

Table 5. Cotton insect loss estimates for Arizona transgenic Bt cotton during 2017.

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	15,059	9.78%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Beet Armyworm	15,576	10.11%	1,772	1.2%	0.5	\$7.00	0.01%	0.01	\$0.07	0.00%	7	\$3,442	\$0.02	0.0%
Fall Armyworm	13,140	8.53%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Loopers	26,132	16.97%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Cutworms	1,476	0.96%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Cotton Leaf Perforator	0	0.00%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Saltmarsh Caterpillar	19,953	12.96%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Lygus	151,215	98.19%	115,496	75.0%	1.8	\$21.96	3.28%	1.31	\$28.77	3.22%	21,502	\$11,574,392	\$75.16	75.6%
Cotton Fleahopper	93,947	61.01%	14,026	9.1%	0.8	\$11.25	0.18%	0.07	\$0.79	0.11%	715	\$314,223	\$2.04	2.1%
Stink Bugs (other than brown stink bug)	56,346	36.59%	0	0.0%	0.0	\$0.00	0.15%	0.00	\$0.00	0.06%	374	\$125,664	\$0.82	0.8%
Brown Stink Bug	57,799	37.53%	960	0.6%	0.9	\$10.00	0.31%	0.01	\$0.10	0.12%	769	\$264,164	\$1.72	1.7%
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	1,476	0.96%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Spider Mites	32,140	20.87%	11,315	7.3%	1.0	\$15.55	0.41%	0.07	\$1.09	0.09%	575	\$228,174	\$1.48	1.5%
Thrips	153,995	100.00%	12,009	7.8%	0.8	\$9.85	0.01%	0.07	\$0.69	0.01%	33	\$117,214	\$0.76	0.8%
Aphids	21,223	13.78%	5,849	3.8%	0.9	\$16.57	0.06%	0.04	\$0.66	0.01%	53	\$31,876	\$0.21	0.2%
Grasshoppers	7,152	4.64%	0	0.0%	0.0	\$0.00	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Banded Winged Whitefly	34,118	22.16%	1,070	0.7%	1.0	\$35.50	0.02%	0.01	\$0.36	0.01%	33	\$23,200	\$0.15	0.2%
Silverleaf Whitefly	93,401	60.65%	61,518	39.9%	1.4	\$27.05	0.84%	0.54	\$14.61	0.51%	3,409	\$2,509,732	\$16.30	16.4%
Darkling Beetles	23,327	15.15%	2,067	1.3%	1.0	\$14.50	0.10%	0.01	\$0.15	0.01%	94	\$34,966	\$0.23	0.2%
Pale-Striped Flea Beetle	55,635	36.13%	7,426	4.8%	0.7	\$16.67	0.06%	0.04	\$0.67	0.02%	147	\$86,482	\$0.56	0.6%
Empoasca leafhoppers	4,051	2.63%	387	0.3%	1.0	\$24.24	0.00%	0.00	\$0.00	0.00%	0	\$0	\$0.00	0.0%
Mealybugs	92	0.06%	92	0.06%	0.5	\$20.00	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								2.18	\$47.94	4.15%	27,711	\$15,313,529	\$99.44	

SUMMARY DATA

Data Input			Yield and Management Results			Economic Results		
State	Arizona		Total Acres	153,995		Total		Per Acre
Region	West		Total Bales Harvested	523,366		Foliar Insecticide Costs	\$7,381,986	\$47.94
Year	2017		Total Bales Lost to Insects	27,711		Seed Treatment Costs	\$140,445	\$0.91
Total Acres (Upland)	153,995	In-furrow cost/treated acre	\$15.67	Percent Yield Loss	4.1%	In-Furrow Costs	\$95,296	\$0.62
Yield / Acre (Upland)	1,631	% acres in Boll Weevil Eradication	100%	Yield w/o Insects (lb/acre)	1,702	Scouting Costs	\$1,807,330	\$11.74
Price / lb	\$0.70	Cost/acre Boll Weevil Eradication	\$1.47	Av. # Applications	2.18	Eradication Costs	\$1,073,345	\$6.97
yield potential (lb/acre)	2,083	% acres in Pink Bollworm Eradication	100%	Total Bales lost (all factors)	140,995	Bt Cotton	\$5,790,030	\$37.60
Acres (Pima)	0	Cost/acre Pink Bollworm Eradication	\$5.50	Total % yield Loss	21.1%	Total Costs	\$16,288,432	\$105.77
Yield / Acre (Pima)	0	% Insect apps by air	59%	Transgenic Cotton (arthropods) (# acres)	150,390	Yield Loss to Insects	\$9,310,896	\$60.46
% Acres Scouted	99%	No. apps by air	1.5	Boll Weevil Eradication (# acres)	153,995	Total Losses + Costs	\$25,599,328	\$166.23
Fee / Scouted Acre	\$11.85	Cost/app by air	\$10.95	Pink Bollworm Eradication (# acres)	153,995			
No. times scouted/week	1.98	% insect apps by ground	56%	# Scouted Acres	152,455			
% acres Transgenic (Bt) Cotton	98%	No. apps by ground	2.4	Seed Treatments (arthropods) (# acres)	18,979			
Cost/treated acre (Bt) Cotton	\$38.50	Cost/app by ground	\$10.02	In-Furrow Applications (# acres)	6,083			
% acres with seed treatment	12%	% Loss to weather	9.7%	Applications by Air (acres)	91,262			
Seed trt. cost/ treated acre	\$7.40	% loss to non-arthropods	1.4%	Applications by Ground (acres)	86,704			
% acres with in-furrow	4%	% loss to other (chemical injury, weeds, diseases, etc.)	5.8%	No. acres with no foliar insecticide applications	21,097			

Table 5. Cotton insect loss estimates for Arizona transgenic Bt cotton during 2017, 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	% of Population Bollworm
Bollgard II	77.4%	119,246	-	\$38.50	-	-	-	-
Bollgard III	5.2%	7,988	-	\$38.50	-	-	-	-
WideStrike	4.8%	7,358	-	\$38.50	-	-	-	-
WideStrike 3	3.3%	5,057	-	\$38.50	-	-	-	-
TwinLink	1.9%	2,956	-	\$38.50	-	-	-	-
TwinLink Plus	5.1%	7,786	-	\$38.50	-	-	-	-
Total Bt	97.7%	150,391	-	\$38.50	-	-	-	-
Herbicide Traits Only	2.1%	3,208	-	-	-	-	-	-
Conventional	0.3%	397	-	-	-	-	-	-
Organic	0%	0	-	-	-	-	-	-
Total Upland Cotton	100.0%	153,996	-	-	-	-	-	-
Non Upland Cotton			-	-	-	-	-	-
Pima	0%	0	-	-	-	-	-	-
Other	0%	0	-	-	-	-	-	-
Organic	0%	0	-	-	-	-	-	-
Total (all Cotton)		153,996	-	-	-	-	-	-