

2021 Soybean Stem Canker Inoculated Variety Trial Evaluations

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All of the entries contained in the 2021 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 respective seed companies in the MSU-OVT. Trials consisted of single rows of each cultivar planted in 10-foot-long 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 among 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.



Severe stem canker can produce a lesion that moves up the majority of the stem.

Response of maturity group IV early Xtend soybean cultivars to stem canker, 2021.

Company/Cultivar¹	Stem canker Rating^{2,3}	Cultivar designation⁴
Agrigold G4440RX (Check)	3.4 a	MR
Progeny P4255 (Check)	6.0 a	MS
USG 7447XTS (Check)	5.2 a	MS
AgriGold G4615XF	0.0 e	R
AgriGold G4620RX	1.3 bc	R
Armor 44-D49	0.0 e	R
Armor 46-D09	0.7 a	R
Armor 46-F13	0.1 de	R
*Asgrow AG43X0	0.1 de	R
Asgrow AG44XF2	0.2 dc	R
Asgrow AG45XF0	0.1 de	R
*Asgrow AG46X6	0.0 e	R
Asgrow AG46XF2	7.0 a	S
Beck's Hybrids 4119X2	0.0 e	R
Credenz CZ 4202XF	0.0 e	R
Credenz CZ 4562XF	0.0 e	R
Delta Grow 46F17/STS	1.0 ab	R
Delta Grow 46X65	0.8 ab	R
DonMario DM42F62S	0.2 de	R
DonMario DM45X61	0.7 ab	R
DonMario DM46F62	0.0 e	R
Dyna-Gro S43XS70	0.0 e	R
Dyna-Gro S46XF31S	0.1 de	R
Dyna-Gro S46XS60	1.3 ab	R
Great Heart Seed GT-4255XS	0.2 de	R
Great Heart Seed GT-4344XF	0.0 e	R
Great Heart Seed GT-4677XS	0.0 e	R
Great Heart Seed GT-4681XFS	0.0 e	R
Innvictis Seed A 4111XF	0.0 e	R
Innvictis Seed A 4371XF	0.1 de	R
Innvictis Seed A 4571XF	0.0 e	R
Innvictis Seed A 4618X	0.0 e	R
Innvictis Seed A 4690XF	0.0 e	R
*Local Seed Company LS4299XS	0.0 e	R
Local Seed Company LS4415XF	0.0 e	R
Local Seed Company LS4517XFS	0.0 de	R
Local Seed Company LS4606XFS	0.1 de	R
MorSoy MS 4531XF	0.0 e	R
MorSoy MS 4640XF	0.7 ab	R
MorSoy MS 4681 RXT	0.0 e	R
NK NK39-A1XF	0.0 e	R
NK NK43-V8XF	0.0 e	R
NK NK45-P9XF	0.0 e	R
NK S44-C7X	0.0 e	R
*Pioneer P42A96X	0.6 ab	R
Pioneer P46A86X	0.0 e	R
Progeny P 4501XFS	0.0 e	R
Progeny P 4505RXS	0.1 de	R
Progeny P 4521XFS	0.2 de	R
Progeny P 4604XFS	0.0 e	R
USG 7461XFS	1.0 ab	R
MSE	53.7	-
CV (%)	3.4	-
P-value for F-statistic	<0.0001	-

¹An 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 2021 soybean OVT program conducted throughout Mississippi.

²Stem 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.

³Means followed by the same letter(s) within a column are not significantly different according to Fisher's Protected LSD ($P=0.05$).

⁴By 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 late Xtend soybean cultivars to stem canker, 2021.

Company/Cultivar¹	Stem canker Rating^{2,3}	Cultivar designation⁴
Petrus Seed 4916GT (Check)	7.4 a	S
AgriGold G4813XF	0.0 d	R
AgriGold G4820RX	0.0 d	R
Armor 48-D03	0.0 d	R
Armor 48-D25	0.0 d	R
Armor 48-F22	2.0 a	R
Asgrow AG46X6	0.2 c	R
Asgrow AG47XF0	0.0 d	R
Asgrow AG47XF2	0.0 d	R
Asgrow AG48XF0	0.3 cd	R
Asgrow AG48XF2	0.0 d	R
Beck's Hybrids 4885XF	0.0 d	R
Beck's Hybrids 4991X2	0.1 cd	R
Credenz CZ 4742XF	0.9 cd	R
Credenz CZ 4892XF	0.0 d	R
Credenz CZ 4912XF	0.0 d	R
*Delta Grow 47X95RR2X	0.0 d	R
Delta Grow 48F20	0.0 d	R
Delta Grow 48X45	3.1 a	MR
Delta Grow 49F22/STS	0.0 d	R
DonMario DM48F61	0.0 d	R
Dyna-Gro S48XT90	0.1 cd	R
Dyna-Gro S49XT70	0.0 d	R
Great Heart Seed GT-4750XFS	0.0 d	R
Great Heart Seed GT-4828X	0.0 d	R
Great Heart Seed GT-4841XFS	0.0 d	R
Great Heart Seed GT-4979X	0.2 cd	R
Innvictis Seed A 4791XF	0.0 d	R
Innvictis Seed A 4831XF	0.0 d	R
Innvictis Seed A 4850XF	0.0 d	R
Innvictis Seed A 4950X	2.1 a	R
Local Seed Company LS4707XF	0.2 cd	R
Local Seed Company LS4718XF	0.0 d	R
Local Seed Company LS4795XS	0.0 d	R
Local Seed Company LS4805XFS	3.4 ab	MR
Local Seed Company LS4806XS (LSX48	0.1 cd	R
Local Seed Company LS4919XFS	0.0 cd	R
MorSoy MS 4850 XF/STS	0.0 d	R
*NK S47-Y9X	0.1 cd	R
NK S49-F5X	0.1 cd	R
Pioneer P47A64X	0.0 d	R
*Pioneer P48A60X	0.0 d	R
Progeny P 4806XFS	0.0 d	R
Progeny P 4816RX	0.4 bc	R
Progeny P 4821RX	0.1 cd	R
Progeny P 4851RX	0.1 cd	R
Progeny P 4921XFS	0.0 d	R
Progeny P 4970RX	0.1 cd	R
USG 7481XF	0.0 d	R
*USG 7489XT	0.5 cd	R
USG 7491XFS	3.0 a	MR
MSE	904.9	-
CV (%)	27.7	-
P-value for F-statistic	<0.0001	-

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Response of maturity group V Xtend soybean cultivars to stem canker, 2021.

Company/Cultivar¹	Stem canker Rating^{2,3}	Cultivar designation⁴
Delta Grow 52X05/STS (check)	6.6 a	MS
Progeny P5688RX (Check)	5.7 ab	MS
*Asgrow AG53X0	1.9 bc	R
Asgrow AG53XF2	0.0 e	R
Asgrow AG55XF0	0.1 de	R
Asgrow AG56XF2	0.0 e	R
Beck's Hybrids 5005XF	0.0 de	R
Credenz CZ 5282XF	0.0 e	R
Credenz CZ 5552XF	0.0 e	R
Delta Grow 52X05 STS	0.3 de	R
Delta Grow 54F20	0.0 e	R
DonMario DM51X61	0.0 e	R
Dyna-Gro S52XT91	0.1 de	R
Dyna-Gro S56XT99	1.0 de	R
Great Heart Seed GT-5214X	0.2 de	R
Great Heart Seed GT-5417X	0.0 e	R
Inn victis Seed A 5341XF	4.7 ab	MR
Inn victis Seed A 5451XF	0.3 de	R
Inn victis Seed A 5558X	0.0 e	R
Local Seed Co. LS5009XS	0.0 e	R
Local Seed Co. LS5119XF	0.0 e	R
Local Seed Co. LS5386X	0.1 de	R
Local Seed Co. LS5418XFS	0.0 e	R
Local Seed Co. LS5614XF	0.0 e	R
NK NK57-A3XF	4.9 ab	MR/MS
NK S53-F7X	0.2 de	R
Pioneer P53A67X	0.0 e	R
Progeny P 5003XF	0.4 de	R
Progeny P 5016RXS	0.0 e	R
Progeny P 5252RX	0.0 e	R
*Progeny P 5424XF	0.1 de	R
Progeny P 5425XF	0.2 cd	R
Progeny P 5554RX	0.2 de	R
MSE	369.0	-
CV (%)	28.9	-
P-value for F-statistic	<0.0001	-

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Response of maturity group IV Enlist soybean cultivars to stem canker, 2021.

Company/Cultivar¹	Stem canker Rating^{2,3}	Cultivar designation⁴
Agrigold G4440RX (Check)	4.3 a	MR
Progeny P4255 (Check)	.	-
*Delta Grow DG45E10	0.1 b	R
Delta Grow DG46E10	0.0 c	R
Delta Grow DG47E20	0.0 c	R
Delta Grow DG48E49 STS	0.0 c	R
Delta Grow DG48E59	0.0 b	R
Delta Grow DG49E20	0.1 b	R
DonMario DM48E62S	0.0 c	R
Dyna-Gro S45ES10	0.0 c	R
Dyna-Gro S46ES91	0.0 c	R
Dyna-Gro S49EN79	1.4 a	R
Innictis Seed B 4141E	0.0 c	R
Innictis Seed B 4681E	0.0 c	R
Innictis Seed B 4841E	0.0 c	R
*Pioneer P44T04SE	0.0 c	R
*Pioneer P45T88E	0.0 c	R
Pioneer P46T51E	0.0 c	R
Pioneer P49T62E	0.0 c	R
Progeny P 4541E3S	0.0 c	R
Progeny P 4775E3S	0.0 c	R
Progeny P 4931E3S	0.0 c	R
MSE	35.1	-
CV (%)	13.9	-
P-value for F-statistic	<0.0001	-

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Response of maturity group V Enlist soybean cultivars to stem canker, 2021.

Company/Cultivar	Stem canker Rating^{1,2}	Cultivar designation³
Progeny P5688RX (Check)	2.0 a	R
Terral REV 5190E (Check)	3.0 ab	MR
Delta Grow 53E30	0.5 bcd	R
Don Mario DM51E62S	1.0 abc	R
Innvictis Seed B 5401E	0.0 d	R
Progeny 5121E3S	0.0 d	R
Progeny P5521E3S	0.1 cd	R
MSE	30.8	-
CV (%)	38.2	-
<i>P</i> -value for F-statistic	0.0039	-

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³By 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 Conventional and RoundUp Ready soybean cultivars to stem canker, 2021.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Go Soy 49G16 (check)	7.9 a	S
J77-339 (check)	4.6 bc	MR
Petrus Seed 4916 GT (check)	7.6 a	S
Univ. of Missouri S15-10879C (check)	7.0 a	S
Univ. of Arkansas R15-2422	0.5 e	R
Univ. of Arkansas R16-253	0.4 e	R
Univ. of Arkansas UA46i20C	0.0 e	R
Univ. of Missouri S09-13608C	0.0 e	R
Univ. of Missouri S16-11644C	6.8 ab	MS
Univ. of Missouri S16-12137C	0.0 e	R
Univ. of Missouri S16-14730C	2.8 cd	R
Univ. of Missouri S16-5503R	6.2 ab	MS
Univ. of Missouri S16-5540R	6.7 ab	MS
Univ. of Missouri S16-7922C	0.3 e	R
Univ. of Missouri S16-8898C	2.3 d	R
Univ. of Missouri S17-2193C	0.0 e	R
Univ. of Missouri S17-2243C	0.0 e	R
MSE	42.6	-
CV (%)	19.5	-
<i>P</i> -value for F-statistic	<0.0001	-

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Response of maturity group V Conventional and RoundUp Ready soybean cultivars to stem canker, 2021.

Company/Cultivar	Stem canker Rating^{1,2}	Cultivar designation³
J77-339 (check)	6.2 a	MS
Univ. of Missouri S16-15809C (check)	0.1 c	R
Univ. of Arkansas R13-13997	2.0 b	R
Univ. of Arkansas R15-1587	0.1 c	R
Univ. of Arkansas UA54i19GT(R1	3.2 b	MR
Univ. of Missouri S16-11651C	2.5 b	R
Univ. of Missouri S16-14801C	0.0 c	R
Univ. of Missouri S16-15170C	0.0 c	R
Univ. of Missouri S16-3747RY	0.0 c	R
Univ. of Missouri S16-7840C	3.4 b	MR
Univ. of Missouri S16-9090C	3.2 b	MR
Univ. of Missouri S16-9478C	2.1 b	R
MSE	31.1	-
CV (%)	22.8	-
<i>P</i> -value for F-statistic	<0.0001	-

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