I. DISEASES OF CEREAL CROPS

WHEAT

STEM RUST (Puccinia graminis) appeared late on the lower mainland of B.C., and caused practically no damage.

Traces of stem rust were found the third week of August at Ponoka, Lacombe and Nanton, Alta., and there was a light to medium infection in the experimental plots at Lethbridge. Traces to slight or moderate amounts of rust were present in late crops at Edmonton in September.

Stem rust was first found at Saskatoon, Sask. on July 31. The average damage over eastern and northern Saskatchewan was but a trace for the prevailing drought was unfavourable for rust development.

Stem rust of wheat appeared in south-western Manitoba during the last few days in June. It spread rapidly northward and eastward and by the end of the first week in July it was present on susceptible common wheat varieties throughout the whole of the wheat growing area of the province. From late June, however, until the end of the crop season severe drought conditions prevailed in the northern part of Manitoba and along the western edge of the province south to the international boundary. In the dry area rust although early established, made but little progress due to adverse moisture conditions. However, in the south-central and south-eastern parts of Manitoba precipitation for June and July exceeded the normal by from 10 to 200% and throughout this area rust developed rapidly and became quite severe. The western and northern boundaries of the severe rust area were rather indefinite but coincided generally with the boundaries of the heavy precipitation area. In general the heavy rust infections were confined to the area south and east of a line drawn northeasterly through Waskada in south-western Manitoba to Strathclair and thence eastward through Neepawa to Winnipeg. In the drier sections the severity of infection on Marquis, Ceres, and Reward ranged from a trace to 30% and in the heavy precipitation area it ranged from 20 to 90%. Of the three varieties mentioned Marquis was the most severely affected and Reward the least. Only traces of rust occurred on Renown and Thatcher.

Seeding operations were completed a little earlier than normal in most districts in Manitoba in 1937. In the south-western and central-western districts seeding was slightly ahead to one week ahead of normal and in the northern districts seeding was decidedly ahead of normal in some cases being as much as ten days to two weeks ahead.

The south-eastern half of the Red River Valley, however, was an exception where spring work was delayed by adverse weather and seeding operations were about a week behind normal.

Due to the dry weather and early seeding and ripening of the crop in northern and extreme western Manitoba, stem rust caused only slight damage in some instances and no damage whatever to the greater part of the crop in this area. But in the heavy precipitation area, particularly in the south-central districts, Marquis, Ceres and Reward were severely damaged by rust. However, even in these districts some of the earliest sown common wheats escaped appreciable damage. Most of the crop, however, was greatly reduced in grade and yield. None of the fields observed were completely destroyed by rust, as was the case in 1935, but some of the latest sown fields of Ceres and Marquis graded only "Feed" and were reduced 70 per cent or more in yield. The reduction in yield of Marquis and Ceres in the heavy rust area amounted probably to 35 per cent or more. Renown and Thatcher were not at all damaged by stem rust.

Only very light infections of stem rust occurred on durum wheat and practically all the durum crop escaped rust injury. A few late sown fields of durum in south-central Manitoba were quite heavily infected by rust and were damaged somewhat. The percentage of fields thus affected was very small. (B. Peturson)

Stem rust was recorded in 32 fields out of 42 examined in N.B., N.S. and P.E.I. Infection ranged from 40 to 90% in the last two weeks of August in P.E.I., while 10 to 40% of rust was not uncommon in N.B. and N.S., especially near the Northumberland Strait. No local epidemics traceable to barberries were observed.

LEAF RUST (Puccinia triticina) was moderate on Marquis, Little Club, Thatcher and Renown in the rust nursery at Agassiz, B.C., but only a trace was present on H-44-24 x Reward R.L. 1097.

Traces of leaf rust were observed in southern and central Alberta. It was notably scarce, especially in the Edmonton district, where stem rust was fairly common. Leaf rust was only reported from eastern Saskatchewan.

Leaf rust, like stem rust, was heavier in the south-west section of the crop area in Manitoba than in the north and east. In the south-west the average infection on Marquis, Ceres, and Reward was about 20%. Of the new stem rust resistant varieties, Renown was more resistant to leaf

rust than the standard varieties, whereas Thatcher, Apex, and McMurchy were all much more susceptible.

Leaf rust was reported in 24 out of 34 fields examined in the Maritime Provinces. Infections ranging from 50 to 80% were not uncommon, especially in P.E.I., where leaf rust was widespread and destructive in 1936.

STRIPE RUST (Puccinia glumarum) was severe on Egyptian Amber, moderate on Dawson's Golden Chaff, and absent on Baldwin, Berkeley Rock, Golden Sun, Imperial Amber, Marshal Foch, Oro, Red Rock, Ridit, Sun, Victor and Yeoman in a test of 26 winter wheat varieties at Sidney, B.C. (W.R. Foster)

BUNT (Tilletia caries and T. laevis). A summary of the bunt situation in Western Canada prepared from the records of the Western Grain Inspection Division was supplied by Dr. W.F. Hanna.

Table 1. Wheat Bunt in Western Canada

Summary of Inspections from August 1 to October 31, 1937.

Class of Wheat	Cars Inspected	Cars Graded Smutty	Percentage Smutty
Hard Red Spring	30,569	96	0.3%
Garnet	2,232	2	0.1
Amber Durum	10,612	14	0.1
White Spring	8	0	0.0
Alberta Red Winter	86	15	17.4
All Classes (including mixed classes)	43,541	127	0.3%

The percentage of cars grading smutty during the first quarter of the crop season 1937-38 was 0.3%, while the figure for the corresponding period in 1936-37 was 0.8%. For the past six years the percentage of cars grading smutty in Western Canada has been less than one per cent.

Bunt is fairly prevalent in winter wheat in the Armstrong and Enderley districts, B.C. even where the seed was treated. The varieties Oro and Ridit have proved resistant.

About 1% of bunt was found in 4 fields in southern Alberta and in one field at Morinville, out of 35 examined.

A trace of bunt was found in one field near Bath, N.B. (both T. caries and T. laevis) and in one field in Queens county, P.E.I.

LOOSE SMUT (Ustilago Tritici). A 2% infection was recorded in 3 fields and a trace in 7 others out of 35 examined in Alberta. Loose smut was found in 15 out of 61 fields examined in Saskatchewan. It was reported as follows in Manitoba: Reward, 6 fields out of 6, av. infection 0.8%; Marquis 2 fields, trace; Ceres, 11 fields out of 14, av. inf. 0.8%; Thatcher none in 7 fields; Durum, traces in 9 fields out of 15.

Loose smut was very prevalent in Kent county, Ont.; in some fields 15% of the heads were destroyed, and the average loss wass 5 to 6%. Traces of loose smut were recorded in 2 fields in N.B., and in one each in N.S. and P.E.I. out of 26 examined. In a separate survey in P.E.I. infection varied from a trace to 2.5%.

BLACK CHAFF (Phytomonas translucens var. undulosa). A trace was reported on Reward at Lacombe, Alta. It caused slight damage in 5 fields out of 41 examined in Manitoba.

BASAL GLUME ROT (Phytomonas atrofaciens). A trace was present in fields at Edmonton, Lacombe and Calgary, Alta. A trace was also reported from St. Claude, Glenboro, Darlingford and Morden, Man.

ERGOT (Claviceps purpurea). Ergot sclerotia were sent in a sample of Durum wheat from Moose Jaw, Sask.; a slight infection was observed at Winnipeg, Man. A trace of ergot was seen in a field at Coronation, N.B., and in Huron wheat at Charlottetown, P.E.I.

GLUME BLOTCH (Septoria nodorum) was reported as follows: trace to slight infection in 7 out of 35 fields in Alta.; diseased specimens received from St. Walburg, Sask., where it was said to be common; moderate infection in 3 fields, slight in 7 and trace in 5 out of 28 examined in the Maritime provinces and in some instances the leaves were also infected.

SPECKLED LEAF BLOTCH (Septoria Tritici) moderately infected a field at Olds, Alta., and a trace to slight infections were present in several others in central and northern Alta. A moderate infection was reported on Durum wheat from Medora, Man.

SPOT BLOTCH (Helminthosporium sativum) was severe in a number of fields at Starbuck, Man., while adjacent barley fields were scarcely affected. The same pathogen also caused a trace of Head Blight and Black Point at Edmonton.

LEAF BLOTCH (Pyrenophora Tritici-repentis (Died.) Drechsler (Helminthosporium Tritici-repentis) caused a severe wilting and spotting of the leaves of Durum wheat in the vicinity of Melita, Man. (J.E. Machacek). It has been reported previously from Manitoba on Agropyron repens.

CLADOSPORIUM LEAF SPOT (Cladosporium graminis). A trace was found at Olds and Brooks, Alta.

FOOT ROTS. A trace of Take All (Ophiobolus graminis) was found in one field at Spy Hill, Alta., out of 90 examined. Common Root Rot (Helminthosporium sativum and Fusarium spp.) affected 18 fields out of 35 inspected. It caused slight to moderate damage in 2 fields in northern Alberta and a trace to slight damage in the other affected fields.

Common Root Rot was widespread in Sask., where it was reported in 109 out of 115 fields. It was severe in scattered areas of the dry belt. In the rod row plots of wheat which were sown at intervals of two weeks in studies on rust resistance, Reward was outstandingly and consistently the most severely diseased. Prematurity Blight (cause unknown) was severe on Durum wheat at Saskatoon, Sask., but slight on common wheat. It caused a trace of damage in 3 fields out of 61 examined. Common Root Rot was severe in patches at Morden and Pipestone, Man. and infection was slight at Carmen and Homewood.

Root Rot (Cryptoascus sp.). On July 29, 1936 the roots of White Fife wheat at Malpequi, P.E.I. were found by Mr. R.R. Hurst to be heavily infected by an unknown fungus. The wheat was evidently injured, but whether the injury was due to this fungus on the roots or to leaf rust, which was extremely heavy last year could not be determined. Traces to small amounts of the fungus were present in many other fields including the plots at Charlottetown.

The original area was again visited in 1937 and fresh material was sent to Dr. G.R. Bisby, Imperial Mycological Institute, Kew, England. The perithecia develop in clusters on a limited stroma with the spores lying free in the cavity of the perithecium. Dr. Bisby obtained a few perithecia in culture and found small evanescent asci containing commonly two spores, sometimes one or three. He would place the fungus in the genus Cryptoascus Petri, the

type species being C. oligosporus, which Petri found on the roots of the olive. It was found in one field of oats, 3 fields of wheat, and three of barley in 1937. It appears to be most prevalent on wheat. None of the crops appeared to be seriously diseased. (I.L. Conners).

Browning Root Rot (Pythium spp.) was confined mainly to the north-eastern and eastern parts of Saskatchewan. It was particularly severe in some districts, notably in parts of zone 4 and southward into zone 3. It is difficult to explain from a study of the temperature and rainfall data, why the disease was so conspicuous this year as compared with last in these zones. It was reported from many distant districts in the north-east for the first time. It is true that the spring of 1936 was earlier than that of 1935, but the average temperature were about the same. In this connection it might be recalled that temperature-tank experiments have repeatedly shown that browning root rot is more severe at higher than at lower temperatures. It seems plausible that sudden temperature changes at a critical time might have a greater influence on the onset of the disease than has been thought hitherto.

In many diseased patches the yield was estimated to be as much as 30% below that of healthy parts, or a total reduction of about 10% in yield over the entire summer-fallow field. Under field conditions, Thatcher appears to be the least susceptible of the common varieties.

Pythium arrhenomanes Drechsler and P. tardicrescens Vanterpool n. sp. were the two pathogenic species most frequently isolated from diseased roots.

Grass hosts: To the grass hosts previously reported (P.D.S. 13:20 and 14:7) must be added the following which developed brown root lesions containing oospores when grown in naturally infested browning soil: Agropyron Smithii Rydb., Agrostis alba L., Elymus canadensis L., Festuca elatior L., Panicum miliaceum L., Poa compressa L., Poa pratensis L., Setaria lutescens (Weigel) Stuntz, S. viridis (L.) Beauv., and Stipa comata Trin. & Rup.

For purposes of record it might be mentioned that in the examination of wheat and grass roots, vesicles and arbuscules of a mycorrhigal fungus are frequently encountered. Also spherical bacterial clumps are occasionally observed at the ends of root hairs of the common cereals (cf. F.C. Gerretsen, Ann. Bot. n.s.1: 207-230. 1937).

Some fields of barley on summerfallow in zone 3 were very severely attacked by browning root rot. It is significant that barley on stubble showed little signs of the disease. As is the case with wheat, practical control of the disease on barley was obtained by using phosphate fertilizer. (T.C. Vanterpool)

Browning Root Rot was found causing moderate damage as a result of an intensive survey of 29 fields in zone 2, west, southwest and south of Saskatoon in June. Examination of the root system showed from 2 to 60% of roots affected or an average of 14%. The symptoms were obscured by drought. (H.W. Mead)

A severe epidemic of Browning Root Rot occurred in wheat on summerfallow in the Dauphin, Gilbert Plains, Grandview, Roblin and Russell areas in June. This is the first severe outbreak to be observed in Manitoba. (J.E. Machacek and T.C. Vanterpool)

HEAD BLIGHT (Fusarium spp.). A scattered trace of infection was found at Winnipeg, Man. The following species were isolated: Fusarium Poae (Peck) Wr., F. culmorum (W.G. Sm.) Sacc. and F. Equiseti (Cda.) Sacc. A trace was also recorded at Kelwood. Traces were found in P.E.I. on Huron and on the rod row varieties at Charlottetown.

GLUME DISCOLOURATION. A trace was observed on Renown wheat at Westbourne, Man. An Alternaria sp. was isolated.

ROOT NODULES (Cause unknown) were found on the laterals of sickly plants in a field near Rosthern, Sask. on June 8. The diseased plants occurred in patches.

POWDERY MILDEW (Erysiphe graminis) was heavy on winter wheat at the Experimental Station, Sidney, B.C. It moderately affected wheat at Lethbridge, Alta., and a trace was present at Fallis.

NUTRITIONAL? MALADY. What appears to be a nutritional malady has been under observation for several years in wheat a few miles west of the town of Peace River, Alta. Neither the foliage nor the roots are visibly deformed or lesioned. Despite the method of soil preparation and variation in rainfall, the affected plants are characteristically stunted, lack the normal colour of ripening grain and have spikes which are often completely sterile, or contain a few scattered grains. For several years after the ground was broken, excellent crops were obtained. Now the

condition indicated above occurs in varying degrees from complete sterility and marked stunting to near-normal plants depending on the location in the field. The trouble has been observed on one entire section, the owner of which is in despair for a remedy. It also occurs on other farms in the vicinity.

A somewhat similar injury was observed in a sample of wheat grown at Meadow Lake, Sask. in 1937 and forwarded by Dr. P.M. Simmonds. Another sample, grown on land recently reclaimed at Kootenay Flats, B.C., was forwarded by Mr. C. B. Twigg, Provincial agent for that section. (G.B. Sanford)

OATS

STEM RUST (Puccinia graminis) was general and caused moderate to severe damage at Duncan, B.C. and on Lulu Island. Infection was a trace to slight in the University plots, Edmonton, Alta. Elsewhere rust was practically absent, although there was a heavy second growth which remained green throughout September. No stem rust was reported in Sask.

Stem rust of oats was co-extensive with stem rust of wheat but very much lighter. Most fields showed only traces. In a few instances the severity of infection average 10%. Damage due to rust was therefore very slight in Man. (B. Peturson)

Traces of stem rust were found in 60 and readable percentages in 44 out of 233 fields examined in the Maritime Provinces. While traces of stem rust began to be fairly common after Aug. 16, severe outbreaks of stem rust were found as early as Aug. 4. Several of these were investigated and in every instance the outbreaks centred about plantings of barberry. Some of the plantings were single bushes, others were hedges. It was estimated that the average damage was 40% within half a mile of each planting and it was nearly 100% in the first 100 yards. The damage was negligible elsewhere. (I.L. Conners)

CROWN RUST (Puccinia coronata) was general throughout southern Manitoba. It was nowhere present in sufficient intensity to cause any damage.

Crown rust was far more prevalent in the Maritime Provinces than stem rust. Most fields showed traces after July 28. Traces were found in 80 fields and readable percentages in 100 others out of 213 examined. Outbreaks were found centred about plantings of buckthorn (Rhamnus

cathartica) in the early part of the season. Later the rust became very general and was severe in all late fields. (I.L. Conners)

Crown rust was also prevalent in Eastern Ontario. In some of the worst centres buckthorn plantings and escapes are known to occur.

SMUT (Loose smut, Ustilago Avenae and Covered smut, U. Kolleri). A trace of loose smut was reported from Summerland, B.C. and one per cent of covered smut in a field at Langley.

Covered smut was found in 5 fields in Alta., infection varying from a trace to 6%. Loose smut was reported in 4 and covered smut in 5 out of 18 examined in Sask.; covered smut affected 5% of heads in Anthony oats at Saskatoon.

Smut was reported in 22 fields out of 24 examined in Manitoba; the average damage was 6%.

The oat smuts were very prevalent in Western Ontario. In many fields 15% of the heads were destroyed; a conservative estimate would be an average loss of 5% of the heads. (J.E. Howitt and R.E. Stone)

Loose smut infection varied from a trace to 6% in 30 fields examined in the southern part of Gaspe country.

Out of 166 fields examined in the Maritime Provinces, loose smut was found in 22, covered smut in 42 and both smuts in 43, a total of 107 infected fields with an average infection of 2% in the fields examined. Although smut was less prevalent than last year, 27 fields revealed 5% or more of smutty heads. The highest infections were 35% of covered smut, 25% of loose smut and mixed infection of 10% loose and 13% covered smut. In addition smartweed (Polygonum lapathifolium) affected by smut (Ustilago utriculosa) appeared to be of rather common occurrence, especially in oats. The weed seeds were evidently sown with the oats, so that the oat seed was also contaminated with the smartweed smut spores.

HALO BLIGHT (Phytomonas coronafaciens). A light infection was observed at Edmonton and Fallis, Alta. It was prevalent in the Sudbury distrist, Ont., and often destroyed 3 to 4% of the heads. (J.E. Howitt and R.E.Stone)

FOOT ROT. Common foot rot (Helminthosporium and Fusarium spp.) was reported to have caused severe damage in one field at Craigmyle, Alta.

Common foot rot caused moderate damage in 9 fields out of 18 examined in zones 3 and 4 in Sask. Prematurity Blight (cause unknown) caused a trace of damage in 2 fields in Sask.

LEAF BLOTCH (Helminthosporium Avenae) was one of the common diseases of oats in the Maritime Provinces. Out of 159 fields the disease was severe in 10, moderate in 49, slight in 52 and a trace in 17, or a total of 129 infected fields.

BLAST (Non-parasitic) was reported in all 12 fields examined in Manitoba, the average damage was 25.9% of the spikelets.

It was very prevalent in the farming districts around Sudbury, Ont. In many fields 5% of the spikelets were destroyed.

Blast was recorded in 120 fields out of 155 examined in N.B., N.S. and P.E.I. as follows: trace in 4 fields, 1-5% blasted spikelets in 59; 10% in 41; 20% in 15 and 30% in one field.

NEMATODE (Heterodera schachtii). In May of 1936 the Botanical Department of the Ontario Agricultural College, was asked to find the cause of the failure of the oat crop on many of the farms in Waterloo county. Inspection trips were made in company with the Chemistry Department in May and June. Nematodes were found in fifteen fields, scattered over an area of approximately 300 square miles. Samples of the soil were taken by the Chemistry Department from these fields. Soil tests showed that the soil in all these fields but one was alkaline. The soil in nine fields rated medium as to available phosphoric acid. In five fields available phosphoric acid was definitely low and in one only it was high.

In 1937 the survey was continued and nematodes found to a greater or less extent on nearly every farm in the area in Waterloo county. Mr. J. Laughland of the Field Husbandry Department also received samples of oats attacked by nematodes from the following places: Georgetown, Halton county; Marden, Wellington country; Maxville, Glengarry county; Jarvis, Haldimand county; Woodstock, Oxford county; Port Dover and Waterford, Norfolk county; Brantford and Scotland, Brant county; Tehkummah, Manitoulin district; Maple, York county; Inglewood, Peel county; Ayton, Gray county.

It would seem from the above that nematodes are pretty well established throughout the Province. Waterloo and Simcoe are the only two counties however, in which serious, widespread outbreaks of the oat nematode have been recorded. Oat material collected in Waterloo county was sent to Dr. D.F. Putman, who positively identified the nematodes as Heterodera schachtii. The nematodes present in the collections received by Mr. Laughland are believed to be Heterodera schachtii, but have not been definitely determined. (J.E. Howitt)

BARLEY

STEM RUST (Puccinia graminis). A trace of rust was found on barley at Edmonton, Alta., in late September. Rust was found in 3 fields out of 13 in zone 3 in Sask.; the heaviest infection was 5% at Redvers.

Stem rust was general throughout the crop area in Manitoba in 1937 and was moderately severe. In fact it was more severe than in 1936. (B. Peturson)

Stem rust was prevalent on barley at St. Martin, Que.

Stem rust was observed in 13 fields out of 59 examined in N.B., N.S., and P.E.I. Usually only a trace of rust was present but a 20% infection was found in one field near a barberry hedge at River John, N.S. (I.L. Conners). Stem rust was fairly abundant on late seeded barley in P.E.I. (R.R. Hurst)

LEAF RUST (Puccinia anomala). A trace was found at Edmonton, Alta. in late September. The rust was identified by Dr. Margaret Newton. It was observed in 5 fields out of 59 examined in N.B., N.S., and P.E.I. It was again fairly prevalent in the plots at Fredericton, N.B.

STRIPE RUST (Puccinia glumarum) was not noticeable about Edmonton, Alta. until July 20; from then on it continued to increase on Hordeum jubatum until late in September. It was collected by Dr. C.B. Sanford on this host only in favourable locations at several points including Athabasca, Smith and Pouce Coupe in the Peace River district, but it was very scarce in southern Alberta, where it it usually common during late August.

COVERED SMUT (Ustilago Hordei) was reported as follows: 25% in a 2-acre field at Australian, Cariboo county, B.C.; 10% in one field at Cardston, Alta. and 1-2% in several others in central and northern Albta.; trace in one field in zone 3, Sask.; 0.6% in 7 fields out of 10

examined in Man.; heavy for the past two years in a field at Carleton Place, Ont.; present in 23 fields out of 59 in N.B., N.S., and P.E.I., highest infection, 8%.

LOOSE SMUT (Ustilago nuda) was recorded as follows: a trace to 2% in 3 fields out of 12 examined in Alta.; a trace in 3 fields out of 13 in Sask.; 0.5% in 11 fields out of 15 in Man.

Loose smut was very common throughout Ontario, particularly in the following varieties of barley: O.A.C. 21, Velvet and Nobarb. At least 15% of the heads were destroyed in some fields of these varieties (J.E. Howitt and R. E. Stone). It was reported to be heavy in the Ottawa valley by the Seed Branch inspectors. Loose smut was recorded in 7 fields out of 59 examined in N.B., N.S., and P.E.I., the highest infection being 2%.

STRIPE (Helminthosporium gramineum). A trace was reported in one field in Sask. and in another at Crystal City, Man. It was not found in the Maritime Provinces.

FALSE STRIPE (Cause unknown) was recorded as follows in Man.: Garson, trace; Homewood, slight infection on 5% of plants; Melita, slight on 25% of plants; Brokenhead River, general light infection; Morden, severe on Trebi only.

NET BLOTCH (Helminthosporium teres) was fairly general in several fields at Pitt Meadows, B.C.; a trace in one field in Sask.; trace at Morden, Rothwell, and Beaudry, Man., slight at Elie and Glenboro; present in 36 fields out of 59 examined in N.B., N.S., and P.E.I. and infection moderate to severe in 13.

SPOT BLOTCH (Helminthosporium sativum). Traces were present in 4 fields and severe in one other in Man. Spot blotch was heavy in a field at Hartland, N.B., and slight to moderate in two others in the same province.

COMMON ROOT ROT (Helminthosporium sativum and Fusarium spp.) was present in 10 fields out of 13 examined in Saskatchewan and caused moderate damage.

Seedling blight (Helminthosporium, Fusarium, etc.) was very prevalent in the Sudbury area, Ont. Fields were observed in which 15% of the seedlings had been killed by these soil-inhabiting organisms (J.E. Howitt and R. E. Stone).

ERGOT (Claviceps purpurea) was reported as follows: slight infection, Winnipeg, Man.; prevalent in Velvet and Nobarb barley in Ont., samples of Nobarb containing over 10% of ergot were examined; very little present in 1937 in P.E.I., three samples received for identification; a trace in a field near Truro, N.S.

POWDERY MILDEW (Erysiphe graminis) was general but caused slight damage at the Agassiz Station, B.C.; traces were seen late in the season in P.E.I.

BACTERIAL BLIGHT (Phytomonas translucens) was found in 2 fields out of 8 examined; all the leaves of Regal barley were affected at Winnipeg, Man., and half the leaves in a field at La Salle.

HEAD BLIGHT was present in 17 fields out of 57 examined in the Maritime Provinces. Diseased material was sent from 11 fields in N.S. and N.B. and from 5 varieties under test at Fredericton and Nappan to Dr. W.L. Gordon, Dom. Rust Research Laboratory, who isolated and determined the fungi. Fusarium Poae was the sole or dominant fungus in 9 collections. In two of these, F. avenaceum was also present. Helminthosporium sativum was the sole or dominant fungus in five collections, while Alternaria sp. only was isolated from one collection. Helminthosporium teres was also present with H. sativum in one collection. Dr. Gordon also finds Fusarium Poae commonly associated with blight in Western Canada. In only one collection was present the pinkish discoloration usually associated with Fusarium head blight.

BLACK POINT (Bacteria and Fusarium spp.). A moderate infection was observed at Fallis, Alta.

SCALD SPOT (Rhyncosporium Secalis). A moderate to heavy infection was present in the experimental plots at Edmonton, Alta.

RYE

STEM RUST (Puccinia graminis). Traces were present in the winter rye plots at Fredericton, N.B. and Kentville, N.S. Agropyron repens was found heavily rusted on several occasions near barberries in N.B.

LEAF RUST (Puccinia secalina). Traces were observed in a few fields in Man.; in one at Deleau 10% infection was reported. Infection was 30-40% in the winter rye plots at

Fredericton, N.B. and traces were present at Kentville, N.S.

ERGOT (Claviceps purpurea) slightly infected rye at Winnipeg, Man. and traces were present at Beausejour and Brandon. It was prevalent in rye in Ontario. Ergot began to show up in winter rye plots at Fredericton, N.B. by July 20, the variety Cornell showed 6.0% ergot on August 5 and all the unharvested varieties were severely affected by ergot on Aug. 28.