor 51-F88	0.2 bc	R
Asgrow AG53XF2	0.0 c	R
Asgrow AG56XF2	0.0 c	R
Delta Grow 52XF22/STS	0.0 c	R
Delta Grow 54XF20	0.2 bc	R
Dyna-Gro S52XT91	0.0 c	R
*Dyna-Gro S56XT99	0.0 c	R
Great Heart GT-5214X	0.0 c	R
Innvictis A5451XF	0.0 c	R
Local Seed LS5029XF	0.0 c	R
Local Seed LS5119XF	0.0 c	R
Local Seed LS5386X	0.0 c	R
Local Seed LS5588X	0.0 c	R
Local Seed LS5614XF	0.0 c	R
*NK NKS53-F7X	0.0 c	R
NK NK55-T2XF	0.0 c	R
*Pioneer P53A67X	0.7 b	R
Progeny P 5016RXS	0.4 bc	R
Progeny P 5056XFS	0.0 c	R
Progeny P 5150XFS	0.0 c	R
Progeny P 5252RX	0.0 c	R
Progeny P 5554RX	0.0 c	R
MSE	83.3	-
CV (%)	18.8	-
P-value for F-statistic	<0.0001	-

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[2]Stem Canker Reaction-Ten plants per plot were inoculated with fungus-infested toothpicks. Ratings were given by individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average for the ten plants. Where a lesion did not appear, a rating of 0 (Resistant) was assessed. Ratings were assessed based on the presence of a lesion whereby a reaction that produced a visible lesion that did not expand up the length of the stem was assessed as a 1. Dead plants with lesions that extended up most of the plant's length received a score of 9.
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