

# Soybean Management Verification Program, 2011

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## Abstract

The 2011 Soybean Management Verification Program (SoyMVP) enrolled 16 fields across Western Kentucky providing eight direct comparisons between University of Kentucky recommendations and producers practices for soybean production. University of Kentucky personnel scouted fields weekly for crop stage, crop conditions, and pests. From these scouting events, UK personnel made recommendations for management on the university portion of the field. The producers made management decisions on the remaining portion of the field. The goal of SoyMVP is to verify applied research at the University of Kentucky and to identify whether University of Kentucky recommendations are adequate.

The 2011 growing season was, for some counties, the wettest year on record. The spring season began with widespread flooding across several counties in Western Kentucky as well as several weeks of high heat and humidity throughout July. Some fields received consistent rain events during the season while others didn't receive any rain for a six-week period. The earliest planting date this year was May 29 and the latest was July 6. Harvest was later than 2010 because of fall rains that delayed harvest to the end of September to early November.

Weed pressure consisted of low levels of glyphosate resistant marehail. Other weed species were Palmer amaranth, smooth pigweed, Johnsongrass, crab-

grass, common ragweed, giant ragweed, Eastern black nightshade, Virginia copperleaf, and common waterhemp in most fields. Insect pressure and leaf defoliation were at low levels throughout the season; however, there were a few fields that experienced a random, high level of green clover worms and bean leaf beetles.

Due to a lengthy time period of excessive heat, high levels of charcoal rot were seen in most of the fields this year compared to previous years. Other diseases that were prevalent but in low levels were Downy mildew, and Septoria leaf spot (*Septoria lycines*). Similar to 2010, Frogeye leaf spot (with the exception of one field) was present at low levels. Sudden Death Syndrome also was present at low levels near border rows and in areas of compacted soil.

Fields managed under University of Kentucky recommendations averaged 50.9 bushels per acre in comparison to producer practices of 51.6 bushels per acre, which is the same yield difference as the 2010 growing season. Partial economic net returns averaged \$555.54 per acre under University of Kentucky recommendations and \$553.81 per acre under producer practices.

## Introduction

The 2011 growing season marked the third year that the Soybean Management Verification Program (SoyMVP) was fully implemented in Kentucky. Sixteen Kentucky soybean fields were enrolled in the program, with half in production

according to University of Kentucky research-based recommendations and half in production using the practices of the producers. The stated goals for SoyMVP are:

- To get up-to-date research-based recommendations to Kentucky soybean producers for implementation in production-based systems
- To assist researchers in the improvement of research methods and identify areas of soybeans research that require further investigation
- To update University recommendations from information received from production-based systems and subsequent research in order to provide Kentucky soybean producers knowledge and information to maximize soybean profitability

## Methods

### Cooperator and Field Selection

Kentucky County Extension Agents for Agriculture and Natural Resources play a critical role in SoyMVP. The agents identify prospective cooperators and arrange meetings between the producers and the program coordinator.

Field enrollment into SoyMVP follows two requirements:

- The field must be large enough to represent field-scale systems.
- The field must have similar soil type(s) across both the university and producer portions of the field.

*The Soybean Management Verification Program (SoyMVP) is funded by Kentucky soybean producers through checkoff dollars allocated by the Kentucky Soybean Promotion Board.*

**Table A.** Results by Location

Location	Yield (bushel/acre)		Partial Net Return (\$/acre)	
	UK	FP	UK	FP
Ballard	56.4	56.1	596.00	530.35
Butler (a)	48.8	56.3	548.26	617.09
Butler (b)	33.0	37.3	357.27	409.69
Caldwell (a)	48.5	42.3	485.30	408.70
Caldwell (b)	47.6	51.6	518.67	551.70
Calloway	39.3	37.1	422.81	407.46
Carlisle	52.0	47.0	583.24	515.23
Daviess	67.2	60.7	731.42	603.56
Fulton	40.1	39.3	N/A	N/A
Graves	44.0	46.0	485.66	480.75
Henderson (a)	49.0	55.8	516.08	618.34
Henderson (b)	62.0	67.1	694.84	722.37
Hickman	51.6	45.1	564.38	482.59
Trigg (a)	63.1	62.5	702.47	665.81
Trigg (b)	52.3	52.3	570.30	544.02
Union	59.6	68.5	643.99	744.33
Average	50.9	51.6	561.38	553.47
	-0.70		7.91	

N/A—Information not available

Field location, size, and soil type were determined using Web Soil Survey. Once all requirements were met, producers agreed to use their own equipment for all production practices during the growing season. In most cases, fields were split according to size and topography in order to get a valid comparison between producer practices and University of Kentucky recommendations. In those locations where the split did not occur, two fields that might have been split by a natural feature (drainage ditch, berm, tree line, etc.) were used for the sake of comparison.

### Scouting and Recommendations

Soil samples were collected prior to planting, and fertilizer guidelines followed on the university half were based upon soil test results from University of Kentucky Regulatory Services and 2011-2012 Lime and Nutrient Recommendations (AGR-1). Producers were provided a copy of the university's soybean variety trial results in order to make varietal decisions. The seeding rate was based

upon the planting date and how it relates to seeding-rate-versus-planting-date data obtained at the university. According to university research, a final plant stand of 100,000 plants per acre is sufficient to achieve maximum yields in full-season soybeans if seeds are planted in early June or before.

The coordinator performed weekly scouting for physiological development, weeds, insects, and diseases at every field. If a threshold was met on the university half, a recommendation was requested for the appropriate product and application rate. During the late bloom growth state (reproductive state R1-R3), leaf samples were collected for tissue nutrient analysis. They are displayed along with reference levels for each site. Pictures were taken for visual comparison of canopy closure at each field. In most situations, prior to soybean reproductive growth, canopy closure must reach 95 percent to reach maximum yield.

During harvest, yield was calculated either by a weigh wagon (if available) or a yield plot monitor. Yields were adjusted to 13 percent moisture.

**Table B.** Practice Differences during 2011 Growing Season

Location	Producer Practice	University Practice
Ballard	sr, seed trt, fert, ins x fung	sr, fert
Butler (a)	sr, ins x fung	sr
Butler (b)	variety	variety
Caldwell (a)	sr	sr
Caldwell (b)	sr, fung	sr
Calloway	sr	sr
Carlisle	sr, fung	sr
Daviess	sr, fert, ins x fung	sr, fert
Fulton	sr, fung	sr
Graves	sr, ins x fung	sr
Henderson (a)	sr	sr, fert
Henderson (b)	sr, ins x fung	sr
Hickman	sr	sr
Trigg (a)	sr, ins x fung	sr
Trigg (b)	sr, ins x fung	sr
Union	sr, ins x fung	sr, fert

**sr:** seeding rate, **seed trt:** seed treatment, **fert:** greater soil fertility, **ins x fung:** insecticide & fungicide, **fung:** fungicide only\*

### Economic Analysis

Partial budgets were used to compare economic analyses. Variable costs of production were considered for the comparison of practices between the fields. In the interest of confidentiality, input prices from area suppliers were used rather than the actual prices paid by producers. Custom application rates for pesticide applications were obtained from the University of Kentucky Agricultural Economics Custom Machinery Rates Applicable to Kentucky (AEC 2011-03) and Corn and Soybean Budgets 2011. Cost of application was split for budget purposes if multiple chemicals were applied as a tank mixture. Fertilization and lime costs were included in the partial budget only if the producer obtained and followed recommendations on their portion of the field from a source other than the University of Kentucky Regulatory Services. We were attempting to include only variable costs that were different between the two management practices used in each comparison. Gross return was calculated as the product of yield and a set commodity price for the region.

Costs such as drying and trucking were not included in this analysis. Land rents, machinery, and labor were not included in this analysis.

## Results

Detailed results can be viewed on the proceeding pages. Average yield for the fields using university practices was 50.9 bushels per acre, compared to average yield of 51.6 bushels per acre for producer practice. Average partial return per acre for university practices was \$561.38 compared to \$553.47 per acre for producer practices.

## Acknowledgements

### SoyMVP Coordinators

Amanda Martin, Extension Associate, Princeton  
Chad Lee, Grain Crops Extension Specialist, Lexington  
Jim Herbek, Grain Crops Extension Specialist, Princeton  
Lloyd Murdock, Extension Soil Specialist, Princeton

**For More Information**

Soybean Management Verification Program  
[www.soymvp.blogspot.com](http://www.soymvp.blogspot.com)

Kentucky Soybean Board  
[www.kysoy.org](http://www.kysoy.org)

Grain crop production in Kentucky  
[www.uky.edu/Ag/GrainCrops/](http://www.uky.edu/Ag/GrainCrops/)

## Special Thanks

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### County Extension Agents

Shane Bogle  
Greg Drake Jr.  
David Fourqurean  
Carla Harper  
Clint Hardy  
Darian Irvine  
Cam Kenimer  
Tom Miller  
Kenny Perry  
Rankin Powell  
Todd Powell  
Mike Smith

### Producers

Barry Alexander  
Philip Bean  
Mike Burchett  
Jed Clark  
Craig Cohron  
Benny Cooper  
Cundiff Farms  
Trevor Gilkey  
Sam Hancock  
Tim Horn  
Philip Meredith  
Jerry Peery  
Craig Roberts  
Gary Thomas  
Shane Wells  
Bob White

### University of Kentucky

Paul Bachi, Agricultural Research Specialist, Princeton  
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Greg Halich, Extension Agricultural Economist, Lexington  
Don Hershman, Extension Plant Pathologist, Princeton  
Paula Howe, Agricultural Extension Associate, Regulatory Services, Princeton  
Doug Johnson, Extension Entomologist Specialist, Princeton  
James Martin, Extension Weed Science Specialist, Princeton

## Ballard

### Site 1, Ballard

Producer: Benny Cooper  
 County: Ballard  
 County Agent: Tom Miller  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 37° 8' 43"  
 Longitude: W 88° 52' 18"

**Table 1a.** Costs and Returns, 2011, Ballard

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	46.30	42.40
Herbicide	3.45	3.45
Insecticide	3.80	0
Fungicide	16.40	0
Fertilizer	75.00	40.00
Treatment	3.00	0
Total Partial Cost/a	147.90	85.90
Partial Return/a‡	678.30	681.90
Partial Net Return/a	530.40	596.00

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

### Field Notes

**May 31**—Benny planted the field. Prior to planting he applied 150 pounds of K<sub>2</sub>O to his half and 60 pounds of K<sub>2</sub>O to the university half. The field was planted at 144,000 plants per acre and 132,000 plants per acre on the university side. The seeds were treated on his half and untreated on the university side.

**June 17**—Soybeans are coming up nicely, but could use some rain. They are at a growth stage of V4 and are about 4 inches tall. There is heavy Johnsongrass and smooth pigweed pressure on both halves. Average height was 4 inches for the university side and 7 inches for the producer half. I called Benny to request an herbicide application to the university half.

**June 28**—Field received a good rain and there is some standing water in areas of the field. Benny sprayed 32 ounces of Roundup on both sides of the field. Signs of dieback are prevalent on the heavy patches of Johnsongrass and pigweed. I met with Tom and gave him an update on the field. The results

Producer



University



June 28, V4



July 5, V6

July 5, V7



July 15, V9 R1

July 15, V9 R1

of stand counts were 120,923 seeds per acre (91.6 percent emergence) on the university side and 136,256 seeds per acre on Benny's side (94.6 percent emergence).

**July 5**—Canopy closure is 95 percent on both halves of the field. Weed pressure remains low and there minor defoliation due to Japanese beetle and grasshopper pressure. There percent defoliation is less than threshold so no insecticide will be recommended on the university half.

**July 15**—The soybeans have reached flowering stage (R1). There has been a lag in rain received on this field. Hopefully, this field will receive some rain soon. Began insect sweeps and the population of insects collected is low and contains Japanese beetles, green and brown stinkbugs, green clover worms, and grasshoppers.

**July 20**—Field is showing signs of heat stress. There are heavy, patchy areas on the

university side of the field due to green clover worms. No threshold has been reached so no recommendation will be made; however, will continue to watch insect counts and leaf feeding closely.

**July 27**—Upper canopy appears to be outweighing the insect feeding. Green clover worm populations have gone down this week. No further heat stress has been noticed. Weed pressure appears to have increased by border rows and in areas where plant stand is thin. Beans are at R2 therefore will collect leaves for nutrient analysis.

**August 1**—Field received some rain a few hours ago. The soybeans are at R3 and are 44 inches tall on the producer half and 42 inches tall on the university half. There is some lodging at the border rows, likely due to overlap between the two rows and not due to wind.

**Table 1b.** Practices during Growing Season, 2011, Ballard

	Producer	University
Field Size, acres:	20	
Previous Crop:	Corn	
Soil Type:	Calloway silt loam	
Soil Test:		
P, lbs/acre	60	60
K, lbs/acre	155	155
pH	6	6
Fertilizer Recommended:	N/A	80 lbs K <sub>2</sub> O 1 ton lime
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	0	0
K <sub>2</sub> O, lbs/acre	150	80
Ag Lime, tons/acre	0	1
Planting Date:	31-May-11	
Soybean Variety:	Pioneer 94Y70	Pioneer 94Y70
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	144,000	132,000
Plant Stand, plants/a:	136,256	120,923
Applications:		
Herbicide	32 oz Roundup	32 oz Roundup
Insecticide	3.2 oz Mustang	None
Fungicide	6 oz Domark	None
Harvest Date:	10-Oct-11	
Yield, bu/acre	56.1	56.4

**August 4**—Field received less than 0.2 inches of rain. Benny applied an insecticide and a fungicide to his half of the field recently. No request was made for application on the university half. Insect population continues to decrease and disease pressure noticed throughout the field is Septoria brown spot.

**August 18**—The plants have reached a maximum height of 53 inches. The insect population has decreased on both halves (stinkbugs, green clover worms, and bean leaf beetles). There is some SDS on the border rows on the producer side and downy mildew on a few leaves on the university side. Lodging has progressed on both halves. It is seen in patch areas covering about 10 percent of Benny’s side and 7 percent of the university side.

**September 1**—Soybeans are at pod fill stage (R6). Insect numbers are a little higher. Soybean pod worms were caught on Benny’s side but below threshold. No further spots of SDS were observed. Lodging has not increased; however there is a section of the producer side where the beans are completely leveled. If lodging continues to this severity there will be a yield reduction for both sides.

**September 13**—Field is showing signs of senescence. About half of both sides is turning yellow. Disease pressure that has shown up is patchy areas of bacterial blight and Cercospora on the university half. No further signs of downy mildew or SDS.

**September 21**—Field has been receiving consistent rain; however, the wind has caused more lodging on both halves of the field. SDS has remained at the border rows. The soybeans have reached R7 reproductive stage and filled well during the R6 stage. Yield estimation is approximately 50 bushels for both halves.

**Table 1c.** Physiological Characteristics, 2011, Ballard

Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
17-June	4	V1		4	V1	
28-June	6.8	V4		6.8	V4	
5-July	11	V6	95%	11.5	V6	95%
15-July	19	V9, R1	Full	19	V9, R1	Full
20-July	26	V11, R1	Full	25	V11, R1	Full
27-July	31	V13, R2	Full	30	V13, R2	Full
1-Aug	44	V17, R3	Full	42	V17, R3	Full
4-Aug	46	V20, R4	Full	45	V19, R4	Full
18-Aug	53	V21, R5	Full	51	V21, R5	Full
1-Sept	53	R6	Full	51	R6	Full
13-Sept	53	R6	Full	51	R6	Full
21-Sept	53	R7	Full	51	R7	Full
28-Sept	53	R8	Full	51	R8	Full
5-Oct	53	R8	Full	51	R8	Full

**Table 1d.** Insect Counts\*, 2011, Ballard

Date	Sweeps	Producer					University						
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
15-July	50	3	0	2	10	0	20	3	0	2	7	0	3
20-July	50	6	0	0	2	0	20	7	2	0	6	0	15
27-July	50	2	0	0	5	0	13	0	0	0	4	0	10
1-Aug	50	3	1	0	5	0	3	1	0	1	8	0	8
4-Aug	50	0	1	0	3	0	1	0	3	0	2	0	3
18-Aug	50	0	2	0	2	1	0	0	2	3	0	0	7
1-Sept	50	0	0	0	3	0	1	0	11	1	2	1	7
13-Sept	50	0	1	1	1	1	0	0	6	4	1	3	2

\*Total number of insects per ten sweeps

**Table 1e.** Leaf Nutrient Analysis 2011, Ballard

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.5	0.5
K	1.5-2.3	1.9	2
Mg	0.3-0.7	0.3	0.3
Ca	0.8-1.4	0.8	0.8
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	45	43
Zn	21-80	64	43
Mn	17-100	86	99
Fe	25-300	105	98
Cu	4-30	11	9

Date: 7/27  
Growth Stage: R2

## Site 2, Butler (a)

Producer: Shane Wells  
 County: Butler  
 County Agent: Grege Drake Jr.  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 37° 13' 38"  
 Longitude: W 86° 52' 52"

**Table 2a.** Costs and Returns, 2011, Butler (a)

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	48.54	45.32
Herbicide	1.30	1.30
Insecticide	5.27	0
Fungicide	14.11	0
Fertilizer	0	0
Total Partial Cost/a	69.22	46.62
Partial Return/a‡	686.30	594.87
Partial Net Return/a	617.09	548.26

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

## Field Notes

**June 8**—Field was planted with Asgrow 4531 variety. The population for each side is 141,000 seeds per acres (university) and 151,000 seeds per acre (producer).

**June 27**—Soybeans emerged well and are 4 inches in height. Weed pressure is high throughout the field (mostly johnsongrass, crabgrass, and smooth pigweed) but due to heavy rainfall the field is too wet to spray.

**July 1**—Shane sprayed on the 30th. Stand counts for the university side is 140,786 plants per acre (99.8 percent emergence). For the producer side the stand is 150,195 plants per acre (99.5 percent emergence). Collected leaves with unusual brown spotting to diagnose any disease or injury.

**July 11**—Leaves collected ended up being the result of crop oil burn during the herbicide application. Canopy closure is 80 percent. There is some minor defoliation from Japanese beetles near border rows.

**July 18**—Field is pretty dry. There is some stress showing up on the soybeans which have reached full canopy closure and flowering stage (R1). Insect sweeps consists of mostly clover worms and bean leaf

## Butler (a)

### Producer



July 1, V3



July 11, V6



July 18, V9 R1



July 26, V10 R2

### University



July 1, V4



July 11, V6



July 18, V8, R1



July 26, V10 R2

beetles. No further weed pressure has been observed aside from one or two volunteer corn plants.

**July 26**—Field received a decent rain and is fairly muddy. Clover worm numbers increased a little and leaf defoliation is at 5 percent. This percentage is below the threshold and no insecticide is necessary. There are some grasses showing through

the canopy but in low numbers to compete with the soybeans (now at 18 inches in height).

**August 5**—Noticed Frogeye leaf spot and Septoria on the border rows and this is due to dense fog from the Green river (100 feet away from the field). There is a large number of bean leaf beetles caught in 50 sweeps on the university side of the field.

**Table 2b.** Practices during Growing Season, 2011, Butler (a)

	Producer	University
Field Size, acres:	30	
Previous Crop:	Corn	
Soil Type:	Melvin silt loam, Nolin silt loam	
P, lbs/acre	None	None
K, lbs/acre	None	None
pH	None	None
Fertilizer Recommended:	Fall applied Fertilizer	
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	150	
K <sub>2</sub> O, lbs/acre	150	
Ag Lime, tons/acre	None	None
Planting Date:	7-June-11	
Soybean Variety:	Asgrow 4731	Asgrow 4731
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	151,000	141,000
Plant Stand, plants/a:	150,195	140,786
Herbicide application	24 oz Roundup	24 oz Roundup
Insecticide application	3 oz Indigo	None
Fungicide application	6 oz Quadris	None
Harvest Date:	2-Nov-11	

To prevent any yield loss, the population will need further attention because the numbers are close to threshold. I contacted Shane and he intends on applying an insecticide and fungicide to his half of the field. Because the number is below threshold, I did not request any application to the university side.

**August 10**—Shane sprayed on the 9th. The soybeans are at R3 and 38 inches in height. Frogeye leaf spot has progressed to cover all plants on the university side, mostly on the upper canopy. Collected some plants to show Dr. Hershman and determine the need for a fungicide. Bean leaf beetle numbers are still high but not at the threshold so no recommendation will be made.

**August 16**—In a meeting with Dr. Hershman, there was not enough Frogeye present to justify the application of a fungicide. There is a visual difference on both halves of the field since Shane sprayed. The upper canopy shows no Frogeye and the insect number are very low (two grasshoppers in 50 sweeps). The bean leaf beetles are still high but again not enough to justify action. There are no signs of pod feeding. Leaf defoliation is around 10 percent.

**August 24**—Dr. Lee visited the field today. He took several photos of the Frogeye leaf spot. The soybeans have reached R5 reproductive stage. Bean leaf beetle numbers have decreased significantly and leaf defoliation is below 10 percent. Weed pressure remains fairly clean on the university side and very clean on the producer half. No sign of lodging is present.

**September 9**—Soybeans have reached a maximum height of 48 inches and pods are beginning to fill. There is some lodging on the border rows. No further disease pressure has been observed on Shane's half. There is a section of end rows on the university half that appears to be stinkbug injury.

**September 15**—Insect pressure and disease pressure remains low. Field is looking good and areas in the back half of the UK side are starting to turn over. No further progression in lodging.

**September 20**—The producer side which received the fungicide is staying greener longer than the university side. There is a clear line indicating where Shane sprayed. Overall the field looks very good to assume average yield near 50-60 bushels. Uncertain if the Frogeye leaf spot will reduce yield (by how much) on the university side.

**Table 2c.** Physiological Characteristics, 2011, Butler (a)

Visit Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
27-June	4	V2		4	V2	
1-July	5	V4		5	V4	
11-July	8	V6	80%	9	V6	80%
18-July	10	V8, R1	90%	12	V8, R1	90%
26-July	18	V11, R2	Full	17	V10, R2	Full
5-Aug	31	V15, R3	Full	32	V14, R3	Full
10-Aug	35	V16, R3	Full	38	V16, R3	Full
16-Aug	41	V17, R4	Full	41	V18, R4	Full
24-Aug	43	V17, R5	Full	48	V18, R5	Full
9-Sept	43	R6	Full	48	R6	Full
15-Sept	43	R6	Full	48	R6	Full
20-Sept	43	R7	Full	48	R7	Full
6-Oct	43	R8	Full	48	R8	Full

**Table 2d.** Insect Counts\*, 2011, Butler (a)

Date	Sweeps	Producer					University						
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
18-July	50	0	2	0	2	0	30	1	9	0	7	0	25
26-July	50	2	2	0	4	1	25	1	0	1	7	1	31
5-Aug	50	0	21	2	4	0	12	1	35	0	7	0	14
10-Aug	50	0	0	0	2	0	1	1	48	1	11	0	15
16-Aug	50	0	0	0	2	0	0	0	48	2	2	0	2
24-Aug	50	0	5	0	3	0	0	0	13	1	8	0	1
9-Sept	50	0	7	2	5	0	0	0	17	17	11	1	4
15-Sept	50	0	0	3	4	0	0	0	1	3	6	0	0
20-Sept	50	0	2	2	3	0	3	0	7	7	3	0	1

\*Total number of insects per ten sweeps

**Table 2e.** Leaf Nutrient Analysis 2011, Butler (a)

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.52	0.5
K	1.5-2.3	1.7	1.9
Mg	0.3-0.7	0.4	0.4
Ca	0.8-1.4	0.8	0.9
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	60	58
Zn	21-80	49	63
Mn	17-100	122	67
Fe	25-300	63	111
Cu	4-30	8	8

Date: 7/26  
Growth Stage: R2

## Site 3, Butler (b)

Producer: Craig Cochron  
 County: Butler  
 County Agent: Greg Drake Jr.  
 Coordinator: Amanda Martin  
 Field Location: Latitude N 37° 3' 51"  
 Longitude W 86° 40' 24"

**Table 3a.** Costs and Returns, 2011, Butler (b)

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	45.00	45.00
Herbicide	0	0
Insecticide	0	0
Fungicide	0	0
Fertilizer	0	0
Total Partial Cost/a	45.00	45.00
Partial Return/a‡	454.69	402.27
Partial Net Return/a	409.69	357.27

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

## Field Notes

**July 6**—Craig planted the field. Due to flooding and prolonged field moisture he kept the population on both sides at 140,000 seeds per acre. Initial differences between the university and producer side is variety. The university is a Fielder's Choice 4.5 versus a Beck 4.1 variety on the producer side.

**July 26**—Met with Craig to locate the split amongst the varieties. It needs to be noted that this is a double crop field that was tilled and worked in order to plant a crop this season. Stand counts for the two halves are 136,256 (producer half) and 135,852 (university half).

**August 5**—Soybeans are at a stage of V6, R1. Water stress is quite prevalent in within the field. This area of Butler County is in need of a good rain. Craig sprayed in July and weed control remains excellent. Few single weeds (tall morning glory) near the end rows.

**August 16**—No rain has fallen yet. Some drought symptoms are showing up, more on the university half (perhaps this could

## Butler (b)

Producer



July 26, V3



August 5, V7, R1



August 16, V9 R2

University



July 26, V3



August 5, V6 R1



August 16, V9 R2

be a variety difference). The soybeans are now at R2. Canopy closure is 90 percent. There have been no clear differences in the two varieties. No further weed pressure. Started insect sweeps and numbers (bean leaf beetles and grasshoppers) are pretty low with minor defoliation.

**August 24**—Leaves are rolling from the dry weather on both halves of the field. Only took 20 insect sweeps due to dry conditions and little to no defoliation seen. Downy mildew has shown up in 50 percent of the soybeans on both halves. Severity is too low to affect yield.

**September 9**—The soybeans are now at the pod fill reproductive stage R6. The field finally received a decent rain; however, this caused insect populations (bean leaf beetle) to explode. Had to return to 50 sweeps and I collected 96 beetles per 50 sweeps on the UK side (34 beetles on the producer

half). Contacted Dr. Johnson for advice on control and was informed to watch for pod feeding.

**September 15**—Bean leaf beetle number went down and previous counts were below threshold so no control will be made on the university side. Although the insect number was high leaf defoliation is only about 10 percent. I called Craig and updated him on the field. He did not apply any insecticide to his half.

**September 20**—Insect numbers have gone down dramatically. Starting to notice some turn over on the university side compared to the producer half. Field remains fairly clean and could reach 30 bushels max by harvest.



**Table 3b.** Practices during Growing Season, 2011, Butler (b)

	Producer	University
Field Size, acres:	8	
Previous Crop:	Wheat	
Soil Type:	Sadler silt loam, Zanesville silt loam, Lawrence silt loam	
P, lbs/acre	None	
K, lbs/acre		
pH		
Fertilizer Recommended:		
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	None	
K <sub>2</sub> O, lbs/acre		
Ag Lime, tons/acre		
Planting Date:	6-July-11	
Soybean Variety:	Becks 4.1	Fielder's Choice 4.5
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	140,000	140,000
Plant Stand, plants/a:	134,156	134,156
Applications:	24 oz Roundup	24 oz Roundup
Herbicide	None	None
Insecticide	None	None
Fungicide	None	None
Harvest Date:	2-Nov-11	
Yield, bu/acre	37.3	33.0

**Table 3c.** Physiological Characteristics, 2011, Butler (b)

Visit Date	Producer			University		
	Height (in)	Growth Stage	Canopy Closure	Height (in)	Growth Stage	Canopy Closure
26-July	3	V3		3	V3	
5-Aug	9	V6, R1	60%	9	V6, R1	60%
16-Aug	19	V9, R2	90%	14	V9, R2	90%
24-Aug	19	V11, R4	Full	22	V11, R4	Full
9-Sept	28	V13, R6	Full	30	V13, R6	Full
15-Sept	28	R6	Full	30	R6	Full
20-Sept	28	R6	Full	30	R6	Full
6-Oct	28	R8	Full	30	R8	Full

**Table 3d.** Insect Counts\*, 2011, Butler (b)

Date	Sweeps	Producer						University					
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
16-Aug	50	0	11	0	1	0	1	0	6	0	4	0	1
24-Aug	20	0	0	0	0	0	1	0	3	0	0	0	0
9-Sept	50	0	20	0	6	3	15	0	96	1	1	0	11
15-Sept	50	0	18	1	4	0	10	0	18	1	3	1	6
20-Sept	50	0	39	0	1	0	9	0	27	1	2	0	10

\*Total number of insects per ten sweeps

**Table 3e.** Leaf Nutrient Analysis 2011, Butler (b)

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.5	0.4
K	1.5-2.3	2.6	2.5
Mg	0.3-0.7	0.3	0.3
Ca	0.8-1.4	1	1
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	42	38
Zn	21-80	61	52
Mn	17-100	247	124
Fe	25-300	109	115
Cu	4-30	8	8

Date: 8/16  
Growth Stage: R2

## Caldwell (a)

### Site 4, Caldwell (a)

Producer: Craig Roberts  
 County: Caldwell  
 County Agent: Shane Bogle  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 37° 14' 18"  
 Longitude: W 87° 53' 23"

**Table 4a.** Costs and Returns, 2011, Caldwell (a)

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	46.61	44.04
Herbicide	4.75	4.75
Insecticide	0	0
Fungicide	0	0
Fertilizer	45.00	45.00
Total Partial Cost/a	96.36	93.79
Partial Return/a‡	505.06	579.09
Partial Net Return/a	408.70	485.30

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

### Field Notes

**June 6**—Craig planted the field. He applied the recommended fertilizer rate of 90 pounds of K<sub>2</sub>O to the university side prior to planting. The seeding rate were 137,000 seeds per acre (university) and 149,000 (producer half).

**June 17**—Soybeans are at VE growth stage. There is heavy weed pressure from common ragweed, marestalk, ivy leaf morning glory, Johnsongrass, and pigweed. I called Craig to request an application of herbicide.

**June 27**—Stand counts for the university side are 128,589 plants per acre (93.9 percent emergence) and 136,953 for the producer half (91.3 percent emergence). Craig sprayed 44 ounces of Roundup to manage weeds.

**July 8**—There have been several rain events over the last week. The common ragweed, nightshade, and Johnsongrass are coming back (average height 2 inches). Soybeans are growing well at a growth stage of V5 and 8 inches tall.

**July 13**—Canopy closure is at 90 percent. Weeds pressure is persisting so I called Craig to spray the field again. There are heavy patches of glyphosate resistant

#### Producer



June 27, V2



July 8, V5



July 13, V6



July 22, V9 R1

#### University



June 27, V2



July 8, V5



July 13, V6



July 22, V9 R1

marestalk, but it's concentrated within the border rows.

**July 22**—There is some minor stress from herbicide that Craig sprayed; but not any to damage the soybeans which are at flowering stage (R1). Started insect sweeps and so far the majority of insects trapped were Japanese beetles and grasshoppers.

**July 29**—Collected leaves for nutrient as-

essment. Little to no weed pressure aside from a few ivy leaf and tall morning glory weeds growing on the university side. Field looks very clean. Insect population and leaf defoliation remains low.

**August 9**—Soybeans are at R4 growth stage and are 25 inches (university) and 27 inches (producer) tall by this stage. There is a higher count of bean leaf beetles caught

**Table 4b.** Practices during Growing Season, 2011, Caldwell (a)

	Producer	University
Field Size, acres:	20	
Previous Crop:	Corn	
Soil Type:	Sadler silt loam, Zanesville silt loam	
Soil Test:		
P, lbs/acre	61	73
K, lbs/acre	136	153
pH	6.4	6.8
Fertilizer Recommended:	90 lbs K <sub>2</sub> O	90 lbs K <sub>2</sub> O
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	None	None
K <sub>2</sub> O, lbs/acre	90 lbs K <sub>2</sub> O	90 lbs K <sub>2</sub> O
Ag Lime, tons/acre		
Planting Date:	None	None
Soybean Variety:	Becks 451	Beck 451
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	150,000	137,000
Plant Stand, plants/a:	136,953	128,539
Applications:		
Herbicide	44 oz Roundup	44 oz Roundup
Insecticide	None	None
Fungicide	None	None
	24-Oct-11	
Yield, bu/acre	42.3	48.5

but not at threshold so there is no need to spray the university side.

**August 15**—Observed a few plants with Charcoal rot on the university half. There are also several areas in the field where scattered areas have been damaged due to deer feeding. Weed pressure and insect pressure is still under control.

**August 22**—Recently received 2 inches of rain. Soybeans are now 39 inches tall and at R5. Field contains all fragic soils so there is still standing water. Charcoal rot and Phytophthora root rot was confirmed (both halves) from plants samples collected from last visit. These diseases were found at a low incidence so no fungicide is necessary and no yield loss should be expected. SDS was also observed on the border rows on the university half of the field. Concern for yield loss arises from the deer damage that is quite prevalent in this field.

**August 29**—Soybeans are at R6 and field still looks clean. There has been no further progression of SDS or charcoal rot observed at this time. Due to the long period of heat and humidity experience in July will continue to watch for charcoal rot with in the field.

**September 12**—Senescence occupies about 50 percent of the university side and 30 percent of the producer half. SDS was seen in spotty areas near the border rows on the university half. Insect pressure has been reduced to bean leaf beetles and grasshoppers. Charcoal rot has progressed significantly throughout the field. This may reduce yields if a large amount is present at harvest.

**September 23**—Field is pretty dry at this stage. With the deer feeding, charcoal rot, and patchy SDS I would estimate this field to have a yield close 40 bushel per acre at harvest.

**Table 4c.** Physiological Characteristics, 2011, Caldwell (a)

Visit Date	Producer			University		
	Height (in)	Growth Stage	Canopy Closure	Height (in)	Growth Stage	Canopy Closure
17-June	4	V1		4	V1	
28-June	6.8	V4		6.8	V4	
5-July	11	V6	95%	11.5	V6	95%
15-July	19	V9, R1	Full	19	V9, R1	Full
20-July	26	V11, R1	Full	25	V11, R1	Full
27-July	31	V13, R2	Full	30	V13, R2	Full
1-Aug	44	V17, R3	Full	42	V17, R3	Full
4-Aug	46	V20, R4	Full	45	V19, R4	Full
18-Aug	53	V21, R5	Full	51	V21, R5	Full
1-Sept	53	R6	Full	51	R6	Full
13-Sept	53	R6	Full	51	R6	Full
21-Sept	53	R7	Full	51	R7	Full
28-Sept	53	R8	Full	51	R8	Full
5-Oct	53	R8	Full	51	R8	Full

**Table 4d.** Insect Counts\*, 2011, Caldwell (a)

Date	Sweeps	Producer					University						
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
22-July	50	4	0	4	4	0	3	5	0	0	2	0	1
29-July	50	4	3	1	8	0	5	2	3	3	4	0	9
9-Aug	50	0	17	2	0	0	15	1	10	0	6	0	8
15-Aug	50	2	15	0	4	1	4	2	10	0	6	0	7
22-Aug	50	1	8	0	2	0	3	0	9	0	0	0	4
29-Aug	50	0	7	1	2	0	10	0	7	1	4	1	14
12-Sept	50	0	6	1	3	1	16	0	5	2	0	0	8

\*Total number of insects per ten sweeps

**Table 4e.** Leaf Nutrient Analysis 2011, Caldwell (a)

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.4	0.5
K	1.5-2.3	1.7	2
Mg	0.3-0.7	0.3	0.3
Ca	0.8-1.4	0.7	0.8
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	20	21
Zn	21-80	37	36
Mn	17-100	81	76
Fe	25-300	91	93
Cu	4-30	9	9

Date: 7/29  
Growth Stage: R2

## Caldwell (b)

### Site 5, Caldwell (b)

Producer: Trevor Gilkey  
 County: Caldwell  
 County Agent: Shane Bogle  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 37° 4' 29.5"  
 Longitude: W 87° 52' 35.5"

**Table 5a.** Costs and Returns, 2011, Caldwell (b)

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	51.43	45.00
Herbicide	4.67	4.67
Insecticide	0	0
Fungicide	8.30	0
Fertilizer	0	0
Total Partial Cost/a	64.40	49.67
Partial Return/a‡	616.10	568.34
Partial Net Return/a	551.70	518.67

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

Producer



July 22, V4

University



July 22, V4



July 29, V8



July 29, V7



August 9, V9 R2



August 9, V9 R2

## Field Notes

**June 23**—Trevor planted the university side at a seeding rate of 140,000 seeds per acre and 160,000 seeds per acre on his half.

**July 7**—Soybeans are at a growth stage of V1 and are 5 inches tall. There is no weed pressure aside from thin stand of volunteer wheat.

**July 15**—There is quite of bit of leaf feeding (green clover worm and Japanese beetle) on the upper canopy on the university side. Leaf defoliation appears close to 5 percent.

**July 22**—These soybeans are growing rapidly. They are 11 inches tall. Stand count results are 133,816 plants per acre (95.6 percent emergence) and 156,813 seeds per acre (98.1 percent emergence) on Trevor's half. Rhizoctonia has appeared on the border rows; this could be due to herbicide application recently applied.

**July 29**—Canopy closure has reached 95 percent. Leaf feeding has progressed throughout the field. Percent defoliation is below 5 percent but I will continue to

monitor damage. Weed pressure from smooth pigweed, copperleaf hophornbeam has returned in small section (less than 1 inch) in a few areas on the university side.

**August 9**—Defoliation has reached 5 percent (below threshold) on the university side. Insect sweeps indicate a high number of green clover worms. The numbers although high are not enough for any control measure. Weed pressure still present; however, soybeans are now 21 inches tall and reached full canopy closure (enough to overcome any weed competition).

**August 15**—Met Trevor prior to scouting and he will be spraying the field with a fungicide. I requested that no application be made on the university half (no signs or know history of disease pressure). Soybeans have reached R3 reproductive stage. Canopy seems to have overcome the leaf feeding. Clover worm numbers have gone

down dramatically on the university side (nine caught).

**August 22**—Recent rain storm (August 21) brought high winds and some soybeans are lodged (rating 1) on the university half. Observed downy mildew on the upper most trifoliolate on both halves of the field but it is at a low incidence to reduce yield.

**August 29**—Soybeans have reached their maximum height of 40 inches. The field is looking pretty clean aside from patchy section of lodged beans. Insect pressure from bean leaf beetles has shown up on a few leaves (no signs of pod feeding).

**September 12**—Beans leaf beetle counts have decreased this week. Downy mildew pressure has increased to 80 percent of the field on the university side and about 60 percent of the producer half. No further lodging was observed on the university side.

**Table 5b.** Practices during Growing Season, 2011, Caldwell (b)

	Producer	University
Field Size, acres:	20	
Previous Crop:	Wheat	
Soil Type:	Otwood silt loam, Crider silt loam	
P, lbs/acre		
K, lbs/acre		
pH		
Fertilizer Recommended:	Already Fertilized	
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	150 lbs, 150 lbs	
K <sub>2</sub> O, lbs/acre		
Ag Lime, tons/acre	None	
Planting Date:	23-June-11	
Soybean Variety:	Pioneer 94Y92	Pioneer 94Y92
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	160,000	140,000
Plant Stand, plants/a:	156,816	133,816
Applications:		
Herbicide	24 oz Roundup, 24 oz Touchdown	24 oz Roundup, 24 oz Touchdown
Insecticide	None	None
Fungicide	3 oz. Quadris	None
Harvest Date:	30-Oct-11	
Yield, bu/acre	51.6	47.6

**Table 5c.** Physiological Characteristics, 2011, Caldwell (b)

Visit Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
7-July	5	V1		5	V1	
15-July	7	V3		7	V3	
22-July	11	V4	60%	11	V4	60%
29-July	16	V8	95%	16	V8	95%
9-Aug	20	V9, R2	Full	21	V9, R2	Full
15-Aug	25	V12, R3	Full	31	V13, R3	Full
21-Aug	35	V14, R4	Full	31	V14, R4	Full
29-Aug	38	V15, R5	Full	40	V15, R5	Full
12-Sept	38	R6	Full	40	R6	Full
23-Sept	38	R6	Full	40	R6	Full
11-Oct	38	R8	Full	40	R8	Full

**Table 5d.** Insect Counts\*, 2011, Caldwell (b)

Date	Sweeps	Producer					University						
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
15-Aug	50	0	1	0	1	0	30	0	2	0	0	0	9
21-Aug	50	0	3	0	0	0	4	0	1	1	1	0	20
29-Aug	50	0	15	0	1	0	9	0	7	0	1	0	12
12-Sept	50	0	6	0	2	0	1	0	2	3	1	0	12
23-Sept	50	0	16	2	1	1	0	0	9	3	1	3	0

\*Total number of insects per ten sweeps

**September 23**—Field received some more rain. There is some turn over in the field but overall the field remains green. There are a few more lodged beans on the university half (rating 2) making it a challenge to walk through. Insect pressure is low enough and at this stage R6 should pose no threat to yield.

**Table 5e.** Leaf Nutrient Analysis 2011, Caldwell (b)

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.49	0.52
K	1.5-2.3	2.2	2.3
Mg	0.3-0.7	0.4	0.3
Ca	0.8-1.4	1.2	1.11
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	48	36
Zn	21-80	48	42
Mn	17-100	70	86
Fe	25-300	101	107
Cu	4-30	9	9

Date: 8/9  
Growth Stage: R2

## Calloway

### Site 6, Calloway

Producer: Mike Burchett  
 County: Calloway  
 County Agent: Todd Powell  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 36° 43' 47.5"  
 Longitude: W 88° 21' 30"

**Table 6a.** Costs and Returns, 2011, Calloway

Partial Costs/a <sup>†</sup>	Prod. \$/a	Univ. \$/a
Seed	35.36	46.61
Herbicide	3.45	3.45
Insecticide	2.27	2.27
Fungicide	0	0
Fertilizer	0	0
Total Partial Cost/a	41.08	52.33
Partial Return/a <sup>‡</sup>	448.54	475.14
Partial Net Return/a	407.46	422.81

<sup>†</sup> Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

<sup>‡</sup> Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

### Field Notes

**June 4**—Mike planted the field with a NK489C variety. The university side had a seeding rate of 145,000 seeds per acre and 110,000 seeds per acre in the producer half.

**June 21**—Soybeans are at V2 growth stage and are 3 inches tall. Weed species in the field are yellow foxtail, crabgrass, spurge, smooth pigweed, and common ragweed. All are 1-2 inches tall.

**July 1**—The stand counts for the producer half is 108,483 plants per acre (98.6 percent emergence) and 136,953 plants per acre on the university half (97.8 percent emergence). The field received some rain and the weeds took off. Heights are ranging from 3 inches to 21 inches. Met with Mike and gave him stand count numbers for his records and requested an herbicide application.

**July 8**—Mike sprayed. There is quite a lot of dieback and the field is looking pretty clean. There is an area of herbicide injury where the spray boom overlapped. Soybeans have 90 percent canopy closure and are growing rapidly.

Producer



July 1, V3



July 8, V6



July 18, V9 R1

University



July 1, V3



July 8, V6



July 18, V9 R1

**July 18**—Weed pressure remains low. Few tall smooth pigweeds on the border rows were observed. The soybeans have reached flowering stage (V9, R1). Field is pretty dry and could use a little more rain.

**July 25**—Took leaf samples for nutrient assessment. There are heavy patches of smooth pigweed, common ragweed, Johnsongrass, and yellow foxtail. There were quite a few green clover worms on the university half of the field. Leaf defoliation from insect pressure is not at threshold. At the request of the producer, I met with Mike to demonstrate how to take insect sweeps in our field and some of his double crop soybean fields. He informed me he will spray again but this time he will include an insecticide. I requested the herbicide but not the insecticide application.

**August 4**—Field is looking good. Weed pressure has gone down. Insect counts have decreased and soybean leaves have recovered from leaf feeding. Field could still use some rain; however, the soybeans are no at R3 and 23 inches tall on the university half (higher seeding rate) and 25 inches tall on the producer half (low seeding rate).

**August 18**—There is some heat stress beginning to show up in this field. Insect pressure is still low. I have mostly caught grasshoppers and bean leaf beetles. Took random plants and split them open. Found 5 healthy soybeans infected with *Dectes* stem borer larva. No visible disease pressure has been observed. Some downy mildew was noticed on the upper trifoliolate on the producer half of the field. Soybeans are at R5 and there is not enough present to affect any yield.

**Table 6b.** Practices during Growing Season, 2011, Calloway

	Producer	University
Field Size, acres:	30	
Previous Crop:	Soybean	
Soil Type:	Calloway silt loam	
Soil Test:		
P, lbs/acre	None	None
K, lbs/acre	None	None
pH	None	None
Fertilizer Recommended:	None	None
Fertilizer Applied:	None	None
P <sub>2</sub> O <sub>5</sub> , lbs/acre	None	None
K <sub>2</sub> O, lbs/acre	None	None
Ag Lime, tons/acre	None	None
Planting Date:	4-June-11	
Soybean Variety:	NK489C	NK489C
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	110	145
Plant Stand, plants/a:		
Applications:		
Herbicide	32 oz Roundup	32 oz Roundup
Insecticide	1.2 oz Declare	*1.2 oz Declare
Fungicide	None	None
Harvest Date:	16-Oct-11	
Yield, bu/acre	39.3	37.1

**August 25**—Field is in need of rain. The field looks very clean; however it's showing signs of water stress. Downy mildew incidence remains low on the producer and university half. Insect counts remain steady. Caught two soybean pod worms per 50 sweeps therefore will continue to watch population and observe any pod feeding.

**September 1**—The soybeans have reached R6 reproductive stage (pod fill) and are 43 inches tall. Field is now showing signs of drought. There are no soybean pods dropping when I walk through the rows so yield loss; but they need rain so they can continue to fill to prevent a yield reduction. Downy mildew has increased in incidence (10 percent plants affected) but severity is low. Found more soybean pod worms in insect sweeps. Took a separate 25 sweeps on both halves to observe pod worm counts and the university side had two per 25 sweeps and the producer half had four worms per 25 sweeps. The numbers are below threshold therefore action will not be necessary.

**September 7**—Field received a little rain. Beans are still at R6 and there is some turn-over on the border rows. Few green clover worms and bean leaf beetles were caught in the sweeps this week. Soybean pod worm counts decreased. I will continue to watch pod worm numbers and pod feeding.

**September 14**—A little more rain has fallen. With that the insect counts have gone up a little. Clover worm populations are high on the university half along. Pod worm counts were high on Mike's half but the numbers in addition to the late stage of soybean field (R6 and turning over) yield loss is not a concern.

**September 21**—Lodging was observed in scattered areas on the university half (rating of 1). The field received excessive heat and was very dry. These are favorable condition for charcoal rot, which was seen on the end rows on the producer half.

**Table 6c.** Physiological Characteristics, 2011, Calloway

Visit Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
21-June	3	V2		3.5	V2	
29-June	5	V3		5	V3	
8-July	10	V6	60%	10	V6	60%
18-July	16	V9, R1	90%	17	V9, R1	90%
25-July	21	V12, R2	Full	19	V12, R2	Full
4-Aug	25	V13, R3	Full	23	V13, R3	Full
18-Aug	34	V20, R4	Full	36	V20, R4	Full
25-Aug	42	V20, R5	Full	43	V20, R5	Full
1-Sept	42	V20, R6	Full	43	V20, R6	Full
7-Sept	42	R6	Full	43	R6	Full
13-Sept	42	R6	Full	43	R6	Full
21-Sept	42	R7	Full	43	R7	Full
5-Oct	42	R8	Full	43	R8	Full

**Table 6d.** Insect Counts\*, 2011, Calloway

Date	Sweeps	Producer						University					
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
25-July	50	3	2	3	6	0	19	3	0	5	16	0	33
4-Aug	50	0	1	0	7	0	0	1	0	13	0	0	2
18-Aug	50	0	12	0	3	0	0	8	0	3	0	0	0
25-Aug	50	0	3	0	1	0	3	4	0	1	1	5	5
1-Sept	50	0	5	0	1	0	13	0	5	2	7	0	25
7-Sept	50	0	6	0	2	0	9	0	2	0	1	1	9
14-Sept	50	0	6	2	5	4	16	0	5	4	2	2	7
21-Sept	50	0	3	1	2	2	3	0	5	0	0	1	3

\*Total number of insects per ten sweeps

**Table 6e.** Leaf Nutrient Analysis 2011, Calloway

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.5	0.4
K	1.5-2.3	1.9	1.7
Mg	0.3-0.7	0.3	0.4
Ca	0.8-1.4	1.1	1.1
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	21	17
Zn	21-80	39	41
Mn	17-100	86	77
Fe	25-300	96	90
Cu	4-30	7	8

Date: 7/25  
Growth Stage: R2

## Carlisle

### Site 7, Carlisle

Producer: Philip Bean  
 County: Carlisle  
 County Agent: Carla Harper  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 36° 54' 29.5"  
 Longitude: W 88° 58' 30"

**Table 7a.** Costs and Returns, 2011, Carlisle

Partial Costs/a <sup>†</sup>	Prod. \$/a	Univ. \$/a
Seed	40.18	43.71
Herbicide	1.73	1.73
Insecticide	0	0
Fungicide	11.09	0
Fertilizer	0	0
Total Partial Cost/a	53.00	45.44
Partial Return/a <sup>‡</sup>	568.23	628.68
Partial Net Return/a	515.23	583.24

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

### Field Notes

**June 7**—Philp planted the field. His half was planted at a population of 125,000. Because there was delay in soybean planting a request was made to plant the university higher 136,000 seeds per acre. The variety was Pioneer 94Y20.

**June 22**—Visted the field with Carla, the ANR agent and flagged the university half and producer half. Field is pretty dry and stand is thin at V1. Hopefully, the rain coming in will allow more beans to emerge.

**June 28**—The rain helped. Stand has improved greatly with the university half at 107,332 (85.9 percent emergence) seeds per acre and 112,211 seeds per acre (82.5 percent emergence) on the university half. Weed pressure (mostly Johnsongrass and palmer pigweed) are spotty and range from 2 to 11 inches. I called Philip and gave him stand count results and requested an herbicide application on the university half.

**July 5**—Signs of dieback throughout the field. There is still some Palmer amaranth, Johnsongrass, Yellow foxtail, and crabgrass present but near the border rows and areas where no soybeans emerged.

#### Producer



June 28, V2



July 5, V6



July 14, V8 R1



July 20, V11 R2

#### University



June 28, V2



July 5, V5



July 14, V8



July 20, V11 R2

**July 14**—Weed control is still good. Growth stages of the soybeans are V8, R1 and 95 percent canopy closure. Insect pressure and leaf defoliation is minimal. Leaf feeding is mostly from Japanese beetle, green clover worm, and bean leaf beetle pressure (below threshold).

**July 20**—Collected leaves for nutrient analysis. Long periods of heat and humidity

are affecting the field. Soil crusting and minor water stress are prevalent throughout. Insect pressure remains consistent. A high number of Dectes stem borer have been caught in this field so will have to look for lodging later in the season. Talk to Philip, he intends to spray and herbicide and a fungicide for anthracnose and frog-eye leaf spot. These symptoms were not observed



**Table 7b.** Practices during Growing Season, 2011, Carlisle

	Producer	University
Field Size, acres:	15	
Previous Crop:	Corn	
Soil Type:	Routon-Center silt loam, Dekoven silt loam	
P, lbs/acre	None	None
K, lbs/acre	None	None
pH	None	None
Fertilizer Recommended:	None	None
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	None	None
K <sub>2</sub> O, lbs/acre	None	None
Ag Lime, tons/acre	None	None
Planting Date:	8-June-11	
Soybean Variety:	Pioneer 94Y20	Pioneer 94Y20
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	125,000	136,000
Plant Stand, plants/a:	107,332	112,211
Herbicide application	32 oz Roundup	32 oz Roundup
Insecticide application	None	None
Fungicide application	4 oz Headline	None
Harvest Date:	25-Oct-11	
Yield, bu/acre	47.0	52.0

on the university half so no request was made on our half.

**July 27**—Insect pressure has decreased. There is a spot of K deficiency on the border rows. None has been observed within the field (both sides). Weed pressure from glyphosate resistant Palmer amaranth is heavy on the university side but in areas where there are no soybeans growing. Heavy population is likely due to flooding in the spring.

**August 3**—Green clover worm populations have increased but the number and percent defoliation is below threshold and not a threat to potential yield.

**August 18**—No disease pressure has been observed in this field so far. Soybeans are no at R4 (pod set) reproductive stage. There is some lodging on the producer half of the field. Recent rain events have brought high winds so there have been patches of lodged beans in several fields.

**August 25**—Field could use a little rain. Green clover worm numbers increased a little more on the university side. Again, the numbers are not a threat for yield loss. There was also some Frogeye leaf spot observed on the border rows. Soybeans have reached a maximum height of 47 inches (university) and 49 inches (producer). Lodging has progressed on the producer half and is showing up on the university side. Unsure to if this is due to variety trait, Decetes stem borer or wind.

**September 1**—Clover worm numbers have gone down within the field. The lodging, however, cover about 30 percent of the producer side and 10 percent of the university side. If this continues in severity there will be a yield loss.

**September 7**—Insect numbers have gone down quite a bit and the field is beginning to turnover. Disease pressure on the producer half consists of bacterial leaf blight and Cercospora. Lodging has not appeared to increase on either side.

**September 13**—Field received about a half inch of rain. Disease pressure has not progressed. The lodging has due to high winds associated with last rain event. An estimated rating for the lodging is 3 or the university side and 4 for the producer side covering over half of the field. This may reduce the yield.

**Table 7c.** Physiological Characteristics, 2011, Carlisle

Visit Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
28-June	4.5	V2		4.7	V2	
5-July	8	V5		9	V5	
14-July	14	V8, R1	95%	15	V8, R1	95%
20-July	18	V11, R2	Full	20	V11, R2	Full
27-July	25	V14, R2	Full	24	V14, R3	Full
3-Aug	39	V18, R3	Full	39	V17, r3	Full
18-Aug	41	V20, R4	Full	39	V19, R4	Full
25-Aug	49	V22, R5	Full	47	V22, R5	Full
1-Sept	49	R6	Full	47	R6	Full
7-Sept	49	R6	Full	47	R6	Full
13-Sept	49	R6	Full	47	R6	Full
21-Sept	49	R7	Full	47	R7	Full
5-Oct	49	R8	Full	47	R8	Full

**Table 7d.** Insect Counts\*, 2011, Carlisle

Date	Sweeps	Producer					University						
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
14-July	50	4	9	1	0	0	6	7	5	0	3	0	5
20-July	50	2	9	4	2	0	12	10	4	0	0	0	10
27-July	50	2	1	1	1	0	7	0	2	1	0	0	4
3-Aug	50	1	0	2	3	0	2	1	1	0	2	0	7
18-Aug	50	0	7	0	3	0	5	0	0	1	1	0	12
25-Aug	50	0	2	0	0	0	33	0	6	0	4	0	31
1-Sept	50	0	6	0	1	2	17	0	3	1	0	0	18
13-Sept	50	0	7	0	1	6	4	0	3	4	0	4	6

\*Total number of insects per ten sweeps

**Table 7e.** Leaf Nutrient Analysis 2011, Carlisle

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.6	0.5
K	1.5-2.3	2	1.9
Mg	0.3-0.7	0.4	0.4
Ca	0.8-1.4	0.8	1.1
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	31	29
Zn	21-80	49	52
Mn	17-100	43	64
Fe	25-300	97	118
Cu	4-30	9	10

Date: 7/20  
Growth Stage: R2

## Daviess

### Site 8, Daviess

Producer: Tim Horn  
 County: Daviess  
 County Agent: Clint Hardy  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 37° 41' 53.8"  
 Longitude: W 86° 55' 33.2"

**Table 8a.** Costs and Returns, 2011, Daviess County

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	45.00	38.58
Herbicide	2.37	2.37
Insecticide	2.47	0
Fungicide	14.43	0
Fertilizer	56.93	30.00
Total Partial Cost/a	121.20	70.95
Partial Return/a‡	724.76	802.37
Partial Net Return/a	603.56	731.42

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

### Field Notes

**May 31**—Tim planted the field with a Becks 362 variety. The UK side was planted at a seeding rate of 120,000 plants per acre and his half was planted at a seeding rate of 140,000 seeds per acre.

**June 7**—Soybeans are coming up nicely and are at VE growth stage. Field had a good burn down. On the producer half there is a heavy amount of Johnsongrass.

**June 21**—Weed pressure, mostly Johnsongrass and smooth pigweed has increased on the University half of the field. I took stand counts on both halves of the field. The stand on the university half was 118,831 plants per acre (99 percent emergence). On Tim's side the stand was 136,426 plants per acre (97 percent emergence). Was able to meet with Tim and Jesse today so I gave them the results for their records and requested to spray an herbicide on the university half.

**July 1**—Soybeans are at V5 growth stage and 7 inches tall. Tim sprayed the fields and the grass is showing signs of dieback. Average heights of the weeds were 4 to 5 inches on the university side; however, they

#### Producer



June 21, V2

#### University



July 1 V5



July 11, V9 R1



July 11, V8 R1

were some single cluster of weeds that was about 18 inches. On the producer half they Johnsongrass height ranged from 5 to 26 inches. There are a few glyphosate resistant marehail in the field but the population is too low to affect yield.

**July 11**—The consistent rainfall this field received has been beneficial. The beans have begun flowering (R1) and are around 19 inches tall. Canopy closure is at 95 percent the producer half and 90 percent on the university half. Began insect sweeps on both sides of the field. Most of the insects caught were bean leaf beetles, grasshoppers, and Japanese beetles. Numbers were low and so is the leaf defoliation. Sent an email to Clint, Tim and Jesse with a field update.

**July 19**—The field is progressing well. The beans are 25 inches tall on the university side and 26 inches tall on the producer half.

Insect population remains low. Field has reached full canopy closure

**July 26**—Field has undergone three weeks of excessive heat and is showing signs of stress. There are patch areas of Johnson grass, tall and ivy leaf has emerged through the canopy within the field. Insect pressure (Japanese beetles, grasshoppers, green clover worms, and bean leaf beetles) remains low.

**August 3**—Soybeans are growing rapidly. The university half has reached 41 inches and the producer half 49 inches. Reproductive stage is R4. Johnsongrass emerging through the canopy is rising in number. The field may have to be sprayed again. Received a phone call from Tim informing me that herbicide runoff from a nearby station has entered the university half of the field. A section in the back of the field covering the border rows and a few end rows has pro-

**Table 8b.** Practices during Growing Season, 2011, Daviess

	Producer	University
Field Size, acres:	8	16
Previous Crop:	Corn	
Soil Type:	Belknap silt loam	
Soil Test:		
P, lbs/acre	136	142
K, lbs/acre	262	208
pH	6.5	6.5
Fertilizer Recommended:	0 lbs P <sub>2</sub> O <sub>5</sub> 30 lbs K <sub>2</sub> O	0 lbs P <sub>2</sub> O <sub>5</sub> 60 lbs K <sub>2</sub> O
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	300	
K <sub>2</sub> O, lbs/acre	300	60
Ag Lime, tons/acre	None	None
Planting Date:	31-May-11	
Soybean Variety:	Beck 362	Beck 362
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	140,000	120,000
Plant Stand, plants/a:	136,426	118, 831
Herbicide application	22 oz Roundup	22 oz Roundup
Insecticide application	1 oz Tombstone	None
Fungicide application	2 oz Monsoon early 2 oz. After shock	None
Foliar Fertilizer:	32 oz Task Force	None
Harvest Date:	30-Sept-11	
Yield, bu/acre	60.7	67.2

nounced dieback of both smooth pigweed and soybeans. I took photos for records.

**August 16**—Soybeans are at R5 and have reached a maximum height of 50 inches. I ran into Tim while scouting and we had a meeting to discuss any updates. He sprayed 22 ounces of Roundup to control the Johnsongrass and pigweed. He also sprayed insecticide, fungicide, and foliar fertilizer on his half of the field on August 9. There was no request to apply any other these for the university side, other than the Roundup. In addition, due to the excessive heat, there were a few soybeans on the university side that have some downy mildew and charcoal rot. Currently, there is not enough to affect yield.

**August 24**—The field is at R6 with minimal defoliation and insect numbers are still low, mostly bean leaf beetles and green clover worms. Downy mildew and Septoria brown spot are found on the leaves on both halves of the field. Soybeans are starting to lean on the university half. On the producer half the beans are lodging (approximate rating=2). Most of the lodging is near wheel tracks. Also, there is some SDS pressure showing up near the wheel track area.

**September 9**—Field has been receiving decent rain over the last 16 days. Soybeans are at R6 and beginning to senesce, covering

about 10 percent of the field. The lodging has progressed on the university and producer side. This could be due to high wind associated with the latest rain event. SDS was found in patchy areas on the producer side. Cercospora was also seen on both halves of the field in low numbers.

**September 15**—There has been no further progression of lodging in the field. The university side has most of the lodging concentrated by end rows (rating=2). On the producer half it was more prevalent along wheel tracks and now it covers about half of the field. SDS is present but hard to identify at this point. Due to the excessive heat that affected most of Western Kentucky there were several plants in the field that had charcoal rot.

**September 22**—The field received some heavy rain the other day so the field will likely be harvested within a week. Overall the field is looking really good. A yield of about 60 bushels could be estimated for this field.

**Table 8c.** Physiological Characteristics, 2011, Daviess

Visit Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
21-June	4.5	V2		4	V2	
1-July	7	V5	70%	7	V5	70%
11-July	19	V8, R1	95%	17	V8, R1	95%
19-July	26	V11, R2	Full	24.5	V11, R2	Full
26-July	35	V14, R3	Full	31	V14, R3	Full
3-Aug	49	V16, R4	Full	42	V16, R4	Full
16-Aug	51	V18, R5	Full	48	V19, R5	Full
24-Aug	53	V19, R6	Full	50	V19, R6	Full
9-Sept	53	R6	Full	50	R6	Full
15-Sept	53	R6	Full	50	R6	Full
22-Sept	53	R7	Full	50	R7	Full
26-Sept	53	R8	Full	50	R8	Full

**Table 8d.** Insect Counts\*, 2011, Daviess

Date	Sweeps	Producer					University						
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
11-July	50	3	11	0	8	0	0	1	10	0	0	0	3
19-July	50	2	4	0	1	0	3	1	5	0	2	0	1
26-July	50	3	3	0	8	0	3	6	13	1	2	1	0
3-Aug	50	0	1	0	0	0	7	1	2	0	2	0	2
16-Aug	50	0	2	0	0	1	0	14	0	0	0	0	2
24-Aug	50	0	2	1	1	0	2	0	2	2	0	0	3
9-Sept	50	0	2	1	2	0	0	0	4	1	1	0	6

\*Total number of insects per ten sweeps

**Table 8e.** Leaf Nutrient Analysis 2011, Daviess

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.7	0.7
K	1.5-2.3	2.5	2.3
Mg	0.3-0.7	0.4	0.4
Ca	0.8-1.4	0.8	0.8
S	0.3-0.6	0.4	0.4
Nutrient	ppm		
B	20-60	42	40
Zn	21-80	48	44
Mn	17-100	72	54
Fe	25-300	130	120
Cu	4-30	11	10

Date: 7/19  
Growth Stage: R2

## Fulton

### Site 9, Fulton

Producer: Sam Hancock  
 County: Fulton  
 County Agent: Cam Kenimer  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 36° 35' 40"  
 Longitude: W 88° 53' 10"

**Table 9a.** Costs and Returns, 2011, Fulton

Partial Costs/a <sup>†</sup>	Prod. \$/a	Univ. \$/a
Seed	48.21	42.43
Herbicide		
Insecticide		
Fungicide		
Fertilizer		
Total Partial Cost/a		
Partial Return/a <sup>‡</sup>		
Partial Net Return/a		

<sup>†</sup> Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

<sup>‡</sup> Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

### Field Notes

**June 3**—Field was planted at a seeding rate of 140,000 seeds per acre on the university half and 125,000 seeds per acre on the producer half.

**June 17**—Soybeans have reached V1. Some volunteer corn emerging and some smooth pigweed present. There is some marestail but under control due to a good burn down prior to planting.

**June 21**—Final stand for the university half was 128,483 plants per acre and 120,226 for the producer half. Soybeans are at V3 and 6 inches tall. Weed pressure remains low.

**July 5**—Soybeans are still growing well. The field could use some rain. Volunteer corn pressure has increased on the university half so I texted Sam to apply an herbicide. Other than that weed pressure remains low.

**July 14**—Soybeans are showing water stress throughout the field. Sam sprayed the volunteer corn and there is significant die back on the volunteer corn. Soybeans are now at flowering stage with canopy reaching 90 percent. There was some herbicide

#### Producer



June 21, V3



July 5, V5



July 14, V8 R1

#### University



June 21, V3



July 5, V5



July 14 R1

injury and thrips injury noticed in the field on both halves.

**July 20**—Soybeans are at R2 growth stage so leaves will be taken for nutrient analysis. The field looks clean and no further weeds pressure has developed. The insects caught have been Japanese beetles and defec stem borers (higher number on the university half). Plants are showing signs of drought. It is approaching six weeks since the field received rain. This may affect yield if pods are unable to develop.

**July 27**—Soybeans are at a growth stage V14, R3. Field received a half in to an inch of rain. There are patches of sunburn on the upper canopy of the leaves due to the heat and dry conditions. Insect numbers are still low and no diseases have shown up. Despite the heat, soybean pods are still developing and none have fallen due to drought.

**August 4**—Field has received more rain and expecting more. Sam applied an insecticide and fungicide to his half of the field. Neither chemical was applied to the university half due to low insect and no visible disease pressure. Clover worm numbers were high on the university side, but below threshold.

**August 18**—The soybeans are at R5 reproductive stage and 48 inches in height. Clover worm numbers are higher on the university half, but not enough to threaten yield. There is some SDS showing up near the wheel tracks on the producer half so will have to watch its progression for the rest of the season.

**August 25**—UK side is beginning to lodge due to high winds. On the producer half the SDS observed earlier has showed up beyond the wheel tracks and covers 3 percent of that half of the field. Insect and weed

**Table 9b.** Practices during Growing Season, 2011, Fulton

	Producer	University
Field Size, acres:	31.8	26
Previous Crop:	Corn	
Soil Type:	Loring silt loam	
P, lbs/acre	96	138
K, lbs/acre	245	258
pH	6	6.4
Fertilizer Recommended:	30 lbs K <sub>2</sub> O	
Fertilizer Applied:	None	
P <sub>2</sub> O <sub>5</sub> , lbs/acre		
K <sub>2</sub> O, lbs/acre		
Ag Lime, tons/acre		
Planting Date:	2-June-11	
Soybean Variety:		
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	150,000	140,000
Plant Stand, plants/a:		
Herbicide application		
Insecticide application		
Fungicide application		
Harvest Date:	8-Oct-11	
Yield, bu/acre	40.1	39.3

**Table 9c.** Physiological Characteristics, 2011, Fulton

Visit Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
21-June	4	V1		4	V1	
28-June	6	V3		6	V3	
5-July	9	V5	60%	9	V5	60%
14-July	15	V8, R1	95%	16	V8, R1	95%
20-July	21	V11, R2	Full	21	V11, R2	Full
27-July	27	V14, R3	Full	26	V14, R3	Full
4-Aug	37	V17, R4	Full	39	V18, R4	Full
18-Aug	48	V21, R5	Full	48	V21, R5	Full
25-Aug	49	V23, R5	Full	49	V23, R5	Full
1-Sept	49	R6	Full	49	R6	Full
13-Sept	49	R6	Full	49	R6	Full
28-Sept	49	R8	Full	49	R8	Full
5-Oct	49	R8	Full	49	R8	Full

**Table 9d.** Insect Counts\*, 2011, Fulton

Date	Sweeps	Producer						University					
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
20-July	50	1	0	0	1	0	0	3	0	0	1	0	2
27-July	50	0	3	0	2	0	1	1	2	0	2	0	3
4-Aug	50	0	2	0	1	0	5	0	0	2	1	0	8
18-Aug	50	0	3	1	0	0	1	1	0	0	2	0	3
25-Aug	50	0	0	2	0	0	1	0	2	0	0	0	2
1-Sept	50	0	1	2	0	0	2	0	0	0	0	0	1
13-Sept	50	0	2	0	0	1	0	0	0	0	1	1	1

\*Total number of insects per ten sweeps

control are excellent because the numbers observed remained very low.

**September 1**—SDS covers close to 10 percent of the field, more abundant on border rows and end rows near the ditch in the field. The rain has helped and soybeans are now at pod fill stage (R6).

**September 13**—Field is beginning to turn-over. The soybeans are continuing to fill but the 6 weeks without rain seems to affect the soybeans. Also, I scouted for charcoal rot because the heat in July has led to several sightings in Western Kentucky. There were a few plants on the university side that have this root rot disease.

**September 28**—Soybeans are pretty dry,

but seems to not have filled. The yield may be reduced to 40 bushels per acre due to the lack of rain early in the season.

**Table 9e.** Leaf Nutrient Analysis 2011, Fulton

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.5	0.5
K	1.5-2.3	1.6	1.5
Mg	0.3-0.7	0.4	0.4
Ca	0.8-1.4	0.9	1
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	36	34
Zn	21-80	42	42
Mn	17-100	62	63
Fe	25-300	110	99
Cu	4-30	10	9

Date: 7/20

Growth Stage: R2

## Graves

### Site 10, Graves

Producer: Jed Clark  
 County: Graves  
 County Agent: Kenny Perry  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 36° 35' 30"  
 Longitude: W 88° 33' 52"

**Table 10a.** Costs and Returns, 2011, Graves County

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	61.07	45.00
Herbicide	1.30	1.30
Insecticide	2.00	0
Fungicide	11.02	0
Fertilizer	0	0
Total Partial Cost/a	75.39	46.30
Partial Return/a‡	556.14	531.96
Partial Net Return/a	480.75	485.66

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

### Field Notes

**June 10**—Jed planted his half at 190,000 seeds per acre and the university side at 140,000 seeds per acre. Both sides were planted with an Asgrow 4731 variety.

**June 20**—Soybeans are emerging nicely. Some heavy weed pressure observed from smooth pigweed (approx. 1-1.5 inches tall). There were sections on the producer half that were heavy with Japanese beetles feeding on pigweed leaves.

**June 30**—Soybeans are at V2 and reached a good stand for counts. On the producer half there was a stand of 172,498 plants per acre and 134,513 plants per acre on the university side. Some minor defoliation seed on the university side (Japanese beetles) but percent defoliation was too low to justify any application. Weeds are at optimal height for herbicide application (~4 inches) so I called Jed and asked him to spray and gave him the stand count numbers.

**July 8**—Jed sprayed on July 5th so no die-back has shown up. There is an area on the producer half where there was some herbicide injury. It's concentrated on the border rows.

#### Producer



June 30, V2



July 8, V5



July 16, V6 R1

#### University



June 30, V2



July 8, V4



July 16, V6 R1

**July 14**—The beans are growing rapidly from the rain early on. They have reached 80 percent canopy closure and are already at R1 and 12 inches tall. They upper canopy has low defoliation from Japanese beetles.

**July 25**—Beans are looking good and continue to grow fast. Weed control is still good. Began taking insect sweeps and there were some Japanese beetles on the university half (none found on the producer side) and grasshopper thus far.

**August 1**—Little to no defoliation has been observed. Few areas along the border rows have downy mildew on the upper canopy trifoliolate.

**August 18**—Identified Frogeye leaf spot and downy mildew; most of this was concentrated in the border rows and on a few soybeans on the university half. Jed informed me that he applied a fungicide and insecticide to his half for Frogeye leaf

spot and Japanese beetle control. Disease pressure on the UK side appears fairly low right now so will not recommend a fungicide now but I will continue to watch for it.

**August 25**—No further Frogeye has been observed on the university half. Insect counts remain low to a few bean leaf beetles, clover worms, and grasshoppers. There was a section of lodge soybeans on the producer half, suspect deer damage.

**September 1**—Soybeans have reached R6 pod fill stage and reached a maximum height of 43 inches. Field could use some rain. The canopy looks clean. On the university side, there was downy mildew observed on the upper canopy but not enough to reduce yield.

**September 13**—Soybeans continue to fill but the plants are showing signs of stress. Lodging was observed on the border row (both halves).

**Table 10b.** Practices during Growing Season, 2011, Graves

	Producer	University
Field Size, acres:	20	
Previous Crop:	Wheat	
Soil Type:	Grenada silt loam, Calloway silt loam	
P, lbs/acre	None	None
K, lbs/acre	None	None
pH	None	None
Fertilizer Recommended:		
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	None	
K <sub>2</sub> O, lbs/acre		
Ag Lime, tons/acre		
Planting Date:	4-June-11	
Soybean Variety:	Asgrow 4731	Asgrow 4731
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	190,000	140,000
Plant Stand, plants/a:	172,498	134,513
Herbicide application	24 oz Roundup	24 oz Roundup
Insecticide application	3 oz Lambda Cy	None
Fungicide application	4 oz Headline	None
Harvest Date:	16-Oct-11	
Yield, bu/acre	46.0	44.0

**Table 10c.** Physiological Characteristics, 2011, Graves

Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
20-June	4	V1		4	V1	
30-June	5	V2		5	V2	
8-July	8	V4	60%	8	V4	60%
14-July	11	V6, R1	80%	12	V6, R1	80%
25-July	20	V10, R2	Full	18	V9, R2	Full
1-Aug	22	V12, R3	Full	21	V12, R3	Full
18-Aug	41	V17, R4	Full	33	V16, R4	Full
25-Aug	43	V22, R5	Full	42	V22, R5	Full
1-Sept	43	R6	Full	43	R6	Full
13-Sept	43	R6	Full	43	R6	Full
21-Sept	43	R7	Full	43	R7	Full
5-Oct	43	R8	Full	43	R8	Full

**Table 10d.** Insect Counts\*, 2011, Graves

Date	Sweeps	Producer					University						
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
14-July	50	1	0	0	2	0	1	3	0	0	1	0	0
25-July	50	0	1	0	3	0	0	4	0	0	1	0	0
1-Aug	50	0	4	1	3	0	0	0	6	0	1	0	0
18-Aug	50	1	0	0	3	0	0	4	3	0	4	0	0
25-Aug	50	1	1	0	3	0	3	0	1	0	4	0	1
1-Sept	50	0	2	0	6	0	3	0	0	2	4	0	5
13-Sept	50	0	3	0	1	0	0	0	2	0	5	0	0
21-Sept	50	0	8	1	2	0	0	0	13	0	7	0	0

\*Total number of insects per ten sweeps

**September 21**—Field is turning over nicely. Lodging is concentrated on the border rows and partly in the end rows. This should not affect yield at harvest.

**Table 10e.** Leaf Nutrient Analysis 2011, Graves

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.6	0.6
K	1.5-2.3	2.7	2.7
Mg	0.3-0.7	0.3	0.3
Ca	0.8-1.4	0.8	0.8
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	34	26
Zn	21-80	55	47
Mn	17-100	78	99
Fe	25-300	103	100
Cu	4-30	10	9

Date: 7/25  
Growth Stage: R2

## Site 11, Henderson (a)

Producer: Gary Thomas  
 County: Henderson  
 County Agent: Mike Smith  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 37° 48' 50"  
 Longitude: W 87° 42' 60"

**Table 11a.** Costs and Returns, 2011, Henderson (a)

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	46.61	40.18
Herbicide	1.30	1.30
Insecticide	0	0
Fungicide	0	0
Fertilizer	0	27.50
Total Partial Cost/a	47.91	68.98
Partial Return/a‡	666.25	585.06
Partial Net Return/a	618.34	516.08

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

## Field Notes

**May 31**—Gary planted a Channel 4.1 variety. The seeding rate on the university half was 125,000 seeds per acre. On the producer half the rate was 145,000 seeds per acre.

**June 8**—Soybeans are at VE stage and emerging nicely. There are a few marestail, Johnsongrass, and crabgrass within the rows. The heaviest patch of Johnsongrass is found near the ditch.

**June 16**—Field is clean overall. Final stand for the university half of the field was 123,816 plants per acre (99 percent emergence) and 140,089 for the producer half of the field (96.6 percent emergence). Johnsongrass pressure is increasing near the ditch and in other areas of the field. No signs of disease and there is very little insect pressure.

**June 22**—Tall morning glory, wild sweet potato, Johnsongrass range from 4 to 6 inches tall. Canopy is 95 percent on both halves of the field. The field will need an herbicide application, but still pretty wet

## Henderson (a)

### Producer



June 22, V3



July 10, V8 R1

### University



June 22, V3



July 10, V8 R1

after receiving 3 inches of rain so it may take a while.

**July 10**—The plants are growing rapidly with all the rain it has received. They are at full canopy, 17 inches tall, and reached flowering stage (R1). There is some die back and minor herbicide injury on soybeans in the border rows where the spray boom turn around.

**July 15**—The soybeans continue to grow rapidly. They are 26 inches tall on the university side and 22 inches on the producer side. Weed pressure remains low. Started insect sweeps. There are signs of leaf feeding due to green clover worms and Japanese beetles. The number of insects caught is in low numbers so no action is necessary.

**July 28**—Field has now gone from really wet to really dry. The soybeans have reached R3 reproductive stage and are 37 inches tall on the university half and 35 inches on the producer half. The field overall looks clean. There are a few areas of scattered voluntary corn, smooth pigweed, tall morningglory, and Johnsongrass emerging through the canopy. Heavy patches of the grasses are found on the border rows. Insect counts are low; mostly green clover worms have been caught. Leaf defoliation remains low.

**August 3**—Soybeans remain at R3 and are now 49 inches tall on the university side and 46 inches on the producer side. Green clover worm counts are consistent with

previous visit. Septoria brown spot has shown up on lower leaves of the soybeans. There is lodging where the plants overlap.

**August 17**—Green clover worm populations have decreased. Beans have reached heights of 50 inches on the university side and 54 inches on the producer side. Lodging has continued in the field. Split a few plants open and found some were infected with *Dectes* stem borer larva. This, rapid growth, or wind could contribute to the lodging.

**August 23**—Soybeans are still at R5 reproductive stage. Some disease pressure, Frogeye leaf spot and *Cercospora* (on the border rows) were observed within the field. Insect counts remain low catching mostly grasshopper, clover worms, and green stinkbugs.

**August 31**—Incidence of Frogeye leaf spot hasn't increased. Beans are at pod fill stage (R6) and look really healthy.

**September 14**—Turnover is scattered throughout the field. Majority of plants are still green and appear healthy. Diseases noticed have been *Cercospora* and leaf blight, some with Frogeye leaf spot but not enough to reduce yield. Due to excessive heat there are plants on both halves with charcoal rot. On the university side, there is an area in the middle of the field that is badly lodged. This may reduce the yield results at the end of the season.



**Table 11b.** Practices during Growing Season, 2011, Henderson (a)

	Producer	University
Field Size, acres:	20	
Previous Crop:	Corn	
Soil Type:	Uniontown silt loam, Henshaw silt loam	
P, lbs/acre	32	32
K, lbs/acre	139	139
pH	6.1	6.1
Fertilizer Recommended:	50 lbs P <sub>2</sub> O <sub>5</sub> 90 lbs K <sub>2</sub> O	50 lbs P <sub>2</sub> O <sub>5</sub> 90 lbs K <sub>2</sub> O
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	50	50
K <sub>2</sub> O, lbs/acre	None	None
Ag Lime, tons/acre	None	None
Planting Date:	1-June-11	
Soybean Variety:	Chanel 4.1	Chanel 4.1
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	145,000	125,000
Plant Stand, plants/a:	140,089	123,331
Herbicide application	24 oz Roundup	24 oz Roundup
Insecticide application	None	None
Fungicide application	None	None
Foliar Fertilizer:	None	None
Harvest Date:	8-Oct-11	
Yield, bu/acre	55.8	49.0

**Table 11c.** Physiological Characteristics, 2011, Henderson (a)

Visit Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
16-June	3	V1		3	V1	
22-June	4.5	V3		4.5	V3	
28-June	8	V6	95%	8	V6	95%
10-July	17	V8, R1	Full	17	V8, R1	Full
15-July	22	V10, R1	Full	26	V10, R1	Full
19-July	25	V13, R2	Full	29	V13, R2	Full
28-July	35	V14, R3	Full	37	V14, R3	Full
3-Aug	46	V18, R3	Full	49	V18, R3	Full
17-Aug	52	V21, R5	Full	52	V20, R5	Full
23-Aug	52	V24, R5	Full	52	V24, R5	Full
31-Aug	52	R6	Full	52	R6	Full
14-Sept	52	R6	Full	52	R7	Full
22-Sept	52	R7	Full	52	R7	Full
8-Oct	52	R8	Full	52	R8	Full

**Table 11d.** Insect Counts\*, 2011, Henderson (a)

Date	Sweeps	Producer						University					
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
15-July	50	4	4	0	0	0	22	4	1	0	0	0	15
19-July	50	5	0	0	1	0	7	9	0	0	0	0	8
28-July	50	3	1	0	2	0	24	1	0	0	1	0	15
3-Aug	50	1	0	1	2	0	20	1	0	1	0	0	13
17-Aug	50	1	0	0	0	1	0	1	2	6	1	0	4
23-Aug	50	0	0	2	4	0	3	0	0	1	1	0	7
31-Aug	50	0	2	0	1	0	3	0	0	1	2	0	3
14-Sept	50	0	3	3	1	1	0	0	1	12	0	1	1

\*Total number of insects per ten sweeps

**Table 11e.** Leaf Nutrient Analysis 2011, Henderson (a)

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.5	0.4
K	1.5-2.3	2.2	2.1
Mg	0.3-0.7	0.3	0.3
Ca	0.8-1.4	0.8	0.7
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	54	52
Zn	21-80	62	55
Mn	17-100	54	48
Fe	25-300	129	125
Cu	4-30	11	10

Date: 7/19  
Growth Stage: R2

## Henderson (b)

### Site 12, Henderson (b)

Producer: Philip Meredith  
 County: Henderson  
 County Agent: Mike Smith  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 37° 55' 70"  
 Longitude: W 87° 46' 72"

**Table 12a.** Costs and Returns, 2011, Henderson (b)

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	47.57	39.29
Herbicide	6.15	6.15
Insecticide	14.06	0
Fungicide	11.02	0
Fertilizer	0	0
Total Partial Cost/a	78.80	45.44
Partial Return/a‡	801.17	740.28
Partial Net Return/a	722.37	694.84

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

### Field Notes

**June 4**—The field was planted with a Stein 4392 variety. The university half was planted at 110,000 seeds per acre and Philip's half was planted at 148,000 seeds per acre.

**June 16**—Flagged out the university side of the field. Soybeans are emerging nicely are 3 inches tall. There is some weed pressure from Waterhemp, Smooth pigweed, and Johnsongrass.

**June 21**—Field crusted over and this is reflected in the stand counts. The university half had a final stand of 86,772 plants per acre (78.9 percent emergence) and the producer half had 121,968 plants per acre (82.4 percent emergence). The Johnsongrass and pigweed population has taken off to heights ranging from 3 to 11 inches, so called Philip to apply an herbicide.

**July 10-11**—Philip sprayed July 1 and the field is looking very clean. There is heavy defoliation (approximately 15 percent) on the soybeans on both the university and producer half. The beans are now at V8 and 11 inches tall. Also, received a call from Philip stating there is heavy feed

#### Producer



June 22, V4



July 11, V8



July 19, V10 R1

#### University



June 22, V4



July 11, V8



July 19, V10 R1

from a worm. In 50 sweeps there were high numbers of green clover worm (confirmed earlier by Dr. Johnson). After a meeting, I was informed that the extent of the defoliation was not high enough on the university half to apply an insecticide; however, pay close attention to the leaf feeding.

**July 19**—Philip sprayed Endigo to manage the clover worms and Japanese beetles on his side of the field. He did not apply any to the university side. Field is now at full canopy closure and at flowering stage (R1). Insect counts, specifically clover worms and yellow striped army worms and leaf defoliation remain below threshold on the university half.

**August 3**—Field has received decent rain over the last week in addition to the excessive heat period. Excellent weed control is still present throughout the field. Soybeans are at V18 and R3 reproductive stage.

**August 16**—Philip applied another round of insecticide and fungicide on his half recently. None was applied to the university half. Insect pressure remains low. Some septoria brown spot was observed along the border rows. The soybeans on the university half branched out significantly in comparison to the producer half.

**August 23**—Soybeans have reached a maximum height of 38 inches (university) and 40 inches (producer) and are at R5 reproductive stage and are looking healthy. Field could use some more rain. I have collected a diverse array of stinkbugs in this field so I have been collecting them for identification at the research station.

**August 31**—Field is becoming pretty dry and there is some water stressed soybeans on the end and border rows. There are a few plants on the university side with powdery mildew on the upper leaves. There is also

**Table 12b.** Practices during Growing Season, 2011, Henderson (b)

	Producer	University
Field Size, acres:	20	
Previous Crop:	Corn	
Soil Type:	Huntington silt loam	
Soil Test:		
P, lbs/acre	None	None
K, lbs/acre	None	None
pH	None	None
Fertilizer Recommended:	None	None
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	None	None
K <sub>2</sub> O, lbs/acre	None	None
Ag Lime, tons/acre		
Planting Date:	4-June	4-June
Soybean Variety:	Stein 4392	Stein 4392
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	148,000	110,000
Plant Stand, plants/a:	136,953	128,539
Applications:		
Herbicide	24 oz Touchdown + 0.6 oz Cadet	24 oz Touchdown + 0.6 oz Cadet
Insecticide	4 oz Indigo	None
Fungicide	6 oz Headline	None
Harvest Date:	9-Oct-11	
Yield, bu/acre	65.1	62.0

**Table 12c.** Physiological Characteristics, 2011, Henderson (b)

Visit Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
16-June	3	V1		3	V1	
22-June	6	V4	70%	6	V4	70%
11-July	11.5	V8	95%	11	V8	95%
19-July	20	V10, R1	Full	20	V10, R1	Full
26-July	26	V13, R2	Full	25	V13, R2	Full
3-Aug	29	V16, R3	Full	28	V16, R3	Full
16-Aug	40	V17, R5	Full	36	V17, R5	Full
23-Aug	40	V19, R5	Full	37	V19, R5	Full
31-Aug	40	V19, R6	Full	40	V19, R6	Full
14-Sept	40	R6	Full	40	R6	Full
22-Sept	40	R7	Full	40	R7	Full
6-Oct	40	R8	Full	40	R8	Full

**Table 12d.** Insect Counts\*, 2011, Henderson (b)

Date	Sweeps	Producer						University					
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
11-July	50	0	0	1	0	0	24	1	1	0	0	0	30
19-July	50	0	0	0	0	0	1	2	0	2	1	0	6
26-July	50	0	0	1	0	0	0	0	0	0	0	0	4
3-Aug	50	0	0	0	0	0	0	0	1	0	0	0	19
16-Aug	50	0	3	1	0	0	1	0	1	6	0	0	4
31-Aug	50	0	2	0	0	0	0	4	1	1	0	0	0
14-Sept	50	0	1	5	0	0	0	0	9	1	0	0	0
22-Sept	50	0	0	4	1	0	0	1	8	0	0	0	0

\*Total number of insects per ten sweeps

some bacterial blight on the producer half and some charcoal rot scattered in the field.

**September 14**—Field has received rain and wind since the last visit. Soybeans are still at R6 reproductive stage and are beginning to senesce. Insect pressure is low. There are areas of the field that are leaning from the wind. No large areas of lodging were observed to suspect a yield loss. Also, there is a section on the producer half (four rows wide) that I suspect have SDS pressure due to the discoloration on the leaves. Took a collection of leaves to confirm if that is what is affecting the plants.

**September 22**—Field is continuing to turnover and dry down. The small scattered areas of leaning soybeans have now lodged (rating 2) on both halves of the field. Insect pressure and disease pressure has remained low in this field and a yield of 60 or more bushels is possible for this field.

**Table 12e.** Leaf Nutrient Analysis 2011, Henderson (b)

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.5	0.4
K	1.5-2.3	2.2	2.1
Mg	0.3-0.7	0.3	0.3
Ca	0.8-1.4	0.8	0.7
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	54	52
Zn	21-80	62	55
Mn	17-100	54	48
Fe	25-300	129	125
Cu	4-30	11	10

Date: 7/19  
Growth Stage: R2

## Site 13, Hickman

Producer: Jerry Peery  
 County: Hickman  
 County Agent: Darian Irvan  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 36° 43' 47.5"  
 Longitude: W 88° 58' 39"

**Table 13a.** Costs and Returns, 2011, Hickman

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	45.00	41.79
Herbicide	15.17	15.17
Insecticide	2.50	2.50
Fungicide	0	0
Fertilizer	0	0
Total Partial Cost/a	62.67	59.46
Partial Return/a‡	545.26	623.84
Partial Net Return/a	482.59	564.38

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

## 13. Hickman

**June 2**—The field was planted. The seeding rate for the university half was 130,000 seeds per acre. On Jerry's side, the seeding rate of 140,000 seeds per acre. The variety planted was Pioneer 94Y70.

**June 21**—Soybeans are at V2 growth stage and 4 inches tall. Jerry applied an herbicide and there are signs of dieback. In this field the weed pressure is marestalk, common ragweed, smooth pigweed, and crabgrass.

**June 28**—The final stand of the soybean (now at V4 and 7 inches tall) are 129,983 plants per acre on the university side (99.9 percent emergence) and 139,392 plants per acre on the producer half (99.6 percent emergence). The weeds pressure is still heavy in several spots of the field. There are patches of glyphosate resistant marestalk scattered on both halves of the field. I called Jerry to request another round of herbicide on the university half of the field because the weeds are 3 inches tall. Was informed that he will mix in an insecticide with the herbicide; a request for no insecticide was made for the university side.

## Hickman

### Producer



June 28, V4



July 5, V6



July 14, V9 R1

### University



June 28, V4



July 5, V6



July 14 V9 R1

**July 5**—Jerry sprayed the field July 1 and there are signs of dieback. Had a meeting with his sprayer and provided him with a copy of AGR-6 because he was interested in the burndown procedure for marestalk. I was informed that insecticide was added to the university side. Since it was not requested, I just kept record.

**July 14**—Soybeans are growing well. Canopy closure is full at 21 inches height on the UK side and 22 inches on the producer half. Insect sweeps identified a *Dectes* stem borers, Japanese beetles and a few grasshoppers. There is no disease pressure present and very little defoliation.

**July 20**—Weed control remain excellent. Insect populations remain low. Soybeans are at R2 reproductive stage so leaves will be taken for nutrient assessment.

**July 27**—Soybeans have reached a height of 39 inches on both halves of the field.

Some single marestalk and pigweed are beginning to emerge through the canopy. The insect pressure remains low with only a few Japanese beetles, and grasshoppers.

**August 1**—Field is showing signs of water stress and is in need of a decent rainfall. The plants continue to grow pretty fast. They are 43 inches tall and at R3.

**August 18**—The producer half of the field has reached a height of 57 inches and 55 inches on the university half. There is some lodging on the end rows. Will continue to monitor this to assess any potential yield loss.

**August 25**—The insect population is a little high, mostly green clover worms and grasshoppers. The number per 50 sweeps is not at a level where yield loss is expected. On the upper canopy on the university side there is some incidence of Downy mildew (less than 1 percent severity).

**Table 13b.** Practices during Growing Season, 2011, Hickman

	Producer	University
Field Size, acres:	25	
Previous Crop:	Corn, NT rye cover	
Soil Type:	Loring silt loam, Memphis silt loam	
P, lbs/acre	101	49
K, lbs/acre	285	266
pH	5.8	5.9
Fertilizer Recommended:	30 lbs K <sub>2</sub> O, 1 ton lime	30 lbs K <sub>2</sub> O, 1 ton lime
Fertilizer Applied:	2 tons/ac litter previous year	
P <sub>2</sub> O <sub>5</sub> , lbs/acre	None	None
K <sub>2</sub> O, lbs/acre	None	None
Ag Lime, tons/acre	None	None
Planting Date:	2-June-11	
Soybean Variety:	Pioneer 94Y70	Pioneer 94Y70
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	140,000	130,000
Plant Stand, plants/a:	139,785	129,771
Herbicide application	30 oz Touchdown	30 oz Touchdown
Insecticide application	1.28 oz Declare	* 1.28 oz Declare
Fungicide application	None	None
Harvest Date:	13-Oct-11	
Yield, bu/acre	45.1	56.1

**Table 13c.** Physiological Characteristics, 2011, Hickman

Visit Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
21-June	4	V2		4	V2	
28-June	7	V4	80%	7	V2	80%
5-July	11	V6	90%	11	V6	90%
14-July	22	V9, R1	Full	21	V9, R1	Full
20-July	33	V12, R2	Full	28	V12, R2	Full
27-July	39	V14, R3	Full	39	V14, R3	Full
1-Aug	43	V16, R3	Full	45	V16, R3	Full
18-Aug	57	V21, R5	Full	55	V21, R5	Full
25-Aug	57	R5	Full	55	R5	Full
1-Sept	57	R6	Full	55	R6	Full
13-Sept	57	R6	Full	55	R6	Full
21-Sept	57	R7	Full	55	R7	Full
28-Sept	57	R8	Full	55	R8	Full
5-Oct	57	R8	Full	55	R8	Full

**Table 13d.** Insect Counts\*, 2011, Hickman

Date	Sweeps	Producer						University					
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
14-July	50	1	0	0	1	0	0	1	0	0	4	0	0
20-July	50	4	2	0	2	0	0	0	0	2	0	0	0
27-July	50	1	3	0	3	0	1	2	0	0	2	0	0
1-Aug	50	0	1	1	3	0	2	0	0	0	1	0	2
18-Aug	50	0	0	0	4	1	7	0	1	0	5	0	1
25-Aug	50	0	0	0	2	0	7	0	1	0	5	2	6
1-Sept	50	0	6	0	0	0	0	9	0	1	0	0	0
13-Sept	50	0	4	7	0	3	3	0	3	3	0	0	4

\*Total number of insects per ten sweeps

**September 1**—Bean leaf beetle numbers are higher than previous trips. There are no signs of pod feeding or severe defoliation (won't harm yield since beans are at R6). Lodging has progressed to one-third of the field on both halves.

**September 13**—The soybeans are still at R6. Lodging has not progressed. The middle and back of the fields remain upright. Senescence is beginning on the university side of the field. Insect levels remain the same from previous visit.

**September 21**—Field is now at R7 and continuing to turnover. Due to excessive heat there are areas that have charcoal rot on the university side of the field.

**Table 13e.** Leaf Nutrient Analysis 2011, Hickman

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.7	0.6
K	1.5-2.3	2.2	2.2
Mg	0.3-0.7	0.3	0.3
Ca	0.8-1.4	0.6	0.7
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	39	42
Zn	21-80	46	62
Mn	17-100	64	82
Fe	25-300	99	109
Cu	4-30	10	10

Date: 7/20  
Growth Stage: R2

## Site 14, Trigg (a)

Producer: Barry Alexander  
 County: Trigg  
 County Agent: David Fourqurean  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 36° 58' 35"  
 Longitude W 87° 46' 72"

**Table 14a.** Costs and Returns, 2011, Trigg (a)

Partial Costs/a <sup>†</sup>	Prod. \$/a	Univ. \$/a
Seed	57.86	48.21
Herbicide	2.73	2.73
Insecticide	6.88	0
Fungicide	12.97	0
Fertilizer	0	0
Total Partial Cost/a	80.44	50.94
Partial Return/a <sup>‡</sup>	746.25	753.41
Partial Net Return/a	665.81	702.47

<sup>†</sup> Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

<sup>‡</sup> Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

## Field Notes

**July 3**—Barry planted the field at 180,000 seeds per acre on his half and 150,000 seeds per acre on the university side with an Armor Bean 47 variety.

**July 13**—Weed pressure is mostly from Johnsongrass, smooth pigweed, crabgrass, and foxtail. Soybeans are emerging well and are 5 inches tall.

**July 22**—Barry applied herbicide on both halves of the field. Took stand counts and the university side is 146,362 plants per acre (97.6 percent emergence). The producer half is 151,240 plants per acre (94.5 percent emergence).

**July 29**—The recent rainfall has been beneficial; the soybeans are growing fast. They have already reached R2 with 90 percent canopy closure. Weed control is excellent and most weeds are concentrated in the grass waterways. Some insect pressure from Japanese beetles and grasshoppers.

**August 2**—This week, began insect sweeps on both halves of the field and collected mostly green clover worms and yellow striped army worms on the university side.

## Trigg (a)

### Producer



July 3, V1



July 13, V4



July 22, V6



July 29, V10 R2

### University



July 3, V1



July 13, V4



July 22, V6



July 29, V10 R2

There were more on the university half. Percent defoliation is low and there is no need for any applications.

**August 19**—Soybeans were growth staged at V14, R4 and 33 inches in height. In an area near the border rows in the back of the field I found some Frogeye leaf spot towards the back on the university side. It was present in a low amount that it

will likely not reduce yield. Clover worm populations have decreased and leaf feeding remains low.

**August 29**—There has been no further findings of Frogeye leaf spot; however, there is a spot of Anthracnose seen on the university side. Some Downy mildew was seen on both halves in the top trifoliolate leaves. Insect pressure and leaf defoliation

**Table 14b.** Practices during Growing Season, 2011, Trigg (a)

	Producer	University
Field Size, acres:		
Previous Crop:	Wheat	
Soil Type:	Nolin silt loam, Crider silt loam	
P, lbs/acre		
K, lbs/acre		
pH		
Fertilizer Recommended:		
Fertilizer Applied:	None	
P <sub>2</sub> O <sub>5</sub> , lbs/acre		
K <sub>2</sub> O, lbs/acre		
Ag Lime, tons/acre		
Planting Date:		
Soybean Variety:	Armor 47 G7	Armor 47 G7
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	180,000	150,000
Plant Stand, plants/a:		
Herbicide	48 oz Extreme	24 oz Extreme
Insecticide	2 oz Warrior	None
Fungicide	6 oz Headline	None
Harvest Date:	10-Oct-11	
Yield, bu/acre	62.5	63.1

**Table 14c.** Physiological Characteristics, 2011, Trigg (a)

Visit Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
3-July	5	V1		5	V1	
13-July	9	V4	70%	9	V4	70%
22-July	11	V6	90%	11	V6	90%
29-July	13	V10, R2	Full	13	V8, R2	Full
2-Aug	20	V11, R3	Full	20	V10, R3	Full
19-Aug	33	V15, R4	Full	33	V14, R4	Full
29-Aug	39	V18, R5	Full	40	V18, R5	Full
17-Sept	39	R6	Full	40	R6	Full
8-Oct	39	R7	Full	40	R7	Full

**Table 14d.** Insect Counts\*, 2011, Trigg (a)

Date	Sweeps	Producer						University					
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
2-Aug	50	0	1	0	3	0	9	0	1	0	2	0	16
19-Aug	50	0	0	0	2	0	2	0	0	0	5	0	13
29-Aug	50	0	4	0	5	0	10	0	7	0	0	0	5
17-Sept	50	0	2	2	2	2	15	0	2	4	3	3	15
23-Sept	50	0	1	4	0	0	6	0	3	8	1	0	1

\*Total number of insects per ten sweeps

has decreased. There was some pod feeding from bean leaf beetles seen on the producer half. Overall field is looking very clean.

**September 17**—Field is beginning to turn over on the university half. It is still pretty green on the producer half (likely applied a fungicide). There are several areas on the university side that have lodged. Most of the affected area are by the end rows and are a rating of 3 at most (not completely down). Yield estimation for this double crop soybean field should be close to 50 bushels.

**Table 14e.** Leaf Nutrient Analysis 2011, Trigg (a)

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.5	0.5
K	1.5-2.3	2.3	2.1
Mg	0.3-0.7	0.3	0.3
Ca	0.8-1.4	0.9	1
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	32	28
Zn	21-80	36	39
Mn	17-100	85	94
Fe	25-300	122	172
Cu	4-30	9	9

Date: 8/2  
Growth Stage: R2

## Trigg (b)

### Site 15, Trigg (b)

Producer: Barry Alexander  
 County: Trigg  
 County Agent: David Fourqurean  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 36° 56' 20"  
 Longitude: W 87° 45' 33"

**Table 15 a.** Costs and Returns, 2011, Trigg (b)

Partial Costs/a <sup>†</sup>	Prod. \$/a	Univ. \$/a
Seed	57.86	51.43
Herbicide	2.73	2.73
Insecticide	6.88	0
Fungicide	12.97	0
Fertilizer	0	0
Total Partial Cost/a	80.44	54.16
Partial Return/a <sup>‡</sup>	624.46	624.46
Partial Net Return/a	544.02	570.30

<sup>†</sup> Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

<sup>‡</sup> Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

Producer



July 7, V1

University



July 7, V1



July 22, V4



July 22, V4



July 29, V6 R1



July 29, V6 R1

## Field Notes

**July 7**—Barry planted the field with a Pioneer 93Y92 variety. On the university sided the seeding rate was 160,000 seeds per acre and on the producer half 180,000 seeds per acre. Field was planted at high moisture so there are a few areas with sidewall compaction.

**July 13**—Soybeans are a growth stage of V2 and 6 inches. Both halves of the field are receiving an application of Extreme herbicide for weed control (Eastern black nightshade, prickly sida, Johnsongrass, and pigweed).

**July 22**—Stand counts for the university side are 111,862 plants per acre (70 percent emergence). On the producer half stand count results are 141,113 plants per acre (78 percent emergence). I collected some soybeans on the university side and producer side that appear to have Rhizoctonia which could be damage from the herbicide application.

**July 29**—This field could use some rain. Ground is pretty hard and dry. Plant pathology results confirmed Rhizoctonia in the beans collected from last visit. I am unable to locate any more. Weed control is excellent with some nutsedge, and prickly sida concentrated in grass waterways. There is minor defoliation from grasshoppers on the university side but not at a yield threatening level.

**August 2**—Soybeans are exhibiting some water stress, but have grown pretty tall over the last week (now at 18 inches). Canopy closure is at 100 percent. Insect pressure and weed pressure are low. The beans are at R2 so leaf tissue samples will be collected.

**August 19**—The producer applied an insecticide and a fungicide to his side of the field. The diseases seen on the university side are Downy mildew which is present at a low severity and incidence so no recommen-

dation is necessary. Insects that have been collected so far have been a low number of green clover worm (little leaf feeding).

**August 29**—Bean leaf beetle numbers are high on the producer half but there are no signs of heavy leaf feeding or pod feeding. Overall the field continues to look clean. Soybeans have reached a maximum height of 31 inches.

**September 17**—Field received a much needed rain. Soybeans growth was very rapid, and there is already 10 percent turnover on the university side. Some SDS was located on the border rows of the producer side. The amount is low that it won't affect yield. Septoria brown spot and some downy mildew was found in low numbers on the university half that should not affect yield by harvest time.



**Table 15b.** Practices during Growing Season, 2011, Trigg (b)

	Producer	University
Field Size, acres:	30	
Previous Crop:	Wheat	
Soil Type:	Crider silt loam	
Soil Test:		
P, lbs/acre		
K, lbs/acre		
pH		
Fertilizer Recommended:	None	
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre		
K <sub>2</sub> O, lbs/acre		
Ag Lime, tons/acre		
Planting Date:	21-June-11	
Soybean Variety:	Pioneer 93Y92	Pioneer 93Y92
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	180,000	160,000
Plant Stand, plants/a:		
Herbicide application	48 oz Extreme	24 oz Extreme
Insecticide application	2 oz Warrior	None
Fungicide application	6 oz Headline	None
Harvest Date:	6-Oct-11	
Yield, bu/acre	52.3	52.3

**Table 15c.** Physiological Characteristics, 2011, Trigg (b)

Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
13-July	6	V2		6	V2	
22-July	9	V4		10	V4	
29-July	14	V7, R1	90%	12	V7, R1	90%
2-Aug	18	V8, R2	Full	16	V8, R2	Full
19-Aug	30	V13, R4	Full	28	V13, R4	Full
29-Aug	31	V14, R5	Full	31	V14, R5	Full
17-Sept	31	R6	Full	31	R6	Full
23-Sept	31	R7	Full	31	R7	Full

**Table 15d.** Insect Counts\*, 2011, Trigg (b)

Date	Sweeps	Producer						University						
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	
19-Aug	50	0	0	0	2	0	3	0	0	0	0	0	0	3
29-Aug	50	0	18	1	6	0	2	0	7	0	0	1	0	0
17-Sept	50	0	2	0	3	0	0	0	1	0	6	0	0	4

\*Total number of insects per ten sweeps

**Table 15e.** Leaf Nutrient Analysis 2011, Trigg (b)

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.4	0.4
K	1.5-2.3	2.1	2.1
Mg	0.3-0.7	0.3	0.3
Ca	0.8-1.4	1	1
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	29	30
Zn	21-80	38	41
Mn	17-100	78	78
Fe	25-300	95	94
Cu	4-30	9	8

Date: 7/29  
Growth Stage: R2

# Union

**Site 16, Union**  
 Producer: Bob White  
 County: Union  
 County Agent: Rankin Powell  
 Coordinator: Amanda Martin  
 Field Location: Latitude: N 37° 31' 1.94"  
 Longitude: W 87° 56' 32.68"

Producer



University



**Table 16a.** Costs and Returns, 2011, Union

Partial Costs/a†	Prod. \$/a	Univ. \$/a
Seed	56.25	51.43
Herbicide	1.20	1.20
Insecticide	2.00	0
Fungicide	14.11	0
Fertilizer	0	15.00
Total Partial Cost/a	73.56	67.63
Partial Return/a‡	817.89	711.62
Partial Net Return/a	744.33	643.99

† Cost for seeding rate and pest management is included. Any other costs that differed were also included. Costs are an average for input prices from the region. Custom application rates are included for pesticide applications. Additional trucking, storage, and/or drying costs are not included.

‡ Soybean prices are based on the average price for 2011/2012 marketing year for soybean.

June 22, V3



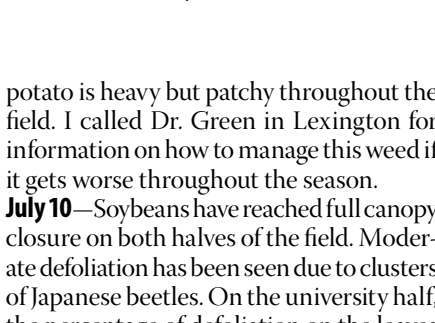
July 3, V6



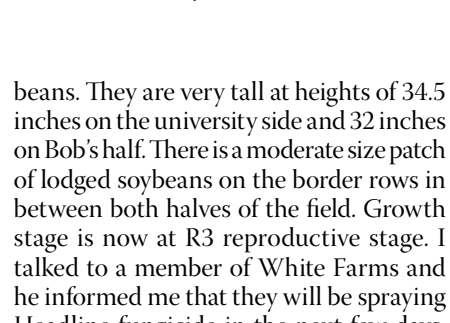
July 3, V5



July 10, V8 R1



July 10, V8 R1



## Field Notes

**May 29**—Bob planted the field. The seeding for the university half was 160,000 (lowest setting of the planter) and 175,000 seeds per acre on the producer half.

**June 7**—University half is at VE growth stage and stand looks good. Weed pressure from Johnson grass, smooth pigweed, and wild sweet potato is heavy throughout the field so I called Bob to have him spray.

**June 16**—Beans are at V1 and 3 inches tall. Weed pressure is still heavy and are the same height as the beans. There is some defoliation in the field due to bean leaf beetles.

**June 22**—Beans are growing well. There is some Japanese beetle pressure near border rows and near the end rows. I took stand counts and the university half had a stand of 152,286 plants per acre (95.2 percent emergence) and the producer half had a stand of 162,043 (92.3 percent emergence) plants per acre.

**July 3**—Beans are 12 inches tall on the university side and 11 inches on the producer half. Bob sprayed both halves of the field with 22 ounces of Roundup. Weeds are showing a lot of die back. The wild sweet

potato is heavy but patchy throughout the field. I called Dr. Green in Lexington for information on how to manage this weed if it gets worse throughout the season.

**July 10**—Soybeans have reached full canopy closure on both halves of the field. Moderate defoliation has been seen due to clusters of Japanese beetles. On the university half, the percentage of defoliation on the leaves is not enough to justify action.

**July 15**—The state has been experiencing extreme heat and humid conditions. The weed pressure remains low and the field is looking clean. Beans are overcoming the insect pressure really well. In this field (both halves) the majority of the insects caught are grasshoppers, Japanese beetles, grasshoppers, and green clover worms. Percent defoliation remains low.

**July 28**—The rain that we have received on the 24th has been beneficial for these

beans. They are very tall at heights of 34.5 inches on the university side and 32 inches on Bob's half. There is a moderate size patch of lodged soybeans on the border rows in between both halves of the field. Growth stage is now at R3 reproductive stage. I talked to a member of White Farms and he informed me that they will be spraying Headline fungicide in the next few days. There was no fungicide recommended for the university half.

**August 3**—What started out as a spot of lodging has now turned into pretty heavy lodging on both halves of the field. Approximately one third of the UK side is over (estimated rating of a 3) with close to half on the producer half. The back of the field is pretty upright. The height of the beans, now at R4 is 52 inches tall. R4 is a critical stage for soybeans so I am concerned of what this will do for yield later on.

**Table 16b.** Practices during Growing Season, 2011, Union

	Producer	University
Field Size, acres:	24.9	17
Previous Crop:	Corn	
Soil Type:	Patton silt loam, Wakeland silt loam	
Soil Test:		
P, lbs/acre	96	138
K, lbs/acre	245	258
pH	6.4	6.0
Fertilizer Recommended:	30 lbs K <sub>2</sub> O	30 lbs K <sub>2</sub> O
Fertilizer Applied:		
P <sub>2</sub> O <sub>5</sub> , lbs/acre	None	None
K <sub>2</sub> O, lbs/acre	None	30
Ag Lime, tons/acre	None	None
Planting Date:	29-May-11	
Soybean Variety:	Pioneer 93Y20	Pioneer 93Y20
Row Spacing, inches:	15	15
Seeding Rate, seeds/a:	175,000	160,000
Plant Stand, plants/a:	162,043	152, 286
Applications:		
Herbicide	22 oz Roundup	22 oz Roundup
Insecticide	None	None
Fungicide	None	4 oz Headline
Harvest Date:	29-Sept-11	
Yield, bu/acre	68.5	59.6

**Table 16c.** Physiological Characteristics, 2011, Union

Date	Producer			University		
	Height (in.)	Growth Stage	Canopy Closure	Height (in.)	Growth Stage	Canopy Closure
16-June	3	V1		3	V1	
22-June	5.5	V3		5	V3	
3-July	11	V6	90%	12	V6	90%
10-July	16	V8, R1	Full	17	V8, R1	Full
15-July	23	V11, R1	Full	29	V11, R1	Full
28-July	32	V13, R2	Full	34.5	V14, R3	Full
3-Aug	43	V17, R3	Full	50	V17, R3	Full
10-Aug	52	V20, R4	Full	52	V17, R4	Full
17-Aug	52	V19, R5	Full	52	V20, R5	Full
22-Aug	56	V20, R6	Full	52	V20, R6	Full
2-Sept	56	R7	Full	52	R7	Full
14-Sept	56	R7	Full	52	R8	Full
22-Sept	56	R8	Full	52	R8	Full

**Table 16d.** Insect Counts\*, 2011, Union

Date	Sweeps	Producer					University						
		Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms	Japanese Beetles	Bean Leaf Beetle	Green Stink Bug	Grasshopper	Loopers	Green Clover Worms
10-July	50	20	6	0	1	0	13	16	1	0	6	0	7
15-July	50	6	4	0	11	0	2	5	5	0	5	0	3
28-July	50	1	1	0	2	0	5	2	2	0	4	0	1
3-Aug	50	0	1	0	0	0	3	0	1	0	2	0	11
10-Aug	50	0	8	0	6	0	0	0	5	0	3	0	2
17-Aug	50	0	0	0	8	0	0	1	0	0	3	0	3
22-Aug	50	0	0	2	1	0	3	0	1	2	4	0	2
2-Sept	50	0	2	2	3	1	11	0	2	9	2	1	6

\*Total number of insects per ten sweeps\*

**August 10**—Lodging has progressed with only a few patches of beans remaining upright. The university half has a rating of 3 while the producer half has a 4. Signs of Downy mildew are showing up on the upper leaves on the university side of the field. Called Bob to update him on the field and informed him that I will continue to scout.

**August 17**—The field is pretty dry and could use some rain. There is no sign of further stress present. The beans are at R6 (pod fill stage). The pods are filling well on the top six nodes of the beans. They appear very healthy in light of the lodging.

**August 22**—The beans still look good and green. Seeds appear to be filling well. Insect pressure has decreased throughout the season. There are only a few grasshoppers, green stink bugs, and bean leaf beetles observed in the field.

**September 2**—Insect pressure is still

low. There are mainly stink bug nymphs. Soybeans are at R7 and there are signs of turnover showing up on the back end of the university half.

**September 14**—There is a clear visual difference amongst the university half and the producer half. The university half, which received no fungicide, have completely senesced and the producer side remains at R7 and has not completely senesced. I marked the division with a flag and took pictures to show experts in Princeton and Lexington.

**September 22**—Field had received a decent rain fall; however, the last event had heavy winds that followed. Both halves are pretty leveled in terms of lodged soybeans. The excessive heat led to the development of charcoal rot in several SoyMVP fields in Western Kentucky. Found areas of this root rot on the university side of the field. Beans are about 15 percent moisture.

**Table 16e.** Leaf Nutrient Analysis 2011, Union

Nutrient	Reference Level	Prod.	Univ.
	%		
P	0.3-0.6	0.7	0.7
K	1.5-2.3	2.3	2.3
Mg	0.3-0.7	0.4	0.4
Ca	0.8-1.4	0.9	0.8
S	0.3-0.6	0.3	0.3
Nutrient	ppm		
B	20-60	36	45
Zn	21-80	49	59
Mn	17-100	73	61
Fe	25-300	97	106
Cu	4-30	9	9

Date: 7/19  
Growth Stage: R2



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