DISEASES OF CEREAL CROPS.

WHEAT

STEM RUST - Puccinia graminis Pers.

B. C. -

No rust was observed in 1929. On the experimental plots at Salmon Arm in 1928, several varieties were found infected with stem rust. As far as we are aware this is the first reported collection of stem rust on wheat in B. C.

Alta. -

About 40 barberry seedlings, which had apparently escaped, were found rusted June 24 at Claresholm. Stem rust was first collected on wheat at Vermilion on Aug. 16. Very light infections were found scattered over the province as far north as Legal and St. Paul. It was not abundant in any field nor caused any appreciable damage.

In the uniform rust nurseries, rust was not observed at Lethbridge or Beaverlodge, while traces of rust were recorded on only a few susceptible varieties at Lacombe and Edmonton.

Sask. -

Only traces of rust were collected with difficulty in the district north of Regina on July 5. In the previous ten days, no rust was found from Moose Jaw and Assiniboia, through Weyburn and Indian Head, to Yorkton and Moosomin. Rust was first collected at Saskatoon on July 22, at Borden on July 23, and at Biggar on July 26. On July 29 and 30 traces could be found at most places in the Qu'Appelle Valley and northward through Yorkton, and Wroxton. Although absent on July 27, stem rust was collected July 31, at Indian Head. Traces of rust were reported from numerous places in the province but nowhere did stem rust cause appreciable damage.

Infections of a trace to 10 per cent were observed on the uniform rust nurseries at Indian Head, while the infections were progressively lighter at Saskatoon, Rosthern, Scott and Swift Current, where a trace only was recorded in a few varieties.

Man. -

Traces of stem rust were first found on July 3 at Brandon and Portage la Prairie. None was found the previous week from Winnipeg to Morden, Gretna and Emerson back to

Wheat.

Winnipeg. On July 5 and 6 scattered pustules could be found on wheat throughout this area. Although the stationery spore traps for June 17 showed a heavy shower of urediniospores on that day, infection was not noticeable until the date indicated.

The weather conditions throughout Western Canada as a whole were highly unfavourable for rust development. Only in Manitoba did rust show signs of becoming serious. It was exceptionally dry throughout the growing period; during May and June it was very cold and during July and August unusually hot. In most places drought was a more important factor than rust. In a few fields in the Red River Valley and on the Portage Plains rust may have caused some damage. Infections of 50 to 70 per cent were observed in scattered fields, where the crop was late or heavy. Farther west and northward through Neepewa, Roblin, Birtle and Dauphin, the amount of rust was generally lighter. Durum wheat, except in the rust nurseries, had never more than a trace of rust.

At Winnipeg, in the uniform rust nurseries, 40 to 50 per cent of stem rust developed on the more susceptible varieties of common wheat, while 25 per cent was reported on susceptible durum varieties. At Brandon and Morden rust infection was considerably less.

Ont. -

Stem rust was fairly severe in the rust nurseries at Ottawa and Guelph, 60 to 65 being reported on some varieties.

Que. -

Pycnia, but not aecia, were found on the barberry at Macdonald College on May 26. In the rust nursery at Ste. Anne de la Pocatiere, infection was generally lighter than in Ontario.

N. B. -

Stem rust was heavy at Fredericton in the rust nursery there. Slight to moderate infection was observed in York county.

N. S. -

Two rust nurseries were sown in Nova Scotia, one at Kentville and the other at Nappan. Rust infection was decidedly less at the latter place while at Kentville the infection was typical of other places in eastern Canada.

P. E. I. -
General and moderate infection throughout the province. The rust percentages recorded in the rust nursery at Charlottetown were similar to other places in eastern Canada.

LEAF RUST - Puccinia triticina Erikss.

B. C. -
Considerable leaf rust developed on some varieties in the experimental plots at Salmon Arm.

Alta. -
The first collection of leaf rust was made on July 19 at Claresholm on winter wheat. The infections were very light and not general in the fields. There was much less leaf rust in Alberta in 1929 than in 1928.

Sask. -
Leaf rust was general, but not severe except where the grain was late.

Man. -
Leaf rust was first collected at Morden on June 7. During the first week of July this rust could be found in most fields of common wheat. Generally about 20 per cent of the plants were affected, with the degree of infection varying from a trace to 5 per cent. The infection appeared to be patchy. At St. Adolphe and Niverville, two places south of Winnipeg, in certain spots 80 to 100 per cent of the plants were affected. Later the infection became more general, 50 per cent of the leaf surface being covered with rust.

P. E. I. -
Moderate infection was present on all varieties grown.

STRIPE RUST - Puccinia glumarum (Schm.) Erikss, & Henn.

Alta. -
Stripe rust was prevalent from south of Calgary to the Montana boundary, especially so in the Claresholm district. Only traces occurred north and north-east of Calgary.

BUNT - Tilletia Caries (DC.) Tul. and Tilletia foetens (Berk.) Trel.

Alta. -
Bunt was unusually abundant this year throughout the grain growing area and caused an appreciable loss. In one

field as high as 20 per cent of the heads were infected. Tilletia Caries was far more common than T. foetens, which was found in the southern part of the province only, near Cardston.

Sask. -

Wheat bunt was only reported from the southern and eastern parts of the province. In general a trace to 2 per cent was observed. The samples from the southern area on common wheat were infected with Tilletia foetens, samples with the two species mixed were found about Killeher and west, while a collection made at Wroxton was pure T. Caries. Durum wheat was affected only with T. Caries. In one field of durum wheat near Summerberry, 40 per cent of the heads were found infected.

Man. -

Approximately 15 per cent of the ears of durum wheat were infected with bunt, while 1 per cent of common wheat was infected. In one field over 50 per cent of the heads of durum wheat were infected with Tilletia Caries.

N. B. -

Slight infection of wheat by Tilletia foetens recorded for York county.

P. E. I. -

Only traces of bunt caused by Tilletia foetens observed.

LOOSE SMUT - Ustilago Tritici (Pers.) Jens.

Alta. -

Loose smut was more common than bunt. The infections, however, were much lighter and caused less damage. Appreciable loss sustained in a number of fields. Infections were not as general in their distribution as in 1928.

Sask. -

Loose smut was common and widely distributed. Usually only a trace was present, but fields showing increasing amounts of infection up to 7 per cent were observed.

Man. -

Infection with loose smut was general and usually light, being not more than 1 per cent. In several fields of Reward, however, one to 2 per cent was observed. The two highest infections recorded on this variety were 4.5 per cent at

Two Mountains and 7 per cent in the rotation plots at the Experimental Station at Morden. Kota wheat at Gladstone showed 10 per cent of the heads smutted and Marquis at Minto 4.7 per cent.

N. B. -
Slight infection observed in York county.

P. E. I. -
Loose smut was general over the province. Average infection was estimated to be 1.5 per cent.

GLUME BLOTCH - Septoria nodorum Berk.

Alta. -
First collection made at Edmonton on August 15. It was not as prevalent as in 1928 and was confined mostly to the central portion of the province. Damage trace.

Sask. -
Glume blotch was not prevalent in 1929. However, infections observed on heads, stems and leaves, especially on lodged plants.

N. B. -
Slight infection reported for York county.

P. E. I. -
Traces only of glume blotch were found this year. The disease was observed on Huron, tho Fifes and Marquis.

HEAD BLIGHT - Fusarium spp. and Gibberella Saubinetii (Mont.) Sacc.

Alta. -
Observed several times.

N. B. -
Slight infection recorded for York county.

P. E. I. -
This disease caused considerable loss in Red Fife, White Fife and Huron.

HEAD BLIGHT - Helminthosporium sativum P. K. & B.

P. E. I. -
Not common. It was observed on Kubanka at the Dominion Experimental Farm, Charlottetown.

Wheat.

POWDERY MILDEW - Erysiphe graminis DC.

Alta. -
Not common. First collection was made on June 15 on winter wheat at Edmonton. It was later collected on spring wheat at several places. Mildew caused a slight amount of damage on the experimental plots at Edmonton.

P. E. I. -
Powdery mildew was moderately abundant on Little Club at Charlottetown in September.

ERGOT - Claviceps purpurea (Fr.) Tul.

Alta. -
Ergot was observed on wheat. The disease was comparatively rare in 1929.

P. E. I. -
Ergot on wheat was found once when it was observed on The Experimental Farm, Charlottetown.

BASAL GLUME ROT - Pseudomonas atrofaciens (McCull.) Stev.

Alta. -
Basal glume rot was common on wheat being found in widely scattered areas of central Alberta. It was less prevalent than the previous year. It caused a trace to slight damage.

BLACK CHAFF - Pseudomonas translucens J.J. & R. var. undulosa J.J. & R.

Alta. -
There was very little black chaff in 1929. Infections, however, were found in the north central section of the province. At Dapp a field of registered Marquis wheat was 100 per cent infected. Garnet in the same field was clean. Damage trace to slight.

Sask. -
A sample of Reward wheat from Huronville appeared to be affected with black chaff.

N. B. -
Slight infection of black chaff reported from York county.

NEMATODE DISEASE - Heterodera punctata Thorne.

Alta. -
Specimens of this nematode were collected at Cowley and

Stoney Plain on winter and spring wheat respectively.

Sask. -
This disease was observed at two places in east central Saskatchewan. At Muenster the field had been sown to wheat for at least three years in succession. Nematodes were plentiful in certain patches. Affected plants were stunted. At Annaheim wheat plants in a small patch were found to bear many gravid females on their roots. These plants appeared stunted and unthrifty.

BLACK GLUMES - Non-parasitic.

Alta. -
Several specimens of wheat heads showing blackened glumes were received from different parts of the province. This is distinct from black chaff. It apparently does not spread from affected plants to normal ones in the field. Seeds from affected heads when sown, however, give plants which reproduce the abnormality. Several varieties including Reward, Marquis and Red Bobs were affected (A.W. Henry).

CRINKLE JOINT - Non-parasitic.

Sask. -
This disease was observed late in the season at Indian Head on Marquis to a slight extent.

F O O T A N D R O O T - R O T D I S E A S E S O F C E R E A L S.

As the root-rots caused by different root-rotting organisms are similar in appearance and are not infrequently difficult to separate from each other, they are here treated together for each province.

Alta. -
The observations reported for Alberta refer only to these diseases as they appear on wheat.

Take-all (Ophiobolus graminis Sacc.). It was very difficult to find typical symptoms of take-all. Light infections were found north and west of Edmonton, where moisture was sufficient to produce fairly good crops. Perethecia were found only near Spruce Grove. Damage was slight.

Most of the root-rot damage appeared to be caused by Helminthosporium sativum Pamm. King and Bakke, Fusarium spp. Wojnowicia graminis (McAlp.) Sacc. & D. Sacc. and Leptosphaeria

herpotrichoides de Not., although it was difficult to evaluate the damage on account of drought injury. Garnet wheat appeared to be less heavily attacked than other common varieties. Leptosphaeria herpotrichoides was found to be widely distributed in central Alberta, while Wojnowicia graminis, Helminthosporium sativum and Fusarium spp. were general in all parts of the province.

Heavy infection of foot-rot causing severe damage was observed on the continuous wheat plots at the School of Agriculture at Claresholm, while the damage was only a trace on the rotation plots.

The following fungi were also collected on wheat: Mycosphaerella Tulasnei (Jancz.) Lindau, Ascochyta graminicola Sacc. Macrophoma Hennebergii, (Kühn) Berl. & Vogl.

Seedling root-rot causing significant damage was not observed this year.

Browning caused by Pythium spp. was not observed in Alberta.

Sask. -

In recording observations on root-rots of cereals in Saskatchewan four types of root-rot are recognized: take-all (Ophiobolus graminis), prematurity blight, browning, and Helminthosporium-Fusarium rot (Helminthosporium sativum and Fusarium spp.)

In prematurity blight individual plants are affected here and there throughout the field. The plant appears normal in every way except that it takes on a distinct bleached appearance while healthy plants are still green. The heads are also invariable empty. The cause of the disease is unknown.

Browning appears on seedlings when they are about four to six weeks old, the lower leaves suddenly turning brown and dying. The disease occurs in large patches. The growth of the plant is retarded and late in the season the diseased areas are noticeable by the thin stand of single tiller plants and abundant weed growth. (1)

(1) These four types of root rot are more fully outlined in: Root-rots of Cereals. Dom. Can. Exp. Farm Circ. 72. 1929.

Cereal Root-rots.

The root-rot survey in Saskatchewan embraced the important crop districts. The extremely dry weather interfered greatly with the diagnosis of these diseases. In all 666 fields were examined and reported; 481 were in wheat, 96 in oats, 70 in barley, 16 in rye and 3 in flax.

The distribution of root-rot types and severity of disease on different cereals is shown in the table 1.

This season differed from previous years by the predominance of the Helminthosporium-Fusarium type. Prematurity blight was difficult to recognize as in general the dry weather shortened the ripening period.

There were not as many cases of take-all reported as usual; but in all probability the symptons were masked by the lack of rain.

More than one type of root-rot was frequently observed in the same field. In 481 fields of wheat, 297 or 61.7 per cent showed one type of root rot; 122 or 25.3 per cent 2 types, 7 or 1.4 per cent 3 types and 58 or 11.6 per cent were free from disease.

The amount of injury caused by root-rots in 807 cases reported for all crops was as follows:-

No injury occurred in			16.5	per	cent	of	the	cases.
Injury trace	"	"	30.9	"	"	"	"	"
Injury slight	"	"	33.4	"	"	"	"	"
Injury moderate	"	"	15.9	"	"	"	"	"
Injury severe	"	"	3.3	"	"	"	"	"

From his studies of take-all Russell (2) believes that the casual organism, Ophiobolus graminis Sacc. is indigineous to Western Canada. The disease is confined mainly to the semi-wooded areas. Where take-all is prevalent the disease causes noticeable damage in the second and succeeding crops after new breaking. If the field is summer-fallowed, or a crop of oats is grown, very little take all may appear for several years. After land has been raising western rye grass or brome grass for a number of years and is then broken and sown to wheat, take-all causes severe injury. The actual loss from Take-all is difficult to estimate accurately, but the collective damage throughout Saskatchewan in wet years is at present very great.

(2) Russell, R. C. Field studies of take-all in Saskatchewan. Sci. Agr. 10: 654-668. 1930.

Table 1.

Distribution of Root-Rot types and severity on different cereals in Saskatchewan, 1929.

Crop		Root Rot Type	Trace	Slight	Medium	Severe	Total
WHEAT	A.	Take-all	49	15	5	7	76
	B.	Prematurity blight	17	3	0	1	21
	C.	Browning	35	42	16	2	95
	D.	Helminthosporium-Fusarium rot.	111	142	95	16	364
		Normal	--	--	--	--	59
OATS	B.	Prematurity blight	1	1	0	0	2
	D.	Helminthosporium-Fusarium rot.	10	31	5	1	47
		Normal	--	--	-	-	47
BARLEY	A.	Take-all	1	0	0	0	1
	B.	Prematurity blight	1	0	0	0	1
	C.	Browning	2	5	1	0	8
	D.	Helminthosporium-Fusarium rot	19	19	6	0	44
		Normal	--	--	-	-	22
RYE	C.	Browning	1	0	0	0	1
	D.	Helminthosporium-Fusarium rot	2	11	0	0	13
		Normal	-	--	--	-	3
FLAX		Normal	-	-	-	-	3
		TOTAL :	249	269	128	27	807

Cereal Root-rots

While studying the browning root-rot of cereals Vanterpool and Ledingham (3) found a fungus belonging to the lower Phycomycetes, hitherto undescribed, associated with rootlet injury of wheat. The organism was named Lagena radicicola. They are of the opinion however, that the fungi really responsible for the trouble in most instances are species of Pythium or of closely related genera.

Vanterpool (4) has also reported, as the results of his experiments, that Asterocystis radicis de Willd. is a normal inhabitant of Saskatchewan soils. Although the fungus has been found in finer rootlets of oats, wheat, barley, rye, maize, western rye grass and field mustard (Senapsis arvenis L.) in potted soil and barley in the field, he doubts whether it could cause any significant damage except under the most favourable conditions and then only on oats.

Man. -

During 1929, two hundred and thirty collections of plants, all apparently infected with root and foot-rotting organisms, were made in 108 localities within the province. The majority of the collections were obtained from wheat and barley, but a few from oats and rye.

Root-rots and foot-rots were not confined to any definite localities, but were widely distributed throughout the grain-growing area of the province. Infected plants could be found, to a greater or less extent, in almost every field of wheat and barley examined. Very few of the fields of oats and rye showed infection by root-rotting organisms.

The amount of infection in different fields varied from a mere trace to almost one hundred per cent of the plants. Approximately twenty-five per cent of the fields of wheat and barley showed infection of fifty per cent of the plants, or more. Infected plants generally appeared to be more prevalent in the lighter soils, although they were by no means confined to them.

Foot-rot symptoms were more evident than definite injury to the root. The basal part of infected plants, between the crown and first node, showed distinct browning. These plants were not always limited to definite patches in the fields, but

(3) Vanterpool, T.C. and Ledingham, G.A. Studies on "browning" root-rot of cereals. I. The association of Lagena radicicola n.gen; n.sp., with root injury of wheat. Can. Jour. Research 2: 171-194. 1930.
(4) Vanterpool, T.C. Asterocystis radicis in the roots of cereals in Saskatchewan. Phytopath. 20:677-680. 1930.

isolated plants also showed this discoloration. In a few fields, however, the roots of the plants were poorly developed and discolored, but the basal part of the stems was normal. Occasionally, both the roots and the basal part of the stem were discolored.

Isolations made on potato dextrose plates from the discolored basal part of the stem and from the roots of apparently diseased plants yielded Helminthosporium sativum P.K.& B., and Fusarium spp. Helminthosporium was more frequently isolated this year, from individual collections, than Fusarium, although the latter was also commonly present.

Take-all (Ophiobolus graminis) was not detected this year by a macroscopic examination of the plants in the field, although it was frequently found in 1928. The severe drought during the summer may have seriously retarded its development. It does not seem possible that it could be entirely absent.

There is no doubt, that where there is a heavy infection, root-rotting organisms are causing a decided reduction in the yield, particularly of wheat and barley. However, if the infection is only slight, the plants appear to be capable of maturing seed, with little, if any reduction in the yield, especially if growth conditions are favourable (W.L.Gordon).

OATS

STEM RUST - Puccinia graminis Pers.

Alta. -
Stem rust on oats was first collected at Wainwright on Aug. 17. Later a few infections were found north and east of Edmonton. No damage.

Sask. -
Traces of stem rust were found fairly generally in the south-eastern part of the province, but no damage was done.

Man. -
Stem rust was general over the province. Oats, which were sown fairly early, were only lightly affected. However, the degrees of infection was heavier as the oats were later. Very late oats were rather heavily rusted and the yield in some cases was lowered, but as the later sown oats constituted only a small portion of the crop the loss due to rust was small or negligible.

N. B. -
This disease was prevalent in York county.

P. E. I. -
Stem rust became prevalent late in the season. It was common on all the varieties grown in the province.

LEAF RUST - Puccinia coronata Corda.

Man. -
Traces of leaf rust were found at several places, but nowhere was the rust severe enough to do damage. A buckthorn hedge on a farm south of Boissevain was found heavily infected with the aecial stage. The nearest oats were sown some distance, however, from the hedge and no rust was observed on the plants. Several species of buckthorn were found rusted at the Experimental Station, Morden.

Ont. -
Rust on the buckthorn was collected on May 29 at Ottawa. The rust was heavy on oats in the smut experiment plot, C.E.F., Ottawa, Ont.

N. B. -
Leaf rust was prevalent in York county.

N. S. -
A moderate infection of leaf rust was found to be quite general in fields examined in four counties of central Nova Scotia.

P. E. I. -
Heavy infection was observed on all varieties. The rust was also collected on the buckthorn July 15.

SMUTS.

Covered Smut, Ustilago levis (Kellerm. & Swingle) Magn. and Loose Smut, Ustilago Avenae (Pers.) Jens.

B. C. -
A small amount of loose smut occurs each year resulting in very slight losses.

Alta. -
Both smuts are relatively common. Damage was usually only a trace, but losses of 20 per cent occurred in individual fields. The total would be considerable.

Sask. -
Covered smut is far more prevalent and destructive than loose. The following tabulation shows the relative prevalence:-

Oats.

Percentage Infection	Number of fields Covered smut	Loose smut
trace	3	2
1 - 4	8	3
5 - 9	3	0
10 - 14	4	0
15 - 19	6	1
20	3	0
25	1	0

Man. -
Covered smut only was reported, infection varying from a trace to 5 per cent.

Que. -
In a field, where the seed was untreated, 30 per cent infection was observed. In a neighbouring field, where treated seed was sown, only 2 per cent of smut was found.

N. B. -
Covered smut was reported as prevalent where the seed had not been treated. Loose smut was also fairly abundant.

N. S. -
Both loose and covered smut were observed, the two species being frequently mixed together in the same field. Infection varied from 1 to 40 per cent.

P. E. I. -
Loose smut was reported as general over the province. In a field at Charlottetown infection of 10 per cent was recorded.

HALO BLIGHT - Pseudomonas coronofaciens (Ch.Elliott) Stev.

Alta. -
Halo blight was not common; less present than last year. Damage trace.

Sask. -
This disease was reported to be causing considerable leaf spotting at Cudworth.

Man. -
A variety (Minota x Wh. Russian) x Black Mesdag, No. 378, was badly spotted with halo blight especially on the older leaves in a variety plot at the Experimental Station, Morden.

This was the only variety in the midst of numerous other varieties to be affected. The disease was also present in the same variety at Winnipeg.

N. B. -
A slight amount of halo blight was present in York county.

HEAD BLIGHT - Fusarium spp. and Gibberella Saubinetii (Mont.) Sacc.

This disease was recorded once on Banner at Charlottetown, P. E. I., and it was found causing slight infection in York county, N. B.

ANTHRACNOSE - Colletotrichum graminicolum (Ces.) Wilson.

Anthracnose was reported from Falher in the Peace River district, Alberta. A moderate infection of Banner was recorded at the Experimental Farm, Charlottetown, P. E. I.

ERGOT - Claviceps purpurea (Fr.) Tul.

Ergot was observed on oats in Alberta although the disease is rare this year.

BLAST - Non-parasitic.

Alta. -
This disease caused much damage throughout the province.

Sask. -
Blast was observed in many places, but generally it was causing only slight damage, except at Saskatoon where it was reported as common and severe.

P. E. I. -
Trace of blast occurred on Banner.

B A R L E Y

STEM RUST - Puccinia graminis Pers.

Alta. -
Stem rust was extremely rare.

Sask. -
Traces of rust were collected in the Qu'Appelle Valley and northward through Yorkton and Wroxton.

P. E. I. -
A trace of stem rust was found on Charlottetown No. 80.

Barley.

LOOSE SMUT - Ustilago nuda (Jens.) Rostr.

Alta. -
Loose smut was widely distributed, but was much less abundant and destructive than covered.

Sask. -
Although loose smut was widely distributed the infections were usually not more than 1 per cent. In only one field was the infection estimated to be from 5 to 10 per cent.

Man. -
Loose smut was collected a few times; usually small percentages.

N. B. -
This smut was reported to occur in York county.

N. S. -
Out of three fields examined in Pictou county one showed 3 per cent infection; the other two were free from smut.

P. E. I. -
A trace of infection was reported on Charlottetown No. 80 in the counties of Queens and Kings.

COVERED SMUT - Ustilago Hordei (Pers.) Kellerm. & Swingle.

Alta. -
Covered smut was common, causing important losses. The damage ranged from a trace to 30 per cent.

Sask. -
Covered smut was widely distributed, infection varying as follows:- 4 fields showing a trace; 8 with 1 to 4 per cent; 5 with 5 to 9 per cent and 1 field with 17 per cent.

N. B. -
Only slight infection with covered smut was observed in York county.

P. E. I. -
Two reports of covered smut on Charlottetown No. 80 on the Experimental Farm, Charlottetown.

STRIPE - Helminthosporium gramineum Rabh.

Stripe was found on widely scattered fields throughout Alberta. Damage was slight. This disease was more serious

in the experimental plots at Edmonton than in 1928. This was believed to be due to the temperature being more favourable for the development of the disease. Some heavily infected plants were found at Beaverlodge, Peace River district.

The disease was reported to be quite prevalent on all varieties in New Brunswick and Prince Edward Island. It was also observed once in Quebec.

NET BLOTCH - Pyrenophora teres (Died.) Drechsl. (Helminthosporium teres Sacc.)

Alta. -
Net blotch was widely distributed, but much less abundant than in 1928. Damage was trace to slight.

Sask. -
Although net blotch was widely distributed usually, infection was slight and the damage nil. In occasional fields infections were moderate to heavy, resulting in the premature death of the lower leaves. Hooded barley seemed to be more resistant than the common bearded varieties.

Man. -
In one field near Portage la Prairie a moderate infection of net blotch was observed.

P. E. I. -
Slight infection on Charlottetown No. 80 in Queens and Prince counties, and also on other varieties at the Experimental Farm, Charlottetown.

SPOT BLOTCH - Helminthosporium sativum Pamm. King & Bakke.

This disease was more common in Alberta than last year. The experimental plots at Edmonton were badly infected. Damage was trace to slight. The disease also caused a foot rot in seedlings in a greenhouse at Macdonald College, Que.

M I S C E L L A N E O U S D I S E A S E S.

SCALD - Rhynchosporium Secalis (Oud.) Davis.

Scald was fairly common, but less in evidence than last year in Alberta. Damage trace. A light infection was also reported from Saskatoon, Sask.

Barley.

ERGOT - Claviceps purpurea (Fr.) Tul.
Ergot was reported on barley for Alberta and N. B., but in both provinces it was rare.

POWDERY MILDEW - Erysiphe graminis DC.
Slight infection reported throughout P. E. I.

BACTERIAL BLIGHT - Pseudomonas translucens Jones, Johns. & Reddy.
Light infections of this disease were observed several times on barley.

FALSE STRIPE - Cause unknown.
Slight infections were reported twice from Saskatchewan. The Heterosporium associated with this disease has been reported by Bisby et al, (Fungi Manitoba 1929) as being close to H. Avenae Oud.

Hormodendron Hordei Bruhne was collected on variety Regal at Beaverlodge, Alta. (W. C. Broadfoot).

R Y E .

LEAF RUST - Puccinia dispersa Erkss.

Leaf rust was fairly common but the infections were light in Alberta.

ERGOT - Claviceps purpurea (Fr.) Tul.

Alta. -
Ergot was observed on rye. It was however, comparatively rare this year.

Sask. -
Ergot was rare and only traces were found except on volunteer rye in a field of wheat on sandy soil. In the southern part of the province only one collection on rye was made. Up to this year, ergot had been getting more and more serious every year.