Cereal diseases in the Maritime Provinces, 1977

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1977
Scald and net blotch of barley are apparently increasing in severity in the Maritimes. Little difference in severity of other cereal diseases was noted.

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1977
La tache pâle et la rayure reticulee de l'orge semblent gagner en gravite dans les Maritimes. On ne note que peu de changement dans l'évolution de la gravite des autres maladies ces cereales.

Barley, wheat, oats, and rye were observed on experimental plots and growers' fields from May until harvest in August and early September. Most seeding was carried out in May. The weather in June and July was highlighted by above average precipitation and cool temperatures. Sunshine duration was 30% below normal in June but slightly above normal in July. June was a poor month for crop growth because of heavy rains. In August temperatures and sunshine duration were above normal.

Barley

Barley diseases were prevalent and this was reflected in yields which were approximately 10-15% lower than in 1976 when disease development was slight. The cool wet weather in June and July promoted the development of leaf scald, caused by ***Rhyncosporium secalis*** (Oud.) Davis. This disease appears to be increasing in severity in the Maritime provinces, however, it rarely affected the upper two leaves except in crops that were seeded early and reached growth stage 8 (Feekes-Large Scale) in mid-June. Crops seeded in late May were infected with scald during growth stages 5 to 7 but infections rarely reached the top three leaves. Spread of infection appeared to cease in late June.

The most significant leaf diseases on barley in 1977 were net blotch caused by ***Pyrenophora teres*** (Died.) Drechsl. and spot blotch cause by ***Bipolaris sorokiniana*** (Sacc. in Sorok.) Shoem. Some early infections of spot blotch at growth stages 2 and 3 were reported on Volla barley in New Brunswick but in general both these diseases became apparent after flag leaf emergence when senescent lower leaves and leaf sheaths provided a medium for saprophytic growth of these fungi and therefore became a source of inoculum. In many areas net blotch was more prevalent than spot blotch; for example, in Prince Edward Island, net blotch disease readings ranged from 10 to 50% on the second leaf at growth stage 10.5.1. Spot blotch readings were consistently less than 5%. In spore traps, conidia of ***P. teres*** were 10 to 20 times more numerous than those of ***B. sorokiniana.*** Both diseases were more severe in late plantings and in fields where barley had been grown continuously for three years or more.

Physiological leaf spots were not common but were observed occasionally on two-row varieties. The striking lesions reported on Laurier barley in 1976 (1) were rarely seen.

Barley yellow dwarf was present to a lesser degree in 1977 than in 1976. This disease was limited to slight to moderate degrees of severity in late-seeded cereal fields.

Common root rot was present in all barley fields examined to varying degrees of severity. Root rot losses from experimental fields varied from 10-40% of potential yields. In addition to ***B. sorokiniana,*** considerable numbers of ***Fusarium*** spp. were isolated from diseased barley roots.

Wheat

Powdery mildew of wheat caused by ***Erysiphe graminis*** DC. ex Merat f. sp. ***tritici*** Marchal was endemic in all areas but yield losses were severe on spring wheat only in areas of winter wheat production or where high levels of nitrogen fertility were used.

Septoria nodurum Berk. caused moderate to severe symptoms of leaf blotch and glume blotch in spring and winter wheats. Frequent rains in July provided ideal conditions for the splash dispersal of conidia and by the first week in August the disease was visible in most fields of spring wheat. Exceptions were the fields with low fertility and poor stands. It was particularly severe in fields where wheat had been grown the previous years.

Head blight, caused by ***Fusarium*** sp. was common in wheat. Sooty moulds often appeared on blighted heads.

Take-all in spring wheat caused by ***Gaeumannomyces graminis*** var. ***tritici*** Walker, was common in areas where Opal wheat had been cultivated frequently in past years. This disease is of increasing concern where growers are producing wheat each year. Affected crops showed

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numerous small patches of diseased plants throughout the fields.

Oats

Septoria avenae Frank. infection was widespread and ranged from slight in mixed grain fields to moderately severe in fields of pure oats. ***Dreschlera avenacea*** (Curt ex Cke.) Shoem. levels on oat seeds reached some 70% for New Brunswick and, on oat leaves, accounted for an unknown but probably considerable proportion of symptoms classified locally as 'Septoria'.

Winter Cereals

In 1977 winter wheat production was confined to the Annapolis Valley whereas small acreages of fall rye were grown in all three provinces. Winter survival was poor, rye fared slightly better than wheat but the numerous freeze-thaw cycles took their toll on both these crops. Snow mould was not a factor in poor survival. During the growing season rye was generally healthy. Small amounts of ergot were found at the edges of some fields. Wheat showed symptoms of powdery mildew, ***Septoria*** leaf blotch and glume blotch and ***Fusarium*** head blight.

Literature cited

1. Clough, K.S. and H.W. Johnston. 1978. Cereal Diseases in Prince Edward Island 1976. Canadian Plant Disease Survey 58:95-96.