

Blue Mold Epiphytotic in Georgia

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ABSTRACT

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Blue mold (*Peronospora tabacina* Adam.) was first verified in Cook County, GA, on 10 March 1980, and the disease was subsequently reported in all tobacco-growing areas. The occurrence closely matched descriptions of the 1931-1937 epiphytotics of the disease, although systemic infection appeared to be more prevalent in 1980. Whether the severity of the 1980 outbreak was caused by a new race of the fungus or by greater susceptibility of presently grown cultivars is not known.

In 1938, Clayton and Gaines (2) described epiphytotics of blue mold caused by *Peronospora tabacina* Adam that occurred on tobacco during 1931 through 1937. The epiphytotic in Georgia in 1980 was similar, suggesting a possible pattern for disease development.

Blue mold was first reported and verified in flue-cured tobacco plant beds in Georgia on 10-14 March 1980 (Fig. 1). Weekly reports from county agents and our verification indicated that blue mold rapidly reached epiphytotic proportions.

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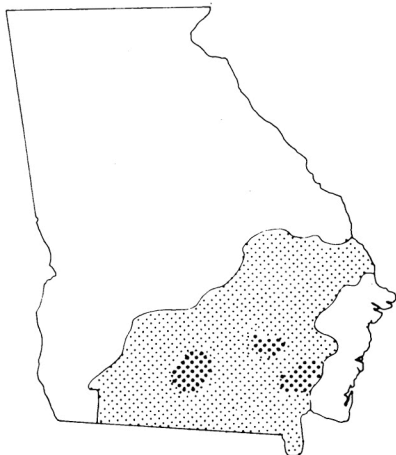


Fig. 1. Dark shaded areas on the map of Georgia indicate the first occurrence of blue mold (10-14 March). Lightly shaded area within line is the tobacco growing area in Georgia.

The disease was first reported on transplants in the field in Georgia and Florida on 8 April. The incidence of disease in the field that may be attributed to plant bed infection is not known. However, blue mold was reported in southern Florida in a transplant-producing area on 21 February (T. Kucharek, *personal communication*); spores from this area may have been the initial inoculum for the epiphytotic in Georgia.

From 1 March through 30 April 1980, the Coastal Plain Experiment Station recorded 48.5 cm of precipitation, and on 31 of 60 days, precipitation or cloud cover occurred. Minimum and maximum temperatures averaged 10.3 and 21.9 C, respectively. These conditions were



Fig. 2. Tobacco leaf with chlorosis, vein and petiole infection, and puckering and epinasty caused by systemic infection by *Peronospora tabacina*. Scale bar represents 5 cm.

optimum for disease development (3).

Flue-cured tobacco cultivars grown in Georgia appeared to have no resistance to infection by *P. tabacina*. Symptoms on leaves were similar to those occurring during the epiphytotics of the 1930s (1,2,4). The first symptom of blue mold in plant beds was the appearance of chlorotic circular patches on the lamina with gray-violet colored spores on the abaxial side of the leaf. Tobacco plants from beds and fields were systemically infected, but the amount of lamina infected did not appear to correlate with systemic infection. Leaf veins and midribs were sometimes infected in the absence of lamina symptoms. Infection could be traced from leaf petioles into vascular systems of the stem and into the developing apical meristems by following the discoloration in vascular tissue. In most instances, systemic infection was evident from the appearance of the plant (Fig. 2). Systemically infected plants were usually chlorotic and had puckered, epinastic leaves; severe infection caused stunting, shortening of internodes, and meristem necrosis.

By 15 May, blue mold was reported in all 38 major tobacco-growing counties in Georgia. Cost of control and loss estimates by the end of April exceeded \$12 million. We are uncertain whether a new race of the fungus caused the 1980 epiphytotic. Little emphasis was placed on systemic infection, although it was described previously; but systemic infection was common in 1980. Since the last major epiphytotic in Georgia in 1937, little effort has been made to incorporate resistance into commercial cultivars.

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