COTTON DISEASE LOSS ESTIMATE COMMITTEE REPORT, 2019

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Abstract

The National Cotton Council Disease Loss committee submitted estimates of the losses due to each disease during the 2019 growing season across the United States cotton belt. Multiple cotton researchers and extension specialists report disease incidence estimates observed within each respective state and have done so since 1952. Yield loss estimates to several disease and nematodes are provided in this report (Table. 1). These yield losses are calculated using the USDA "Crop Production" published at https://downloads.usda.library.cornell.edu/usda-esmis/files/tm70mv177/b2774b38v/2b88qv196/crop1219.pdf which documents cotton acreage planted, harvested, and average yield by state. Cotton acreage is expected to total 12.5 million acres that is a 23% increase over the 2018 season. USDA forecast 20.2 million 480 - pound bales will be harvested; a 10% increase over the 2018 season. Cotton yields are currently reported to average 775 pounds per acre, which is a slight decrease of 85 pounds per acre or 10 % reduction from 2018. Alabama, Arizona, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee and Virginia reported increased cotton acres harvested between 2018 and 2019, an increase of approximately 10% in acres harvested over the cotton belt.

Estimates of the total cotton disease losses were down to 6.5% of the yield across the cotton belt for 2019 compared to 8.8% in 2018 and 11.7% in 2017. Plant parasitic nematodes as a group (reniform nematode, root-knot nematode, and other nematodes) were responsible for the largest average percent loss estimated at 4.28% followed by seedling disease, attributed to numerous fungal and bacterial pathogens at 0.83%, with Fusarium and Verticillium wilts at 0.29 % and 0.23% respectively. California, Georgia, and South Carolina suffered the greatest estimated total disease losses of 13.6, 11.2 and 10.6%, respectively. The mid-south delta region of the U.S. received excessive rainfall in the spring, which delayed planting in many areas of Louisiana, Mississippi, Alabama, and Tennessee. Georgia indicated their season was extremely hot and dry through much of the early and mid-season decreasing their losses to foliar diseases but maintained losses to nematodes. California indicated Fusarium loss estimates include both race 1 and race 4 on Pima and Upland cottons, but most of the estimated yield losses are due to race 4. The cotton southeast region suffered a drought in August and September with abundant sunshine. Foliar pathogens and boll rot incidence across the cotton belt where considerably reduced compared to previous years. In 2018, the cotton viruses were added to the disease loss estimates and only Alabama and Arizona indicated any yield losses due to viruses in 2019.

Table 1. Cotton disease loss estimates for the 2019 season.

Percent disease loss estimates	AL	AZ	AR	CA	FL	GA	KS	LA	MS	MO	NM	NC	OK	SC	TN	TX	VA	Bales lost	% Bales lost
Fusarium Wilt (*F.o. vasinfectum*)	1.0	0.1	0.1	2.2	0.1	0.2	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.1	0.0	0.3	0.0		
Bales lost to Fusarium (x 1,000)	11.0	0.5	1.4	19.0	0.2	5.2	0.0	0.0	0.0	1.0	0.6	0.2	0.0	0.5	0.0	19.9	0.0	**59.6**	**0.29**
Verticillium Wilt (*V. dahliae*)	1.0	1.5	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.0	1.0	0.0	0.5	0.0	0.0		
Bales lost to Verticillium (x 1,000)	11.0	7.8	11.2	2.6	0.0	0.0	0.0	0.0	0.0	1.0	1.3	0.2	6.5	0.0	4.6	0.0	0.0	**46.2**	**0.23**
Bacterial Blight (*X. malvacearum*)	0.0	0.0	0.1	0.0	T	T	0.0	0.2	0.0	0.2	0.2	0.0	0.0	T	0.1	0.0	0.0		
Bales lost to Xanthomonas (x 1,000)	0.1	0.0	1.4	0.0	0.0	0.0	0.0	1.2	0.2	2.0	0.3	0.0	0.0	0.0	0.5	0.0	0.0	**5.6**	**0.03**
Root Rot (*P. omnivora*)	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0		
Bales lost to Phymatotrichopsis (x 1,000)	0.0	10.4	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	19.9	0.0	**30.9**	**0.15**
Seedling Diseases (*Rhizoctonia* & Etc.)	1.0	2.0	2.0	1.7	1.5	0.5	0.1	0.3	0.2	2.0	0.5	2.5	0.1	0.3	2.0	0.2	1.0		
Bales lost to Seedling disease (x 1,000)	11.0	10.4	28.0	14.7	3.1	13.0	0.3	1.7	3.2	20.4	0.6	25.5	0.7	1.5	18.4	13.2	2.0	**167.7**	**0.83**
Ascochyta Blight (*A. gossypii*)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1		
Bales lost to Ascochyta (x 1,000)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.2	**1.8**	**0.01**
Boll Rots (*Rhizopus*, etc.)	0.1	0.1	0.3	0.0	2.0	2.0	0.1	0.2	0.1	0.5	0.0	0.5	0.2	0.5	0.1	0.1	2.0		
Bales lost to Rhizopus (x 1,000)	1.1	0.5	4.2	0.0	4.1	52.0	0.3	1.2	1.6	5.1	0.0	5.1	1.3	2.5	0.9	6.6	4.0	**90.5**	**0.45**
Nematodes (All)	6.0	3.0	4.3	0.1	8.0	8.0	0.1	5.0	5.3	5.0	0.5	3.0	0.1	9.5	1.5	3.5	4.0		
Bales lost to Nematodes (x 1,000)	66.0	15.6	60.2	0.9	16.4	208.0	0.3	29.0	84.8	51.0	0.6	30.6	0.7	47.5	13.8	231.7	8.0	**865.1**	**4.28**
Nematodes (*Meloidogyne* spp.)	3.0	3.0	2.2	0.1	5.0	7.0	0.0	2.5	2.9	4.8	0.5	2.0	0.1	4.0	0.5	3.0	2.0		
Bales lost to Meloidogyne (x 1,000)	33.0	15.6	30.8	0.9	10.3	182.0	0.0	14.5	46.4	49.0	0.6	20.4	0.7	20.0	4.6	198.6	4.0	**631.3**	**3.12**
Nematodes (*Rotylenchulus reniformis*)	3.0	0.0	2.0	0.0	2.5	0.5	0.0	2.5	2.3	0.1	0.0	0.5	0.0	2.0	1.0	0.5	0.0		
Bales lost to Reniform (x 1,000)	33.0	0.0	28.0	0.0	5.1	13.0	0.0	14.5	36.8	1.0	0.0	5.1	0.0	10.0	9.2	33.1	0.0	**188.9**	**0.93**
Nematodes (Other spp.)	0.1	0.0	0.1	0.0	0.5	0.5	0.0	0.0	0.1	0.1	0.0	0.5	0.0	3.5	0.0	0.0	2.0		
Bales lost to other Nematodes (x 1,000)	1.1	0.0	1.4	0.0	1.0	13.0	0.0	0.0	1.6	1.0	0.0	5.1	0.0	17.5	0.0	0.0	4.0	**45.7**	**0.23**
Leaf Spots & Others	0.1	0.5	0.0	0.0	2.0	0.5	0.2	0.2	0.1	0.1	0.2	0.5	0.3	0.2	0.5	0.1	0.5		
Bales lost to Leaf spots & Others (x 1,000)	1.1	2.6	0.0	0.0	4.1	13.0	0.6	1.2	1.6	1.0	0.3	5.1	2.0	1.0	4.6	6.6	1.0	**45.7**	**0.23**
Cotton viruses	0.5	0.1	0.0	0.0	T	T	0.0	T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Bales lost to CLRDV & Others (x 1,000)	5.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**6.0**	**0.03**
Total Percent Lost	**9.7**	**9.3**	**7.6**	**4.3**	**13.6**	**11.2**	**0.5**	**6.0**	**5.7**	**8.0**	**2.9**	**6.6**	**1.8**	**10.6**	**4.7**	**4.5**	**7.6**		
Total Bales Lost (x 1,000)	**106.8**	**48.4**	**106.4**	**37.2**	**27.9**	**291.2**	**1.4**	**34.8**	**91.4**	**81.6**	**3.6**	**67.7**	**11.7**	**53.0**	**42.8**	**297.9**	**15.2**	**1319**	**6.53**
Total Yield in Bales (x 1,000) (USDA Dec'19)	**1100**	**520**	**1400**	**865**	**205**	**2600**	**280**	**580**	**1600**	**1020**	**125**	**1020**	**650**	**500**	**920**	**6621**	**200**	**20206**	