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2016 MISS. SOYBEAN VARIETY TRIAL STEM CANKER RATINGS

All entries in the 2016 Mississippi State University Official Variety Trials (OVT) were evaluated for their reaction to the stem canker fungus by Dr. Tom Allen, Extension Plant Pathologist at the MSU-DREC. Additional varieties that were not entered in the Miss. OVT were also evaluated.

Trials consisted of single rows of each variety planted in 10-foot-long plots that were replicated four times. Within each row, 8 plants were each inoculated with a single toothpick that contained the fungus that causes stem canker. Plants were inoculated approximately 8 weeks after planting. Evaluations of stem canker reaction of each variety were conducted between R6 and R6.5 by assessing the presence and severity of a canker on the stem of each inoculated plant.

Ratings of each variety for stem canker were conducted using a modified 0-9 scale. Data in each stem canker ratings table are the average rating of the inoculated plants of each variety in a single plot averaged across the four replicates. Also included is a designation of each variety's reaction to stem canker, where R=resistant, MR=moderately resistant, MS=moderately susceptible, and S=susceptible. Keep in mind that soybean varieties' reaction to stem canker tend to be more obvious when the environment is conducive for disease development. Therefore, over time and because years will be different in their conduciveness to development of stem canker, it is possible that stem canker designations for a given variety can change across years.

TABLE 1. Response of Maturity Group III soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Dyna-Gro 39RY43 (Check)	4.75 a	MR
Asgrow AG 3735	0.81 cde	R
Asgrow AG 3832	0.84 cde	R
Asgrow AG 3936	2.28 bcd	R
Dyna-Gro 32Y39	0.09 e	R
Mycogen 5N393R2	3.78 ab	MR
Mycogen 5N406R2	1.31 cde	R
Mycogen5N342R2	3.91 ab	MR
NK Brand NK S37-Z8	2.47 bcd	R
NK Brand NK S39-C4	0.44 de	R
NK Brand NK S39-T3	0.78 cde	R
NK Brand NK S55-Q3	0.00 e	R
Pioneer 31T11R	0.59 cde	R
Pioneer 31T77R	2.66 bc	R
Pioneer 32T16R	0.59 cde	R
Pioneer 35T58R	0.56 de	R
Pioneer 36T86R	1.06 cde	R
Pioneer 39T67R	0.69 cde	R
Pioneer 41T33R	0.03 e	R
Pioneer 93Y05	0.00 e	R
Pioneer 93Y84	0.78 cde	R
Pioneer 93Y92	0.50 de	R
Terral® REV 38R10™	0.84 cde	R
Terral® REV 39A35™	0.16 e	R
Terral® REV 39A35™	0.84 cde	R
LSD (0.05)	2.1	-
CV (%)	124.1	-
P-value for F-statistic	<0.0001	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.

TABLE 2. Response of Maturity Group IV conventional soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
J77-339 (Check)	3.47 ab	MR
GoSoy 483.C	2.47 bc	R
GoSoy Irene	0.00 d	R
Univ. of Missouri S12-2418	0.09 d	R
Univ. of Missouri S12-3782	0.94 cd	R
Univ. of Missouri S12-3791	5.53 a	MS
USG Ellis	1.22 cd	R
LSD (0.05)	2.2	-
CV (%)	74.5	-
<i>P</i> -value for F-statistic	0.0004	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.

TABLE 3. Response of Maturity Group IV early soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Dyna-Gro 39RY43 (Check)	4.75 a	MS
AGS GS45R216	0.31 de	R
Asgrow AG4632	0.59 cde	R
Credenz CZ 4181 RY	0.41 de	R
Credenz CZ 4590 RY	1.66 b-e	R
Credenz CZ 4656 RY	2.53 a-e	R
Delta Grow DG 4670RR2	3.00 a-d	MR
Delta Grow DG 4680RR2	0.94 b-e	R
Dyna-Gro 31RY45	0.56 de	R
Dyna-Gro S43RY95	0.47 de	R
Mycogen 5N414R2	1.00 b-e	R
Mycogen 5N424R2	1.69 b-e	R
Mycogen 5N433R2	0.28 e	R
Mycogen 5N452R2	0.88 b-e	R
NK S39-C4	3.34 ab	MR
NK S39-T3	4.97 a	MS
NK S42-P6	0.41 de	R
NK S45-W9	1.19 b-e	R
Pioneer P41T33R	0.34 de	R
Progeny Ag Products P 4211RY	3.28 abc	MR
Progeny Ag Products P 4588RY	1.09 b-e	R
Progeny Ag Products P 4613RYS	0.38 de	R
Terral® REV 45A46™	0.06 e	R
LSD (0.05)	2.7	-
CV (%)	127.6	-
P-value for F-statistic	0.0045	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.

TABLE 4. Response of Maturity Group IV Xtend soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Dyna-Gro 39RY43 (Check)	4.75 a	MS
Armor 46-D08	0.72 d-g	R
Armor47-D17	1.19 b-f	R
Armor48-D24	0.33 fg	R
Armor48-D80	0.72 d-g	R
Armor49-D66	0.44 efg	R
Armor49-D90	0.06 fg	R
ArmorARX4706	0.09 fg	R
ArmorARX4906	0.25 fg	R
Asgrow AG42X6	1.58 b-e	R
Asgrow AG44X6	0.19 fg	R
Asgrow AG45X6	3.59 a	MR
Asgrow AG46X6	0.03 fg	R
Asgrow AG46X7	0.31 fg	R
AsgrowAG47X6	0.03 fg	R
AsgrowAG48X7	0.47 efg	R
AsgrowAG49X6	1.72 bcd	R
Delta GrowDGX 4845RR2	0.00 g	R
Dyna-Gro S45XS66	0.34 fg	R
Dyna-GroS48XT56	0.06 fg	R
Dyna-GroS49XT07	2.28 b	R
Great Heart Seed GT-4430XS	1.53 b-e	R
Great Heart Seed GT-4540XS	0.06 fg	R
Great Heart SeedGT-4860X	0.00 g	R
Progeny Ag Products P 4516RXS	0.69 d-g	R
Progeny Ag Products P 4620RXS	0.22 fg	R
Progeny Ag ProductsP 4799RXS	0.00 g	R
Progeny Ag ProductsP 4816RX	0.00 g	R
Progeny Ag ProductsP 4944RX	0.69 d-g	R
USG7487XTS	0.84 c-g	R
USG7496XTS	0.06 fg	R
USG7497XT	1.91 bc	R
LSD (0.05)	1.2	-
CV (%)	104.6	-
P-value for F-statistic	<0.0001	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.

TABLE 5. Response of Maturity Group IV late soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Dyna-Gro 39RY43 (Check)	5.59 ab	MS
AGS GS47R216	1.06 ghi	R
AGS GS48R216	2.28 d-g	R
AGS GS4915R2	0.72 ghi	R
Armor 47-R70 (AR4705)	0.66 ghi	R
Credenz CZ 4898 RY	4.13 bcd	MR
Credenz CZ 4959 RY	0.03 i	R
Croplan R2C4700S	0.72 ghi	R
Croplan R2C4775	3.09 c-f	MR
Delta Grow DG 4790RR2	0.66 ghi	R
Delta Grow DG 4825RR2/STS	0.25 i	R
Delta Grow DG 4880RR	0.56 ghi	R
Delta Grow DG 4970RR	0.13 i	R
Delta Grow DG 4995RR	2.19 e-h	R
Dixie Bell DB 4787	4.88 abc	MR
Dixie Bell DB 4911	6.34 a	MS
Dixie Bell DB 4965	1.78 f-i	R
Dyna-Gro S48RS53	0.66 ghi	R
Go Soy 4814GTS	0.38 ghi	R
Go Soy 49G16	3.81 b-e	MR
Great Heart Seed GT-476CR2	1.72 f-i	R
Great Heart Seed GT-477CR2	0.00 i	R
Mycogen 5N480R2	0.31 hi	R
Mycogen 5N490R2	0.25 i	R
NK S47-K5	0.28 hi	R
NK S49-B1	0.34 hi	R
Pioneer P47T36R	0.00 i	R
Pioneer P47T89R	0.09 i	R
Progeny Ag Products P 4757RY	0.06 i	R
Progeny Ag Products P 4788RY	1.28 f-i	R
Progeny Ag Products P 4900RY	0.00 i	R
Terral [®] REV 47R34 [™]	0.00 i	R
Terral [®] REV 48A26 [™]	0.72 ghi	R
Terral [®] REV 48A76 [™]	0.06 i	R
Terral [®] REV 49A75 [™]	1.06 ghi	R
Terral [®] REV 49R94 [™]	0.00 i	R
USG 74K95RS	0.22 i	R
LSD (0.05)	1.9	-
CV (%)	109.9	-
P-value for F-statistic	<0.0001	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.

TABLE 6. Response of Maturity Group IV Liberty Link soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Delta Grow DG 4567 (Check)	8.72 a	S
Credenz CZ 4044 LL	3.97 c	MR
Credenz CZ 4105 LL	3.03 cd	MR
Credenz CZ 4222 LL	1.44 cd	R
Credenz CZ 4540 LL	2.97 cd	R
Credenz CZ 4748 LL	0.53 d	R
Credenz CZ 4818 LL	3.84 c	MR
Credenz HBK LL4953	1.47 cd	R
Delta Grow DG 4587LL/STS	2.44 cd	R
Delta Grow DG 4967LL	2.84 cd	R
Delta Grow DG 4977LL/STS	2.06 cd	R
Delta Grow DG 4781LL	2.25 cd	R
Dyna-Gro S49LL34	3.47 cd	MR
GoSoy 4714LL	4.31 bc	MR
GoSoy 4912LL	8.22 a	S
GoSoy 4913LL	7.53 ab	S
Progeny Ag Products P 4247LL	7.72 a	S
Progeny Ag Products P 4814LLS	2.84 cd	R
Progeny Ag Products P 4930LL	2.44 cd	R
Terral [®] REV 49L49 [™]	1.19 cd	R
Terral [®] REV 48L63 [™]	2.22 cd	R
LSD (0.05)	3.2	-
CV (%)	63.9	-
P-value for F-statistic	<0.0001	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.

TABLE 7. Response of Maturity Group V conventional soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
J77-339 (Check)	3.13	MR
GoSoy Leland	4.00	MR
Univ. of Arkansas Osage	6.44	MS
Univ. of Arkansas R09-430	3.94	MR
Univ. of Arkansas R10-230	3.78	MR
Univ. of Arkansas UA 5014C (R05-3239)	2.69	R
Univ. of Arkansas UA 5213C	1.97	R
Univ. of Arkansas UA 5612	3.47	MR
Univ. of Arkansas UA 5814HP (R09-3789)	2.41	R
Univ. of Missouri S11-17025	0.44	R
Univ. of Missouri S11-20214	4.56	MR
Univ. of Missouri S12-4718	2.44	R
USDA-ARS JTN-5110	1.31	R
LSD (0.05)	3.9	-
CV (%)	86.6	-
P-value for F-statistic	0.2715	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.

TABLE 8. Response of Maturity Group V early soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
DG 5128 (Check)	5.56 a	MS
Armor 55-R68	0.50 cd	R
Credenz CZ 5375 RY	0.03 d	R
Croplan R2C5225S	0.56 cd	R
Croplan R2C5265	0.00 d	R
Delta Grow DG 5170RR2/STS	0.06 d	R
Delta Grow DG 5230RR2	0.28 cd	R
Delta Grow DG 5555RR	0.84 cd	R
Delta Grow DG 5580RR2	0.13 d	R
Delta Grow DG 5625RR2	0.22 cd	R
Dyna-Gro S52RY75	1.06 cd	R
Dyna-Gro S56RY84	0.78 cd	R
GoSoy 5214GTS	2.06 bc	R
Mycogen 5N523R2	0.59 cd	R
NK S55-Q3	0.59 cd	R
NK S56-M8	0.00 d	R
Pioneer P52T50R	0.88 cd	R
Pioneer P55T81R	0.84 cd	R
Progeny Ag Products P 5226RYS	0.06 d	R
Progeny Ag Products P 5555RY	0.38 cd	R
Terral [®] REV 51A56 [™]	0.00 d	R
Terral [®] REV 52A94 [™]	3.34 b	MR
Terral [®] REV 56R93 [™]	0.03 d	R
Univ. of Arkansas R10-197RY	0.59 cd	R
Univ. of Arkansas R11-89RY	1.31 cd	R
Univ. of Arkansas UA 5414RR(R04-1268RR)	0.66 cd	R
LSD (0.05)	1.8	-
CV (%)	159.4	-
P-value for F-statistic	<0.0001	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.

TABLE 9. Response of Maturity Group V Xtend soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Delta Grow DG 5128 (Check)	5.56 a	MS
Armor 53-D04	0.09 b	R
Armor ARX5506	0.72 b	R
Asgrow AG53X6	0.84 b	R
Asgrow AG54X6	0.25 b	R
Progeny Ag Products P 5016RXS	0.56 b	R
Progeny Ag Products P 5417RX	0.63 b	R
Progeny Ag Products P 5631RX	0.06 b	R
Progeny Ag ProductsP 5768RX	0.34 b	R
USG 7506XTS	0.22 b	R
USG 7536XT	0.31 b	R
USG 7547XT	0.59 b	R
USG 7557XT	0.03 b	R
USG7576XT	0.00 b	R
LSD (0.05)	1.2	-
CV (%)	113.6	-
P-value for F-statistic	<0.0001	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.

TABLE 10. Response of Maturity Group V late soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
NK 59-V9 (Check)	0.06	R
Dyna-Gro S57RY26	1.91	R
NK S58-Z4	1.06	R
Progeny Ag Products P 5752RY	0.34	R
Univ. of Arkansas R07-6614RR	0.94	R
Terral® REV 57R21™	1.84	R
USG 75B75R	0.66	R
LSD (0.05)	1.8	-
CV (%)	124.2	-
<i>P</i> -value for F-statistic	0.2862	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.

TABLE 11. Response of Maturity Group V Liberty Link soybean cultivars to stem canker, 2016.

Company/Cultivar	Stem canker rating^{1,2}	Cultivar designation³
Delta Grow DG 4567 (Check)	4.00	MR
Credenz CZ 5147 LL	4.44	MR
Credenz CZ 5150 LL	3.38	MR
Credenz CZ 5225 LL	1.06	R
Credenz CZ 5242 LL	3.50	MR
Credenz CZ 5445 LL	3.91	MR
Credenz CZ 5515 LL	0.19	R
Delta Grow DG5067LL	3.25	MR
Dyna-Gro S52LL66	1.84	R
Dyna-Gro S55LS75	2.47	R
Go Soy 5115LL	4.19	MR
Go Soy 5215LL	0.94	R
Go Soy 5515LL	0.75	R
LSD (0.05)	4.2	-
CV (%)	111.6	-
P-value for F-statistic	0.4385	-

¹Stem canker reaction: 8 plants per plot were inoculated with infested toothpicks. Ratings are individual plant reaction using a modified 0-9 scale based on lesion severity and are presented as the average of the eight plants across four replicates. Where a lesion did not appear, a rating of 0 (resistant) was assigned. Ratings were assigned based on the presence of a lesion where a reaction that produced a visible lesion that did not expand up the length of the stem was assigned a 1. Dead plants with lesions that extended up most of the plant's stem 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 is as follows: 1 = Resistant; 3 = Moderately Resistant; 5 = Moderately Susceptible; and 7 = Susceptible.