C: ROOT CROPS

SUGAR BEET

Diseases and Disorders of Sugar Beets in Ontario in 1959

A. A, Hildebaand

Phosphorus Deficiency

In the first week of August 1959, sugar beets in areas of Kent and Essex Counties, in which no appreciable rain had fallen since June, began to show a striking symptom picture that had not been encountered previously. On affected plants the tip and edges of the leaves and then the tissues between the veins died and turned black, Concurrently, the affected tips and edges rolled inward and upward. An early investigator described the condition as resembling a paralytic hand and for this reason the trouble was designated the "paralytic disease", From the information and description in the two following papers, the disorder was diagnosed as being due to phosphorus deficiency,

Coons, G. A. Some problems in sugar beets, U. S, D. A. Yearbook of Agriculture 1953, p. 512.

Afanăsiev, M. M. Phosphate deficiency of sugar beets in Montana, Pl. Disease Reptr, 25: 414-415. 1941,

As Afanasiev points out, the development of the symptoms of phosphorus deficiency in sugar beets is believed to be due not only to the amount of available phosphorus in the soil, but also to the amount of available nitrogen. Sugar bebts planted in soils which are poorly supplied with both these nutrients in the proper ratio to one another usually do not develop symptoms of phosphorus deficiency. However, beets planted in soils which have sufficient nitrogen but are very low in phosphorus usually develop these symptoms because plants well supplied with nitrogen require a proportionately higher amount of phosphorus,

Sugar Beet Root Louse

In the areas referred to above, the soil was so dry that it was extensively and deeply cracked. The sugar beet aoot louse gained access, by way of the cracks to the toots and heavily infested them, The source of the aphids was the alternate host, a poplar species in the vicinity of the infested fields, The feeding of the aphids and the deleterious effects of the phosphorus deficiency both superimposed on the drouth conditions that prevailed in the affected areas combined to render considerably less productive a number of sugar beet fields.

Leaf Spot

Leaf spot of sugar beets caused by Cercospora beticola contined to increase in prevalence this year; the increase being thought to be due to the wider acceptance and use of monogerm seed, Apparently the degree of resistance bred into the monogerm seed is not as high as was anticipated,

Other Observations

BLACK ROOT (Rhizoctonia solani, Pythium sp,, Phoma sp,). R. solani was identified as the cause of tr. -sl. root rot in fields in the Raymond and Taber areas of Alta. Pythium sp, was isolated from plants in a Lethbridge field showing sl.-mod. infection. Phoma sp. caused tr. infection in 1 field at Lethbridge (E. J. Hawn).

BORON DEFICIENCY was reported in a single field at Raymond, Alta, (E.J.H.).

D. MISCELLANEOUS CROPS

BUCKWHEAT

BACTERIAL INFECTION (causal organism unknown). About 40 per cent of the plants in 1 field in Man, were affected, Pathogenicity tests with the bacterial isolates are being made (W.A.F. Hagborg).

FIELD CORN

Field Corn Diseases in Ontario in 1959

N. J. Whitney

Root and stalk rot of field corn, a complex disease caused primarily by Gibberella ~~zeae~~ and Fusarium moniliforme, was exceptionally severe in south-western Ontario in 1959, due mainly to advanced maturity and delayed harvest brought about by wet weather. Early in November, a survey was made of corn in Essex County for damage by this disease, In 16 fields surveyed, 49 per cent of the plants were affected by root-and-stalk-rot and 11 per cent of them suffered stalk breakage as a direct result of the disease. Ten per cent of the ears were in contact with the ground as a result of stalk breakage. With approximately 50 per cent of the corn still to be harvested at the time the survey was made, considerable loss was anticpated from ear spoilage as well as from ears not picked.

In October, a survey was made of 24 fields in the counties of Essex and Kent for the incidence of smut and ear rots, Only three diseases were encountered: smut (Ustilago zeae, 1.7%; Diplodia ear rot (Diplodia zeae), 1.0%; and Pink ear rot (Fusarium moniliforme), 0.8%.