

2019 SOYBEAN VARIETY TRIAL STEM CANKER REPORT

All of the entries in the 2019 variety trials were evaluated for their reaction to the stem canker fungus. Trials consisted of single rows containing each cultivar planted in 10-foot plots and replicated four times. Within each row, eight plants were inoculated with a single toothpick infested with the fungus that causes stem canker (*Diaporthe aspalathi*). Plants were inoculated approximately 8 weeks after 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 in each of the following tables contains the analyzed stem canker rating as an average of the response of the inoculated plants for each entry (n=32

observations/entry). In addition, each cultivar includes a stem canker designation: R = resistant, MR = moderately resistant, MS = moderately susceptible, and S = susceptible. In field situations where stem canker has been observed in the past, plant cultivars have been observed to contain resistance to stem canker to reduce the potential yield losses associated with this particular disease. In addition, keep in mind that observations of stem canker tend to be more obvious when the environment is conducive to disease development (see the Clarksdale yield response from 2019). Therefore, over time, and in years when the environment may not be conducive to the development of stem canker, it is possible that stem canker designations could change among years.

Table 83. Response of Maturity Group IV Early Xtend Soybean Cultivars to Stem Canker, 2019.

Cultivar ¹	Stem canker rating ^{2,3}	Cultivar designation ⁴
AgriGold G4440RX (check)	4.5 c	MR
USG 7447XTS (2018 check)	5.9 ab	MS
AgriGold G4579RX	0.1 d	R
AgriGold G4605RX	0.4 d	R
Armor 42-D27	0.1 d	R
Armor 44-D92	0.5 d	R
Armor X45D51	0.5 d	R
Asgrow AG43X0	0.0 d	R
Asgrow AG43X8	0.2 d	R
Asgrow AG45X8	0.2 d	R
Asgrow AG46X0	0.0 d	R
Asgrow AG46X6	0.4 d	R
Delta Grow 46X25	0.4 d	R
Delta Grow 46X65	0.0 d	R
*Dyna-Gro S43XS70	0.1 d	R
Dyna-Gro S45XS37	0.2 d	R
Dyna-Gro S45XS66	0.3 d	R
Dyna-Gro S46XS60	0.0 d	R
Great Heart GT-4255XS	0.2 d	R
Great Heart GT-4616X	0.0 d	R
Great Heart GT-4677XS	0.0 d	R
LG Seeds LGS4420RX	0.2 d	R
Local Seed LS3976X	0.8 d	R
Local Seed LS4487XS	0.1 d	R
Local Seed LS4565XS	0.0 d	R
Local Seed LS4583X	0.1 d	R
Local Seed LS4677X	0.7 d	R
Local Seed LSX4301XS	0.4 d	R
Local Seed LSX4501X	0.9 d	R
Local Seed LSX4601XS	0.0 d	R
Mission Seed A4448X	0.0 d	R
Mission Seed A4618X (MEX4618)	0.1 d	R
Mission Seed Solutions A4447NS	5.4 bc	MS
MorSoy MS 4616	0.2 d	R
NK S39-G2X	0.2 d	R
NK S44-C7X	0.1 d	R
Pioneer P42A96X	0.3 d	R
Pioneer P44A72BX	0.1 d	R
Pioneer P46A57BX	0.2 d	R
Progeny Ag P4255RX	7.0 a	S
Progeny Ag P4265RXS	0.5 d	R
Progeny Ag P4444RXS	0.6 d	R
Progeny Ag P4620RXS	0.2 d	R
Terral REV 4679X	0.0 d	R
LSD (0.05)	1.3	
CV (%)	129.5	
P-value for F-statistic	<0.0001	

¹An asterisk denotes a variety that was supplemented for the purposes of gaining additional information on varieties that may be planted in the Mississippi soybean production system but were not a part of the 2019 MSU OVT program.

²Eight plants per plot were inoculated with 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 eight 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.

Table 84. Response of Maturity Group IV LibertyLink Soybean Cultivars to Stem Canker, 2019.

Cultivar ¹	Stem canker rating ^{2,3}	Cultivar designation ⁴
Dyna-Gro 4567LL (check)	0.2	R
Credenz CZ 3601 LL (2018 check)	1.6	R
Credenz CZ 3929GTLL	0.5	R
Credenz CZ 4539GTLL	0.7	R
Credenz CZ 4649LL	0.2	R
Delta Grow 4977 LL/STS	0.2	R
Go Soy 44GL18	1.1	R
Go Soy 46GL18	1.8	R
LSD (0.05)	1.6	
CV (%)	141.7	
P-value for F-statistic	0.2787	

¹An asterisk denotes a variety that was supplemented for the purposes of gaining additional information on varieties that may be planted in the Mississippi soybean production system but were not a part of the 2019 MSU OVT program.

²Eight plants per plot were inoculated with 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 eight 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.

Table 85. Response of Maturity Group IV Conventional Soybean Cultivars to Stem Canker, 2019.

Cultivar ¹	Stem canker rating ^{2,3}	Cultivar designation ⁴
J77-339 (check)	2.1	R
Go Soy 48C17S	1.0	R
Univ. of Missouri S13-10590C	0.7	R
Univ. of Missouri S13-10590C	0.2	R
Univ. of Missouri S13-10592C	0.2	R
Univ. of Missouri S13-1955C	1.2	R
Univ. of Missouri S13-2743C	0.3	R
Univ. of Missouri S13-3851C	1.3	R
Univ. of Missouri S16-14379C	0.1	R
Univ. of Missouri S16-14730C	0.3	R
Virtue V4520S	0.8	R
Virtue V4720S	1.5	R
Virtue V4920S	0.6	R
LSD (0.05)	1.4	
CV (%)	129.9	
P-value for F-statistic	0.1992	

¹An asterisk denotes a variety that was supplemented for the purposes of gaining additional information on varieties that may be planted in the Mississippi soybean production system but were not a part of the 2019 MSU OVT program.

²Eight plants per plot were inoculated with 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 eight 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.

Table 86. Response of Maturity Group IV RoundUp Ready and Enlist Soybean Cultivars to Stem Canker, 2019.

Cultivar ¹	Stem canker rating ^{2,3}	Cultivar designation ⁴
USG 7447XTS (check)	5.5 a	MS
Mission Seed Solutions A4447NS (2018 check)	5.3 a	MS
Delta Grow 45E23	0.3 c	R
Delta Grow 46E29	1.2 c	R
Delta Grow 46E29	0.2 c	R
Delta Grow 47E19	0.6 c	R
Delta Grow 47E25	0.0 c	R
Delta Grow 48E10	0.2 c	R
Delta Grow 48E28	0.7 c	R
Delta Grow 48E39	0.7 c	R
Delta Grow 48E49	1.6 bc	R
Delta Grow 49E29	0.8 c	R
Don Mario 48D3E	0.3 c	R
Go Soy 463E19	0.1 c	R
*Go Soy 481E19	0.1 c	R
Go Soy 482E18	0.7 c	R
Local Seed LSX4503GLS	1.1 c	R
Local Seed LSX4602ES	0.8 c	R
Local Seed LSX4701E	0.5 c	R
Petrus Seed 4916 GT	3.3 b	MR
*Terral REV 4990E	0.5 c	R
Univ. of Missouri S14-15138R	0.0 c	R
Univ. of Missouri S14-15146R	0.3 c	R
USG 7480ET	0.7 c	R
LSD (0.05)	1.8	
CV (%)	121.5	
P-value for F-statistic	<0.0001	

¹An asterisk denotes a variety that was supplemented for the purposes of gaining additional information on varieties that may be planted in the Mississippi soybean production system but were not a part of the 2019 MSU OVT program.

²Eight plants per plot were inoculated with 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 eight 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.

Table 87. Response of Maturity Group IV Late Xtend Soybean Cultivars to Stem Canker, 2019.

Cultivar ¹	Stem canker rating ^{2,3}	Cultivar designation ⁴
AgriGold G4990RX (check)	0.0	R
Petrus Seed 4916 GT (2018 check)	2.7	MR
AgriGold G4815RX	0.1	R
AGS GS47X19	1.4	R
*AGS GS48X19	0.1	R
AGS GS49X19	0.1	R
*Armor 49-D66	0.0	R
Armor X47D18	0.0	R
Armor X47D85	0.9	R
Armor X48D25	0.5	R
Armor X49D67	0.0	R
Asgrow AG47X9	0.1	R
Asgrow AG48X9	0.0	R
Asgrow AG49X9	0.0	R
Credenz CZ 4869X	0.3	R
Credenz CZ 4979X	0.2	R
Delta Grow 47X95	0.0	R
Delta Grow 48X05	1.2	R
Delta Grow 48X45	0.5	R
Delta Grow 48X95	0.2	R
Delta Grow 49X15	0.0	R
Don Mario 47X01	0.0	R
Don Mario 49J3X	0.2	R
Dyna-Gro S47XT20	0.7	R
Dyna-Gro S48XT56	0.2	R
Dyna-Gro S49XT39	0.5	R
Dyna-Gro S49XT70	0.0	R
Great Heart Seed GT-4764XS	0.0	R
Great Heart Seed GT-4802X	0.4	R
Great Heart Seed GT-4833XS	0.3	R
Great Heart Seed GT-4979X	0.0	R
LG Seeds C4845RX	0.0	R
LG Seeds LGS4899RX	0.2	R
LG Seeds LGS4931RX	2.2	R
*Local Seed LS4798X	0.0	R
Local Seed LS4889XS	0.5	R
Local Seed LSX4798X	0.0	R
Local Seed LSX4801XS	0.5	R
Local Seed LSX4901X	0.0	R
Mission Seed A4950X (MEX 4908)	0.5	R
MorSoy MS 4846	0.0	R
NK S47-Y9X	0.5	R
NK S49-F5X	0.0	R
Pioneer P48A60X	0.0	R
Progeny Ag P4799RXS	0.0	R
Progeny Ag P4816RX	0.9	R
Progeny Ag P4821RX	0.1	R
Progeny Ag P4851RX	0.3	R
Progeny Ag P4999RX	0.2	R
Terral REV 4927X	0.2	R
Terral REV 4940X	0.0	R
USG 7470XTS	0.0	R
USG 7489XTS	0.2	R
USG 7496XTS	0.2	R
LSD (0.05)	1.4	
CV (%)	327.2	
P-value for F-statistic	0.4803	

¹An asterisk denotes a variety that was supplemented for the purposes of gaining additional information on varieties that may be planted in the Mississippi soybean production system but were not a part of the 2019 MSU OVT program.

²Eight plants per plot were inoculated with 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 eight 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.

Table 88. Response of Maturity Group V Conventional Soybean Cultivars to Stem Canker, 2019.

Cultivar ¹	Stem canker rating ^{2,3}	Cultivar designation ⁴
J77-339 (check)	1.9 bc	R
Univ. of Missouri M05201D Conv	0.5 c	R
Univ. of Missouri S11-17025	0.2 c	R
Univ. of Missouri S11-20242C	4.4 a	MS
Univ. of Missouri S13-1955C	0.9 c	R
Univ. of Missouri S15-10434C	3.5 ab	MR
LSD (0.05)	2.5	
CV (%)	87.7	
P-value for F-statistic	0.0135	

¹An asterisk denotes a variety that was supplemented for the purposes of gaining additional information on varieties that may be planted in the Mississippi soybean production system but were not a part of the 2019 MSU OVT program.

²Eight plants per plot were inoculated with 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 eight 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.

Table 89. Response of Maturity Group V Early Xtend Soybean Cultivars to Stem Canker, 2019.

Cultivar ¹	Stem canker rating ^{2,3}	Cultivar designation ⁴
Go Soy 54G16 (check)	0.5	R
Progeny P5688RX (check)	0.4	R
AgriGold G5000RX	0.0	R
*AGS GS52X19S	0.3	R
Armor 51-D77	1.3	R
Armor 52-D71	0.3	R
Asgrow AG52X9	0.5	R
Asgrow AG53X0	0.3	R
Asgrow AG53X9	0.0	R
Asgrow AG55X7	0.0	R
Credenz CZ 5299X	1.5	R
Delta Grow 52X05	1.6	R
Delta Grow 54X25	1.9	R
Dyna-Gro S52XS39 (SX18652XS)	0.3	R
Dyna-Gro S52XT08	0.2	R
Dyna-Gro S54XT17	0.4	R
Dyna-Gro S56XT99	0.7	R
Great Heart Seed GT-5528X	0.0	R
Local Seed LS5087X	0.0	R
Local Seed LS5386X	0.3	R
Local Seed LS5588X	0.7	R
NK S51-R3XS	0.3	R
NK S53-F7X	0.2	R
Pioneer P54A54X	0.7	R
Pioneer P55A49X	0.7	R
*Pioneer P55A59X	1.0	R
Progeny Ag P5016RXS	0.5	R
Progeny Ag P5170RX	0.9	R
Progeny Ag P5252RX	0.0	R
Progeny Ag P5554RX	0.2	R
Progeny Ag P5688RX	2.7	MR
Terral REV 5659X	0.0	R
LSD (0.05)	1.5	
CV (%)	187.2	
P-value for F-statistic	0.1273	

¹An asterisk denotes a variety that was supplemented for the purposes of gaining additional information on varieties that may be planted in the Mississippi soybean production system but were not a part of the 2019 MSU OVT program.

²Eight plants per plot were inoculated with 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 eight 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.

Table 90. Response of Maturity Group V RoundUp Ready and Enlist Cultivars to Stem Canker, 2019.

Cultivar ¹	Stem canker rating ^{2,3}	Cultivar designation ⁴
Progeny P5688RX (check)	0.5	R
Go Soy 54G16 (check)	0.1	R
Delta Grow 52E22	0.9	R
Delta Grow 5585 RR2/STS	0.4	R
Go Soy 50G17	0.0	R
Go Soy 512E18	0.2	R
*Terral REV 5190E	1.4	R
Univ. of Missouri S14-9017R	0.0	R
Univ. of Missouri S16-3747RY	0.2	R
LSD (0.05)	1.3	
CV (%)	229.2	
P-value for F-statistic	0.4468	

¹An asterisk denotes a variety that was supplemented for the purposes of gaining additional information on varieties that may be planted in the Mississippi soybean production system but were not a part of the 2019 MSU OVT program.

²Eight plants per plot were inoculated with 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 eight 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.