

## *Phyllosticta sojaecola* on Pods of Soybeans in Arkansas

H. J. WALTERS, Professor, and KEITH F. MARTIN, Research Assistant, Department of Plant Pathology, University of Arkansas, Fayetteville 72701

### ABSTRACT

Walters, H. J., and Martin, K. F. 1981. *Phyllosticta sojaecola* on pods of soybeans in Arkansas. Plant Disease 65:161-162.

*Phyllosticta sojaecola* was consistently isolated from pod lesions on field-grown soybean plants. Lesions had purplish red borders surrounding lighter, brownish centers and contained numerous dark pycnidia of *P. sojaecola*. Leaves of greenhouse-grown Forrest soybeans inoculated with *P. sojaecola* developed irregularly shaped lesions with a dark purple border enclosing a lighter inner zone. Pycnidia developed in these lesions from which *P. sojaecola* was reisolated.

*Phyllosticta* leaf spot, caused by *Phyllosticta sojaecola* Massal., was reported on foliage of soybeans in Italy in 1900 (4) and in the United States in 1927 (5). In 1938, *P. sojaecola* was reported causing lesions on leaves, stems, and pods of soybeans in Germany (1). In 1948, Liu (3) isolated *P. sojaecola* from seeds of soybeans in China. The only report of *P. sojaecola* affecting soybean pods in the United States was from Maryland in 1952 (2).

In September 1979, plants of Forrest soybeans in two adjoining fields, of approximately 80 acres each, located near Cherry Valley in Cross County, Arkansas, showed severe pod symptoms on all plants observed. Spots on the pods were as large as 8 mm in diameter with dark purplish red borders surrounding lighter, brownish centers on which were found numerous dark pycnidia (Fig. 1). Pod infection was most severe on the pods developing later in the upper half of

the plants. Although one field had been treated with benomyl, there was no apparent difference in severity of the disease between the two fields.

Isolations from diseased pod tissue on

a 15% water agar medium resulted in the recovery of *P. sojaecola* from lesions on individual pods from 10 plants collected from each of the two fields.

Pod symptoms incited by *P. sojaecola* were observed in varying degrees in soybean fields selected at random throughout Arkansas, but symptoms were most severe in the northeast area of the state.

Pathogenicity of *P. sojaecola* was tested by inoculating Forrest soybean plants in the fully developed unifoliolate leaf stage. Inoculum was prepared from 8-day-old cultures of *P. sojaecola* isolated from a soybean pod and maintained on

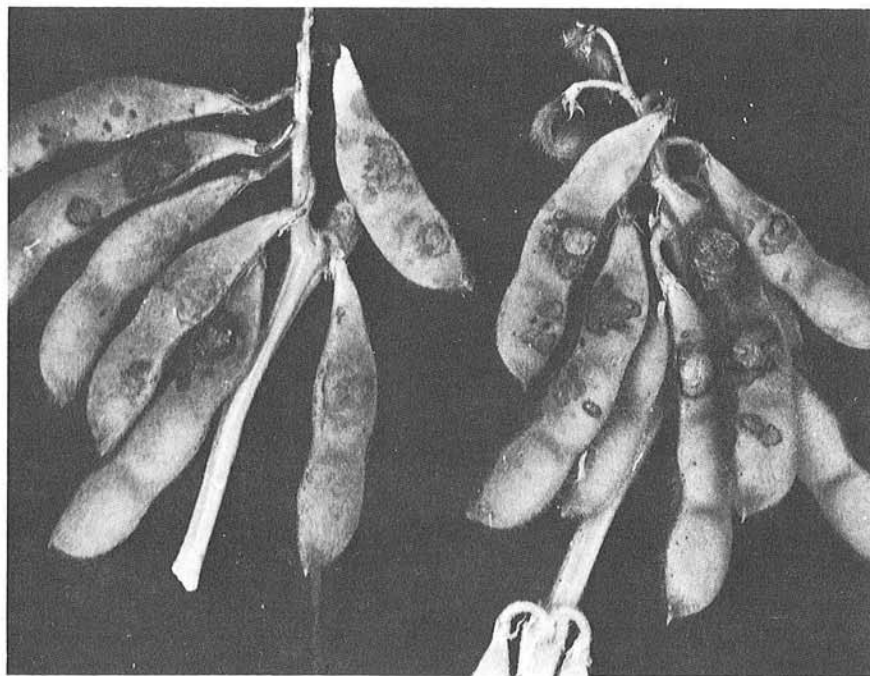


Fig. 1. Symptoms of *Phyllosticta sojaecola* on Forrest soybean pods.

Published with approval of the Director of the Arkansas Agricultural Experiment Station.

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.

0191-2917/81/02016102/\$03.00/0

©1981 American Phytopathological Society

potato-dextrose agar (PDA) in an incubator at 28 C. One petri dish culture was macerated with 40 ml of sterile distilled water in a Waring Blendor. Spore counts were done with a Neubauer hemacytometer and indicated a spore density of  $3 \times 10^5$  per milliliter.

The suspension of mycelial fragments and spores was sprayed on soybean plants to runoff. Plants were placed in a mist chamber for 48 hr at 22–31 C and then placed on a greenhouse bench.

Ten to 14 days after inoculation, lesions 1–12 mm in diameter, irregular in outline with a dark purple border enclosing a lighter brownish area, developed on the inoculated leaves. Numerous dark pycnidia developed later in the inner lighter zone of each lesion. *P. sojaecola* was reisolated from lesions on

individual leaves selected at random from 10 infected plants.

Phyllosticta leaf spot has been observed for several years, but this is the first report of *P. sojaecola* occurring on pods of soybeans in Arkansas. No definite information is available on environmental factors favorable for development of *Phyllosticta* on soybeans, but it usually occurs in association with periods of extended wet weather in the spring. Temperatures in Arkansas during the summer of 1979 were cooler than average. Also, rainfall was above average during August and early September in the areas where symptoms on pods were most severe.

*Phyllosticta* pod symptoms were observed in several locations in northeast Arkansas in 1980. The disease was less

severe than in 1979, which was probably due to high temperatures and drought in 1980. The rapid development of this disease indicates its potential importance as a factor in yield loss.

#### LITERATURE CITED

1. Böning, K. 1938. *Phyllosticta*—Fleckenkrankheit der sojabohne. Prakt. Bl. Pflanzenb. 16:168-172.
2. Jehle, R. A., Jenkins, A. E., Kreitlow, K. W., and Sherwin, H. S. 1952. An outbreak of *Phyllosticta* canker and leaf spot of soybeans in Maryland. Plant Dis. Rep. 36:155-158.
3. Liu, S. T. 1948. Seed-borne diseases of soybean. Bot. Bull. Acad. Sinica 2:69-80.
4. Massalongo, C. 1900. De nonnullis speciebus novis micromycetum Agri. veronesis. Atti. R. Inst. Veneto Sci. Lett. ed Arti. 59:683-690.
5. Tehon, L. R., and Daniels, E. Y. 1927. Notes of parasitic fungi of Illinois III. Mycologia 19:110-129.