RYE

ERGOT (Claviceps purpurea) infection was as follows: 8-tr. 2-sl. 1-mod./26 fields in Alta. and tr. in the plots at Lethbridge and Olds, being unusually scarce in Alta. this year (T.R.D.); trace in one field at Touchwood, Sask. and in the plots at Melfort (H.W. Mead); over 10% of the heads were affected in a field near Codette and although ergot was rare in 1949, this field was the most heavily infected seen for a long time (T.C. Vanterpool); heavy on fall rye, variety Rosen, at Winnipeg, but absent in adjacent plots of spring rye--apparently the flowering period of the spring rye did not coincide with the ascospore shower (A.M. Brown); trace only in Queens Co., P.E.I. (R.R. Hurst).

COMMON ROOT ROT (Helminthosporium sativum and Fusarium spp.). Infection was 1-tr. 2-sl. 1-mod. 1-sev./26 fields in Alta. (T.R.D.); and 1-tr. 2-sl. 1-mod./6 fields in Sask. (H.W.M.).

TAKE ALL (Ophiobolus graminis). A trace was found in 2/26 fields in Alta. (T.R.D.).

STEM RUST (Puccinia graminis). A trace was present in one field at Touchwood, Sask. (H.W.M.).

LEAF RUST (Puccinia secalina) was severe in one field at Touchwood, Sask. (H.W.M.). A light infection was noted at East Baintree, Man, (W.A.F. Hagborg).

SPECKLED LEAF BLOTCH (Septoria Secalis). Infection was 4-tr. 1-sl./26 fields in Alta. (T.R.D.).

BACTERIAL BLIGHT (Xanthomonas translucens). A slight infection was observed at La Rochelle and Winnipeg, Man. (W.A.F. Hagborg).

RUST NURSERIES IN CANADA IN 1949

T. Johnson, B. Peturson, A.M. Brown and G.J. Green

In Table 3 is shown the incidence of the cereal rusts and of certain other plant diseases on wheat, oat, and barley varieties grown in the rust nursery plots at 31 places across Canada in 1949. Separate tables were prepared for the cereal rusts and powdery mildew of wheat giving the disease intensity on each variety in the plots, but the complete report, mimeographed separately, must be consulted for these details.

Twelve varieties of wheat, six of oats, and four of barley were grown. The varieties were: wheat - McMurachy, Hope x Timstein R.L. 2477, Carleton, Little Club, Marquis, Spellmar, Thatcher, Vernal, Norka, Redman,

Exchange, (Illinois x Chinese) x Timstein R.L. 2537; oats - Bond, Trispernia, Ajax, Vanguard, Garry, Clinton; and barley - Goldfoil, Gold, Vantage, and H. 106 (Wisconsin).

It should not be inferred that the absence of any disease from a given rust nursery means that the disease was not present in that locality. The plant material was shipped to Winnipeg for examination, and observations were therefore limited to the material received, which, in most cases, consisted of only a handful of plants from each row. It should not be inferred either that the cereal diseases recorded in Table 3 were the only ones that occurred in the nurseries. The presence of spot blotch of wheat and barley (Helminthosporium sativum), net blotch of barley (H. teres), and leaf blotch of oats (H. Avenae) was noted in some nurseries, but time did not permit the examination of the plants for these and other diseases.

The Cereal Rusts

Wheat stem rust was generally light throughout Canada in 1949. Only in the rust nursery at Fort William, Ont., was a heavy infection recorded though a moderate infection was observed in several others in Ont. In Man. stem rust was not found until late in July and subsequent infection was light and largely confined to barley. In eastern Sask., it occurred in trace amounts only. In southern Alta., stem rust was first found on 1 Aug. and a light infection was later observed on wheat and barley in the Lethbridge and Brooks areas.

Leaf rust of wheat was moderate or heavy in nearly all the rust nurseries except those in western Sask. and Alta. It appeared, in Man., in early June and spread quickly through the province and adjacent parts of Sask. Heavy rust infection developed throughout Man. and extended into eastern Sask., particularly the Carrot River Valley. Lighter infection extended as far west as Edmonton, Alta. In southern Alta., leaf rust was first found in the Lethbridge area on 28 July. Infection was generally light and diminished to trace amounts north of Lacombe. It was also very light or absent in southwestern Sask. In Eastern Canada heavy leaf rust infection developed in a number of localities.

Infection by stem rust and crown rust of oats was generally light. In Man. both rusts appeared late and caused only light infection. Both rusts were found in eastern Sask., but infection by stem rust was light and crown rust occurred in trace amounts only.

Light to moderate infection by leaf rust of barley occurred at several places in Eastern Canada. West of the Great Lakes the rust was found in slight amounts only in Man. and B.C.

In connection with the heavy infection of stem rust of barley recorded in Table 3 for Fredericton, N.B., it may be noted that the rust responsible was not wheat stem rust but rye stem rust.

Other Diseases

Powdery mildew (Erysiphe graminis) was relatively scarce on wheat in 1949, being found in only 6 nurseries as compared with 16 in 1948. On barley it was observed in only two nurseries, Agassiz, B.C., and Kemptville, Ont. No mildew was observed on oats in any of the nurseries.

Diseases caused by Septoria spp. were also relatively scarce possibly because of the dry, warm weather that prevailed over much of Canada from spring to midsummer. Speckled leaf blotch of oats (S. Avenae) was, however, found in light or moderate amounts in many of the rust nurseries in Eastern Canada.

PHYSIOLOGIC RACES OF CEREAL RUSTS IN CANADA IN 1949

T. Johnson, B. Peturson, A.M. Brown and G.J. Green

This report gives the distribution in Canada, in 1949, of physiologic races of the following rusts of cereals: Puccinia graminis var. Tritici, Puccinia graminis var. Avenae, Puccinia triticina, Puccinia coronata var. Avenae, Puccinia Hordei. Included also is a brief record of studies carried out with collections of aecia made on barberry and buckthorn.

For the development of cereal rusts in Canada in 1949, the report on the Rust Nurseries may be consulted.

Distribution of Physiologic Races of the Cereal Rusts

From the 100 isolates of wheat stem rust (Puccinia graminis var. Tritici) studied 12 physiologic races were isolated: 69 isolates of race 56, 12 of race 38, 5 of race 17, 5 of race 29, 2 of race 36, and 1 of each of races 1, 16, 19, 32, 39, 48, and 80. The chief difference between the racial distribution this year and in 1948 is that the considerable prevalence of races 17, 29, and 38 in 1948 was not repeated in 1949. These three races, which in 1948 accounted for about 50% of all isolates, comprised in 1949 only 22% of them. This year, race 56 resumed its high predominance of former years, accounting for 69% of all isolates as compared with 42% in 1948. It is rather a remarkable fact that of the 45 isolates from the Prairie Provinces 44 belonged to race 56.

In Eastern Canada race 56 was also the most common race but its predominance was much less pronounced. Race 38, as in most former years, was second in order of prevalence. The occurrence of races 16 and 36, collected at Appleton, Ont., is possibly related to the presence in that locality of numerous barberry plants.

The collections from B.C. were limited to the vicinity of Creston. The race isolations indicate a race distribution in that area considerably different from that prevailing east of the mountains and distinctly more varied (T. Johnson).