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Report

2009 Soybean Insect Losses for Mississippi, Tennessee, and Arkansas

Musser, F. R.*[1], G. M. Lorenz[2], S. D. Stewart[3] and A. L. Catchot, Jr[1].

[1]Department of Entomology and Plant Pathology, Mississippi State University, Box 9775, Mississippi State, MS 39762

[2]University of Arkansas CES, Lonoke Extension Center, 2001 Highway 70 East, Lonoke, AR 72086

[3]WTREC, The University of Tennessee, 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 MS in 2004, and in Tennessee in 2008. This year is the first year that Arkansas has conducted the survey. The 2009 survey shows stink bugs were the primary pest in all three states, but were less widespread than in 2008. Corn earworm pressure was much higher in 2009 than in previous years. Insect scouting and the adoption of seed treatments continued to increase in 2009.

Key Words: soybean, yield loss, pest management

Introduction

Soybean losses have been compiled annually since 2004 in Mississippi (Musser and Catchot 2008) and since 2008 in Tennessee (Musser et al. 2009), providing an annual record of insect pressure and management decisions. Arkansas joined the list of participating states in 2009. These estimates are based on surveys of consultants and extension personnel, similar to those used to estimate insect losses in cotton (Williams 2006). 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.

Materials and Methods

A telephone or written survey was conducted with numerous crop consultants and extension personnel in the fall of 2009. Surveyed people were those who actively scouted soybean fields and those who assisted growers in making soybean pest management decisions. These surveys were compiled and then combined with our own experience to estimate the various fields in the table. Acreage, yield, and price

data were drawn from Agricultural Statistics Service publications (USDA NASS). The estimates were placed in an Excel spreadsheet (Microsoft Office 2003, Microsoft Corp.) to make the various calculations. The actual formulas used in the spreadsheet were published by Musser and Catchot (2008).

Results and Discussion

The trends toward increased acreage and increased soybean management in Mississippi continued in 2009 (Table 1). Planted acreage, scouted acreage, and the use of seed treatments were all higher in 2009 than in any year since this survey began. Tennessee also experienced an increase in scouted acreage (20% to 30%) and the use of seed treatments (40% to 50%) from 2008 to 2009. Arkansas scouted acreage (65%) was intermediate between Mississippi and Tennessee. Percent yield loss in 2009 to all insects in Mississippi was the lowest during the six years of the survey, indicating that increased management is providing some benefit. In spite of reduced insect losses, total loss plus cost due to insects was similar in 2009 to the previous two years, at least partially a result of higher prices for soybeans during these years.

Table 1. Mississippi average soybean management and performance, 2004–2009.

Year	Acres (million)[1]	Yield (bu/ac)[2]	Price ($/bu)	% acres scouted	% acres with insect seed trt.	No. foliar insecticide applications	% yield loss to insects	$ loss + cost/ac
2004	1.67	37.5	6.20	10	0	0.89	8.09	25.46
2005	1.61	36.5	5.92	11	0	0.71	5.89	17.61
2006	1.67	26.0	6.23	15	0.01	1.04	6.12	19.12
2007	1.46	40.5	9.25	25	2	2.10	6.83	45.37
2008	2.00	40.0	8.75	55	50	2.41	5.11	49.60
2009	2.16[3]	36.0[3]	9.00[3]	75	65	2.11	4.52	45.56

[1] 1 acre = 0.405 ha
[2] 1 bu/ac = 67.2 kg/ha
[3] NASS estimate as of 11/17/09.

Table 2 compares the use of foliar insecticides to minimize losses from the major pests in 2009 and in previous surveys. Stink bugs (Hemiptera: Pentatomidae) were consistently the primary target of insecticide applications in all states in every year surveyed. More insecticide applications were made to control stink bugs in 2009 than applied on average over the previous five years, but less than in 2008 (Musser et al. 2009). While not listed separately in the survey, the redbanded stink bug (*Piezodorus guildinii*) comprised a much larger proportion of the stink bug complex in 2009 than in previous years, especially in the southern delta region of Mississippi where it sometimes was the majority stink bug species. This was the primary cause for the increased number of applications for stink bugs on acres that were treated in Mississippi compared to previous years. Overall, corn earworm, *Helicoverpa zea*, (Noctuidae, Lepidoptera) was the second most often targeted insect for insecticides in 2009, which was a substantial increase over previous surveys.

The ranks in losses plus costs (Table 3) mirror the number of insecticide applications (Table 2) with stink bugs causing the most losses overall in 2009 followed by corn earworm, threecornered alfalfa hopper and soybean looper. Beyond the species listed in Tables 2 and 3, yield losses and insecticide applications were relatively rare for all other pests in all states (Appendices 2-4).

Table 2. Foliar insecticide use (No. applications per soybean acre) on major soybean pests during in Mississippi, Tennessee and Arkansas.

	MS		TN		AR	Overall
Pest	2004–2008	2009	2008	2009	2009	2009
Stink bug	0.689	0.924	0.640	0.204	0.322	0.478
Corn earworm	0.043	0.313	0.004	0.012	0.274	0.228
Threecornered alfalfa hopper	0.217	0.301	0.154	0.022	0.146	0.166
Soybean looper	0.161	0.301	0.013	0.000	0.088	0.133
Armyworms	0.002	0.042	0.001	0.011	0.199	0.110
Bean leaf beetle	0.281	0.162	0.000	0.012	0.050	0.075
All insects	1.430	2.110	1.000	0.323	1.371	1.364

Table 3. Estimated losses plus management costs ($/ac) due to insect pests in Mississippi, Tennessee, and Arkansas.

	MS		TN		AR	Overall
Pest	2004–2008	2009	2008	2009	2009	2009
Stink bug	14.86	13.76	13.64	7.04	8.51	9.58
Corn earworm	0.69	8.15	1.99	1.04	7.09	6.17
Threecornered alfalfa hopper	4.14	3.55	3.27	1.29	2.19	2.40
Soybean looper	4.30	5.97	0.39	0.00	1.08	2.39
Armyworms	0.10	0.64	0.04	0.52	2.91	1.69
Bean leaf beetle	4.06	2.33	0.00	0.52	1.24	1.42
All insects	31.43	36.61	23.71	11.85	27.00	26.55

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Appendix 1. Overall soybean insect losses from Mississippi, Tennessee and Arkansas, 2009.

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	1,650,000	23.1%	787,000	11.0%	1.00	8.31	0.91	0.110	$0.91	0.21%	601,980	$12,098,293	$1.69	6.4%
Banded Cucumber Beetle	350,010	4.9%	1,500	0.0%	1.00	8.50	0.01	0.000	$0.00	0.00%	1,410	$25,780	$0.00	0.0%
Bean Leaf Beetle	6,270,000	87.7%	539,000	7.5%	1.00	9.12	0.22	0.075	$0.69	0.20%	566,925	$10,150,913	$1.42	5.3%
Blister Beetle	1,131,200	15.8%	250,800	3.5%	1.00	7.74	0.19	0.035	$0.27	0.03%	88,645	$2,759,356	$0.39	1.5%
Corn Earworm	2,660,000	37.2%	1,219,000	17.0%	1.34	8.42	3.07	0.228	$1.92	1.14%	3,287,924	$44,120,273	$6.17	23.2%
Cutworms	17,020	0.2%	1,200	0.0%	1.00	4.50	0.00	0.000	$0.00	0.00%	0	$5,400	$0.00	0.0%
Dectes Stem Borer	1,700,000	23.8%	100,300	1.4%	1.00	7.76	0.07	0.014	$0.11	0.02%	50,366	$1,243,194	$0.17	0.7%
Garden Webworms	1,622,000	22.7%	401,200	5.6%	1.00	7.73	0.71	0.056	$0.43	0.16%	462,969	$7,377,443	$1.03	3.9%
Grape Colaspis	778,000	10.9%	0	0.0%	0.00	0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	3,965,000	55.5%	267,000	3.7%	1.00	7.68	0.02	0.037	$0.29	0.01%	30,824	$2,334,291	$0.33	1.2%
Green Cloverworm	6,020,000	84.2%	142,000	2.0%	1.00	9.50	0.12	0.020	$0.19	0.10%	298,170	$4,103,837	$0.57	2.2%
Lesser Cornstalk Borer	10,000	0.1%	0	0.0%	0.00	0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	2,000	0.0%	200	0.0%	1.00	9.50	4.00	0.000	$0.00	0.00%	3,223	$31,682	$0.00	0.0%
Potato Leafhopper	4,020,000	56.2%	2,500	0.0%	1.00	7.50	0.00	0.000	$0.00	0.00%	2,015	$37,364	$0.01	0.0%
Saltmarsh Caterpillar	80,000	1.1%	1,400	0.0%	1.00	11.82	0.50	0.000	$0.00	0.01%	16,117	$165,460	$0.02	0.1%
Soybean Aphid	325,000	4.5%	13,000	0.2%	1.00	9.50	0.15	0.002	$0.02	0.01%	20,147	$309,638	$0.04	0.2%
Soybean Looper	3,515,000	49.2%	950,000	13.3%	1.00	11.29	0.48	0.133	$1.50	0.24%	684,984	$17,053,680	$2.39	9.0%
Spider Mites	28,000	0.4%	900	0.0%	1.00	9.50	0.23	0.000	$0.00	0.00%	2,538	$32,003	$0.00	0.0%
Spotted Cucumber Beetle	4,170,000	58.3%	300	0.0%	1.00	9.50	0.02	0.000	$0.00	0.01%	30,220	$282,056	$0.04	0.1%
Stink Bugs	5,500,000	76.9%	2,370,000	33.1%	1.44	8.66	1.90	0.478	$4.13	1.46%	4,214,668	$68,500,637	$9.58	36.1%
Threecornered Alfalfa Hopper	6,570,000	91.9%	1,185,000	16.6%	1.00	8.55	0.29	0.166	$1.42	0.26%	758,922	$17,144,305	$2.40	9.0%
Thrips	6,890,000	96.4%	62,501	0.9%	1.00	7.50	0.06	0.009	$0.07	0.06%	174,268	$2,078,833	$0.29	1.1%
Velvetbean Caterpillar	775,000	10.8%	0	0.0%	0.00	0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
								1.364	**$11.96**	**3.92%**	**11,296,317**	**$189,854,436**	**$26.55**	**100.0%**

SUMMARY DATA

Data Input

State	Combined
Year	2009
Total Acres	7,150,000
Yield/acre	38.71
Price/Bushel	9.24
% Acres Scouted	60.34
Scouting Fee/scouted acre	6.40
% Acres Insect Seed Trt.	49.75
Seed Trt Cost/treated ac	8.00

Yield & Management Results

Total Bushels Harvested	276,800,000
Total Bushels Lost to Insects	11,296,317
Percent Yield Loss	3.92%
Yield w/o Insects	40.29
Ave. # Spray Applications	1.364
Seed Treated Acres	3,557,000
Scouted Acres	4,314,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$85,485,946	$11.96
Seed Treatment Costs	$28,456,000	$3.98
Scouting costs	$27,598,500	$3.86
Total Costs	$141,540,446	$19.80
Yield Lost to insects	$104,368,490	$14.60
Total Losses + Costs	$245,908,936	$34.39

Appendix 2. Mississippi soybean insect losses, 2009.

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	460,000	21.3%	90,000	4.2%	1	$8.50	0.40	0.042	$0.35	0.09%	69,377	$1,389,395	$0.64	1.8%
Banded Cucumber Beetle	350,000	16.2%	1,500	0.1%	1	$8.50	0.01	0.001	$0.01	0.00%	1,320	$24,627	$0.01	0.0%
Bean Leaf Beetle	1,500,000	69.4%	350,000	16.2%	1	$10.00	0.30	0.162	$1.62	0.21%	169,673	$5,027,053	$2.33	6.4%
Blister Beetle	1,200	0.1%	500	0.0%	1	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	1,100,000	50.9%	450,000	20.8%	1.5	$9.50	3.00	0.313	$2.97	1.53%	1,244,266	$17,610,890	$8.15	22.3%
Cutworms	12,000	0.6%	600	0.0%	1	$4.00	0.00	0.000	$0.00	0.00%	0	$2,400	$0.00	0.0%
Dectes Stem Borer	400,000	18.5%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Garden Webworms	120,000	5.6%	1,200	0.1%	1	$0.00	0.20	0.001	$0.00	0.01%	9,049	$81,443	$0.04	0.1%
Grape Colaspis	25,000	1.2%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	750,000	34.7%	12,000	0.6%	1	$6.00	0.10	0.006	$0.03	0.03%	28,279	$326,509	$0.15	0.4%
Green Cloverworm	1,200,000	55.6%	125,000	5.8%	1	$9.50	0.50	0.058	$0.55	0.28%	226,230	$3,223,571	$1.49	4.1%
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	500,000	23.1%	2,500	0.1%	1	$7.50	0.01	0.001	$0.01	0.00%	1,885	$35,717	$0.02	0.0%
Saltmarsh Caterpillar	40,000	1.9%	1,300	0.1%	1	$12.00	1.00	0.001	$0.01	0.02%	15,082	$151,338	$0.07	0.2%
Soybean Aphid	75,000	3.5%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	1,500,000	69.4%	650,000	30.1%	1	$12.00	1.00	0.301	$3.61	0.69%	565,575	$12,890,177	$5.97	16.3%
Spider Mites	14,000	0.6%	0	0.0%	1	$9.00	0.25	0.000	$0.00	0.00%	1,320	$11,877	$0.01	0.0%
Spotted Cucumber Beetle	750,000	34.7%	300	0.0%	1	$9.50	0.10	0.000	$0.00	0.03%	28,279	$257,359	$0.12	0.3%
Stink Bugs	1,600,000	74.1%	950,000	44.0%	2.1	$10.00	1.80	0.924	$9.24	1.33%	1,085,905	$29,723,141	$13.76	37.6%
Threecornered Alfalfa Hopper	1,750,000	81.0%	650,000	30.1%	1	$9.50	0.25	0.301	$2.86	0.20%	164,959	$7,659,635	$3.55	9.7%
Thrips	1,900,000	88.0%	2,500	0.1%	1	$7.50	0.10	0.001	$0.01	0.09%	71,640	$663,506	$0.31	0.8%
Velvetbean Caterpillar	25,000	1.2%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
								2.110	**$21.27**	**4.52%**	**3,682,838**	**$79,078,638**	**$36.61**	**100.0%**

SUMMARY DATA

Data Input

State	MS
Year	2009
Total Acres	2,160,000
Yield/acre	36
Price/Bushel	$9.00
% Acres Scouted	75
Scouting Fee/scouted acre	$5.00
% Acres Insect Seed Trt.	65
Seed Trt Cost/treated ac	$8.00

Yield & Management Results

Total Bushels Harvested	77,760,000
Total Bushels Lost to Insects	3,682,838
Percent Yield Loss	4.52%
Yield w/o Insects	37.71
Ave. # Spray Applications	2.110
Seed Treated Acres	1,404,000
Scouted Acres	1,620,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$45,933,100	$21.27
Seed Treatment Costs	$11,232,000	$5.20
Scouting costs	$8,100,000	$3.75
Total Costs	$65,265,100	$30.22
Yield Lost to insects	$33,145,538	$15.35
Total Losses + Costs	$98,410,638	$45.56

Appendix 3. Tennessee soybean insect losses, 2009.

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	40,000	2.5%	17,000	1.1%	1	$9.50	4.00	0.011	$0.10	0.10%	71,975	$809,278	$0.52	4.4%
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	1,570,000	100.0%	19,000	1.2%	1	$9.50	0.10	0.012	$0.11	0.10%	70,626	$816,132	$0.52	4.4%
Blister Beetle	30,000	1.9%	300	0.0%	1	$9.50	0.00	0.000	$0.00	0.00%	0	$2,850	$0.00	0.0%
Corn Earworm	60,000	3.8%	19,000	1.2%	1	$9.50	6.00	0.012	$0.11	0.23%	161,945	$1,638,001	$1.04	8.8%
Cutworms	5,000	0.3%	600	0.0%	1	$5.00	0.00	0.000	$0.00	0.00%	0	$3,000	$0.00	0.0%
Dectes Stem Borer	800,000	51.0%	300	0.0%	1	$9.50	0.00	0.000	$0.00	0.00%	0	$2,850	$0.00	0.0%
Garden Webworms	2,000	0.1%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	3,000	0.2%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	15,000	1.0%	5,000	0.3%	1	$8.00	0.10	0.003	$0.03	0.00%	675	$46,073	$0.03	0.2%
Green Cloverworm	1,400,000	89.2%	17,000	1.1%	1	$9.50	0.10	0.011	$0.10	0.09%	62,978	$728,306	$0.46	3.9%
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	2,000	0.1%	200	0.0%	1	$9.50	4.00	0.000	$0.00	0.01%	3,599	$34,289	$0.02	0.2%
Potato Leafhopper	100,000	6.4%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	40,000	2.5%	100	0.0%	1	$9.50	0.00	0.000	$0.00	0.00%	0	$950	$0.00	0.0%
Soybean Aphid	50,000	3.2%	13,000	0.8%	1	$9.50	1.00	0.008	$0.08	0.03%	22,492	$325,931	$0.21	1.8%
Soybean Looper	15,000	1.0%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spider Mites	14,000	0.9%	900	0.1%	1	$9.50	0.20	0.001	$0.01	0.00%	1,260	$19,886	$0.01	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	1,100,000	70.1%	320,000	20.4%	1	$9.50	1.80	0.204	$1.94	1.26%	890,695	$11,056,254	$7.04	59.4%
Threecornered Alfalfa Hopper	1,400,000	89.2%	35,000	2.2%	1	$9.50	0.30	0.022	$0.21	0.27%	188,935	$2,032,917	$1.29	10.9%
Thrips	1,570,000	100.0%	60,000	3.8%	1	$7.50	0.10	0.038	$0.29	0.10%	70,626	$1,085,632	$0.69	5.8%
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%
								0.323	**$2.99**	**2.19%**	**1,545,805**	**$18,602,349**	**$11.85**	**100.0%**

SUMMARY DATA

Data Input

State	TN
Year	2009
Total Acres	1,570,000
Yield/acre	44
Price/Bushel	$9.00
% Acres Scouted	30
Scouting Fee/scouted acre	$6.00
% Acres Insect Seed Trt.	50
Seed Trt Cost/treated ac	$8.00

Yield & Management Results

Total Bushels Harvested	69,080,000
Total Bushels Lost to Insects	1,545,805
Percent Yield Loss	2.19%
Yield w/o Insects	44.98
Ave. # Spray Applications	0.323
Seed Treated Acres	785,000
Scouted Acres	471,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$4,690,100	$2.99
Seed Treatment Costs	$6,280,000	$4.00
Scouting costs	$2,826,000	$1.80
Total Costs	$13,796,100	$8.79
Yield Lost to insects	$13,912,249	$8.86
Total Losses + Costs	$27,708,349	$17.65

Appendix 4. Arkansas soybean insect losses, 2009.

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	1,150,000	33.6%	680,000	19.9%	1	$8.25	1.00	0.199	$1.64	0.34%	456,810	$9,949,700	$2.91	10.8%
Banded Cucumber Beetle	10	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	93.6%	170,000	5.0%	1	$7.25	0.25	0.050	$0.36	0.23%	317,781	$4,251,421	$1.24	4.6%
Blister Beetle	1,100,000	32.2%	250,000	7.3%	1	$7.75	0.20	0.073	$0.57	0.06%	87,390	$2,767,703	$0.81	3.0%
Corn Earworm	1,500,000	43.9%	750,000	21.9%	1.25	$7.75	3.00	0.274	$2.12	1.32%	1,787,519	$24,247,058	$7.09	26.3%
Cutworms	20	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	500,000	14.6%	100,000	2.9%	1	$7.75	0.25	0.029	$0.23	0.04%	49,653	$1,246,706	$0.36	1.3%
Garden Webworms	1,500,000	43.9%	400,000	11.7%	1	$7.75	0.75	0.117	$0.91	0.33%	446,880	$7,345,358	$2.15	8.0%
Grape Colaspis	750,000	21.9%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	3,200,000	93.6%	250,000	7.3%	1	$7.75	0.00	0.073	$0.57	0.00%	0	$1,937,500	$0.57	2.1%
Green Cloverworm	3,420,000	100.0%	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	0.3%	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	3,420,000	100.0%	0	0.0%	1	$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	200,000	5.8%	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	58.5%	300,000	8.8%	1	$9.75	0.10	0.088	$0.86	0.06%	79,445	$3,679,730	$1.08	4.0%
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	3,420,000	100.0%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs	2,800,000	81.9%	1,100,000	32.2%	1	$7.25	2.00	0.322	$2.33	1.64%	2,224,468	$29,107,450	$8.51	31.5%
Threecornered Alfalfa Hopper	3,420,000	100.0%	500,000	14.6%	1	$7.25	0.30	0.146	$1.06	0.30%	407,554	$7,496,767	$2.19	8.1%
Thrips	3,420,000	100.0%	1	0.0%	0	$0.00	0.03	0.000	$0.00	0.03%	33,963	$322,647	$0.09	0.3%
Velvetbean Caterpillar	750,000	21.9%	0	0.0%	0	$0.00	0.00	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
								1.371	**$10.64**	**4.34%**	**5,891,465**	**$92,352,042**	**$27.00**	**100.0%**

SUMMARY DATA

Data Input

State	AR
Year	2009
Total Acres	3,420,000
Yield/acre	38
Price/Bushel	$9.50
% Acres Scouted	65
Scouting Fee/scouted acre	$7.50
% Acres Insect Seed Trt.	40
Seed Trt Cost/treated ac	$8.00

Yield & Management Results

Total Bushels Harvested	129,960,000
Total Bushels Lost to Insects	5,891,465
Percent Yield Loss	4.34%
Yield w/o Insects	39.72
Ave. # Spray Applications	1.371
Seed Treated Acres	1,368,000
Scouted Acres	2,223,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$36,383,125	$10.64
Seed Treatment Costs	$10,944,000	$3.20
Scouting costs	$16,672,500	$4.88
Total Costs	$63,999,625	$18.71
Yield Lost to insects	$55,968,917	$16.37
Total Losses + Costs	$119,968,542	$35.08