II. DISEASES OF FORAGE AND OTHER FIELD CROPS

A. FORAGE LEGUMES

ALFALFA

BLACK STEM (Ascochyta imperfecta) appeared to be less prevalent in s. Alta. than in 1954; infection was 10-tr. 6-sl. 2-mod./58 fields examined (E.J. Hawn). In the rest of Alta. infection was 10-tr. 15-sl. 11-mod. 15-sev./136 fields examined, being most destructive in the Peace River district (J.B. Lebeau, S.B. Hrushovetz). Black stem was common in n. Sask. and was found in the scattered fields that occur in s.e.. Sask. Infection, about the same as in 1954, was 20-sl. 25-mod./45 fields examined (H.W. Mead). Infection was mod.-sev. on first crop hay and seed fields s.e. of Winnipeg, Man., in June; tr.-light on second crop hay s. and w. of Winnipeg; mod.-sev. in seed fields s.e. of Winnipeg and in the Interlake region. Two second-crop hay fields on sulphur-deficient soil s. of Boissevain were very sev. damaged by black stem and Ascochyta leaf spot (W.C. McDonald). Black stem and leaf spot were mod., being sev. along the ditches, in a field at Notre Dame du Lac, Que. (D. Leblond).

LEAF SPOT (Cercospora zebrina). A few leaves were found infected in a field at Great Falls, Man. (W.C. McD.).

WINTER CROWN ROT (low-temperature basidiomycete). Damage was mod. in one field at Coalhurst, Alta., and in the plots at Lethbridge (M.W. Cormack). Damage was 11-tr. 40-sl. 37-mod. 12-sev. in central Alta. and the Peace River district (J.B.L., S.B.H.). The disease, associated with winter injury, caused sl. damage in 12/45 fields examined in Sask.; mostly single plants were killed (H.W.M.).

BACTERIAL WILT (Corynebacterium insidiosum) was observed affecting about 10% of the plants scattered in a 3-4 year old field of Grimm at Cache Creek, B.C., 17 Aug. 1954 (G.E. Woolliams). The disease was sev. in a field at Kamloops, B.C. (W.R. Foster). The disease was found in 27/58 fields examined in s. Alta., and, in general, wilt development seemed more pronounced this year than in 1954. In the Lethbridge area, 2 fields showed considerable wilting in August. Sev. damaged plants were received from Kamloops, B.C. (E.J.H., M.W.C.). Damage was 3-tr. 4-sl. 8-mod. 3-sev./136 fields examined; diseased fields were all in central Alta. (J.B.L., S.B.H.). Damage was estimated to be from 1 to 10% in the fields examined in the Interlake region of Man. Wilt was also observed in the plots in Brandon (W.C.McD.). The disease was sev. in several varieties in 3-year-old plots at the Farm, Ste. Anne de la Pocatiere, Que.; 20% of the plants were affected (R.O. Lachance).

LEAF SPOT (Leptosphaeria pratensis (Stagonospora meliloti). A tr. of leaf spot was recorded in one field near Edmonton, Alta. (J.B.L., S.B.H.). Tr.-light infection was general in Man.; stem blight was also observed in one field at Menisino (W.C.McD.).

DOWNY MILDEW (Peronospora aestivalis). Infection was 4-tr. 1-sl./58 fields examined in s. Alta. Scattered plants in the plots at Lethbridge showed mod.-sev. infection in early fall (E.J. Hawn). Infection was 1-tr. 1-sl. 1-mod. in the 3 affected fields all in central Alta. (J.B.L., S.B.H.). A tr. of downy mildew was recorded in 3/45 fields examined in Sask.; a slight infection was observed in polycross lines and standard varieties at Saskatoon; there appeared to be sl. differences in susceptibility (H.W. Mead). A light infection was noted on first crop hay in June e. of Winnipeg, Man. (W.C. McDonald).

YELLOW LEAF BLOTCH (Pseudopeziza jonesii). The pathogen was identified from specimens from the plots at Saanichton, B.C., where varying degrees of infection occurred in different varieties (M.W. Cormack). A sl. infection was found in a single field in s. Alta. in the Scandia district (E.J. Hawn). Infection was 8-tr. 17-sl. 11-mod. 8-sev. in central Alta. and the Peace River district, being particularly sev. in the latter area (J.B. Lebeau, S.B. Hrushovetz). The disease was present through central and n. Sask. as well as in the s.e. part. Recorded in 20/45 fields; infection and defoliation were lighter than in 1954, causing sl. damage (H.W. Mead). Highest infections were recorded on second-crop hay and in seed fields n. and e. of Winnipeg, Man., in July and August; a tr. infection was also observed w. of Winnipeg (W.C. McDonald).

COMMON LEAF SPOT (Pseudopeziza medicaginis). A sl. general infection was observed on Rhizoma alfalfa in the University plots, Vancouver, B.C. (H.N.W. Toms). Infection was 6-tr. 4-sl. 3-mod./58 fields examined in s. Alta.; a mod. general infection was present on a test plot of Rambler at Seven Persons (E.J.H., M.W.C.). Infection was 13-tr. 37-sl. 14-mod. 2-sev./136 fields examined in the rest of Alta.; it was particularly prevalent in the Peace River district (J.B.L., S.B.H.). This leaf spot was present wherever alfalfa was grown in Sask. including the s.e. area. Average damage was mod.; at Oxbow (s.e.) it was causing sev. defoliation (H.W.M.). The disease was present on specimens of Grimm alfalfa received from Chicoutimi Co., Que. (R.O. Lachance).

LEAF SPOT (Pseudoplea trifolii). Sl. infections were general in Man. in 1955. Single ascospore isolates obtained from perithecia formed in the spots on the leaves or in black lesions on the stem from alfalfa, sweet clover, red clover and strawberry clover produced perithecia of P. trifolii on sterilized alfalfa leaves in moist petri dishes, two isolates from alfalfa produced them on PSA slants and one from alfalfa and one from red clover on sterile sweet clover stems. Spores of Stemphylium have never been observed in any of these single spore isolates (W.C. McDonald).

These findings of Dr. McDonald fail to confirm the report of R. R. Nelson and M. F. Kernkamp (Phytopathology 43: 584-585. 1953) that the conidial state of Pseudoplea briosiana (=P. trifolii) is a species of Stemphylium indistinguishable from S. botryosum. Rather, his findings confirm the observations of earlier workers. Neither F. R. Jones (Phytopathology 6:299-300. 1916), J.H. Miller (Am. J. Botany 12: 224-237. 1925) nor J. G. Horsfall (Cornell Agr. Exp. Sta. Memoir 130. 1930) make mention of such a state. The description and figures of Pseudplea trifolii given by Miller and by L. E. Miles (Phytopathology 15:677-690. 1925) and those of Pleospora herbarum by O. F. Smith (J. Agr. Research 61:831-846. 1940) clearly indicate that two quite distinct organisms may be present on these hosts (I. L. C.).

CROWN BUD ROT (Rhizoctania solani, Fusarium spp., etc.) was observed in 50/58 fields examined in s. Alta. Damage was slightly higher than in 1954, with the regular increase in the damage to individual crowns and in the percentage of infected plants being correlated with age of stand (E. J. Hawn).

LEAF SPOT (Stemphylium botryosum). Isolates were obtained from leaf and stem lesions on alfalfa at Hamiota and Maleb, Man. Isolates of S. botryosum from alfalfa and sweet clover have produced mature perithecia of Pleospora herbarum on sterile alfalfa leaves, sweet clover stems and PSA slants (W. C. McDonald).

ROOT ROT (various fungi). Damage was 1-sl. 3-mod./136 fields examined; the affected fields were all in the Edmonton area, Alta. (J. B. L., S. B. H.).

WITCHES' BROOM (virus). A mod. amount found in one field at Kamloops, B. C. (W. R. Foster). Infection was a tr. in 2 fields and sl. in one in central Alberta and tr. in one field in the Peace River district (J. R. L., S. B. H.).

WINTER INJURY. Extensive injury occurred in 5 fields in the Choiceland and Meadow Lake districts, Sask. The cause may not have been primarily low temperatures, but flooding or icing in the damaged fields (H. W. Mead).

YELLOWS (boron deficiency). About 10% of the plants were affected in a neglected field of Grimm examined in 1954 at North Kamloops, B. C. (G. E. Woolliams). Considerable yellows was seen in fields on sandy soils in Kamouraska Co., Que. (R. O. Lachance).

Yellowing as a result of injury by the potato leaf hopper varied from tr. to sev. on single clones in a University Nursery at Winnipeg, Man. (W. C. McD.).

COMMON CLOVER

WINTER CROWN ROT (low-temperature basidiomycete). A sl. infection was found on red clover in 3 fields near Dawson Creek, B.C., and on alsike clover in one field at Spirit River, Alta. (J.B. Lebeau).

LEAF SPOT (Cercospora zebrina) Sl. infections were found on red clover at Innisfall, Alta. (J.B.L., S.B.H.), and at Lac du Bonnet, Man., and on white clover in the University plots, Winnipeg (W.C.McD.). A tr. was collected on red clover at Petite Riviere, Lunenburg. Co., N.S. (D.W. Creelman).

SOOTY BLOTCH (Cymadothea trifolii) heavily infected alsike clover in a field at the Farm and in a lawn at Kentville, N.S. (D.W.C.).

POWDERY MILDEW (Erysiphe polygoni). A sl. infection was observed in one field of red clover in the Brooks district and in another near Lethbridge, Alta. (M.W. Cormack). Powdery mildew was recorded in 12/41 fields of red clover examined; infection was 1-sl, 8-mod, 1-sev, in the Peace River district and 2-mod. in n. central Alta. (J.B.L., S.B.H.). A mod. infection was noted on red clover n.e. of Winnipeg, Man. (W.C. McDonald). Powdery mildew was general on red clover late in the season, causing sl.-mod. damage in Kings Co., N.S. (D.W. Creelman).

ROOT ROT and WILT (Fusarium scirpi var. acuminatum) was sev., infecting red clover at the Farm, Normandin, Que. (D. Leblond).

NORTHERN ANTHRACNOSE (Kabatiella caulivora). Sl. infection was found in one field of red clover in the Brooks district and in a plot at Lethbridge, Alta., in late July. The pathogen was identified on a specimen of red clover from Prince George, B.C. This is the first reported instance of its occurrence in that area (M.W. Cormack). Infection was 6-tr. 16-sl. 8-mod. 4-sev./41 red clover fields in central Alta. and the Peace River district. The disease was also found in 17 roadside patches of red clover. A trace was also found in alsike clover in 2 fields in central Alta. (J.B.Lebeau, S.B.Hrushovetz).

LEAF SPOT (Leptosphaeria pratensis (Stagonospora meliloti). A sl. infection was noted in 2 fields in central Alta. (J.B.L., S.B.H.).

LEAF SPOT (Pseudoplea trifolii). The fungus was isolated from spots on red clover stems from Dugald, Man., and from spots on the leaves of the clover, Trifolium fragiferum L. collected at Winnipeg (W.C. McDonald).

LEAF SPOT (Pseudopeziza trifolii) was common and general on red clover in Kings and Lunenburg counties, N.S. (D.W. Creelman).

LEAF SPOT (Stagonospora recedens). A sl. infection was found in one field at Fort St. John, B.C., and in 3 in w.-central Alta. (J.B.L., S.B.H.).

LEAF SPOT (Stemphylium botryosum) occurred in tr. amounts in a plot of Lasalle red clover at Lethbridge and in a field of red clover in the Brooks area, Alta. (E.J. Hawn). The presence of S. botryosum on the spots was confirmed from an examination of a specimen collected at Lethbridge. It was probable that the fungus was a saprophyte because tunnels of a small leaf miner was associated with the occurrence of the former (D.B.O. Savile).

LEAF SPOT (Stemphylium sarcinaeforme). Mod. infection on red clover n.-e. of Winnipeg, Man. (W.C. McD.).

LEAF SPOT (cause undetermined). Infection was 1-sl. 3-mod. 2-sev./ 9 fields of alsike clover examined in central and n. Alta. (J.B.L., S.B.H.).

RUST (Uromyces fallens). Traces were observed on red clover at Winnipeg and Lac du Bonnet, Man. (W.C. McD.) and a mod. infection at Cooksville, Lunenburg Co., N.S. (D.W.C.).

DECLINE (?virus). A pasture of Ladino clover sown in the spring of 1953 at St. Pacome, Kamouraska Co., Que., appeared to be in excellent condition until midsummer 1955, when it began to show signs of decline: yellowing, mosaic and phyllody. This may be a form of aster yellows (R.O. Lachance).

MOSAIC (virus) affected nearly all the plants of crimson clover (T. incarnatum) being grown in the plots at the Farm, Summerland, B.C. in Aug. 1954. The plants were sev. dwarfed and almost all leaves were malformed, cup-shaped, and showed a sev. type of rugose mosaic. Circumstantial evidence strongly suggested that the virus was seed-borne (G.E. Woolliams). At the Farm, Brandon, Man., most plants of alsike clover in the guard rows around red clover plants appeared affected by mosaic (bean virus 2); the red clover was not affected (W.C. McDonald).

RING SPOT (virus). In 1954, in s.w. Ont. some stands of red clover were found seriously affected and damaged by ring spot, according to W.G. Benedict (Plant Dis. Reptr. 39:457-459. 1955). The disease was attributed to a strain of the tobacco ring-spot virus.

YELLOWS (virus). A disease of the yellows type was common in fields of red clover in York Co., N.B. In 5 fields examined a tr. to 2% of the plants were affected. The virus was transferred by means of dodder (Cuscuta gronovii) to tomato and potato, var. Green Mountain. The symptoms produced in these plants resembled those of bunch or purple top (D.J. MacLeod).

A single roadside plant of red clover found near Rocky Mountain House, Alta., showed symptoms suggestive of yellows. The flower parts were green and growth habit suggested that in witches' broom (W.P. Campbell).

RED LEAF (potato leaf hopper injury). There was observed a pronounced reddening of parts of the leaves of white and Ladino clover in the University plots, Winnipeg, Man., where potato leaf hoppers were abundant (W.C. McDonald).

SWEET CLOVER

GREY STEM CANKER (Ascochyta caulicola). Tr.-sl. infection was found on roadside stands nr. Raymond, Alta. (M.W. Cormack). Infection was sl.-mod. on sweet clover varieties in the test plots at Brandon, Man.; in other areas infection was sl. (W.C. McDonald).

BLACK STEM (Ascochyta meliloti). A light infection, confined mostly to the stems, was found in 8/12 fields examined in Sask. (H.W. Mead).

WINTER CROWN ROT (low temperature basidiomycete). A sl. infection was seen at Evansburg, Alta. (J.B.L., S.B.H.).

SUMMER BLACK STEM (Cercospora davisii). In 1954 (P.D.S. 34:37) black stem attributed on the basis of symptoms to Ascochyta meliloti was reported to be sev. in fields n.-e. of Winnipeg, Man. The pathogen has since been identified by Dr. F.R. Jones of Wisconsin as C. davisii. Isolations made from other material collected in 1954 revealed that C. davisii was widely distributed in Man. In 1955, infection ranged from sl. to very sev. on varieties in the seed trial plots at Brandon and was isolated from other areas in the province. Cercospora leaf spot was common in the affected fields (W.C. McDonald).

LEAF SPOT (Leptosphaeria pratensis (Stagonospora meliloti) was found in 5 fields in the Peace River district of Alta; infection was 3-tr. 2-sl. (J.B.L., S.B.H.). Tr. infections were general in Man. (W.C. McD.). Leaf spot sev. infected white sweet clover at Notre Dame du Lac, Que. (D. Leblond).

COMMON LEAF SPOT (Pseudopeziza medicaginis) Light infections at Ste. Rose and Steinbach and traces in other parts of Man. (W.C. McD.).

BASAL STEM ROT (Sclorotinia ?sclerotiorum). Affected specimens received from Tisdale, Sask.; not as common as in 1954 (T.C. Vanterpool).

MOSAIC (bean virus 2) again appeared in almost every sweet clover plant in the plots at Brandon, Man. Inoculation experiments showed that the virus could be transmitted mechanically to beans, peas and alsike clover, but not to red or white clover. It is believed to be Pierce's strain of bean virus 2

as described by C. W. Hungerford and I. G. Hillyer (Plant Dis. Reptr. 38:621-627. 1954). The disease was prevalent in one field at Steinbach, but it was not found in other areas (W.C. McD.).

BLACK STEM (cause undetermined). Infection was sl. in a red clover field at Fort Saskatchewan and mod. in one at McLennan, Alta. (J.B.L., S.B.H.).

VETCH

BLACK ROT (?Phytophthora cactorum var. applanata). About 3/4 of the plants of hairy vetch (Vicia villosa) grown from seed sown amongst hops in a commercial planting at Lillooet, B.C., were affected and dying from a black rot in April. The above pathogen was isolated from the hops, which was similarly affected. The disease was most prevalent in the lowest part of the field (G.E. Woolliams).

B. OIL-SEED CROPS

FLAX

Dr. W.E. Sackston has summarized his observations in a special report entitled "Flax Diseases in Manitoba in 1955".

The disease situation in the 64 flax fields examined in Man. and e. Sask. 15-19 August was quite different from previous years. Wet weather in May and June delayed seeding, in some cases so late that the crop failed to mature before freeze-up. Hot, dry weather during most of July and August hastened ripening of much of the crop. Stands were very good in many of the fields examined, but the plants were short and there was often little or no basal branching. Bolls were relatively few on most plants, but most of the bolls examined averaged 8-10 seeds. The estimated yield was 8.7 bushels per acre, from 530,000 acres.

YELLOWS (aster yellows virus, California strain) was the most striking disease in flax fields in the area surveyed. Its prevalence and severity are indicated by the fact that growers from various parts of Man. submitted specimens for diagnosis. A number of growers reported that there were only traces of the disease in fields of Marine, adjacent to other varieties such as Red wood and Raja in which infections of 1-30% occurred. Infections recorded during the survey were: zero in 6 fields, trace-1% in 36, 5-10% in 17, 20-30% in 4, and 35% in 1 field. The fields in which no diseased plants were seen were all ripe. Early sown flax seems to escape infection, and the few affected plants are hard to find in a ripe stand.

PASMO (Septoria linicola) was more prevalent and severe in farm fields of flax than in any year since 1948. The disease develops best in a warm season, such as 1955, but it usually is most sev. when the weather is humid as well as warm, and both July and August were quite dry. Whatever the conditions were that accounted for extensive development of pasmo, they also favored the development of diseases induced by species of Septoria on cereals and other hosts. There was no pasmo in 25 fields, traces-10% in 19, 11-50% in 11, 75-100% in 9.

BOLL BLIGHT (cause unknown) was relatively light in 1955, providing additional support for the hypothesis that it is a physiological disorder similar to "blast" in oats. The condition was not observed in 12 fields, most of them too green to show it; there was up to 10% in 14 fields, 15-25% in 31, 30-35% in 6, and 50% in 1 field, in which the blighting was apparently caused by a late-season application of a hormone herbicide.

HEAT CANKER (physiological). Specimens of flax affected by heat canker were submitted from s. Man. by a number of flax growers following hot weather in July. More than 20% of the plants were killed in one field, according to the grower. Two fields with 10% of the plants affected were seen during the survey.

MISCELLANEOUS. Traces of Seedling Blight were found in one field, and 40% damage was caused by Rhizoctonia Seedling Blight in a field s. of Winnipeg examined in June. Traces of Top Discoloration, and some other evidence of Drought Injury, were seen in 8 fields in the light soil area in s.-w. Man. and s.-e. Sask. Root Rot symptoms were seen in 5% of the plants in one field. Wilted plants in a soil bed in the Cereal Breeding greenhouses, uninoculated, gave rise to pure cultures of Fusarium oxysporum f. lini.

Prof. T.C. Vanterpool, University of Saskatchewan, Saskatoon, has a similar report on "Flax Diseases in Saskatchewan in 1955".

The first month of the growing season was moist, with normal temperatures and low sunshine. Flax seed germination was uniform and the growth good. Then followed three months of low rainfall, higher than average temperatures but no extremely hot spells, and good sunshine. The high sub-soil moisture and the relatively uniform temperatures were favorable for the growth of flax. A crop strikingly free of disease and of high average yield resulted. The estimated average yield was 11.1 bu. per acre or 13,100,000 bu. on 1,180,000 acres. Thus, the acreage was more than doubled over last year, the yield up 3/4 bu. per acre and production the highest since 1912. There was undoubtedly the smallest loss from disease since the flax acreage increase at the beginning of World War II. Flax yellows was the only disease which caused any concern, not because of the losses it caused, which in the aggregate would be little more than trace, but because it was widely distributed and new to the growers. A preliminary examination of the flax seed from the 1955 crop has indicated that the seed for the 1956 crop in Sask. will be unusually free of seed-borne pathogenic fungi.

RUST (Melampsora lini) virtually absent except for sl. infestations in a few fields of Redwing which, though susceptible to rust, is recommended for n. areas because of its earliness. A sample of Redwing, in which Alternaria linicola had invaded the stem through rust pustules, was received from Wynyard (See Blight (Alternaria linicola).

SEEDLING BLIGHT (Rhizoctonia solani) was more prevalent in central districts than last year, but less prevalent than in years when the spring was warmer and drier. It was more conspicuous in farmers' fields than in the early sown plots at the University. The reduction in seedling stand was slight.

BROWNING and STEM BREAK (Polyspora lini) was not recorded in central, w.-central, and n.-e. areas that were surveyed. The result was not unexpected as 1954 seed carried a trace only of P. lini.

PASMO (Sphaerella linorum (Septoria linicola) was not observed in the central, w.-central or n.-e. areas surveyed. As reported last year pasmo was widely distributed over central Sask. late in the season, so that there must have been abundant over-wintered inoculum this spring. The dry, bright weather of June, July and August appear to have been responsible for its absence this year.

HEAT CANKER. One case only was found at Floral on 25 June. Specimens were received later from Cavell, Stony Beach and Heward, and seemed to have come from late-sown fields. Although the average daily sunshine was 3 hours above normal in June, the lack of very high temperatures and plentiful soil moisture must have prevented much damage from heat canker.

BLIGHT (Alternaria linicola) was scarce. One sample of Redwing, from Wynyard, lightly infected with rust, showed some stem browning. A. linicola had entered through the rust pustules, producing discolorations above and below them. There was little blackening of the stems by Alternaria spp. and Cladosporium herbarum on mature crops left uncut until late in the fall.

YELLOWS (aster yellows virus, California strain). Eight enquiries were received from growers in the black and dark brown soil zones. Disease surveys showed that yellows was moderately sev. in central and e. areas: mostly 0.5-5%, while it was light, traces mostly, on a wide expanse of the Rosetown plains. At the Scott Farm infestations varied between 2 and 5%, and on the 'mud flats' s. of Unity between 2 and 4%. Yellows was present in practically all fields in the n.e. (Nipawin - White Fox area), but in traces mostly. The disease is, nevertheless, widespread though records for the extreme s.w. are meagre. It is known to be present in flax in irrigated areas in that region. Yellows was not as sev. as in 1954. The same is true for carrot yellows and purple top of potato, both caused by the same virus. It may be noted that leafhoppers of the Macrostyles fascifrons complex, a vector of the aster-yellows virus, were not as plentiful this year as in 1954 according to Mr. A.R. Brooks, Entomology Laboratory, Canada Dept. of Agriculture, Saskatoon.

Several weeds previously shown by either Kunkel or Severin and his collaborators to be hosts of the virus have been found infected in, or near, flax fields.*

BIRD INJURY (mainly goldfinches) was sev. in experimental plots in one location at Saskatoon; in 1954 the injury was mod. One report was received from Melfort. The frayed and cup-like appearance of the empty bolls may show a slight resemblance to the aborted floral parts of flax plants affected with yellows when viewed from a distance of a few feet.

LIME (PLASTER) INJURY and LIME-INDUCED CHLOROSIS. In a small area in the flax experimental plots in 1953, several young plants 3 to 6 in. high were observed to be sl. stunted with white, bleached, circular to elongate spots on most of the leaves, the lower ones being more sev. affected. Some plants also showed sl. chlorosis. As the plants grew older, the majority of the spotted leaves fell off, but the new growth appeared normal. Examination of the soil revealed numerous small white lumps, which looked like discarded building plaster that was probably thrown there several years earlier when a nearby building was being erected. The pH of the soil was 8.3. During 1954 the plot was fallowed. In 1955 three 8-foot rows of each of the following crops were sown in the lime area: flax (Rocket), bread wheat (Redman), durum (Stewart)

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* Thanks to Dr. A.P. Arnason, Entomology Division, Ottawa, statements were made available on the incidence of Macrosteles fascifrons in the cultivated areas of the neighbouring provinces, Man. and Alta. These statements have been summarized below (I.L.C.)

The Macrosteles fascifrons complex has been observed to be in great abundance in s. Man. for the last several years. Low populations occur in the spring, build up to a peak in early August, and then decline. Whether or not the insect overwinters in Man. is unknown.

These leaf hoppers are found on a variety of plants and are particularly abundant on late head lettuce. They also occur in small numbers on potatoes. No general survey has been made for the insect. Aster yellows is known on a variety of plants particularly carrots, up to 40% having been found infected in a planting. Flax apparently affected by this disease was noted in 1955, but may have occurred in earlier years (R.D. Bird).

In 1953, A.M. Harper found the Macrosteles fascifrons complex was very abundant throughout the irrigated areas about Lethbridge, Alta. He also recorded considerable yellows in carrots in that year. There was some evidence of yellows in this crop in 1954 and 1955, but the disease was far more serious in 1953. I am unaware of any serious infection of yellows in flax in s. Alta. in 1955. As a rule if any unusual trouble is widespread, farmers bring material to the laboratory for examination. In mid-September upon receipt of your enquiry, a brief survey was made in a number of flax fields and leaf hoppers that appeared to be Macrosteles fascifrons were found (C.W. Farstad).

barley (Titan), oats (Exeter), alfalfa (Grimm), sweet clover (Alfa), rape (Golden), sunflower (Mennonite) and safflower (Sask. 5260). The symptoms described above again developed on most of the flax plants, whereas the other crops appeared normal except for slight stunting of a few plants. It is inferred from these results that flax is more susceptible to lime injury than the other crops tested. This conclusion agrees with previous field observations on flax and cereals in high lime areas. High lime ordinarily produces a general chlorosis in flax without any white spotting; in this case the white spotting is possibly due to a trace element deficiency or toxicity brought about by the high lime. Sl. chlorosis was found in two fields (Annaheim, Spalding) on 29 June. It is probable that the condition was more conspicuous earlier.

Other Observations

RUST (Melampsora lini) Infection was 4-tr. 1-mod./21 fields examined in s. Alta. (J.S. Horricks) and 15-tr. 3-sl. 5-mod. 1-sev./50 fields most of which were located in the Peace River district and around Fort Vermilion. Because the observations were made in early August it is probable that rust increased in severity before harvest (W.P. Campbell). Rust was reported to be prevalent on Redwing at Chinook Valley, where continuous cropping appears to have favoured destructive outbreaks of the disease (A.W. Henry).

BROWNING (Polyspora lini). Infection 3-tr. 1-sl./50 fields examined; the affected fields were in the Peace River district, Alta. (W.P.C.).

ROOT ROT (Rhizoctonia solani). Infection was 4-tr. 1-sl./21 fields examined in s. Alta. (J.S. Horricks).

PASMO (Septoria linicola) caused sev. damage in one field nr. Medicine Hat, Alta. (M.W. Cormack).

YELLOWS (aster yellows virus, California strain) A sl. infection was observed in 4 fields in w.-central Sask. Although a large acreage of flax was seen in s.e. Sask. in late August, the crop was ripe and already too far advanced for detection of yellows (H.W. Mead). A trace (3 plants) were found affected by yellows in the Cereal Crops plots at Ottawa, Ont., as early as 20 June; the weather became very dry and there appeared to be no further development of the disease. (Mary E. Elliott, W.G. MacGregor).

RAPE

WHITE RUST (Cystopus candidus) A mod. infection was present in a test plot of Argentine rape at Winnipeg, Man. (W.E. Sackston).

DOWNY MILDEW (Peronospora parasitica) A sl. infection was recorded in 4/8 fields examined in Sask. (H.W. Mead).

STEM ROT (Sclerotinia sclerotiorum). Infection was tr.-sl. in a field examined s. of Prince Albert, Sask. 22 Aug. Although this disease was sev. on rape, sweet clover and alfalfa in 1954, no reports of its occurrence on the other crops were received this year (T.C. Vanterpool).

LEAF SPOT (cause unknown) was rather conspicuous in one field of Argentine rape at Gunton, Man. Spots mostly discrete, round, 1-3 mm. in diam., grayish-brown with pale to dark brown margins scattered over the leaf (W.E. Sackston).

BLACK SPOT (cause unknown). A heavy infection was noted on the stems and pods in a planting at Gunton, Man. A tr. observed in 3 other fields in the Interlake area. Spots on siliques, pedicels and stems; about 1 mm. in diam. or on the stems elongate 1/2-1 mm. wide, up to 4 mm. long; numerous, discrete or sometimes confluent,dark brown to black, the larger ones with lighter central area. No fungus found fruiting on the spots; isolations yielded only Alternaria tenius and miscellaneous fungi (W.E. Sackston). A tr. of spotting was found on stems of rape in a field s. of Prince Albert, Sask. (T.C. Vanterpool).

HEAT CANKER? Plants were found breaking over at the ground line in a field on peaty soil at Riverton, Man. The plants were on a thin part of the field and were apparently survivors in a flooded spot. The symptoms resembled heat canker in flax (W.E. Sackston).

YELLOWS (Callistephus virus 1) was conspicuous in one field at Riverton, Man., out of 6 examined in the Interlake district; 1% of the plants were affected. A tr. was present in the University plots, Winnipeg (W.E.S.).

ROQUETTE

ANTHRACNOSE (Colletotrichum brassicae Schulz & Sacc.) was heavy on roquette (Eruca sativa) in the Cereal Crops plots at Ottawa, Ont. It was first observed in 1954. Of the species of Colletotrichum reported on Cruciferae the fungus agreed most closely with C. brassicae originally described on B. oleracea var. caulocarpa (Mary E. Elliott).

SAFFLOWER

LEAF SPOT (Alternaria carthami). This fungus was again isolated from spots on the leaves of safflower grown in the Cereal Crops plots, Ottawa, Ont. (M.E.E.).

ANTHRACNOSE (Gloeosporium carthami (Fukui) Hori & Hemmi) A single seedling was found dying in the plots, Cereal Crops Div., Ottawa, Ont.; the fungus appears to belong in Colletotrichum (M.E.E.).

RUST (Puccinia carthami) Tr.-sl. infections were noted in the experimental plantings at Lethbridge and Seven Persons, Alta. (F.R. Harper). Rust was sev. in some plots at Morden, Man.; present in all the Cereal Breeding Laboratory plots but scarce in the University plots, Winnipeg. In greenhouse tests, 2 distinct races of the rust were shown to be present (W.E. Sackston). The rust was again found on leaves of susceptible varieties in Cereal Crops Division plots, Ottawa, Ont.; it was first observed in 1954 at Ottawa (Mary E. Elliott).

ROOT ROT (Pythium sp.) was sev. in experimental plots of N-852 grown on irrigated land at Lethbridge, Alta. (F.R. Harper).

SOYBEAN

The usual summary that has been prepared regularly by Dr. A.A. Hildebrand on the diseases of soybeans in southwestern Ontario is not available this year because of his absence abroad last summer. He hopes to resume the series next year (I.L.C.).

BACTERIAL BLIGHT (Pseudomonas glycinea). Infection was sev. in several varieties, some new and others old, in the University plots, Winnipeg, Man.; on the other hand, infection was tr.-mod. in certain other varieties. The causal organism was isolated and proved pathogenic to certain susceptible varieties but not to P.I. 68521 and P.I. 68554-1, which had proved resistant in Illinois and had been secured by Mr. Baldur Stephanson for use in his soybean-breeding program (W.A.F. Hagborg). A sl. infection was observed on the leaves of Blackeye in the Farm plots, at Ottawa, Ont. (R.L. Millar).

SUNFLOWER

Dr. W.E. Sackston has contributed a special report on "Sunflower Diseases in Manitoba in 1955".

The sunflower acreage in 1955 was 18,000 acres, about the same as in 1954. Farmers' plans to double the acreage were thwarted by excessive rains at seeding time. An extended hot, dry spell in July and August hastened filling and maturity of the seed, although in some instances yields may have been reduced by the drought. The provincial average yield was estimated at 800 pounds per acre.

Forty-six fields in the central and outlying areas were examined during a disease survey made 6-9 September. Dr. E.D. Putt, Experimental Farm, Morden, assisted throughout the survey; Mr. L.B. Siemens, Man. Dept. of Agriculture, and Mr. A. Heppner, Cooperative Vegetable Oils, Altona, assisted for one day.

The disease situation was quite different from that of previous years, partly as a result of the release and extensive planting of the rust resistant hybrid variety, Beacon (Synthetic M-1). Because Beacon is a late-maturing variety,

it was recommended only for the Red River Valley and most of it was grown there, although some fields were sown by growers in the outlying areas.

RUST (Puccinia helianthi) was present in every field. Only traces of infection were found in the 18 fields of Beacon examined, 16 of them in the central area, and two 100 miles west of it. Light infection, up to 10% on the mid-leaves, was seen in 10 fields of Advance or Mennonite. Mod. infections, 15-25% on the midleaves, were seen in 7 fields of Advance and one of Mennonite, mostly in the central area. Heavy infection, 30-40% on the midleaves, was found in 2 fields of Mennonite in the central area and in 5 of Advance in the outlying area. Very heavy infection, with the midleaves carrying 50-80% of rust, or killed by rust, was seen in 3 fields of Mennonite, all in the central area. In every field of Advance, a hybrid variety, plants of the inbred female parent S37-388 were much more heavily rusted than were the hybrids.

In previous years, some of the heaviest rust infections were found in the area around Altona and Rosenfeld. Only light to mod. infections were found even on Advance in this area in 1955. Possibly the shift to the rust-resistant Beacon reduced the opportunities of inoculum build-up from early spring infections. Many of the fields of Mennonite were in the region near Winkler; the heavy infections on Mennonite in this area may have resulted because there was an abundance of susceptible material on which the early inoculum could increase.

The heavily rusted fields of Advance in the outlying areas were on or near farms where sunflowers were grown in previous years. The outlying fields with light to mod. infections, however, were many miles away from any farm where sunflowers were known to have been grown previously. The initial inoculum must have travelled considerable distances, unless it came from plants of the several wild species of Helianthus that occur in Man. Many colonies of the various wild sunflowers were heavily rusted in 1955. Some colonies near rusted fields of cultivated sunflowers in outlying districts were relatively free of rust, however, so wild sunflowers may not have been the source of inoculum.

WILT (Sclerotinia sclerotiorum). Traces of wilt were found in 24 fields, and 10% of the plants were attacked in one field of Advance and one of Beacon, both on the same farm. Canada thistle and sowthistle plants were killed by the same organism in some of the affected patches in sunflower fields. This is the first year since 1948 in which no infections heavier than 10% were encountered.

LEAF MOTTLE (cause unknown), which was prevalent and destructive in 1954, was not serious except in 2 fields in 1955. There were traces of the disease in 10 fields in the central area; plants with similar symptoms in 2 outlying fields did not have the vascular discoloration usually associated with the condition. In one field, immediately adjacent to a field in which 50% of the plants showed mottle in 1954, 1% of the plants showed symptoms 27 July, and 20% were affected in September. In another location, two acres of sunflowers were sown by a farmer cooperator in a field in which leaf mottle was reported

by him to be sev. in 1954. Mottle symptoms were observed on 20% of the plants on 27 July; 65% were affected in September. Although the cause of the disease has not yet been found, it is now known, or suspected that the disease is not seed borne; that the worst attacks occur on relatively light soil; that the disease is either soil borne, or associated with certain locations, and that there are no striking deficiencies or excesses of the elements for which analyses have already been made.

STALK ROT and PREMATURE RIPENING (various causes). External discoloration of sunflower stems was present in trace amounts in 15 fields. Some of the affected stems were black and the pith, dark green to black; in other cases, the stems were brown and the plants were prematurely ripe, possibly as a result of rust attack, or because of drought. Mod. to sev. stem discoloration in 2 fields was associated with hail or similar injury; the plants were prematurely ripe in one end of a third field, possibly because of adverse conditions there earlier in the season.

YELLOWS (aster yellows virus?) affected a few plants in 17 fields, up to 1% in 9, 3% in 2, and 5-10% in 1 field. Affected plants were more numerous in fields of Beacon, but the disease was also present on Mennonite and Advance plants as well, and may have affected some S37-388. In previous years, affected plants in Advance fields usually appeared to be Sunrise, the male parent of the hybrid. Symptoms of this disease were also noticed on plants of Helianthus aridus growing along a roadside.

Typical aster yellows symptoms developed on several sunflower plants set out among infected carrots in a plot at the University. Sunflowers enclosed in cheesecloth cages remained free of the disease.

DOWNY MILDEW (Plasmopara halstedii) was present in trace amounts in 10 fields; 1% of the plants were affected in 4, and 3% in 1 field. Affected plants were also present in plots at Winnipeg, Morden, and Altona. No affected plants were seen in any fields in the outlying area.

MISCELLANEOUS. Head Drop was present in trace amounts in 13 fields, all in the central area. It was observed in experimental plots at Winnipeg, and was conspicuous among volunteer plants allowed to develop on the 1954 plot area. A condition resembling head drop was seen affecting some plants of Helianthus maximilianus and H. annuus lenticularis. Powdery Mildew (Erysiphe cichoracearum) was present in a number of farm fields, and was quite sev. in plots at Morden. There were striking differences in reactions of different sunflower varieties at Morden. The disease is now well established in the laboratory greenhouses at Winnipeg. A dry head rot was found on a few plants. Small, elongate black lesions were seen on the stems of plants in plots at Winnipeg and Morden, and in 14 farm fields: (7 Mennonite, 5 Beacon, and 2 Advance). The lesions, which resemble those attributed to virus infection in Argentina, were confined to the north and west sides of the stems. Traces of damage by 2, 4-D were seen in five fields, and severe injury, resulting from drift of the chemical applied to control roadside weeds, was present in one field examined. Hail injury was severe on stems in two fields. Lesions caused by Septoria helianthi were numerous on the cotyledons of volunteer seedlings on the 1954 plot area. The disease disappeared as the plants grew larger. It was not found elsewhere.

Other Observations

WILT (Sclerotinia sclerotiorum) Infection was sl. at Lacombe and mod. in the University plots, Edmonton, Alta.; sclerotia were present on the fallen stems (W.P.C.). A specimen was received from Falher (A.W.Heney).

C. ROOT CROPS

MANGEL

LEAF SPOT (Cercospora beticola) infection was tr.-sev. on the outer leaves of Frontenac in a planting in Queens Co., P.E.I. (R.R. Hurst). A specimen collected 15 September was fruiting profusely (I.L. Conners).

SUGAR BEET

LEAF SPOT (Phoma betae) A tr. infection was seen in one field nr. Barnwell, Alta. (M.W.Cormack).

BLACK ROOT (various fungi). Phoma betae was present on affected stecklings sent in from the Fraser River delta, B.C. (H.N.W.Toms). Black root was found in all 42 fields examined in a pre-thinning survey in s. Alta. On the average, about 50% of the seedlings were infected and 3% of these were sev. damaged or dead. Phoma betae and Rhizoctonia solani were most frequently isolated from diseased material. Tr. infections of root rot were found in 2 fields in July. Storage piles examined in late October showed no damage (F.R.Harper).

D. MISCELLANEOUS CROPS

CORN

Diplodia zeae (Schw.) Lev. Mycologists and plant pathologists are interested in achieving stability in names applied to the organisms with which they are working, yet stability will not be attained by authors continuing to use a name that clearly lacks priority under the International Rules of Botanical Nomenclature. The common corn parasite known as Diplodia zeae is a particularly clear case. Shear and Stevens (Mycologia 27:467-477. 1935) showed that Schweinitz, contrary to the homonym rule of today, had applied the name Sphaeria zeae twice to different fungi, in 1822 and 1832 respectively. Their examination of specimens in the Schweinitz and other herbaria revealed that Sphaeria zeae Schw. 1832 was the fungus usually known as Diplodia zeae (Schw.) Lév. On the other hand, Sphaeria zeae Schw. 1822 was the fungus then generally known as Gibberella saubinetii (Mont.) Sacc. As there seems some doubt about the final generic position of this Diplodia on corn they suggested the

continued use of D. zeae. However, Petch (Ann. Mycol. 34:257-260. 1936) showed that Gibberella saubinetii was a synonym of G. cyanogena (Desm.)Sacc., a common saprophyte of herbaceous and woody stems and further that the Gibberella on cereals was without a name. He correctly chose Sphaeria zeae Schw. 1822 as a basonym of his new combination Gibberella zeae (Schw.) Petch, a name that has since been generally accepted. Thus, the argument of Shear and Stevens for ignoring an earlier homonym because it was quietly buried in the synonymy of another species became pointless. Another source of confusion is the fact that subsequent authors have treated the name proposed by Léveillé as a new combination, not as a new species. Léveillé actually wrote "Diplodia Zeae, n. sp." with a latin diagnosis, concluding with "Hab. Tete de Buch propre Burdigalam ad culmos Zeae Maydis", i.e. a specimen on corn stalks from near Bordeaux, France. He lists as possible synonyms "Sphaeria Zeae Schwein. Syn. Fung. North Amer., p. 207 - Sphaeria dolosa Pers. (herb. Lugd. Batav.)".

The next available name for the Diplodia on corn is Sphaeria maydis Berk. 1847 based on specimens collected at Cincinnati, Ohio, May 1, 1841. Shear and Stevens examined the type and found it to be "typical Diplodia Zeae". Saccardo (Syll. Fung. 3:373. 1884) transferred the fungus to Diplodia as D. maydis (Berk.) Sacc. There seems no valid reason for further delay in the adoption of the latter name (I. L. C.).

RUST (Puccinia sorghi). Infection ranged up to 100% on inbred corn lines in the experimental plots, Harrow, Ont.; damage was sl. (N. J. Whitney). Sl. infection was reported in one corn field in Queens Co., P. E. I. (R. R. Hurst).

STALK ROT (Pythium and Fusarium spp.) was widespread in hybrid field corn in s. w. Ont. in 1955. In Essex and Kent counties infection ranged up to 75% of the plants and the damage was often sev. In the disease nursery at the Harrow Farm, inbred lines were sev. damaged; sometimes every plant was diseased (N. J. Whitney).

ROOT ROT (Pythium and Fusarium spp.)was also widespread this year in hybrid field corn in s. w. Ont. This disease first appears in August and increases in intensity as the corn matures. Of interest is the noticeable absence of root and stalk rot in corn grown on muck in the Thedford marsh (N. J. Whitney).

SMUT (Ustilago zeae). Two affected ears were observed in field corn in P. E. I. (R. R. Hurst).

MINT

RUST (Puccinia menthae) caused some damage in a planting of spearmint (Mentha spicata) at Hamilton, Ont. (J. K. Richardson). Rust caused sev. defoliation in a short garden row of peppermint (M. piperata) at Kentville, N. S. (K. A. Harrison).

WILT (Verticillium abbo-atrum) affected about 25% of the plants in an 8-acre field of peppermint in the Thedford Marsh, Ont.; damage was sev. (N.J. Whitney).

MUSTARD

WHITE RUST (Cystopus candidus) Infection was mod.-sev. on the leaves of brown mustard (Brassica juncea) and a trace on some yellow varieties of white mustard (B. alba) in the plots at Lethbridge and Seven Persons, Alta. Infection was also mod. in 1/8 fields examined in s. Alta. (M.W. Cormack).

SUDAN GRASS

LEAF SPOT (Pseudomonas syringae) A mod. infection was observed in the plots at the Farm, Lacombe, Alta. (S.B. Hrushovetz).

CULTIVATED AND OTHER GRASSES

AGROPYRON - Wheat Grass

Ergot (Claviceps purpurea) was recorded on several species in Alta. as follows: one collection on A. albicans nr. Metiskow (e.-central); roadside collection on A. cristatum nr. Drumheller; A. dasystachyum, noted at 4 locations in n.-central Alta.; A. smithii, 3 collections in c. Alta.; A. subsecundum, 6 collections in w. Alta.; A. trachycaulum, noted nr. Thorsby (W.P. Campbell) About 25% of the heads of A. repens affected in a patch at Broad Cove, Lunenburg, N.S. (D.W. Creelman).

Powdery Mildew (Erysiphe graminis) A mod. infection observed in A. repens in a grain field at Graham's Road, Queens Co., P.E.I. (J.E. Campbell).

Leaf Rust (Puccinia rubigo-vera) Tr. infection on A. trachycaulum in the plots at Lethbridge, Alta. (E.J. Hawn).

Snow Mold (Sclerotinia borealis Bubak & Vleugel). In P.D.S. 31:39, an undetermined species of Sclerotinia was reported to have caused extensive damage to grasses on the experimental plots at Prince George, B.C. Recently, J. Walton Groves and Constance A. Bowerman (Can. J. Botany 33:591-594. 1955) have shown that the pathogen was S. borealis, "previously known only from Sweden, Norway, Finland and the U.S.S.R." Apothecia were developed in culture and compared with authentic material from Sweden. According to them, specimens were received on the following grasses: Agropyron dasystachyum, A. desertorum, A. intermedium, A. semicostatum, A. sibiricum, Agrostis canina, Alopecurus pratensis, Arrhenatherum elatius, Bromus erectus, B. inermis, Dactylis glomerata, Elymus canadensis, E. sibiricus, Festuca elatior, F. gigantea, F. rubra, Lolium perenne, Phleum pratense, Poa ampla, and P. compressa (I.L.C.)

Head Smut (Ustilago bullata) A mod. infection was reported in a field of A. trachycaulum at Barons, Alta. (J.T. Slykhuis).

AGROSTIS

Ergot (Claviceps purpurea) Two collections made on A. alba in e.-central Alta (W.P. Campbell).

Leaf Rust (Puccinia rubigo-vera) A light-mod. infection was general on A. tenuis in Lunenburg Co., N.S. (D.W.Creelman).

ALOPECURUS

Eye Spot (Mastigosporium album) was found in a single field of A. pratensis at Wolfville, Kings Co., N.S.; damage was sev. (D.W.Creelman).

AVENA

Ergot (Claviceps purpurea) was found on wild oats (A. fatua) in a field of wheat nr. Wetaskiwin, Alta. (W.P.C.).

Stem Rust (Puccinia graminis) Very sev. infections were noted on A. fatua in central Alta.; even the pedicels and glumes showed large uridinial sori (W.P.C.). Heavy stem rust infections were noted on wild oats between White Fox and Henribourg in s. Sask.; farmers cutting barley were brown from the rust spores on the wild oats in the barley (T.C. Vanterpool).

BROMUS

Ergot (Claviceps purpurea) The occurrence of ergot on B. inermis was noted at 69 locations in central Alta. and the Peace River district. It was also found on B. ciliatus at 7 locations btwn. Edson and Jasper and once on B. pumpellianus w. of Wetaskawin (W.P.Campbell). A sl. infection was noted on B. inermis in the University plots, Winnipeg, Man. (W.C.McDonald).

Leaf Blotch (Helminthosporium ?bromi) A sl. infection was recorded in the plots of B. inermis at the Illustration Station, Evansburg, Alta. (S.B.Hrushovetz). A sl.-mod. infection was present in the University plots, Winnipeg, Man.; perithecia of Pyrenophora bromi were abundant on over-wintered straw (W.C. McDonald).

Leaf Spot (Selenophoma bromigena) Sl.-mod. infection was general on B. inermis in the Red River Valley, Man.; infection was also sl.-sev. in the University plots, Winnipeg (W.C. McDonald). Infection was mod-sev. in small row plots of this grass at Kemptville, Ont. (R.J. Baylis).

CALAMAGROSTIS

Ergot (Claviceps purpurea) was noted on C. canadensis, a common wild hay and pasture grass, at 26 locations in central Alta. and the Peace River district (W.P. Campbell). Ergot on native bluejoint grass is unusually prevalent this year in s. Alta. and has caused some loss of livestock (Exp. Farm, Lethbridge).

DACTYLIS GLOMERATA - Orchard Grass

Purple Leaf Spot (Mastigosporium rubricosum) A sev. infection, which sev. damaged or killed the leaves was observed on one farm at Mavillette, Digby Co., N.S. Although this disease is often reported on the Pacific Coast, it is apparently a newcomer to the Atlantic provinces (D.W. Creelman).

Stem Rust (Puccinia graminis) was prevalent on orchard grass in the University plots, Winnipeg, Man.; the rust was identified as var. avenae (W.C. McDonald). Stem rust was heavy on this grass in the plots at Harrow, Ont., in the late summer. (W.G. Benedict).

Downy Mildew (Sclerophthora cryophila W. Jones) In P.D.S. 34:53, this disease was attributed to an undescribed species of Sclerophthora. Since then W. Jones (Can. J. Botany 33:350-354. 1955) has described and illustrated the fungus (I.L.C.).

Brown Stripe (Scolecotrichum graminis) A mod. infection was observed on orchard grass var. Hercules in the plots at Ottawa, Ont.; reddening of the older leaves was very noticeable. Orchard grass appeared to be more affected than timothy (R.J. Baylis). Brown stripe was common and heavy throughout Kings Co., N.S. (D.W. Creelman).

ELYMUS

Ergot (Claviceps purpurea) was noted on E. innovatus at 31 locations in w.-central Alta. and in the Peace River district (W.P. Campbell).

FESTUCA

Root Rot (Helminthosporium sativum and Fusarium spp.) A sl. infection was found on F. rubra in a field nr. Beaverlodge, Alta. (J.B. Lebeau).

GLYCERIA

Ergot (Claviceps sp. indet.) Collections were made on G. borealis nr. Trochu and Lloydminster, Alta. (W.P. Campbell).

HORDEUM

Crown Rust (Puccinia coroneta) was collected nr. Hinton, Alta. on H. jubatum (S.B. Hrushovetz, W.P. Campbell). The identification was confirmed. This is the first collection of the rust on this host to be deposited in the Herbarium at Ottawa, although it is known on other grasses in the tribe Hordeae (J.A. Parmelee).

PHLEUM PRATENSE - Timothy

Ergot (Claviceps purpurea). Three collections made on timothy in n.-central Alta. (W.P. Campbell). Tr. infection observed in timothy at Baker Settlement, Lunenburg Co., N.S. (D.W. Creelman).

Leaf Spot (Heterosporium phlei) was found sev. affecting a single field of timothy at East Mines, Colchester Co., N.S.; the disease has not been previously reported in N.S. (D.W. Creelman).

Rust (Puccinia graminis var phlei-pratensis) was of common occurrence in Man. in 1955. It was observed on patches of volunteer timothy in many parts of the province, infection ranging from a tr. to 20% (T. Johnson).

Stripe Smut (Ustilago salvei Berk. & Br., Ann. Nat. Hist. Ser. 2, 5:463. 1850; Uredo striaeformis West., Bull Acad. Roy. Belg. 18:406. 1851; Ustilago striaeformis (West.) Niessl, Nedw. 15:1. 1876) According to a note of G.C. Ainsworth and Kathleen Sampson (The British smut fungi (Ustilaginales). C.M.I. Kew. 1950, p.37) Berkeley and Broome described U. salvei on Dactylis glomerata collected by Rev. T. Salwey, St. Martin's, Guernsey. "Examination

of the Berkeley and Broome type in Herb. Kew shows the host to be Holcus lanatus and the fungus to be U. striiformis". Despite the plea of J. A. Stevenson (Plant Dis. Reptr. 30 53-59. 1946) to treat the name as a nomen ambiguum, it seems illogical to deny recognition to a name when there is now no doubt about the identity of the fungus to which it was applied (I. L. C.). Scattered timothy plants affected by this fungus were observed at various times about St. Catharines, Ont. (T. R. Davidson) The identification was confirmed (D. B. O. S.).

POA

Ergot (Claviceps purpurea) A single collection on P. pratensis was made nr. Olds, Alta. (W. P. Campbell).

Powdery Mildew (Erysiphe graminis) sev. infected volunteer plants of P. compressa in an alfalfa field nr. Piney, Man. (W. C. McDonald).

Stem Rust (Puccinia graminis var. poae). In the spring, 1955, stem rust was observed to be developing on a patch of Kentucky bluegrass, var. Merion at the University, Winnipeg, Man. In late August it was present on bluegrass lawns in several parts of Winnipeg. Also rusted Merion bluegrass specimens were received from Regina, Sask. at the end of August. Although urediniospore dimensions agree rather closely with those of timothy rust, pathogenicity tests indicate that the rust is probably P. graminis var poae. Canada bluegrass has also been found rusted at Winnipeg (T. Johnson). Stem rust was heavy on P. pratensis in the plots at Harrow, Ont (W. G. Benedict, I. L. Conners).

Leaf Rust (Puccinia poae-nemoralis) A sl. infection was recorded on Merion bluegrass at Beaverlodge, Alta. (W. P. C.) and a mod. infection on this grass and P. trivialis in the plots at the Farm, Lacombe (S. B. H.). This rust was collected at Beaverlodge in 1954 (P. D. S. 34:54), and from examination of a specimen on Merion bluegrass its occurrence at Lacombe in 1955 may be confirmed (J. A. Parmelee).

STIPA

Ergot (Claviceps purpurea) was noted on S. viridula nr. Jasper, Alta. (W. P. Campbell).

Additional Note

Downy Mildew (Peronospora camelinae Gäum. (P. parasitica sensu lat.) was found by Dr. Arne Gustavsson, Botanical Museum, Lund, Sweden, affecting false flax (Camelina sativa) at Winnipeg, Man., in 2 small experimental plantings of seed imported from Sweden. Duplicate specimens collected and determined by him have been deposited in DAOM. This appears to be the first record of this pathogen in Canada (D. B. O. Savile)