Special Report

Soybean Disease Loss Estimate for Southern United States in 1983

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The Disease Loss Estimate Committee of the Southern Soybean Disease Workers compiled 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 were 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 1983 in the United States, 1,595,000,000 bu of soybeans were harvested from 61,400,000 acres (26 bu/A). The southern states produced 26.6% (425,123,000 bu) of the nation's

soybeans on 36.4% (22,369,000 A) of the harvested acreage (19 bu/A).

The estimated disease losses for the individual southern states ranged from 6% (Oklahoma) to 73.5% (Florida). An estimated 121.84 million bushels of soybean yield were lost to diseases. This loss was valued at $974.72 million. Losses were attributed to seedling diseases (5.9%), root and stem rots (25.3%), nematodes (29%), foliar and stem diseases (36.6%), and virus and other diseases (3.2%). Although the loss estimates for the states were provided by different individuals using nonuniform assessment procedures, the committee feels the loss estimates represent the actual disease situation.

Table 1. Estimated loss of soybean yields in 1983 to disease in 16 southern states

Disease	AL	AR	DE	FL	GA	KY	LA	MD	MS	MO[a]	NC	OK	SC	TN	TX	VA	Avg.[b]
Seedling diseases	0.2	3.5	TR[c]	5.0	0.3	1.1	0.5	0.0	0.5	1.0	0.1	0.5	0.5	2.0	2.5	0.2	1.1
Root and stem rots	1.0	4.0	2.0	30.0[d]	1.0	2.5	3.0	2.0	18.4[e]	3.0	1.0	0.5	1.0	3.0	2.0	0.2	4.7
Diaporthe pod and stem blight	2.5	2.0	2.0	3.0	0.2	0.3	4.0	1.5	2.0	0.5	0.5	1.0	1.2	0.2	4.0	2.5	1.7
Stem canker	2.0	0.0	0.0	12.5	0.4	0.2	0.5	0.0	1.1	0.0	0.0	0.0	1.5	0.4	0.0	0.0	1.4
Anthracnose	2.0	2.0	1.0	3.0	1.8	0.5	2.0	1.0	2.4	1.0	0.1	1.0	1.2	2.0	6.0	0.2	1.7
Downy mildew	0.1	0.5	0.0	TR	TR	TR	TR	TR	TR	0.0	0.0	TR	0.2	TR	TR	0.1	0.1
Cercospora leaf blight and purple seed stain	0.1	3.5	TR	2.0	TR	TR	TR	0.0	2.7	0.0	0.1	1.0	0.5	0.1	2.0	0.2	0.8
Brown leaf spot	0.5	1.0	TR	1.0	0.05	2.0	TR	1.5	TR	0.0	0.5	0.0	0.5	2.0	0.5	0.0	0.6
Bacterial diseases	0.0	TR	TR	TR	TR	TR	TR	0.0	TR	0.0	0.0	0.0	0.5	TR	TR	0.0	0.1
Foliar diseases—others	0.0	0.0	0.0	1.0	0.0	TR	3.0	0.0	1.0	0.0	0.1	0.0	1.0	TR	0.5	0.0	0.4
Soybean cyst nematodes	7.0	3.5	2.0	1.0	2.0	4.5	3.0	2.0	0.5	3.0	4.0	1.0	1.7	3.0	0.1	4.0	2.6
Root-knot nematodes and ectoparasitic species	8.0	0.5	0.5	15.0[d]	4.8	0.0	4.0	2.0	0.5	TR	2.0	1.0	4.2	0.5	TR	2.0	2.8
Virus diseases	0.0	0.5	TR	TR	TR	0.3	0.5	0.0	0.1	0.0	1.5	TR	0.2	0.1	TR	0.2	0.2
Other diseases	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.0	0.5	0.0	0.0	2.0	4.0	0.0	0.4
Total percent loss	23.4	21.0	7.5	73.5	10.5	11.4	20.6	10.0	29.7	8.5	10.4	6.0	14.2	15.3	21.6	9.6	18.6
Average yield (bu/A)	18	18	29	25	19	17	25	23	18	17	26	17	16	15	27	16	**Total**
Loss (bu/A)[f]	5.5	4.8	2.3	69.3	2.2	2.2	6.5	2.5	7.8	1.6	2.3	1.1	2.7	2.7	7.5	1.7	
Acres (× 10^6)	1.4	3.9	0.2	0.4	1.9	1.4	2.6	0.4	3.1	1.0	1.7	0.2	1.3	1.8	0.3	0.6	22.4 × 10^6 A
Total yield loss (bu × 10^6)[f]	7.7	18.4	0.6	27.7	4.3	3.0	16.6	0.9	24.4	1.6	3.9	0.3	3.7	5.0	2.5	1.0	121.8 × 10^6 bu
Total dollar loss (× 10^6)[f,g]	61.6	147.4	4.6	221.9	34.4	24.3	132.8	7.4	195.0	12.6	31.0	2.2	29.3	40.1	20.3	8.3	$974.7 × 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] Based on extensive surveys in Delta area where charcoal rot was severe.
[f] Rounding errors present.
[g] Based on $8.00/bu.