

Report

2011 Soybean Insect Losses in the Southern US

Musser, F. R.*¹, A. L. Catchot, Jr.¹, J. A. Davis², D. A. Herbert, Jr.³, B. R. Leonard⁴, G. M. Lorenz⁵, T. Reed⁶, D. D. Reisig⁷, and S. D. Stewart⁸

¹ Mississippi State University, Department of Biochem., Mol. Biol., Entomol. and Plant Pathol., Box 9775, Mississippi State, MS 39762

² Louisiana State University Agricultural Center, Department of Entomology, 404 Life Sciences Building, Baton Rouge, LA 70803

³ Virginia Tech, Tidewater Agricultural REC, 6321 Holland Rd., Suffolk, VA 23437

⁴ Louisiana State University Agricultural Center, Northeast Region, 212 Macon Ridge Rd., Winnsboro, LA 71295

⁵ University of Arkansas CES, Lonoke Extension Center, 2001 Highway 70 East, Lonoke, AR 72086

⁶ Alabama CES, Tennessee Valley REC, 9494 Experimental Loop, Madison, AL 35756

⁷ North Carolina State University, The Vernon James REC, 207 Research Station Rd., Plymouth, NC 27962

⁸ The University of Tennessee, WTREC, 605 Airways Blvd., Jackson TN 38301

*corresponding author email: fm61@msstate.edu

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Abstract: Survey-based soybean insect losses provide a glimpse of current soybean management practices and allow one to see evolving trends. This survey was initiated in Mississippi in 2004, Tennessee in 2008, and Arkansas in 2009. The 2011 survey is the first to include Alabama, Louisiana, North Carolina, and Virginia. The 2011 survey represents nearly 9.5 million acres across the southern U.S. Overall, the 2011 survey shows corn earworm to be responsible for more than 50% of all insect-related costs and losses in the surveyed states. More than 50% of the acreage was scouted for a fee and more than 50% of the acreage was planted with a seed treatment. Estimated yield loss from insects was about 7.5%, or \$33.93/acre. An additional \$23.71/acre was spent on insect monitoring and protection, putting total insect losses plus costs at \$57.64/acre during 2011, very similar to the \$59.51/acre losses plus costs during 2010.

Key Words: soybean, yield loss, pest management

Introduction

Soybean losses have been compiled annually since 2004 in Mississippi (Musser and Catchot 2008), 2008 in Tennessee (Musser et al. 2009), and 2009 in Arkansas (Musser et al. 2010), providing an annual record of insect pressure and management decisions. These estimates are based on surveys of consultants and extension personnel. 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 spectra and grower management. The 2011 survey includes information from Alabama, Louisiana, North Carolina, and Virginia for the first time.

Materials and Methods

An informal telephone or written survey was conducted with numerous crop consultants and extension personnel in the fall of 2011. People who actively scouted soybean fields as well as those who assisted growers in making soybean pest management decisions were surveyed. These surveys were compiled and then combined with the author's own experience to estimate the various 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 might 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

Management of soybeans continued to increase slowly in the mid-southern states as demonstrated by the percentage of soybeans that were scouted. The adoption of insecticide seed treatments in this region also continued to increase with at least 45% of soybeans planted with a seed treatment in each of the mid-southern states (Table 1). In contrast, insecticide seed treatments have not yet become widely adopted in the southeastern states, as Alabama, North Carolina, and Virginia only reported 15, 0, and 10% of acreage planted with a seed treatment, respectively. Of the states participating in the survey, the highest insect losses were found in Arkansas and the highest number of pesticide applications were made in Louisiana.

For the first time since this survey began, corn earworm, *Helicoverpa zea* (Lepidoptera: Noctuidae), was the most expensive insect pest overall in terms of lost yield and control costs, accounting for 55% of all insect costs plus losses. It was the most expensive pest in all states surveyed except Alabama (stink bug) and Louisiana (soybean looper). More than half of all soybeans were sprayed at least once for this pest during 2011. This continues a trend of increasing costs and losses associated with corn earworm observed in Mississippi since 2007 (Musser and Catchot 2008, Musser et al. 2009, Musser et al. 2010, 2011). The stink bug complex, which had been the number-one soybean pest in all other years, was not very damaging in 2011, accounting for less than 10% of insect costs plus losses. Other insects accounting for at least 4% of the insect losses included the soybean looper (*Chrysodeixis includens*, Lepidoptera: Noctuidae), the armyworm complex (Lepidoptera: Noctuidae), threecornered alfalfa hopper (*Spissistilus festinus*, Hemiptera: Membracidae), and lesser cornstalk borer (*Elasmopalpus lignosellus*, Lepidoptera: Pyralidae).

The 2011 survey was the first year losses were recorded for *Megacopta cribraria* (Hemiptera: Plataspidae), (in North Carolina) commonly known as the kudzu bug and for the trochanter mealybug, *Pseudococcus sorghiellus* (Hemiptera: Pseudococcidae) (in Tennessee). Both of these insects appear to be expanding their range and could become more important pests in the future.

A comparison of foliar insecticide applications during 2011 with previous years shows that the number of applications directed at corn earworm were up sharply in Mississippi, Arkansas, and Tennessee (Table 2). Applications for stink bug and bean leaf beetle control were down in all three states.

The number of insecticide applications directed at other major pests was not much different from previous years.

The complete data for each state and all states combined are in the appendices following this report.

Table 1. Soybean management and losses in surveyed states, 2004–2011.

Year	% soybeans scouted	% soybeans with insecticidal seed treatment	No. foliar insecticide applications/acre ¹	% yield loss to insects	\$ loss + cost/acre ¹
Mississippi					
2004	10	0	0.89	8.09	25.46
2005	11	0	0.71	5.89	17.61
2006	15	0	1.04	6.12	19.12
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
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
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
Alabama					
2011	33	15	0.24	1.38	11.54
Louisiana					
2011	65	80	4.11	3.38	66.91
North Carolina					
2011	12	0	1.00	7.28	36.38
Virginia					
2011	58	10	0.36	6.26	35.08

¹ 1 acre = 0.405 ha

Table 2. Foliar insecticide use (number of applications per soybean acre) on major soybean pests past and present in Mississippi, Tennessee, and Arkansas.

Pest	MS		TN		AR	
	2004–2010	2011	2008–2010	2011	2009–2010	2011
Armyworms	0.02	0.01	0.01	0.04	0.15	0.21
Bean leaf beetle	0.30	0.03	0.01	0.00	0.05	0.00
Corn earworm	0.16	0.78	0.04	0.34	0.30	1.02
Soybean looper	0.22	0.67	0.04	0.00	0.15	0.16
Stink bug	0.68	0.11	0.50	0.34	0.35	0.14
Threecornered alfalfa hopper	0.22	0.12	0.06	0.10	0.08	0.16
All insects	1.55	1.77	0.75	0.99	1.36	1.91

References

- Musser, F. R., and A. Catchot. 2008.** Mississippi soybean insect losses. *Midsouth Entomol.* 1: 29-36.
- Musser, F. R., S. D. Stewart, and A. L. Catchot, Jr. 2009.** 2008 soybean insect losses for Mississippi and Tennessee. *Midsouth Entomol.* 2: 42-46.
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- USDA NASS.** NASS Data and Statistics, http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/index.asp.
- Williams, M. R. 2010.** Cotton insect losses, <http://www.entomology.msstate.edu/resources/tips/cotton-losses/data/>.



Appendix 1. Overall soybean insect losses from seven surveyed southern states, 2011.

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	2,679,400	28.3%	740,600	7.8%	1.00	\$7.82	1.77	0.078	\$0.61	0.50%	1,826,708	\$27,078,306	\$2.86	5.6%
Banded Cucumber Beetle	1,280,000	13.5%	0	0.0%	0.00	\$0.00	0.00	0.000	\$0.00	0.00%	1,156	\$13,474	\$0.00	0.0%
Bean Leaf Beetle	5,418,000	57.2%	102,300	1.1%	1.00	\$9.90	0.09	0.011	\$0.11	0.05%	190,378	\$3,231,565	\$0.34	0.7%
Blister Beetle	1,148,000	12.1%	40,600	0.4%	1.00	\$7.83	0.01	0.004	\$0.03	0.00%	3,441	\$358,082	\$0.04	0.1%
Corn Earworm	7,568,300	79.9%	5,017,500	53.0%	1.35	\$10.75	5.62	0.714	\$7.68	4.49%	16,391,350	\$263,762,008	\$27.84	55.0%
Cutworms	205,250	2.2%	7,700	0.1%	1.00	\$7.99	0.01	0.001	\$0.01	0.00%	713	\$69,834	\$0.01	0.0%
Dectes Stem Borer	3,144,500	33.2%	2,000	0.0%	1.00	\$7.75	0.14	0.000	\$0.00	0.05%	171,252	\$2,011,266	\$0.21	0.4%
Garden Webworms	620,650	6.6%	100,600	1.1%	1.00	\$7.75	0.74	0.011	\$0.08	0.05%	176,505	\$2,837,006	\$0.30	0.6%
Grape Colaspis	2,436,000	25.7%	11,000	0.1%	1.00	\$7.68	0.05	0.001	\$0.01	0.01%	49,136	\$657,131	\$0.07	0.1%
Grasshopper	3,886,000	41.0%	96,200	1.0%	1.00	\$7.60	0.13	0.010	\$0.08	0.05%	191,997	\$2,968,578	\$0.31	0.6%
Green Cloverworm	5,839,000	61.6%	255,700	2.7%	1.00	\$8.37	0.26	0.027	\$0.23	0.16%	592,678	\$9,047,705	\$0.95	1.9%
Kudzu Bug	15,000	0.2%	9,500	0.1%	1.00	\$8.00	0.00	0.001	\$0.01	0.00%	0	\$76,000	\$0.01	0.0%
Lesser Cornstalk Borer	1,020,000	10.8%	0	0.0%	0.00	\$0.00	5.08	0.000	\$0.00	0.55%	1,998,203	\$23,287,001	\$2.46	4.9%
Mexican Bean Beetle	85,500	0.9%	0	0.0%	0.00	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Potato Leafhopper	3,418,100	36.1%	0	0.0%	0.00	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	800,300	8.4%	4,700	0.0%	1.00	\$9.33	0.03	0.000	\$0.00	0.00%	9,635	\$156,131	\$0.02	0.0%
Soybean Aphid	28,500	0.3%	1,250	0.0%	1.00	\$8.45	0.05	0.000	\$0.00	0.00%	578	\$17,299	\$0.00	0.0%
Soybean Looper	4,668,000	49.3%	2,044,400	21.6%	1.26	\$11.91	1.40	0.271	\$3.23	0.69%	2,521,473	\$59,997,694	\$6.33	12.5%
Spider Mites	665,000	7.0%	18,200	0.2%	1.00	\$9.64	0.17	0.002	\$0.02	0.01%	42,392	\$669,435	\$0.07	0.1%
Spotted Cucumber Beetle	2,385,000	25.2%	1,500	0.0%	1.00	\$9.50	0.04	0.000	\$0.00	0.01%	38,904	\$467,639	\$0.05	0.1%
Stink Bugs	7,391,000	78.0%	1,993,000	21.0%	1.04	\$8.56	0.87	0.219	\$1.87	0.68%	2,481,086	\$46,642,945	\$4.92	9.7%
Threecornered Alfalfa Hopper	7,858,000	82.9%	1,595,000	16.8%	1.55	\$8.21	0.16	0.261	\$2.14	0.13%	475,079	\$25,823,078	\$2.73	5.4%
Thrips	7,365,000	77.7%	578,500	6.1%	1.00	\$6.21	0.14	0.061	\$0.38	0.11%	404,650	\$8,307,036	\$0.88	1.7%
Trochanter Mealybug	1,000	0.0%	0	0.0%	0.00	\$0.00	7.00	0.000	\$0.00	0.00%	2,698	\$31,439	\$0.00	0.0%
Velvetbean Caterpillar	1,022,000	10.8%	332,000	3.5%	1.00	\$6.19	0.04	0.035	\$0.22	0.00%	13,874	\$2,217,684	\$0.23	0.5%
Other	0	0.0%	0	0.0%	0.00	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
								1.707	\$16.70	7.55%	27,583,886	\$479,728,332	\$50.63	100.0%

SUMMARY DATA

Data Input	
State	Combined
Year	2011
Total Acres	9,475,000
Yield/acre	35.63
Price/Bushel	11.65
% Acres Scouted	55
Scouting Fee/scouted acre	6.29
% Acres Insect Seed Trt.	51
Seed Trt Cost/treated ac	6.97

Yield & Management Results	
Total Bushels Harvested	337,565,000
Total Bushels Lost to Insects	27,583,886
Percent Yield Loss	7.55%
Yield w/o Insects	38.54
Ave. # Spray Applications	1.707
Seed Treated Acres	4,852,750
Scouted Acres	5,179,750

Economic Results		
	Total	Per Acre
Foliar Insecticides Costs	\$158,266,448	\$16.70
Seed Treatment Costs	\$33,826,484	\$3.57
Scouting costs	\$32,595,524	\$3.44
Total Costs	\$224,688,457	\$23.71
Yield Lost to insects	\$321,461,884	\$33.93
Total Losses + Costs	\$546,150,341	\$57.64

Appendix 2. Alabama soybean insect losses, 2011.

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	32.3%	0	0.0%	0	\$8.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	\$8.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Leaf Beetle	150,000	48.4%	0	0.0%	0	\$10.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Blister Beetle	200,000	64.5%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Corn Earworm	250,000	80.6%	1,000	0.3%	1	\$9.50	0.25	0.003	\$0.03	0.20%	22,181	\$264,584	\$0.85	10.6%
Cutworms	10,000	3.2%	0	0.0%	0	\$4.00	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	10,000	3.2%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grasshopper	310,000	100.0%	5,000	1.6%	1	\$6.00	0.05	0.016	\$0.10	0.05%	5,501	\$93,261	\$0.30	3.7%
Green Cloverworm	310,000	100.0%	0	0.0%	0	\$9.50	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	25,000	8.1%	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	\$7.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	\$12.00	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	150,000	48.4%	20,000	6.5%	1	\$12.00	0.05	0.065	\$0.77	0.02%	2,662	\$270,610	\$0.87	10.8%
Spider Mites	0	0.0%	0	0.0%	0	\$9.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Spotted Cucumber Beetle	310,000	100.0%	0	0.0%	0	\$9.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Stink Bugs	250,000	80.6%	33,000	10.6%	1	\$10.00	0.75	0.106	\$1.06	0.60%	66,544	\$1,095,253	\$3.53	43.8%
Threecornered Alfalfa Hopper	310,000	100.0%	15,000	4.8%	1	\$9.50	0.50	0.048	\$0.46	0.50%	55,009	\$775,109	\$2.50	31.0%
Thrips	310,000	100.0%	0	0.0%	0	\$7.50	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	75,000	24.2%	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%
								0.239	\$2.43	1.38%	151,897	\$2,498,817	\$8.06	100.0%

SUMMARY DATA

Data Input	
State	AL
Year	2011
Total Acres	310,000
Yield/acre	35
Price/Bushel	\$11.50
% Acres Scouted	33
Scouting Fee/scouted acre	\$6.00
% Acres Insect Seed Trt.	15
Seed Trt Cost/treated ac	\$10.00

Yield & Management Results	
Total Bushels Harvested	10,850,000
Total Bushels Lost to Insects	151,897
Percent Yield Loss	1.38%
Yield w/o Insects	35.49
Ave. # Spray Applications	0.239
Seed Treated Acres	46,500
Scouted Acres	102,300

Economic Results		
	Total	Per Acre
Foliar Insecticides Costs	\$752,000	\$2.43
Seed Treatment Costs	\$465,000	\$1.50
Scouting costs	\$613,800	\$1.98
Total Costs	\$1,830,800	\$5.91
Yield Lost to insects	\$1,746,817	\$5.63
Total Losses + Costs	\$3,577,617	\$11.54

Appendix 3. Arkansas soybean insect losses, 2011.

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	2,000,000	64.0%	650,000	20.8%	1	\$7.75	2.00	0.208	\$1.61	1.28%	1,681,450	\$25,214,897	\$8.07	10.2%
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	2,750,000	88.0%	10,000	0.3%	1	\$7.75	0.02	0.003	\$0.02	0.02%	23,120	\$354,939	\$0.11	0.1%
Blister Beetle	450,000	14.4%	30,000	1.0%	1	\$7.75	0.01	0.010	\$0.07	0.00%	1,892	\$255,200	\$0.08	0.1%
Corn Earworm	3,000,000	96.0%	2,400,000	76.8%	1.33	\$11.00	8.00	1.021	\$11.24	7.68%	10,088,699	\$156,176,385	\$49.98	63.3%
Cutworms	150,000	4.8%	200	0.0%	1	\$7.75	0.01	0.000	\$0.00	0.00%	631	\$9,117	\$0.00	0.0%
Dectes Stem Borer	1,100,000	35.2%	1,000	0.0%	1	\$7.75	0.20	0.000	\$0.00	0.07%	92,480	\$1,117,507	\$0.36	0.5%
Garden Webworms	400,000	12.8%	100,000	3.2%	1	\$7.75	1.00	0.032	\$0.25	0.13%	168,145	\$2,792,740	\$0.89	1.1%
Grape Colaspis	1,000,000	32.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grasshopper	2,500,000	80.0%	25,000	0.8%	1	\$7.75	0.15	0.008	\$0.06	0.12%	157,636	\$2,085,381	\$0.67	0.8%
Green Cloverworm	1,250,000	40.0%	70,000	2.2%	1	\$7.75	0.40	0.022	\$0.17	0.16%	210,181	\$3,064,675	\$0.98	1.2%
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	350,000	11.2%	0	0.0%	0	\$0.00	5.00	0.000	\$0.00	0.56%	735,634	\$8,827,611	\$2.82	3.6%
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	1,700,000	54.4%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	85,000	2.7%	2,000	0.1%	1	\$8.00	0.00	0.001	\$0.01	0.00%	0	\$16,000	\$0.01	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	2,000,000	64.0%	500,000	16.0%	1	\$11.30	1.10	0.160	\$1.81	0.70%	924,797	\$16,747,569	\$5.36	6.8%
Spider Mites	275,000	8.8%	3,000	0.1%	1	\$9.00	0.10	0.001	\$0.01	0.01%	11,560	\$165,720	\$0.05	0.1%
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	3,000,000	96.0%	400,000	12.8%	1.1	\$7.75	1.00	0.141	\$1.09	0.96%	1,261,087	\$18,543,048	\$5.93	7.5%
Threecornered Alfalfa Hopper	3,125,000	100.0%	500,000	16.0%	1	\$7.75	0.09	0.160	\$1.24	0.09%	118,227	\$5,293,723	\$1.69	2.1%
Thrips	3,125,000	100.0%	450,000	14.4%	1	\$6.20	0.20	0.144	\$0.89	0.20%	262,727	\$5,942,718	\$1.90	2.4%
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	6.4%	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%
					1.911	\$18.48	11.98%				15,738,265	\$246,607,229	\$78.91	100.0%

SUMMARY DATA

Data Input		Yield & Management Results		Economic Results	
State	AR	Total Bushels Harvested	115,625,000	Total	
Year	2011	Total Bushels Lost to Insects	15,738,265	Foliar Insecticides Costs	\$57,748,050
Total Acres	3,125,000	Percent Yield Loss	11.98%	Seed Treatment Costs	\$13,548,438
Yield/acre	37	Yield w/o Insects	42.04	Scouting costs	\$14,218,750
Price/Bushel	\$12.00	Ave. # Spray Applications	1.911	Total Costs	\$85,515,238
% Acres Scouted	65	Seed Treated Acres	2,031,250	Yield Lost to insects	\$188,859,179
Scouting Fee/scouted acre	\$7.00	Scouted Acres	2,031,250	Total Losses + Costs	\$274,374,417
% Acres Insect Seed Trt.	65			Per Acre	
Seed Trt Cost/treated ac	\$6.67				\$18.48
					\$4.34
					\$4.55
					\$27.36
					\$60.43
					\$87.80

Appendix 4. Louisiana soybean insect losses, 2011.

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	29,400	3.0%	2,000	0.2%	1	\$7.50	0.00	0.002	\$0.02	0.00%	0	\$15,000	\$0.02	0.0%
Banded Cucumber Beetle	980,000	100.0%	0	0.0%	0	\$8.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Leaf Beetle	400,000	40.8%	4,000	0.4%	1	\$7.50	0.00	0.004	\$0.03	0.00%	0	\$30,000	\$0.03	0.1%
Blister Beetle	30,000	3.1%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Corn Earworm	755,300	77.1%	600,000	61.2%	1	\$10.50	1.00	0.612	\$6.43	0.77%	281,406	\$9,747,227	\$9.95	18.5%
Cutworms	4,500	0.5%	0	0.0%	0	\$4.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Dectes Stem Borer	6,500	0.7%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Garden Webworms	650	0.1%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grape Colaspis	900,000	91.8%	10,000	1.0%	1	\$7.50	0.13	0.010	\$0.08	0.11%	41,915	\$588,456	\$0.60	1.1%
Grasshopper	125,000	12.8%	0	0.0%	0	\$6.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Green Cloverworm	950,000	96.9%	0	0.0%	0	\$9.50	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	1.0%	0	0.0%	0	\$0.00	15.00	0.000	\$0.00	0.15%	55,886	\$684,608	\$0.70	1.3%
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	950,000	96.9%	0	0.0%	0	\$7.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	650,000	66.3%	0	0.0%	0	\$12.00	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	780,000	79.6%	700,000	71.4%	1	\$12.25	2.00	0.714	\$8.75	1.59%	581,218	\$15,694,919	\$16.02	29.7%
Spider Mites	70,000	7.1%	12,000	1.2%	1	\$10.00	0.50	0.012	\$0.12	0.04%	13,040	\$279,742	\$0.29	0.5%
Spotted Cucumber Beetle	980,000	100.0%	0	0.0%	0	\$9.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Stink Bugs	900,000	91.8%	800,000	81.6%	1	\$9.00	0.50	0.816	\$7.35	0.46%	167,659	\$9,253,823	\$9.44	17.5%
Threecornered Alfalfa Hopper	980,000	100.0%	800,000	81.6%	2	\$8.50	0.25	1.633	\$13.88	0.25%	91,281	\$14,718,192	\$15.02	27.9%
Thrips	900,000	91.8%	0	0.0%	0	\$7.50	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	600,000	61.2%	300,000	30.6%	1	\$6.00	0.00	0.306	\$1.84	0.00%	0	\$1,800,000	\$1.84	3.4%
Other	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
					4.110	\$38.48	3.38%		1,232,405	\$52,811,967	\$53.89	100.0%		

SUMMARY DATA

Data Input	
State	LA
Year	2011
Total Acres	980,000
Yield/acre	36
Price/Bushel	\$12.25
% Acres Scouted	65
Scouting Fee/scouted acre	\$6.50
% Acres Insect Seed Trt.	80
Seed Trt Cost/treated ac	\$11.00

Yield & Management Results	
Total Bushels Harvested	35,280,000
Total Bushels Lost to Insects	1,232,405
Percent Yield Loss	3.38%
Yield w/o Insects	37.26
Ave. # Spray Applications	4.110
Seed Treated Acres	784,000
Scouted Acres	637,000

Economic Results		
	Total	Per Acre
Foliar Insecticides Costs	\$37,715,000	\$38.48
Seed Treatment Costs	\$8,624,000	\$8.80
Scouting costs	\$4,140,500	\$4.23
Total Costs	\$50,479,500	\$51.51
Yield Lost to insects	\$15,096,967	\$15.41
Total Losses + Costs	\$65,576,467	\$66.91

Appendix 5. Mississippi soybean insect losses, 2011.

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	150,000	8.2%	15,000	0.8%	1	\$9.50	0.40	0.008	\$0.08	0.03%	25,834	\$413,760	\$0.23	0.5%
Banded Cucumber Beetle	300,000	16.4%	0	0.0%	0	\$9.50	0.01	0.000	\$0.00	0.00%	1,292	\$13,563	\$0.01	0.0%
Bean Leaf Beetle	800,000	43.7%	50,000	2.7%	1	\$12.00	0.30	0.027	\$0.33	0.13%	103,337	\$1,685,039	\$0.92	2.2%
Blister Beetle	8,000	0.4%	500	0.0%	1	\$9.50	0.01	0.000	\$0.00	0.00%	34	\$5,112	\$0.00	0.0%
Corn Earworm	1,300,000	71.0%	750,000	41.0%	1.9	\$12.50	4.00	0.779	\$9.73	2.84%	2,238,970	\$41,321,684	\$22.58	53.2%
Cutworms	5,000	0.3%	0	0.0%	1	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Dectes Stem Borer	500,000	27.3%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Garden Webworms	200,000	10.9%	500	0.0%	1	\$8.50	0.20	0.000	\$0.00	0.02%	17,223	\$185,090	\$0.10	0.2%
Grape Colaspis	50,000	2.7%	1,000	0.1%	1	\$9.50	0.10	0.001	\$0.01	0.00%	2,153	\$32,105	\$0.02	0.0%
Grasshopper	750,000	41.0%	10,000	0.5%	1	\$6.00	0.10	0.005	\$0.03	0.04%	32,293	\$399,075	\$0.22	0.5%
Green Cloverworm	900,000	49.2%	85,000	4.6%	1	\$9.50	0.50	0.046	\$0.44	0.25%	193,757	\$2,841,949	\$1.55	3.7%
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	25,000	1.4%	0	0.0%	0	\$0.00	5.00	0.000	\$0.00	0.07%	53,821	\$565,125	\$0.31	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	750,000	41.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	50,000	2.7%	2,500	0.1%	1	\$10.50	0.50	0.001	\$0.01	0.01%	10,764	\$139,275	\$0.08	0.2%
Soybean Aphid	10,000	0.5%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Looper	1,300,000	71.0%	700,000	38.3%	1.75	\$12.00	1.50	0.669	\$8.03	1.07%	839,614	\$23,515,944	\$12.85	30.3%
Spider Mites	10,000	0.5%	0	0.0%	0	\$0.00	0.25	0.000	\$0.00	0.00%	1,076	\$11,302	\$0.01	0.0%
Spotted Cucumber Beetle	1,000,000	54.6%	1,500	0.1%	1	\$9.50	0.10	0.001	\$0.01	0.05%	43,057	\$466,350	\$0.25	0.6%
Stink Bugs	1,100,000	60.1%	200,000	10.9%	1	\$10.00	0.25	0.109	\$1.09	0.15%	118,407	\$3,243,274	\$1.77	4.2%
Threecornered Alfalfa Hopper	1,750,000	95.6%	150,000	8.2%	1.5	\$8.50	0.01	0.123	\$1.05	0.01%	7,535	\$1,991,617	\$1.09	2.6%
Thrips	1,750,000	95.6%	2,500	0.1%	1	\$7.50	0.10	0.001	\$0.01	0.10%	75,350	\$809,924	\$0.44	1.0%
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	75,000	4.1%	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%
								1.772	\$20.83	4.78%	3,764,518	\$77,640,188	\$42.43	100.0%

SUMMARY DATA

Data Input	
State	MS
Year	2011
Total Acres	1,830,000
Yield/acre	41
Price/Bushel	\$10.50
% Acres Scouted	80
Scouting Fee/scouted acre	\$5.00
% Acres Insect Seed Trt.	75
Seed Trt Cost/treated ac	\$9.50

Yield & Management Results	
Total Bushels Harvested	75,030,000
Total Bushels Lost to Insects	3,764,518
Percent Yield Loss	4.78%
Yield w/o Insects	43.06
Ave. # Spray Applications	1.772
Seed Treated Acres	1,372,500
Scouted Acres	1,464,000

Economic Results		
	Total	Per Acre
Foliar Insecticides Costs	\$38,112,750	\$20.83
Seed Treatment Costs	\$13,038,750	\$7.13
Scouting costs	\$7,320,000	\$4.00
Total Costs	\$58,471,500	\$31.95
Yield Lost to insects	\$39,527,438	\$21.60
Total Losses + Costs	\$97,998,938	\$53.55

Appendix 6. North Carolina soybean insect losses, 2011.

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	80,000	5.6%	19,600	1.4%	1	\$9.00	0.50	0.014	\$0.12	0.03%	12,511	\$322,400	\$0.23	0.6%
Banded Cucumber Beetle	0	0.0%	0	0.0%	1	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Leaf Beetle	318,000	22.4%	34,300	2.4%	1	\$8.00	0.50	0.024	\$0.19	0.11%	49,730	\$854,752	\$0.60	1.7%
Blister Beetle	435,000	30.6%	9,800	0.7%	1	\$8.00	0.01	0.007	\$0.06	0.00%	1,361	\$94,278	\$0.07	0.2%
Corn Earworm	1,215,000	85.6%	796,500	56.1%	1.2	\$9.00	5.00	0.673	\$6.06	4.28%	1,900,069	\$30,776,009	\$21.67	60.9%
Cutworms	750	0.1%	7,400	0.5%	1	\$8.00	0.00	0.005	\$0.04	0.00%	0	\$59,200	\$0.04	0.1%
Dectes Stem Borer	437,000	30.8%	0	0.0%	0	\$0.00	0.01	0.000	\$0.00	0.00%	1,367	\$15,951	\$0.01	0.0%
Garden Webworms	0	0.0%	0	0.0%	1	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grape Colaspis	466,000	32.8%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Grasshopper	101,000	7.1%	54,000	3.8%	1	\$8.00	0.10	0.038	\$0.30	0.01%	3,159	\$468,865	\$0.33	0.9%
Green Cloverworm	879,000	61.9%	29,000	2.0%	1	\$8.00	0.10	0.020	\$0.16	0.06%	27,492	\$552,836	\$0.39	1.1%
Kudzu Bug	15,000	1.1%	9,500	0.7%	1	\$8.00	0.00	0.007	\$0.05	0.00%	0	\$76,000	\$0.05	0.2%
Lesser Cornstalk Borer	500,000	35.2%	0	0.0%	0	\$0.00	5.00	0.000	\$0.00	1.76%	781,922	\$9,125,024	\$6.43	18.1%
Mexican Bean Beetle	85,500	6.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Potato Leafhopper	8,100	0.6%	0	0.0%	1	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	300	0.0%	0	0.0%	1	\$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	395,000	27.8%	119,000	8.4%	1	\$12.00	2.00	0.084	\$1.01	0.56%	247,087	\$4,311,508	\$3.04	8.5%
Spider Mites	25,000	1.8%	400	0.0%	1	\$8.00	0.50	0.000	\$0.00	0.01%	3,910	\$48,825	\$0.03	0.1%
Spotted Cucumber Beetle	95,000	6.7%	0	0.0%	1	\$0.00	0.01	0.000	\$0.00	0.00%	297	\$3,468	\$0.00	0.0%
Stink Bugs	791,000	55.7%	150,000	10.6%	1	\$8.00	0.50	0.106	\$0.85	0.28%	123,700	\$2,643,579	\$1.86	5.2%
Threecornered Alfalfa Hopper	443,000	31.2%	0	0.0%	1	\$0.00	0.50	0.000	\$0.00	0.16%	69,278	\$808,477	\$0.57	1.6%
Thrips	20,000	1.4%	0	0.0%	1	\$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	72,000	5.1%	32,000	2.3%	1	\$8.00	0.50	0.023	\$0.18	0.03%	11,260	\$387,400	\$0.27	0.8%
Other	0	0.0%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
								1.001	\$9.03	7.28%	3,233,142	\$50,548,570	\$35.60	100.0%

SUMMARY DATA

Data Input	
State	NC
Year	2011
Total Acres	1,420,000
Yield/acre	29
Price/Bushel	\$11.67
% Acres Scouted	12
Scouting Fee/scouted acre	\$6.50
% Acres Insect Seed Trt.	0
Seed Trt Cost/treated ac	\$0.00

Yield & Management Results	
Total Bushels Harvested	41,180,000
Total Bushels Lost to Insects	3,233,142
Percent Yield Loss	7.28%
Yield w/o Insects	31.28
Ave. # Spray Applications	1.001
Seed Treated Acres	0
Scouted Acres	170,400

Economic Results		
	Total	Per Acre
Foliar Insecticides Costs	\$12,817,800	\$9.03
Seed Treatment Costs	\$0	\$0.00
Scouting costs	\$1,107,600	\$0.78
Total Costs	\$13,925,400	\$9.81
Yield Lost to insects	\$37,730,770	\$26.57
Total Losses + Costs	\$51,656,170	\$36.38

Appendix 7. Tennessee soybean insect losses, 2011.

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	320,000	25.6%	54,000	4.3%	1	\$7.75	2.00	0.043	\$0.33	0.51%	218,457	\$3,061,834	\$2.45	7.2%
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	1,000,000	80.0%	4,000	0.3%	1	\$7.75	0.04	0.003	\$0.02	0.03%	13,654	\$196,208	\$0.16	0.5%
Blister Beetle	25,000	2.0%	300	0.0%	1	\$7.75	0.00	0.000	\$0.00	0.00%	0	\$2,325	\$0.00	0.0%
Corn Earworm	600,000	48.0%	300,000	24.0%	1.4	\$10.30	7.00	0.336	\$3.46	3.36%	1,433,626	\$21,672,878	\$17.34	50.7%
Cutworms	35,000	2.8%	100	0.0%	1	\$7.75	0.01	0.000	\$0.00	0.00%	119	\$2,221	\$0.00	0.0%
Dectes Stem Borer	1,100,000	88.0%	1,000	0.1%	1	\$7.75	0.20	0.001	\$0.01	0.18%	75,095	\$916,396	\$0.73	2.1%
Garden Webworms	20,000	1.6%	100	0.0%	1	\$7.75	0.90	0.000	\$0.00	0.01%	6,144	\$75,119	\$0.06	0.2%
Grape Colaspis	10,000	0.8%	0	0.0%	0	\$0.00	1.00	0.000	\$0.00	0.01%	3,413	\$41,302	\$0.03	0.1%
Grasshopper	90,000	7.2%	1,200	0.1%	1	\$7.75	0.25	0.001	\$0.01	0.02%	7,680	\$102,230	\$0.08	0.2%
Green Cloverworm	1,250,000	100.0%	70,000	5.6%	1	\$7.75	0.40	0.056	\$0.43	0.40%	170,670	\$2,607,605	\$2.09	6.1%
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	110,000	8.8%	0	0.0%	0	\$0.00	6.00	0.000	\$0.00	0.53%	225,284	\$2,725,938	\$2.18	6.4%
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	10,000	0.8%	0	0.0%	0	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	15,000	1.2%	200	0.0%	1	\$8.00	0.00	0.000	\$0.00	0.00%	0	\$1,600	\$0.00	0.0%
Soybean Aphid	15,000	1.2%	750	0.1%	1	\$7.75	0.10	0.001	\$0.00	0.00%	512	\$12,008	\$0.01	0.0%
Soybean Looper	23,000	1.8%	400	0.0%	1	\$11.30	1.10	0.000	\$0.00	0.02%	8,636	\$109,014	\$0.09	0.3%
Spider Mites	275,000	22.0%	1,200	0.1%	1	\$9.00	0.10	0.001	\$0.01	0.02%	9,387	\$124,381	\$0.10	0.3%
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	1,100,000	88.0%	390,000	31.2%	1.1	\$7.75	0.80	0.343	\$2.66	0.70%	300,379	\$6,959,334	\$5.57	16.3%
Threecornered Alfalfa Hopper	1,250,000	100.0%	130,000	10.4%	1	\$7.75	0.25	0.104	\$0.81	0.25%	106,669	\$2,298,190	\$1.84	5.4%
Thrips	1,250,000	100.0%	125,000	10.0%	1	\$6.20	0.20	0.100	\$0.62	0.20%	85,335	\$1,807,552	\$1.45	4.2%
Trochanter Mealybug	1,000	0.1%	0	0.0%	0	\$0.00	7.00	0.000	\$0.00	0.01%	2,389	\$28,911	\$0.02	0.1%
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%
								0.990	\$8.38	6.25%	2,667,449	\$42,745,046	\$34.20	100.0%

SUMMARY DATA

Data Input	
State	TN
Year	2011
Total Acres	1,250,000
Yield/acre	32
Price/Bushel	\$12.10
% Acres Scouted	36
Scouting Fee/scouted acre	\$6.00
% Acres Insect Seed Trt.	45
Seed Trt Cost/treated ac	\$6.67

Yield & Management Results	
Total Bushels Harvested	40,000,000
Total Bushels Lost to Insects	2,667,449
Percent Yield Loss	6.25%
Yield w/o Insects	34.13
Ave. # Spray Applications	0.990
Seed Treated Acres	562,500
Scouted Acres	450,000

Economic Results		
	Total	Per Acre
Foliar Insecticides Costs	\$10,468,908	\$8.38
Seed Treatment Costs	\$3,751,875	\$3.00
Scouting costs	\$2,700,000	\$2.16
Total Costs	\$16,920,783	\$13.54
Yield Lost to insects	\$32,276,139	\$25.82
Total Losses + Costs	\$49,196,921	\$39.36

Appendix 8. Virginia soybean insect losses, 2011.

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	0	0.0%	0	0.0%	1	\$8.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	1	\$8.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Leaf Beetle	0	0.0%	0	0.0%	1	\$10.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Blister Beetle	0	0.0%	0	0.0%	1	\$0.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Corn Earworm	448,000	80.0%	170,000	30.4%	1	\$9.50	5.00	0.304	\$2.88	4.00%	836,348	\$11,233,001	\$20.06	66.2%
Cutworms	0	0.0%	0	0.0%	1	\$4.00	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%	1	\$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	1.8%	1,000	0.2%	1	\$6.00	0.01	0.002	\$0.01	0.00%	37	\$6,429	\$0.01	0.0%
Green Cloverworm	300,000	53.6%	1,700	0.3%	1	\$9.50	0.00	0.003	\$0.03	0.00%	0	\$16,150	\$0.03	0.1%
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	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%	1	\$7.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	1	\$12.00	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Soybean Aphid	3,500	0.6%	500	0.1%	1	\$9.50	0.00	0.001	\$0.01	0.00%	0	\$4,750	\$0.01	0.0%
Soybean Looper	20,000	3.6%	5,000	0.9%	1	\$12.00	0.50	0.009	\$0.11	0.02%	3,734	\$102,938	\$0.18	0.6%
Spider Mites	10,000	1.8%	1,600	0.3%	1	\$9.00	0.50	0.003	\$0.03	0.01%	1,867	\$35,869	\$0.06	0.2%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	1	\$9.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Stink Bugs	250,000	44.6%	20,000	3.6%	1	\$10.00	5.00	0.036	\$0.36	2.23%	466,712	\$5,567,188	\$9.94	32.8%
Threecornered Alfalfa Hopper	0	0.0%	0	0.0%	1	\$9.50	0.00	0.000	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Thrips	10,000	1.8%	1,000	0.2%	1	\$7.50	0.00	0.002	\$0.01	0.00%	0	\$7,500	\$0.01	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%
								0.359	\$3.44	6.26%	1,308,698	\$16,973,825	\$30.31	100.0%

SUMMARY DATA

Data Input	
State	VA
Year	2011
Total Acres	560,000
Yield/acre	35
Price/Bushel	\$11.50
% Acres Scouted	58
Scouting Fee/scouted acre	\$6.50
% Acres Insect Seed Trt.	10
Seed Trt Cost/treated ac	\$10.00

Yield & Management Results	
Total Bushels Harvested	19,600,000
Total Bushels Lost to Insects	1,308,698
Percent Yield Loss	6.26%
Yield w/o Insects	37.34
Ave. # Spray Applications	0.359
Seed Treated Acres	56,000
Scouted Acres	324,800

Economic Results		
	Total	Per Acre
Foliar Insecticides Costs	\$1,923,800	\$3.44
Seed Treatment Costs	\$560,000	\$1.00
Scouting costs	\$2,111,200	\$3.77
Total Costs	\$4,595,000	\$8.21
Yield Lost to insects	\$15,050,025	\$26.88
Total Losses + Costs	\$19,645,025	\$35.08