

Field Performance of Selected Soybean Varieties in a Southern Root-knot Nematode Infested Field

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The southern root-knot nematode (*Meloidogyne incognita*) is the most important yield-limiting plant-pathogenic nematode that affects soybean production in the mid-South. It is found in nearly all soybean producing counties in Arkansas and can cause significant (>50%) yield loss when the wrong soybean variety (i.e. susceptible) is planted in field with a high population density of root-knot nematodes. During the 2017 season the Lonoke Plant Pathology Program selected 48 soybean varieties that were grouped based on herbicide technologies and maturity groups to be evaluated in a root-knot nematode infested field. The final nematode population densities (Pf) ranged from 800-1300 individuals per 100 cm³ soil in each test. Percentage of root system galled was estimated for at least 10 root systems from each replication per test at R4-R5 growth stage. Soybean varieties in each category with the lowest gall rating contributed to the greatest yield (Table 1-4). Soybean varieties with <10% of root of system galled are considered resistant compared to those with the greatest galling percentage. For example, 'Go Soy 49G16' is resistant compared to 'Asgrow 4632' ($5.4/78.3 = 6.9\%$). This information and that on the [variety testing website](#) can be used to make decisions about variety selection for the 2018 cropping season.

Table 1. Field performance of 16 Roundup Ready and Xtend MG IV soybean varieties in a southern root-knot nematode infested field (Pf = 810).

Cultivar	Percent root system galled	Yield (bu/A)
Go Soy 49G16	5.4 c ^a	79.8 a
Pioneer P46T59R	7.0 c	76.9 a
Delta Grow DG 4940	4.6 c	74.3 ab
Delta Grow DG 4995	2.8 c	73.9 ab
Terral 48A46 (2016 seed)	2.0 c	65.1 abc
NK XD2R4373	51.1 ab	59.5 bcd
Progeny P4444RXS	25.2 bc	57.6 cd
Armor ARX4507	62.6 a	54.2 cde
Pioneer P47T36R	56.4 a	49.7 c-f
Asgrow 47X6	64.5 a	42.8 d-g
Asgrow 46X7	76.6 a	42.8 d-g
Asgrow 4632	78.3 a	40.1 efg
Dyna Grow S49X76	51.0 ab	36.4 fg
Armor 44-D40	70.9 a	34.3 fg
Delta Grow DG 4970	77.3 a	32.6 g
Delta Grow DG 4825	59.6 a	30.7 g

^a Data are averages of four replications and averages followed by a different letter within each column are significantly different at $\alpha = 0.5$ according to Tukey's HSD.

Table 2. Field performance of 16 Roundup Ready and Xtend MG V soybean varieties in a southern root- knot nematode infested field (Pf =1,178).

Cultivar	Percent root system galled	Yield (bu/A)
Terral REV 56A58	1.0 de ^a	78.1 a
Progeny P5376 RX	2.5 cd	77.2 a
NK S53-C5	24.2 b	76.8 a
Go Soy 5214GTS	0.6 de	76.3 ab
Asgrow 53X6	0.9 de	76.1 ab
Ag Venture 52M7RSTS	0.4 de	73.5 ab
Terral REV 52A98	0.4 de	72.7 ab
Pioneer P53T73SR	0.3 e	70.3 abc
Terral REV 52A94 (2016 seed)	0.5 de	70.1 abc
Pioneer P53T18X	1.4 de	69.2 abc
Pioneer P55T81R	0.8 de	68.9 abc
Pioneer P52T86R	5.5 c	61.3 bcd
Armor 53-D04	38.8 ab	55.3 cd
NK S52Y7X	46.8 ab	48.0 d
Progeny P5016 RXS	72.1 a	31.2 e
Morsoy 50X64 (2016 seed)	51.4 ab	31.1 e

^a Data are averages of four replications and averages followed by a different letter within each column are significantly different at alpha = 0.5 according to Tukey's HSD.

Table 3. Field performance of 12 Liberty Link MG IV soybean varieties in a southern root-knot nematode infested field (Pf =1,320).

Cultivar	Percent root system galled	Yield (bu/A)
Delta Grow DG 4977 STS	2.8 c ^a	65.5 a
CZ 4222LL	19.6 ab	62.1 a
Ag Venture 49H9LLST	5.0 bc	54.3 a
Dyna Gro S49LS65	4.1 bc	51.8 a
Armor 47-L20	50.1 a	47.8 a
CZ 4818LL	72.4 a	47.4 a
Terral 49L88	49.4 a	46.1 a
CZ 3601LL	34.7 a	45.9 a
CZ 4748LL	60.0 a	41.3 a
CZ 4044LL	22.2 ab	39.3 a
Delta Grow DG 4990	84.7 a	39.1 a
CZ 4540LL	30.7 a	38.9 a

^a Data are averages of four replications and averages followed by a different letter within each column are significantly different at alpha = 0.5 according to Tukey's HSD.

Table 4. Field performance of 4 Liberty Link MG V soybean varieties in a southern root-knot nematode infested field (Pf = 1,275).

Cultivar	Percent root system galled	Yield (bu/A)
Terral 54008L (EX54L) (Now Terral REV 54L18)	9.2 c ^a	77.3 a
Crendenz CZ 5147LL	47.1 b	57.6 b
Crendenz CZ 5242LL	92.0 a	33.7 c
Terral 48L63	91.0 a	12.5 d

^a Data are averages of four replications and averages followed by a different letter within each column are significantly different at alpha = 0.5 according to Tukey's HSD.

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