

Table 32. Cotton insect loss estimates for the United States during 2018.

Pest	Acres Infested	% Acres Infested	Acres Treated	% Acres Treated	# of apps /acres treated	Cost of 1 application	% loss /acre infested	# of apps/ total acres	cost/acre	overall % reduction	Bales lost / pest	Loss + cost	Loss + cost/acre	% Total Loss+Cost
Bollworm/Budworm	8,384,053	62.8%	3,100,987	23.2%	1.3	\$19.82	1.85%	0.30	\$6.02	1.16%	553,110	\$252,931,977	\$18.93	34.3%
Beet Armyworm	518,538	3.9%	2,051	0.0%	0.5	\$5.15	0.00%	0.00	\$0.00	0.00%	101	\$37,028	\$0.00	0.0%
Fall Armyworm	811,444	6.1%	60,983	0.5%	0.6	\$8.59	0.24%	0.00	\$0.02	0.01%	8,001	\$2,948,659	\$0.22	0.4%
Loopers	516,953	3.9%	1,091	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	9	\$3,273	\$0.00	0.0%
Cutworms	435,248	3.3%	564,232	4.2%	1.0	\$10.09	0.03%	0.04	\$0.43	0.00%	524	\$376,860	\$0.03	0.1%
Cotton Leaf Perforator	3,309	0.0%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	150,947	1.1%	380	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Lygus	5,449,810	40.8%	3,127,011	23.4%	2.9	\$14.13	1.62%	0.68	\$9.59	0.66%	335,992	\$175,270,947	\$13.12	23.8%
Cotton Fleahopper	5,112,002	38.3%	1,902,061	14.2%	1.4	\$11.00	0.54%	0.20	\$2.16	0.21%	86,467	\$42,673,473	\$3.19	5.8%
Stink Bugs (other than brown stink bug)	5,221,696	39.1%	2,744,459	20.5%	1.2	\$9.37	0.96%	0.24	\$2.25	0.37%	152,115	\$67,406,989	\$5.05	9.1%
Brown Stink Bug	4,347,300	32.5%	2,043,637	15.3%	1.0	\$8.72	0.83%	0.16	\$1.37	0.27%	108,982	\$45,843,706	\$3.43	6.2%
Clouded Plant Bug	1,129,341	8.5%	128,498	1.0%	1.0	\$11.31	0.13%	0.01	\$0.11	0.01%	5,100	\$1,988,335	\$0.15	0.3%
Leaf Footed Bugs	837,842	66.3%	215,071	1.6%	0.5	\$3.97	0.11%	0.01	\$0.03	0.01%	2,163	\$819,284	\$0.06	0.1%
Spider Mites	3,128,000	23.4%	1,110,529	8.3%	1.4	\$14.07	1.15%	0.12	\$1.68	0.27%	148,229	\$59,501,424	\$4.45	8.1%
Thrips	11,161,091	83.6%	3,705,744	27.7%	0.9	\$8.68	0.29%	0.26	\$2.22	0.24%	115,234	\$66,976,144	\$5.01	9.1%
Aphids	7,295,752	54.6%	1,235,085	9.2%	1.0	\$11.61	0.10%	0.09	\$1.06	0.05%	26,728	\$17,537,945	\$1.31	2.4%
Grasshoppers	1,164,589	8.7%	52,700	0.4%	0.8	\$3.81	0.03%	0.00	\$0.01	0.00%	750	\$288,181	\$0.02	0.0%
Banded Winged Whitefly	441,922	3.3%	569	0.0%	1.9	\$29.16	0.00%	0.00	\$0.00	0.00%	45	\$17,581	\$0.00	0.0%
Silverleaf Whitefly	1,147,836	8.6%	248,961	1.9%	0.7	\$11.22	0.13%	0.01	\$0.14	0.01%	5,505	\$2,174,122	\$0.16	0.3%
Darkling Beetles	253,548	1.9%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Pale-Striped Flea Beetle	270,727	2.0%	171	0.001%	0.5	\$8.75	0.01%	0.00	\$0.00	0.00%	61	\$22,165	\$0.00	0.0%
Empoasca leafhoppers	18,068	0.1%	0	0.0%	0.0	\$0.00	0.03%	0.00	\$0.00	0.00%	22	\$8,188	\$0.00	0.0%
Mealybugs	76	0.001%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Kurtoma Thrips	235,129	5.0%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Wireworms	235,129	5.0%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Boll Weevil	277,414	2.1%	277,414	2.1%	0.2	\$0.00	0.00%	0.01	\$0.00	0.00%	0	\$0	\$0.00	0.0%
TOTAL								2.13	\$27.09	3.29%	1,549,137	\$736,826,279	\$55.16	

SUMMARY DATA

Data Input		Yield and Management Results			Economic Results	
		Total Acres	Total Bales Harvested	Total Bales Lost to Insects	Total	Per Acre
Year	2018	13,388,318	19,582,405	1,549,137	\$361,856,425	\$27.09
Total Acres (Upland)	13,357,924	In-furrow cost/treated acre	\$13.53	Percent Yield Loss	\$115,911,013	\$8.68
Yield / Acre (Upland)	702	% acres in Boll Weevil Eradication	98%	Yield w/o Insects (lb/acre)	\$68,176,356	\$5.10
Price / lb	\$0.76	Cost/acre Boll Weevil Eradication	\$2.16	Av. # Applications	\$29,631,250	\$2.22
yield potential (lb/acre)	1,767	% acres in Pink Bollworm Eradication	2%	Total Bales lost (all factors)	\$208,263,004	\$15.59
Acres (Pima)	30,394	Cost/acre Pink Bollworm Eradication	\$5.90	Total % yield Loss	\$797,743,607	\$59.72
Yield / Acre (Pima)	925	% Insect apps by air	38%	Transgenic Cotton (arthropods) (# acres)	\$567,047,283	\$42.45
% Acres Scouted	58%	No. apps by air	1.0	Boll Weevil Eradication (# acres)	\$1,364,790,890	\$102.17
Fee / Scouted Acre	\$8.82	Cost/app by air	\$7.63	Pink Bollworm Eradication (# acres)		
No. times scouted/week	1.2	% insect apps by ground	67%	# Scouted Acres	7,727,986	
% acres Transgenic (Bt) Cotton	88%	No. apps by ground	1.4	Seed Treatments (arthropods) (# acres)	11,446,258	
Cost/treated acre (Bt) Cotton	\$17.65	Cost/app by ground	\$5.32	In-Furrow Applications (# acres)	1,028,051	
% acres with seed treatment	86%	% Loss to weather	56.3%	Applications by Air (acres)	5,112,531	
Seed trt. cost/ treated acre	\$10.13	% loss to non-arthropods	2.9%	Applications by Ground (acres)	8,964,329	
% acres with in-furrow	8%	% loss to other (chemical injury, weeds, diseases, etc.)	4.7%	No. acres with no foliar insecticide applications	5,874,572	

Table 32. Cotton insect loss estimates for the United States during 2018, continued.

Upland Cotton	% Acres	# Acres	Total cost/acre	Bt cost/acre	% acres treated for BW/TBW	# acres treated for BW/TBW	# apps for BW/TBW
Bollgard II	53.7%	7,167,076	\$84.91	\$17.69	20.6%	1,475,340	1.0
Bollgard III	3.6%	486,998	\$89.93	\$22.71	0.2%	1,071	0.1
WideStrike	7.3%	975,365	\$69.51	\$12.23	32.5%	316,785	1.1
WideStrike 3	8.6%	1,147,043	\$90.32	\$18.96	0.8%	8,835	0.2
TwinLink	11.0%	1,468,638	\$82.04	\$16.88	18.5%	271,844	0.9
TwinLink Plus	4.1%	552,427	\$86.63	\$21.64	0.2%	1,193	0.1
Total Bt	88.3%	11,797,547	\$84.09	\$17.65	17.6%	2,075,069	0.8
Herbicide Traits Only	8.2%	1,097,921	\$45.15	-	44.2%	485,038	0.9
Conventional	3.0%	397,478	\$20.80	-	63.2%	251,172	1.2
Organic	0.5%	61,020	\$15.10	-	3.3%	2,010	0.1
Total Upland Cotton	100.0%	13,353,967	\$75.41	\$17.65	21.1%	2,813,289	0.8
Non Upland Cotton							
Pima	0.3%	35,296	\$7.38	-	0.04%	15	0.003
Other	0.0%	0	\$0.00	-	0.00%	0	0.0
Organic	0.001%	96	\$0.00	-	0.00%	0	0.0
Total (all Cotton)		13,389,359	\$75.23		21.0%	2,813,304	0.8