

# Special Report

## Soybean Disease Loss Estimate for Southern United States in 1982

EDWIN F. KOLDENHOVEN, Griffin Corporation, Denton, TX, R. RODRIGUEZ-KABANA, Auburn University, Auburn, AL, and H. KENNETH WHITHAM, Louisiana State University, Baton Rouge, Disease Loss Estimate Committee of the Southern Soybean Disease Workers

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, in one instance, remote sensing. The actual production figures for each state were supplied by state agricultural statisticians.

In 1982 in the United States, 2,276,976,000 bu of soybeans were harvested from 70,783,000 acres (32 bu/A). The southern states produced 31.2% (711,475,000 bu) of the nation's soybeans on 39% (27,633,000 A) of the harvested acreage (25.7 bu/A).

The estimated disease losses for the

individual southern states ranged from 4.5% (Delaware) to 45.5% (Florida). An estimated 173.5 million bushels of soybean yield were lost to diseases. This loss was valued at nearly \$1.04 billion. Losses were attributed to seedling diseases and root and stem rots (27%), nematodes (25%), foliar and stem diseases (41%), and virus and other diseases (7%).

Although the loss estimates for the several states were provided by different individuals using nonuniform assessment procedures, the committee feels the loss estimates represent the actual disease situation.

The publication costs of this article were defrayed in part by page charge payment. This article must therefore be hereby marked "advertisement" in accordance with 18 U.S.C. § 1734 solely to indicate this fact.

©1983 American Phytopathological Society

Table 1. Estimated loss of soybean yields in 1982 to disease in 15 southern states

Disease	Percent loss for state															Avg. <sup>b</sup>
	AL	AR	DE	FL	GA	KY	LA	MS	MO <sup>a</sup>	NC	OK	SC	TN	TX	VA	
Seedling diseases	0.1	2.5	TR <sup>c</sup>	5.0	0.1	1.2	0.2	0.5	0.0	0.2	3.0	0.8	2.0	0.8	0.2	1.1
Root and stem rots	1.0	2.5	1.5	20.0 <sup>d</sup>	0.8	2.3	6.0	4.6	TR	1.2	1.5	1.0	3.0	2.0	0.3	3.8
Diaporthe pod and stem blight	1.0	4.0	0.5	2.5	0.3	1.0	8.0	2.2	1.0	0.5	1.0	2.0	0.2	3.0	3.0	1.9
Anthraxnose	6.0	6.0	0.5	2.5	1.4	3.0	2.0	3.4	3.0	0.1	2.0	2.5	5.0	7.0	0.5	3.0
Downy mildew	TR	1.0	0.5	0.5	TR	TR	TR	TR	0.0	TR	TR	0.2	TR	TR	1.0	0.2
Cercospora leaf blight and purple seed stain	1.0	3.5	0.0	2.0	TR	0.1	TR	2.5	1.0	0.1	0.5	0.8	0.2	2.0	0.8	1.0
Brown leaf spot	2.0	0.0	0.0	0.5	TR	3.5	TR	0.2	0.5	0.5	0.0	1.0	4.0	1.0	0.1	0.9
Bacterial diseases	TR	TR	0.5	TR	TR	TR	TR	TR	0.0	0.1	0.2	0.5	TR	TR	0.2	0.1
Foliar diseases—others	0.0	0.0	0.0	0.0	0.0	TR	2.0	0.6	0.0	0.1	0.3	1.0	TR	0.7	0.0	0.3
Cyst nematodes	3.0	3.0	1.0	2.0	1.5	3.0	4.0	0.5	7.0	3.5	1.8	1.5	3.5	0.2	1.0	2.3
Root-knot nematodes and ectoparasitic species	8.0	0.5	TR	10.0 <sup>d</sup>	5.5	0.0	3.0	0.9	0.0	1.8	2.2	5.0	0.7	TR	4.0	2.1
Virus diseases	TR	2.5	0.0	TR	0.1	0.8	0.1	0.1	0.0	2.0	TR	0.1	TR	TR	1.5	0.5
Other diseases	2.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	1.0	0.5	0.0	2.2	1.5	TR	3.0	0.8
Total percent loss	24.1	26.5	4.5	45.5	9.8	15.0	25.4	16.4	13.5	10.6	12.5	18.6	20.1	16.7	15.6	18.0
Average yield (bu/A)	27	24	29	25	27	30	26	26	29	26	19	21	27	21	25	
Loss (bu/A) <sup>e</sup>	8.6	8.2	1.4	20.9	2.9	5.3	8.8	5.1	4.5	3.1	2.7	4.8	6.8	4.2	4.6	<b>Total</b>
Acres (× 10 <sup>6</sup> )	2.0	4.6	0.3	0.6	2.6	1.7	3.0	3.6	1.2	2.1	0.3	1.7	2.3	0.9	0.8	27.6 × 10 <sup>6</sup> A
Total yield loss (bu × 10 <sup>6</sup> ) <sup>e</sup>	17.6	37.8	0.4	12.3	7.6	8.8	26.2	18.4	5.6	6.5	0.8	8.2	16.0	3.8	3.5	173.5 × 10 <sup>6</sup> bu
Total dollar loss (× 10 <sup>6</sup> ) <sup>e,f</sup>	105.4	226.7	2.5	73.9	45.7	52.6	156.7	110.2	33.4	38.8	4.6	49.2	95.8	22.6	20.8	\$1,038.9 × 10 <sup>6</sup>

<sup>a</sup>Eight counties in southeastern Missouri.

<sup>b</sup>Based on percent disease weighted by acreage for each state.

<sup>c</sup>TR = trace.

<sup>d</sup>Estimates of loss to root rots and nematodes based on yield responses in 20 tests over 4 yr in which these pathogens were controlled.

<sup>e</sup>Rounding errors present.

<sup>f</sup>Based on \$6.00/bu.