

Soybean Disease Loss Estimate for Southern United States in 1984

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The Disease Loss Estimate Committee of the Southern Soybean Disease Workers compiles estimates of disease loss in soybeans for the southern United States. This record serves as the official disease loss statement for the production year. The estimates are solicited annually from personnel of the Cooperative Extension Service and experiment stations in each southern state. The loss

estimates are derived from IPM field monitoring programs; regional trials for seedling, nematode, and foliar disease control; field observations; laboratory diagnoses; grower demonstrations; and diagnostic clinic records.

The loss estimates for bushels, state, disease, and totals listed in Table 1 are based on the percent loss of what yields would have been if no disease had been present. The actual production figures for each state were supplied by the state crop reporting service.

In 1984 in the United States, 1,860,863,000 bu of soybeans were harvested from 66,113,000 acres (28.1 bu/A). The southern states produced 38.4% (715,195,000 bu) of the nation's

soybeans on 41.9% (27,675,000 A) of the harvested acreage (25.8 bu/A).

The estimated disease losses for the individual southern states ranged from 3.5% (Maryland) to 52% (Florida). Losses were attributed to seedling diseases (6%), root and stem rots (21%), nematodes (29%), foliar and stem diseases (42%), and virus and other diseases (2%). An estimated 123.2 million bushels of soybean yield valued at \$714.4 million were lost to diseases. Obviously, soybean diseases are important and continue to limit soybean production in the southern states. Expanded efforts are needed to provide more effective and economical control practices for these known disease problems.

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Table 1. Estimated loss of soybean yields in 1984 to disease in 16 southern states

Disease	Percent loss for state																Avg. ^b
	AL	AR	DE	FL	GA	KY	LA	MD	MS	MO ^a	NC	OK	SC	TN	TX	VA	
Seedling diseases	0.3	3.0	TR ^c	3.0	0.1	0.8	0.7	0.0	0.5	TR	1.1	1.0	0.5	1.5	0.7	0.2	0.95
Root and stem rots	1.0	3.0	1.0	30.0 ^d	1.3	0.8	5.0	1.0	4.5 ^e	3.0	0.5	2.0	1.7	4.0	1.0	0.4	4.04
Diaporthe pod and stem blight	2.0	9.0	0.1	2.0	0.1	0.4	5.0	TR	4.9	0.5	1.5	0.5	1.0	0.1	2.5	2.25	2.00
Stem canker	0.2	TR	0.0	TR	TR	0.1	0.5	0.0	0.2	0.0	0.0	0.0	0.5	0.2	0.1	0.0	0.11
Anthracnose	2.5	2.0	0.1	1.0	2.0	1.0	1.5	TR	2.1	1.0	0.0	1.5	1.0	5.0	1.5	0.2	1.12
Downy mildew	0.2	0.3	TR	TR	TR	TR	TR	TR	TR	0.0	0.1	TR	0.5	0.0	0.01	0.0	0.07
Cercospora leaf blight and purple seed stain	0.5	2.0	0.0	1.0	TR	TR	TR	0.0	2.1	0.0	0.1	1.0	0.7	0.2	0.5	0.1	0.51
Brown leaf spot	0.5	1.0	TR	TR	0.02	2.0	TR	0.5	TR	0.5	0.5	0.0	0.5	2.0	0.02	0.05	0.47
Bacterial diseases	0.2	0.1	0.0	TR	TR	TR	TR	0.0	TR	0.0	0.0	0.25	0.5	0.0	0.01	0.0	0.07
Foliar diseases—others	1.0	TR	0.0	0.01	TR	2.0	2.0	0.0	1.1	0.0	0.0	0.0	0.5	0.0	0.5	0.0	0.32
Soybean cyst nematode	4.5	4.0	2.0	1.0	2.1	4.0	3.0	1.0	0.5	3.0	4.9	1.25	1.5	3.0	0.0	4.0	2.48
Root-knot nematodes and ectoparasitic species	4.0	0.5	1.0	12.0	5.1	0.0	3.0	1.0	0.5	TR	2.4	1.5	4.5	0.5	0.1	1.5	2.35
Virus diseases	0.1	TR	TR	0.0	0.01	0.1	0.25	TR	0.1	0.0	1.1	0.0	0.2	0.0	0.01	0.35	0.14
Other diseases	1.0	0.1	0.0	0.0	0.0	1.0	0.1	0.0	0.1	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.21
Total percent loss	18.0	25.0	4.2	52.0	10.46	10.2	21.1	3.5	16.6	8.0	13.2	9.0	13.6	16.5	7.0	8.45	14.85
Average yield (bu/A)	23	24	24	22	21	29	27	28	28.9	19.7	26	19	22	25	28	29	
Loss (bu/A) ^e	4.8	8.0	1.0	26.3	2.6	3.3	7.3	1.0	4.7	1.7	3.8	2.0	3.4	4.9	2.0	3.0	Total
Acres (× 10 ⁶)	1.4	4.0	0.3	0.3	1.9	1.4	2.3	0.4	3.2	6.0	1.8	0.2	1.5	1.8	0.4	0.7	27.6 × 10 ⁶ A
Total yield loss (bu × 10 ⁶) ^e	6.8	32.0	0.3	7.9	4.9	4.7	16.8	0.4	15.2	10.0	6.9	0.4	5.1	8.9	0.8	2.1	123.2 × 10 ⁶ bu
Total dollar loss (× 10 ⁶) ^{e,f}	39.4	185.6	1.7	45.8	28.4	27.3	97.4	2.3	88.2	58.0	40.0	2.3	29.6	51.6	4.6	12.2	\$714.4 × 10 ⁶

^a Eight counties in southeastern Missouri.

^b Based on percent disease weighted by acreage for each state.

^c TR = trace.

^d Loss to root rots and nematodes based on yield responses in 20 tests over 4 yr in which these pathogens were controlled.

^e Rounding errors present.

^f Based on \$5.80/bu.