

SOYBEAN DISEASES IN ONTARIO, 1963W. L. Seaman¹

In 1963 pod and stem blight (Diaporthe phaseolorum var. sojae (Lehman) Wehm.) was less prominent than in 1962 on all soybean varieties and experimental lines grown at the Central Experimental Farm, Ottawa. Symptoms were confined to stem and branch tissues near the base of the plant and occurred primarily on the early maturing varieties Comet and Merit. Only traces of the pathogen were evident in Hawkeye, Blackhawk and Harosoy plants, many of which were not fully mature by October 15. Lincoln plants were still green on Oct. 20 and appeared free from disease. Symptoms of stem canker (D. phaseolorum var. caulivora Athow & Caldwell) were absent from all varieties and lines examined.

At the Western Ontario Agricultural School and Experimental Farm, Ridgetown, on September 17, pod and stem blight had developed only on the varieties Merit and Chippewa. Stem canker symptoms were observed on less than 1% of Harmon, Hawkeye and Ford plants while up to 10% of Lincoln plants were infected.

Stems of mature Merit plants at the Research Station, Harrow, were moderately affected by pod and stem blight on September 18, but pods were free from symptoms. Stem canker was observed on a number of plants of Lincoln and Clark. In a commercially-produced field of Lincoln in the Harrow area, approximately 1% of the plants exhibited symptoms of stem canker. Affected plants were mature, showed typical stem lesions at one or more lower nodes, and had a higher proportion of unfilled pods than healthy green plants. Neither pod and stem blight nor stem canker was observed in 15 commercial fields of Harosoy examined in the area, September 17-19.

Diaporthe was not isolated from surface sterilized seeds obtained in September from affected Lincoln, Merit or Clark plants grown at Harrow. Seeds harvested in October from pod and stem blight affected plants grown at Ottawa were also free from Diaporthe. Movement of the pathogen into the seed was apparently affected by the unusually dry weather that prevailed while the crop matured. Plants similarly affected with pod and stem blight at Ottawa in 1962 produced seed containing up to 13% internal infection by Diaporthe. Seed produced commercially in Ontario in 1962 had a generally low incidence of Diaporthe, whereas serious germination problems associated with Diaporthe infection were encountered in seed produced in southern Indiana and Illinois for 1963 planting.

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Corynespora cassicola (Berk. & Curt.) Wei was reported for the first time in Canada from roots of soybean plants collected at the Harrow Research Station in September, 1963 and was subsequently found on soybean roots from experimental plots at Ottawa (2) and Ridgetown. In the southern United States, this fungus causes target spot of soybeans and has become prevalent in southern producing areas on susceptible soybean varieties and other crops since it was first reported in 1945. A root rot of soybean caused by this fungus was described in Nebraska and did considerable damage under conditions of cool, moist weather early in the growing season (1). Progress of the disease was apparently arrested with the onset of warm summer weather.

In Ontario foliar symptoms characteristic of target spot were not observed, and no assessment could be made of root damage, because of the lateness of the season when the fungus was found. C. cassicola was prevalent on the roots of all varieties and lines examined at Ottawa but was not found to be seed-borne. Plants were available from only one field of commercially produced soybeans at the time the fungus was first observed and these were free from C. cassicola. Therefore, although the fungus has been demonstrated in experimental plots at three locations in Ontario, no information is yet available on its distribution in commercial plantings. Since the fungus is seed-borne in the southern United States, it may have been introduced in seed imported for experimental purposes at the three locations.

Literature Cited

1. BOOSALIS, M.G. and R.I. HAMILTON. 1957. Root and stem rot of soybean caused by Corynespora cassicola (Berk. & Curt.) Wei. Plant Disease Repr. 41: 696-698.
2. SEAMAN, W.L. and R.A. SHOEMAKER. 1964. Corynespora cassicola on soybean in Ontario. Plant Disease Repr. 48:69 .

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