II. DISEASES OF FORAGE AND FIBRE CROPS

ALFALFA

LEAF SPECK - Pseudopeziza Medicaginis (Lib.) Sacc.

B.C.- Leaf speck was general on Vancouver island and in the lower Fraser valley. The damage was slight. Wherever alfalfa was used as a cover crop in orchards in the Okanagan valley, it was severely affected with leaf speck.

Alta.- Although leaf speck was usually present and was severe in certain fields, the disease was apparently not as important as in previous years.

Sask.- Infections from leaf speck were very light, but only a limited number of fields were visited and in these, conditions had been very dry.

Man.- Leaf speck was not injurious at the Agricultural College, Winnipeg.

Que.- Leaf speck was heavy in several fields in Jacques Cartier county and it caused severe defoliation in some. A moderate infection was also reported in one field in Kamouraska county.

N.B.- Leaf speck was common on alfalfa throughout the province and caused moderate damage in some fields.

N.S.- From 10 to 70 per cent of the leaves were affected with leaf speck in the fields examined in Kings and Cumberland counties.

P.E.I.- Leaf speck was common, but caused little damage in Queens county.

SCLEROTINIA ROOT ROT - Sclerotinia Trifoliorum Erikss.

B.C.- Sclerotinia root rot was general on Vancouver island, but the damage was slight.

Alta.- Several fields were found, chiefly in zone 10, where Sclerotinia root rot caused a trace to moderate damage. Severe killing was produced experimentally at Lacombe and Edmonton. Symptoms of the disease are most easily observed during April and early May.

BACTERIAL BLIGHT - Pseudomonas Medicaginis Sackett

B.C.- Bacterial blight was found in one field only at Edgewood, Arrow Lake district, on June 17. The damage was about

5 per cent. Diagnosis of the disease was confirmed by laboratory examination and cultures. (J.W. Eastham).

Alta.- Bacterial blight was reported from 3 fields out of 13 examined. It caused a trace to slight damage.

LEAF SPOT and STEM CANKER - Ascochyta Meliloti (Trel.) Davis
Alta.- This disease was common and sometimes severe.

BROWN ROOT ROT - Plenodomus Meliloti Dearn. & Sanford
Alta. Brown root rot caused slight damage in 2 fields out of 10 examined. The damage is difficult to detect in fall inspections.

N.S.- Slight to moderate infection of brown root rot was observed on plants examined in fields of alfalfa, two or more years old, in Kings and Cumberland counties. Some plants die out in fields of all ages. The identity of the disease was confirmed by Dr. Sanford. (J.F. Hockey)

VIOLET ROOT ROT - Rhizoctonia Crocorum (Pers.) DC.
Alta. Rhizoctonia Crocorum was identified as the pathogen in two collections of root rot material from the Lethbridge district. A trace of infection was found (G. B. Sanford). In addition to this record violet root rot was also collected on potato in Saskatchewan this year (see under potato). It is believed that this disease has not been reported previously in Canada. Buddin and Wakefield (Trans. Brit. Myc. Soc. 12:116-140, pl. 11-14, 1927 and ibid 14: 97-99. 1929) present evidence to show that Helicobasidium purpureum (Tul.) Pat., one of the Auriculariales, is the perfect stage of Rhizoctonia Crocorum.

RUST - Uromyces Medicaginis Pass.
Man.- A few pustules of rust were found in Manitoba for the first time this year. It was collected at the Agricultural College, Winnipeg.

DODDER - Cuscuta sp.
B.C.- Dodder was severe in limited areas on Vancouver island.

COMMON CLOVER

POWDERY MILDEW - Erysiphe Polygoni DC.

B.C.- Powdery Mildew was general on alsike and red clover on Vancouver island and in the lower Fraser valley. The damage was slight on alsike and moderate on red clover. The disease was also quite general throughout the Okanagan valley.

Alta.- Powdery mildew is fairly common; infections vary from a trace to light.

Que.- Powdery mildew was found in four fields in Kamouraska and L'Islet counties. Infection was general in these fields. Moderate infections were reported on red clover in Missisquoi and L'Assomption counties.

N.B.- The disease was fairly common on red clover throughout the province. The damage was not estimated.

N.S.- Powdery mildew was general in a small area in a field of red clover in Colchester county.

P.E.I.- Powdery mildew was general on the second crop of red clover throughout the province in September, and caused slight to severe damage to the crop. The early infections on the first crop were not injurious.

RUST - Uromyces Trifolii (Hedw.f.) Lév.

B.C.- Rust was general on red clover on Vancouver island and in the lower Fraser valley. The damage was slight.

Alta.- Rust was observed on alsike clover at Edson, Entwistle, Olds, Wetaskiwin and in several locations near Edmonton. Both the aecial and telial stage were collected at Edmonton, and the identification of the rust verified by Dr. G. R. Bisby.

Sask.- A fairly heavy infection of rust was collected on alsike clover near Melfort.

Que.- Rust was observed on red clover in Jacques Cartier county. Fully 75 per cent of the leaves bore pustules in the fall. Rust was also reported from two fields in Kamouraska county.

N.S.- Slight to moderate infections of rust were reported on alsike from Colchester county. The rust was also general and heavy on second-crop red clover in many places in the province.

P.E.I.- Moderate infections of rust on red clover were recorded.

PSEUDOPEZIZA LEAF SPOT - Pseudopeziza Trifolii Fuck.

B.C.- This leaf spot was general on red clover on Vancouver island and in the lower Fraser valley.

Alta.- Pseudopeziza leaf spot was collected at Lacombe.

N.S.- Moderate infection of the leaf spot was reported on red clover from 2 fields in Colchester county.

P.E.I.- This leaf spot was found in Queens county. Fifty per cent of leaves were affected, but little damage occurred.

CERCOSPORA LEAF SPOT - Cercospora zebrina Pass.

Alta.- Cercospora leaf spot was collected at Lacombe.

SOOTY SPOT - Dothidella Trifolii Bayl.-Elliott & Stansf. (Polythrincium Trifolii Kunze)

Alta.- Sooty spot was collected at Wetaskiwin, Edmonton and Edson. It is fairly common on alsike clover late in the season. What was probably the pycnidial stage (Sphaeria Trifolii Pers.) was found by Dr. G. R. Bisby in a collection sent to him for examination.

Sask.- A trace of sooty spot was found on alsike growing by the roadside near Melfort July 31. Conidia were present.

N.S.- Sooty spot was general throughout the province on red clover. In Kings and Cumberland counties, 60 per cent of the foliage was affected in some fields.

DOWNY MILDEW - Perenospora Trifoliorum de Bary

Alta.- Light infections of downy mildew were observed at Edmonton and Wetaskiwin.

P.E.I.- Downy mildew caused moderate damage to the second growth of red clover in Queens county.

MOSAIC - Virus.

Alta.- Occasional plants were affected by mosaic.

N.B.- A few plants were found affected with mosaic at the Experimental Station, Fredericton.

LEAF SPOT and STEM CANKER - Ascochyta Meliloti (Trel.) Davis

Alta.- This disease was found in 10 fields out of 26 examined, infection varying from a trace to light in the affected fields.

MOSAIC - Virus

B.C.- Mosaic was present on 0.5 to 1.0 per cent of the plants of white sweet clover at Summerland.

Alta.- Mosaic is of fairly common occurrence, but apparently causes no damage.

BROWN ROOT ROT - Plenodomas Meliloti Dearn. & Sanford

Alta.- Brown root rot was found in 8 fields in zones 10 and 12 out of 26 examined in the province. The amount of damage was as follows: A trace in 4 fields, slight in 2 fields, and heavy in 2.

SCLEROTINIA ROOT ROT - Sclerotinia Trifoliorum Erikss.

Alta.- This root rot was found in 3 fields out of 26 examined, and caused severe damage in 2. The disease was probably present and did some damage in some of the other fields examined, but it is practically impossible to detect the disease and assess the damage in the fall, when most of these fields were surveyed.

CORN

SMUT - Ustilago Zeae (Beck,) Ung,

B.C.- Corn smut is rare on Vancouver island.

Alta.- A trace of smut was reported near Brooks.

Sask.- A single large gall was the only smut seen on the University plots, Saskatoon.

Ont.- Smut was prevalent on sweet corn, destroying the ears in the experimental blocks at the Vineland Station. It was also prevalent, in Wellington county, where 2 to 8 per cent of the plants were infected in many fields.

Que.- A trace of smut was present on the Experimental Farm, Ste. Anne de la Pocatière. Single fields in Kamouraska and Quebec counties showed 5, and 3-4 per cent infection respectively.

A trace was also found on Golden Bantam at Abbotsford and Waterville.

N.B.- A trace of smut was reported from a field in Victoria county.

RUST - Puccinia Sorghi Schw.

Man.- Rust was abundant on sweet corn at the Agricultural College, Winnipeg.

Que.- Rust was collected at Abbotsford, Waterville, and Ste. Anne de la Pocatière.

P.E.I.- A trace of rust was found on Golden Bantam in Queens county. Rust is not common in the province.

DRY ROT - Diplodia Zeae (Schw.) Lév.

Sask.- Three corn plants, stunted and prematurely bleached, were noted in the University plots, Saskatoon. Pycnidia of this pathogen were found at the base of one of these plants. No ears were formed. This is the first time this disease has been observed in Saskatchewan.

BACTERIAL STALK and EAR ROT

Alta.- This disease was severe in gardens at Edmonton, following a wet, cool period in early August. Infection presumably takes place from the soil as the decay first appears in the root. The disease then spreads to the stalk, leaves, ear and tassel. It resembles the disease described by H. R. Rosen (Ark. Agr. Exp. Sta. Bull. 209, 1926). The rot was also observed at Wetaskiwin, Lacombe and Olds. The causal organism has not been definitely determined.

BROWNING ROOT ROT - Asterocystis radicis Willd.

Sask.- Asterocystis radicis was observed for the first time in corn plants from the field, when it was collected at Saskatoon. (T.C. Vanterpool).

FLAX

WILT - Fusarium Lini Bolley

Sask.- A trace of wilt was found in 2 fields out of 5 examined. In the experimental plots at Saskatoon, Crown was badly diseased, while Bison was resistant to wilt.

Man.- Wilt was found in 2 fields, infection being light and moderate respectively.

RUST - Melampsora Lini (Pers.) Desm.
Man.- A trace of rust was found in 3 fields.

HEAT CANKER - Non-parasitic
Sask.- At the Experimental Farm, Indian Head, 10 per cent of the plants were affected with heat canker in varieties Long-stem, Bison, Buda, Linota, Premost and Crown, while there were only a few dead plants in Novelty.

MANGEL

SOFT ROT - Botrytis sp.
Que.- About 15 per cent of the roots were affected with a storage rot due to a Botrytis at the Experimental Farm, Ste. Anne de la Pocatière.

DRY HEART ROT - Non-parasitic
B.C.- This disease affected a large percentage of the roots in one part of a field at Summerland.

SUNFLOWER

WILT - Sclerotinia Sclerotiorum (Lib.) de Bary
Alta.- Wilt was observed in 3 fields, but most stands were apparently free. It caused 10 per cent damage in one field at Strathmore.

N.B.- The disease was severe in a garden patch in York county. The damage was 50 per cent.

N.S.- Affected plants were found in only 3 fields. Up to 20 per cent of heads were diseased in the pure line selections at Kentville in October.

RUST - Puccinia Helianthi Schw.
Que.- A light infection of rust was observed in one field in Kamouraska county.

LEAF SPOT - Septoria Helianthi Ell. & Ev.

N.S.- Twenty-five to seventy per cent of the foliage was severely affected in fields in Kings and Cumberland counties. In one field the leaves were practically all wilted or dead.

CULTIVATED GRASSES

AWNLESS BROME (Bromus inermis)

Leaf spot (Septoria bromigena Sacc.) was fairly common in Alberta, heavy infections sometimes being present. In Saskatchewan, the disease was observed only once.

Scald (Rhynchosporium Secalis (Oud.) Davis) was rather common and often severe in Alberta.

Ergot (Claviceps purpurea (Fr.) Tul.) occurs frequently and is sometimes severe in Alberta. It was found this year in zones 9 to 11. A heavy infection of ergot was reported in one field in Manitoba.

A leaf spot, apparently caused by bacteria, was found in a field in Alberta. Bacteria were abundant in the exudate formed on many of the spots.

BROOM MILLET (Panicum mileaceum)

Smut (Sorosporium Panici-mileacei (Pers.) Takah.) was prevalent in one field of broom millet in Manitoba.

TIMOTHY

Stem rust (Puccinia graminis Pers. var. Phlei-pratensis (Erikss. & Henn.) Stakm. & Piemeisel) was general on Vancouver island, B.C.

Rust was common in Alberta; slight to severe infections were found in zones 9 and 10.

A slight infection was present on late plants in Kings county, N.S.

Slight to moderate infections were observed on both cultivated strains and wild plants in Queens county. P.E.I. The damage was insignificant.

Ergot (Claviceps purpurea (Fr.) Tul.) was found at Hobbema and Lacombe, Alta.

Leaf Spot (Heterosporium Phlei Gregory) was reported as general on Vancouver island.

WESTERN RYE GRASS (Agropyron tenerum)

Ergot (Claviceps purpurea (Fr.) Tul.) was noticed occasionally in zones 9 and 10, in Alberta.

Smut (Ustilago bromovora (Tul.) Fisch.) caused severe damage in some cultivated stands in Alberta. The three highest infections were: Strathmore, 90 per cent; Vermillion, 50; and Lacombe, 25. Smut was found occasionally on the wild grass in zones 4, 6, 9 and 10.

This smut was sent in for identification from Robinhood, Sask. The severity of the infection was not reported.

Dying-off (Cause unknown). Seed was sown in rows in the University plots, Saskatoon, Sask. in 1930 and growth began well the next spring, but by May 29 a large portion of the rows were dead. Such severe damage has not been noticed previously. (T. C. Vanterpool).

LAWN GRASSES

Snow Mould (Cause unknown) was observed forming patches on the lawns in the University campus and in the City gardens, Saskatoon, Sask. The damage was slight. The injury appears to be similar to what was common around Montreal, Que., in the springs of 1926 to 1928. However, the Typhula-like sclerotia (0.5 to 1 mn. in diam.) were not found at Saskatoon, while they were common at Montreal. (T.C. Vanterpool).