W 369

SOYBEAN DISEASE AND NEMATODE RATINGS AND YIELDS

2015 Variety and Fungicide Trial Summaries

VARIETY REACTIONS TO: FROGEYE LEAF SPOT (FLS), STEM CANKER, SUDDEN DEATH SYNDROME (SDS), AND SOYBEAN CYST NEMATODE (SCN)

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Jackson, Tennessee

Sudden Death Syndrome
Fusarium virguliforme

Southern Stem Canker
Diaporthe phaseolorum

Frogeye Leaf Spot
Cercospora sojina

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INSTITUTE OF AGRICULTURE
THE UNIVERSITY OF TENNESSEE

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Soybean Disease Loss Estimate for Tennessee — 2015

Disease	Yield Suppression (%) 2015
Anthracnose (*Colletotrichum truncatum*)	0.50
Bacterial diseases (*Pseduomonas syringae, P. syringae* pv. *tabaci, Xanthomonas campestris*)	0.00
Cercospora leaf blight (*Cercospora kikuchii*)	0.05
Charcoal rot (*Macrophomina phaseolina*)	1.00
Diaporthe/Phomopsis complex (seed rot caused by *Diaporthe* & *Phomopsis*)	1.00
Downy mildew (*Peronospora manshurica*)	0.00
Frogeye leaf spot (*Cercospora sojina*)	2.60
Fusarium wilt and root rot	0.01
Phytophthora root and stem rot (*Phytophthora sojae*)	0.00
Pod and stem blight (*Diaporthe phaseolorum var. sojae*)	0.00
Purple seed stain (*Cercospora kikuchii*)	0.05
Reniform nematode	0.01
Root-knot nematode	0.00
Soybean cyst nematode	2.50
Seedling diseases due to *Fusarium, Pythium, Phomopsis, Rhizoctonia*	1.50
Septoria brown spot (*Septoria glycines*)	1.25
Southern blight (*Sclerotium rolfsii*)	0.00
Soybean rust (*Phakopsora pachyrhizi*)	0.00
Southern Stem Canker (*Diaporthe phaseolorum var. meridionalis*)	0.25
Sudden death syndrome (*Fusarium virguliforme*)	0.50
Total % yield suppression from diseases	11.17
Total TN soybean production (bushels)*	79,120,000
Total bushels lost in TN to disease	8,837,704

Methods used to obtain information: Field and research observations, input from growers, county agents and consultants

*These are estimates by the Tennessee Agricultural Statistics Service.

2015 Soybean Disease Report

Heather M. Kelly, Assistant Professor

Title: Evaluation of Soybean Cultivars and Fungicide Application for Control of Frogeye Leaf Spot and Other Diseases

Personnel:

Heather M. Young Kelly, Assistant Professor, Field Crops Plant Pathologist
Jamie Jordan, Research Associate II
Wesley Crowder, Research Technician III
Ryan Blair, Extension Area Grain & Cotton Specialist
Angela McClure, Associate Professor, Soybean and Corn Agronomist
Blake Brown, Center Director – AgResearch and Education Center at Milan (RECM)
Bob Hayes, Center Director – West Tennessee AgResearch and Education Center at Jackson (WTREC)

Introduction: Each year, commercial seed companies enter varieties in the UT county standardized variety yield trials, and a subset of those varieties are tested in the disease and fungicide trials. Soybean producers are provided an updated list of soybean varieties and fungicide efficacy ratings, including disease ratings of the most damaging diseases. This information has been a tremendous aid to producers in reducing disease and protecting yields by selecting disease-resistant varieties, varieties that respond to foliar fungicides, and using a fungicide that has the best efficacy to manage soybean diseases. Producers can obtain UT results either as a hard copy or online at utcrops.com.

Objectives: Evaluate the effect of natural infections of *Cercospora sojina* (**Frogeye Leaf Spot – FLS**), *Fusarium virguliforme* (**Sudden Death Syndrome – SDS**), *Diaporthe phaseolorum* var. *merdionalis* (**Southern Stem Canker**), and other diseases observed on available commercial soybean cultivars and the efficiency of commercial fungicide application on managing disease and protecting yield.

Procedures: *Planting and Plot Information* – All plots were planted in no-till fields with a four-row cone planter. Plots were randomized and replicated (Roundup Ready varieties were replicated four times, while Liberty Link varieties were replicated three times). See below for details about each of the three locations planted in 2015.

AgResearch and Education Center at Milan (RECM) – High Disease Pressure Location

On June 5, 2015, a total of 76 varieties (Liberty Link Maturity Group (MG) IV Late, Roundup Ready MG III, MG IV Early, MG IV Late, and MG V Early) were planted in 4-row plots. Row spacing was 30", plot length was 25', and target population was 8 seeds per ft. Irrigation was provided as needed with a center pivot system. Each 4-row plot was split, and 2 rows were sprayed at R3 growth stage (beginning pod) with Quadris Top SB at 8 oz/a tank mixed with 0.25% non-ionic surfactant. Yields were harvested from 2 non-treated rows and 2 treated rows. All yields were adjusted to 13% moisture. The location was classified as severe disease pressure due to the location disease history, continuous no-till management, and continuous planting of the surrounding fields to a highly susceptible FLS variety over the past 10 years.

On-farm location in east Madison County (JAX) in Jackson – Moderate Disease Pressure Location

On June 11, 2015, a total of 96 varieties (Liberty Link Maturity Group (MG) IV Late, Roundup Ready MG III, MG IV Early, MG IV Late, and MG V Early) were planted in 4-row plots. Row spacing was 30", plot length was 25', and target population was 8 seeds per ft. This location was not irrigated. Each 4-row plot was split, and 2 rows were sprayed at R3 growth stage (beginning pod) with Quadris Top SB at 8 oz/a tank mixed with 0.25% non-ionic surfactant. Yields were harvested from 2 non-treated rows and 2 treated rows. All yields were adjusted to 13% moisture. Due to the disease history and level of disease development in 2015 this location was labeled as moderate disease pressure.

West Tennessee AgResearch and Education Center (WTREC) at Jackson – Low Disease Pressure Location

On June 17, 2015, a total of 50 varieties were planted after wheat (IV Early and IV Late) in 4-row plots. Row spacing was 30", plot length was 25', and target population was 8 seeds per ft. This location was not irrigated. Each 4-row plot was split, and 2 rows were sprayed at R3 growth stage (beginning pod) with Quadris Top SB at 8 oz/a tank mixed with 0.25% non-ionic surfactant. Yields were harvested from 2 non-treated rows and 2 treated rows. All yields were adjusted to 13% moisture. Due to the disease history and rotation history of the field (corn-wheat-soybean, occasional cotton), it was labeled as low disease pressure location.

Disease Ratings – Frogeye leaf spot (FLS) was rated as percent leaf area affected (0 to 100%) and ratings were converted, based on location (see individual table footnotes), to either LOW, MOD, or HIGH indicating the amount of disease and cultivar resistance (i.e., LOW rating indicates some level of disease resistance). Other diseases were noted at the time of the FLS ratings. Disease was rated between growth stages R5 -R6 (beginning seed to full pod).

Growing Season: The 2015 growing season was characterized by frequent and sufficient precipitation during planting and emergence with planting dates similar to the five-year average, although persistent rains early in the season and deer damage in original planting dates delayed planting at the REC locations. Overall, the 2015 season provided good growing conditions for soybeans with yields on par with the five-year average at 46 bu/a. Precipitation and warm temperatures promoted frogeye leaf spot (FLS) development and in some locations low levels of sudden death syndrome (SDS) and southern stem canker (SC). Both SDS and SC can affect yield; their presence at some locations may explain why a foliar fungicide failed to significantly increase yields although the application reduced incidence and severity of FLS and other foliar diseases.

Interpretation of Data: Tables on the following pages have been prepared by maturity group and herbicide technology. The county standardized yield summary along with the disease and fungicide treatment results are displayed on each page. Varieties are listed in order of the overall average yield across the UT county standardized yield trials with the highest-yielding variety being listed first. All yields presented have been adjusted to 13% moisture. The data under "Summary from Small Plot Research" are grouped by location with data from the AgResearch and Education Center at Milan (RECM), on-farm location in Jackson (JAX), and West Tennessee AgResearch and Education Center (WTREC) listed from left to right, respectively. Within each location, "treated" and "non-treated" yields (treated at R3 with Quadris TOP SB), "Frogeye" leaf spot disease ratings, "Other Diseases," and if recorded "lodging" data are provided, from left to right, respectively. Details explaining "Frogeye" leaf spot ratings, "Other Diseases," "Lodging" ratings, and other data collected can be found in the footnotes at the bottom of each table.

2015 STANDARD MG III LATE SEASON (3.5 - 3.9 MATURITY) RR SOYBEAN VARIETY TEST

12 Varieties

Summary from 6 County Tests		
MS	Brand/Variety	AvgYld
		bu/a
A	Terral REV 38R10	66.5
A	Terral REV 39A35	65.8
A	Beck's 393R4	65.7
A	Asgrow AG3832 GENRR2Y	65.6
AB	Armor AR3905 RR2	65.2
AB	Asgrow AG3931 GENRR2Y	65.2
AB	Croplan R2C 3984	64.5
AB	Mycogen 5N393R2 RR2 g	63.8
AB	Armor 37-R33 RR2	62.2
AB	USG 73P93R	61.8
AB	Warren Seed 3838 R2Y lt	61.3
B	Warren Seed 3780 R2Y lt	59.5
	Average (bu/a)	**63.9**

Summary from Small Plot Research						
RECM - YLD		Frogeye	Other Diseases	JAX - YLD		Frogeye
*Treated	Non-treated	RECM	RECM	*Treated	Non-treated	JAX
-	-	-	-	47.2	47.1	LOW
57.0	48.8	LOW		50.9	49.4	MOD
53.4	50.9	LOW		51.3	48.7	LOW
55.8	52.4	MOD	TS, SC	51.3	48.8	MOD
-	-	-	-	51.5	48.0	MOD
-	-	-	-	43.2	36.6	HIGH
54.7	51.3	LOW	SC, CLB	48.6	47.6	LOW
44.0	40.5	LOW	SC	47.3	46.0	LOW
54.5	49.0	HIGH		43.7	41.0	MOD
47.8	45.6	MOD	SC, CLB	46.2	43.0	MOD
-	-	-	-	50.1	45.1	HIGH
57.8	45.2	HIGH	SC	50.6	41.7	HIGH
53.1	**48.0**			**48.5**	**45.3**	

YLD= Avg. Yield @ 13% moisture (county tests) 13.5% moisture (RECM and JAX tests)
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
County locations include: Dyer, Franklin, Gibson, Henry, Lake and Madison.

*Treated plots sprayed with Quadris TOP @ 8 oz./Acre + 1% Induce @ R3 growth stage. RECM varieties planted June 5, JAX planted June 11
Disease ratings (non-treated plots) for Frogeye at RECM are LOW (≤4% disease), MOD (5-15%), HIGH (≥16%); at JAX are LOW (≤4%), MOD (5-29%), HIGH (≥30%)
Other diseases noted include: SC=Stem Canker, TS=Target Spot, CLB=Cercospora Leaf Blight, ' - ' indicate variety was not tested at that location

Disease ratings & yield data compiled by Dr. Heather Kelly and Jamie Jordan from replicated plots at the AgResearch and Education Center at Milan (RECM, which is irrigated and had severe disease pressure), and on-farm location in Jackson (JAX, which is dry land and had moderate disease pressure). County data provided by Ryan Blair, Ext. Area Specialist, and the Extension agents.

2015 STANDARD MG IV EARLY SEASON (4.0 - 4.5 MATURITY)
RR SOYBEAN VARIETY TEST

23 Varieties

Summary from 12 County Tests		
MS	Brand/Variety	AvgYld
		bu/a
A	*Mycogen 5N452R2	67.8
AB	***Mycogen 5N451R2	67.2
AB	**Dyna-Gro 31RY45 RR2Y	66.7
ABC	Dyna-Gro S43RY95 RR2Y	66.3
ABCD	Mycogen 5N433R2	65.7
ABCDE	Warren Seed 43-003 R2Y	65.5
ABCDEF	Croplan R2C 4000	64.8
ABCDEFG	***Armor 44-R08 RR2	64.6
ABCDEFG	Asgrow AG4135 GENRR2Y/SR	64.4
ABCDEFG	Warren Seed 4340 R2Y	64.4
ABCDEFG	LG Seeds C4544R2	64.3
ABCDEFG	Terral REV 44A14	64.3
BCDEFG	Beck's 433R2	63.9
BCDEFG	Hornbeck CZ4590 RY	63.6
CDEFG	Beck's 418NR	62.8
DEFG	Armor AR4305 RR2	62.4
DEFG	Hornbeck CZ4181 RY	62.2
DEFG	Steyer 4303R2	62.1
EFG	Progeny P4214 RR2Y	62.0
FG	Progeny P4211 RR2Y	61.7
FG	Steyer 4503R2	61.7
FG	USG 74A33R	61.5
G	USG 74F24RS	61.0
	Average (bu/a)	**64.0**

Summary from Small Plot Research														
RECM - YLD		Frogeye	Other	Lodging	JAX - YLD		Frogeye	Other	Lodging	WTREC - YLD		Frogeye	Other
*Treated	Non-treated	RECM	Diseases	RECM	*Treated	Non-treated	JAX	Diseaes	JAX	*Treated	Non-treated	WTREC	Diseaes
60.0	56.7	LOW		2	57.4	57.1	LOW		2	54.9	54.7	LOW	SDS
-	-	-	-	-	57.8	52.8	LOW	SC	0	56.7	47.8	LOW	SDS
-	-	-	-	-	60.0	55.0	LOW	SC	2	50.1	53.8	LOW	SDS
58.4	52.5	MOD		3	51.3	47.6	MOD		1	54.1	48.0	MOD	
59.8	52.7	MOD		3	55.2	51.6	MOD		2	48.8	47.8	MOD	SDS
59.2	56.7	LOW	SC, TS	0	51.0	50.2	LOW	SC, TS	0	52.3	50.4	LOW	SDS
62.5	54.6	HIGH		1	56.1	50.6	HIGH		2	52.5	47.3	HIGH	SDS
49.4	48.5	MOD	SC, CLB	2	51.9	48.3	MOD	SC	0	51.4	49.3	MOD	TS
56.4	49.4	MOD	TS, BS	1	50.3	50.2	MOD		1	57.6	55.1	MOD	
52.4	47.6	MOD	SC, CLB	0	50.3	47.3	MOD	SC, CLB	0	60.2	56.1	MOD	
58.7	52.4	LOW	SC, TS	1	53.2	50.7	LOW	SC, TS	0	54.2	51.3	LOW	TS
55.4	52.1	LOW		0	48.4	47.5	LOW	SC, CLB	0	55.7	53.2	LOW	SDS
55.4	49.4	LOW	SC, CLB	1	48.0	46.7	LOW	SC, CLB	0	53.4	49.9	LOW	TS
58.8	51.4	MOD		1	48.6	45.3	MOD		0	51.4	45.8	MOD	
-	-	-	-	-	49.0	44.2	HIGH		1	48.1	46.4	MOD	SDS
-	-	-	-	-	50.3	43.6	HIGH		0	49.4	46.9	MOD	
61.5	53.7	MOD		3	48.8	47.2	MOD		2	54.2	52.9	MOD	
59.2	50.2	MOD	SC, TS	2	50.3	45.9	MOD		3	54.7	49.7	MOD	
58.7	47.7	HIGH		3	47.9	42.4	HIGH		0	52.7	47.0	HIGH	SDS
-	-	-	-	-	52.9	49.4	MOD	SC, CLB	0	56.5	49.5	MOD	TS
56.8	52.1	MOD		1	48.1	44.0	MOD		0	45.8	41.2	MOD	SDS,
56.3	47.9	MOD		0	50.5	45.3	HIGH		0	53.6	47.4	MOD	
57.8	51.7	MOD	SC, CLB	1	47.1	43.8	MOD		2	50.8	47.1	MOD	
57.6	**51.5**				**51.5**	**48.1**				**53.0**	**49.5**		

YLD= Avg. Yield @ 13% moisture (county tests) 13.5% moisture (RECM, WTREC and JAX tests)
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
Varieties denoted with an asterisks (*) or (**) etc. were in the top performing group for consecutive years.
County locations include: Cannon, Crockett, Dyer, Franklin, Gibson, Giles, Henry, Madison, Obion, Perry, Weakley, MCCR (KY)

*Treated plots sprayed with Quadris TOP @ 8 oz./Acre + 1% Induce @ R2-R3 growth stage. RECM varieties planted June 5, JAX planted June 11, and WTREC planted June 17 after wheat
Disease ratings (non-treated plots) for Frogeye at RECM and JAX are LOW (≤4% disease), MOD (5-19%), HIGH (≥20%) and at WTREC are LOW (≤5%), MOD (6-10), HIGH (≥10%). Other diseases noted: SC=Stem Canker, TS=Target Spot, CLB=Cercospora Leaf Blight ' - ' indicate variety was not tested at that location
Lodging was recorded for a plot if >50% of the plants were leaning at angle ≥ 45° and is reported on a 0 to 4 scale based on the 4 replicate plots for each variety (e.g. 4=4 of 4 plots, 3=3 of 4 plots, etc.)
Disease ratings & yield data compiled by Dr. Heather Kelly and Jamie Jordan from replicated plots at the AgResearch and Education Center at Milan (RECM, which is irrigated and had severe disease pressure), the West Tennessee AgResearch and Education Center (WTREC, which is dry land and had low disease pressure due to regular crop rotation), and on-farm location in Jackson (JAX, which is dry land and had moderate disease pressure). County data provided by Ryan Blair, Ext. Area Specialist, and the Extension agents.

2015 STANDARD GROUP IV LATE SEASON (4.6 - 4.9 MATURITY) RR SOYBEAN VARIETY TEST

27 Varieties

Summary from 19 County Tests		
MS	Brand/Variety	Yld
		bu/a
A	**Warren Seed 4633 R2Y	59.3
AB	Terral REV 47R34	58.3
ABC	**Armor 47-R13 RR2/STS	57.6
ABCD	**Asgrow AG4632 GENRR2Y/SR	57.3
ABCD	*LG Seeds C4780 R2	57.3
ABCD	Asgrow AG4835 GENRR2Y/SR	56.9
ABCD	Progeny P4613 RY/STS	56.8
ABCDE	Dyna-Gro S48RS53 RR2Y/STS	56.6
ABCDE	Armor 49-R56 RR2	56.5
ABCDE	Terral REV 49R94	56.5
ABCDE	Beck's 493R4	56.4
ABCDEF	Beck's 465R4	56.2
BCDEF	Progeny P4850 RY/STS	56.1
BCDEFG	Mycogen 5N479R2 RR2/STS	55.6
CDEFGH	Steyer 4703 R2	55.1
DEFGH	LG Seeds C4994 R2	54.5
DEFGH	Dyna-Gro S49RY25 RR2Y	54.4
DEFGH	Warren Seed 4850 R2Y/STS	54.4
EFGHI	Croplan R2C 4914S	53.6
FGHI	Steyer 4602 R2	53.3
FGHI	Asgrow AG4934 GENRR2Y/SR	53.2
FGHI	USG 74D95RS	53.2
GHI	Hornbeck HBK RY4721	52.8
HI	Croplan R2C 4873S	52.6
I	USG 74A74 RS	51.3
I	Hornbeck CZ 4959 RY	51.1
	Armor 4744	-
	Average (bu/a)	**55.3**

Summary from Small Plot Research														
RECM - YLD		Frogeye	Other	Lodging	JAX - YLD		Frogeye	Other	Lodging	WTREC - YLD		Frogeye	Other
*Treated	Non-treated	RECM	Diseases	RECM	*Treated	Non-treated	JAX	Diseases	JAX	*Treated	Non-treated	WTREC	Diseases
60.8	55.4	LOW	SC, TS	1	54.3	50.5	LOW	SC	0	56.7	55.7	LOW	SDS
61.0	54.5	LOW		1	49.3	48.5	LOW		2	55.7	53.3	LOW	
60.9	54.5	LOW	SC, TS	0	55.7	49.3	MOD	SC	0	61.3	54.6	LOW	
59.0	51.8	LOW	SC, TS	0	54.5	52.5	LOW	SC	1	56.3	50.9	LOW	SDS
-	-	-	-	-	49.7	44.4	LOW	SC	1	52.1	51.2	LOW	
62.3	55.5	LOW	SC, TS	0	55.7	46.8	MOD	SC	0	57.9	53.8	LOW	
57.8	49.3	MOD		2	52.0	46.9	MOD		0	59.9	53.7	MOD	
-	-	-	-	-	53.0	48.1	MOD	SC, TS	0	59.9	54.7	MOD	SDS
59.4	52.0	MOD		0	50.7	47.6	MOD		0	53.9	47.5	MOD	
57.3	52.3	LOW		3	48.3	45.6	LOW		1	53.3	51.7	LOW	SDS
57.5	51.4	LOW		2	50.4	46.1	LOW		1	54.5	53.0	LOW	SDS
55.3	49.1	LOW		0	47.4	45.0	LOW		0	54.0	51.7	LOW	
-	-	-	-	-	51.1	46.0	MOD	SC, CLB	0	56.3	53.8	LOW	SDS
58.0	49.4	LOW	SC, TS, CLB	1	48.2	45.9	MOD	SC, CLB	0	59.8	52.8	LOW	SDS
61.8	53.0	MOD		0	47.7	41.9	HIGH		0	53.9	47.9	MOD	SDS
56.5	52.3	LOW	SC, TS	0	50.1	47.2	LOW	SC	0	51.4	51.9	LOW	
59.6	52.1	MOD	SC, TS	0	47.0	44.0	MOD	SC	0	58.2	48.9	LOW	
-	-	-	-	-	48.4	44.6	MOD	SC, CLB	0	58.4	57.3	LOW	
59.6	47.0	HIGH		1	47.7	39.0	HIGH		0	51.4	46.7	HIGH	SDS
55.7	45.3	MOD	CLB	1	49.2	42.2	HIGH	CLB	0	54.2	47.1	HIGH	CLB
62.3	53.1	MOD		0	48.5	40.3	HIGH		0	49.8	41.9	HIGH	SDS
57.8	48.2	HIGH		1	49.2	40.2	HIGH		0	52.6	45.6	HIGH	SDS
57.2	53.6	LOW	SC, TS	2	53.6	48.8	LOW	TS	1	55.7	55.5	LOW	
56.2	48.1	HIGH		2	50.3	43.9	HIGH		0	53.0	49.1	HIGH	
62.5	50.5	HIGH		1	47.9	41.9	HIGH		0	53.8	45.7	HIGH	SDS
55.4	49.5	MOD		0	50.4	45.0	MOD		0	56.6	53.4	MOD	
-	-	-	-	-	42.6	34.5	HIGH		0	52.5	40.7	HIGH	
58.8	**51.3**				**50.1**	**45.1**				**55.3**	**50.7**		

YLD= Avg. Yield @ 13% moisture (county tests) 13.5% moisture (RECM, WTREC and JAX tests)
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
Varieties denoted with an asterisks (*) or (**) etc. were in the top performing group for consecutive years.
County locations include: Benton, Carroll, Decatur, Dyer, Fayette, Franklin, Gibson, Giles, Hardeman, Haywood, Heny Bar., Henry Wil., Madison, Marion, Obion, Tipton, Weakley, Ballard (KY), Calloway (KY)

*Treated plots sprayed with Quadris TOP @ 8 oz./Acre + 1% Induce @ R2-R3 growth stage. RECM varieties planted June 5, JAX planted June 11, and WTREC planted June 17 after wheat
Disease ratings (non-treated plots) for Frogeye at RECM and JAX are LOW (0-4% disease), MOD (3-16% disease), HIGH (>16%); at WTREC are LOW (<4%), MOD (4-10%), HIGH (≥10%). Other diseases noted: SC=Stem Canker, TS=Target Spot, CLB=Cercospora Leaf Blight. ' - ' indicate variety was not tested at that location
Lodging was recorded for a plot if >50% of the plants were leaning at angle ≥ 45° and is reported on a 0 to 4 scale based on the 4 replicate plots for each variety (e.g. 4=4 of 4 plots, 3=3 of 4 plots, etc.)
Disease ratings & yield data compiled by Dr. Heather Kelly and Jamie Jordan from replicated plots at the AgResearch and Education Center at Milan (RECM, which is irrigated and had severe disease pressure), the West Tennessee AgResearch and Education Center (WTREC, which is dry land and had low disease pressure due to regular crop rotation), and on-farm location in Jackson (JAX, which is dry land and had moderate disease pressure). County data provided by Ryan Blair, Ext. Area Specialist, and the Extension agents.

LIBERTY LINK SOYBEAN VARIETY TEST

19 Varieties

Summary from 6 County Tests		
MS	**Brand/Variety/Maturity**	**Yld**
		bu/a
A	Hornbeck CZ4748LL	61.3
AB	*Warren Seed Micah 4400LL	57.8
ABC	*Armor 501L	56.7
ABC	Warren Seed Micah 4810LL	56.7
ABC	Armor 476L	56.5
ABC	Beck's 522L4	56.5
ABC	Warren Seed Micah 4910LL	56.5
ABC	Hornbeck HBK LL4953	56.3
BCD	Dyna-Gro S46LL05	55.7
BCD	Hornbeck 4950LL	54.7
BCD	Dyna-Gro S49LL34	54.5
BCD	Progeny P4814 LL/STS	53.8
BCD	USG 74G99L	53.8
BCD	Hornbeck HBK LL4653	53.5
BCD	Warren Seed Micah 4800LL	53.5
BCD	Terral REV 51L25	52.3
CD	Terral REV 49L29	52.0
CD	Beck's 449L4	51.8
D	Progeny P4930 LL	50.5
	Average (bu/a)	**55.0**

Summary from Small Plot Research								
RECM - YLD		**Frogeye**	**Other**	**Lodging**	**JAX - YLD**		**Frogeye**	**Other**
*Treated	Non-treated	RECM	**Diseases**	WTREC	*Treated	Non-treated	JAX	**Diseases**
51.8	44.3	LOW	BS, TS	2	57.0	52.2	LOW	SC, TS, SDS
52.7	46.5	LOW	BS	0	51.0	47.9	LOW	
52.5	46.2	LOW		1	51.3	48.0	LOW	SDS
46.5	47.3	LOW		0	46.7	42.0	LOW	SDS
51.7	44.9	LOW	BS	1	53.4	48.3	LOW	SDS
53.8	46.6	LOW		0	55.9	52.4	LOW	SDS
48.1	42.1	LOW	CLB	2	47.6	44.2	LOW	CLB
53.6	47.7	LOW		0	51.4	47.7	LOW	SDS
55.2	46.8	LOW	CLB	1	45.0	38.2	MOD	SC, CLB
47.9	45.5	LOW	SDS	1	48.8	45.4	LOW	SDS
52.8	47.9	LOW		0	-	-	-	-
52.2	48.1	LOW		1	45.2	46.4	LOW	
44.0	38.6	LOW	SDS, CLB	1	45.2	42.2	LOW	SDS, CLB
56.2	46.6	LOW	BS, CLB	0	48.3	45.6	MOD	SC, CLB
48.1	42.4	LOW	SDS, CLB	0	45.0	42.5	LOW	SDS
50.7	42.8	LOW	CLB	3	50.0	46.0	LOW	CLB
45.4	45.3	LOW	CLB	0	46.2	41.5	LOW	SDS, CLB
57.3	50.1	LOW	BS	3	50.2	46.4	MOD	
-	-	-	-	-	48.5	46.7	LOW	SDS
51.1	**45.5**				**49.3**	**45.8**		

YLD= Avg. Yield @ 13% moisture (county tests) 13.5% moisture (REC tests)
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
Varieties denoted with an asterisks (*) or (**) etc. were in the top performing group for consecutive years.
County locations include: Dyer, Gibson, Lake, Madison, Obion, Fulton (KY)

*Treated plots sprayed with Quadris TOP @ 8 oz./Acre + 1% Induce @ R2-R3 growth stage. RECM varieties planted June 5, JAX planted June 11
Disease ratings (non-treated plots) for Frogeye are LOW (0% disease), MOD (≤10% disease), HIGH (>10%)
Other diseases noted: SC=Stem Canker, BS=Brown Spot, CLB=Cercospora Leaf Blight, SDS=Sudden Death Syndrome, ' - ' indicate variety was not tested at that location
Lodging was recorded for a plot if >50% of the plants were leaning at angle ≥ 45° and is reported on a 0 to 4 scale based on the 4 replicate plots for each variety (e.g. 4=4 of 4 plots, 3=3 of 4 plots, etc.)
Disease ratings & yield data compiled by Dr. Heather Kelly and Jamie Jordan from replicated plots at the AgResearch and Education Center at Milan (RECM, which is irrigated and had severe disease pressure), the West Tennessee AgResearch and Education Center (WTREC, which is dry land and had low disease pressure due to regular crop rotation), and on-farm location in Jackson (JAX, which is dry land and had moderate disease pressure). County data provided by Ryan Blair, Ext. Area Specialist, and the Extension agents.

2015 STANDARD MG V EARLY SEASON (5.0 - 5.5 MATURITY)
RR SOYBEAN VARIETY TEST

15 Varieties

Summary from 7 County Tests		
MS	**Brand/Variety**	**Yld**
		bu/a
A	Dyna-Gro S52RY75 RR2Y	59.7
AB	Progeny P5213 RR2Y	59.0
ABC	Armor 50-R21 RR2	58.1
ABC	Terral REV 55R53	56.9
ABC	Steyer 5002 R2	56.7
ABC	Dyna-Gro 32RY55 RR2Y	56.5
ABC	Croplan R2C 5225S	56.3
ABC	Asgrow AG5335 GENRR2Y/SR	56.1
ABC	Terral REV 52A94	56.1
ABC	Asgrow AG5233 GENRR2Y/SR	55.9
ABC	Armor AR5205 RR2	55.6
ABC	*USG 75J23R	55.0
BC	Mycogen 5N501R2 RR2	54.7
C	Hornbeck RY 5221 RR2Y	54.1
C	Beck's 511R4	53.7
	Average (bu/a)	**56.3**

Summary from Small Plot Research									
RECM - YLD		Frogeye	Other Diseases	Lodging	JAX - YLD		Frogeye	Other Diseases	Lodging
*Treated	Non-treated	RECM		RECM	*Treated	Non-treated	JAX		JAX
59.9	46.9	LOW	BS	3	53.0	52.3	LOW	SC	1
54.5	50.3	LOW	SC	1	56.0	49.4	MOD	SC, TS, CLB	0
-	-	-	-	-	52.3	48.9	MOD	SC, SDS	0
-	-	-	-	-	46.3	43.7	MOD		2
54.9	49.5	LOW		1	52.1	48.7	MOD	SC, TS	0
-	-	-	-	-	45.4	42.6	LOW	SDS	1
-	-	-	-	-	55.7	45.5	HIGH		0
59.2	51.1	MOD	BS	1	51.2	43.7	HIGH		0
48.7	44.8	LOW	SC, BS	1	40.5	40.7	LOW		4
56.2	47.6	HIGH		2	54.0	44.8	HIGH		0
57.6	46.1	HIGH		3	54.8	45.6	HIGH		0
-	-	-	-	-	48.9	42.2	HIGH	SC	0
56.0	48.2	LOW	SC, TS	0	54.4	47.9	LOW	SC, TS	1
46.0	45.0	LOW	CLB	2	48.1	43.9	LOW	TS, CLB	1
55.7	44.6	HIGH		1	45.7	40.6	HIGH		1
54.9	**47.4**				**50.6**	**45.4**			

YLD= Avg. Yield @ 13% moisture (county tests) 13.5% moisture (REC tests)
MS= Varieties that have any MS letter in common are not statistically different in yield at the 5% level of probability.
Varieties denoted with an asterisks (*) or (**) etc. were in the top performing group for consecutive years.
County locations include: Crockett, Dyer, Franklin, Gibson, Haywood, Madison, Tipton

*Treated plots sprayed with Quadris TOP @ 8 oz./Acre + 1% Induce @ R3 growth stage. RECM varieties planted June 5, JAX planted June 11
Disease ratings (non-treated plots) for Frogeye at RECM are LOW (≤3% disease), MOD (4-9% disease), HIGH (>9%) and at JAX are LOW (≤4% disease), MOD (5-14% disease), HIGH (>14%). Other diseases noted include: SC=Stem Canker, TS=Target Spot, CLB=Cercospora Leaf Blight, ' - ' indicate variety was not tested at that location
Lodging was recorded for a plot if >50% of the plants were leaning at angle ≥ 45° and is reported on a 0 to 4 scale based on the 4 replicate plots for each variety (e.g. 4=4 of 4 plots, 3=3 of 4 plots, etc.)
Disease ratings & yield data compiled by Dr. Heather Kelly and Jamie Jordan from replicated plots at the AgResearch and Education Center at Milan (RECM, which is irrigated and had severe disease pressure), the West Tennessee AgResearch and Education Center (WTREC, which is dry land and had low disease pressure due to regular crop rotation), and on-farm location in Jackson (JAX, which is dry land and had moderate disease pressure). County data provided by Ryan Blair, Ext. Area Specialist, and the Extension agents.

2015 STANDARD SCN VARIETY RESULTS

RR MG III Summary from 6 County Tests

MS	Brand/Variety	AvgYld	HG Type(Race)		
		bu/a	1.2.5.7 (2)	7 (3)	2.5.7 (5)
A	Terral REV 38R10	66.5	HS	S	S
A	Terral REV 39A35	65.8	S	S	S
A	Beck's 393R4	65.7	HS	S	S
A	Asgrow AG3832 GENRR2Y	65.6	HS	S	MS
AB	Armor AR3905 RR2	65.2	R	R	R
AB	Asgrow AG3931 GENRR2Y	65.2	HS	MS	S
AB	Croplan R2C 3984	64.5	HS	S	S
AB	Mycogen 5N393R2 RR2 g	63.8	S	MS	S
AB	Armor 37-R33 RR2	62.2	R	R	R
AB	USG 73P93R	61.8	S	MS	HS
AB	Warren Seed 3838 R2Y lt	61.3	S	S	HS
B	Warren Seed 3780 R2Y lt	59.5	S	MS	HS
	Average (bu/a)	**63.9**			

RR MG V Early Summary from 7 County Tests

MS	Brand/Variety	Yld	HG Type(Race)		
		bu/a	1.2.5.7 (2)	7 (3)	2.5.7 (5)
A	Dyna-Gro S52RY75 RR2Y	59.7	HS	R	MR
AB	Progeny P5213 RR2Y	59.0	MS	S	MS
ABC	Armor 50-R21 RR2	58.1	MR	R	R
ABC	Terral REV 55R53	56.9	S	S	HS
ABC	Steyer 5002 R2	56.7	S	S	S
ABC	Dyna-Gro 32RY55 RR2Y	56.5	S	HS	S
ABC	Croplan R2C 5225S	56.3	S	S	MS
ABC	Asgrow AG5335 GENRR2Y/SR	56.1	MS	MS	S
ABC	Terral REV 52A94	56.1	HS	S	S
ABC	Asgrow AG5233 GENRR2Y/SR	55.9	S	S	S
ABC	Armor AR5205 RR2	55.6	HS	S	S
ABC	*USG 75J23R	55.0	S	S	S
BC	Mycogen 5N501R2 RR2	54.7	HS	S	S
C	Hornbeck RY 5221 RR2Y	54.1	R	R	R
C	Beck's 511R4	53.7	HS	S	MS
	Average (bu/a)	**56.3**			

LL MG IV Late Summary from 6 County Tests

MS	Brand/Variety/Maturity	Yld	HG Type(Race)		
		bu/a	1.2.5.7 (2)	7 (3)	2.5.7 (5)
A	Hornbeck CZ4748LL	61.3	MR	R	R
AB	*Warren Seed Micah 4400LL	57.8	HS	S	MS
ABC	*Armor 501L	56.7	R	R	R
ABC	Warren Seed Micah 4810LL	56.7	S	HS	S
ABC	Armor 476L	56.5	MR	R	R
ABC	Beck's 522L4	56.5	S	S	S
ABC	Warren Seed Micah 4910LL	56.5	HS	HS	MS
ABC	Hornbeck HBK LL4953	56.3	MR	R	R
BCD	Dyna-Gro S46LL05	55.7	S	MS	S
BCD	Hornbeck 4950LL	54.7	MS	R	R
BCD	Dyna-Gro S49LL34	54.5	HS	S	S
BCD	Progeny P4814 LL/STS	53.8	S	S	S
BCD	USG 74G99L	53.8	S	S	S
BCD	Hornbeck HBK LL4653	53.5	MS	R	R
BCD	Warren Seed Micah 4800LL	53.5	HS	HS	S
BCD	Terral REV 51L25	52.3	MS	S	MS
CD	Terral REV 49L29	52.0	S	HS	MS
CD	Beck's 449L4	51.8	S	MR	S
D	Progeny P4930 LL	50.5	S	S	MS
	Average (bu/a)	**55.0**			

RR MG IV Late Summary from 19 County Tests

MS	Brand/Variety	Yld	HG Type(Race)		
		bu/a	1.2.5.7 (2)	7 (3)	2.5.7 (5)
A	**Warren Seed 4633 R2Y	59.3	HS	S	S
AB	Terral REV 47R34	58.3	S	S	S
ABC	**Armor 47-R13 RR2/STS	57.6	R	R	R
ABCD	**Asgrow AG4632 GENRR2Y/SR	57.3	S	S	HS
ABCD	*LG Seeds C4780 R2	57.3	HS	S	S
ABCD	Asgrow AG4835 GENRR2Y/SR	56.9	S	S	HS
ABCD	Progeny P4613 RY/STS	56.8	HS	S	S
ABCDE	Dyna-Gro S48RS53 RR2Y/STS	56.6	S	HS	S
ABCDE	Armor 49-R56 RR2	56.5	R	R	R
ABCDE	Terral REV 49R94	56.5	S	S	S
ABCDE	Beck's 493R4	56.4	S	S	HS
ABCDEF	Beck's 465R4	56.2	HS	S	HS
BCDEF	Progeny P4850 RY/STS	56.1	HS	MS	S
BCDEFG	Mycogen 5N479R2 RR2/STS	55.6	S	S	S
CDEFGH	Steyer 4703 R2	55.1	S	S	S
DEFGH	LG Seeds C4994 R2	54.5	S	S	S
DEFGH	Dyna-Gro S49RY25 RR2Y	54.4	HS	S	S
DEFGH	Warren Seed 4850 R2Y/STS	54.4	S	S	S
EFGHI	Croplan R2C 4914S	53.6	S	MR	S
FGHI	Steyer 4602 R2	53.3	HS	S	MS
FGHI	Asgrow AG4934 GENRR2Y/SR	53.2	S	S	S
FGHI	USG 74D95RS	53.2	S	S	S
GHI	Hornbeck HBK RY4721	52.8	MR	R	R
HI	Croplan R2C 4873S	52.6	S	S	HS
I	USG 74A74 RS	51.3	HS	S	S
I	Hornbeck CZ 4959 RY	51.1	MR	R	R
	Average (bu/a)	**55.3**			

RR MG IV Early Summary from 12 County Tests

MS	Brand/Variety	AvgYld	HG Type(Race)		
		bu/a	1.2.5.7 (2)	7 (3)	2.5.7 (5)
A	*Mycogen 5N452R2	67.8	S	HS	HS
AB	***Mycogen 5N451R2	67.2	HS	HS	S
AB	**Dyna-Gro 31RY45 RR2Y	66.7	HS	S	S
ABC	Dyna-Gro S43RY95 RR2Y	66.3	HS	HS	HS
ABCD	Mycogen 5N433R2	65.7	HS	S	HS
ABCDE	Warren Seed 43-003 R2Y	65.5	S	S	S
ABCDEF	Croplan R2C 4000	64.8	HS	HS	HS
ABCDEFG	***Armor 44-R08 RR2	64.6	R	MR	MS
ABCDEFG	Asgrow AG4135 GENRR2Y/SR	64.4	HS	S	HS
ABCDEFG	Warren Seed 4340 R2Y	64.4	HS	S	MS
ABCDEFG	LG Seeds C4544R2	64.3	HS	S	S
ABCDEFG	Terral REV 44A14	64.3	S	S	S
BCDEFG	Beck's 433R2	63.9	HS	HS	HS
BCDEFG	Hornbeck CZ4590 RY	63.6	MS	R	R
CDEFG	Beck's 418NR	62.8	HS	S	HS
DEFG	Armor AR4305 RR2	62.4	R	MR	R
DEFG	Hornbeck CZ4181 RY	62.2	R	MR	R
DEFG	Steyer 4303R2	62.1	S	S	S
EFG	Progeny P4214 RR2Y	62.0	S	S	S
FG	Progeny P4211 RR2Y	61.7	HS	HS	S
FG	Steyer 4503R2	61.7	S	HS	S
FG	USG 74A33R	61.5	HS	S	S
G	USG 74F24RS	61.0	S	S	S
	Average (bu/a)	**64.0**			

SCN Greenhouse Ratings complied by Barabara Michaud, USDA-ARS, WTREC.

HS = Highly Susceptible, S = Susceptible, MS = Moderately Susceptible, MR = Moderately Resistant, R = Resistant.

Yields and disease ratings of 14 fungicide treatments evaluated in 2015						
Fungicide[a]	FRAC Code[b]	Rate (fl oz/a)	RECM[c]		JAX[d]	
			YLD[e]	Frogeye[f]	YLD	Frogeye
Quadris TOP SB	3+11	8	54.2 a	8.7 fg	66.4 ab	2.1 cde
Aproach Prima	3+11	6.8	52.6 ab	8.3 g	65.4 a-d	4.8 abc
Topguard	3	7	50.8 abc	8.3 gh	64.5 a-d	3.8 b-e
Topsin M WSB	1	20	49.1 a-d	14.3 b-e	60.4 bcd	5.5 a-d
Domark	3	4	48.7 b-e	12 c-g	65 a-d	1.8 de
Fortix	3+11	5	48.5 b-e	5.9 h	61 bcd	3 cde
Stratego YLD + Proline	3+11	4.65+2	48.1 b-e	11.3 d-g	59.3 d	2.8 cde
Topsin XTR	1+3	20	47.9 b-e	15.6 bcd	63 bcd	2 de
Trivapro A+B	3+7+11	10.5(A)+4(B)	47.5 b-e	12.8 c-f	59.8 cd	10 a
Priaxor D	3+7+11	4	47.1 b-e	9.5 efg	64.9 a-d	1.5 e
Stratego YLD	3+11	4.65	46.2 cde	18 bc	65.3 a-d	3 cde
Overrule + Quadris	1+3+11	20+10	45.4 def	20.7 b	69.6 a	3 cde
Affiance	11	10	43.5 e-h	14.3 bcd	61.2 bcd	2.8 cde
Headline	11	6	40 fgh	36.5 a	65.7 abc	8.5 a
Untreated			38.3 h	44.3 a	60 cd	7.8 ab

[a]All fungicides received a tank mix of 0.25% V/V Induce (NIS, spray adjuvant)

[b]Fungicide Resistance Action Committee (FRAC) Code is a system of numbers and letters that organizes fungicide groups according to their cross resistance behavior. Fungi resistant to one fungicide in a FRAC group will be resistant to all fungicides in that group. Strobilurin (QoI) fungicides are FRAC 11 which the fungus that causes Frogeye leaf spot has developed resistance.

[c]Trial at Research and Education Center at Milan (RECM) planted with Armor 48R08 (highly susceptible variety to FLS) on June 5, harvested Oct 14. Location was irrigated and had moderate to severe disease pressure.

[d]Trial on-farm in Jackson, TN (JAX) planted with Asgrow4835 (moderately susceptible variety to FLS) on June 7, harvested Oct 7. Location was dry land and had moderate to severe disease pressure.

[e]YLD= mean yield adjusted to 13.5% moisture. Means within YLD columns followed by the same letter are not significantly different as determined by least significant difference test at P=0.05.

[f]Frogeye leaf spot ratings based on 0-100% leaf area affected. Means within the Frogeye columns followed by the same letter are not significantly different as determined by least significant difference test at *P* =0.05.

Data complied by Dr. Heather Kelly and Jamie Jordan from replicated plots.