

Table 4. Insect loss estimates for Arizona Bt cotton during 2019.

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	5,708	3.68%	0	0.0%	0.0	\$0.00	0.02%	0.00	\$0.00	0.00%	6	\$2,016	\$0.01	0.0%
Beet Armyworm	5,189	3.35%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Fall Armyworm	5,708	3.68%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Loopers	26,205	16.90%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Cutworms	0	0.00%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Cotton Leaf Perforator	1,297	0.84%	0	0.0%	0.0	\$0.00	0.01%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	1,297	0.84%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Lygus	145,217	93.64%	118,030	76.1%	1.6	\$26.80	3.39%	1.21	\$32.43	3.17%	18,801	\$11,026,231	\$71.10	62.2%
Cotton Fleahopper	101,065	65.17%	8,294	5.3%	0.6	\$20.50	0.04%	0.03	\$0.62	0.03%	160	\$115,915	\$0.75	0.7%
Stink Bugs (other than brown stink bug)	68,119	43.93%	6,798	4.4%	0.8	\$13.50	0.34%	0.03	\$0.41	0.15%	883	\$324,276	\$2.09	1.8%
Brown Stink Bug	85,523	55.15%	5,403	3.5%	2.0	\$25.00	0.12%	0.07	\$1.75	0.07%	397	\$283,057	\$1.83	1.6%
Clouded Plant Bug	0	0.00%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Leaf Footed Bugs	259	0.17%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Spider Mites	75,274	48.54%	23,970	15.5%	1.1	\$21.39	0.81%	0.17	\$3.64	0.39%	2,335	\$1,058,266	\$6.82	6.0%
Thrips	155,079	100.00%	15,164	9.8%	1.0	\$10.38	0.02%	0.10	\$1.04	0.02%	113	\$198,862	\$1.28	1.1%
Aphids	24,485	15.79%	6,657	4.3%	0.9	\$21.83	0.08%	0.04	\$0.87	0.01%	77	\$47,256	\$0.30	0.3%
Grasshoppers	23,175	14.94%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Banded Winged Whitefly	16,844	10.86%	4,616	3.0%	0.2	\$32.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Silverleaf Whitefly	127,986	82.53%	78,409	50.6%	1.1	\$31.58	1.31%	0.57	\$18.00	1.08%	6,393	\$4,452,120	\$28.71	25.1%
Darkling Beetles	8,085	5.21%	84	0.1%	1.0	\$10.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Pale-Striped Flea Beetle	51,809	33.41%	11,799	7.6%	1.2	\$17.00	0.17%	0.09	\$1.53	0.06%	344	\$194,852	\$1.26	1.1%
Potato leafhoppers	27,498	17.73%	5,770	3.7%	0.2	\$26.00	0.00%	0.01	\$0.26	0.00%	0	\$7,149	\$0.05	0.0%
Mealybugs	1,427	0.92%	1,407	0.9%	1.3	\$15.00	0.01%	0.01	\$0.15	0.00%	0	\$214	\$0.00	0.0%
Other Armyworms	130	0.08%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Cockroaches	8,562	5.52%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Crickets	9,211	5.94%	947	0.6%	1.1	\$19.00	0.01%	0.01	\$0.19	0.00%	6	\$3,766	\$0.02	0.0%
Colaspis beetles	12,350	7.96%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Cotton stainers	0	0.00%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bagrada bug	0	0.00%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Bean Thrips	778	0.50%	389	0.3%	1.0	\$20.00	0.03%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
False Chinch Bugs	5,724	3.69%	126	0.1%	1.0	\$14.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Other Mirids	0	0.00%	0	0.00%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Boll Weevil	0	0.00%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
TOTAL								2.34	\$60.88	4.98%	29,515	\$17,713,980	\$114.23	

SUMMARY DATA

Data Input				Yield and Management Results		Economic Results	
State	Arizona			Total Acres	155,079		
Region	West			Total Bales Harvested	459,060	Foliar Insecticide Costs	\$9,440,813
Year	2019			Total Bales Lost to Insects	29,515	Seed Treatment Costs	\$245,189
Total Acres (Upland)	155,079	In-furrow cost/treated acre	\$19.60	Percent Yield Loss	5.0%	In-Furrow Costs	\$198,433
Yield / Acre (Upland)	1,421	% acres in Boll Weevil Eradication	100%	Yield w/o Insects (lb/acre)	1,495	Scouting Costs	\$2,128,319
Price / lb	\$0.70	Cost/acre Boll Weevil Eradication	\$2.69	Av. # Applications	2.34	Eradication Costs	\$882,400
yield potential (lb/acre)	1,834	% acres in Pink Bollworm Eradication	100%	Total Bales lost (all factors)	172,278	Bt Cotton	\$6,128,178
Acres (Pima)		Cost/acre Pink Bollworm Eradication	\$3.00	Total % yield Loss	29.1%	Total Costs	\$19,023,332
Yield / Acre (Pima)		% Insect apps by air	53%	Transgenic Cotton (arthropods) (# acres)	147,667	Yield Loss to Insects	\$9,917,040
% Acres Scouted	97%	No. apps by air	2.2	Boll Weevil Eradication (# acres)	155,079	Total Losses + Costs	\$28,940,372
Fee / Scouted Acre	\$14.18	Cost/app by air	\$12.38	Pink Bollworm Eradication (# acres)	155,079		
No. times scouted/week	1.87826087	% insect apps by ground	67%	# Scouted Acres	150,074		
% acres Transgenic (Bt) Cotton	95%	No. apps by ground	2.1	Seed Treatments (arthropods) (# acres)	10,508		
Cost/treated acre (Bt) Cotton	\$41.50	Cost/app by ground	\$9.81	In-Furrow Applications (# acres)	10,124		
% acres with seed treatment	7%	% Loss to weather	19.2%	Applications by Air (acres)	82,903		
Seed trt. cost/ treated acre	\$23.33	% loss to non-arthropods	3.0%	Applications by Ground (acres)	103,161		
% acres with in-furrow	7%	% loss to other (chemical injury, weeds, diseases, etc.)	1.9%	No. acres with no foliar insecticide applications	13,337		

Table 4. Insect loss estimates for Arizona Bt cotton during 2019, 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	58.1%	90,076	-	\$41.50	-	-	-
Bollgard III	26.6%	41,235	-	\$41.50	-	-	-
WideStrike	0.0%	0	-	\$41.50	-	-	-
WideStrike 3	5.3%	8,203	-	\$41.50	-	-	-
TwinLink	1.3%	1,977	-	\$41.50	-	-	-
TwinLink Plus	4.0%	6,177	-	\$41.50	-	-	-
Total Bt	95.2%	147,668	-	\$41.50	-	-	-
Herbicide Traits Only	4.8%	7,444	-	-	-	-	-
Conventional	0.0%	0	-	-	-	-	-
Organic	0%	0	-	-	-	-	-
Total Upland Cotton	100.0%	155,112	-	-	-	-	-
Non Upland Cotton							
Pima	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-
Organic	-	-	-	-	-	-	-
Total (all Cotton)	-	155,112	-	-	-	-	-