COTTON INSECT LOSS ESTIMATES - 2014

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Abstract

Cotton losses to arthropod pests across the US were 2.55% in 2014. MidSouth states were the biggest losers and *Lygus* were the number one pest at 0.829%. Thrips were ranked second at 0.417%. Stink bugs were third (0.411%), bollworm/budworm were 4th (0.319%) and cotton fleahoppers were 5th (0.298%). Missouri at 21.2% insect loss was followed by Louisiana (13.3%), Oklahoma at 10.4%, Mississippi (8.63%) and Tennessee (7.99%) for the 5 states with highest losses. 914,220 bales of cotton were lost to arthropod pests with an associated cost of $34.07 per acre in management. Total cost plus loss was $ 657 million.

Introduction

Over 10 million acres of cotton were grown in the US in 2014. Texas alone planted more than 50% of the acres (6.2 million); as a result national averages reflect the trends with that acreage. National trends for losses have not exceeded 10% in a number of years. This year's 2.55% loss is reflective of that trend. Individual pest losses are also reflective of those trends. The bug complex, predominantly *Lygus* at 0.829% show lowered national losses. These numbers remain important and should be maintained and reported. A look at regional summaries may provide a better picture of how damaging arthropod pests are to the crop. The tables included in this paper will summarize each of the pests reported for 2014 on a state by state basis (Tables 1-17).

Thrips remain our most prolific pest infesting 7.8 million acres and costing $1.96 per acre in sprays alone. Thrips management costs are also reflected in the $11.56 per acre of seed and infurrow treatments (Williams 2014). All `bugs' combined amount to 1.6% loss, nationally. Stink bugs infested 6.1 million acres in the US (Table 2,6). The bollworm/ budworm complex ranked at number 4 in 2014 at 0.319% loss are still a problem on 35% of the US acres even though more than 80% of the acres are planted to GM cottons (Table 5). Aphids, spider mites and other miscellaneous pests continue to cause losses in outbreak areas. Boll weevils are still a pest in the southern border area of Texas.

Discussion

Southeastern Area states losses at 2.64%

The Southeastern Area is made up of the states of Virginia, North and South Carolina, Georgia, Florida and Alabama. This area represents about 2.65 million acres of cotton. Georgia reported 2.54% loss on 1.37 million acres, North Carolina had 2.68% loss on 470,000 acres, and Virginia had 3.4% loss. South Carolina had 3.2% loss, Florida reported 2.5% loss and Alabama had 2.31% loss (Table 1). When losses from these states are summarized, stink bugs are identified as the predominant pest at 1.24% loss. Virginia reported 1.4% loss, Georgia 1.35% loss, North Carolina 1.9% loss, South Carolina 1.0% loss, Florida 0.50% loss and Alabama 0.30% loss to stink bugs (Table 6).

Thrips had the 2nd highest losses in this area at 0.67% on 2.58 million acres (Table 3). Virginia reported 2.0% loss, Alabama 1.1% loss, Florida 1.0% loss and South Carolina had 1.0% loss to Thrips. Georgia reported 0.475% loss and North Carolina 0.40% loss to Thrips (Table 7). *Lygus* losses were 0.239% on 1.37 million acres, bollworm/budworms losses were 0.195% on 1.28 million acres, and spider mites losses were 0.174% on 1.27 million acres. Cutworms, fall armyworms, silver-leaf whiteflies and leaf-footed bugs were also miscellaneous pests of the Southeast area (Table 3). 182,884 bales were lost to insect pests in this area.(Williams 2014).

MidSouth area states losses at 10.4%

MidSouth states are Missouri, Tennessee, Arkansas, Mississippi and Louisiana. There are 1.42 million acres of cotton grown in this area. Missouri reported 21.2% overall loss on 246,000 acres, Louisiana had 13.3% loss on 166,807 acres, Mississippi had 8.63% loss on 425,000 acres, Tennessee had 7.99% loss on 265,000 acres, and Arkansas had 4.85% loss on 316,000 acres. Summary of losses from these states show *Lygus* at 5.19% loss. Missouri reported 9.0% loss, Louisiana had 5.0% loss, Mississippi had 4.93% loss, Arkansas had 3.83% and Tennessee had 3.80% loss to *Lygus.* Bollworm/budworm complex were 2nd in losses at 1.68% (Table 3). Louisiana lost 62,309 bales to

Heliothine pests, Missouri lost 25,335 to these pests. Thrips also caused 1.5% loss in the MidSouth area. Other bugs, Including stink bugs (0.725%) and clouded plant bugs (0.183%) also contributed to the losses in the MidSouth area. Fall Armyworms, cutworms, aphids and spider mites also reduced yields in the MidSouth (Table 3). 589,655 bales of cotton were lost to insect pests at a cost of $108.19 in management (Williams 2014)

Central area state losses at 0.738%

Texas, Oklahoma and Kansas make up the Central Area. This area comprises about 6.5 million acres of cotton. Oklahoma reported 10.4% loss on 210,000 acres, Texas had 0.41% loss on 6.21 million acres and Kansas had 0.35% loss on 29,000 acres. Cotton fleahopper at 0.428% was the top pest of this area. 9.35% losses to cotton fleahopper were reported by Oklahoma, Texas losses were 0.128%. 70,870 bales were lost to this pest, nationally.
Other bugs were pests of the central area states with stink bug infesting 2.4 million acres, *Lygus* found in 1.6 million acres and verde plant bugs in 195,454 acres. Spider mites, aphids, Thrips and grasshoppers were also pests in this area. The Heliothine complex infested 1.3 million acres and had losses of 0.087% (Table 3). This area lost 88,340 bales to pests at a cost of $27.87 in management.

Boll weevils are still a niggling problem in southern Texas, infesting about 50,000 acres but causing no reduction in yields.

Western area states losses at 3.24%

California, Arizona and New Mexico make up the Western Area. This represents about 406,000 acres of cotton. California had 1.37% loss on 210,400 acres, Arizona had 6.37% loss on 152,069 acres and New Mexico had 1.36% loss on 43,557 acres.

Lygus were the top pests for this area at 2.177%. Arizona lost 4.38%on 150,824 acres, California lost 0.95% on 199,880 acres and New Mexico lost 0.42% on 11,317 acres to *Lygus*. Stink bugs were the 2nd most damaging pest at 0.300% loss on 90,464 acres and Arizona reported an additional 0.218% loss on 100,058 acres to brown stink bug. Both species of whiteflies were pests of cotton in the Western area infesting almost 300,000 acres of cotton. Whiteflies were responsible for loss of 4200 bales of cotton in this area. Thrips were also a pest causing 0.089% loss on 361,262 acres. Bagrada bug, darkling beetles, pale-striped flea beetle, cotton leafperforater, green June beetles and leaf-footed bug were also miscellaneous pests in the Western Area (Table 3). Management cost for this area were $80.60 and 53,342 bales of cotton were lost to pests.

Eradication

While boll weevils remain a pest on less than 50,000 acres of Texas cotton, eradication is still an active part of pest management programs. Nationally, farmers assess themselves $3.05 per acre to pay for eradication and maintenance programs. From assessments as low as $0.50 per acre in eastern states to as high $8.00 per acre, weevil free status has helped to keep cotton farming profitable. Pink bollworm eradication programs in Arizona ($5.50 per acre), California ($5.00 per acre), and New Mexico ($6.98 per acre) have reduced pink bollworm to non-pest status. Pink bollworm eradication costs about $0.08 per acre, nationally.

Conclusions

Total losses to pests in 2014 were 2.55%. The use of modern technology has modified the pest complex and continues to shift it toward the `bugs.' *Lygus* management seems to be the biggest problems left to solve in Midsouth and Western areas. Stinkbugs have also begun to fill a pest gap especially in the Southeast states. Those areas where there is not a tremendous pest problem from the bugs are keeping cotton profitable. While there seems to be some slippage in total management of lepidopterous pests, the GMs are holding their own and keeping these pests low. Costs of management were $34.07 and cost plus loss $60.13, nationally for 2014 (Williams 2014).

Acknowledgments

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References

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Table 1. Number of acres, percent reduction in yield by arthropods, cost plus loss and bales lost by state in 2014

	Acres	% reduction	cost + loss	bales lost
US	10,931,091	2.55%	$657,333,647	914,220
Missouri	246,000	21.20%	$96,844,690	214,845
Louisiana	166,807	13.33%	$77,034,839	166,054
Oklahoma	210,000	10.40%	$18,467,584	39,966
Mississippi	425,000	8.63%	$82,212,125	110,631
Tennessee	265,000	7.99%	$41,922,089	53,427
Arizona	152,069	6.37%	$31,434,837	40,231
Arkansas	316,000	4.85%	$48,630,076	44,698
Virginia	86,500	3.40%	$5,927,730	7,772
South Carolina	280,000	3.32%	$21,070,441	27,026
North Carolina	470,000	2.68%	$46,223,552	32,082
Florida	105,000	2.54%	$10,904,975	6,008
Georgia	1,370,000	2.54%	$102,238,476	90,441
Alabama	341,500	2.31%	$25,640,828	19,554
California	210,400	1.37%	$20,152,627	11,231
New Mexico	43,527	1.36%	$2,269,313	1,881
Texas	6,214,288	0.41%	$187,395,357	48,122
Kansas	29,000	0.35%	$1,058,390	251

Table 2. Percent lost, acres infested, rank, and percent of US cotton infested by insect pests in 2014

Pest	% Reduction	acres infested	rank	% infested	Cost/acre	Bales lost
Lygus	0.829%	4,706,681	1	43.06%	$6.36	333,329
Thrips	0.417%	7,808,224	2	71.43%	$1.96	150,740
Stink Bugs	0.411%	6,133,571	3	56.11%	$2.76	130,926
Bollworm/Budworm	0.319%	3,825,075	4	34.99%	$1.04	140,041
Cotton Fleahopper	0.298%	4,081,371	5	37.34%	$1.01	70,870
Spider Mites	0.118%	2,388,213	6	21.85%	$1.14	39,169
Fall Armyworm	0.042%	767,229	7	7.02%	$0.06	15,563
Clouded Plant bugs	0.036%	755,990	8	6.92%	$0.09	11,897
Aphids	0.036%	5,006,040	9	45.80%	$0.36	8,399
Verde Plant bug	0.012%	195,454	10	1.79%	$0.12	1,466
Silverleaf Whitefly (Bemisia)	0.012%	709,855	11	6.49%	$1.70	4,870
Grasshoppers	0.012%	3,186,783	12	29.15%	$0.46	2,515
Brown Stink bug	0.008%	100,058	13	0.92%	$0.02	3,644
Cutworms	0.001%	238,382	14	2.18%	$0.16	426
Darkling Beetle	0.001%	14,701	15	0.13%	$0.00	284
Leaf-footed Bug	0.000%	16,353	16	0.15%	$0.00	37
Pale-striped Flea Beetle	0.000%	64,129	17	0.59%	$0.00	0
Cotton Leafperforater	0.000%	1,269	18	0.01%	$0.00	44
Beet Armyworm	0.000%	86,466	19	0.79%	$0.00	0
Saltmarsh Caterpillar	0.000%	8,926	20	0.08%	$0.00	0
Loopers	0.000%	448,836	21	4.11%	$0.00	0
Bagrada Bug	0.000%	1,029	22	0.01%	$0.00	0
Banded Winged Whitefly	0.000%	823,859	23	7.54%	$0.01	0
Boll Weevil	0.000%	47,440	24	0.43%	$0.02	0
Green June Beetle	0.000%	166	25	0.00%	$0.00	0

Table 3: Percent Reduction and Infested Acres by pest by Area

	Southeast		Midsouth		Central		West	
Pest	% reduction	Infested acres	% reduction	Infested acres	% reduction	Infested acres	% reduction	Infested acres
Bollworm/Budworm	0.195%	1,279,225	1.679%	1,203,557	0.087%	1,290,039	0.072%	52,254
Beet Armyworm	0.000%	73,240	0.000%	0	0.000%	3,771	0.000%	9,455
Fall Armyworm	0.032%	201,200	0.264%	466,871	0.000%	94,966	0.002%	4,192
Loopers	0.000%	0	0.000%	54,490	0.000%	386,828	0.000%	7,518
Cutworms	0.003%	123,758	0.005%	106,900	0.000%	4,748	0.000%	2,976
Saltmarsh Caterpillar	0.000%	0	0.000%	0	0.000%	0	0.000%	8,926
Cotton Leafperforater	0.000%	0	0.000%	0	0.000%	0	0.003%	1,269
Verde Plant bug	0.000%	0	0.000%	0	0.012%	195,454	0.000%	0
Cotton Fleahopper	0.000%	39,000	0.348%	402,861	0.428%	3,551,093	0.001%	88,416
Lygus	0.239%	1,370,750	5.187%	1,412,557	0.029%	1,561,353	2.177%	362,021
Stink Bugs	1.244%	2,438,450	0.725%	962,135	0.007%	2,642,521	0.300%	90,464
Clouded Plant bugs	0.052%	406,600	0.183%	349,390	0.000%	0	0.000%	0
Brown Stink bug	0.000%	0	0.000%	0	0.000%	0	0.218%	100,058
Bagrada Bug	0.000%	0	0.000%	0	0.000%	0	0.000%	1,029
Leaf-footed Bug	0.000%	15,700	0.000%	0	0.000%	0	0.003%	653
Spider Mites	0.174%	1,267,850	0.478%	668,454	0.017%	178,128	0.094%	273,781
Thrips	0.669%	2,584,500	1.504%	1,418,807	0.095%	3,443,655	0.089%	361,262
Aphids	0.031%	1,523,150	0.026%	617,557	0.042%	2,653,479	0.005%	211,854
Grasshoppers	0.000%	263,800	0.000%	26,151	0.019%	2,871,526	0.013%	25,306
Banded Winged Whitefly	0.000%	140,000	0.000%	85,000	0.000%	564,253	0.000%	34,606
Silverleaf Whitefly (Bemisia)	0.005%	165,000	0.000%	0	0.002%	291,819	0.251%	253,035
Darkling Beetle	0.000%	0	0.000%	0	0.000%	0	0.017%	14,701
Pale-striped Flea Beetle	0.000%	0	0.000%	0	0.000%	0	0.000%	64,129
Green June Beetle	0.000%	0	0.000%	0	0.000%	0	0.000%	166
Boll Weevil	0.000%	0	0.000%	0	0.000%	47,440	0.000%	0
Total	2.642%		10.399%		0.738%		3.244%	

Table 4. Bollworm and budworm percent of population, yield reduction, acres infested, bales lost and % Bt acres by state in 2014

States	% Reduction	% infested	% bollworm	acres infested	bales lost	% bt acres
US	0.319%	35%	74.5%	3,825,075	140,041	76.9%
Alabama	0.022%	27%	99.2%	93,700	181	99.7%
Arizona	0.008%	7%	100.0%	10,395	46	98.5%
Arkansas	0.700%	100%	99.9%	316,000	6,453	100.0%
California	0.000%	5%	100.0%	10,520	0	4.0%
Florida	0.000%	11%	100.0%	11,550	0	100.0%
Georgia	0.150%	30%	100.0%	411,000	5,352	99.0%
Kansas	0.006%	60%	100.0%	17,400	4	100.0%
Louisiana	5.000%	100%	99.5%	166,807	62,309	100.0%
Mississippi	1.068%	71%	100.0%	302,500	13,855	98.7%
Missouri	2.500%	100%	100.0%	246,000	25,335	100.0%
New Mexico	0.648%	72%	100.0%	31,339	894	82.0%
North Carolina	0.170%	100%	100.0%	470,000	2,037	100.0%
Oklahoma	0.000%	0%	100.0%	0	0	95.0%
South Carolina	0.800%	100%	100.0%	280,000	6,522	100.0%
Tennessee	0.975%	65%	100.0%	172,250	6,524	99.5%
Texas	0.091%	20%	51.4%	1,272,639	10,529	63.3%
Virginia	0.000%	15%	100.0%	12,975	0	100.0%

Table 5. *Bt* cotton acreage, acres sprayed for caterpillars, average number of applications and percent of population that was bollworm from 1995 to 2014

Year	acreage	sprayed	applications	bollworm	apps by air	apps by grnd	acres by air	acres by ground
1995	<15,000	nr	nr	30*				
1996	1,851,094	nr	nr	40*				
1997	2,271,824	nr	nr	50*	1.62	1.54		
1998	2,731,827	nr	nr	60*	2.30	2.56		
1999	4,234,785	1,055,331	0.290	76%	2.41	2.43		
2000	5,220,392	1,455,084	0.330	79%	1.85	1.35		
2001	5,717,747	2,727,821	0.400	74%	1.73	1.73		
2002	4,893,810	3,091,586	0.520	83%	1.88	1.87		
2003	6,040,529	3,151,114	0.551	86%	0.97	0.95		
2004	6,591,338	2,909,459	0.466	94%	1.02	1.13		
2005	7,395,393	3,050,093	0.541	95%	0.90	1.41		
2006	8,495,822	3,961,194	0.590	92%	0.79	1.36		
2007	7,106,473	2,211,222	0.503	92%	0.94	1.46		
2008	6,237,969	1,713,418	0.626	78%	1.99	1.55		
2009	5,841,945	1,368,256	0.747	79%	2.30	1.84		
2010	8,336,277	1,773,474	1.063	95%	1.98	1.72	3,884,793	6,673,437
2011	8,406,380	4,990,255	0.712	76%	1.61	1.95	2,814,615	7,435,650
2012	11,163,956	1,362,208	0.949	88%	1.97	1.82	4,885,844	7,980,331
2013	6,507,127	916,144	0.338	65%	2.84	2.05	1,969,612	4,075,299
2014	8,406,380	4,990,255	0.712	75%	1.61	1.95	2,814,615	7,435,650

NR – not reported * Polled entomologists for estimates

Table 6. *Lygus* and stink bugs: percent yield reduction, acres infested and bales lost by state in 2014

	Lygus			stink bugs		
	% Reduction	Acres infested	Bales lost	% Reduction	Acres infested	Bales lost
US	0.829%	4,706,681	333,329	0.411%	6,133,571	130,926
Alabama	0.522%	315,700	4,387	0.303%	289,900	2,563
Arizona	4.378%	150,824	27,680	0.203%	78,566	1,279
Arkansas	3.830%	316,000	35,306	0.018%	183,280	166
California	0.950%	199,880	7,765	0.400%	8,416	3,270
Florida	0.440%	92,400	1,042	0.500%	105,000	1,184
Georgia	0.200%	274,000	7,135	1.350%	1,233,000	48,164
Kansas	0.190%	5,510	138	0.150%	4,350	109
Louisiana	5.000%	166,807	62,309	0.075%	125,105	935
Mississippi	4.926%	418,750	62,990	0.429%	182,500	5,428
Missouri	9.000%	246,000	91,208	3.000%	246,000	30,403
New Mexico	0.416%	11,317	574	0.152%	3,482	210
North Carolina	0.200%	470,000	2,396	1.900%	470,000	22,762
Oklahoma	0.000%	0	0	0.050%	10,500	192
South Carolina	0.150%	210,000	1,223	1.000%	280,000	8,153
Tennessee	3.800%	265,000	25,425	0.340%	225,250	2,275
Texas	0.029%	1,555,843	3,750	0.005%	2,627,671	636
Virginia	0.000%	8,650	0	1.400%	60,550	3,200

Table 7. Thrips and cotton fleahoppers: % yield reduction, acres infested and bales lost by state in 2014

	Thrips			cotton fleahoppers		
	% Reduction	Acres infested	Bales lost	% Reduction	Acres infested	Bales lost
US	0.417%	7,808,224	150,740	0.298%	4,081,371	70,870
Alabama	1.104%	341,500	9,376	0.000%	25,000	0
Arizona	0.226%	142,739	1,434	0.002%	85,805	11
Arkansas	0.200%	316,000	1,844	0.000%	110,600	0
California	0.009%	189,360	74	0.000%	0	0
Florida	1.000%	105,000	2,368	0.000%	0	0
Georgia	0.475%	1,301,500	16,947	0.000%	0	0
Kansas	0.000%	0	0	0.000%	8,700	0
Louisiana	3.000%	166,807	37,385	0.000%	33,361	0
Mississippi	0.400%	425,000	5,104	0.005%	10,250	64
Missouri	3.000%	246,000	30,403	2.000%	246,000	20,268
New Mexico	0.000%	29,163	0	0.000%	2,612	0
North Carolina	0.400%	470,000	4,792	0.000%	0	0
Oklahoma	0.600%	63,000	2,306	9.350%	178,500	35,931
South Carolina	1.000%	280,000	8,153	0.000%	14,000	0
Tennessee	2.500%	265,000	16,727	0.000%	2,650	0
Texas	0.079%	3,380,655	9,256	0.128%	3,363,893	14,596
Virginia	2.000%	86,500	4,572	0.000%	0	0

Table 8. Spider mites and aphids: percent yield reduction, acres infested and bales lost by state in 2014

	spider mites			aphids		
	% Reduction	Acres infested	Bales lost	% Reduction	Acres infested	Bales lost
US	0.118%	2,388,213	39,169	0.036%	5,006,040	8,399
Alabama	0.349%	297,200	2,976	0.007%	127,500	60
Arizona	0.251%	67,589	1,587	0.000%	20,753	2
Arkansas	0.006%	94,800	55	0.000%	126,400	0
California	0.000%	206,192	0	0.009%	189,360	74
Florida	0.365%	76,650	864	0.233%	97,650	550
Georgia	0.200%	548,000	7,135	0.040%	548,000	1,427
Kansas	0.000%	0	0	0.000%	0	0
Louisiana	0.250%	83,404	3,115	0.000%	166,807	0
Mississippi	1.153%	217,750	14,977	0.000%	200,000	0
Missouri	0.500%	246,000	5,067	0.150%	36,900	1,520
New Mexico	0.000%	0	0	0.000%	1,741	0
North Carolina	0.008%	94,000	96	0.000%	470,000	0
Oklahoma	0.000%	0	0	0.000%	0	0
South Carolina	0.090%	252,000	734	0.000%	280,000	0
Tennessee	0.080%	26,500	535	0.000%	87,450	0
Texas	0.017%	178,128	2,027	0.043%	2,653,479	4,765
Virginia	0.000%	0	0	0.000%	0	0

Table 9. Boll weevil and brown stink bug: percent yield reduction, acres infested and bales lost by state in 2014

	Boll weevil			Eradication	Brown stink bugs		
	% Reduction	Acres infested	Bales lost	costs/acre	% Reduction	Acres infested	Bales Lost
US	0.000%	47,440	0	$3.05	0.008%	100,058	3,644
Alabama	0.000%	0	0	$2.77	0.000%	0	0
Arizona	0.000%	0	0	$1.22	0.581%	100,058	3,644
Arkansas	0.000%	0	0	$8.00	0.000%	0	0
California	0.000%	0	0	$0.00	0.000%	0	0
Florida	0.000%	0	0	$1.00	0.000%	0	0
Georgia	0.000%	0	0	$1.85	0.000%	0	0
Kansas	0.000%	0	0	$0.50	0.000%	0	0
Louisiana	0.000%	0	0	$6.00	0.000%	0	0
Mississippi	0.000%	0	0	$4.00	0.000%	0	0
Missouri	0.000%	0	0	$5.00	0.000%	0	0
New Mexico	0.000%	0	0	$5.95	0.000%	0	0
North Carolina	0.000%	0	0	$0.90	0.000%	0	0
Oklahoma	0.000%	0	0	$4.50	0.000%	0	0
South Carolina	0.000%	0	0	$1.25	0.000%	0	0
Tennessee	0.000%	0	0	$1.50	0.000%	0	0
Texas	0.000%	47,440	0	$3.22	0.000%	0	0
Virginia	0.000%	0	0	$0.50	0.000%	0	0

Table 10. Beet and fall armyworms: percent yield reduction, acres infested and bales lost by state in 2014

	beet armyworms			fall armyworms		
	% Reduction	Acres infested	Bales lost	% Reduction	Acres infested	Bales lost
US	0.000%	86,466	0	0.042%	767,229	15,563
Alabama	0.000%	0	0	0.000%	0	0
Arizona	0.000%	6,409	0	0.004%	3,756	22
Arkansas	0.000%	0	0	0.092%	189,600	852
California	0.000%	0	0	0.000%	0	0
Florida	0.000%	0	0	0.000%	0	0
Georgia	0.000%	2,740	0	0.010%	13,700	357
Kansas	0.000%	0	0	0.000%	580	0
Louisiana	0.000%	0	0	0.000%	25,021	0
Mississippi	0.000%	0	0	0.278%	157,250	3,607
Missouri	0.000%	0	0	0.750%	73,800	7,601
New Mexico	0.000%	3,047	0	0.000%	435	0
North Carolina	0.000%	70,500	0	0.000%	117,500	0
Oklahoma	0.000%	0	0	0.000%	0	0
South Carolina	0.000%	0	0	0.250%	70,000	2,038
Tennessee	0.000%	0	0	0.160%	21,200	1,071
Texas	0.000%	3,771	0	0.000%	94,386	17
Virginia	0.000%	0	0	0.000%	0	0

Table 11. Cutworms and loopers: percent yield reduction, acres infested and bales lost by state in 2014

	cutworms			loopers		
	% Reduction	Acres infested	Bales lost	% Reduction	Acres infested	Bales lost
US	0.001%	238,382	426	0.000%	448,836	0
Alabama	0.001%	30,258	7	0.000%	0	0
Arizona	0.000%	2,932	0	0.000%	7,083	0
Arkansas	0.001%	31,600	6	0.000%	44,240	0
California	0.000%	0	0	0.000%	0	0
Florida	0.000%	0	0	0.000%	0	0
Georgia	0.000%	0	0	0.000%	0	0
Kansas	0.000%	29	0	0.000%	290	0
Louisiana	0.000%	0	0	0.000%	0	0
Mississippi	0.016%	70,000	208	0.000%	10,250	0
Missouri	0.000%	0	0	0.000%	0	0
New Mexico	0.000%	44	0	0.000%	435	0
North Carolina	0.000%	23,500	0	0.000%	0	0
Oklahoma	0.000%	0	0	0.000%	0	0
South Carolina	0.025%	70,000	204	0.000%	0	0
Tennessee	0.000%	5,300	1	0.000%	0	0
Texas	0.000%	4,719	1	0.000%	386,538	0
Virginia	0.000%	0	0	0.000%	0	0

Table 12. Whiteflies: percent yield reduction, acres infested and bales lost by state in 2014

	bandedwinged whiteflies			*Bemisia* spp		
	% Reduction	Acres infested	Bales lost	% Reduction	Acres infested	Bales lost
US	0.000%	823,859	0	0.012%	709,855	4,870
Alabama	0.000%	0	0	0.000%	0	0
Arizona	0.000%	34,606	0	0.662%	126,795	4,197
Arkansas	0.000%	79,000	0	0.000%	0	0
California	0.000%	0	0	0.006%	126,240	49
Florida	0.000%	0	0	0.000%	0	0
Georgia	0.000%	0	0	0.010%	137,000	357
Kansas	0.000%	0	0	0.000%	0	0
Louisiana	0.000%	0	0	0.000%	0	0
Mississippi	0.000%	6,000	0	0.000%	0	0
Missouri	0.000%	0	0	0.000%	0	0
New Mexico	0.000%	0	0	0.000%	0	0
North Carolina	0.000%	0	0	0.000%	0	0
Oklahoma	0.000%	0	0	0.000%	0	0
South Carolina	0.000%	140,000	0	0.000%	28,000	0
Tennessee	0.000%	0	0	0.000%	0	0
Texas	0.000%	564,253	0	0.002%	291,819	267
Virginia	0.000%	0	0	0.000%	0	0

Table 13. Darkling Beetle and Pale-striped Flea beetle: percent yield reduction, acres infested and bales lost and Pink Bollworm eradication cost by state in 2014

	Darkling beetle			PBW erad	Pale-striped Flea Beetle		
	% Reduction	Acres infested	Bales lost	costs per acre	% Reduction	Acres infested	Bales lost
US	0.001%	14,701	284	$5.56	0.000%	64,129	0
Alabama	0.000%	0	0	$0.00	0.000%	0	0
Arizona	0.045%	14,701	284	$5.50	0.000%	62,025	0
Arkansas	0.000%	0	0	$0.00	0.000%	0	0
California	0.000%	0	0	$5.00	0.000%	2,104	0
Florida	0.000%	0	0	$0.00	0.000%	0	0
Georgia	0.000%	0	0	$0.00	0.000%	0	0
Kansas	0.000%	0	0	$0.00	0.000%	0	0
Louisiana	0.000%	0	0	$0.00	0.000%	0	0
Mississippi	0.000%	0	0	$0.00	0.000%	0	0
Missouri	0.000%	0	0	$0.00	0.000%	0	0
New Mexico	0.000%	0	0	$6.98	0.000%	0	0
North Carolina	0.000%	0	0	$0.00	0.000%	0	0
Oklahoma	0.000%	0	0	$0.00	0.000%	0	0
South Carolina	0.000%	0	0	$0.00	0.000%	0	0
Tennessee	0.000%	0	0	$0.00	0.000%	0	0
Texas	0.000%	0	0	$0.00	0.000%	0	0
Virginia	0.000%	0	0	$0.00	0.000%	0	0

Table 14. Grasshoppers and Clouded plant bugs: percent yield reduction, acres infested and bales lost by state in 2014

	grasshoppers			clouded plant bugs		
	% Reduction	Acres infested	Bales lost	% Reduction	Acres infested	Bales lost
US	0.012%	3,186,783	2,515	0.036%	755,990	11,897
Alabama	0.000%	25,800	0	0.000%	103,200	3
Arizona	0.000%	22,694	0	0.000%	0	0
Arkansas	0.000%	15,800	0	0.002%	75,840	17
California	0.000%	0	0	0.000%	0	0
Florida	0.000%	0	0	0.000%	29,400	0
Georgia	0.000%	0	0	0.100%	274,000	3,568
Kansas	0.000%	0	0	0.000%	0	0
Louisiana	0.000%	0	0	0.000%	0	0
Mississippi	0.000%	10,250	0	0.356%	27,500	4,399
Missouri	0.000%	101	0	0.300%	73,800	3,040
New Mexico	0.120%	2,612	166	0.000%	0	0
North Carolina	0.000%	0	0	0.000%	0	0
Oklahoma	0.400%	84,000	1,537	0.000%	0	0
South Carolina	0.000%	238,000	0	0.000%	0	0
Tennessee	0.000%	0	0	0.130%	172,250	870
Texas	0.006%	2,787,526	812	0.000%	0	0
Virginia	0.000%	0	0	0.000%	0	0

Table 15. Saltmarsh caterpillars and Verde plant bug: percent yield reduction, acres infested and bales lost by state in 2014

	saltmarsh caterpillar			Verde Plant Bug		
	% Reduction	Acres infested	Bales lost	% Reduction	Acres infested	Bales lost
US	0.000%	8,926	0	0.012%	195,454	1,466
Alabama	0.000%	0	0	0.000%	0	0
Arizona	0.000%	8,926	0	0.000%	0	0
Arkansas	0.000%	0	0	0.000%	0	0
California	0.000%	0	0	0.000%	0	0
Florida	0.000%	0	0	0.000%	0	0
Georgia	0.000%	0	0	0.000%	0	0
Kansas	0.000%	0	0	0.000%	0	0
Louisiana	0.000%	0	0	0.000%	0	0
Mississippi	0.000%	0	0	0.000%	0	0
Missouri	0.000%	0	0	0.000%	0	0
New Mexico	0.000%	0	0	0.000%	0	0
North Carolina	0.000%	0	0	0.000%	0	0
Oklahoma	0.000%	0	0	0.000%	0	0
South Carolina	0.000%	0	0	0.000%	0	0
Tennessee	0.000%	0	0	0.000%	0	0
Texas	0.000%	0	0	0.013%	195,454	1,466
Virginia	0.000%	0	0	0.000%	0	0

Table 16. Bagrada Bug and Leaf-footed bugs: percent yield reduction, acres infested and bales lost by state in 2014

	Bagrada Bug			Leaf-footed Bugs		
	% Reduction	Acres infested	Bales lost	% Reduction	Acres infested	Bales lost
US	0.000%	1,029	0	0.000%	16,353	37
Alabama	0.000%	0	0	0.000%	12,900	0
Arizona	0.000%	1,029	0	0.000%	0	0
Arkansas	0.000%	0	0	0.000%	0	0
California	0.000%	0	0	0.000%	0	0
Florida	0.000%	0	0	0.000%	0	0
Georgia	0.000%	0	0	0.000%	0	0
Kansas	0.000%	0	0	0.000%	0	0
Louisiana	0.000%	0	0	0.000%	0	0
Mississippi	0.000%	0	0	0.000%	0	0
Missouri	0.000%	0	0	0.000%	0	0
New Mexico	0.000%	0	0	0.027%	653	37
North Carolina	0.000%	0	0	0.000%	0	0
Oklahoma	0.000%	0	0	0.000%	0	0
South Carolina	0.000%	0	0	0.000%	2,800	0
Tennessee	0.000%	0	0	0.000%	0	0
Texas	0.000%	0	0	0.000%	0	0
Virginia	0.000%	0	0	0.000%	0	0

Table 17. Cotton Leafperforater and Green June Beetle: percent yield reduction, acres infested and bales lost by state in 2014

	Cotton Leafperforater			Green June Beetles		
	% Reduction	Acres infested	Bales lost	% Reduction	Acres infested	Bales lost
US	0.000%	1,269	44	0.000%	166	0
Alabama	0.000%	0	0	0.000%	0	0
Arizona	0.008%	1,269	44	0.000%	166	0
Arkansas	0.000%	0	0	0.000%	0	0
California	0.000%	0	0	0.000%	0	0
Florida	0.000%	0	0	0.000%	0	0
Georgia	0.000%	0	0	0.000%	0	0
Kansas	0.000%	0	0	0.000%	0	0
Louisiana	0.000%	0	0	0.000%	0	0
Mississippi	0.000%	0	0	0.000%	0	0
Missouri	0.000%	0	0	0.000%	0	0
New Mexico	0.000%	0	0	0.000%	0	0
North Carolina	0.000%	0	0	0.000%	0	0
Oklahoma	0.000%	0	0	0.000%	0	0
South Carolina	0.000%	0	0	0.000%	0	0
Tennessee	0.000%	0	0	0.000%	0	0
Texas	0.000%	0	0	0.000%	0	0
Virginia	0.000%	0	0	0.000%	0	0