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Report

2018 Soybean Insect Losses in the United States

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Abstract Estimated insect management costs and losses due to insects in soybean during the 2018 growing season were collected and compiled from 17 states to provide a record of insect pressure and management practices for the year. The estimates have been made annually in some southern states for up to 15 years, but this year was the first or second year of participation for 10 states. Participating states represented 40% of soybean acreage grown in the United States, with near 100% participation in southern states. Overall, the stink bug complex was the costliest insect pest in soybean followed by corn earworm. Total insect management costs were $13.84 per acre, with estimated crop losses to insects at $12.84 per acre, making the 2018 total costs plus losses $26.67 per acre. State estimates varied widely, with insect management costs plus losses in four states averaging less than $8/ac while averaging more than $50/ac in five states. Similarly, the average number of insecticide applications per crop ranged from 0.1 in three states to 2.1 in Louisiana.

Key Words: soybean, yield loss, pest management

Introduction

Soybean insect loss estimates have been compiled annually since 2004 in Mississippi (Musser and Catchot 2008), 2008 in Tennessee (Musser et al. 2009), 2009 in Arkansas (Musser et al. 2010), and 2011 in Alabama, Louisiana, North Carolina and Virginia (Musser et al. 2012). The 2018 loss estimates are the second year for Delaware, Georgia, Illinois, Michigan, Ohio, Oklahoma, South Carolina, Texas and Wisconsin (Musser et al. 2018), and the first year for Kentucky. These estimated losses provide an annual record of insect pressure and management decisions by state. These estimates are “best guesses” by university personnel, primarily entomologists, who have been involved in state-wide monitoring of soybean throughout the year. While the costs and losses estimated for an insect pest in any

given year are somewhat subjective, these losses provide an historical record of pest pressure and management practices and an estimate of the economic impact of the various soybean pests. Over time, the changes in estimated losses and insecticide applications provide a record of shifts in insect pests and management practices.

Materials and Methods

Statewide estimates were made based on informal communication of an author from each state with university faculty, Extension personnel, private crop consultants and/or industry professionals who were actively engaged in soybean production in that state (see appendices for submitted data from each state). 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 from final NASS values. The estimates were placed in a spreadsheet to make the various calculations. Actual formulas used in the spreadsheet were published by Musser and Catchot (2008). Additional columns were added for the 2013 losses and these are defined in Musser et al (2014).

Results and Discussion

Harvested acreage in the reporting states was 35.0 million acres (1 acre= 0.405 hectare), which represents 40% of the 88.1 million acres of soybean harvested in the United States during 2018. Nearly all southern soybean producing states participated, while participation in the midwestern and northern states was less than 50%. As a result, the national averages of insect costs and losses in this report are likely greater than the true national averages since insect management costs and losses in the southern states are generally greater than in the northern states. On average for 2018, combined management costs and yield losses attributed to insects were estimated at $26.67/ac, but this varied widely among states, ranging from $5.36/ac in Michigan to $105.56/ac in Texas. Average yield losses from insects were estimated at 2.7% (1.5 bu/ac or 97 kg/ha), but this also ranged from 0.0% in Michigan to 14.1% in Texas. The adoption of insect management strategies also varied among states (Table 1).

The seed-feeding complex of stink bugs (Hemiptera: Pentatomidae) was again the costliest insect pest of soybean overall during 2018 in terms of lost yield and management costs, comprising 34% of all insect costs + losses. This complex was considered the most economically damaging pest in 9 of the 17 reporting states. The primary species in the complex during 2018 were brown (*Euschistus* spp.) and green (*Chinavia hilaris*) stink bugs. The redbanded stink bug (*Piezodorus guildinii*) was not as prominent in 2018 as in 2017, comprising only 3% of the stink bug complex overall during 2018 compared with 20% during 2017. However, it was still the dominant stink bug species in Texas and Louisiana. The average number of insecticide applications directed at stink bugs declined from 0.37 in 2017 (Musser et al. 2018) to 0.20 in 2018.

Corn earworm, *Helicoverpa zea* (Lepidoptera: Noctuidae), was the second most damaging pest during 2018, similar to 2017. Corn earworm was considered the costliest insect pest in Arkansas, Delaware, and North Carolina, and overall, it was responsible for 21% of all insect costs and losses.

Besides stink bugs and corn earworm, no other insect was responsible for more than 10% of total insect costs + losses. Soybean looper, *Chrysodeixis includens* (Lepidoptera: Noctuidae) was the third most damaging pest (9.2%), followed by bean leaf beetle, *Ceratoma trifurcata* (Coleoptera: Chrysomelidae) (5.8% of insect costs + losses), and Japanese beetle, *Popillia japonica* (Scarabaeidae: Coleoptera) (4.1% of all costs + losses). This is the first year Japanese beetle has been documented as a substantial pest in these insect loss estimates. Only 1% of soybeans were estimated to suffer economic damage from Japanese beetle, but sub-economic populations were found on 46% of soybeans, leading to small losses on many acres.

The practice of making foliar insecticide applications without knowing if any insects are present was less common during 2018 than in 2017 (Table 1), likely a function of lower soybean prices. In some cases, the application may have controlled some insects, but in most cases an insecticide was added to a planned fungicide or herbicide application as insurance against the risk of having insect damage. Overall,

insecticide applications without a specific insect target accounted for 28% of foliar insecticide applications.

State Highlights

Alabama. The stink bug complex, primarily southern green stink bug, was the primary pest, accounting for 55% of insecticide applications and costing growers $9.32/acre. Losses from soybean looper were much lower than in 2017.

Arkansas. Corn earworm replaced stink bugs as the primary pest during 2018. 46% of soybeans were sprayed at least once for corn earworm. Corn earworm and stink bugs combined accounted for 59% of foliar insecticide applications.

Delaware. Corn earworm and soybean looper were the primary pests. Stink bug costs plus losses dropped from being the costliest pest in 2017 to minimal losses during 2018.

Georgia. Estimates for 2017 and 2018 were similar for all pests. Stink bugs, mainly southern green stink bug, and velvetbean caterpillar were the primary pests, jointly costing growers $18.82/ac.

Illinois. The percentage of soybeans receiving automatic insecticide applications decreased during 2018, but they still accounted for nearly all foliar insecticide applications. Japanese beetle was the most damaging insect, but it only contributed $0.06/ac to total insect costs + losses of $7.97/ac. The largest single insect-related expense during 2018 was insecticide seed treatments.

Kentucky. Stink bug and bean leaf beetle were the primary pests, jointly accounting for 77% of all insect costs plus losses.

Louisiana. Stink bugs and soybean looper were the primary pests during 2018 as they were during 2017, but overall costs + losses dropped from $87.64/ac in 2017 to $61.82/ac in 2018 because the severity of both pests declined.

Michigan. No insects were reported to be over an economic threshold, and minimal foliar insecticides were applied. The primary insect cost was for insecticide seed treatments, which were used on 50% of acreage.

Mississippi. Similar to 2017, stink bug was the primary pest, but green and brown species replaced redbanded during 2018. Overall insect costs + losses decreased from $79.18/ac to $55.83/ac.

North Carolina. Corn earworm remained the primary pest, accounting for 56% of insect costs + losses. Overall losses in 2018 declined compared with 2017.

Ohio. The stink bug complex, a mixture of brown marmorated, brown and green species, was the dominant pest, accounting for 54% of insect costs + losses. Overall insect costs plus losses increased from $22.65/ac in 2017 to $33.72/ac in 2018.

Oklahoma. Green cloverworm was the most expensive insect pest, but total insect costs plus losses was only $5.57/ac during 2018.

South Carolina. Stink bugs and soybean looper were the primary pests during 2018 as in 2017, but insect costs plus losses dropped for all insects from $55.59/ac during 2017 to $33.28/ac during 2018.

Tennessee. Dectes stem borer and stink bugs were the primary pests. Overall insect costs + losses were similar during 2017 and 2018.

Texas. Stink bug, mainly redbanded stink bug, was the primary pest ($61.84/ac) in the state with the greatest estimated total insect costs + losses of $105.56/ac. No other insect caused more than $10/ac in costs plus losses.

Virginia. Stink bugs and corn earworm were the primary insects during 2018. This was a big increase for stink bugs, which have previously been a minor pest.

Wisconsin. Japanese beetle and soybean aphid were the primary pests in a light insect pressure state. Total costs plus losses fell to $5.49/ac in 2018 from $9.32/ac in 2017.

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

Table 1. Soybean insect management practices by state, 2018.

State	% soybean acres[1]			Total Foliar Applications/crop
	Scouted	Insecticide Seed Treatment	Foliar Insecticide w/o known target (automatic)	
Alabama	70	35	0	0.38
Arkansas	80	75	27	2.00
Delaware	60	35	52	0.69
Georgia	40	25	0	1.18
Illinois	5	55	60	0.61
Kentucky	35	60	0	0.43
Louisiana	90	95	0	2.07
Michigan	5	50	3	0.10
Mississippi	90	75	0	1.41
North Carolina	15	15	8	1.48
Ohio	30	80	0	0.26
Oklahoma	15	30	0	0.10
South Carolina	30	25	0	1.55
Tennessee	43	75	40	0.66
Texas	20	90	0	1.91
Virginia	10	10	0	0.58
Wisconsin	50	30	0	0.10
Average (weighted by acreage)	31	55	24	0.77

[1] 1 acre = 0.405 ha

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USDA NASS. United States Department of Agriculture National Agricultural Statistics Service, Data and Statistics, https://quickstats.nass.usda.gov/.

List of Appendices

Appendix 1. Overall soybean insect losses from 17 surveyed states, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	4,589,733	13.1%	625,700	1.8%	573,800	1.6%	1.00	$11.39	0.676	0.016	$0.19	0.09%	1,698,964	$21,485,250	$0.61	3.0%
Banded Cucumber Beetle	2,489,000	7.1%	1,600	0.0%	0	0.0%	0.00	$0.00	0.001	0.000	$0.00	0.00%	1,915	$16,855	$0.00	0.0%
Bean Leaf Beetle	19,983,467	57.1%	1,355,100	3.9%	1,332,950	3.8%	1.01	$10.79	0.279	0.039	$0.42	0.16%	3,049,796	$41,406,597	$1.18	5.8%
Blister Beetle	1,594,467	4.6%	116,000	0.3%	119,500	0.3%	1.00	$10.17	0.135	0.003	$0.03	0.01%	118,198	$2,254,965	$0.06	0.3%
Corn Earworm	6,563,267	18.8%	2,964,150	8.5%	3,278,300	9.4%	1.15	$12.80	3.306	0.108	$1.38	0.62%	11,875,027	$152,646,694	$4.36	21.4%
Cutworms	1,085,193	3.1%	226,390	0.6%	229,630	0.7%	1.00	$9.93	0.231	0.007	$0.07	0.01%	137,029	$3,487,127	$0.10	0.5%
Dectes Stem Borer	9,615,513	27.5%	64,100	0.2%	272,000	0.8%	1.00	$7.96	0.223	0.008	$0.06	0.06%	1,171,536	$12,474,250	$0.36	1.7%
Garden Webworms	331,500	0.9%	0	0.0%	0	0.0%	0.00	$0.00	0.023	0.000	$0.00	0.00%	4,104	$36,117	$0.00	0.0%
Grape Colaspis	5,561,625	15.9%	0	0.0%	0	0.0%	0.00	$0.00	0.029	0.000	$0.00	0.00%	87,832	$772,904	$0.02	0.1%
Grasshopper	16,843,067	48.1%	127,800	0.4%	99,500	0.3%	0.98	$9.35	0.032	0.003	$0.03	0.02%	294,554	$3,508,577	$0.10	0.5%
Green Cloverworm	21,958,967	62.8%	1,025,400	2.9%	1,170,000	3.3%	0.91	$10.21	0.123	0.030	$0.31	0.08%	1,479,876	$23,922,591	$0.68	3.4%
Japanese Beetle	15,986,700	45.7%	326,500	0.9%	344,800	1.0%	1.04	$12.98	0.318	0.010	$0.13	0.15%	2,784,713	$29,144,169	$0.83	4.1%
Kudzu Bug	2,906,900	8.3%	89,400	0.3%	61,400	0.2%	1.00	$8.11	0.063	0.002	$0.01	0.01%	100,474	$1,381,844	$0.04	0.2%
Lesser Cornstalk Borer	321,633	0.9%	5,000	0.0%	0	0.0%	0.00	$0.00	0.107	0.000	$0.00	0.00%	18,880	$166,138	$0.00	0.0%
Mexican Bean Beetle	498,683	1.4%	200,900	0.6%	250,900	0.7%	1.00	$14.97	2.773	0.007	$0.11	0.04%	756,765	$10,416,108	$0.30	1.5%
Potato Leafhopper	6,883,483	19.7%	151,000	0.4%	33,500	0.1%	0.55	$8.00	0.008	0.001	$0.00	0.00%	29,004	$403,227	$0.01	0.1%
Saltmarsh Caterpillar	4,970,500	14.2%	65,300	0.2%	75,150	0.2%	1.00	$12.92	0.079	0.002	$0.03	0.01%	216,160	$2,873,363	$0.08	0.4%
Seedcorn Maggot	672,600	1.9%	10,000	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	2,688,867	7.7%	562,500	1.6%	6,625	0.0%	1.00	$19.92	1.745	0.000	$0.00	0.13%	2,568,013	$22,729,883	$0.65	3.2%
Soybean Aphid	4,818,575	13.8%	478,900	1.4%	631,150	1.8%	1.00	$12.62	0.000	0.018	$0.23	0.00%	536	$7,968,919	$0.23	1.1%
Soybean Looper	6,911,167	19.8%	2,420,500	6.9%	2,321,500	6.6%	0.87	$16.08	0.988	0.058	$0.93	0.20%	3,736,078	$65,493,781	$1.87	9.2%
Spider Mites	933,713	2.7%	72,400	0.2%	84,380	0.2%	1.08	$10.37	0.133	0.003	$0.03	0.00%	67,779	$1,538,987	$0.04	0.2%
Spotted Cucumber Beetle	13,050,633	37.3%	0	0.0%	0	0.0%	0.00	$0.00	0.017	0.000	$0.00	0.01%	123,766	$1,089,112	$0.03	0.2%
Stink Bugs (see box below)	26,112,500	74.6%	6,604,600	18.9%	6,410,384	18.3%	1.08	$11.28	1.325	0.198	$2.23	0.99%	18,931,438	$244,771,565	$6.99	34.3%
Threecornered Alfalfa Hopper	10,163,067	29.0%	514,600	1.5%	341,000	1.0%	0.63	$8.09	0.089	0.006	$0.05	0.03%	492,727	$6,082,258	$0.17	0.9%
Thrips	14,352,500	41.0%	0	0.0%	0	0.0%	0.00	$0.00	0.003	0.000	$0.00	0.00%	23,750	$208,997	$0.01	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	4,980,675	14.2%	1,344,100	3.8%	1,443,900	4.1%	0.93	$10.51	0.461	0.038	$0.40	0.07%	1,257,664	$25,172,648	$0.72	3.5%
Other	52,700	0.2%	32,800	0.1%	32,800	0.1%	0.97	$8.37	0.547	0.001	$0.01	0.00%	15,788	$405,801	$0.01	0.1%
Automatic (no insects)	0	0.0%	0	0.0%	8,304,450	23.7%	0.89	$4.34	0.000	0.212	$0.92	0.00%	0	$32,150,671	$0.92	4.5%
										0.769	**$7.57**	**2.67%**	**51,042,366**	**$714,009,399**	**$20.40**	**100.0%**

SUMMARY DATA

Data Input

State	Combined
Year	2018
Total Acres	34,993,000
Yield/acre	53.27
Price/Bushel	$8.80
% Acres Scouted	31
Scouting Fee/scouted acre	$6.73
% Acres Insect Seed Trt.	55
Seed Trt Cost/treated ac	$7.57

Yield & Management Results

Total Bushels Harvested	1,863,920,000
Total Bushels Lost to Insects	51,042,366
Percent Yield Loss	2.67%
Yield w/o Insects	54.72
Ave. # Spray Applications	0.769
Seed Treated Acres	19,412,554
Scouted Acres	10,765,903

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$264,848,142	$7.57
Seed Treatment Costs	$146,871,913	$4.20
Scouting costs	$72,424,348	$2.07
Total Costs	$484,144,404	$13.84
Yield Lost to insects	$449,161,256	$12.84
Total Losses + Costs	$933,305,660	$26.67

Stink Bug Composition

Species	% of SB
Brown	50.4
Brown Marmorated	4.7
Green	36.0
Redbanded	2.9
Redshouldered	1.7
Southern Green	4.3
Total	100.0

Appendix 2. Alabama soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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
Armyw orm complex	20,000	5.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Banded Cucumber Beetle	150,000	41.7%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	150,000	41.7%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Blister Beetle	200,000	55.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earw orm	300,000	83.3%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Cutw orms	20,000	5.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	100,000	27.8%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Garden Webw orms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	300,000	83.3%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Green Cloverw orm	360,000	100.0%	5,000	1.4%	5,000	1.4%	1.00	$7.00	0.100	0.014	$0.10	0.10%	15,528	$170,866	$0.47	3.5%
Japanese Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Kudzu Bug	200,000	55.6%	1,000	0.3%	1,000	0.3%	1.00	$7.00	0.050	0.003	$0.02	0.03%	4,313	$44,741	$0.12	0.9%
Lesser Cornstalk Borer	2,500	0.7%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	10,000	2.8%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	250,000	69.4%	100,000	27.8%	50,000	13.9%	1.00	$11.00	0.500	0.139	$1.53	0.35%	53,915	$1,021,759	$2.84	21.1%
Spider Mites	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spotted Cucumber Beetle	200,000	55.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	360,000	100.0%	150,000	41.7%	75,000	20.8%	1.00	$8.50	2.000	0.208	$1.77	2.00%	310,552	$3,354,830	$9.32	69.3%
Threecornered Alfalfa Hopper	360,000	100.0%	36,000	10.0%	1,000	0.3%	1.00	$7.00	0.100	0.003	$0.02	0.10%	15,528	$142,866	$0.40	3.0%
Thrips	360,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	180,000	50.0%	10,000	2.8%	5,000	1.4%	1.00	$7.00	0.100	0.014	$0.10	0.05%	7,764	$102,933	$0.29	2.1%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**0.381**	**$3.53**	**2.63%**	**407,599**	**$4,837,996**	**$13.44**	**100.0%**

SUMMARY DATA

Data Input

State	AL
Year	2018
Total Acres	360,000
Yield/acre	42
Price/Bushel	$8.75
% Acres Scouted	70
Scouting Fee/scouted acre	$6.00
% Acres Insect Seed Trt.	35
Seed Trt Cost/treated ac	$5.00

Yield & Management Results

Total Bushels Harvested	15,120,000
Total Bushels Lost to Insects	407,599
Percent Yield Loss	2.63%
Yield w /o Insects	43.13
Ave. # Spray Applications	0.381
Seed Treated Acres	126,000
Scouted Acres	252,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$1,271,500	$3.53
Seed Treatment Costs	$630,000	$1.75
Scouting costs	$1,512,000	$4.20
Total Costs	$3,413,500	$9.48
Yield Lost to insects	$3,566,496	$9.91
Total Losses + Costs	$6,979,996	$19.39

Stink Bug Composition

Species	% of SB
Brow n	22
Brow n Marmorated	3
Green	15
Redbanded	0
Redshouldered	0
Southern Green	60
Total (make it 100%)	100

Appendix 3. Arkansas soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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
Armyw orm complex	2,900,000	88.4%	400,000	12.2%	450,000	13.7%	1.00	$12.00	1.000	0.137	$1.65	0.88%	1,575,761	$20,480,029	$6.24	9.4%
Banded Cucumber Beetle	125,000	3.8%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	3,280,000	100.0%	450,000	13.7%	525,000	16.0%	1.00	$12.00	1.000	0.160	$1.92	1.00%	1,782,240	$23,356,033	$7.12	10.7%
Blister Beetle	300,000	9.1%	100,000	3.0%	103,500	3.2%	1.00	$10.50	0.050	0.032	$0.33	0.00%	8,150	$1,164,750	$0.36	0.5%
Corn Earw orm	3,000,000	91.5%	1,200,000	36.6%	1,500,000	45.7%	1.25	$14.00	4.000	0.572	$8.00	3.66%	6,520,389	$88,650,119	$27.03	40.6%
Cutw orms	479,000	14.6%	200,000	6.1%	222,000	6.8%	1.00	$10.00	0.500	0.068	$0.68	0.07%	130,136	$3,465,402	$1.06	1.6%
Dectes Stem Borer	2,500,000	76.2%	0	0.0%	50,000	1.5%	1.00	$10.00	0.000	0.015	$0.15	0.00%	0	$500,000	$0.15	0.2%
Garden Webw orms	150,000	4.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	3,280,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	3,280,000	100.0%	50,000	1.5%	35,000	1.1%	1.00	$12.00	0.100	0.011	$0.13	0.10%	178,224	$2,125,603	$0.65	1.0%
Green Cloverw orm	3,280,000	100.0%	0	0.0%	0	0.0%	0.00	$10.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Japanese Beetle	10,000	0.3%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Kudzu Bug	800,000	24.4%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	1,500	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	3,280,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	3,000,000	91.5%	30,000	0.9%	40,000	1.2%	1.00	$12.00	0.100	0.012	$0.15	0.09%	163,010	$2,040,003	$0.62	0.9%
Seedcorn maggot	250,000	7.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	200,000	6.1%	200	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	200,000	6.1%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	2,500,000	76.2%	672,000	20.5%	725,000	22.1%	1.00	$17.50	0.450	0.221	$3.87	0.34%	611,286	$18,537,511	$5.65	8.5%
Spider Mites	100,000	3.0%	50,000	1.5%	65,000	2.0%	1.10	$10.00	0.000	0.022	$0.22	0.00%	0	$715,000	$0.22	0.3%
Spotted Cucumber Beetle	3,280,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	3,280,000	100.0%	1,580,000	48.2%	1,790,000	54.6%	1.10	$10.50	1.750	0.600	$6.30	1.75%	3,118,919	$50,522,557	$15.40	23.2%
Threecornered Alfalfa Hopper	3,280,000	100.0%	0	0.0%	25,000	0.8%	1.00	$10.00	0.000	0.008	$0.08	0.00%	0	$250,000	$0.08	0.1%
Thrips	3,280,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	2,500,000	76.2%	450,000	13.7%	480,000	14.6%	1.00	$10.50	0.100	0.146	$1.54	0.08%	135,841	$6,340,002	$1.93	2.9%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	900,000	27.4%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**2.003**	**$25.01**	**7.98%**	**14,223,956**	**$218,147,010**	**$66.51**	**100.0%**

SUMMARY DATA

Data Input

State	AR
Year	2018
Total Acres	3,280,000
Yield/acre	50
Price/Bushel	$9.57
% Acres Scouted	80
Scouting Fee/scouted acre	$7.50
% Acres Insect Seed Trt.	75
Seed Trt Cost/treated ac	$8.00

Yield & Management Results

Total Bushels Harvested	164,000,000
Total Bushels Lost to Insects	14,223,956
Percent Yield Loss	7.98%
Yield w/o Insects	54.34
Ave. # Spray Applications	2.003
Seed Treated Acres	2,460,000
Scouted Acres	2,624,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$82,023,750	$25.01
Seed Treatment Costs	$19,680,000	$6.00
Scouting costs	$19,680,000	$6.00
Total Costs	$121,383,750	$37.01
Yield Lost to insects	$136,123,260	$41.50
Total Losses + Costs	$257,507,010	$78.51

Stink Bug Composition

Species	% of SB
Brown	43
Brown Marmorated	0
Green	50
Redbanded	0
Redshouldered	7
Southern Green	0
Total (make it 100%)	100

Appendix 4. Delaware soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	35,500	23.2%	1,300	0.8%	300	0.2%	1.00	$10.00	0.100	0.002	$0.02	0.02%	1,461	$15,415	$0.10	0.8%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	108,400	70.8%	5,800	3.8%	2,900	1.9%	1.00	$7.50	0.750	0.019	$0.14	0.53%	33,450	$306,076	$2.00	15.5%
Blister Beetle	40,700	26.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	98,100	64.1%	5,800	3.8%	5,700	3.7%	1.00	$15.00	1.750	0.037	$0.56	1.12%	70,634	$685,890	$4.48	34.8%
Cutworms	3,500	2.3%	390	0.3%	130	0.1%	1.00	$10.00	0.400	0.001	$0.01	0.01%	576	$6,196	$0.04	0.3%
Dectes Stem Borer	65,100	42.5%	0	0.0%	2,000	1.3%	1.00	$7.50	0.050	0.013	$0.10	0.02%	1,339	$26,384	$0.17	1.3%
Garden Webworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	1,000	0.7%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	113,900	74.4%	1,200	0.8%	0	0.0%	0.00	$0.00	0.150	0.000	$0.00	0.11%	7,029	$59,750	$0.39	3.0%
Green Cloverworm	140,800	92.0%	3,400	2.2%	3,300	2.2%	1.00	$10.00	0.100	0.022	$0.22	0.09%	5,793	$82,241	$0.54	4.2%
Japanese Beetle	121,700	79.5%	500	0.3%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Kudzu Bug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	9,600	6.3%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	40,000	26.1%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	55,000	35.9%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	25,300	16.5%	900	0.6%	25	0.0%	1.00	$30.00	0.500	0.000	$0.00	0.08%	5,205	$44,990	$0.29	2.3%
Soybean Aphid	49,000	32.0%	13,000	8.5%	8,000	5.2%	1.00	$12.50	0.020	0.052	$0.65	0.01%	403	$103,427	$0.68	5.2%
Soybean Looper	93,500	61.1%	3,100	2.0%	2,900	1.9%	1.00	$20.00	1.250	0.019	$0.38	0.76%	48,087	$466,741	$3.05	23.7%
Spider Mites	15,000	9.8%	400	0.3%	380	0.2%	1.00	$13.50	0.000	0.002	$0.03	0.00%	0	$5,130	$0.03	0.3%
Spotted Cucumber Beetle	120,000	78.4%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	130,000	85.0%	3,900	2.5%	30	0.0%	1.00	$10.00	0.020	0.000	$0.00	0.02%	1,070	$9,393	$0.06	0.5%
Threecornered Alfalfa Hopper	15,000	9.8%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Thrips	153,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	80,000	52.3%	1.00	$2.00	0.000	0.523	$1.05	0.00%	0	$160,000	$1.05	8.1%
									TOTAL	**0.691**	**$3.16**	**2.78%**	**175,048**	**$1,971,634**	**$12.89**	**100.0%**

SUMMARY DATA

Data Input

State	DE
Year	2018
Total Acres	153,000
Yield/acre	40
Price/Bushel	$8.50
% Acres Scouted	60
Scouting Fee/scouted acre	$6.75
% Acres Insect Seed Trt.	35
Seed Trt Cost/treated ac	$9.00

Yield & Management Results

Total Bushels Harvested	6,120,000
Total Bushels Lost to Insects	175,048
Percent Yield Loss	2.78%
Yield w/o Insects	41.14
Ave. # Spray Applications	0.691
Seed Treated Acres	53,550
Scouted Acres	91,800

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$483,730	$3.16
Seed Treatment Costs	$481,950	$3.15
Scouting costs	$619,650	$4.05
Total Costs	$1,585,330	$10.36
Yield Lost to insects	$1,487,904	$9.72
Total Losses + Costs	$3,073,234	$20.09

Stink Bug Composition

Species	% of SB
Brown	57
Brown Marmorated	3
Green	40
Redbanded	0
Redshouldered	0
Southern Green	0
Total (make it 100%)	100

Appendix 5. Georgia soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Banded Cucumber Beetle	6,000	4.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Blister Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	2,000	1.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Cutworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	12,000	9.2%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Garden Webworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Green Cloverworm	65,000	50.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Japanese Beetle	10,000	7.7%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Kudzu Bug	40,000	30.8%	8,000	6.2%	6,000	4.6%	1.00	$8.00	2.000	0.046	$0.37	0.62%	27,611	$296,496	$2.28	9.7%
Lesser Cornstalk Borer	2,000	1.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	4,500	3.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	50,000	38.5%	10,000	7.7%	12,000	9.2%	1.00	$14.00	1.000	0.092	$1.29	0.38%	17,257	$323,310	$2.49	10.5%
Spider Mites	2,000	1.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	110,000	84.6%	52,000	40.0%	50,000	38.5%	1.00	$8.00	3.000	0.385	$3.08	2.54%	113,894	$1,425,044	$10.96	46.5%
Threecornered Alfalfa Hopper	15,000	11.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Thrips	40,000	30.8%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	110,000	84.6%	15,000	11.5%	85,000	65.4%	1.00	$8.00	1.000	0.654	$5.23	0.85%	37,965	$1,021,681	$7.86	33.3%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**1.177**	**$9.97**	**4.38%**	**196,726**	**$3,066,531**	**$23.59**	**100.0%**

SUMMARY DATA

Data Input

State	GA
Year	2018
Total Acres	130,000
Yield/acre	33
Price/Bushel	$9.00
% Acres Scouted	40
Scouting Fee/scouted acre	$6.00
% Acres Insect Seed Trt.	25
Seed Trt Cost/treated ac	$10.00

Yield & Management Results

Total Bushels Harvested	4,290,000
Total Bushels Lost to Insects	196,726
Percent Yield Loss	4.38%
Yield w/o Insects	34.51
Ave. # Spray Applications	1.177
Seed Treated Acres	32,500
Scouted Acres	52,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$1,296,000	$9.97
Seed Treatment Costs	$325,000	$2.50
Scouting costs	$312,000	$2.40
Total Costs	$1,933,000	$14.87
Yield Lost to insects	$1,770,531	$13.62
Total Losses + Costs	$3,703,531	$28.49

Stink Bug Composition

Species	% of SB
Brown	15
Brown Marmorated	1
Green	20
Redbanded	7
Redshouldered	0
Southern Green	57
Total (make it 100%)	100

Appendix 6. Illinois soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	324,000	3.0%	1,000	0.0%	1,000	0.0%	1.00	$7.00	0.000	0.000	$0.00	0.00%	0	$7,000	$0.00	0.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	7,560,000	70.0%	10,000	0.1%	10,000	0.1%	1.00	$7.00	0.000	0.001	$0.01	0.00%	0	$70,000	$0.01	0.2%
Blister Beetle	540,000	5.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	216,000	2.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Cutworms	54,000	0.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	2,160,000	20.0%	0	0.0%	0	0.0%	0.00	$0.00	0.050	0.000	$0.00	0.01%	69,140	$584,928	$0.05	1.7%
Garden Webworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	108,000	1.0%	0	0.0%	0	0.0%	0.00	$0.00	1.000	0.000	$0.00	0.01%	69,140	$584,928	$0.05	1.7%
Grasshopper	8,640,000	80.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Green Cloverworm	10,800,000	100.0%	1,000	0.0%	1,000	0.0%	1.00	$7.00	0.001	0.000	$0.00	0.00%	6,914	$65,493	$0.01	0.2%
Japanese Beetle	9,720,000	90.0%	30,000	0.3%	50,000	0.5%	1.25	$7.00	0.005	0.006	$0.04	0.00%	31,113	$700,717	$0.06	2.0%
Kudzu Bug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	1,080,000	10.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	1,080,000	10.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	108,000	1.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	54,000	0.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	540,000	5.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	108,000	1.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spider Mites	108,000	1.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spotted Cucumber Beetle	5,400,000	50.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	8,640,000	80.0%	10,000	0.1%	25,000	0.2%	1.00	$7.00	0.005	0.002	$0.02	0.00%	27,656	$408,971	$0.04	1.2%
Threecornered Alfalfa Hopper	216,000	2.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Thrips	1,080,000	10.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	6,480,000	60.0%	1.00	$5.00	0.000	0.600	$3.00	0.00%	0	$32,400,000	$3.00	93.0%
									TOTAL	**0.609**	**$3.06**	**0.03%**	**203,964**	**$34,822,037**	**$3.22**	**100.0%**

SUMMARY DATA

Data Input

State	IL
Year	2018
Total Acres	10,800,000
Yield/acre	64
Price/Bushel	$8.46
% Acres Scouted	5
Scouting Fee/scouted acre	$7.00
% Acres Insect Seed Trt.	55
Seed Trt Cost/treated ac	$8.00

Yield & Management Results

Total Bushels Harvested	691,200,000
Total Bushels Lost to Insects	203,964
Percent Yield Loss	0.03%
Yield w/o Insects	64.02
Ave. # Spray Applications	0.609
Seed Treated Acres	5,940,000
Scouted Acres	540,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$33,096,500	$3.06
Seed Treatment Costs	$47,520,000	$4.40
Scouting costs	$3,780,000	$0.35
Total Costs	$84,396,500	$7.81
Yield Lost to insects	$1,725,537	$0.16
Total Losses + Costs	$86,122,037	$7.97

Stink Bug Composition

Species	% of SB
Brown	70
Brown Marmorated	2
Green	28
Redbanded	0
Redshouldered	0
Southern Green	0
Total (make it 100%)	100

Appendix 7. Kentucky soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	84,000	4.0%	105,000	5.0%	10,500	0.5%	1.00	$8.00	0.020	0.005	$0.04	0.00%	919	$92,091	$0.04	0.4%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	1,500,000	71.4%	157,500	7.5%	42,000	2.0%	1.40	$7.80	0.600	0.028	$0.22	0.43%	492,541	$4,792,997	$2.28	23.4%
Blister Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	42,000	2.0%	84,000	4.0%	21,000	1.0%	1.00	$8.50	0.090	0.010	$0.09	0.00%	2,069	$196,704	$0.09	1.0%
Cutworms	42,000	2.0%	21,000	1.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	500,000	23.8%	63,000	3.0%	210,000	10.0%	1.00	$7.50	0.250	0.100	$0.75	0.06%	68,408	$2,176,994	$1.04	10.6%
Garden Webworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	21,000	1.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	40,000	1.9%	21,000	1.0%	10,500	0.5%	1.00	$7.50	0.060	0.005	$0.04	0.00%	1,313	$90,308	$0.04	0.4%
Green Cloverworm	105,000	5.0%	10,000	0.5%	1,000	0.0%	0.50	$7.50	0.000	0.000	$0.00	0.00%	0	$3,750	$0.00	0.0%
Japanese Beetle	1,000,000	47.6%	21,000	1.0%	16,800	0.8%	1.00	$8.00	0.050	0.008	$0.06	0.02%	27,363	$375,198	$0.18	1.8%
Kudzu Bug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	1,500	0.1%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	2,100	0.1%	0	0.0%	0	0.0%	0.00	$0.00	0.050	0.000	$0.00	0.00%	57	$506	$0.00	0.0%
Potato Leafhopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	100,000	4.8%	31,500	1.5%	210,000	10.0%	1.00	$7.50	0.089	0.100	$0.75	0.00%	4,871	$1,617,862	$0.77	7.9%
Spider Mites	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	2,100,000	100.0%	200,000	9.5%	252,000	12.0%	1.40	$8.00	0.800	0.168	$1.34	0.80%	919,409	$10,913,201	$5.20	53.3%
Threecornered Alfalfa Hopper	42,000	2.0%	21,000	1.0%	20,000	1.0%	1.00	$7.00	0.400	0.010	$0.07	0.01%	9,194	$220,908	$0.11	1.1%
Thrips	2,000,000	95.2%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**0.434**	**$3.36**	**1.33%**	**1,526,145**	**$20,480,519**	**$9.75**	**100.0%**

SUMMARY DATA

Data Input

State	KY
Year	2018
Total Acres	2,100,000
Yield/acre	54
Price/Bushel	$8.80
% Acres Scouted	35
Scouting Fee/scouted acre	$7.00
% Acres Insect Seed Trt.	60
Seed Trt Cost/treated ac	$63.00

Yield & Management Results

Total Bushels Harvested	113,400,000
Total Bushels Lost to Insects	1,526,145
Percent Yield Loss	1.33%
Yield w/o Insects	54.73
Ave. # Spray Applications	0.434
Seed Treated Acres	1,260,000
Scouted Acres	735,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$7,050,440	$3.36
Seed Treatment Costs	$79,380,000	$37.80
Scouting costs	$5,145,000	$2.45
Total Costs	$91,575,440	$43.61
Yield Lost to insects	$13,430,079	$6.40
Total Losses + Costs	$105,005,519	$50.00

Stink Bug Composition

Species	% of SB
Brown	34
Brown Marmorated	5
Green	51
Redbanded	0
Redshouldered	3
Southern Green	7
Total (make it 100%)	100

Appendix 8. Louisiana soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	18.7%	25,000	1.9%	20,000	1.5%	1.00	$8.00	0.010	0.015	$0.12	0.00%	1,296	$171,871	$0.13	0.3%
Banded Cucumber Beetle	1,340,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	25,000	1.9%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Blister Beetle	4,000	0.3%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	500,000	37.3%	250,000	18.7%	200,000	14.9%	1.00	$14.00	0.500	0.149	$2.09	0.19%	129,598	$3,987,116	$2.98	7.2%
Cutworms	10,000	0.7%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	1,000,000	74.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Garden Webworms	5,000	0.4%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	1,340,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	750,000	56.0%	2,000	0.1%	2,000	0.1%	0.25	$8.00	0.010	0.000	$0.00	0.01%	3,888	$39,613	$0.03	0.1%
Green Cloverworm	900,000	67.2%	450,000	33.6%	400,000	29.9%	1.00	$8.00	0.500	0.299	$2.39	0.34%	233,276	$5,336,809	$3.98	9.6%
Japanese Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Kudzu Bug	150,000	11.2%	6,000	0.4%	6,000	0.4%	1.00	$8.00	0.100	0.004	$0.04	0.01%	7,776	$119,227	$0.09	0.2%
Lesser Cornstalk Borer	5,000	0.4%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	1,000,000	74.6%	150,000	11.2%	30,000	2.2%	0.50	$8.00	0.050	0.011	$0.09	0.04%	25,920	$357,423	$0.27	0.6%
Saltmarsh Caterpillar	270,000	20.1%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	900,000	67.2%	650,000	48.5%	600,000	44.8%	1.00	$18.00	1.250	0.448	$8.06	0.84%	583,190	$16,142,022	$12.05	29.1%
Spider Mites	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spotted Cucumber Beetle	1,340,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	1,340,000	100.0%	900,000	67.2%	900,000	67.2%	1.00	$12.00	1.750	0.672	$8.06	1.75%	1,215,628	$21,935,148	$16.37	39.5%
Threecornered Alfalfa Hopper	1,340,000	100.0%	250,000	18.7%	250,000	18.7%	0.50	$8.00	0.100	0.093	$0.75	0.10%	69,464	$1,636,294	$1.22	2.9%
Thrips	1,340,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	750,000	56.0%	500,000	37.3%	500,000	37.3%	1.00	$8.00	0.500	0.373	$2.99	0.28%	194,397	$5,780,674	$4.31	10.4%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**2.065**	**$24.58**	**3.55%**	**2,464,432**	**$55,506,199**	**$41.42**	**100.0%**

SUMMARY DATA

Data Input

State	LA
Year	2018
Total Acres	1,340,000
Yield/acre	50
Price/Bushel	$9.16
% Acres Scouted	90
Scouting Fee/scouted acre	$10.00
% Acres Insect Seed Trt.	95
Seed Trt Cost/treated ac	$12.00

Yield & Management Results

Total Bushels Harvested	67,000,000
Total Bushels Lost to Insects	2,464,432
Percent Yield Loss	3.55%
Yield w/o Insects	51.84
Ave. # Spray Applications	2.065
Seed Treated Acres	1,273,000
Scouted Acres	1,206,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$32,932,000	$24.58
Seed Treatment Costs	$15,276,000	$11.40
Scouting costs	$12,060,000	$9.00
Total Costs	$60,268,000	$44.98
Yield Lost to insects	$22,574,199	$16.85
Total Losses + Costs	$82,842,199	$61.82

Stink Bug Composition

Species	% of SB
Brown	25
Brown Marmorated	0
Green	5
Redbanded	45
Redshouldered	1
Southern Green	24
Total (make it 100%)	100

Appendix 9. Michigan soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	1,717,500	75.0%	0	0.0%	57,250	2.5%	1.00	$12.00	0.000	0.025	$0.30	0.00%	0	$687,000	$0.30	26.8%
Blister Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Cutworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Garden Webworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	1,717,500	75.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Green Cloverworm	1,145,000	50.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Japanese Beetle	1,717,500	75.0%	0	0.0%	57,250	2.5%	1.00	$12.00	0.000	0.025	$0.30	0.00%	0	$687,000	$0.30	26.8%
Kudzu Bug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	755,700	33.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	22,900	1.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	22,900	1.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	1,717,500	75.0%	0	0.0%	57,250	2.5%	1.00	$12.00	0.000	0.025	$0.30	0.00%	0	$687,000	$0.30	26.8%
Soybean Looper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spider Mites	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	1,717,500	75.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Threecornered Alfalfa Hopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Thrips	114,500	5.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	57,250	2.5%	1.00	$8.75	0.000	0.025	$0.22	0.00%	0	$500,938	$0.22	19.6%
									TOTAL	**0.100**	**$1.12**	**0.00%**	**0**	**$2,561,938**	**$1.12**	**100.0%**

SUMMARY DATA

Data Input

State	MI
Year	2018
Total Acres	2,290,000
Yield/acre	48
Price/Bushel	$8.60
% Acres Scouted	5
Scouting Fee/scouted acre	$4.92
% Acres Insect Seed Trt.	50
Seed Trt Cost/treated ac	$8.00

Yield & Management Results

Total Bushels Harvested	109,920,000
Total Bushels Lost to Insects	0
Percent Yield Loss	0.00%
Yield w/o Insects	48.00
Ave. # Spray Applications	0.100
Seed Treated Acres	1,145,000
Scouted Acres	114,500

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$2,561,938	$1.12
Seed Treatment Costs	$9,160,000	$4.00
Scouting costs	$563,340	$0.25
Total Costs	$12,285,278	$5.36
Yield Lost to insects	$0	$0.00
Total Losses + Costs	$12,285,278	$5.36

Stink Bug Composition

Species	% of SB
Brown	90
Brown Marmorated	9
Green	1
Redbanded	0
Redshouldered	0
Southern Green	0
Total (make it 100%)	100

Appendix 10. Mississippi soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	200,000	9.0%	75,000	3.4%	75,000	3.4%	1.00	$9.00	0.300	0.034	$0.30	0.03%	33,423	$992,851	$0.45	1.0%
Banded Cucumber Beetle	350,000	15.8%	0	0.0%	0	0.0%	0.00	$9.00	0.010	0.000	$0.00	0.00%	1,950	$18,541	$0.01	0.0%
Bean Leaf Beetle	1,650,000	74.3%	400,000	18.0%	425,000	19.1%	1.00	$11.00	0.200	0.191	$2.11	0.15%	183,826	$6,423,181	$2.89	6.7%
Blister Beetle	5,000	0.2%	0	0.0%	0	0.0%	0.00	$0.00	0.001	0.000	$0.00	0.00%	3	$26	$0.00	0.0%
Corn Earworm	375,000	16.9%	150,000	6.8%	140,000	6.3%	1.00	$12.00	3.500	0.063	$0.76	0.59%	731,124	$8,632,991	$3.89	9.0%
Cutworms	75,000	3.4%	5,000	0.2%	7,500	0.3%	1.00	$8.00	0.100	0.003	$0.03	0.00%	4,178	$99,731	$0.04	0.1%
Dectes Stem Borer	1,150,000	51.8%	0	0.0%	0	0.0%	0.00	$0.00	0.200	0.000	$0.00	0.10%	128,121	$1,218,429	$0.55	1.3%
Garden Webworms	50,000	2.3%	0	0.0%	0	0.0%	0.00	$0.00	0.150	0.000	$0.00	0.00%	4,178	$39,731	$0.02	0.0%
Grape Colaspis	525,000	23.6%	0	0.0%	0	0.0%	0.00	$0.00	0.100	0.000	$0.00	0.02%	29,245	$278,120	$0.13	0.3%
Grasshopper	600,000	27.0%	4,500	0.2%	3,500	0.2%	1.00	$8.00	0.100	0.002	$0.01	0.03%	33,423	$345,851	$0.16	0.4%
Green Cloverworm	1,750,000	78.8%	250,000	11.3%	275,000	12.4%	1.00	$12.00	0.500	0.124	$1.49	0.39%	487,416	$7,935,327	$3.57	8.3%
Japanese Beetle	3,500	0.2%	0	0.0%		0.0%	0.00	$0.00	0.010	0.000	$0.00	0.00%	19	$185	$0.00	0.0%
Kudzu Bug	250,000	11.3%	8,500	0.4%	7,500	0.3%	1.00	$9.00	0.010	0.003	$0.03	0.00%	1,393	$80,744	$0.04	0.1%
Lesser Cornstalk Borer	5,500	0.2%	0	0.0%	0	0.0%	0.00	$0.00	5.000	0.000	$0.00	0.01%	15,319	$145,682	$0.07	0.2%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	300,000	13.5%	0	0.0%	3,500	0.2%	1.00	$8.00	0.010	0.002	$0.01	0.00%	1,671	$43,893	$0.02	0.0%
Saltmarsh Caterpillar	190,000	8.6%	35,000	1.6%	35,000	1.6%	1.00	$14.00	0.500	0.016	$0.22	0.04%	52,919	$993,264	$0.45	1.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	150,000	6.8%	500	0.0%	300	0.0%	1.00	$20.00	1.000	0.000	$0.00	0.07%	83,557	$800,628	$0.36	0.8%
Soybean Aphid	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	650,000	29.3%	250,000	11.3%	275,000	12.4%	1.00	$16.00	1.500	0.124	$1.98	0.44%	543,121	$9,565,079	$4.31	10.0%
Spider Mites	75,000	3.4%	0	0.0%	0	0.0%	0.00	$0.00	0.100	0.000	$0.00	0.00%	4,178	$39,731	$0.02	0.0%
Spotted Cucumber Beetle	1,850,000	83.3%	0	0.0%	0	0.0%	0.00	$0.00	0.100	0.000	$0.00	0.08%	103,054	$980,041	$0.44	1.0%
Stink Bugs (see box below)	2,100,000	94.6%	1,500,000	67.6%	1,650,000	74.3%	1.00	$12.50	2.500	0.743	$9.29	2.36%	2,924,497	$48,436,964	$21.82	50.5%
Threecornered Alfalfa Hopper	2,000,000	90.1%	12,500	0.6%	15,000	0.7%	1.00	$8.50	0.010	0.007	$0.06	0.01%	11,141	$233,450	$0.11	0.2%
Thrips	2,000,000	90.1%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	750,000	33.8%	215,000	9.7%	225,000	10.1%	1.00	$12.00	1.500	0.101	$1.22	0.51%	626,678	$8,659,706	$3.90	9.0%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**1.413**	**$17.51**	**4.86%**	**6,004,432**	**$95,964,146**	**$43.23**	**100.0%**

SUMMARY DATA

Data Input

State	MS
Year	2018
Total Acres	2,220,000
Yield/acre	53
Price/Bushel	$9.51
% Acres Scouted	90
Scouting Fee/scouted acre	$6.50
% Acres Insect Seed Trt.	75
Seed Trt Cost/treated ac	$9.00

Yield & Management Results

Total Bushels Harvested	117,660,000
Total Bushels Lost to Insects	6,004,432
Percent Yield Loss	4.86%
Yield w/o Insects	55.70
Ave. # Spray Applications	1.413
Seed Treated Acres	1,665,000
Scouted Acres	1,998,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$38,862,000	$17.51
Seed Treatment Costs	$14,985,000	$6.75
Scouting costs	$12,987,000	$5.85
Total Costs	$66,834,000	$30.11
Yield Lost to insects	$57,102,146	$25.72
Total Losses + Costs	$123,936,146	$55.83

Stink Bug Composition

Species	% of SB
Brown	40
Brown Marmorated	0
Green	56
Redbanded	1
Redshouldered	2
Southern Green	1
Total (make it 100%)	100

Appendix 11. North Carolina soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	236,733	14.9%	15,900	1.0%	15,900	1.0%	1.00	$12.00	0.500	0.010	$0.12	0.07%	44,657	$570,384	$0.36	1.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	1,173,067	73.8%	190,800	12.0%	190,800	12.0%	1.00	$8.00	0.500	0.120	$0.96	0.37%	221,286	$3,407,329	$2.14	5.7%
Blister Beetle	393,967	24.8%	15,900	1.0%	15,900	1.0%	1.00	$8.00	0.500	0.010	$0.08	0.12%	74,317	$758,898	$0.48	1.3%
Corn Earworm	1,263,167	79.4%	938,100	59.0%	1,097,100	69.0%	1.10	$11.00	5.000	0.759	$8.35	3.97%	2,382,821	$33,528,887	$21.09	56.4%
Cutworms	5,693	0.4%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	204,713	12.9%	0	0.0%	0	0.0%	0.00	$0.00	0.010	0.000	$0.00	0.00%	772	$6,565	$0.00	0.0%
Garden Webworms	26,500	1.7%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	218,625	13.8%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	812,667	51.1%	47,700	3.0%	47,700	3.0%	1.00	$8.00	0.100	0.030	$0.24	0.05%	30,660	$642,211	$0.40	1.1%
Green Cloverworm	918,667	57.8%	0	0.0%	206,700	13.0%	1.00	$8.00	0.100	0.130	$1.04	0.06%	34,659	$1,948,203	$1.23	3.3%
Japanese Beetle	424,000	26.7%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Kudzu Bug	371,000	23.3%	15,900	1.0%	15,900	1.0%	1.00	$8.00	0.100	0.010	$0.08	0.02%	13,997	$246,174	$0.15	0.4%
Lesser Cornstalk Borer	199,633	12.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	215,533	13.6%	0	0.0%	0	0.0%	0.00	$0.00	0.500	0.000	$0.00	0.07%	40,658	$345,592	$0.22	0.6%
Potato Leafhopper	406,333	25.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	185,500	11.7%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	206,700	13.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	1,077,667	67.8%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	298,125	18.8%	15,900	1.0%	15,900	1.0%	1.00	$8.00	0.000	0.010	$0.08	0.00%	0	$127,200	$0.08	0.2%
Soybean Looper	1,077,667	67.8%	349,800	22.0%	190,800	12.0%	0.00	$12.00	2.000	0.000	$0.00	1.36%	813,158	$6,911,847	$4.35	11.6%
Spider Mites	204,713	12.9%	0	0.0%	0	0.0%	0.00	$0.00	0.500	0.000	$0.00	0.06%	38,617	$328,243	$0.21	0.6%
Spotted Cucumber Beetle	411,633	25.9%	0	0.0%	0	0.0%	0.00	$0.00	0.100	0.000	$0.00	0.03%	15,530	$132,005	$0.08	0.2%
Stink Bugs (see box below)	1,166,000	73.3%	365,700	23.0%	426,854	26.8%	1.10	$8.00	1.000	0.295	$2.36	0.73%	439,905	$7,495,510	$4.71	12.6%
Threecornered Alfalfa Hopper	680,167	42.8%	20,000	1.3%	0	0.0%	0.00	$0.00	0.500	0.000	$0.00	0.21%	128,306	$1,090,599	$0.69	1.8%
Thrips	1,590,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	258,375	16.3%	15,900	1.0%	15,900	1.0%	1.00	$8.00	0.500	0.010	$0.08	0.08%	48,740	$541,486	$0.34	0.9%
Other	47,700	3.0%	31,800	2.0%	31,800	2.0%	1.00	$8.00	0.500	0.020	$0.16	0.02%	8,998	$330,884	$0.21	0.6%
Automatic (no insects)	0	0.0%	0	0.0%	127,200	8.0%	1.00	$8.00	0.000	0.080	$0.64	0.00%	0	$1,017,600	$0.64	1.7%
									TOTAL	**1.484**	**$14.19**	**7.23%**	**4,337,081**	**$59,429,615**	**$37.38**	**100.0%**

SUMMARY DATA

Data Input

State	NC
Year	2018
Total Acres	1,590,000
Yield/acre	35
Price/Bushel	$8.50
% Acres Scouted	15
Scouting Fee/scouted acre	$6.50
% Acres Insect Seed Trt.	15
Seed Trt Cost/treated ac	$10.00

Yield & Management Results

Total Bushels Harvested	55,650,000
Total Bushels Lost to Insects	4,337,081
Percent Yield Loss	7.23%
Yield w/o Insects	37.73
Ave. # Spray Applications	1.484
Seed Treated Acres	238,500
Scouted Acres	238,500

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$22,564,425	$14.19
Seed Treatment Costs	$2,385,000	$1.50
Scouting costs	$1,550,250	$0.98
Total Costs	$26,499,675	$16.67
Yield Lost to insects	$36,865,190	$23.19
Total Losses + Costs	$63,364,865	$39.85

Stink Bug Composition

Species	% of SB
Brown	49
Brown Marmorated	2
Green	41
Redbanded	0
Redshouldered	0
Southern Green	8
Total (make it 100%)	100

Appendix 12. Ohio soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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
Armyw orm complex	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	1,020,000	20.0%	51,000	1.0%	20,000	0.4%	1.00	$15.00	0.060	0.004	$0.06	0.01%	33,933	$594,540	$0.12	0.5%
Blister Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earw orm	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Cutw orms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Garden Webw orms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Green Cloverw orm	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Japanese Beetle	1,530,000	30.0%	255,000	5.0%	200,000	3.9%	1.00	$15.00	3.000	0.039	$0.59	0.90%	2,544,985	$25,090,467	$4.92	19.6%
Kudzu Bug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	255,000	5.0%	200,000	3.9%	250,000	4.9%	1.00	$15.00	5.000	0.049	$0.74	0.25%	706,940	$9,886,241	$1.94	7.7%
Potato Leafhopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	765,000	15.0%	500,000	9.8%	0	0.0%	0.00	$0.00	5.000	0.000	$0.00	0.75%	2,120,821	$18,408,723	$3.61	14.4%
Soybean Aphid	510,000	10.0%	200,000	3.9%	350,000	6.9%	1.00	$15.00	0.000	0.069	$1.03	0.00%	0	$5,250,000	$1.03	4.1%
Soybean Looper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spider Mites	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	2,550,000	50.0%	1,020,000	20.0%	500,000	9.8%	1.00	$15.00	5.000	0.098	$1.47	2.50%	7,069,402	$68,862,410	$13.50	53.8%
Threecornered Alfalfa Hopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Thrips	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**0.259**	**$3.88**	**4.41%**	**12,476,081**	**$128,092,380**	**$25.12**	**100.0%**

SUMMARY DATA

Data Input

State	OH
Year	2018
Total Acres	5,100,000
Yield/acre	53
Price/Bushel	$8.68
% Acres Scouted	30
Scouting Fee/scouted acre	$10.00
% Acres Insect Seed Trt.	80
Seed Trt Cost/treated ac	$7.00

Yield & Management Results

Total Bushels Harvested	270,300,000
Total Bushels Lost to Insects	12,476,081
Percent Yield Loss	4.41%
Yield w/o Insects	55.45
Ave. # Spray Applications	0.259
Seed Treated Acres	4,080,000
Scouted Acres	1,530,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$19,800,000	$3.88
Seed Treatment Costs	$28,560,000	$5.60
Scouting costs	$15,300,000	$3.00
Total Costs	$63,660,000	$12.48
Yield Lost to insects	$108,292,380	$21.23
Total Losses + Costs	$171,952,380	$33.72

Stink Bug Composition

Species	% of SB
Brown	38
Brown Marmorated	25
Green	35
Redbanded	0
Redshouldered	2
Southern Green	0
Total (make it 100%)	100

Appendix 13. Oklahoma soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Blister Beetle	800	0.1%	100	0.0%	100	0.0%	1.00	$9.00	5.000	0.000	$0.00	0.01%	1,252	$12,164	$0.02	0.6%
Corn Earworm	5,000	0.8%	1,000	0.2%	0	0.0%	0.00	$0.00	10.000	0.000	$0.00	0.08%	15,644	$140,800	$0.23	6.5%
Cutworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	200	0.0%	100	0.0%	0	0.0%	0.00	$0.00	5.000	0.000	$0.00	0.00%	313	$2,816	$0.00	0.1%
Garden Webworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Green Cloverworm	90,000	14.5%	8,000	1.3%	20,000	3.2%	1.00	$9.00	5.000	0.032	$0.29	0.73%	140,800	$1,447,201	$2.33	67.2%
Japanese Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Kudzu Bug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	5,000	0.8%	200	0.0%	0	0.0%	0.00	$0.00	5.000	0.000	$0.00	0.04%	7,822	$70,400	$0.11	3.3%
Spider Mites	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	120,000	19.4%	60,000	9.7%	40,000	6.5%	1.00	$9.00	0.313	0.065	$0.58	0.06%	11,733	$465,600	$0.75	21.6%
Threecornered Alfalfa Hopper	5,000	0.8%	100	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Thrips	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	1,000	0.2%	200	0.0%	0	0.0%	0.00	$0.00	5.000	0.000	$0.00	0.01%	1,564	$14,080	$0.02	0.7%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**0.097**	**$0.87**	**0.92%**	**179,129**	**$2,153,061**	**$3.47**	**100.0%**

SUMMARY DATA

Data Input

State	OK
Year	2018
Total Acres	620,000
Yield/acre	31
Price/Bushel	$9.00
% Acres Scouted	15
Scouting Fee/scouted acre	$0.00
% Acres Insect Seed Trt.	30
Seed Trt Cost/treated ac	$7.00

Yield & Management Results

Total Bushels Harvested	19,220,000
Total Bushels Lost to Insects	179,129
Percent Yield Loss	0.92%
Yield w/o Insects	31.29
Ave. # Spray Applications	0.097
Seed Treated Acres	186,000
Scouted Acres	93,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$540,900	$0.87
Seed Treatment Costs	$1,302,000	$2.10
Scouting costs	$0	$0.00
Total Costs	$1,842,900	$2.97
Yield Lost to insects	$1,612,161	$2.60
Total Losses + Costs	$3,455,061	$5.57

Stink Bug Composition

Species	% of SB
Brown	30
Brown Marmorated	0
Green	30
Redbanded	0
Redshouldered	0
Southern Green	40
Total (make it 100%)	100

Appendix 14. South Carolina soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	390,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Banded Cucumber Beetle	390,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	100,000	25.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Blister Beetle	100,000	25.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	390,000	100.0%	150,000	38.5%	100,000	25.6%	1.00	$10.00	1.000	0.256	$2.56	1.00%	122,436	$2,114,166	$5.42	19.2%
Cutworms	390,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	390,000	100.0%	1,000	0.3%	0	0.0%	0.00	$0.00	0.050	0.000	$0.00	0.05%	6,122	$55,708	$0.14	0.5%
Garden Webworms	100,000	25.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	50,000	12.8%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	390,000	100.0%	1,000	0.3%	500	0.1%	1.00	$8.00	0.100	0.001	$0.01	0.10%	12,244	$115,417	$0.30	1.1%
Green Cloverworm	390,000	100.0%	10,000	2.6%	0	0.0%	0.00	$0.00	0.050	0.000	$0.00	0.05%	6,122	$55,708	$0.14	0.5%
Japanese Beetle	50,000	12.8%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Kudzu Bug	390,000	100.0%	50,000	12.8%	25,000	6.4%	1.00	$8.00	0.100	0.064	$0.51	0.10%	12,244	$311,417	$0.80	2.8%
Lesser Cornstalk Borer	100,000	25.6%	5,000	1.3%	0	0.0%	0.00	$0.00	0.050	0.000	$0.00	0.01%	1,570	$14,284	$0.04	0.1%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	150,000	38.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	390,000	100.0%	200,000	51.3%	100,000	25.6%	1.00	$18.00	1.000	0.256	$4.62	1.00%	122,436	$2,914,166	$7.47	26.5%
Spider Mites	390,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spotted Cucumber Beetle	390,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	390,000	100.0%	300,000	76.9%	250,000	64.1%	1.50	$8.00	2.000	0.962	$7.69	2.00%	244,872	$5,228,332	$13.41	47.6%
Threecornered Alfalfa Hopper	390,000	100.0%	25,000	6.4%	0	0.0%	0.00	$0.00	0.050	0.000	$0.00	0.05%	6,122	$55,708	$0.14	0.5%
Thrips	390,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	300,000	76.9%	10,000	2.6%	5,000	1.3%	1.00	$8.00	0.100	0.013	$0.10	0.08%	9,418	$125,705	$0.32	1.1%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**1.553**	**$15.50**	**4.44%**	**543,584**	**$10,990,612**	**$28.18**	**100.0%**

SUMMARY DATA

Data Input

State	SC
Year	2018
Total Acres	390,000
Yield/acre	30
Price/Bushel	$9.10
% Acres Scouted	30
Scouting Fee/scouted acre	$7.00
% Acres Insect Seed Trt.	25
Seed Trt Cost/treated ac	$12.00

Yield & Management Results

Total Bushels Harvested	11,700,000
Total Bushels Lost to Insects	543,584
Percent Yield Loss	4.44%
Yield w/o Insects	31.39
Ave. # Spray Applications	1.553
Seed Treated Acres	97,500
Scouted Acres	117,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$6,044,000	$15.50
Seed Treatment Costs	$1,170,000	$3.00
Scouting costs	$819,000	$2.10
Total Costs	$8,033,000	$20.60
Yield Lost to insects	$4,946,612	$12.68
Total Losses + Costs	$12,979,612	$33.28

Stink Bug Composition

Species	% of SB
Brown	30
Brown Marmorated	1
Green	10
Redbanded	9
Redshouldered	1
Southern Green	49
Total (make it 100%)	100

Appendix 15. Tennessee soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	5.4%	2,000	0.1%	600	0.0%	1.00	$8.25	0.200	0.000	$0.00	0.01%	8,891	$88,529	$0.05	0.3%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	1,670,000	100.0%	90,000	5.4%	60,000	3.6%	1.00	$8.00	0.200	0.036	$0.29	0.20%	164,985	$2,030,863	$1.22	7.4%
Blister Beetle	10,000	0.6%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	185,000	11.1%	45,000	2.7%	30,000	1.8%	1.00	$11.00	1.600	0.018	$0.20	0.18%	146,215	$1,704,418	$1.02	6.2%
Cutworms	2,000	0.1%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	1,500,000	89.8%	0	0.0%	10,000	0.6%	1.00	$7.50	1.100	0.006	$0.04	0.99%	815,048	$7,736,449	$4.63	28.1%
Garden Webworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	18,000	1.1%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	60,000	3.6%	400	0.0%	300	0.0%	1.00	$7.50	0.050	0.000	$0.00	0.00%	1,482	$16,180	$0.01	0.1%
Green Cloverworm	1,670,000	100.0%	160,000	9.6%	130,000	7.8%	1.00	$7.50	0.300	0.078	$0.58	0.30%	247,478	$3,301,295	$1.98	12.0%
Japanese Beetle	1,000,000	59.9%	0	0.0%	750	0.0%	1.00	$7.50	0.000	0.000	$0.00	0.00%	0	$5,625	$0.00	0.0%
Kudzu Bug	700,000	41.9%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	3,500	0.2%	900	0.1%	900	0.1%	1.00	$7.50	0.000	0.001	$0.00	0.00%	0	$6,750	$0.00	0.0%
Potato Leafhopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	40,000	2.4%	300	0.0%	150	0.0%	1.00	$8.00	0.000	0.000	$0.00	0.00%	0	$1,200	$0.00	0.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	330,000	19.8%	50,000	3.0%	400	0.0%	1.00	$18.00	1.600	0.000	$0.00	0.32%	260,815	$2,458,864	$1.47	8.9%
Soybean Aphid	1,000	0.1%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	600,000	35.9%	20,000	1.2%	16,000	1.0%	1.00	$13.00	0.300	0.010	$0.12	0.11%	88,914	$1,043,794	$0.63	3.8%
Spider Mites	25,000	1.5%	13,000	0.8%	10,000	0.6%	1.00	$8.00	0.400	0.006	$0.05	0.01%	4,940	$126,433	$0.08	0.5%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	1,670,000	100.0%	260,000	15.6%	160,000	9.6%	1.00	$7.75	0.500	0.096	$0.74	0.50%	412,464	$5,117,158	$3.06	18.6%
Threecornered Alfalfa Hopper	1,670,000	100.0%	70,000	4.2%	30,000	1.8%	1.00	$7.75	0.200	0.018	$0.14	0.20%	164,985	$1,783,363	$1.07	6.5%
Thrips	1,670,000	100.0%	0	0.0%	0	0.0%	0.00	$0.00	0.020	0.000	$0.00	0.02%	16,499	$155,086	$0.09	0.6%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	3,300	0.2%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	660,000	39.5%	1.00	$3.00	0.000	0.395	$1.19	0.00%	0	$1,980,000	$1.19	7.2%
									TOTAL	**0.664**	**$3.37**	**2.83%**	**2,332,716**	**$27,556,007**	**$16.50**	**100.0%**

SUMMARY DATA

Data Input

State	TN
Year	2018
Total Acres	1,670,000
Yield/acre	48
Price/Bushel	$9.40
% Acres Scouted	43
Scouting Fee/scouted acre	$7.00
% Acres Insect Seed Trt.	75
Seed Trt Cost/treated ac	$7.00

Yield & Management Results

Total Bushels Harvested	80,160,000
Total Bushels Lost to Insects	2,332,716
Percent Yield Loss	2.83%
Yield w/o Insects	49.40
Ave. # Spray Applications	0.664
Seed Treated Acres	1,252,500
Scouted Acres	718,100

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$5,628,475	$3.37
Seed Treatment Costs	$8,767,500	$5.25
Scouting costs	$5,026,700	$3.01
Total Costs	$19,422,675	$11.63
Yield Lost to insects	$21,927,532	$13.13
Total Losses + Costs	$41,350,207	$24.76

Stink Bug Composition

Species	% of SB
Brown	15
Brown Marmorated	5
Green	77
Redbanded	0
Redshouldered	3
Southern Green	0
Total (make it 100%)	100

Appendix 16. Texas soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	500	0.3%	500	0.3%	500	0.3%	1.00	$20.00	1.000	0.003	$0.06	0.00%	204	$11,936	$0.07	0.1%
Banded Cucumber Beetle	128,000	80.0%	1,600	1.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Blister Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	10,000	6.3%	7,500	4.7%	7,500	4.7%	1.00	$20.00	2.500	0.047	$0.94	0.16%	10,188	$246,787	$1.54	1.7%
Cutworms	4,000	2.5%	0	0.0%	0	0.0%	0.00	$0.00	0.500	0.000	$0.00	0.01%	815	$7,743	$0.05	0.1%
Dectes Stem Borer	4,000	2.5%	0	0.0%	0	0.0%	0.00	$0.00	0.500	0.000	$0.00	0.01%	815	$7,743	$0.05	0.1%
Garden Webworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	80,000	50.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Green Cloverworm	128,000	80.0%	128,000	80.0%	128,000	80.0%	0.20	$20.00	2.000	0.160	$3.20	1.60%	104,326	$1,503,100	$9.39	10.1%
Japanese Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Kudzu Bug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	4,000	2.5%	0	0.0%	0	0.0%	0.00	$0.00	0.500	0.000	$0.00	0.01%	815	$7,743	$0.05	0.1%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn Maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	0	0.0%	0		0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	128,000	80.0%	128,000	80.0%	128,000	80.0%	0.20	$20.00	2.000	0.160	$3.20	1.60%	104,326	$1,503,100	$9.39	10.1%
Spider Mites	4,000	2.5%	4,000	2.5%	4,000	2.5%	1.00	$20.00	1.000	0.025	$0.50	0.03%	1,630	$95,486	$0.60	0.6%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	144,000	90.0%	144,000	90.0%	144,000	90.0%	1.50	$20.00	10.000	1.350	$27.00	9.00%	586,835	$9,894,937	$61.84	66.7%
Threecornered Alfalfa Hopper	144,000	90.0%	80,000	50.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Thrips	40,000	25.0%	0	0.0%	0	0.0%	0.00	$0.00	0.250	0.000	$0.00	0.06%	4,075	$38,715	$0.24	0.3%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	128,000	80.0%	128,000	80.0%	128,000	80.0%	0.20	$20.00	2.000	0.160	$3.20	1.60%	104,326	$1,503,100	$9.39	10.1%
Other	5,000	3.1%	1,000	0.6%	1,000	0.6%	0.10	$20.00	1.000	0.001	$0.01	0.03%	2,038	$21,357	$0.13	0.1%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**1.906**	**$38.11**	**14.12%**	**920,394**	**$14,841,747**	**$92.76**	**100.0%**

SUMMARY DATA

Data Input

State	TX
Year	2018
Total Acres	160,000
Yield/acre	35
Price/Bushel	$9.50
% Acres Scouted	20
Scouting Fee/scouted acre	$10.00
% Acres Insect Seed Trt.	90
Seed Trt Cost/treated ac	$12.00

Yield & Management Results

Total Bushels Harvested	5,600,000
Total Bushels Lost to Insects	920,394
Percent Yield Loss	14.12%
Yield w/o Insects	40.75
Ave. # Spray Applications	1.906
Seed Treated Acres	144,000
Scouted Acres	32,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$6,098,000	$38.11
Seed Treatment Costs	$1,728,000	$10.80
Scouting costs	$320,000	$2.00
Total Costs	$8,146,000	$50.91
Yield Lost to insects	$8,743,747	$54.65
Total Losses + Costs	$16,889,747	$105.56

Stink Bug Composition

Species	% of SB
Brown	10
Brown Marmorated	0
Green	10
Redbanded	70
Redshouldered	0
Southern Green	10
Total (make it 100%)	100

Appendix 17. Virginia soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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	59,000	10.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	29,500	5.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Blister Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earworm	177,000	30.0%	132,750	22.5%	177,000	30.0%	1.00	$15.00	5.000	0.300	$4.50	1.50%	390,441	$5,973,750	$10.13	39.6%
Cutworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	29,500	5.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Garden Webworms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	59,000	10.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Green Cloverworm	206,500	35.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Japanese Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Kudzu Bug	5,900	1.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	2,950	0.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	2,950	0.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	59,000	10.0%	5,900	1.0%	5,900	1.0%	1.00	$20.00	3.000	0.010	$0.20	0.30%	78,088	$781,750	$1.33	5.2%
Soybean Aphid	2,950	0.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Looper	59,000	10.0%	5,900	1.0%	11,800	2.0%	1.00	$20.00	5.000	0.020	$0.40	0.50%	130,147	$1,342,250	$2.28	8.9%
Spider Mites	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spotted Cucumber Beetle	59,000	10.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	295,000	50.0%	59,000	10.0%	147,500	25.0%	1.00	$10.00	5.000	0.250	$2.50	2.50%	650,735	$7,006,250	$11.88	46.4%
Threecornered Alfalfa Hopper	5,900	1.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Thrips	295,000	50.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**0.580**	**$7.60**	**4.80%**	**1,249,412**	**$15,104,000**	**$25.60**	**100.0%**

SUMMARY DATA

Data Input

State	VA
Year	2018
Total Acres	590,000
Yield/acre	42
Price/Bushel	$8.50
% Acres Scouted	10
Scouting Fee/scouted acre	$12.00
% Acres Insect Seed Trt.	10
Seed Trt Cost/treated ac	$8.00

Yield & Management Results

Total Bushels Harvested	24,780,000
Total Bushels Lost to Insects	1,249,412
Percent Yield Loss	4.80%
Yield w/o Insects	44.12
Ave. # Spray Applications	0.580
Seed Treated Acres	59,000
Scouted Acres	59,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$4,484,000	$7.60
Seed Treatment Costs	$472,000	$0.80
Scouting costs	$708,000	$1.20
Total Costs	$5,664,000	$9.60
Yield Lost to insects	$10,620,000	$18.00
Total Losses + Costs	$16,284,000	$27.60

Stink Bug Composition

Species	% of SB
Brown	45
Brown Marmorated	10
Green	45
Redbanded	0
Redshouldered	0
Southern Green	0
Total (make it 100%)	100

Appendix 18. Wisconsin soybean insect losses, 2018.

Pest	Acres Infested	% Acres Infested	Acres above ET	% Acres above ET	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
Armyw orm complex	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Banded Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Bean Leaf Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Blister Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Corn Earw orm	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Cutw orms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Dectes Stem Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Garden Webw orms	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grape Colaspis	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Grasshopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Green Cloverw orm	10,000	0.5%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Japanese Beetle	400,000	18.2%	20,000	0.9%	20,000	0.9%	1.00	$15.00	1.000	0.009	$0.14	0.18%	196,357	$2,067,213	$0.94	52.6%
Kudzu Bug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Lesser Cornstalk Borer	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Mexican Bean Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Potato Leafhopper	14,000	0.6%	1,000	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Saltmarsh Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Seedcorn maggot	85,000	3.9%	10,000	0.5%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Slugs	5,000	0.2%	5,000	0.2%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Soybean Aphid	1,500,000	68.2%	250,000	11.4%	200,000	9.1%	1.00	$9.00	0.000	0.091	$0.82	0.00%	0	$1,800,000	$0.82	45.8%
Soybean Looper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Spider Mites	10,000	0.5%	5,000	0.2%	5,000	0.2%	1.00	$12.00	0.000	0.002	$0.03	0.00%	0	$60,000	$0.03	1.5%
Spotted Cucumber Beetle	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Stink Bugs (see box below)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Threecornered Alfalfa Hopper	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Thrips	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Trochanter Mealybug	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Velvetbean Caterpillar	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Other	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
Automatic (no insects)	0	0.0%	0	0.0%	0	0.0%	0.00	$0.00	0.000	0.000	$0.00	0.00%	0	$0	$0.00	0.0%
									TOTAL	**0.102**	**$0.98**	**0.18%**	**196,357**	**$3,927,213**	**$1.79**	**100.0%**

SUMMARY DATA

Data Input

State	WI
Year	2018
Total Acres	2,200,000
Yield/acre	49
Price/Bushel	$9.00
% Acres Scouted	50
Scouting Fee/scouted acre	$3.50
% Acres Insect Seed Trt.	30
Seed Trt Cost/treated ac	$6.50

Yield & Management Results

Total Bushels Harvested	107,800,000
Total Bushels Lost to Insects	196,357
Percent Yield Loss	0.18%
Yield w /o Insects	49.09
Ave. # Spray Applications	0.102
Seed Treated Acres	660,000
Scouted Acres	1,100,000

Economic Results

	Total	Per Acre
Foliar Insecticides Costs	$2,160,000	$0.98
Seed Treatment Costs	$4,290,000	$1.95
Scouting costs	$3,850,000	$1.75
Total Costs	$10,300,000	$4.68
Yield Lost to insects	$1,767,213	$0.80
Total Losses + Costs	$12,067,213	$5.49

Stink Bug Composition

Species	% of SB
Brow n	0
Brow n Marmorated	0
Green	0
Redbanded	0
Redshouldered	0
Southern Green	0
Total (make it 100%)	0