COTTON DISEASE LOSS ESTIMATE COMMITTEE REPORT, 2020

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Abstract

The National Cotton Council Disease Loss committee submitted estimates of the losses due to each disease during the 2020 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 losses, in total bales lost to each disease indicated in Table 1 below, are calculated using the USDA "Crop Production" published at https://downloads.usda.library.cornell.edu/usda-esmis/files/tm70mv177/b2774b38v/2b88qv196/crop1220.pdf which documents cotton acreage planted, harvested, and average yield by state. Cotton acreage is expected to total 9.01 million acres, which is down from the 12.5 million acres in the 2019 season. USDA forecast 15.9 million bales of cotton will be harvested; a 20% decrease over the 2019 season. Cotton yields are currently reported to average 850 pounds per acre, which is a slight increase of 27 pounds per acre or 6 % increase from 2019. Kansas and Oklahoma reported an increase in cotton acres harvested between 2019 and 2020, while all the remaining 15 states reported a decrease in cotton acreage.

Estimates of the total cotton disease losses were up slightly to 6.9% of the yield lost due to disease in 2020 compared to 6.5% reduction of the yield across the cotton belt for 2019, 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 4.13% followed by cotton boll rots and seedling disease, attributed to numerous fungal and bacterial pathogens at 1.01 and 0.74%, respectively. Fusarium and Verticillium wilts were unchanged from 2019 with 0.30% and 0.22% boll lost respectively. Seedling disease was an issue early in the season in many states with the wet and dry periods experience across the cotton belt. Florida, Georgia, South Carolina, Alabama, and Arizona suffered the greatest estimated total disease losses of 26.7, 12.2, 12.1, 11.3, and 11.2%, respectively. This region experienced winds and rain from multiple hurricanes and tropical storms. Cotton boll rots and hardlock were reported to be up significantly and reduced cotton yields across Alabama, Georgia, Florida, and North Carolina. Georgia reported losses to nematodes were down due to greater attention and use of resistant varieties and nematicides. Alabama and Florida on the other hand, reported severe nematode issues in this moist season. Bacterial blight was considerably reduced compared to previous years.

Table 1. Cotton disease loss estimates for the 2020 season.

Percent disease loss estimates	AL	AZ	AR	CA	FL	GA	KA	LA	MS	MO	NM	NC	OK	SC	TN	TX	VA	Bales lost	% Bales lost
Fusarium Wilt (*F. vasinfectum*)	1.0	0.5	0.5	2.5	0.1	0.4	0.0	0.0	0.0	0.1	0.5	0.0	0.1	0.1	0.0	0.1	0.0		
Bales lost to Fusarium (x 1,000)	7.9	1.9	6.5	15.3	0.1	9.2	0.0	0.0	0.0	0.7	0.4	0.1	0.7	0.3	0.0	5.2	0.0	**48.4**	**0.30**
Verticillium Wilt (*V. dahliae*)	1.0	2.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.0	0.0	0.0	0.6	0.1	0.0		
Bales lost to Verticillium (x 1,000)	7.9	7.4	6.5	1.8	0.0	0.0	0.0	0.0	0.0	0.7	0.9	0.0	0.0	0.0	4.1	5.2	0.0	**34.6**	**0.22**
Bacterial Blight (*X. malvacearum*)	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.2	0.1	0.02	0.0	0.0		
Bales lost to Xanthomonas (x 1,000)	0.8	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.2	0.1	1.4	0.3	0.1	0.0	0.0	**8.3**	**0.05**
Root Rot (*P. omnivora*)	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.02	0.2	0.0		
Bales lost to Phymatotrichopsis (x 1,000)	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	10.5	0.0	**22.0**	**0.14**
Seedling Diseases (*Rhizoctonia* & Etc.)	1.0	2.0	2.2	2.0	1.0	0.3	0.1	0.2	0.1	2.0	0.5	2.5	0.1	0.3	2.0	0.1	1.5		
Bales lost to Seedling disease (x 1,000)	7.9	7.4	28.6	12.2	1.4	6.9	0.3	0.7	1.3	14.8	0.4	14.3	0.7	0.8	13.6	5.2	2.3	**118.8**	**0.74**
Ascochyta Blight (*A. gossypii*)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0		
Bales lost to Ascochyta (x 1,000)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.2	0.0	0.0	0.0	**1.3**	**0.01**
Boll Rots (*Rhizopus*, etc.)	1.0	0.1	0.3	0.0	10.0	4.0	0.1	0.0	0.0	0.5	0.0	3.0	0.5	2.0	0.5	0.1	2.0		
Bales lost to Rhizopus (x 1,000)	7.9	0.4	3.9	0.0	14.0	92.0	0.3	0.0	0.0	3.7	0.0	17.1	3.6	6.3	3.4	5.2	3.0	**160.8**	**1.01**
Nematodes (All)	7.0	3.0	5.0	0.0	15.5	7.0	0.1	4.0	3.2	5.0	0.5	4.0	0.0	9.0	1.75	3.5	4.0		
Bales lost to Nematodes (x 1,000)	55.3	11.1	65.0	0.0	21.7	161.0	0.3	14.0	40.3	37.0	0.4	22.8	0.0	28.4	11.9	183.6	6.0	**658.9**	**4.13**
Nematodes (*Meloidogyne* spp.)	4.0	3.0	2.4	0.0	8.0	6.0	0.0	2.0	2.0	4.8	0.5	3.0	0.0	4.0	0.75	2.8	2.0		
Bales lost to Meloidogyne (x 1,000)	31.6	11.1	31.2	0.0	11.2	138.0	0.0	7.0	25.2	35.5	0.4	17.1	0.0	12.6	5.1	144.3	3.0	**473.3**	**2.97**
Nematodes (*Rotylenchulus reniformis*)	3.0	0.0	2.2	0.0	5.0	0.5	0.0	2.0	1.1	0.1	0.0	0.5	0.0	2.0	1.0	0.7	0.0		
Bales lost to Reniform (x 1,000)	23.7	0.0	28.6	0.0	7.0	11.5	0.0	7.0	13.9	0.7	0.0	2.9	0.0	6.3	6.8	36.7	0.0	**145.1**	**0.91**
Nematodes (Other spp.)	0.1	0.0	0.2	0.0	2.5	0.5	0.0	0.0	0.1	0.1	0.0	0.5	0.0	3.0	0.0	0.0	2.0		
Bales lost to other Nematodes (x 1,000)	0.8	0.0	2.6	0.0	3.5	11.5	0.0	0.0	1.3	0.7	0.0	2.9	0.0	9.5	0.0	0.0	3.0	**35.7**	**0.22**
Leaf Spots & Others	0.1	0.5	0.1	0.0	0.1	0.5	0.2	0.1	0.2	0.1	0.2	1.0	1.0	0.5	0.2	0.1	0.5		
Bales lost to Leaf spots & Others (x 1,000)	0.8	1.9	1.3	0.0	0.1	11.5	0.6	0.4	2.5	0.7	0.2	5.7	7.2	1.6	1.4	5.2	0.8	**41.8**	**0.26**
Cotton viruses	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0		
Bales lost to CLRDV & Others (x 1,000)	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.0	0.0	**2.2**	**0.01**
Total Percent Lost	**11.3**	**11.2**	**8.9**	**4.8**	**26.7**	**12.2**	**0.5**	**4.3**	**3.5**	**8.0**	**3.2**	**10.7**	**2.0**	**12.1**	**6.54**	**4.2**	**8.0**		
Total Bales Lost (x 1,000)	**89.3**	**41.4**	**115.7**	**29.3**	**37.4**	**280.6**	**1.6**	**15.1**	**44.1**	**59.2**	**2.8**	**61.1**	**14.4**	**38.1**	**44.5**	**220.4**	**12.0**	**1106.9**	**6.94**
Total Yield in Bales (x 1,000) (USDA Dec'20)	**790**	**370**	**1300**	**610**	**140**	**2300**	**320**	**350**	**126**	**740**	**87**	**570**	**720**	**315**	**680**	**5247**	**150**	**15949**	