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## Report

### 2012 Soybean Insect Losses in the Southern US

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**Abstract** Survey-based soybean insect losses were collected following the 2012 growing season to provide a record of insect pressure and soybean management practices for the year. This survey has been done annually in participating states for the last 2-9 years. The 2012 survey represents more than 10 million acres across the southern United States. Overall, the 2012 survey showed corn earworm to be the most costly insect pest in the region for the second consecutive year, costing growers more than \$20/acre in direct costs and yield loss. Soybean looper and stink bug were the two other major pests during 2012. More than 60% of the acreage was scouted for a fee and more than 50% of the acreage was planted with an insecticide seed treatment. Estimated yield losses from insects were 5.6%, or \$33.31/acre. An additional \$25.77/acre was spent on insect monitoring and protection, resulting in total insect losses plus costs of \$59.08/acre during 2012, similar to the losses plus costs estimates in 2010 and 2011.

**Key Words:** soybean, yield loss, pest management

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## Introduction

Soybean losses have been compiled annually since 2004 in Mississippi (MS) (Musser and Catchot 2008), 2008 in Tennessee (TN) (Musser et al. 2009), 2009 in Arkansas (AR) (Musser et al. 2010), and 2011 in Alabama (AL), Louisiana (LA), North Carolina (NC) and Virginia (VA) (Musser et al. 2012). These survey-based losses provide an annual record of insect pressure and management decisions. A comparable survey is conducted annually in cotton across all U.S. cotton producing states (Williams 2010). While the costs and losses estimated for a pest in any given year are somewhat subjective, these losses provide an historical record of pest pressure and management practices and provide an estimate of the economic impact of the various soybean pests. Over time, the changes in estimated losses and insecticide applications provide a reliable record of shifts in pest damage and management practices.

## Materials and Methods

An informal telephone conversation or written survey was conducted with numerous crop consultants and extension personnel in the fall of 2012. People who actively scouted soybean fields and those who assisted growers in making soybean pest management decisions were surveyed. These surveys were compiled and then combined with the authors' own experiences to estimate fields in the table. Acreage, yield and price data were drawn from Agricultural Statistics Service publications (USDA NASS) before final estimates were published, so values in the tables may differ slightly from final NASS values. The estimates were placed in an Excel spreadsheet (Microsoft Office 2010, Microsoft Corp.) to make the various calculations. The actual formulas used in the spreadsheet were published by Musser and Catchot (2008).

## Results and Discussion

Yields and prices in the surveyed states were high during 2012, making soybean production very profitable. Consistent with a crop that has become more valuable, the intensity of soybean management, as demonstrated by scouted acres, continued to increase, reaching 61% during 2012. The adoption of insecticide seed treatments also continued to increase, with 55% of soybeans planted with a seed treatment during 2012 (Table 1). Seed treatments were most widely adopted in the midsouthern states (AR, LA, MS and TN), whereas seed treatments were adopted on fewer acres in the southeastern states (AL, NC and VA). Highest insect losses were found in Arkansas, which is consistent with results for 2011. Lowest insect losses were found in North Carolina during 2012. The highest number of pesticide applications was made in Louisiana, while the fewest were made in Virginia (Table 1).

For the second consecutive year, corn earworm, *Helicoverpa zea* (Lepidoptera: Noctuidae), was the most expensive insect pest overall in terms of lost yield and control costs. It was the most expensive pest in four of the states (AR, MS, NC and VA). The stink bug complex (Pentatomidae: Hemiptera) was the primary pest in TN and LA, while soybean looper (*Chrysodeixis includens*, Lepidoptera: Noctuidae) was the most expensive pest in AL. While *H. zea* was the most damaging pest overall during 2012, it was not as damaging as during 2011, as both the number of insecticide applications and the yield reductions associated with this pest decreased from record high 2011 levels. The soybean looper was the second most damaging insect overall, costing growers more than \$10/acre in expenses and lost yield. The stink bug complex has frequently been the number one soybean pest, but caused little damage during 2011. Following a mild winter, stink bug densities were higher during 2012, making it the third most damaging pest overall, but still less damaging than it had been during most years of this survey. Costs plus losses for all other insects were less than \$2.50/acre.

The 2011 survey first recorded soybean losses for *Megacopta cribraria* (Hemiptera: Plataspidae), commonly known as the kudzu bug. During 2012, the soybean acres infested with kudzu bug increased by 24 fold to 366,600 acres, and the acreage sprayed for this pest increased to 61,100 acres, a 6.4 fold increase. Furthermore, it was only reported as a pest of soybean in NC during 2011, but was reported

from VA, TN, NC and AL during 2012. Costs and losses for this pest are likely to continue to escalate as this pest spreads into a wider region.

**Table 1.** Soybean management and losses in surveyed states, 2004-2012.

Year	% soybeans scouted	% soybeans with insect. seed treatment	No. foliar insecticide applications	% yield loss to insects	\$ loss + cost/acre <sup>1</sup>
Alabama					
2011	33	15	0.24	1.38	11.54
2012	40	20	1.00	6.72	65.32
Arkansas					
2009	65	40	1.37	4.34	35.03
2010	60	51	1.35	13.51	73.50
2011	65	65	1.91	11.98	87.80
2012	75	65	1.56	8.33	79.08
Louisiana					
2011	65	80	4.11	3.38	66.91
2012	80	90	4.21	3.20	63.49
Mississippi					
2004-06	12	0	0.88	6.70	20.73
2007	25	2	2.10	6.83	42.73
2008	55	50	2.41	5.11	50.99
2009	75	65	2.11	4.52	46.68
2010	75	70	2.47	4.45	52.91
2011	80	75	1.77	4.78	53.55
2012	85	85	1.13	4.72	55.47
North Carolina					
2011	12	0	1.00	7.28	36.38
2012	15	5	1.25	4.43	35.25
Tennessee					
2008	20	40	1.00	4.33	26.82
2009	30	50	0.32	2.19	18.50
2010	33	47	0.93	7.75	39.42
2011	36	45	0.99	6.25	39.36
2012	44	51	1.07	3.60	36.54
Virginia					
2011	58	10	0.36	6.26	35.08
2012	50	5	0.44	4.85	37.28

<sup>1</sup> 1 acre = 0.405 ha

This year's survey was the first to estimate the species that comprise the proportions of the stink bug complex (Pentatomidae: Hemiptera). The green stink bug, *Acrosternum hilare* comprised about half the overall stink bug complex followed by the brown stink bug, *Euschistus* spp. Overall, the redbanded stink bug, *Piezodorus guildinii*, only comprised 10% of the stink bug complex, but in Louisiana it made up 70% of the complex.

### State Highlights

**Alabama.** Soybean looper caused much more damage than in 2011, leading to increased insecticide applications and increased yield losses.

**Arkansas.** Increased soybean looper damage was more than offset by reduced corn earworm and grasshopper damage, resulting in fewer overall insecticide applications and reduced insect yield losses compared to 2011.

*Louisiana.* Reduced insecticide applications directed at corn earworm and threecornered alfalfa hopper in 2012 compared to 2011 were offset by increased applications for soybean looper and stink bugs, resulting in similar total insecticide applications and losses for 2011 and 2012.

*Mississippi.* Reduced corn earworm pressure led to reduced insecticide applications compared to 2011.

*North Carolina.* Reduced damage from corn earworm resulted in reduced yield losses compared to 2011.

*Tennessee.* Reduced damage from corn earworm resulted in reduced yield losses compared to 2011.

*Virginia.* Corn earworm accounted for most insect related losses plus costs, consistent with 2011.

All comparisons with 2011 are based on Musser et al (2012). The complete 2012 data for each state and all states combined are in the appendices following this report.

### Acknowledgements

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**Appendix 1.** Overall soybean insect losses from seven surveyed southern states, 2012.

Pest	Acres Infested	% Acres Infested	Acres Treated	% Acres Treated	# of apps/acres treated	Cost of 1 Insecticide	% loss per acre infested	# of apps per total soy acres	cost/acre	Overall % reduction	bushel lost per pest	Loss + Cost	Loss + Cost/acre	% Total Loss + Cost
Armyworm complex	4,047,400	40.3%	670,600	6.7%	1.00	\$9.22	0.48	0.067	\$0.62	0.19%	799,844	\$17,707,903	\$1.76	3.5%
Banded Cucumber Beetle	1,425,000	14.2%	0	0.0%	0.00	\$0.00	0.00	0.000	\$0.00	0.00%	1,344	\$19,359	\$0.00	0.0%
Bean Leaf Beetle	5,447,600	54.2%	311,000	3.1%	1.00	\$8.86	0.07	0.031	\$0.27	0.04%	164,665	\$5,129,528	\$0.51	1.0%
Blister Beetle	1,752,100	17.4%	323,200	3.2%	1.33	\$9.50	0.14	0.043	\$0.41	0.03%	103,981	\$5,576,425	\$0.55	1.1%
Corn Earworm	6,009,200	59.8%	2,574,500	25.6%	1.13	\$13.31	4.54	0.289	\$3.85	2.72%	11,289,888	\$201,384,682	\$20.04	39.7%
Cutworms	333,500	3.3%	100,200	1.0%	1.00	\$8.50	0.07	0.010	\$0.08	0.00%	9,509	\$988,553	\$0.10	0.2%
Dectes Stem Borer	4,534,500	45.1%	5,000	0.0%	1.00	\$8.45	0.05	0.000	\$0.00	0.02%	100,083	\$1,484,262	\$0.15	0.3%
Garden Webworms	1,240,000	12.3%	51,100	0.5%	1.00	\$9.50	0.11	0.005	\$0.05	0.01%	55,295	\$1,282,150	\$0.13	0.3%
Grape Colaspis	4,669,100	46.5%	750	0.0%	1.00	\$9.50	0.00	0.000	\$0.00	0.00%	3,101	\$51,800	\$0.01	0.0%
Grasshopper	5,459,800	54.3%	783,400	7.8%	1.00	\$9.88	0.21	0.078	\$0.77	0.11%	474,247	\$14,573,010	\$1.45	2.9%
Green Cloverworm	7,866,300	78.3%	637,000	6.3%	1.00	\$7.95	0.16	0.063	\$0.50	0.13%	524,601	\$12,623,554	\$1.26	2.5%
Kudzu Bug	366,600	3.6%	61,100	0.6%	1.10	\$8.00	0.21	0.007	\$0.05	0.01%	31,349	\$988,034	\$0.10	0.2%
Lesser Cornstalk Borer	200,100	2.0%	0	0.0%	0.00	\$0.00	2.07	0.000	\$0.00	0.04%	171,156	\$2,466,047	\$0.25	0.5%
Mexican Bean Beetle	11,000	0.1%	0	0.0%	0.00	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Potato Leafhopper	5,112,500	50.9%	2,000	0.0%	1.00	\$9.50	0.00	0.000	\$0.00	0.00%	0	\$19,000	\$0.00	0.0%
Saltmarsh Caterpillar	2,355,700	23.4%	2,500	0.0%	1.00	\$12.00	0.02	0.000	\$0.00	0.00%	15,503	\$253,374	\$0.03	0.0%
Soybean Aphid	7,500	0.1%	0	0.0%	0.00	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Looper	6,808,500	67.7%	3,010,000	30.0%	1.07	\$14.49	1.51	0.322	\$4.66	1.02%	4,240,369	\$107,918,944	\$10.74	21.3%
Spider Mites	1,288,300	12.8%	16,300	0.2%	1.00	\$8.92	0.76	0.002	\$0.01	0.10%	403,602	\$5,960,566	\$0.59	1.2%
Spotted Cucumber Beetle	5,693,100	56.6%	1,250	0.0%	1.00	\$9.50	0.02	0.000	\$0.00	0.01%	39,275	\$577,755	\$0.06	0.1%
Stink Bugs	7,815,800	77.8%	2,920,500	29.1%	1.44	\$9.18	1.06	0.418	\$3.84	0.82%	3,416,050	\$87,817,289	\$8.74	17.3%
Threecornered Alfalfa Hopper	8,441,800	84.0%	1,436,400	14.3%	1.01	\$8.89	0.22	0.145	\$1.29	0.18%	751,350	\$23,760,880	\$2.36	4.7%
Thrips	7,454,900	74.2%	163,500	1.6%	1.00	\$8.49	0.06	0.016	\$0.14	0.04%	182,732	\$4,020,333	\$0.40	0.8%
Trochanter Mealybug	1,000	0.0%	0	0.0%	0.00	\$0.00	2.00	0.000	\$0.00	0.00%	827	\$11,913	\$0.00	0.0%
Velvetbean Caterpillar	2,748,600	27.3%	739,480	7.4%	1.00	\$7.42	0.37	0.074	\$0.55	0.10%	425,533	\$11,621,255	\$1.16	2.3%
Other (Japanese Beetle)	800,000	8.0%	15,000	0.1%	1.00	\$7.75	0.10	0.001	\$0.01	0.01%	33,074	\$592,781	\$0.06	0.1%
								<b>1.572</b>	<b>\$17.12</b>	<b>5.59%</b>	<b>23,237,377</b>	<b>\$506,829,397</b>	<b>\$50.43</b>	<b>100.0%</b>

**SUMMARY DATA**

Data Input	
State	Combined
Year	2012
Total Acres	10,050,000
Yield/acre	39.03
Price/Bushel	14.41
% Acres Scouted	61
Scouting Fee/scouted acre	6.34
% Acres Insect Seed Trt.	55
Seed Trt Cost/treated ac	8.60

Yield & Management Results	
Total Bushels Harvested	392,250,000
Total Bushels Lost to Insects	23,237,377
Percent Yield Loss	5.59%
Yield w/o Insects	41.34
Ave. # Spray Applications	1.572
Seed Treated Acres	5,560,200
Scouted Acres	6,178,300

Economic Results		
	Total	Per Acre
Foliar Insecticides Costs	\$172,020,977	\$17.12
Seed Treatment Costs	\$47,799,180	\$4.76
Scouting costs	\$39,169,192	\$3.90
Total Costs	\$258,989,349	\$25.77
Yield Lost to insects	\$334,808,420	\$33.31
Total Losses + Costs	\$593,797,769	\$59.08

Stink Bug Composition	
Species	% of SB
Brown	28.9
Brown Marmorated	1.2
Green	51.1
Redbanded	10.1
Redshouldered	2.9
Southern Green	5.9
Total	100.0

**Appendix 2. Alabama soybean insect losses, 2012.**

Pest	Acres Infested	% Acres Infested	Acres Treated	% Acres Treated	# of apps/acres treated	Cost of 1 Insecticide	% loss per acre infested	# of apps per total soy acres	cost/acre	Overall % reduction	bushel lost per pest	Loss + Cost	Loss + Cost/acre	% Total Loss + Cost
Armyworm complex	100,000	30.3%	100	0.0%	1	\$8.50	0.01	0.000	\$0.00	0.00%	482	\$8,568	\$0.03	0.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Leaf Beetle	160,000	48.5%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Blister Beetle	220,000	66.7%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Corn Earworm	250,000	75.8%	500	0.2%	1	\$9.50	0.10	0.002	\$0.01	0.08%	12,060	\$197,707	\$0.60	1.0%
Cutworms	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Dectes Stem Borer	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Garden Webworms	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grape Colaspis	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grasshopper	330,000	100.0%	5,000	1.5%	1	\$6.00	0.01	0.015	\$0.09	0.01%	796	\$42,735	\$0.13	0.2%
Green Cloverworm	330,000	100.0%	1,000	0.3%	1	\$9.50	0.01	0.003	\$0.03	0.01%	1,592	\$34,970	\$0.11	0.2%
Kudzu Bug	5,000	1.5%	1,000	0.3%	1	\$8.50	2.00	0.003	\$0.03	0.03%	4,824	\$85,683	\$0.26	0.4%
Lesser Cornstalk Borer	20,000	6.1%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Potato Leafhopper	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Looper	330,000	100.0%	200,000	60.6%	1.1	\$9.00	4.00	0.667	\$6.00	4.00%	636,758	\$12,168,133	\$36.87	60.5%
Spider Mites	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Spotted Cucumber Beetle	330,000	100.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Stink Bugs (see box below)	330,000	100.0%	25,000	7.6%	1	\$10.00	1.00	0.076	\$0.76	1.00%	159,190	\$2,797,033	\$8.48	13.9%
Threecornered Alfalfa Hopper	330,000	100.0%	66,000	20.0%	1	\$9.50	1.50	0.200	\$1.90	1.50%	238,784	\$4,447,550	\$13.48	22.1%
Thrips	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Velvetbean Caterpillar	200,000	60.6%	10,000	3.0%	1	\$9.00	0.15	0.030	\$0.27	0.09%	14,472	\$321,548	\$0.97	1.6%
Other	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
					<b>0.996</b>	<b>\$9.09</b>			<b>6.72%</b>		<b>1,068,958</b>	<b>\$20,103,929</b>	<b>\$60.92</b>	<b>100.0%</b>

**SUMMARY DATA**

Data Input		Yield & Management Results		Economic Results			Stink Bug Composition	
State	AL	Total Bushels Harvested	14,850,000	Total		Per Acre	Species	% of SB
Year	2012	Total Bushels Lost to Insects	1,068,958	Foliar Insecticides Costs	\$3,000,600	\$9.09	Brown	30
Total Acres	330,000	Percent Yield Loss	6.72%	Seed Treatment Costs	\$660,000	\$2.00	Brown Marmorated	0
Yield/acre	45	Yield w/o Insects	48.24	Scouting costs	\$792,000	\$2.40	Green	39
Price/Bushel	\$16.00	Ave. # Spray Applications	0.996	Total Costs	\$4,452,600	\$13.49	Redbanded	1
% Acres Scouted	40	Seed Treated Acres	66,000	Yield Lost to insects	\$17,103,329	\$51.83	Redshouldered	0
Scouting Fee/scouted acre	\$6.00	Scouted Acres	132,000	Total Losses + Costs	\$21,555,929	\$65.32	Southern Green	30
% Acres Insect Seed Trt.	20						Total	100
Seed Trt Cost/treated ac	\$10.00							

**Appendix 3. Arkansas soybean insect losses, 2012.**

Pest	Acres Infested	% Acres Infested	Acres Treated	% Acres Treated	# of apps/acres treated	Cost of 1 Insecticide	% loss per acre infested	# of apps per total soy acres	cost/acre	Overall % reduction	bushel lost per pest	Loss + Cost	Loss + Cost/acre	% Total Loss + Cost
Armyworm complex	3,200,000	100.0%	450,000	14.1%	1	\$9.50	0.50	0.141	\$1.34	0.50%	680,691	\$13,804,681	\$4.31	6.2%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Leaf Beetle	3,200,000	100.0%	10,000	0.3%	1	\$9.50	0.00	0.003	\$0.03	0.00%	0	\$95,000	\$0.03	0.0%
Blister Beetle	1,000,000	31.3%	322,000	10.1%	1.33	\$9.50	0.25	0.134	\$1.27	0.08%	106,358	\$5,557,483	\$1.74	2.5%
Corn Earworm	3,200,000	100.0%	965,000	30.2%	1.25	\$16.00	5.00	0.377	\$6.03	5.00%	6,806,915	\$114,596,810	\$35.81	51.5%
Cutworms	300,000	9.4%	100,000	3.1%	1	\$8.50	0.01	0.031	\$0.27	0.00%	1,276	\$867,868	\$0.27	0.4%
Dectes Stem Borer	1,500,000	46.9%	2,000	0.1%	1	\$9.50	0.00	0.001	\$0.01	0.00%	0	\$19,000	\$0.01	0.0%
Garden Webworms	1,000,000	31.3%	50,000	1.6%	1	\$9.50	0.10	0.016	\$0.15	0.03%	42,543	\$1,070,605	\$0.33	0.5%
Grape Colaspis	3,000,000	93.8%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grasshopper	3,200,000	100.0%	750,000	23.4%	1	\$10.00	0.30	0.234	\$2.34	0.30%	408,415	\$13,217,809	\$4.13	5.9%
Green Cloverworm	3,200,000	100.0%	70,000	2.2%	1	\$7.50	0.00	0.022	\$0.16	0.00%	0	\$525,000	\$0.16	0.2%
Kudzu Bug	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Lesser Cornstalk Borer	126,000	3.9%	0	0.0%	0	\$0.00	2.00	0.000	\$0.00	0.08%	107,209	\$1,500,925	\$0.47	0.7%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Potato Leafhopper	3,200,000	100.0%	2,000	0.1%	1	\$9.50	0.00	0.001	\$0.01	0.00%	0	\$19,000	\$0.01	0.0%
Saltmarsh Caterpillar	2,000,000	62.5%	1,000	0.0%	1	\$12.00	0.00	0.000	\$0.00	0.00%	0	\$12,000	\$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Looper	2,600,000	81.3%	955,000	29.8%	1	\$18.00	1.10	0.298	\$5.37	0.89%	1,216,736	\$34,224,305	\$10.70	15.4%
Spider Mites	975,000	30.5%	10,000	0.3%	1	\$9.50	0.15	0.003	\$0.03	0.05%	62,219	\$966,072	\$0.30	0.4%
Spotted Cucumber Beetle	3,200,000	100.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Stink Bugs (see box below)	3,200,000	100.0%	505,000	15.8%	1.1	\$9.50	1.30	0.174	\$1.65	1.30%	1,769,798	\$30,054,421	\$9.39	13.5%
Threecornered Alfalfa Hopper	3,200,000	100.0%	200,000	6.3%	1	\$9.50	0.00	0.063	\$0.59	0.00%	0	\$1,900,000	\$0.59	0.9%
Thrips	3,200,000	100.0%	110,000	3.4%	1	\$9.50	0.10	0.034	\$0.33	0.10%	136,138	\$2,950,936	\$0.92	1.3%
Trochanter Mealybug	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Velvetbean Caterpillar	800,000	25.0%	100,000	3.1%	1	\$9.50	0.00	0.031	\$0.30	0.00%	0	\$950,000	\$0.30	0.4%
Other	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
								<b>1.563</b>	<b>\$19.87</b>	<b>8.33%</b>	<b>11,338,300</b>	<b>\$222,331,914</b>	<b>\$69.48</b>	<b>100.0%</b>

**SUMMARY DATA**

Data Input		Yield & Management Results		Economic Results		Stink Bug Composition	
State	AR	Total Bushels Harvested	124,800,000	Total		Species	
Year	2012	Total Bushels Lost to Insects	11,338,300	Foliar Insecticides Costs	\$63,595,720	Per Acre	% of SB
Total Acres	3,200,000	Percent Yield Loss	8.33%	Seed Treatment Costs	\$13,936,000		
Yield/acre	39	Yield w/o Insects	42.54	Scouting costs	\$16,800,000		Brown Marmorated 0
Price/Bushel	\$14.00	Ave. # Spray Applications	1.563	Total Costs	\$94,331,720		Green 65
% Acres Scouted	75	Seed Treated Acres	2,080,000	Yield Lost to insects	\$158,736,194		Redbanded 0
Scouting Fee/scouted acre	\$7.00	Scouted Acres	2,400,000	Total Losses + Costs	\$253,067,914		Redshouldered 5
% Acres Insect Seed Trt.	65						Southern Green 5
Seed Trt Cost/treated ac	\$6.70						Total 100



**Appendix 4. Louisiana soybean insect losses, 2012.**

Pest	Acres Infested	% Acres Infested	Acres Treated	% Acres Treated	# of apps/acres treated	Cost of 1 Insecticide	% loss per acre infested	# of apps per total soy acres	cost/acre	Overall % reduction	bushel lost per pest	Loss + Cost	Loss + Cost/acre	% Total Loss + Cost
Armyworm complex	110,000	100.0%	55,000	5.0%	1	\$8.00	0.00	0.050	\$0.40	0.00%	0	\$440,000	\$0.40	0.6%
Banded Cucumber Beetle	1,100,000	100.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Leaf Beetle	11,000	1.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Blister Beetle	11,000	1.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Corn Earworm	110,000	10.0%	110,000	10.0%	1	\$12.50	0.50	0.100	\$1.25	0.05%	25,000	\$1,725,000	\$1.57	2.5%
Cutworms	11,000	1.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Dectes Stem Borer	1,100,000	100.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Garden Webworms	11,000	1.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grape Colaspis	1,100,000	100.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grasshopper	1,100,000	100.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Green Cloverworm	660,000	60.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Kudzu Bug	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Lesser Cornstalk Borer	10,000	0.9%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Potato Leafhopper	1,100,000	100.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	275,000	25.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Looper	1,045,000	95.0%	900,000	81.8%	1	\$14.00	2.00	0.818	\$11.45	1.90%	950,000	\$25,900,000	\$23.55	37.1%
Spider Mites	10,000	0.9%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Spotted Cucumber Beetle	1,100,000	100.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Stink Bugs (see box below)	1,100,000	100.0%	1,045,000	95.0%	2	\$10.00	1.00	1.900	\$19.00	1.00%	500,000	\$27,900,000	\$25.36	40.0%
Threecornered Alfalfa Hopper	1,100,000	100.0%	880,000	80.0%	1	\$9.00	0.25	0.800	\$7.20	0.25%	125,000	\$9,670,000	\$8.79	13.8%
Thrips	1,100,000	100.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Velvetbean Caterpillar	1,100,000	100.0%	600,000	54.5%	1	\$7.00	0.00	0.545	\$3.82	0.00%	0	\$4,200,000	\$3.82	6.0%
Other	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
								<b>4.214</b>	<b>\$43.12</b>	<b>3.20%</b>	<b>1,600,000</b>	<b>\$69,835,000</b>	<b>\$63.49</b>	<b>100.0%</b>

**SUMMARY DATA**

Data Input	
State	LA
Year	2012
Total Acres	1,100,000
Yield/acre	44
Price/Bushel	\$14.00
% Acres Scouted	80
Scouting Fee/scouted acre	\$7.00
% Acres Insect Seed Trt.	90
Seed Trt Cost/treated ac	\$11.00

Yield & Management Results	
Total Bushels Harvested	48,400,000
Total Bushels Lost to Insects	1,600,000
Percent Yield Loss	3.20%
Yield w/o Insects	45.45
Ave. # Spray Applications	4.214
Seed Treated Acres	990,000
Scouted Acres	880,000

Economic Results		
	Total	Per Acre
Foliar Insecticides Costs	\$47,435,000	\$43.12
Seed Treatment Costs	\$10,890,000	\$9.90
Scouting costs	\$6,160,000	\$5.60
Total Costs	\$64,485,000	\$58.62
Yield Lost to insects	\$22,400,000	\$20.36
Total Losses + Costs	\$86,885,000	\$78.99

Stink Bug Composition	
Species	% of SB
Brown	9
Brown Marmorated	0
Green	5
Redbanded	70
Redshouldered	1
Southern Green	15
Total	100

Appendix 5. Mississippi soybean insect losses, 2012.

Pest	Acres Infested	% Acres Infested	Acres Treated	% Acres Treated	# of apps/acres treated	Cost of 1 Insecticide	% loss per acre infested	# of apps per total soy acres	cost/acre	Overall % reduction	bushel lost per pest	Loss + Cost	Loss + Cost/acre	% Total Loss + Cost
Armyworm complex	250,000	100.0%	5,500	0.3%	1	\$9.50	0.40	0.003	\$0.03	0.05%	44,081	\$669,384	\$0.34	0.8%
Banded Cucumber Beetle	325,000	16.3%	0	0.0%	0	\$0.00	0.01	0.000	\$0.00	0.00%	1,433	\$20,057	\$0.01	0.0%
Bean Leaf Beetle	750,000	37.7%	85,000	4.3%	1	\$11.00	0.30	0.043	\$0.47	0.11%	99,182	\$2,323,552	\$1.17	2.7%
Blister Beetle	15,000	0.8%	500	0.0%	1	\$9.50	0.00	0.000	\$0.00	0.00%	7	\$4,843	\$0.00	0.0%
Corn Earworm	950,000	47.7%	450,000	22.6%	1.2	\$15.00	4.50	0.271	\$4.07	2.15%	1,884,463	\$34,482,480	\$17.33	40.6%
Cutworms	2,500	0.1%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Dectes Stem Borer	525,000	26.4%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Garden Webworms	225,000	11.3%	1,100	0.1%	1	\$9.50	0.15	0.001	\$0.01	0.02%	14,877	\$218,733	\$0.11	0.3%
Grape Colaspis	75,000	3.8%	750	0.0%	1	\$9.50	0.10	0.000	\$0.00	0.00%	3,306	\$53,410	\$0.03	0.1%
Grasshopper	610,000	30.7%	8,500	0.4%	1	\$6.00	0.10	0.004	\$0.03	0.03%	26,889	\$427,452	\$0.21	0.5%
Green Cloverworm	1,100,000	55.3%	125,000	6.3%	1	\$8.50	0.50	0.063	\$0.53	0.28%	242,446	\$4,456,737	\$2.24	5.2%
Kudzu Bug	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Lesser Cornstalk Borer	30,000	1.5%	0	0.0%	0	\$0.00	5.00	0.000	\$0.00	0.08%	66,122	\$925,701	\$0.47	1.1%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Potato Leafhopper	800,000	40.2%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	75,000	3.8%	1,500	0.1%	1	\$12.00	0.50	0.001	\$0.01	0.02%	16,530	\$249,425	\$0.13	0.3%
Soybean Aphid	5,500	0.3%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Looper	1,400,000	70.4%	625,000	31.4%	1.3	\$13.00	1.50	0.408	\$5.31	1.06%	925,701	\$23,522,315	\$11.82	27.7%
Spider Mites	20,000	1.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Spotted Cucumber Beetle	950,000	47.7%	1,250	0.1%	1	\$9.50	0.10	0.001	\$0.01	0.05%	41,877	\$598,152	\$0.30	0.7%
Stink Bugs (see box below)	1,120,000	56.3%	450,000	22.6%	1.2	\$9.50	0.75	0.271	\$2.58	0.42%	370,280	\$10,313,926	\$5.18	12.1%
Threecornered Alfalfa Hopper	1,650,000	82.9%	100,000	5.0%	1	\$8.50	0.01	0.050	\$0.43	0.01%	7,273	\$951,827	\$0.48	1.1%
Thrips	1,800,000	90.5%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Velvetbean Caterpillar	450,000	22.6%	28,500	1.4%	1	\$8.50	2.00	0.014	\$0.12	0.45%	396,729	\$5,796,456	\$2.91	6.8%
Other	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
								<b>1.131</b>	<b>\$13.59</b>	<b>4.72%</b>	<b>4,141,196</b>	<b>\$85,014,450</b>	<b>\$42.72</b>	<b>100.0%</b>

SUMMARY DATA

Data Input		Yield & Management Results		Economic Results		Stink Bug Composition	
State	MS	Total Bushels Harvested	83,580,000	Total		Species	% of SB
Year	2012	Total Bushels Lost to Insects	4,141,196	Foliar Insecticides Costs	\$27,037,700	Brown	60
Total Acres	1,990,000	Percent Yield Loss	4.72%	Seed Treatment Costs	\$16,915,000	Brown Marmorated	0
Yield/acre	42	Yield w/o Insects	44.08	Scouting costs	\$8,457,500	Green	35
Price/Bushel	\$14.00	Ave. # Spray Applications	1.131	Total Costs	\$52,410,200	Redbanded	1
% Acres Scouted	85	Seed Treated Acres	1,691,500	Yield Lost to insects	\$57,976,750	Redshouldered	2
Scouting Fee/scouted acre	\$5.00	Scouted Acres	1,691,500	Total Losses + Costs	\$110,386,950	Southern Green	2
% Acres Insect Seed Trt.	85					Total	100
Seed Trt Cost/treated ac	\$10.00						

**Appendix 6. North Carolina soybean insect losses, 2012.**

Pest	Acres Infested	% Acres Infested	Acres Treated	% Acres Treated	# of apps/acres treated	Cost of 1 Insecticide	% loss per acre infested	# of apps per total soy acres	cost/acre	Overall % reduction	bushel lost per pest	Loss + Cost	Loss + Cost/acre	% Total Loss + Cost
Armyworm complex	287,400	17.7%	139,000	8.6%	1	\$9.00	0.50	0.086	\$0.77	0.09%	48,115	\$1,973,201	\$1.22	3.6%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Leaf Beetle	316,600	19.5%	212,500	13.1%	1	\$8.00	0.50	0.131	\$1.05	0.10%	53,003	\$2,495,577	\$1.54	4.6%
Blister Beetle	471,100	29.1%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Corn Earworm	874,200	54.0%	819,000	50.6%	1	\$10.00	5.00	0.506	\$5.06	2.70%	1,463,530	\$30,157,588	\$18.62	55.1%
Cutworms	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Dectes Stem Borer	208,500	12.9%	0	0.0%	0	\$0.00	0.01	0.000	\$0.00	0.00%	698	\$10,479	\$0.01	0.0%
Garden Webworms	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grape Colaspis	486,100	30.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grasshopper	94,800	5.9%	19,000	1.2%	1	\$8.00	0.10	0.012	\$0.09	0.01%	3,174	\$199,644	\$0.12	0.4%
Green Cloverworm	1,056,300	65.2%	206,000	12.7%	1	\$8.00	0.10	0.127	\$1.02	0.07%	35,368	\$2,178,871	\$1.34	4.0%
Kudzu Bug	354,600	21.9%	59,100	3.6%	1.1	\$8.00	0.18	0.040	\$0.32	0.04%	21,371	\$840,864	\$0.52	1.5%
Lesser Cornstalk Borer	2,100	0.1%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Mexican Bean Beetle	11,000	0.7%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Potato Leafhopper	12,500	0.8%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	700	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Looper	733,400	45.3%	180,000	11.1%	1	\$12.00	2.00	0.111	\$1.33	0.91%	491,125	\$9,531,782	\$5.88	17.4%
Spider Mites	3,300	0.2%	300	0.0%	1	\$8.00	0.00	0.000	\$0.00	0.00%	0	\$2,400	\$0.00	0.0%
Spotted Cucumber Beetle	113,100	7.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Stink Bugs (see box below)	665,800	41.1%	355,500	21.9%	1	\$8.00	0.50	0.219	\$1.76	0.21%	111,464	\$4,517,075	\$2.79	8.3%
Threecornered Alfalfa Hopper	841,800	52.0%	10,400	0.6%	1	\$8.00	0.50	0.006	\$0.05	0.26%	140,929	\$2,198,542	\$1.36	4.0%
Thrips	134,900	8.3%	13,500	0.8%	1	\$7.00	0.00	0.008	\$0.06	0.00%	0	\$94,500	\$0.06	0.2%
Trochanter Mealybug	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Velvetbean Caterpillar	198,600	12.3%	980	0.1%	1	\$8.00	0.50	0.001	\$0.00	0.06%	33,248	\$506,898	\$0.31	0.9%
Other	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
								<b>1.248</b>	<b>\$11.51</b>	<b>4.43%</b>	<b>2,402,025</b>	<b>\$54,707,421</b>	<b>\$33.77</b>	<b>100.0%</b>

**SUMMARY DATA**

Data Input		Yield & Management Results		Economic Results		Stink Bug Composition	
State	NC	Total Bushels Harvested	51,840,000	Total		Species	% of SB
Year	2012	Total Bushels Lost to Insects	2,402,025	Foliar Insecticides Costs	\$18,653,020	Brown	64
Total Acres	1,620,000	Percent Yield Loss	4.43%	Seed Treatment Costs	\$810,000	Brown Marmorated	1
Yield/acre	32	Yield w/o Insects	33.48	Scouting costs	\$1,579,500	Green	34
Price/Bushel	\$15.01	Ave. # Spray Applications	1.248	Total Costs	\$21,042,520	Redbanded	0
% Acres Scouted	15	Seed Treated Acres	81,000	Yield Lost to insects	\$36,054,401	Redshouldered	0
Scouting Fee/scouted acre	\$6.50	Scouted Acres	243,000	Total Losses + Costs	\$57,096,921	Southern Green	1
% Acres Insect Seed Trt.	5					Total	100
Seed Trt Cost/treated ac	\$10.00						

**Appendix 7. Tennessee soybean insect losses, 2012.**

Pest	Acres Infested	% Acres Infested	Acres Treated	% Acres Treated	# of apps/acres treated	Cost of 1 Insecticide	% loss per acre infested	# of apps per total soy acres	cost/acre	Overall % reduction	bushel lost per pest	Loss + Cost	Loss + Cost/acre	% Total Loss + Cost
Armyworm complex	90,000	7.4%	20,000	1.6%	1	\$7.75	1.00	0.016	\$0.13	0.07%	35,477	\$694,253	\$0.57	1.9%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Leaf Beetle	1,000,000	82.0%	3,000	0.2%	1	\$7.75	0.01	0.002	\$0.02	0.01%	3,942	\$83,167	\$0.07	0.2%
Blister Beetle	30,000	2.5%	700	0.1%	1	\$7.75	0.05	0.001	\$0.00	0.00%	591	\$14,413	\$0.01	0.0%
Corn Earworm	175,000	14.3%	30,000	2.5%	1.1	\$10.30	1.90	0.027	\$0.28	0.27%	131,068	\$2,332,141	\$1.91	6.3%
Cutworms	20,000	1.6%	200	0.0%	1	\$7.75	1.00	0.000	\$0.00	0.02%	7,884	\$121,384	\$0.10	0.3%
Dectes Stem Borer	1,200,000	98.4%	3,000	0.2%	1	\$7.75	0.20	0.002	\$0.02	0.20%	94,606	\$1,461,258	\$1.20	3.9%
Garden Webworms	4,000	0.3%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grape Colaspis	8,000	0.7%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grasshopper	115,000	9.4%	900	0.1%	1	\$7.75	1.00	0.001	\$0.01	0.09%	45,332	\$696,021	\$0.57	1.9%
Green Cloverworm	1,220,000	100.0%	230,000	18.9%	1	\$7.75	0.50	0.189	\$1.46	0.50%	240,456	\$5,437,438	\$4.46	14.7%
Kudzu Bug	2,000	0.2%	1,000	0.1%	1	\$7.75	1.00	0.001	\$0.01	0.00%	788	\$19,733	\$0.02	0.1%
Lesser Cornstalk Borer	12,000	1.0%	0	0.0%	0	\$0.00	1.00	0.000	\$0.00	0.01%	4,730	\$71,900	\$0.06	0.2%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Potato Leafhopper	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	5,000	0.4%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Aphid	2,000	0.2%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Looper	700,000	57.4%	150,000	12.3%	1.1	\$11.50	0.60	0.135	\$1.56	0.34%	165,560	\$4,414,015	\$3.62	11.9%
Spider Mites	275,000	22.5%	6,000	0.5%	1	\$8.00	3.00	0.005	\$0.04	0.68%	325,207	\$4,991,154	\$4.09	13.5%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Stink Bugs (see box below)	1,000,000	82.0%	490,000	40.2%	1.2	\$7.75	0.90	0.482	\$3.74	0.74%	354,772	\$9,949,531	\$8.16	26.8%
Threecornered Alfalfa Hopper	1,220,000	100.0%	180,000	14.8%	1.1	\$7.75	0.50	0.162	\$1.26	0.50%	240,456	\$5,189,438	\$4.25	14.0%
Thrips	1,220,000	100.0%	40,000	3.3%	1	\$6.20	0.10	0.033	\$0.20	0.10%	48,091	\$978,988	\$0.80	2.6%
Trochanter Mealybug	1,000	0.1%	0	0.0%	0	\$0.00	2.00	0.000	\$0.00	0.00%	788	\$11,983	\$0.01	0.0%
Velvetbean Caterpillar	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Other (Japanese Beetle)	800,000	65.6%	15,000	1.2%	1	\$7.75	0.10	0.012	\$0.10	0.07%	31,535	\$595,586	\$0.49	1.6%
								<b>1.069</b>	<b>\$8.81</b>	<b>3.60%</b>	<b>1,731,286</b>	<b>\$37,062,402</b>	<b>\$30.38</b>	<b>100.0%</b>

**SUMMARY DATA**

Data Input		Yield & Management Results		Economic Results		Stink Bug Composition	
State	TN	Total Bushels Harvested	46,360,000	Total		Species	% of SB
Year	2012	Total Bushels Lost to Insects	1,731,286	Foliar Insecticides Costs	\$10,746,850	Brown	10
Total Acres	1,220,000	Percent Yield Loss	3.60%	Seed Treatment Costs	\$4,293,180	Brown Marmorated	1
Yield/acre	38	Yield w/o Insects	39.42	Scouting costs	\$3,220,800	Green	85
Price/Bushel	\$15.20	Ave. # Spray Applications	1.069	Total Costs	\$18,260,830	Redbanded	0
% Acres Scouted	44	Seed Treated Acres	622,200	Yield Lost to insects	\$26,315,552	Redshouldered	3
Scouting Fee/scouted acre	\$6.00	Scouted Acres	536,800	Total Losses + Costs	\$44,576,382	Southern Green	1
% Acres Insect Seed Trt.	51					Total	100
Seed Trt Cost/treated ac	\$6.90						

**Appendix 8.** Virginia soybean insect losses, 2012.

Pest	Acres Infested	% Acres Infested	Acres Treated	% Acres Treated	# of apps/acres treated	Cost of 1 Insecticide	% loss per acre infested	# of apps per total soy acres	cost/acre	Overall % reduction	bushel lost per pest	Loss + Cost	Loss + Cost/acre	% Total Loss + Cost
Armyworm complex	10,000	1.7%	1,000	0.2%	1	\$9.50	0.00	0.002	\$0.02	0.00%	0	\$9,500	\$0.02	0.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Leaf Beetle	10,000	1.7%	500	0.1%	1	\$7.50	0.50	0.001	\$0.01	0.01%	1,997	\$33,702	\$0.06	0.2%
Blister Beetle	5,000	0.8%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Corn Earworm	450,000	76.3%	200,000	33.9%	1	\$11.00	5.00	0.339	\$3.73	3.81%	898,557	\$15,678,358	\$26.57	79.3%
Cutworms	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Dectes Stem Borer	1,000	0.2%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Garden Webworms	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grape Colaspis	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grasshopper	10,000	1.7%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Green Cloverworm	300,000	50.8%	5,000	0.8%	1	\$7.50	0.00	0.008	\$0.06	0.00%	0	\$37,500	\$0.06	0.2%
Kudzu Bug	5,000	0.8%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Lesser Cornstalk Borer	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Potato Leafhopper	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Looper	100	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Spider Mites	5,000	0.8%	0	0.0%	1	\$8.00	1.00	0.000	\$0.00	0.01%	1,997	\$29,952	\$0.05	0.2%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Stink Bugs (see box below)	400,000	67.8%	50,000	8.5%	1	\$8.00	1.50	0.085	\$0.68	1.02%	239,615	\$3,994,229	\$6.77	20.2%
Threecornered Alfalfa Hopper	100,000	16.9%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Thrips	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Velvetbean Caterpillar	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Other	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
					<b>0.435</b>	<b>\$4.49</b>		<b>4.85%</b>	<b>1,142,166</b>	<b>\$19,783,240</b>	<b>\$33.53</b>	<b>100.0%</b>		

**SUMMARY DATA**

Data Input		Yield & Management Results		Economic Results		Stink Bug Composition	
State	VA	Total Bushels Harvested	22,420,000	Total		Species	% of SB
Year	2012	Total Bushels Lost to Insects	1,142,166	Foliar Insecticides Costs	\$2,650,750	Brown	15
Total Acres	590,000	Percent Yield Loss	4.85%	Seed Treatment Costs	\$295,000	Brown Marmorated	20
Yield/acre	38	Yield w/o Insects	39.94	Scouting costs	\$1,917,500	Green	65
Price/Bushel	\$15.00	Ave. # Spray Applications	0.435	Total Costs	\$4,863,250	Redbanded	0
% Acres Scouted	50	Seed Treated Acres	29,500	Yield Lost to insects	\$17,132,490	Redshouldered	0
Scouting Fee/scouted acre	\$6.50	Scouted Acres	295,000	Total Losses + Costs	\$21,995,740	Southern Green	0
% Acres Insect Seed Trt.	5					Total	100
Seed Trt Cost/treated ac	\$10.00						