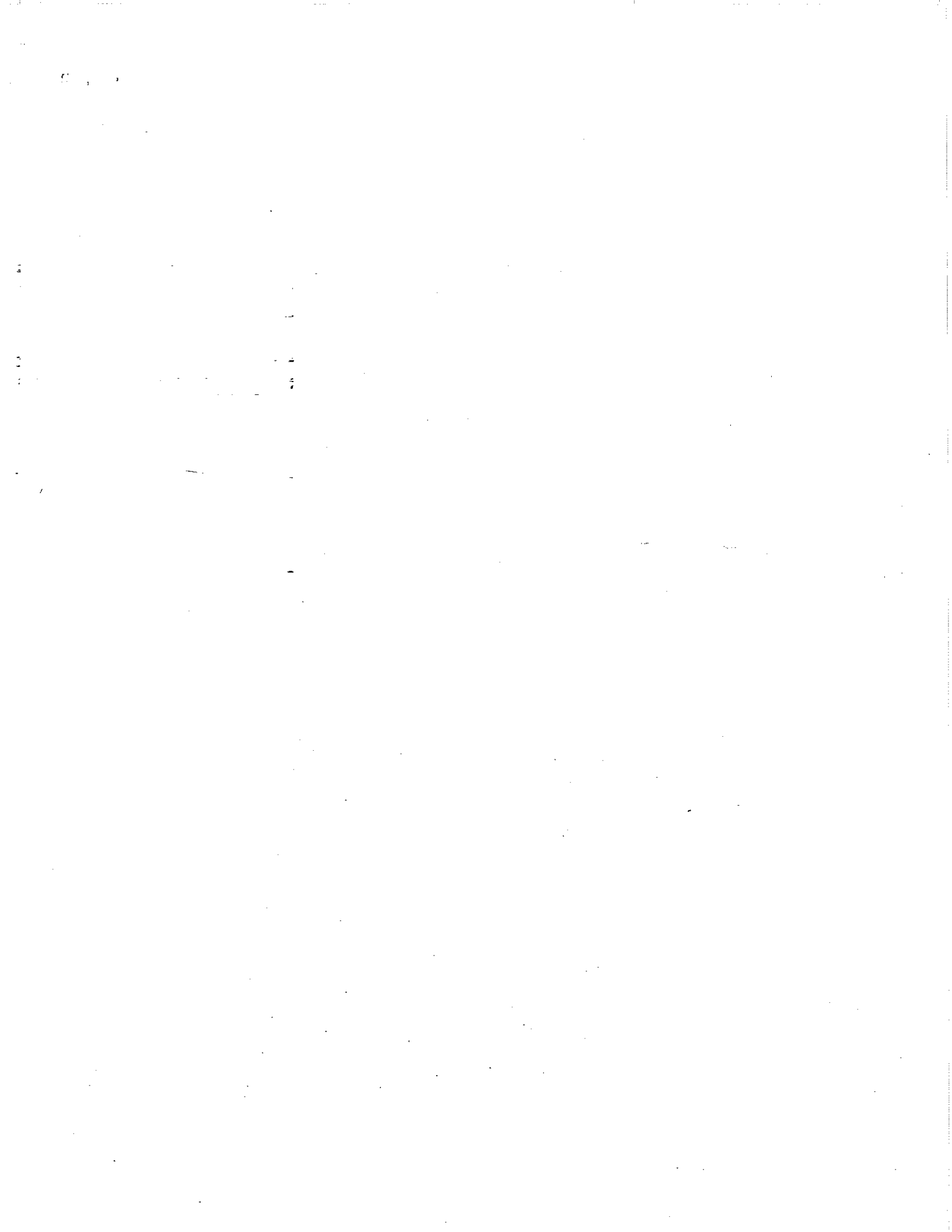


COTTON INSECT LOSSES 1988



COTTON INSECT LOSSES - 1988

Robert B. Head

The following information was compiled from information submitted by the following Extension Specialists from cotton producing states:

Alabama - Dr. Ronald H. Smith  
Arkansas - Dr. Don Johnson  
Arizona - Dr. Leon Moore  
California - Dr. Peter B. Goodell  
Florida - Dr. R. K. Sprenkel  
Georgia - Dr. William R. Lambert, III  
Louisiana - Dr. James S. Tynes  
Mississippi - Dr. Robert B. Head  
Missouri - Dr. Flernoy G. Jones and Dr. Ray Nabors  
New Mexico - Dr. Carl Barnes  
North Carolina - Dr. Jack Bachelor  
Oklahoma - Dr. Richard Price and Dr. Miles Karner  
South Carolina - Dr. Mitchell Roof  
Tennessee - Dr. Richard E. Caron  
Texas - Dr. Ray Frisbie  
Virginia - Dr. James Roberts, Sr.

The information was collected from county agents, research entomologists, private consultants and Extension specialists.

Data is presented from a beltwide summary and for each state and sub-area within the state in alphabetical order.

Data collection was partially funded by a grant from the National Cotton Council.

## Losses To Cotton Insect And Mite Pests In U.S. Cotton-1988

Losses, estimates are based on surveys of knowledgeable professionals from cotton growing states. Since these data are estimates; reports involving acreage and yield may vary slightly from USDA crop reporting service figures. Total acreage estimated is .66% off from December 1988, crop reporting figures and yield estimates are off by 4.6%.

All losses and costs are distributed over all reporting acreage and do not reflect the costs over infested acres.

Boll weevils and Heliothis sp. are estimated to have reduced yields by 1.66 and 1.71 percent, respectively, and are far greater than losses from other species. Losses from other species are given in Table 1. Combined losses reported are 6.76% for a dollar value of \$283,505,796 (\$.60) and a cost of control averaging \$31.41 per acre for a total of loss plus cost in excess of 368 million dollars.

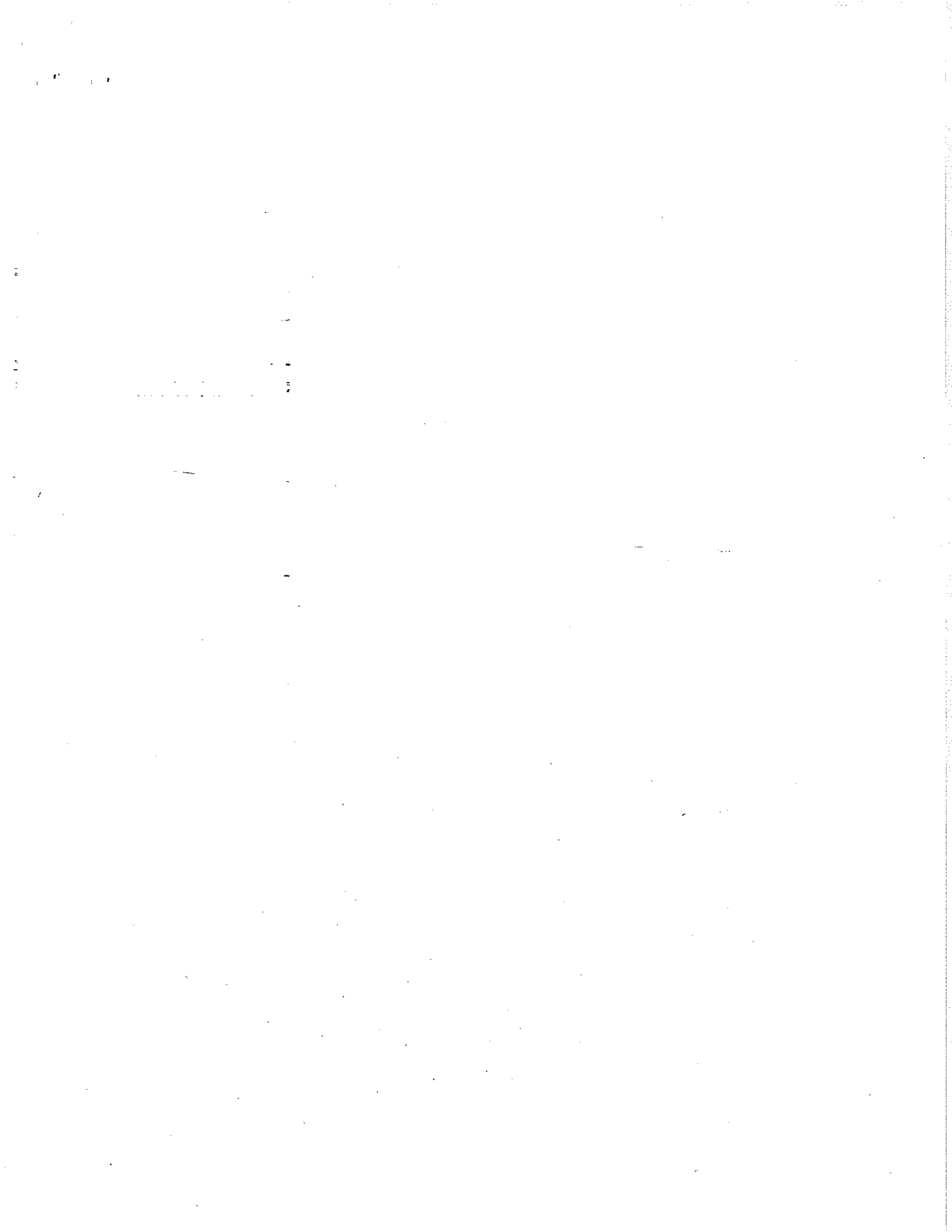


Table 1. ALL STATES Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	5750314	4367352	1.6	3.75	1.69	248182
Boll/Bud worms	10037336	6715292	1.5	7.40	1.75	257333
Fleahoppers	4704091	1319909	0.1	2.58	0.14	19940
Lygus bugs	4841267	2394107	0.3	6.45	0.82	120259
Leaf perforator	241900	110800	0.0	8.98	0.00	392
Pink bollworm	534473	357485	0.1	9.07	0.10	15402
Spider mites	3377405	1635729	0.2	10.30	0.56	81978
Thrips	8723129	5278656	0.7	3.44	0.75	109889
Armyworms	2805165	1409468	0.3	9.55	0.67	98416
W flower thrips	1370422	308992	0.0	6.15	0.02	2221
New pests	6698675	3000010	0.4	4.62	0.40	58221

*Misc*  
*Other* Acreage harvested: 11718357 Yield per acre: 1.26 Bales (T/F): T

Percent Lost: 6.87 Dollars Lost: 291,523,252 Cost per Acre: 30.38 \*

\* These costs do not include the boll weevil eradication cost which were \$20,000,000 in the Southeast and \$8,300,000 in the Southwest.

Table 2. NORTH ALABAMA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	220000	220000	8.4	2.20	9.43	20914
Boll/Bud worms	220000	200000	1.4	4.25	2.86	6337
Fleahoppers	0	0	0.0	0.00	0.00	0
Lygus bugs	220000	20000	0.0	1.00	0.05	106
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	150000	30000	0.0	6.00	0.07	158
Thrips	220000	100000	0.5	1.25	0.95	2113
3 Armyworms	85000	10000	0.0	8.50	0.02	53
W flower thrips	220000	0	0.0	0.00	0.00	0
2 New pests	220000	110000	0.9	2.00	1.31	2905

Acreage harvested: 210000 Yield per acre: 1.06 Bales (T/F): T

Percent Lost: 14.69 Dollars Lost: 9,384,570 Cost per Acre: 27.11

Table 3. CENTRAL AND SOUTH ALABAMA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	160000	96000	2.5	2.20	1.13	2028
Boll/Bud worms	160000	160000	2.8	5.20	2.35	4225
Fleahoppers	0	0	0.0	0.00	0.00	0
Lygus bugs	160000	5000	0.0	2.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	50000	15000	0.0	7.50	0.00	0
Thrips	160000	160000	1.4	2.00	0.94	1690
Armyworms	160000	80000	2.8	9.00	2.16	3887
W flower thrips	160000	20000	0.1	7.50	0.00	0
New pests	160000	160000	2.4	2.30	2.82	5070

Acres harvested: 170000 Yield per acre: 1.06 Bales (T/F): T

Percent Lost: 9.41 Dollars Lost: 4,867,200 Cost per Acre: 55.19

Table 4. 2 ARIZONA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	150000	120000	1.3	5.00	0.05	612
Boll/Bud worms	260000	100000	0.4	10.00	0.18	2040
Fleahoppers	50000	10000	0.0	9.00	0.00	3
Lygus bugs	270000	180000	0.8	9.00	0.32	3672
Leaf perforator	190000	100000	0.2	9.00	0.02	255
Pink bollworm	330000	280000	2.5	9.00	1.18	13566
Spider mites	200000	120000	0.5	12.00	0.08	918
Thrips	350000	20000	0.0	7.00	0.00	5
Armyworms	150000	120000	0.8	12.00	0.27	3060
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	200000	140000	0.6	10.00	0.02	286

Acres harvested: 450000 Yield per acre: 2.55 Bales (T/F): T

Percent Lost: 2.13 Dollars Lost: 7,031,880 Cost per Acre: 65.44

Table 5. 3 ARKANSAS, NORTHEAST Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	325000	250000	2.1	4.63	1.79	9792
Boll/Bud worms	350000	200000	1.1	7.50	1.71	9400
Fleahoppers	50000	5000	0.0	3.10	0.00	8
Lygus bugs	350000	160000	0.5	3.10	0.69	3760
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	25000	10000	0.1	5.00	0.01	31
Thrips	350000	310000	0.9	4.50	0.44	2428
Armyworms	5000	3000	0.0	5.50	0.00	14
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	350000	15000	0.0	3.50	0.01	71

Acres harvested: 350000 Yield per acre: 1.57 Bales (T/F): T

Percent Lost: 4.65 Dollars Lost: 7,345,085 Cost per Acre: 24.42

Table 6 3 ARKANSAS, SOUTHERN Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	325000	200000	2.5	4.63	0.62	3133
Boll/Bud worms	325000	320000	4.9	9.11	0.98	5013
Fleahoppers	200000	25000	0.1	2.88	0.01	39
Lygus bugs	200000	75000	0.2	3.50	0.02	118
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	95000	10000	0.0	5.00	0.01	31
Thrips	325000	310000	1.0	4.50	0.95	4857
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	50000	0	0.0	0.00	0.00	0
New pests	200000	100000	0.3	2.88	0.03	157

Acres harvested: 325000 Yield per acre: 1.57 Bales (T/F): T

Percent Lost: 2.62 Dollars Lost: 3,844,224 Cost per Acre: 62.61



Table 7. CALIFORNIA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	70000	70000	0.1	6.00	0.00	0
Boll/Bud worms	822000	319100	0.3	9.17	0.90	26002
Fleahoppers	0	0	0.0	0.00	0.00	0
Lygus bugs	1309000	796000	1.0	11.12	2.92	84752
Leaf perforator	1900	800	0.0	12.00	0.00	17
Pink bollworm	51000	51000	0.3	11.00	0.06	1662
Spider mites	1335000	966000	1.2	11.00	2.63	76195
Thrips	0	0	0.0	0.00	0.00	0
Armyworms	919050	420305	0.4	10.00	0.59	16987
W flower thrips	388000	130000	0.0	8.00	0.02	565
New pests	228000	96000	0.1	18.50	0.00	0

Acreage harvested: 1335000 Yield per acre: 2.17 Bales (T/F): T

Percent Lost: 7.11 Dollars Lost: 59,380,111 Cost per Acre: 36.62

Table 8. FLORIDA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	23778	350	0.1	3.68	0.02	7
Boll/Bud worms	26412	26412	5.6	8.75	4.42	1552
Fleahoppers	600	30	0.0	0.00	0.00	0
Lygus bugs	20100	100	0.0	7.75	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	19800	990	0.0	7.75	0.03	10
Thrips	26412	10000	0.6	8.75	0.57	200
Armyworms	3000	200	0.0	8.90	0.00	1
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	26000	13000	0.3	7.80	0.23	81

Acreage harvested: 28100 Yield per acre: 1.25 Bales (T/F): T

Percent Lost: 5.27 Dollars Lost: 532,958 Cost per Acre: 57.99

Table 9. GEORGIA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	352000	345000	0.0	0.00	0.00	0
Boll/Bud worms	352000	290800	4.4	6.80	2.73	9542
Fleahoppers	10000	1000	0.0	3.88	0.00	0
Lygus bugs	30000	5000	0.0	3.88	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	0	0	0.0	0.00	0.00	0
Thrips	0	0	0.0	0.00	0.00	0
Armyworms	308000	294800	3.2	10.00	13.82	48366
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	343200	309760	2.9	5.00	2.90	10164

Acres harvested: 320000 Yield per acre: 1.09 Bales (T/F): T

Percent Lost: 19.45 Dollars Lost: 19,604,592 Cost per Acre: 76.50

Table 10. LOUISIANA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	613210	590840	5.8	2.85	4.80	45605
Boll/Bud worms	615000	561200	3.7	6.65	2.28	21659
Fleahoppers	451710	392420	0.3	2.05	0.13	1212
Lygus bugs	467460	336925	0.3	2.25	0.14	1300
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	270500	165750	0.1	5.65	0.03	256
Thrips	470300	395820	1.0	2.10	0.32	3055
Armyworms	4600	2800	0.0	8.00	0.00	43
W flower thrips	140600	8000	0.0	5.70	0.00	12
New pests	480000	330000	0.6	3.15	0.32	3057

Acres harvested: 615000 Yield per acre: 1.54 Bales (T/F): T

Percent Lost: 8.03 Dollars Lost: 21,945,457 Cost per Acre: 46.72

Table 11. MISSISSIPPI DELTA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	745336	564436	3.2	2.28	3.35	46796
Boll/Bud worms	802336	780815	3.8	5.37	5.28	73773
Fleahoppers	251700	135750	0.3	1.74	0.23	3202
Lygus bugs	589315	445250	0.9	2.55	1.17	16403
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	218600	155025	0.2	8.48	0.19	2687
Thrips	788315	767770	2.3	2.22	2.51	35107
Armyworms	429165	354538	1.4	8.41	1.64	22970
W flower thrips	271530	109200	0.2	4.88	0.11	1524
New pests	476000	296000	0.6	5.18	1.07	14878

Acres harvested: 821136 Yield per acre: 1.70 Bales (T/F): T

Percent Lost: 15.56 Dollars Lost: 62,594,148 Cost per Acre: 53.50

Table 12. MISSISSIPPI HILL Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	288890	286290	8.0	2.38	8.41	29196
Boll/Bud worms	265840	259490	3.3	5.37	4.01	13915
Fleahoppers	65451	11859	0.1	1.15	0.06	192
Lygus bugs	225369	155682	1.1	2.07	1.49	5180
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	44764	19464	0.1	4.99	0.07	229
Thrips	267527	218451	1.4	2.61	1.37	4743
Armyworms	79800	44900	0.3	7.87	0.47	1615
W flower thrips	85292	16792	0.1	5.32	0.03	111
New pests	38500	8900	0.0	4.67	0.08	264

Acres harvested: 289721 Yield per acre: 1.20 Bales (T/F): T

Percent Lost: 15.97 Dollars Lost: 15,968,037 Cost per Acre: 46.51

Table 13. MISSOURI Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	5000	2000	0.0	8.50	0.03	76
Boll/Bud worms	230000	200000	1.5	8.00	7.50	19000
Fleahoppers	100000	0	0.0	0.00	0.00	0
Lygus bugs	230000	50000	0.6	5.00	1.00	2533
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	200000	0	0.0	0.00	0.00	0
Thrips	230000	200000	3.5	5.00	10.00	25333
Armyworms	200000	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	100000	4000	0.0	8.00	0.10	253

Acreage harvested: 200000 Yield per acre: 1.27 Bales (T/F): T

Percent Lost: 18.63 Dollars Lost: 13,592,448 Cost per Acre: 32.87

Table 14. NEW MEXICO Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	100	0	0.0	0.00	0.00	0
Boll/Bud worms	52725	22250	0.4	10.30	2.40	2797
Fleahoppers	44630	21150	0.2	8.94	1.79	2082
Lygus bugs	30440	11750	0.1	9.16	1.30	1513
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	12473	1485	0.0	12.50	0.04	43
Spider mites	5300	1450	0.0	12.00	0.06	72
Thrips	60225	29015	0.5	8.66	2.26	2637
Armyworms	26650	9025	0.1	7.98	0.62	724
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	4675	3750	0.1	5.50	0.44	511

Acreage harvested: 77000 Yield per acre: 1.51 Bales (T/F): T

Percent Lost: 8.90 Dollars Lost: 2,989,296 Cost per Acre: 13.19

Table 15. NORTH CAROLINA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	0	0	0.0	0.00	0.00	0
Boll/Bud worms	122000	122000	2.6	7.00	5.20	6965
Fleahoppers	0	0	0.0	0.00	0.00	0
Lygus bugs	82000	0	0.0	0.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	0	0	0.0	0.00	0.00	0
Thrips	122000	122000	1.0	6.00	0.25	335
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	60000	20000	0.0	0.00	0.23	307

Acres harvested: 122000 Yield per acre: 1.10 Bales (T/F): T

Percent Lost: 5.68 Dollars Lost: 2,190,950 Cost per Acre: 24.20

Table 16. OKLAHOMA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	325000	270000	3.0	4.90	3.75	12129
Boll/Bud worms	450000	150000	1.3	11.00	1.30	4205
Fleahoppers	450000	100000	0.2	4.75	0.11	359
Lygus bugs	0	0	0.0	0.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	65000	30000	0.1	9.00	0.05	162
Thrips	450000	300000	0.7	4.50	0.01	22
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	55000	25000	0.1	8.75	0.00	9
New pests	0	0	0.0	0.00	0.00	0

Acres harvested: 450000 Yield per acre: 0.72 Bales (T/F): T

Percent Lost: 5.22 Dollars Lost: 4,862,948 Cost per Acre: 35.59

Table 17. SOUTH CAROLINA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	5000	0	0.0	0.00	0.00	0
Boll/Bud worms	135000	130000	3.7	6.80	4.58	6635
Fleahoppers	40000	1000	0.0	4.00	0.01	20
Lygus bugs	35000	5000	0.1	4.00	0.11	153
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	25000	5000	0.1	8.25	0.18	255
Thrips	120000	85000	1.8	3.00	1.80	2603
Armyworms	20000	10000	0.2	11.50	0.35	510
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	50000	18000	0.3	4.25	0.25	368

Acres harvested: 142000 Yield per acre: 1.02 Bales (T/F): T

Percent Lost: 7.27 Dollars Lost: 3,037,020 Cost per Acre: 34.98

Table 18. TENNESSEE Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	312000	155086	1.7	5.00	0.58	3360
Boll/Bud worms	302573	120725	0.3	7.00	1.58	9155
Fleahoppers	0	0	0.0	0.00	0.00	0
Lygus bugs	321583	140300	0.4	3.30	0.13	760
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	16741	4550	0.0	4.50	0.00	0
Thrips	410900	297250	1.1	2.50	0.56	3220
Armyworms	10000	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	200000	20000	0.0	4.00	0.07	433

Acres harvested: 535000 Yield per acre: 1.08 Bales (T/F): T

Percent Lost: 2.92 Dollars Lost: 4,875,459 Cost per Acre: 15.33

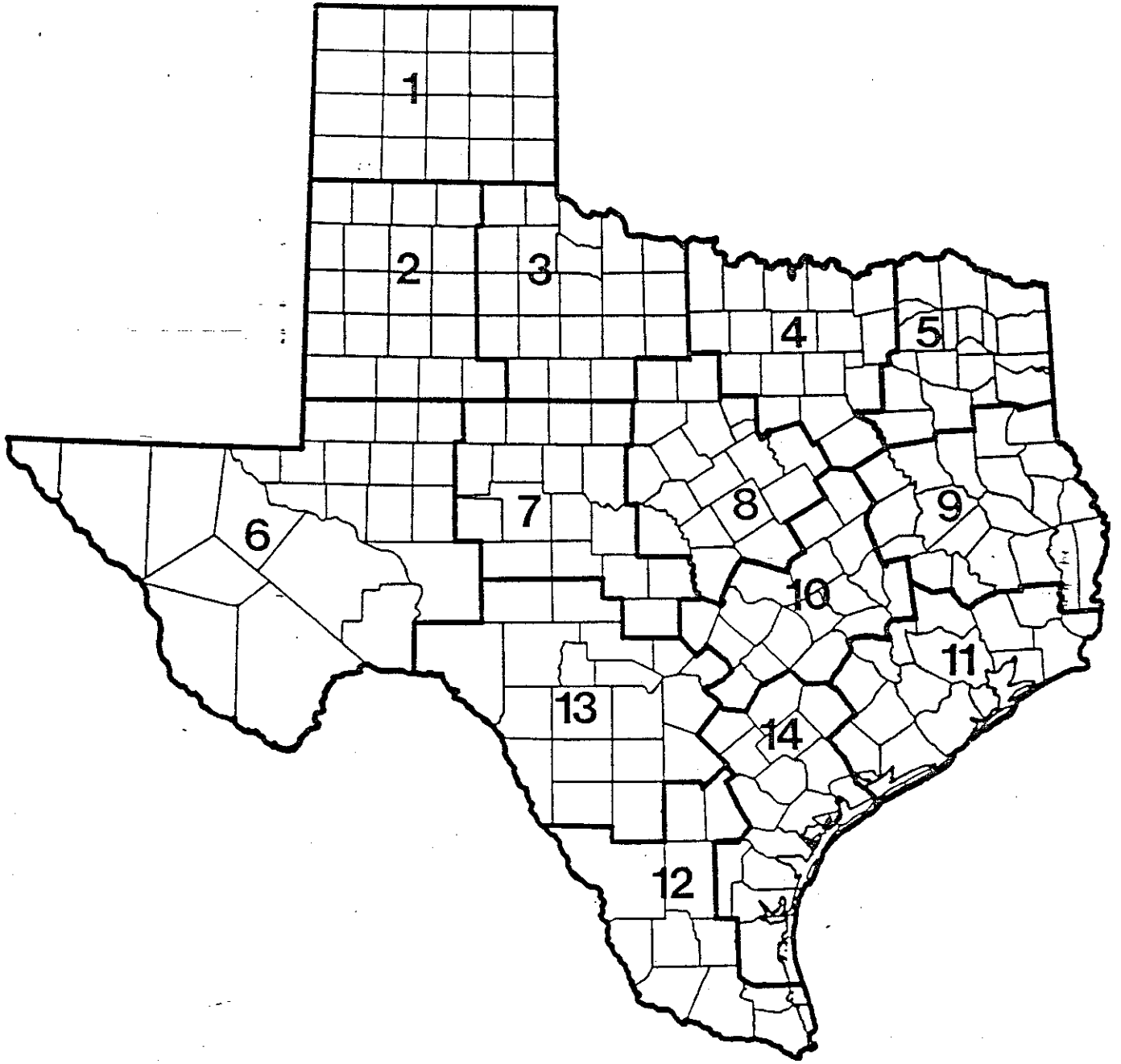


Table 19. TEXAS, DISTRICT I Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	52000	15000	0.9	5.75	10.71	4688
Boll/Bud worms	5000	1000	0.0	9.00	0.01	6
Fleahoppers	52000	5000	0.1	3.50	0.02	9
Lygus bugs	0	0	0.0	0.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	0	0	0.0	0.00	0.00	0
Thrips	52000	12000	0.2	4.50	0.17	75
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	19000	8000	0.1	4.30	0.11	50

Acreage harvested: 70000 Yield per acre: 0.63 Bales (T/F): T

Percent Lost: 11.04 Dollars Lost: 1,390,500 Cost per Acre: 6.72

Table 20. TEXAS, DISTRICT II Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	30000	2000	0.0	5.50	0.00	0
Boll/Bud worms	2400000	1760000	0.8	9.61	0.24	6191
Fleahoppers	900000	153000	0.0	3.15	0.00	128
Lygus bugs	25000	0	0.0	0.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	45000	3000	0.0	12.00	0.00	0
Thrips	2176000	1288000	0.5	4.50	0.71	18338
Armyworms	84000	30000	0.0	11.20	0.00	40
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	2720000	952000	0.4	4.20	0.61	15787

Acreage harvested: 3100000 Yield per acre: 0.84 Bales (T/F): T

Percent Lost: 1.56 Dollars Lost: 11,659,391 Cost per Acre: 11.76



Table 21. TEXAS, DISTRICT III Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	600000	400000	1.2	5.30	9.60	20000
Boll/Bud worms	600000	150000	0.3	9.00	0.60	1250
Fleahoppers	600000	20000	0.0	1.50	0.00	0
Lygus bugs	0	0	0.0	0.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	15000	9000	0.0	10.00	0.00	0
Thrips	600000	400000	0.5	1.25	0.00	0
Armyworms	50000	10000	0.0	12.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	0	0	0.0	0.00	0.00	0

Acreeage harvested: 500000 Yield per acre: 0.42 Bales (T/F): T

Percent Lost: 10.20 Dollars Lost: 6,120,000 Cost per Acre: 10.18

Table 22. TEXAS, DISTRICT IV Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	18000	6000	0.1	5.25	0.18	169
Boll/Bud worms	70000	25000	0.8	6.00	0.75	703
Fleahoppers	80000	30000	0.5	4.00	0.30	281
Lygus bugs	5000	1000	0.0	5.25	0.01	5
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	5000	3000	0.0	6.00	0.03	28
Thrips	100000	50000	1.0	4.00	1.00	938
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	100	100	0.0	5.75	0.00	0

Acreeage harvested: 100000 Yield per acre: 0.94 Bales (T/F): T

Percent Lost: 2.27 Dollars Lost: 611,550 Cost per Acre: 11.26

Table 23. TEXAS, DISTRICT V & IX Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	15000	15000	3.0	5.00	10.00	1172
Boll/Bud worms	15000	10000	1.3	7.50	3.33	391
Fleahoppers	15000	3000	0.2	5.00	1.00	117
Lygus bugs	10000	0	0.0	0.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	1500	1000	0.1	7.50	0.27	31
Thrips	15000	2000	0.1	3.00	0.27	31
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	0	0	0.0	0.00	0.00	0

Acres harvested: 15000 Yield per acre: 0.78 Bales (T/F): T

Percent Lost: 14.87 Dollars Lost: 501,750 Cost per Acre: 26.90

Table 24. TEXAS, DISTRICT VI Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	25000	400	0.0	7.00	0.00	0
Boll/Bud worms	391200	300000	0.9	8.00	2.30	9413
Fleahoppers	352000	10000	0.0	4.00	0.00	0
Lygus bugs	50000	5000	0.0	5.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	141000	25000	0.3	2.50	0.03	131
Spider mites	20000	200	0.0	7.00	0.00	0
Thrips	391200	85000	0.2	8.00	0.33	1333
Armyworms	170000	9000	0.1	10.00	0.00	9
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	391200	300000	1.2	1.50	0.61	2510

Acres harvested: 391200 Yield per acre: 1.05 Bales (T/F): T

Percent Lost: 3.27 Dollars Lost: 3,858,191 Cost per Acre: 12.23

Table 25. TEXAS, DISTRICT VII & XIII Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	270000	240000	3.6	5.00	13.33	20250
Boll/Bud worms	270000	200000	1.5	7.50	7.41	11250
Fleahoppers	270000	10000	0.0	4.00	0.04	56
Lygus bugs	0	0	0.0	0.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	50000	30000	0.2	12.00	0.22	338
Thrips	270000	10000	0.0	4.00	0.04	56
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	270000	80000	0.6	4.00	0.59	900

Acreage harvested: 270000 Yield per acre: 0.56 Bales (T/F): T

Percent Lost: 21.63 Dollars Lost: 9,460,800 Cost per Acre: 34.22

Table 26. TEXAS, DISTRICT VIII Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	20000	5000	0.6	6.00	2.63	427
Boll/Bud worms	20000	2500	0.3	11.00	0.66	107
Fleahoppers	20000	20000	2.6	3.00	1.05	171
Lygus bugs	20000	500	0.0	5.00	0.03	4
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	10000	2000	0.2	12.00	0.53	85
Thrips	20000	20000	1.6	3.00	1.05	171
Armyworms	900	900	0.0	10.00	0.09	15
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	0	0	0.0	0.00	0.00	0

Acreage harvested: 19000 Yield per acre: 0.85 Bales (T/F): T

Percent Lost: 6.04 Dollars Lost: 282,408 Cost per Acre: 22.29

Table 27. TEXAS, DISTRICT X Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	85000	4200	0.1	5.25	0.00	2
Boll/Bud worms	57000	43800	0.8	8.90	0.18	309
Fleahoppers	86000	75500	0.8	0.00	1.50	2595
Lygus bugs	0	0	0.0	0.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	16500	11200	0.3	6.50	0.00	4
Thrips	85000	1500	0.0	6.50	0.00	0
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	0	0	0.0	0.00	0.00	0

Acreage harvested: 101000 Yield per acre: 1.72 Bales (T/F): T

Percent Lost: 1.68 Dollars Lost: 838,075 Cost per Acre: 9.56

Table 28. TEXAS, DISTRICT XI Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	100000	20000	0.6	4.00	0.40	667
Boll/Bud worms	100000	30000	0.6	5.00	1.50	2500
Fleahoppers	100000	80000	1.6	1.00	4.00	6667
Lygus bugs	1000	100	0.0	2.00	0.00	1
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	500	100	0.0	5.00	0.00	1
Thrips	60000	20000	0.3	1.00	0.00	0
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	2000	500	0.0	2.00	0.00	4

Acreage harvested: 100000 Yield per acre: 1.67 Bales (T/F): T

Percent Lost: 5.90 Dollars Lost: 2,833,680 Cost per Acre: 7.32

Table 29. TEXAS, DISTRICT XII Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	400000	350000	3.9	7.25	4.38	20964
Boll/Bud worms	400000	200000	1.5	8.75	0.50	2396
Fleahoppers	300000	150000	0.4	3.00	0.38	1797
Lygus bugs	0	0	0.0	0.00	0.00	0
Leaf perforator	50000	10000	0.1	8.75	0.03	120
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	400000	40000	0.2	7.00	0.10	479
Thrips	400000	50000	0.4	6.50	0.13	599
Armyworms	100000	10000	0.1	9.00	0.03	120
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	0	0	0.0	0.00	0.00	0

Acreage harvested: 400000 Yield per acre: 1.20 Bales (T/F): T

Percent Lost: -5.53 Dollars Lost: 7,624,500 Cost per Acre: 47.28

Table 30. TEXAS, DISTRICT XIV Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	215000	139750	2.3	4.90	2.67	6196
Boll/Bud worms	215000	28000	0.3	5.75	0.20	466
Fleahoppers	215000	60200	0.3	4.00	0.43	1001
Lygus bugs	190000	1500	0.0	5.30	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	93000	3000	0.0	4.75	0.00	7
Thrips	200000	11600	0.1	3.50	0.00	0
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	160000	15000	0.1	3.90	0.07	166

Acreage harvested: 209000 Yield per acre: 1.11 Bales (T/F): T

Percent Lost: 3.38 Dollars Lost: 2,256,425 Cost per Acre: 14.74

Table 31. TEXAS Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	1830000	1197350	0.7	5.96	1.63	74534
Boll/Bud worms	4543200	2750300	0.8	8.93	0.76	34980
Fleahoppers	2990000	616700	0.1	2.41	0.28	12823
Lygus bugs	301000	8100	0.0	5.05	0.00	10
Leaf perforator	50000	10000	0.0	8.75	0.00	120
Pink bollworm	141000	25000	0.0	2.50	0.00	131
Spider mites	656500	102500	0.0	8.87	0.02	973
Thrips	4369200	1950100	0.4	4.32	0.47	21541
Armyworms	404900	59900	0.0	10.47	0.00	185
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	3562300	1355600	0.3	3.50	0.42	19417

Acreage harvested: 5275200 Yield per acre: 0.87 Bales (T/F): T

Percent Lost: 3.59 Dollars Lost: 47,437,270 Cost per Acre: 15.49

Table 32. VIRGINIA Cotton Insect Losses 1988

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils	0	0	0.0	0.00	0.00	0
Boll/Bud worms	3250	2200	1.4	12.50	3.44	138
Fleahoppers	0	0	0.0	0.00	0.00	0
Lygus bugs	0	0	0.0	0.00	0.00	0
Leaf perforator	0	0	0.0	0.00	0.00	0
Pink bollworm	0	0	0.0	0.00	0.00	0
Spider mites	200	0	0.0	0.00	0.00	0
Thrips	3250	3250	1.0	7.00	0.00	0
Armyworms	0	0	0.0	0.00	0.00	0
W flower thrips	0	0	0.0	0.00	0.00	0
New pests	0	0	0.0	0.00	0.00	0

Acreage harvested: 3200 Yield per acre: 1.25 Bales (T/F): T

Percent Lost: 3.44 Dollars Lost: 39,600 Cost per Acre: 24.30

Table 33. USDA 1988 US CROP PRODUCTION: ALL COTTON--12/12--KRF

ACRES IN THOUSANDS, YIELD IN POUNDS PER ACRE, PRODUCTION  
IN THOUSAND 480-POUND BALES, SELECTED STATES

	ACRES HARVESTED	INDICATED YIELD	-----PRODUCTION-----		
			Dec. 1	Nov. 1	1987
--UPLAND--					
ALA	360	507	380	380	397
AZ	349	1,224	890	920	849
ARK	670	752	1,050	1,050	901
CALIF	1,335	1,043	2,900	2,950	2,989
GA	320	525	350	335	338
LA	615	741	950	920	977
MISS	1,180	753	1,850	1,850	1,745
MO	237	608	300	300	330
NM	66	727	100	94	89
NC	123	527	135	135	98
OKLA	390	345	280	280	346
SC	142	490	145	135	106
TENN	535	520	580	580	634
TEXAS	5,100	461	4,900	4,500	4,635
US	11,454	622	14,849	14,469	14,475
--PIMA--					
US	187	891	347	367	285
--ALL COTTON--					
US	11,641	627	15,197	14,837	14,760
1407 CST#					END

Table 34.

CALCULATIONS USED FOR MAKING LOSSES ESTIMATES

==== Pest ====	(T/F)	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction
Boll weevils						
Boll/Bud worms						
Fleahoppers						
Lygus bugs						
Leaf perforator	T	X	X	X.X	X.XX	X.XX
Pink bollworm						
Spider mites						
Thrips						
Armyworms						
W flower thrips						
New pests						
Acreeage harvested:		X	Yield per acre:	X.XX	Bales (T/F): T	

1

Cotton Insect Losses Questionaire

Summary using Filter: ALL

Prepared: 04/19/88

==== Pest ====	Acres Infested	Above Treat Thresholds	# Insect Applicat	Cost of 1 Applicat	% Yield Reduction	Bales Lost
Boll weevils						
Boll/Bud worms						
Fleahoppers						
Lygus bugs						
Leaf perforator	2)	3)	9)	10)	11)	6)
Pink bollworm						
Spider mites						
Thrips						
Armyworms						
W flower thrips						
New pests						
Acreeage harvested:	7)	Yield per acre:	12)	Bales (T/F): T		
Percent Lost:	14)	Dollars Lost:	15)	Cost per Acre:	17)	



```

if tBWINPEST > 0 then
  9) store atXiaBW / tTOTACRE to aBWAPPL           ( Repeat this )
  10) store atXiaXcaBW / atXiaBW to aBWCOST       ( code section )
  11) store balesBW / taXay * 100 to aBWPERCENT   ( for each pest )
endif

```

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12) store taXay / tTOTACRE to aAVERYIELD
13) store balesBW + balesBB + balesCO + balesLB + balesLP + balesPB to tBALESLOST
store tBALESLOST + balesSM + balesTR + balesAW + balesMP + balesNP to tBALESLOST
14) store tBALESLOST * 100 / taXay to tPERCENT
15) store tBALESLOST * lbsBale * .6 to tDOLLAR
16) store atXiaXcaBW + atXiaXcaBB + atXiaXcaCO + atXiaXcaLB + atXiaXcaLP to tCOST
store tCOST + atXiaXcaPB + atXiaXcaSM + atXiaXcaTR + atXiaXcaAW to tCOST
store tCOST + atXiaXcaMP + atXiaXcaNP to tCOST
17) store tCOST / tTOTACRE to tCOSTACRE
return

```

$$9) \frac{\Sigma (\text{acres treated}) \cdot (\text{insecticide applications})}{\Sigma \text{ acres harvested}}$$

$$10) \frac{\Sigma (\text{acres treated}) \cdot (\text{insecticide applications}) \cdot (\text{cost of application})}{\Sigma (\text{acres treated}) \cdot (\text{insecticide applications})}$$

$$11) \frac{\Sigma (\text{acres treated}) \cdot (\text{yield per acre}) \cdot (\text{yield reduction})}{\Sigma (\text{acres harvested}) \cdot (\text{yield per acre})}$$

$$12) \frac{\Sigma (\text{acres harvested}) \cdot (\text{yield per acre})}{\Sigma \text{ acres harvested}}$$

$$13) \text{ total bales lost to all pests} = \Sigma \Sigma (\text{acres treated}) \cdot (\text{yield per acre}) \cdot (\text{yield reduction})$$

$$14) \frac{\text{total bales lost to all pests}}{\Sigma (\text{acres harvested}) \cdot (\text{yield per acre})}$$

$$15) (\text{total bales lost to all pests}) \cdot (480 \text{ lbs/bale}) \cdot (.60 \text{ per lb})$$

$$16) \Sigma \Sigma (\text{acres treated}) \cdot (\text{insecticide applications}) \cdot (\text{cost of application})$$

$$17) \Sigma \Sigma (\text{acres treated}) \cdot (\text{insecticide applications}) \cdot (\text{cost of application})$$

$$\Sigma \text{ acres harvested}$$