

2020 Soybean Stem Canker Inoculated Variety Trial Evaluations

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All of the entries contained in the 2020 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 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:



Stem canker continues to be a devastating disease in MS when stem canker-susceptible varieties are planted.

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 resistance to stem canker. However, with that being said, stem canker can occur anywhere soybean has been grown 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.

Please note: The statistical analysis used on these data, a rank transformation prior to the means analysis, may make some values appear skewed. The letter groupings listed after values are for the rank transformed values, but the non-transformed data are presented to present the true mean of the scores assessed in the field.

Xtend varieties:

Maturity Group IV Early (2020 MG IV early Xtend)

Maturity Group IV Late (2020 MG IV late Xtend)

Maturity Group V Early (2020 MG V early Xtend)

Enlist varieties:

Maturity Group IV Enlist (2020 MG IV Enlist)

Maturity Group V Enlist (2020 MG V Enlist)

Conventional/LibertyLink/RoundUp Ready varieties:

Maturity Group IV Conventional/LibertyLink/RoundUp Ready (2020 MG IV Conventional LibertyLink RR)

Maturity Group V Conventional/LibertyLink/RoundUp Ready (2020 MG V Conventional LibertyLink RR)

Response of maturity group IV early Xtend soybean cultivars to stem canker, 2020.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
AgriGold G4440RX (check)	5.7 a	MR/MS
Mission Seed Solutions A4447N (check)	3.2 a	MR
Progeny P4255 (check)	5.7 a	MR/MS
AgriGold G4255RX	0.0 c	R
AgriGold G4620RX	0.0 c	R
Armor 44-D49	0.0 bc	R
Armor 44-D92	0.4 bc	R
Armor 46-D09	0.0 c	R
Asgrow AG43X0	0.0 c	R
Asgrow AG45X8	0.0 c	R
Asgrow AG46X0	0.0 c	R
Asgrow AG46X6	0.0 c	R
Credenz CZ 4280X	0.0 c	R
Credenz CZ 4341X	0.0 c	R
Credenz CZ 4570X	0.2 bc	R
Credenz CZ 4600X	0.0 c	R
Delta Grow 46X05/STS	0.0 c	R
Delta Grow 46X65/STS	0.0 c	R
Dyna-Gro S43XS70	0.0 c	R
Dyna-Gro S45XS37	0.0 c	R
Dyna-Gro S45XS66	0.0 c	R
Dyna-Gro S46XS60	0.0 c	R
GDM Seeds DM 44X31	0.0 c	R
GDM Seeds DM 45X61	0.0 c	R
Great Heart Seed GT-4677XS	0.2 b	R
LG Seeds LGS4464RX	0.0 c	R
LG Seeds LGS4632RX	0.0 c	R
Local Seed Co. LS3976X	0.2 bc	R
Local Seed Co. LS4299XS(LSX4301XS)	0.0 c	R
Local Seed Co. LS4407X	0.0 c	R
Local Seed Co. LS4407X (LSX4501X)	0.0 c	R
Local Seed Co. LS4565X	0.0 c	R
Local Seed Co. LS4583X	0.0 c	R
Mission A4448X	0.0 c	R
Mission A4618X	0.0 c	R
MorSoy MS 4616RXT/STS	0.0 c	R
NK S44-C7X	0.0 c	R
Pioneer P42A96X	0.2 bc	R
Pioneer P44A72BX	0.0 c	R
Pioneer P46A86X	0.0 c	R
Progeny Ag 4265RXS	0.0 c	R
Progeny Ag 4444RXS	0.0 c	R
Progeny Ag 4505RXS	0.0 c	R
Progeny Ag 4620RXS	0.0 c	R
Terral REV4679X	0.0 c	R
USG 7447XTS	5.4 a	MR
USG 7461XTS	0.0 c	R
MSE	342.4	-
CV (%)	19.8	-
P-value for F-statistic	<0.0001	-

¹Stem 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.

²Means followed by the same letter(s) within a column are not significantly different according to Fisher's Protected LSD ($P=0.05$).

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 late Xtend soybean cultivars to stem canker, 2020.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
LG Seeds LGS4931RX (check)	0.0	R
Petrus Seed 4916GT (check)	3.4	MR
AgriGold G4820RX	0.0	R
AgriGold G4995RX	0.0	R
AGS GS47X19	0.0	R
AGS GS48X19	0.0	R
AGS GS49X21	0.0	R
Armor 48-D25	0.0	R
Armor 49-D14	0.3	R
Asgrow AG48X9	0.0	R
Credenz CZ 4730X	0.2	R
Credenz CZ 4770X	0.0	R
Credenz CZ 4810X	0.0	R
Credenz CZ 4869X	0.2	R
Credenz CZ 4941X	0.5	R
Credenz CZ 4979X	0.0	R
Delta Grow 47X95	0.0	R
Delta Grow 48X05	0.5	R
Delta Grow 48X45	0.0	R
Delta Grow 49X15	0.0	R
Delta Grow 49X25	0.0	R
Dyna-Gro S47XT20	0.0	R
Dyna-Gro S48XT56	0.5	R
Dyna-Gro S48XT90	0.2	R
Dyna-Gro S49XT21	0.1	R
Dyna-Gro S49XT70	0.0	R
GDM Seeds DM 47X39	0.0	R
GDM Seeds DM 49X13	0.0	R
Great Heart Seed GT-4828X	0.0	R
Great Heart Seed GT-4833XS	0.0	R
Great Heart Seed GT-4979X	0.0	R
LG Seeds LGS4899RX	0.0	R
Local Seed Co. LS4795XS (LSX4601XS)	0.0	R
Local Seed Co. LS4999X (LSX4901X)	0.0	R
Local Seed Co. LSX4612XS	0.2	R
Local Seed Co. LSX4812XS	0.0	R
Mission A4828X	0.0	R
Mission A4950X	0.0	R
MorSoy MS 4846 RXT	0.0	R
NK S47-Y9X	0.0	R
NK S49-F5X	0.0	R
Pioneer P48A60X	0.0	R
Progeny Ag 4700RXS	0.0	R
Progeny Ag 4816RX	0.0	R
Progeny Ag 4821RX	0.5	R
Progeny Ag 4851RX	0.0	R
Progeny Ag 4970RX	0.0	R
Taylor Seed T4880XS	0.0	R
Taylor Seed T4990XS	0.0	R
Terral REV4927X	0.2	R
Terral REV4940X	0.0	R
USG 7480XT	0.0	R
USG 7489XT	2.1	R
USG 7496XTS	0.2	R
MSE	816.7	-
CV (%)	26.3	-
P-value for F-statistic	0.0704	-

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Response of maturity group V early Xtend soybean cultivars to stem canker, 2020.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Progeny P5688RX (check)	6.3 a	MS
Asgrow AG52X9	0.0 b	R
Asgrow AG53X0	0.0 b	R
Asgrow AG53X9	0.0 b	R
Asgrow AG55X0	0.4 b	R
Credenz CZ 5000X	0.0 b	R
Credenz CZ 5251X	0.0 b	R
Credenz CZ 5299X	0.1 b	R
Credenz CZ 5420X	0.0 b	R
Credenz CZ 5700	0.2 b	R
Delta Grow 52X05/STS	1.6 b	R
Delta Grow 54X25	1.5 a	R
Dyna-Gro GS5261X	0.0 b	R
Dyna-Gro S52XS39 (SX 18652XS)	0.0 b	R
Dyna-Gro S56XT99	0.2 b	R
GDM Seeds DM 51X61	0.0 b	R
Great Heart Seed GT-5214X	0.0 b	R
Great Heart Seed GT-5417X	0.0 b	R
Local Seed Co. LS5009XS	0.2 b	R
Local Seed Co. LS5087X	0.0 b	R
Local Seed Co. LS5386X	0.0 b	R
MorSoy MS 5398 RXT	0.0 b	R
NK S51-R3XS	0.0 b	R
NK S53-F7X	0.0 b	R
Pioneer P53A67X	0.0 b	R
Pioneer P55A49X	0.0 b	R
Progeny Ag 5016RXS	0.0 b	R
Progeny Ag 5170RX	0.0 b	R
Progeny Ag 5252RX	0.0 b	R
Progeny Ag 5554RX	0.0 b	R
Terral REV 5659X	0.0 b	R
MSE	232.9	-
CV (%)	24.4	-
<i>P</i> -value for F-statistic	<0.0001	-

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Disease ratings of maturity group IV enlist soybean cultivars to stem canker, 2020.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Delta Grow 48E49 (check)	0.2	R
Armor 46-E50	0.0	R
Armor 48-E81	0.2	R
Delta Grow 45E28XP	0.0	R
Delta Grow 47E20/STS	0.0	R
Delta Grow 47E80/STS	0.0	R
Delta Grow 48E10	0.0	R
Delta Grow 48E49/STS	0.0	R
Delta Grow 49E00/STS	0.2	R
GDM Seeds DM 48E73	0.0	R
Go Soy 463E20S	0.0	R
Go Soy 473E20	0.0	R
Go Soy 481E19	0.5	R
Go Soy 491E19S	0.0	R
Local Seed Co. ZS4694E3S (LSX4602ES)	0.0	R
MorSoy MS 4800E	0.2	R
Pioneer P49T62E	0.2	R
Progeny Ag 4241E3	0.0	R
Progeny Ag 4682E3	0.0	R
Progeny Ag 4775E3S	0.0	R
Progeny Ag 4807E3S	0.0	R
Progeny Ag 4902E3	0.0	R
Progeny Ag 4908E3S	0.2	R
Terral REV4731E	0.0	R
Terral REV4990E	0.0	R
USG 7491ETS	0.0	R
MSE	223.2	-
CV (%)	28.4	-
<i>P</i> -value for F-statistic	0.5072	-

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Response of maturity group V Enlist soybean cultivars to stem canker, 2020

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Terral REV 5190E (check)	0.0	R
Armor 51-E53	0.3	R
Delta Grow 51E60	0.0	R
Delta Grow 52E15/STS	0.1	R
Delta Grow 52E22	0.2	R
Go Soy 512E21	0.0	R
Local Seed Co. ZS5098E3	0.0	R
MorSoy MS 5110E	0.0	R
Progeny Ag 5211E3	0.0	R
MSE	29.3	-
CV (%)	29.3	-
<i>P</i> -value for F-statistic	0.6939	-

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Response of Maturity Group IV Conventional, LibertyLink, and RoundUp Ready soybean cultivars to stem canker, 2020.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
J77-339 (check)	3.4 ab	MR
Univ. of Missouri S11-20242C (check)	3.7 bcd	MR
Univ. of Missouri S15-10434C (check)	2.3 bcd	R
Credenz CZ 4820 LL	0.0 f	R
GDM Seeds V 4520 S	0.0 f	R
GDM Seeds V 4720 S	0.0 f	R
GDM Seeds V 4921 S	0.0 f	R
Go Soy 46G19	0.0 f	R
Go Soy 48C17S	0.0 f	R
Go Soy 49G16	6.6 a	MS
Go Soy GT Ireane	0.0 f	R
Go Soy Ireane	0.2 ef	R
Local Seed Co. LSX3911GL	0.0 f	R
Local Seed Co. LSX4711GL	0.2 ef	R
Petrus Seed 4619 GTS	0.0 f	R
Petrus Seed 4916 GT	6.5 a	MS
Progeny Ag 4602LR	0.0 f	R
Univ. of Arkansas R15-2422	2.9 abc	R
Univ. of Arkansas R16-259	0.2 ef	R
Univ. of Missouri S15-10879C	4.0 bc	MR
Univ. of Missouri S15-3772RY	1.7 de	R
Univ. of Missouri S15-3847R	0.0 f	R
Univ. of Missouri S15-5904RY	1.1 cd	R
Univ. of Missouri S16-11644C	3.9 ab	MR
Univ. of Missouri S16-14379C	0.0 f	R
Univ. of Missouri S16-14730C	0.0 f	R
Univ. of Missouri S16-5540R	2.8 abc	R
Univ. of Missouri S16-7875C	1.2 bcd	R
Univ. of Missouri S16-7922C	0.0 f	R
MSE	236.2	-
CV (%)	26.3	-
<i>P</i> -value for F-statistic	<0.0001	-

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Response of Maturity Group V Conventional, LibertyLink, and RoundUp Ready soybean cultivars to stem canker, 2020.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
J77-339 (check)	3.4 ab	MR
Univ. of Missouri S15-10434C (check)	2.5 ab	R
Go Soy 50G17	2.5 b	R
Petrus Seed 5319 GT	0.0 c	R
Univ. Of Arkansas R13-14635RR	0.2 c	R
Univ. of Missouri S11-20242C	0.0 c	R
Univ. of Missouri S16-11651C	4.1 a	MR
Univ. of Missouri S16-15170C	0.0 c	R
Univ. of Missouri S16-15809C	4.8 a	MR
Univ. of Missouri S16-3739RY	1.7 b	R
Univ. of Missouri S16-3747RY	0.0 c	R
MSE	47.9	-
CV (%)	30.8	-
<i>P</i> -value for F-statistic	<0.0001	-

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