I. DISEASES OF CEREAL CROPS

WHEAT

ERGOT (Claviceps purpurea) was observed in 9 fields out of 206 examined in Alta.; infection was severe in one field near Lacombe, slight in 3 and a trace in 5 (M.W. Cormack). Ergot was unusually common in wheat in Sask. and caused slight damage to the crop. Moderate infections occurred also in the University plots, Saskatoon (H.W. Mead). Ergot was more common than usual in wheat (T.C. Vanterpool). A slight infection was found on both common and durum wheat at Winnipeg, Man. Germinating sclerotia were gathered there in the field on June 1; the ascospores were about to be discharged (A.M. Brown). A trace of ergot was noted in a field in Queens Co., P.E.I. (R.R. Hurst).

ROOT ROT (Cryptoascus sp.). A 10% infection was observed in one field in Queens Co., P.E.I.

POWDERY MILDEW (Erysiphe graminis) was recorded in 16 fields in Alta.: trace in 6, slight in 7 and moderate infection in 3. It was prevalent in the plots at Edmonton and Lethbridge, where infection ranged from trace to severe. Besides, infection was slight to moderate on a few varieties in the plots at Olds and Lacombe. Powdery mildew was moderate to heavy at Brandon, Man., and light to moderate at Winnipeg.

Powdery mildew was prevalent on most varieties of winter wheat in the plots at Guelph, Ont. (J.D. MacLachlan). A slight infection was observed on Marquis and Thatcher and a trace on duck-bill wheat (Triticum turgidum) at the Botanical Garden, Montreal, Que. (J.E. Jacques). Traces were present on Regent, Huron, Coronation and Rival in the plots on light sandy soil at Ste. Anne de la Pocatière, but none was present in the plots on clay soil (R.O. Lachance).

HEAD BLIGHT (chiefly Fusarium spp.). The records in Western Canada may be summarized as follows: Trace, Spelmar x Marquis, Agassiz, B.C., F. avenaceum isolated (W.L. Gordon); trace, Regent, Lacombe, Alta., F. culmorum (W.C. Broadfoot); trace, Marquis, Lacombe, F. culmorum (W.L. Gordon); trace, Shipman, Sask., F. culmorum developed on 90% of the bleached kernels when incubated (H.W. Mead); traces, F. culmorum isolated from 6 separate collections from Domremy, Duck Lake, and from the University plots, Saskatoon (See H.O. Putnam, U.S.D.A. P.D.R. 26: 328. 1942) (T.C. Vanterpool); slight, Renown, Deloraine, Man., F. culmorum; slight, Renown, Winnipeg, F. culmorum chiefly and F. graminearum; slight, durum wheat, Winnipeg, F. sporotrichioides chiefly and F. Scirpi (W.L. Gordon).

Head blight was prevalent on most varieties of winter wheat about Guelph, Ont.; infection was almost 100% in one plot of Dawson's Golden Chaff at Ontario Agricultural College (J.D. MacLachlan). A trace was present in some varieties at Ste. Anne de la Pocatière, Que. (R.O. Lachance). Traces were present in 35 fields examined in all three counties in P.E.I. Helminthosporium sativum was present in one case (R.R. Hurst).

COMMON ROOT ROT (Helminthosporium sativum and Fusarium spp.) was recorded in 80 out of 206 fields examined in Alta.; damage was a trace in 39 fields, slight in 36, moderate in 4, and severe in one at Lethbridge. (M.W. Cormack). The disease was widespread and caused moderate damage in most of Sask., although it was less destructive than in 1941. It was exceptionally severe in one section,

which will be described in more detail below. Prematurity Blight was found in 3 fields, where it caused moderate damage (H.W. Mead). A severe form of common root rot was reported from several points in an area of some 4,000 square miles between Cabri, Eastend, and Glentworth in southwestern Sask. On a visit to the Ponteix-Cadillac districts, fields were found where the diseased patches occupied 15-90% of the field-area. The plants in the sickly patches were but 70-80% of the normal height and badly weathered. Paired samples, one square yard in extent taken from normal and diseased patches a few feet apart in 6 fields, showed that the yield in the diseased patches had been cut in half and the weight per 1000 kernels by 28%. Common root-rot ratings, based on internal crown and external subcrown internode lesions, averaged 25% in the normal areas and 62% in the diseased respectively. Incubation of 320 pieces of lesioned tissue from 8 fields yielded Helminthosporium sativum in 80% of the cases. (B.J. Sallans and R.J. Ledingham). Common root rot was prevalent in most sections of Sask. except in the Rosetown clay soils. (T.C. Vanterpool)

Prematurity Blight caused moderate damage over a consider-area around Saskatoon and was even severe in some fields between that city and Duck Lake. The heads were mostly empty, but the plants did not pull easily and lesions on the root were not dark and conspicuous (T.C. Vanterpool). A slight infection was observed on Coronation in a field in Queens Co., P.E.I. (R.R. Hurst).

SEEDLING BLIGHT (Helminthosporium sativum) was severe in a 300-acre field near Edmonton on June 6. The stand was estimated to have been reduced 35%. The seed used was found to be heavily infected (W.C. Broadfoot). Two instances of seedling blight were observed in Reward wheat at Morden and Winnipeg, Man.; 80% of the seedlings were diseased. In both cases, the seed had been heavily infected with H. sativum (F.J. Greaney).

GLUME DISCOLORATION. Helminthosporium halodes Drechs 1. was isolated from material from Kendall, Sask., by W.A.F. Hagborg and determined by J.E. Machacek.

TAKE ALL (Ophiobolus graminis) damage in Alta. was estimated as follows: Trace in 7 fields, slight in 7, moderate in 5 and severe in one at Airdrie (M.W. Cormack). As a result of more rain this season take all was more in evidence than usual; it was observed in 15 fields out of 196 examined. Traces appeared in crops on summer fallow and heavier infections in fields following brome grass or wheat (R.C. Russell). Take all was found at Domremy, St. Louis (2 fields), Aberdeen, Duck Lake and Rosthern during a survey trip on Aug. 20. It caused moderate damage in the affected areas, which varied from isolated patches to 5 to 8% of the field. The soil varied from sandy to heavy loam. A trace was found later at Outlook. The disease was more prevalent in 1942 than at any time in the past 10 years (T.C. Vanterpool).

BASAL GLUME BLOTCH (Pseudomonas atrofaciens (McCull.) Stev. Pl. Dis. Fungi p. 22. 1925; Bacterium atrofaciens McCulloch, Journ. Agr. Res. 18:549. 1920; cf. Dowson, Zentralbl. f. Bakt. u.s.w. Abt. 2, 100:189. 1939, Starr et al. Phytopath. 33:316. 1943) was observed in 6 fields in Alta.; infection was a trace in 2 fields, slight in 3 and moderate in one. A trace was present on spring wheat in the plots at Olds and a trace to slight infection on most of the winter wheat varieties at Lacombe (M.W. Cormack). A light infection was recorded on Reward at Saskatoon, Sask. (H.W. Mead). The organism was isolated from affected Thatcher from Parkside, Sask., sent by Dr. P.M. Simmonds, and its pathogenicity tested (W.A.F. Hagborg).

STRIPE RUST (Puccinia glumarum) was severe on Yorkwin and some hybrid wheats at Sidney, B.C., while none was found on Sun, Red Rock, Golden Sun and Dawlas. Infection was very slight on Dawson's Golden Chaff and Jones Fife in the University plots, Vancouver, and slight to moderate on Ridit, Oro, and Albit at Agassiz (W. Jones). No stripe rust was seen on barley or wheat but a trace occurred on Hordeum jubatum at several points in southern Alta.

STEM RUST (Puccinia graminis) was found in 123 fields out of 206 examined in Alta. Primary infections of stem rust were found at several places in central and southern Alta. in early August. Heavy local infections were recorded at Edmonton, Vermilion, Claresholm, Lethbridge, and Cardston. Very little damage resulted, however, as the spread of rust was checked by the cool weather which prevailed during the latter part of the season. Although stem rust could be collected in almost any wheat field in Alta. by mid-September, only in 2 widely separated areas, viz., Vegreville-Vermilion and Lethbridge-Cardston, did the infection become extensive. In many fields between Calgary and Edmonton, rust was difficult to find. Infection of susceptible varieties was slight to moderate in the plots at Lacombe, Lethbridge, and Olds.

Stem rust was recorded in but 10 fields out of 215 examined in Sask. A very light infection was present on Marquis and Garnet on Aug. 12 at Saskatoon. Late and volunteer wheat of susceptible varieties were moderately infected in September. The season was very favourable for the development of stem rust, but very little was found even on susceptible varieties. This may be attributed to the large acreage of rust-resistant wheat which permitted little inoculum to develop.

Stem rust of wheat was first observed in Man. in 1942 on July 13, fully three weeks later than usual. It developed very slowly and in early August when the wheat crop had reached maturity only traces of stem rust were present on susceptible varieties of wheat and barley. However, towards the end of August moderately heavy infections were present on Hordeum jubatum (B. Peturson). The influence of the weather on the development of the cereal rusts in Man. will be found in the introductory section.

Stem rust was never more than a trace on winter wheat at Guelph; it was confined to late green stools (J.D. MacLachlan). All varieties were nearly free from stem rust at Macdonald College and Ste. Anne de la Pocatière, Que. (R.O. Lachance). An occasional field of wheat about St. Philippe-Clermont, Charlevoix Co., showed rust on Aug. 26. A 40% infection was the heaviest encountered (H.B. Humphrey). Stem rust was not observed during the field survey in N.B. nor in the plots except a 35% infection in a small area in a plot of Garnet (S.F. Clarkson).

LEAF RUST (Puccinia triticina) infection was slight to moderate in the plots at Sidney, Agassiz and the University, Vancouver, B.C. Leaf rust did not appear in Alta. until late July, but soon became prevalent. The very cool, wet weather prevailing after the middle of August apparently did not favour its further development. Whatever the cause, the spread of this and the other rusts was abruptly checked about that time. While leaf rust was general, and in isolated cases severe in fields near Edmonton eastward to the Sask. border and southward to Montana, it reached its greatest development in the Lethbridge and Vegreville-Lloydminster areas. Severe infections were found in several fields

in southern Alberta, where there was also an unusual development of the telial stage. Infection ranged from slight to severe on Thatcher and other susceptible varieties in the plots at Beaverlodge, Edmonton, Lacombe, Olds, and Lethbridge. Leaf rust was widespread and severe in Sask. in late August. It was found at Saskatoon on July 2 on Reward wheat. In the University plots on August 12, Renown and Regent showed resistance while Thatcher, Apex, Marquis, Garnet and Reward appeared susceptible. Yield tests at Indian Head indicated that a reduction was caused by leaf rust in Thatcher, Apex, and Red Bobs.

Although leaf rust of wheat appeared in Man. in early June, it increased very slowly during the first part of the season owing to the abnormally low temperatures (from 4° to 10°F. below normal) which prevailed from the middle of June to the middle of July. On July 15, when the plants had reached the flowering stage, only traces of leaf rust were present on Thatcher wheat. From then to the end of the season temperatures were normal or but slightly below and leaf rust development was exceedingly rapid. By Aug. 5, leaf rust infection ranged from 60 to 90% on Thatcher throughout Man. Regent and Renown carried rust infections of 10% or less and only slight traces of this rust occurred on durum wheat (B. Peturson).

Leaf rust was prevalent on most varieties of winter wheat at Guelph, Ont. (J.D. MacLachlan). Leaf rust was moderate to heavy on Marquis, Thatcher and Reward, 10% infection on durum and even lesser amounts on Astrakan wheat (Triticum polonicum) and duck-bill wheat (T. turgidum) at the Botanical Garden, Montreal, Que. (J.E. Jacques). The severity of leaf rust infection was 60% in the one field still uncut near St. Philippe-Clermont (H.B. Humphrey). Leaf rust infection varied from 10 to 65% in 5 fields out of 10 examined in N.B.; infection was even lighter on the plots (S.F. Clarkson). Only traces of leaf rust were present in the plots at Charlottetown, P.E.I. (R.B. McLaren).

YELLOW LEAF BLOTCH (Pyrenophora Tritici-repentis (Helminthosporium Tritici-repentis) was absent in localities in Sask. where there were heavy infestations in 1941. After a lengthy search only a few overwintered perithecia were found on stubble in May and June. This fact indicates the importance of the perithecia in the overwintering of the fungus and the initiation of primary infection. It is possible that the hot dry weather, which prevailed from mid-summer onwards in 1941 (P.D.S. 21:6) and the dry conditions of early spring, 1942, prevented the formation of the perithecia (T.C. Vanterpool).

BROWNING ROOT ROT (Pythium spp.) was recorded from only one field, at Nobleford, Alta., where it appeared on wheat after summer fallow. A special survey for the disease was not made in 1942 (M.W. Cormack).

The browning root-rot situation in Sask. this year was similar to that in 1928 when necrotic lesioning of the primary and crown roots of cereals was very severe; yet, growing conditions were so favourable that recovery was general and the yield moderately high. This was true both in fields where root lesioning was severe without accompanying leaf discoloration, and also in those which showed typical leaf symptoms, as well. One effect of the disease on the plant is normally to delay maturity from a few to 14 days. It may, therefore, be reasonably conjectured that, with root necrosis as severe as it was, much of the delay in the ripening of cereals in the central and north-eastern parts of the province was caused by this disease and should not be entirely attributed to the wet and cool weather conditions.

In central Sask. the leaf-yellowing and browning of this disease were not typical. This may largely be attributed to severe late spring frosts and to heavy rains, later in the season, which tended to beat down the outer leaves. However, all the way from Fenton east to Melfort, where frost damage was insignificant or absent, both root necrosis and leaf discoloration were characteristic and severe. In general, the root lesions were longer, but paler in colour, than they have been during the spell of dry years.

The high percentage of wheat fields affected with the disease is partly explained by the fact that there was relatively much more wheat following fallow than wheat on stubble because of the Government fallow bonus for 1941.

Highly parasitic forms of Pythium (P. arrhenomanes group) were isolated from wheat and oats. Moderately parasitic root-stunting forms (P. de Baryanum group) were also prevalent this year. Species belonging to both these groups were found, for the first time in Sask., to be doing considerable damage to foxtail millet (Setaria italica) in experimental plots and to broom-corn millet (Panicum miliaceum) in two farmers' fields. It is suggested that these millets will not do well in districts where browning root-rot of cereals is common (T.C. Vanterpool).

No special survey was made for browning root-rot by the Saskatoon Laboratory in June. However, a 60% infection was noted near Humboldt and lesions were present on the roots of mature plants from Rosthern and Oakshela (H.W. Mead).

SCLEROTIA of Sclerotinia sclerotiorum were received from Somme, Sask., where they were detected in threshed wheat and barley. Upon inquiry the correspondent stated that there was considerable sow thistle in the standing crop, from which the grain containing the sclerotia came. Also, no sclerotia were seen in grain from fields where sow thistle was not plentiful. It would appear, therefore, that the sclerotia came from affected sow thistle plants. The organism was determined by Drs. F.L. Drayton and J.W. Groves from cultures made by them from the sclerotia (R.C. Russell).

GLUME BLOTCH (Septoria nodorum) was observed in 34 fields out of 206 examined in Alta.; infection was a trace in 15 fields, slight in 16 and moderate in 3. A trace to slight infection was present on several varieties in the plots at Lacombe and Olds. (M.W. Cormack). The disease became epidemic in August in Sask. and did considerable damage. Severely infected fields were noted near Moose Jaw and Shellbrook. Leaf infection was heavy. Infected crops presented a dirty brown appearance from the road and the heads were erect and poorly filled (H.W. Mead). Glume blotch heavily infected Regent in a field in Queens Co., P.E.I. (G. McMillan).

SPECKLED LEAF BLOTCH (Septoria nodorum and S. Tritici). A slight to moderate infection (S. Tritici) was observed on Sun, and Golden Sun in the plots at Sidney, B.C., and on Rideau at Agassiz (W. Jones). Speckled leaf blotch was unusually prevalent and severe in all parts of Alta. Twelve specimens were examined microscopically and all were affected by S. Tritici. Infection was a trace in 9 fields, slight in 21, moderate in 48 and severe in 16 out of 206 fields examined. Infection was slight to severe in the plots at Lacombe, Olds, and Lethbridge (M.W. Cormack).

During the late summer and fall, evidence was obtained of the occurrence of Septoria nodorum in certain areas of the Prairie Provinces. Pycnidia were obtained on leaves, glumes, or both of wheat collected at Winnipeg, Morden, Lena, Deloraine and Melita, Man., and Wilmar, Summerberry, Kendal, Wilcox, Melfort, Saskatoon, Silver Grove and Cleves, Sask. The areas chiefly affected were in southern Man. and southeastern Sask. from Winnipeg, Man., west to Regina, Sask., and from Melfort west to the Alberta boundary. To judge by the material examined, damage done by S. nodorum was probably not extensive. In no instance was more than a trace of pycnidia found on the heads, but in some samples abundant pycnidium production occurred on the leaves. The available evidence indicates that, at least in southern Man., only late-sown fields were affected. In such fields, however, damage done to the leaves may have accounted for the stunting of plants and the poor filling of heads of late tillers that were observed in certain localities and found associated with a brown discolaration of the heads. The spores in several collections were longer than given for S. nodorum, but it was clear from a comparison with a specimen of S. Tritici from Edmonton that they were of the nodorum type quite apart from their size (T. Johnson).

Speckled leaf blotch (S. Tritici) was present to some extent on the basal leaves of most winter wheat varieties at the Ont. Agr. College, Guelph, Ont. (J.D. MacLachlan). A moderate infection (S. Tritici) occurred on Karkov winter wheat at Ste. Anne de la Pocatière, Que. (R.O. Lachance).

BUNT (Tilletia caries and T. laevis). A summary of the bunt situation in Western Canada has been prepared by W. Popp from the records of the Western Inspection Division. It is presented in Table 1.

Table 1. Wheat Bunt in Western Canada

Summary of Inspections from August 1 to October 31, 1942.

Class of Wheat	Cars Inspected	Cars Graded Smutty	Percentage Graded Smutty
Hard Red Spring	19,641	14	0.07%
Amber Durum	435	3	0.7
Alberta Red Winter	191	13	6.8
All Classes	20,339	30	0.15%

Bunt was observed in 6 fields in Alta.; infection was trace in 2 fields and slight in 4. A trace of bunt was found in 6 fields in the Moose Jaw-Mossbank-Swift Current area in Sask. A trace was also present in Apex at Saskatoon. Bunt spores were present in 2 out of 25 samples of commercial seed of the 1941 crop examined at the Saskatoon Laboratory and in 6 out of 34 samples of foundation and elite seed. Infection was very slight.

In a field of wheat at Portage la Prairie, Man., 75% of the plants of Polygonum Lapathifolium were affected by Ustilago utriculosa. Grain from such a field may be degraded on account of the smut (P.D.S. 12:4) (W. Popp).

LOOSE SMUT (Ustilago Tritici) was recorded as follows: trace in 4 fields in Alta., slight in 2, about 6% in one near Edmonton, and 10% in one of soft wheat near Lethbridge; trace in 2 fields in Sask.; up to 10% of the heads affected in winter wheat at Guelph, Ont.; 2% in one out of 10 fields in N.B.; up to 10% in the 35 fields examined in P.E.I.

BLACK CHAFF (Xanthomonas translucens (J.J. & R.) Dowson var. undulosa (S.J.&R.) Starr & Burkh. Phytopath. 32:600. 1942; Bacterium translucens J.J.& R. var. undulosum Sm., Jones & Reddy, Science ser. 2, 50:48. 1919; X. translucens f. sp. undulosa (S.J.&R.) Hagborg, Can. Journ. Res. Sec. C, 20:317. 1942). Many specimens with distinct bacterial lesions were received from points in Sask. Two on Thatcher were sent to Dr. Hagborg for study. It is believed that an intensive survey would have shown the disease to be quite prevalent (see R. Sprague U.S.D.A. P.D.R. 26: 319. 1942) (P.M. Simmonds). The disease was associated with severe hail damage in a sample from Kyle, Sask., received from Dr. Simmonds; the organism was isolated and identified (W.A.F. Hagborg). Black chaff was found in 6 fields out of 30 examined in south central Manitoba during a survey from July 13 to 17. The crop was about 2 weeks later than usual. After this date, infection at Winnipeg increased rapidly following, when plotted, a steep logarithmic curve. The disease was found on severely shrivelled seed of Thatcher at Benito in September (W.A.F. Hagborg).

BROWN NECROSIS (probably reaction to Puccinia graminis). Severe brown discolorations were present on the stems of Apex and Apex hybrids growing in the greenhouse, Saskatoon, Sask., on April 4. The plants had been dusted with stem rust spores; no bacterial scales were present or no bacterial ooze was obtained by incubating the material in a moist chamber (T.C. Vanterpool).

HEAD DISCOLORATION (non-parasitic). The usual discoloration of Apex was common in Sask. Some spotting was observed in Thatcher and in some instances was identified as black chaff. Seven affected samples were collected, threshed by hand and the kernels of discoloured and clean spikelets studied separately. No difference was noted between the kernels of the two groups. Stem discoloration was also common. (R.C. Russell). From an examination of samples received and from observations made in the fields in early August it was concluded that all the discoloration in the rust-resistant varieties, Apex, Regent, and Renown, was of the non-parasitic type. However, before the end of the month bacteria were present in the lesions in many samples. At first only the glumes were discoloured, but later the rachis and finally the peduncles were likewise affected (T.C. Vanterpool).

Traces of head discoloration were observed on all varieties at Ste. Anne de la Pocatière, Que. (R.O. Lachance). Head discoloration was prevalent in wheat in N.B.; it was especially severe at Bairdsville, with lesser amounts at Waterville and Clearview (S.F. Clarkson). Traces were present in the plots at Charlottetown, P.E.I.; it was reported to be severe in one field at O'Leary (R.R. Hurst).

DRY LEAF BLOTCH (non-parasitic) had resulted in considerable reduction in the photosynthesizing area of the leaves of wheat especially on Apex and in crosses of Apex in the greenhouse beds of the Field Husbandry Department, Saskatoon, Sask., by April 4, 1942. The addition of trace elements to the soil or spraying them on the plants grown in the soil failed to reduce spotting of the leaves (T.C. Vanterpool). A trouble of this nature was prevalent on several wheats in the rust-resistant group in the plots at Fredericton N.B. (S.F. Clarkson).

STEM KINK (non-parasitic) was common in the Field Husbandry greenhouses, Saskatoon, Sask. The lower nodes were soft and growing rapidly; they buckled because the sheath clasped the stem tightly and prevented the elongating stem to slip through (see P.D.S. 12:11) (T.C. Vanterpool).

WHITE TIP (non-parasitic). Head damage was severe in several fields near Lethbridge, Alta., in mid-August.

OATS

HEAD DISCOLORATION (Alternaria, etc.) was very prevalent on oats at Jacksontown, Farmerston and Waterview, N.B.

ANTHRACNOSE (Colletotrichum graminicola) was present on some varieties at the Ont. Agr. College, Guelph, Ont. (J.D. MacLachlan)

POWDERY MILDEW (Erysiphe graminis) slightly infected oats on the lower mainland, B.C., in July. (W. Jones)

COMMON ROOT ROT (Fusarium spp. chiefly). A trace of disease was found in one field near Calgary, Alta.; F. culmorum was isolated from a diseased sample from Wembley. It caused moderate damage throughout Sask.

HEAD BLIGHT (Fusarium sp.) slightly affected Vanguard at the Experimental Station, Lennoxville, Que.; the fungus was fruiting on the heads (R.O. Lachance). Some 0.5% of the heads were affected in a field at Hunter River, P.E.I.; it appeared to be mostly Alternaria, but some Fusarium was present. (R.R. Hurst)

LEAF BLOTCH (Helminthosporium Avenae) infection was moderate in 5 fields, slight in 6, and moderate in one out of 41 examined in Alta.; infection ranged from a trace to moderate in the variety plots at Lacombe and Edmonton (M.W. Cormack). Leaf infection was 60% at Brandon, Man., 77% at Gilbert Plains, 75% at Morden and 58% at Winnipeg in Erban. The seed was heavily infected with H. Avenae. (F.J. Greaney)

A seedling blight was present on Nov. 27, in pots of seedlings in a relatively cool greenhouse of the Cereal Division, Ottawa, Ont. Erban was most affected. The fungus sporulated freely on the lesioned leaves when they were detached and placed in a moist chamber over night or when the potted plants were placed in an incubation chamber for 24 hours. The seedling blight phase of this disease has not been observed in Canada, but there is every reason to believe that it may be destructive in cool wet springs, for the disease is fairly prevalent as a leaf spot and evidence of a considerable infection of the seed is being collected, see R.A. Ludwig below (I.L. Conners). Leaf blotch was present on some varieties at the Ont. Agr. College, Guelph, Ont. (J.D. MacLachlan). In Que., leaf blotch was severe in Chicoutimi, Charlevoix-Saguenay, Quebec, Bellechasse; light in the region of Montreal, in the Richelieu Valley, and about Lake St. Peter, Lake St. John and on the lower St. Lawrence; and moderate elsewhere (D. Leblond). Infection was nil to slight in the plots at Ste. Anne de la Pocatière (R.O. Lachance). Some 47 samples of oat seed were examined by the plating method to determine the extent of seed infection by H. Avenae. These samples were of different varieties from several counties in Que.

Infection ranged from 0 to 56%, and averaged over 15%. The samples may be classified according to the percentage of Helminthosporium-infected seed found, as follows: Below 1% infected, 6 samples; 1-10%, 15; 11-20%, 12; 21-30%, 6; 31-40%, 2; 41-50%, 3; 51-60%, 3 (R.A. Ludwig). Slight amounts of leaf blotch were present in 13 fields in N.B.; otherwise, not over a trace occurred (S.F. Clarkson). Traces were observed in 10 fields in P.E.I., but infection ranged from a trace to 20% in the plots at Charlottetown. (R.R. Hurst)

OAT NEMATODE (Heterodera avenae J. Lind, Sofie Rostrup, E.F. Kolpin Ravn, 1913; H. major (O. Schmidt, 1930) M.T. Franklin, 1940) is now known to be prevalent in many regions that lie between Waterloo and Peterborough in the Province of Ontario. This is the only part of Canada in which it is known to occur, and it has not yet been recorded in the United States. In 1941, injury was frequently very marked in infested fields when the early summer was dry and hot. In 1942, visible injury was much less. However, field examinations showed these nematodes to be thriving and a very favourable season for plant growth was probably responsible for decreased injury. (A.D. Baker)

MEADOW NEMATODE (Pratylenchus pratensis (De Man) Filipjev, 1936) was again encountered in the Uxbridge region, Ont., where it was first found in 1941 by Dr. G. Thorne, U.S. Department of Agriculture. (A.D. Baker)

HALO BLIGHT (Pseudomonas coronafaciens (Ch. Elliott) Stev. Pl. Dis. Fungi p. 27. 1925; Bacterium coronafaciens Ch. Elliott, Journ. Agr. Res. 19:153. 1920; cf. Dowson, Zentralbl. f. Bakt. u.s.w. Abt. 2, 100:189. 1939, Starr & Burkh. Phytopath. 32:601. 1942) was affecting about 15% of the leaf area in a sample of Mabel sent from Creston, B.C., July 29. The disease was also present in a sample sent from Hudson's Bay Junction, Sask. on July 27. In a survey from July 13-17 in Man., 10 fields were found infected out of 13 examined. Infection was a trace to 20%. At Boissevain, 40% of the leaf area was destroyed in a plot of Otoe oats. Infection was moderate in the plots at Morden and a trace at Brandon. (W.A.F. Hagborg)

Halo blight was common in the plots at Edmonton and Fallis, Alta. (A.W. Henry). A slight to moderate infection of a bacterial leaf blotch was found in several fields in Alta., particularly in the Edmonton district. The organism was isolated and proved pathogenic to oats in the greenhouse, but it has not been identified (W.C. Broadfoot). Traces of halo blight were observed at Douglas and St. Stephen, N.B. (S.F. Clarkson). Traces were found in the plots at Charlottetown, P.E.I. (R.R. Hurst)

CROWN RUST (Puccinia coronata) damage was a trace or occasionally slight in Sask. It was found farther west than usual, e.g. at Rosthern, Saskatoon, Mossbank (H.W. Mead). Crown rust was quite prevalent on oats throughout Man. in 1942. In the southern part of the province, infection ranged from 10 to 40%. However, in the northern districts, infection was lighter (B. Peturson). This rust was prevalent on susceptible varieties about Guelph, Ont. (J.D. MacLachlan). Crown rust was severe in Megantic and Arthabaska counties, Que., moderate in the Richelieu Valley, about Lake St. Peter, and in the counties of Lotbinière, Lévis, Bellechasse, Montmagny, L'Islet and Kamouraska; elsewhere it was light (D. Leblond). Many fields were examined on Ile aux Coudres, "but, in no instance, was I able to find either stem rust or crown rust. On the mainland, however, in La Malbaie Valley, where oats is one of the principal crops, crown rust was more or

less general, but not so severe as to cause very much damage. On my return to Montreal, I spent a day in Deux Montagnes Co., where most of the oats had been harvested. However, in a few instances, where they were not, I found both crown and stem rust." The severity of infection was 50-60% in one field at Oka (H.B. Humphrey). Only traces were recorded at Ste. Anne de la Pocatière. (R.O. Lachance)

Crown rust was recorded as usual in the Springhill area, N.B., where escaped buckthorns, Rhamnus cathartica, are known to be present. In the variety plots across the St. John River at Nachwaaksis, infection was 25% on the leaves of Erban and 70% on those of Victory on Aug. 21. Infection was insignificant elsewhere, but the survey was limited to 52 fields, chiefly along the St. John River from below Fredericton to beyond Edmunston. The buckthorn site at Gilbert's Corner reported by Mr. R.P. Gorham, Division of Entomology, last year (P.D.S. 21:11) was visited on July 4. About 100 large bushes and trees were located. The aecia were very prevalent on these plants. This observation is not unexpected since infection was severe on oats in 1941. What the situation was this year was not determined, because the area was not again visited. Specimens of buckthorn were received from Mr. Harry Kelley, Prince William, this fall, but the site has not been explored (S.F. Clarkson). A 30% infection of crown rust, the first to be noted this year, was found on July 27 at Nictaux, N.S. The aecial host was not located, but fields within a mile of the infected one showed no rust. Early sown oats were virtually free from rust in Kings and Hants counties (J.F. Hockey). A rust centre near Nictaux was first encountered during the survey in 1937 (I.L. Conners). Crown rust developed unusually late in the season in P.E.I. and did little damage to early sown oats. Late fields, however, were severely attacked in all parts of the province. (R.R. Hurst)

STEM RUST (Puccinia graminis) was general causing slight damage at Ladner, B.C.; it was also present at Agassiz, late in the season, but damage was negligible (W. Jones). Stem rust was first observed on Aug. 18 on Victory oats at Edmonton, Alta. Later in the season, a few severe local infections were found, but they were usually of slight severity (M.W. Cormack). In general, infection was slight in Sask. Usually not more than 10% of the plants were infected, and only occasionally were these severely rusted. A moderate infection occurred on Banner at Saskatoon on Aug. 3. (H.W. Mead)

Very light infection of stem rust occurred on susceptible oat varieties in Man. in 1942. The rust-resistant varieties such as Vanguard and Ajax, were almost rust-free and only slight traces of stem rust occurred in early fields of susceptible varieties. Late sown fields of susceptible varieties, however, became quite heavily infected. Some of these late sown fields, which represented only a small fraction of the total oat acreage, carried infections of 50%. (B. Peturson)

In Que., stem rust was slight about Montreal, Quebec, in the Richelieu Valley, and the Eastern Townships; elsewhere only traces were observed (D. Leblond). The severity of infection was 50% at Oka on Aug. 29 and there was enough rust, stem and crown, to cause perceptible damage in neighbouring fields (H.B. Humphrey). Traces were present in the plots at Ste. Anne de la Pocatière (R.O. Lachance). Stem rust was severe on Victory from Woodstock to Meductic, N.B., especially 4 miles below Woodstock where infections ranging from 50 to 85% were recorded in 3 fields. The stems were almost completely covered with telia on

Aug. 8, and the grain was badly lodged. This particular centre has not been encountered before and the barberry has not been located. On Aug. 4, 20% of stem rust was present in a field at Hartland, about a third of a mile from a barberry hedge. New locations of the common barberry were found at Fredericton, Petitcodiac, and Grand Falls. Although the two large bushes at Grand Falls bore aecia on 90% of the leaves, the nearest grain field was 3 miles distant and was not affected. The barberries at the other two locations were slightly infected and were a considerable distance from any grain fields. (S.F. Clarkson)

SPECKLED LEAF BLOTCH (Septoria Avenae) was fairly general at Agassiz and Ladner, B.C. (W. Jones). A slight infection was observed in Arthabaska and on the Lower St. Lawrence, Que.; traces occurred elsewhere (D. Leblond). Infection was a trace to slight on the varieties at Ste. Anne de la Pocatière (R.O. Lachance). Speckled leaf blotch was generally prevalent and severe on oats in N.B.; the average infection was 12% (S.F. Clarkson). A slight infection was found in the plots at Charlottetown, P.E.I. (R.R. Hurst)

SMUTS (Loose Smut, Ustilago Avenae and Covered Smut, U. Kolleri). Infection varied from a trace to 5% of the heads in 6 fields out of 41 examined in Alta. (M.W. Cormack). Covered smut was found in 26 fields out of 56 examined in Sask.; 30-50% of the heads were affected in two fields at Lanigan and Watrous, and 5-10% in several others. Loose smut was 1% in one field and a trace in two others. A laboratory examination revealed smut spores on 16 out of 25 ordinary samples, and on 7 out of 21 of elite and foundation stock; infection was a trace (H.W. Mead). The average infection from smut was 6.4% in the 47 fields examined in Man. and in one field 36% of the heads were affected (W. Popp). Loose smut was prevalent about Guelph wherever the grain had not been treated; covered smut was much less common (J.D. MacLachlan). Loose smut destroyed 75-80% of heads of wild oats (Avenae fatua) and about 4% of those of Avena brevis in the Botanical Garden, Montreal, Que. (J.E. Jacques). In Que., infection varied from 0 to 10% for loose smut and from 0 to 50% for covered smut (D. Leblond). Loose smut is quite common in eastern Quebec. Infection varies from 1% to 10% depending on whether one or more years have elapsed since the grower last treated his seed (C. Perrault). Covered smut was observed in 20 fields out of 52 examined in N.B.; the average infection was 1% and highest 25% at Clair. Loose smut was usually not more than a trace in 9 affected fields, but in one the infection was 4% (S.F. Clarkson). Loose smut affected 5% of heads in 3 fields out of 5 examined in N.S. (J.F. Hockey and W.K. McCulloch). Loose smut infection was a trace to 55% in the 17 fields examined in P.E.I. (R.R. Hurst)

BLAST (non-parasitic) was reported as follows: Fairly general in oats, including the varieties Victory, Eagle and Alaska, on the lower mainland, B.C. (W. Jones); present in all fields in Alta. - 5% in 19, 10% in 11, 15% in 5 and 20-25% in 6 with 2-20% in the variety plots at Lacombe and Lethbridge (M.W. Cormack); present in 12 fields out of 56 examined in Sask., with very slight damage (H.W. Mead); no more common than usual, but it attracted the farmer's attention as they did not expect to see that type of injury when moisture conditions were so favourable (T.C. Vanterpool); affected all varieties in the plots at Ste. Anne de la Pocatière, Que., the amount varying from 5% in Mabel to 25% in Banner, and being more severe on light sandy soil than on clay (R.O. Lachance); severe in 5 fields (D. Leblond); present in almost every field in N.B., averaging 10% (S.F. Clarkson); traces in the plots at Charlottetown, P.E.I. and averaging 12% in 6 fields. (R.R. Hurst)

A blight of the panicle very similar to blast and associated with severe lesioning of the flag leaf was found on Cartier oats at Saskatoon, Sask., on Aug. 12. A similar trouble was collected at Meota in 1935. Bacteria were present in the lesions (H.W. Mead)

GREY SPECK (manganese deficiency) caused slight to severe damage to several varieties at Macdonald College, Que.; the season was very dry. (J.G. Coulson)

WIND STORMS caused severe damage between Brandon and Birtle, Man., particularly to the upper leaves. The crop had a grey appearance suggesting frost injury. At Hamiota 50% of the leaf area on 70% of the upper leaves was damaged. Barley was not appreciably affected. (W.A.F. Hagborg)

BARLEY

ERGOT (Claviceps purpurea) was present in a few heads of Success near Sidney, B.C. (W. Jones). It was found in a field at Grand Forks by A.N.L. Butler, Production Service (G.E. Woolliams). A trace to slight infection was observed in 2 fields out of 30 examined in Alta. (M.W. Cormack). Ergot was common on barley in Sask. It caused slight to moderate damage in many varieties and increased rapidly in severity in August. Samples of feed barley (1941 crop) were received from Assiniboia, where loss of several litters of young pigs was reported; sufficient ergot was apparently present to cause stricture of the milk ducts with the result that the young pigs starved to death (H.W. Mead). Ergot was more prevalent than usual in barley. Infection was moderate on Colcess at Saskatoon on Aug. 11, a trace at Rosthern on Aug. 20; severe at Milden, Aug. 27; moderate at Ardath, Aug. 27; and severe at Marymont, Sept. 1 (reported by Dr. W.J. White); ergot was present in a sample of chopped barley (1941 crop) received from Arbuthnot. It was reported that hogs would not eat the barley containing the ergots and horses did not like it (T.C. Vanterpool). Ergot affected 2% of the heads of Plush barley in a field at Gladstone, Man. (J.E. Machacek). A few ergots were found on Duckbill barley at the Botanical Garden, Montreal, Que. (J.E. Jacques). Traces were present in 12 fields in P.E.I. (R.R. Hurst)

POWDERY MILDEW (Erysiphe graminis) was reported as follows: Common on fall barley on Vancouver Island, B.C., causing slight damage; slight infection in plots at Sidney and Agassiz; slight infection in one field at Vauxhall, Alta., and in the greenhouse at Edmonton; slight infection in two fields in Sask. and moderate to severe in spots on Colcess at Saskatoon; slight to severe infection in the 16 affected fields in Man.; prevalent on the varieties commonly grown about Guelph, Ont., and the most serious disease of the district; most prevalent barley disease in Que.; in the plots at Macdonald College, O.A.C. 21 was heavily infected, while Byng was nearly free; at Ste. Anne de la Pocatière present in plots on light sandy soil, but not on clay; traces to 5% of the leaf surface affected in the 12 fields examined in P.E.I.

HEAD BLIGHT (chiefly Fusarium spp.). Slight infection was observed in one field at High River, Alta. (M.W. Cormack). Several reports of head blight were received from Sask. points and it was collected in a field at Leask. The disease was present in small amounts in 30 samples of seed barley of 40 examined. The amount present was considered too small to affect the feeding value. Much discoloration of individual spikelets was found in the plots at Saskatoon. In

some varieties, notably Warrior, a hooded barley, the crop took on a scorched dirty appearance. Isolations yielded mostly Fusarium spp. (chiefly F. culmorum and F. graminearum). It was also severe in one corner of a plot of Prospect at Swift Current. (H.W. Mead)

COMMON ROOT ROT (Helminthosporium sativum and Fusarium spp.). Damage was a trace in 2 fields and slight in one out of 30 examined in Alta. (M.W. Cormack). It caused moderate damage on barley in Sask. and disease ratings were generally as high as those on wheat. Although the barley was badly lodged this year, the lodging did not seem to be caused by root rot. The disease was rather uniformly distributed over the field (H.W. Mead). A slight infection occurred in several varieties in the plots at Macdonald College, Que. (R.A. Ludwig). Root rot caused severe damage in one field of Charlottetown 80 in P.E.I.; Fusarium was isolated from the diseased tissue. (R.R. Hurst)

STRIPE (Helminthosporium gramineum). A trace was noticed in Minsturdi at Winnipeg, Man.; the seed used was from the United States (F.J. Greaney). An occasional plant was found affected in the plots at Guelph (J.D. MacLachlan); the determination was confirmed from material submitted. (I.L. Conners)

SEEDLING BLIGHT (Helminthosporium sativum). The etiology of this disease has been investigated in some detail by H.W. Mead (Can. Jour. Research 20 (Sec. C):501-523, 525-538, 1942). Spikelets become parasitized from flowering time onwards by air-borne spores or fragments of mycelium, and the fungus causes a blighting, shrivelling and discoloration of spikelets and maturing kernels. Mycelium or ungerminated spores in or on the seed germinate with the kernel to affect the young seedling. The greatest seedling injury occurs when conditions are unfavourable to the host. Greatest recovery occurs in cool moist soils. Packing and applications of fertilizer tend to increase infection, although the latter usually increases the dry weight of the seedlings. (I.L. Conners) Seed of Charlottetown 80, heavily infected with H. sativum, when sown resulted in 85% of the seedlings being infected at Brandon, Man.; 80% at Gilbert Plains; 93% at Morden; and 85% at Winnipeg (F.J. Greaney). H. sativum was found on a sample of foundation stock when the seed was germinated at Guelph, Ont. (J.D. MacLachlan)

SPOT BLOTCH (Helminthosporium sativum) was slight on Byng, Sanalta and Nobarb at Agassiz, B.C. Infection was a trace in 11 fields, slight in 4 and moderate in 2 out of 30 examined in Alta.; infection was a trace to slight in the plots at Lacombe and Olds.

NET BLOTCH (Helminthosporium teres). Infection was a trace in 7 fields, slight in 5, moderate in one and severe in one out of 30 examined in Alta. Infection ranged from a trace to slight in the plots at Olds and from a trace to moderate at Lacombe. Slight infections were noted at Kanaston, Tisdale, Forget, and Naicam in Sask. Net blotch was moderate at Macdonald and slight at Winnipeg, Man.

H. teres was isolated from 0-28% of the seeds in 10 samples from Macdonald College, Que., when the seeds were plated (R.A. Ludwig). Net blotch infection varied from a trace to moderate at Ste. Anne de la Pocatière. It was severe on Byng at Macdonald College (R.O. Lachance). The disease was not very prevalent in Quebec as a whole (D. Leblond). Traces were observed in 12 fields examined in P.E.I. (R.R. Hurst)

LEAF RUST (Puccinia anomala) was severe on Univ. of Alberta, Peatland, Regal, Wisconsin Pedigree, and Olli; moderate on Sanalta, Trebi, and Plush and slight on Byng in the plots at Agassiz, B.C. Rust was common on fall barley on the Lower Mainland and Vancouver Island and caused considerable injury to the leaves (W. Jones). A trace to slight infection was found in 8 fields out of 30 examined in Alta. The rust was first noticed in the plots at Edmonton on Aug. 18, where later the infection was slight to moderate (M.W. Cormack). Leaf rust was unusually common this year and did considerable damage in Sask. (H.W. Mead). Infection was severe on Colcess at Saskatoon (T.C. Vanterpool). Leaf rust of barley was general throughout Man. in 1942. Although infection was generally light, except in some fields of Plush barley, the rust was more prevalent than usual. Infection ranged from a trace to 10% on O.A.C. 21 and Trebi. On the other hand, infection averaged upwards of 50% in some fields of Plush. The increase in prevalence of this rust in Man. in 1942 may be ascribed, in part, to the cool weather which prevailed during most of the growing season, and in part to the increase in acreage of Plush barley, a variety very susceptible to leaf rust. (B. Peturson)

Leaf rust was prevalent on the commonly grown varieties at Guelph, Ont. (J.D. MacLachlan). Leaf rust was second only to powdery mildew in prevalence in Que. (D. Leblond). Infection was 50% on M.C. 2222, a trace on Plush, Velvet and Byng and absent on the other varieties at Ste. Anne de la Pocatière (R.O. Lachance). A trace of leaf rust was observed in one field in N.B. and on some varieties at Fredericton (S.F. Clarkson). Leaf rust was not observed on the main crop in western N.S., but infection was 60% on some volunteer plants of Charlottetown 80 at Morristown (J.F. Hockey). A light infection on volunteer plants was recorded in Queens Co., P.E.I. in September. (R.R. Hurst)

STEM RUST (Puccinia graminis). A trace was found in 5 fields and a slight infection in one out of 30 examined in Alta. Stem rust was of minor consequence at Guelph, Ont. It was the least prevalent of the barley diseases in Que. Infection was estimated to be a trace to 25% in P.E.I.; on some volunteer plants it was 15%.

SEEDLING BLIGHT (Rhizoctonia and Helminthosporium). Affected seedlings were sent in from Carrot River, Sask. The average damage was slight, being mostly confined to the drier parts of the field. (H.W. Mead)

SCALD (Rhynchosporium Secalis) was very severe on Olli, Gatami, O.A.C. x Olli; severe on O.A.C. 21, slight to moderate on many others; but only a trace on Barks at Sidney, B.C. A moderate infection occurred on Trebi and not more than a trace on other varieties and hybrids at Agassiz (W. Jones). Spores were abundant on lesions on specimens of Peatland received from Agassiz, May 9. Scald was also present on one collection made at Scott, Sask. by R.F. Peterson on Aug. 5 (W.A.F. Hagborg). Infection was a trace in 3 fields and slight in 4 out of 30 examined in Alta.; infection was a trace to severe in the plots at Edmonton and Lacombe. (M.W. Cormack)

COVERED SMUT (Ustilago Hordei). A trace was present in 4 fields and 1% in one in Alta. (M.W. Cormack). Covered smut was recorded in 14 fields in Sask. with an average infection of 3%, but in one at Swift Current 65% of the heads were smutted. A laboratory examination of seed from the 1941 crop disclosed the presence of a light sprinkling of spores (believed to be of U. Hordei) on all 18 commercial samples and on 4 out of 6 foundation and elite stock

samples. It was also severe on Plush and Prospect in the plots at Saskatoon (H.W. Mead). Covered smut was commoner than usual in Sask. It was severe in the plots and on the University seed farm at Saskatoon, severe at Milden on a 2-rowed variety and moderate at Broderick. In one sample received the smutted kernels were quite hard and had been mistaken for ergot by the elevator agent (T.C. Vanterpool). Covered smut was slight on Duckbill and moderate on Hulless Golden in small plots at the Botanical Garden, Montreal, Que. (J.E. Jacques)

In Man., 204 fields were examined for smut and only 10 fields were found free from infection. The average infection was 4.1%. In Plush, the leading variety, the average was 8%, while it was 2% in the other varieties. Three species of Ustilago were found, viz. U. medians, U. nuda and U. Hordei. U. medians and U. Hordei were very prevalent in Plush barley causing between 40-50% damage in some fields, but these species were much less prevalent in other varieties. U. nuda caused little damage except in 2 fields where 9.5% and 7% of the heads respectively, were affected. The smut caused by U. medians is sometimes called black smut because an affected head is slightly blacker than one attacked by the ordinary loose smut and seems to lack the olive-green tinge of the latter. (W. Popp)

V.F. Tapke (Phytopath. 33:194-209. 1943) has reported the results of germination of 500 specimens from 33 States on 2% potato-dextrose agar at 20° C. All but six samples "had the loose type of smutted head and echinulate spores". Of these, "192 produced the mycelial germination of Ustilago nuda, 209 the sporidial germination of U. nigra and 93 produced, on germination, a mixture of the normal mycelial and sporidial types and otherwise conformed to the description of U. medians Biedenkopf. All the 93, however, proved to be simply mixtures of the mycelium-producing U. nuda and the sporidial-bearing U. nigra". He concludes that a smut answering to the description of U. medians apparently does not exist. U. nigra has become as widespread as U. nuda in the United States and the indications are that through simple seed treatment half of the annual 2-million-bushel loss attributed to barley loose smut may be prevented. Samples from widely scattered points in Canada should be examined to determine its distribution here. (I.L. Conners)

LOOSE SMUT (Ustilago nuda) was recorded as follows: A slight infection in Newal, Plush, Rumania 82A, Reka and a few other varieties at Sidney, B.C., and in Plush at Agassiz; a trace in 5 fields, 1% in 2 and 5% in one in Alta., and a trace to slight on a few varieties at Edmonton and Lacombe; in 6 fields out of 30 examined in Sask., heaviest infection being 10-20%; 0.7% in Byng in plots at Ste. Anne de la Pocatière, Que.; trace to 3% in N.B.; 3% in one field at Upper Musquodoboit, N.S.; a trace to 5% in fields and a trace to 1% in plots in P.E.I.

BACTERIAL BLIGHT (Xanthomonas translucens (J.J.&R.) Dowson, Zentralbl. f. Bakt. u.s.w. Abt. 2, 100:190. 1939; Bacterium translucens Jones, Johns. & Reddy, Journ. Agr. Res. 11:636. 1917; cf. Starr & Burkh. Phytopath 32:600. 1942, Starr et al. Phytopath 33:316. 1943; X. translucens f. sp. hordei Hagborg, Can. Journ. Res. Sec. C, 20:317. 1942). Typical lesions on the leaves and heads and bacterial ooze on the stems were found at Saskatoon, Sask., and on barley injured by hail at Kyle (H.W. Mead). The disease caused severe damage to a large plot of Colcess at Saskatoon; the heads were not filling. (T.C. Vanterpool)

Bacterial blight (X. translucens f. sp. hordei-avenae Hagborg l.c.; cf. Starr et al. 33:316. 1943) was not found in the 12 fields examined in south-central Man., but infection was severe in the plots at Brandon and Winnipeg, although absent at Morden. (W.A.F. Hagborg)

RYE

ERGOT (Claviceps purpurea) was found at Grand Forks, B.C. by A.N.L. Butler, Production Service (G.E. Woolliams). Infection averaged one ergot per head in a field near Edmonton, Alta., and was slight to moderate in the varieties at Lacombe (M.W. Cormack). In a plot at Saskatoon, Sask., infection was a trace to slight on first growth, but was very severe on the culms formed later. Heavy rains, after early growth was completed, resulted in abundant growth of later culms, which frequently exceeded the former in length (T.C. Vanterpool). Ergot was very common and severe in late August and early September. The amount of infection increased rapidly during August. It was severe on Dakold and Prolific at Saskatoon on Sept. 1 (H.W. Mead). Slight infection occurred in both fall and spring rye at Winnipeg, Man. (A.M. Brown). Ergot was common about Guelph, Ont. (J.D. MacLachlan). About 80% of the plants bore sclerotia at the Botanical Garden, Montreal, Que. (J. Emile Jacques). Some 3% of the heads bore ergots in a field in P.E.I. on Sept. 22 (R.R. Hurst). A trace only was found in rye fields examined in Kings and Annapolis counties, N.S. (J.F. Hockey)

POWDERY MILDEW (Erysiphe graminis). A trace to slight infection occurred on a few varieties at Lacombe, Alta.; of common occurrence at Guelph, Ont.; heavy infection on spring rye and will rye (Secale montanum) in the Botanical Garden, Montreal, Que.

HEAD BLIGHT (Fusarium spp.) affected 0.5% of the heads in a field in Queens Co., P.E.I. (R.R. Hurst)

STEM RUST (Puccinia graminis). Slight infection was found in a field of Viking and a trace on White Russian at Lacombe, Alta.; light infection in a field near Kinistino, Sask., and on a sample from Oungre; a trace on all varieties at Ste. Anne de la Pocatière, Que.; 5-10% infection on spring rye in Queens Co., P.E.I.

LEAF RUST (Puccinia secalina). Infection was slight in one field and slight to moderate on varieties at Lacombe, Alta.; a general light infection ranging from a trace to 5% in Man. in 1942; generally prevalent at Guelph, Ont.; infection unusually heavy throughout the season on winter rye and Secale montanum and moderate on spring rye at the Botanical Garden, Montreal, Que; trace to slight on the varieties at Ste. Anne de la Pocatière; traces in the plots at Fredericton, N.B.; heavy infection in a field at Kentville, N.S.; infection 40-50%, occasionally 70%, in Queens Co., P.E.I.

SPECKLED LEAF BLOTCH (Septoria Secalis). Infection was slight to moderate in the plots at Lacombe, Alta., and a trace at Ste. Anne de la Pocatière, Que.