BRIEF ARTICLES

Disease survey of registered field beans in Ontario - 1966

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Nine hundred and sixty-five acres of registered field beans, representing 27 seed stocks, were inspected for disease this past summer. The survey was made primarily to ascertain the incidence of bacterial blight in accordance with the plan to produce disease-free beans in southwestern Ontario. Most of the acreage was represented by the varieties Sanilac and Seawaywith smaller acreages of Seaway '65 and Michelite. The fields were inspected during the first week of August and some of the fields were reinspected during the second week of September. Isolations and identifications of the pathogens were made from all diseased material suspected to be bacterial blight.

The survey was made for two purposes: to determine the incidence of blight in registered seed stocks in relation to the origin of the breeder seed, either Ridgetown, Ontario or Idaho, U. S. A. ; to determine the incidence of blight in relation to the number of generations of its production in Canada. The information regarding the origin of the seed and the number of generations of its production in Canada were provided by the Canadian Seed Growers' Association. Five of the 27 seed stocks originated from 1962 Ridgetown foundation seed and 22 seed stocks came from Michigan breeder seed imported into Canada in 1963, 1964, and 1965.

All foundation plots produced from Michigan breeder Sanilac and Seaway seed were free of bacterial blight. Two of 15 registered seed stocks, representing their second increase in Canada, showed trace infections of blight. Three of 12 certified seed lots, representing their third increase in Canada, also showed a trace of blight. Although there was little difference in the overall rate of infection among the various seed lots, either registered or certified, more fields of certified seed representing individual seed stocks were infected. In all cases the causal organism was identified in the laboratory as Xanthomonas phaseoli var. fuscans, cause of fuscous blight. Each isolate was further characterized as a phage type indigenous to the bean growing area of southwestern Ontario.

The results of this survey indicate that regardless of the origin of the seed, or the variety, if healthy seed is sown the ensuing crop is free of bacterial blight. In most cases, the crop remains free of blight for at least two years. By the third year infection becomes apparent and increases in subsequent years through a build up of seed-borne infection.

A trace of root rot, probably due to a Fusarium species was noted in four of 42 fields inspected. The disease was not severe. Although sclerotinia wilt (Sclerotinia sclerotiorum) was not observed during the first survey, traces of it were found later in several fields during the second week of September.

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Rust on maize in Quebec

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A moderate amount of rust, likely Puccini sorghi Schw., was observed on maize plantings at Macdonald College on the Island of Montreal and at Deschambault, 40 miles west of Quebec City on the north shore of the St. Lawrence River in Portneuf County, in September 1966.

Rust has become a recurring problem at Macdonald College where much maize of diverse genotype is grown annually. Commercial hybrids rarely show more than a few scattered pustules, but some lines in the breeding nursery are nearly killed by rust each year. Again in 1966 Hooker's Cuzco gene (Rp^d), when present, conferred resistance to all races of rust present in the natural inoculum at Macdonald College.

The presence of a significant amount of rust at Deschambault is rather surprising. The area is clearly outside the area of adaptation of even the earliest commercial field corn hybrids and the few farmers which grow this crop have only a small acreage. Some sweet corn is grown for local consumption. It is unlikely that more than 500 acres of corn is grown in all of Portneuf County, an area of 1,440 square miles. A breeding nursery of the world's earliest accessions of corn was first planted at Deschambault in 1965 and repeated again in 1966. Severe leaf damage due to rust was observed on many lines in this nursery in 1966. Particularly susceptible were 20 accessions of maize from the Northern Great Plains and Canadian Indians for instance, 'P. I. 213800' to '213808' and 'P. I. 213791' to '213799'. Here, too, some 70 different commercial field corn hybrids showed few rust pustules. Hooker's Rp^d gene was not present in this nursery.

Since it is expected that most, if not all, of the maize cultivars grown in this area are commercial hybrids which are relatively resistant to rust, the high incidence of rust on a small isolated planting of exotic material is considered unusual. Species of Oxalis, the alternate hosts for P. sorghi, are common weeds throughout the cultivated areas of Quebec, but they are not known to be rusted here.

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