COTTON DISEASE LOSS ESTIMATE COMMITTEE REPORT, 2021.

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Abstract

The National Cotton Council Disease Loss committee submitted estimates of the losses due to each disease during the 2021 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://www.nass.usda.gov/Publications/Todays_Reports/reports/crop1221.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 18.2 million 480 -pound bales of cotton will be harvested; a 25% increase over the 2020 season. Cotton yields are currently reported to average 880 pounds per acre, which is a slight increase of 33 pounds per acre. Mississippi, Missouri, New Mexico, North Carolina, Oklahoma, South Carolina, Texas, and Virginia reported an increase in cotton acres harvested between 2020 and 2021, Georgia's harvested acres remained the same while the remaining 8 states reported a decrease in cotton acreage.

Estimates of the total cotton disease losses were up to 11.2 % of the yield lost due to disease in 2021 compared to 6.9% reduction of the yield across the cotton belt for 2020, 6.5% in 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 3.97% followed by cotton boll rots and seedling disease, attributed to numerous fungal and bacterial pathogens at 1.04 and 0.80%, respectively. Fusarium and Verticillium wilts were increased from 2020 with 0.35% and 0.37% boll lost respectively. Cotton leaf spots also doubled from 2020 with a 0.51% loss. 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, Alabama, Arizona, and South Carolina suffered the greatest estimated total disease losses of 21.2, 15.9, 14.1, 12.2, and 10.6%, respectively. This region experienced a very cool wet extended spring with additional rain from multiple hurricanes and tropical storms. Cotton boll rots and hardlock were reported to have an increased incidence and severity 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. Georgia and Florida reported boll rots due to the moist season. Areolate mildew was increased in Alabama and Georgia and found farther north compared to previous years.

Table 1. Cotton disease loss estimates for the 2021 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	0.5	0.2	2.2	0.1	0.4	0.0	0.0	0.0	0.1	0.5	0.0	0.1	0.1	0.0	0.4	0.0		
Bales lost to Fusarium (x 1,000)	7.6	1.7	2.5	9.1	0.1	9.2	0.0	0.0	0.0	0.9	0.4	0.1	0.8	0.4	0.0	32.1	0.0	64.8	0.35
Verticillium Wilt (*V. dahliae*)	2.0	3.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.0	0.0	0.0	0.6	0.4	0.0		
Bales lost to Verticillium (x 1,000)	15.1	10.1	3.8	1.2	0.0	0.0	0.0	0.0	0.0	0.9	0.7	0.0	0.0	0.0	3.6	32.1	0.0	67.6	0.37
Bacterial Blight (*X. malvacearum*)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.0		
Bales lost to Xanthomonas (x 1,000)	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.9	0.1	0.1	0.8	0.4	0.0	8.0	0.0	10.5	0.06
Root Rot (*P. omnivora*)	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.2	0.0		
Bales lost to Phymatotrichopsis (x 1,000)	0.0	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	16.1	0.0	26.5	0.14
Seedling Diseases (*Rhizoctonia* & Etc.)	1.0	1.5	2.0	1.7	1.0	2.0	0.1	0.1	0.3	2.0	0.5	1.0	0.1	0.2	2.5	0.1	0.5		
Bales lost to Seedling disease (x 1,000)	7.6	5.1	25.2	7.1	1.3	46.0	0.2	0.2	3.0	17.0	0.4	7.5	0.8	0.8	15.0	8.0	1.0	146.1	0.80
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	1.5	0.0	0.4	0.0	0.0	0.0	1.9	0.01
Boll Rots (*Rhizopus*, etc.)	2.0	0.1	0.2	0.0	10.0	6.0	0.1	0.0	0.0	0.3	0.0	0.0	0.2	1.0	0.8	0.1	0.0		
Bales lost to Rhizopus (x 1,000)	15.1	0.3	2.5	0.0	13.0	138.0	0.2	0.0	0.0	2.6	0.0	0.0	1.5	4.1	4.5	8.0	0.0	189.9	1.04
Nematodes (All)	8.0	3.0	4.4	0.1	10.0	6.0	0.1	3.0	3.0	4.0	0.5	4.0	0.1	8.0	1.8	3.7	3.0		
Bales lost to Nematodes (x 1,000)	60.4	10.1	55.4	0.4	13.0	138.0	0.2	6.3	30.0	34.0	0.4	30.0	0.8	32.8	10.8	297.2	6.0	725.8	3.97
Nematodes (*Meloidogyne* spp.)	4.5	3.0	2.2	0.1	5.5	5.0	0.0	1.5	1.9	4.0	0.5	3.0	0.0	3.5	0.8	2.8	1.0		
Bales lost to Meloidogyne (x 1,000)	34.0	10.1	27.7	0.4	7.2	115.0	0.0	3.2	19.0	34.0	0.4	22.5	0.0	14.4	4.8	220.9	2.0	515.5	2.82
Nematodes (*Rotylenchulus reniformis*)	3.0	0.0	2.0	0.0	4.0	0.5	0.0	2.0	1.1	0.0	0.0	0.5	0.0	1.5	1.0	0.9	0.0		
Bales lost to Reniform (x 1,000)	22.7	0.0	25.2	0.0	5.2	11.5	0.0	4.2	11.0	0.0	0.0	3.8	0.0	6.2	6.0	72.3	0.0	167.9	0.92
Nematodes (Other spp.)	0.5	0.0	0.2	0.0	0.5	0.5	0.0	0.0	0.1	0.0	0.0	0.5	0.0	3.0	0.0	0.0	2.0		
Bales lost to other Nematodes (x 1,000)	3.8	0.0	2.5	0.0	0.7	11.5	0.0	0.0	1.0	0.0	0.0	3.8	0.0	12.3	0.0	0.0	4.0	39.5	0.22
Leaf Spots & Others	0.1	1.0	0.1	0.0	0.1	1.5	0.2	0.1	0.3	1.0	0.2	1.0	1.0	1.0	1.0	0.2	0.0		
Bales lost to Leaf spots & Others (x 1,000)	0.8	3.4	1.3	0.0	0.1	34.5	0.4	0.2	3.0	8.5	0.1	7.5	7.5	4.1	6.0	16.1	0.0	93.5	0.51
Cotton viruses	0.0	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)	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.4	0.0	0.0	0.0	1.7	0.01

Total Percent Lost	**14.1**	**12.2**	**7.2**	**4.3**	**21.2**	**15.9**	**0.5**	**3.2**	**3.6**	**7.6**	**3.3**	**6.2**	**1.7**	**10.6**	**6.7**	**5.2**	**3.5**		
Total Bales Lost (x 1,000)	**106.5**	**41.2**	**90.7**	**17.8**	**27.6**	**366.2**	**1.1**	**6.7**	**36.0**	**64.6**	**2.4**	**46.7**	**12.8**	**43.5**	**39.9**	**417.7**	**7.0**	**1328.2**	**11.2**
Total Yield in Bales (x 1,000) (USDA Dec'21)	**755**	**338**	**1260**	**415**	**130**	**2300**	**210**	**210**	**1000**	**850**	**73**	**750**	**750**	**410**	**600**	**8033**	**200**	**18284**	