II. DISEASES OF FORAGE AND FIBRE CROPS

ALFALFA

COMMON LEAF SPOT (Pseudopeziza Medicaginis) was general on Vancouver Island and in the Fraser valley, B.C.; the damage was slight. It was general on all varieties at Agassiz and common on the older leaves at Summerland. It was present in one field in zone 10, Alta.; it slightly affected the crop at the Swift Current Station, Sask., and a trace occurred at Morden, Man.

Common leaf spot was general and severe on the lower leaves at Cap Rouge and Ste. Anne de la Pocatiere, Que.; a trace was recorded at Farnham. Moderately infected plants were received from Yarmouth county, N.S. at the Kentville Laboratory on June 22. A rather severe infection was observed at Charlottetown, P.E.I.

DOWNY MILDEW (Peronospora aestivalis) moderately infected Lytton and Ontario Variegated at the Agassiz Farm, B.C.; the damage was 5%. Baltic and Ladak were slightly infected while none appeared on Cossack, Grimm 178, and Grimm Reg'd. It caused moderate injury to alfalfa in large concrete tanks where trees are growing and the watering is done by sprinkler. Little downy mildew was present at the Windermere Station, probably on account of the dry, hot summer. A 45% infection was recorded in one field in zone 11, Alta.

YELLOWING (non-parasitic) occurred in spots and in whole fields in the Okanagan and Kootenay valleys, B.C.

ROOT ROT. A survey made on May 18 of the varieties grown at the Lacombe Station, Alta., revealed that Root Rot (Sclerotinia sp., etc.) and Winterkilling were slight on Ontario Variegated, and Lytton; trace on Hardiston Grimm (Lyman); and none on Grimm Brooks, Grimm Sask. 666, Grimm Sask. 471, and Cossack (M.W. Cormack). It moderately affected alfalfa at the Swift Current Station, Sask.

BACTERIAL WILT (Phytomonas insidiosa (McCull.) Bergey et al.). Plants apparently affected with bacterial wilt were noticed at the Experimental Station, Windermere, but the identity of the disease has not been checked by cultures (H.R. McLarty). This is the first report of this important disease in Canada.

GREY MOULD (Botrytis sp. of cinerea type) was moderate to severe at the Experimental Station, Charlottetown, P.E.I. The blossoms of the main shoots were attacked, while the lateral branches

remained healthy. The blossoms were withered and yellowish and the shoot was affected for a distance of 2 inches. Lespedeza (4480) was similarly attacked. (R. R. Hurst)

COMMON CLOVER

COMMON LEAF SPOT (Pseudopeziza Trifolii) caused slight damage in Queens county, P.E.I.

POWDERY MILDEW (Erysiphe Polygoni) was reported on red clover from zone 10, Alta.; The Pas, Man.; Oakville, Ont.; at several places in Que.; and P.E.I. The infection was usually slight, but it was heavy at Farnham, Que., and in P.E.I. It was also heavy on alsike clover at Farnham, Que.

RUST (Uromyces Trifolii). The aecial stage was general on white clover at Winnipeg, Man. and a slight infection was noticed on alsike clover at The Pas.

Rust was heavy on a few red clover plants at Lennoxville, Farnham, and in a field in Waterloo county, Que., with traces on most of the other plants. It was also fairly abundant on alsike clover at the last two mentioned locations and at Ste. Anne de la Pocatiere. It was heavy on red clover in Queens county, P.E.I.

SOOTY BLOTCH (Cymadothea Trifolii) was abundant on the lower leaves of white clover in the Fraser valley, B.C. A slight infection was recorded on alsike clover at The Pas, Man.

It was fairly abundant on alsike clover at Farnham, Que., and it moderately infected red clover at Farnham and Lennoxville. Traces were recorded on red clover in Queens county, P.E.I.

ANTHRACNOSE (Kabatiella caulivora) almost completely destroyed a small plot of red clover in the test area at Charlottetown, P.E.I.

ROOT ROT. A survey of the varieties growing at Lacombe, Alta. May 18 showed Root Rot (Sclerotinia sp., etc.) and Winterkilling were slight on Mammoth White, Stryno White Dutch, and Common White Dutch; a trace on Morso White Dutch; and none on Alta Swede Red and Alsike (M.W. Cormack).

MOSAIC (virus) A trace of mosaic was found on red clover at Brandon, Man. Affected plants were observed on white clover in a farmer's field at Kingsclear, N.B.

SWEET CLOVER

MOSAIC (virus) was general on white sweet clover in the Salmon Arm district, B.C.

LEAF SPOT and STEM CANKER (Stagonospora Meliloti). A slight infection of the leaf spot was reported from Saskatoon and Indian Head, Sask.; and a trace from Brandon and Morden, Man.

ROOT ROT. As a result of a survey at the Lacombe Station, Alta., on May 18, Root Rot (Sclerotinia sp., etc.) and Winterkilling were found to be moderate to heavy on Zouave; moderate on Alpha 1, Alpha 2, and Redfield Yellow; slight on Common White, Grundy County, I.H.C. Yellow, and Brandon Dwarf; and a trace on Arctic (M.W. Cormack). A moderate infection was reported at the Swift Current Station, Sask. It also affected a few plants in the Experimental plot at Sidney, B.C.

BUCKWHEAT

YELLOWS (Virus) was common and caused severe injury to buckwheat in York, Carleton, Charlotte, and Sunbury counties, N.B. In the varieties grown at Fredericton, the percentage of infected plants varied from 0.25% to 4.0%.

CORN

SMUT (Ustilago Zeae). Traces of smut were observed at Synyard and Duff, Sask. Infections recorded in Man. were: Brandon, trace; Winnipeg, 85% of the plants; Morden, slight. A slight infection of pop corn also occurred at Morden.

FLAX

RUST (Melampsora Lini) slightly infected flax in a field in zone 10, Alta. It was found in 3 out of 4 fields examined in Sask.; the damage was a trace to slight. A trace of rust occurred at Winnipeg, Man. It also lightly infected flax at the Kapuskasing Station, Ont. (4027), in 1935.

WILT (Fusarium Lini). A trace was present in Pusa, Brown, and ND114 on June 22 at Swift Current, Sask.

BROWNING (Polyspora Lini) moderately infected a field in zone 10, Alta.

BROOM-CORN MILLET

BACTERIAL STRIPE (Phytomonas Panici Ch. Elliott) was

observed on Ottawa 944 at the Experimental Station, Kapuskasing, Ont. (4032). The lesions were somewhat broader than recorded by Miss Elliott, but they were filled with bacteria (G.A. Scott & I.L. Conners).

SMUT (Sorosporium Panici-miliacei). A trace was found at the Fredericton Station, N.B. (J.M.F. MacKenzie & S. Clarkson). One or two affected plants were found at Charlottetown, P.E.I.

MANGEL

CERCOSPORA LEAF SPOT (C. beticola). A trace was present at Lennoxville, Que., and it was general, but not severe at Ste. Anne de la Pocatiere.

CROWN GALL (Phytomonas ?tumefaciens). A trace was present in Queens county, P.E.I. This disease was reported in N.B. in 1923 (P.D.S. 4:79. 1924).

DRY HEART ROT (Non-parasitic) affected 25% of the crop in a field at Grand Forks, B.C.

STRANGLE (Cause unknown). What appeared to be the same disease as described by W. Jones (P.D.S. 15:18) was noted in P.E.I. All the plants in the plot were very severely affected and finally died. (R.R. Hurst)

BACTERIAL ROT (Erwinia aroideae) was found following insect injuries in plants from the Experimental Station, L'Assomption, Que.

MOSAIC (virus). Two affected plants were seen in the variety test at Fredericton, N.B.

SUGAR BEET

BLACK LEG (Phoma Betae) was slight as a leaf spot on all varieties at Sidney, B.C. In October, about 5% of the roots were showing black leg. Phomopsis pycnidia have also been seen on some diseased roots. The lower leaves of all 12 varieties were slightly affected at the Agassiz Farm. In one variety it caused severe rot and in a second, considerable wilting and yellowing of the foliage.

CERCOSPORA LEAF SPOT (C. beticola) was moderate on Eagle Hill 472, Home Grown A, Swedish Improved, Stokes A1, Eagle Hill 360, U.S. No. 1 Curly Top, and Kühn; slight on G. W. Cercospora Resistant and R. & G.L. type; and a trace of Udcyz,

R. & G. N type, and R. & G. normal, at Sidney, B.C. None was seen at Agassiz. A trace was present on several varieties, but it moderately infected R. & G. Z type at Farnham, Que.

RUST (Uromyces Betae) was general on all the varieties grown at Sidney, B.C., but it had little effect on root yields. Kuhn was somewhat less infected than the others. The disease appeared on the root crop about a month later than in 1935. No rust was seen at Agassiz in August.

SORGHUM

COVERED KERNEL SMUT (Sphacelotheca Sorghi) affected about 10% of the plot at the Sidney Station, B.C.

BACTERIAL LEAF SPOT (Bacillus Sorghi) caused a slight infection at Brandon, Man.

SUDAN GRASS

LEAF SPOT (Bacillus Sorghi) was found at Kapuskasing, Ont., (4030) in 1935.

SUNFLOWER

WILT (Sclerotinia sclerotiorum) caused slight damage in a field in zone 10, Alta., a trace was present at Brandon, Man. It affected a few scattered plants at Ste. Anne de la Pocatiere, Que. A 3% infection occurred in a 2 acre field in Kamouraska county; the damage was slight.

DOWNY MILDEW (Plasmopara Halstedii) infections were first seen on July 8, but the conidia were not found until July 11 at Ste. Anne de la Pocatiere, Que. Primary infections occurred on 3.5 to 23.6% of the plants in the three fields. The disease is first noticeable sometime after the seedlings emerge, the diseased plants being stunted. The total yield is not reduced for the healthy plants grow excessively, and in consequence they are more woody and coarse and do not have the same value for ensilage as a uniform crop of smaller plants. Secondary spread was apparently unimportant on account of the dry season (C. Perrault).

RUST (Puccinia Helianthi) was severe at Winnipeg, Man.; moderate at Morden; and a trace was present at Brandon. It was collected at the Kapuskasing Station, Ont., (4033) in 1935. It was slightly affecting sunflowers at the Experimental Farm, Ottawa, Ontario on July 29. A moderate infection was found at Lennoxville, Que.

LEAF SPOT (Septoria Helianthi was observed at the Experimental Station, Kapuskasing, Ont., (4025) in 1935.

SOY BEAN

BACTERIAL BLIGHT (Phytomonas glycinea) was severe at Ottawa, Ont. A moderate infection occurred on Manitoba Brown and a trace on Wisconsin Black at Lennoxville, Que. A trace was seen at L'Assomption.

CULTIVATED GRASSES

AWNLESS BROME GRASS (Bromus inermis)

Leaf Spot (Septoria bromigena) was fairly common along roadsides in southern Sask.; it was less prevalent in northern Sask. A slight, but general infection occurred on volunteer plants at Winnipeg, Man.

Leaf Blotch (Helminthosporium Bromi) slightly but generally affected this grass at Winnipeg, Man.

Ergot (Claviceps purpurea) moderately infected volunteer awnless brome grass at Winnipeg, Man.

CRESTED WHEAT GRASS (Agropyron cristatum)

Ergot (Claviceps purpurea) was moderate at Winnipeg, Man.

CREEPING BENT GRASS (Agrostis palustris)

Scattered dead spots appeared in a bowling green at Saskatoon, Sask., on May 14. The spots were perfectly circular and measured 2 to 12 inches in diameter. They closely resembled Dollar Spot (Rhizoctonia sp.) in appearance.

ORCHARD GRASS (Dactylis glomerata)

Brown Stripe (Scolecotrichum graminis) was general on the 10 strains under test at Agassiz, B.C.; it least affected 962 and N.Z.786. It was also general on Vancouver Island and in the Fraser valley.

Purple Leaf Spot (Mastigosporium album var. muticum) was general on the 10 strains being grown at Agassiz, B.C. It was least destructive to 615.

Ergot (Claviceps purpurea) moderately infected orchard grass at Winnipeg, Man.

PERENNIAL RYE GRASS (Lolium perenne)

Eye Spot (Ovularia Lolii) was of general occurrence on Vancouver Island and the Lower Mainland, B.C.; it caused considerable damage to the lower leaves especially during the spring. No differences in infection were noted on the 7 varieties in the plots at Sidney.

TIMOTHY (Phleum pratense)

Stem Rust (Puccinia graminis var. Phlei-pratensis) was reported as follows: a trace on Commercial 361, but absent on other strains at Agassiz, B.C.; trace at Winnipeg, Man.; trace at the Experimental Station, Fredericton, and in Carleton county, N.B.; severe on a single clump at the Station, Kentville, N.S.

Smut (Ustilago striiformis) was general on plants along the roadside at Sumas Prairie, B.C., (3837) on May 28; also a few plants were affected in one strain at Agassiz. Affected plants were killed back to the base (W. Jones). One rather heavily infected clump was reported at Winnipeg, Man.

Leaf Spot (Heterosporium Phlei) A slight amount was present on timothy at the Station, Fredericton, N.B. (I. L. Conners).

WESTERN RYE GRASS (Agropyron tenerum)

Stem Rust (Puccinia graminis) slightly affected the grass at Regina, Sask.

Smut (Ustilago bromivora) affected 15% of the plants in a field on the University Farm, Saskatoon, Sask. It slightly to moderately affected the crop at the Station, Swift Current.

VELVET GRASS (Holcus lanatus)

Twist (Dilophospora Alopecuri (Fr.) Fr.) is a fairly generally distributed disease on Vancouver Island (4219) and the Fraser Valley (W. Jones). This is a record of unusual interest as the organism has been recorded from Canada only once before when it was collected on barley at Carlyle, Sask., (2129) by Dr. P.M. Simmonds. Although Sprague has recorded it from Oregon on the same host (U.S. Pl. Dis. Reporter 19: 173. 1935). No nematodes were found associated with the disease by Mr. Jones which is contrary to the finding of Atanasoff (Phytopath. 15: 11. 1925).