New or Noteworthy Diseases

Stem rust (Puccinia graminis) was generally light on wheat throughout Canada in 1949. In Man., where stem rust was formerly so destructive, it was virtually absent from the varieties now commonly grown. The little rust that did develop was largely confined to barley. On the other hand, leaf rust (P. triticina) of wheat appeared early in Man. and spread rapidly to reach epidemic proportions with probably some reduction in yield throughout most of Man. and eastern Sask. Infection was also heavy in some localities in Eastern Canada. Races capable of attacking Renown and Regent are now present in the Prairie Provinces almost to the exclusion of other races. Although the new American variety, Lee (Hope x Timstein), has proven highly resistant in recent trials in the prairies, it may be noted that leaf rust collections made in southern Alta. and southeastern B.C. attacked the variety more or less heavily. Infection by stem rust and crown rust (P. coronata) of oats was generally light this year.

Dwarf bunt (race of Tilletia caries) was again found in B.C., mostly about Armstrong.

Eye spot (Cercosporella herpotrichoides Fron) was found affecting a sample of winter wheat from a field in Durham Co., Ont., which was severely diseased. Eye spot has not previously been reported in Canada, but it has come to be recognized as of considerable importance in England since its discovery there in 1935.

Common root rot (Helminthorporium sativum and Fusarium spp.) was more prevalent on wheat in Sask. in 1949 than in any previous year for which comparable data are available. It also appeared to be more prevalent than usual in Alta. and Man.

Seed sterility due to a fungus identified as Podosporiella verticillata O'Gara was found in trace amounts in 11 samples of common and durum wheat in an area from Assiniboia, Sask., to Edmonton, Alta. This rare fungus has not previously been recorded in Canada.

The finding of bacterial wilt (Corynebacterium insidiosum) well established in eastern Ont. suggests that the disease will eventually be recognized wherever alfalfa is grown in Canada. A modification of the method used in the identification of bacterial ring rot of potato has proved useful in determining the presence of C. insidiosum in root tissues of alfalfa.

A rarely recorded disease, bacterial stalk rot (Erwinia dissolvens), caused the death of 10% of the plants in one inbred corn planting in Essex Co., Ont. Stalk rot due to Gibberella Zeae caused heavy losses in yield in southern Ont. Although the perithecia of G. Zeae are found on overwintered corn stalks in Man., ascospore development and discharge appear to occur too late in the area to cause appreciable head blight of cereals. Corn smut (Ustilago Maydis) was exceptionally abundant in southwestern Ont.

Due to decreased flax acreage in Man. and Sask., flax is now grown in fields so widely scattered that there is little spread of disease from field to field although an individual field may be moderately affected. Seedling blight (Rhizoctonia Solani) of flax

appeared most severe on land in barley the previous year. For a second year Alternaria linicola, a common pathogen of flax seed in Western Canada, was isolated from brown stem lesions; symptoms of the disease were also readily reproduced this year in the field by spraying flax in the early boll stage with spores of A. linicola. Although infection was nowhere heavy, rust (Melampsora Lini) was present in scattered fields of Dakota in Man., whereas the variety was free of infection in 1948. Severe damage to Dakota may be expected in the future. That flax growing in Man. and Sask. is dependent on varieties resistant to wilt (Fusarium oxysporum f. Lini) was clearly demonstrated when 20 acres of Crown were sown to complete a field of Dakota; the Crown was almost completely killed by wilt whereas only traces developed in Dakota. Pasmo (Mycosphaerella Linorum) was found definitely affecting fibre flax at Guelph, Ont.

Pod and stem blight (Diaporthe Phaseolorum var. Sojae) became epidemic in some soybean varieties in Ont. Brown stem rot (Cephalosporium gregatum) was present in many fields of the variety Hawkeye. Manganese deficiency was general in soybeans and in some fields quality was impaired and yield reduced. Although the weather was unfavourable for the development of foliage diseases, sunflower rust (Puccinia Helianthi) was slightly more prevalent than last year in the rapidly expanding sunflower area in Man.

Bacterial ring rot (Corynebacterium sepedonicum) of potato proved unusually prevalent in Canada in 1949. This up-surge of ring rot may be accounted for by the hot, dry weather during a large part of the season. Experiments in 1937 indicated that such weather was unusually favourable to the development and symptom expression of the disease.

Late blight (Phytophthora infestans) of potato was of little importance in 1949. Over most of Canada the summer was hot and dry. Frequent rains and cooler weather favoured blight development in September, but losses from tuber rot were generally light except in P.E.I.

The low incidence of leaf roll (virus) in both seed-potato and table-stock fields is attributed to the extensive use of DDT in the principal potato-growing areas.

A new seedling blight (Fusarium oxysporum) of asparagus is described from the Niagara Peninsula, Ont. Mosaic (virus) affected a high percentage of the plants in 30 acres of beans in B.C. grown from imported seed. For the second year Arasan was used successfully to control wire stem (Rhizoctonia Solani) in cabbage in Quebec. Violet root rot (Rhizoctonia Crocorum) was found for the first time in Ont.; it appeared to be fairly prevalent on carrots in the Thedford Marsh in Lambton Co. Although whiptail of cauliflower is an uncommon disease in Canada, some evidence is presented that its occurrence here, as in New Zealand and Australia, is due to molybdenum deficiency. A new root rot (Pythium irregulare Buism.) of onions, known locally as yellow patch, has been observed in southwestern Ont. Yellow dwarf (virus) continues to be destructive to the onion seed industry in B.C. Observations made in Man. indicate that bacterial blight (Pseudomonas pisi) is one of the important seed-borne diseases affecting pea production in that province.

Fire blight (Erwinia amylovora) was more serious than for many years on pear and apple trees in the Okanagan Valley and the Kootenays, B.C. Apple scab (Venturia inaequalis) was heavy in the Salmon Arm district, B.C., but was very light in most other parts of Canada. Perennial canker (Neofabraea perennans) again increased in prevalence in the Okanagan Valley; this increase is due to the killing of woolly aphis parasites by the new insecticides. Since the introduction of a sprinkler system of irrigation in the Okanagan Valley, fruit rot (Phytophthora Cactorum) has attacked the fruit on the lower branches of pear trees.

Coryneum blight (Clasterosporium carpophilum) caused much less damage to the apricot crop in the Kootenays owing to the wide adoption of the recommended spray programme. Little cherry (virus) is still absent in the Okanagan Valley, but in the Kootenays only a few cherry orchards are unaffected. Cherry virus diseases continue to be serious in the Niagara Peninsula, Ont. Brown rot (Sclerotinia fructicola) caused no loss in the Okanagan Valley, B.C., in contrast with 1948, and it was of minor importance in the Niagara Peninsula, Ont.

Leaf blight (Dendrophoma obscurans) of strawberry became prevalent in Ont. late in the season. Considerable varietal differences were seen in the resistance to leaf scorch (Diplocarpon Earliana). Gnomonia Fragariae Kleb. var. fructicola Arn. and its pycnidial stage, Zythia Fragariae Laibach, were isolated from a leaf blotch at Ottawa, Ont. This is the first report of the fungus in Canada, but the blotch has probably been confused previously with other leaf diseases. Its importance as a pathogen is still in doubt. Red stele (Phytophthora Fragariae) was found for the first time in N.B. Yellows (virus) is severe and general in plantings of Marshall in coastal B.C. Root rot (cause unknown) caused heavy losses in several districts.

Stereum sanguinolentum appears from preliminary investigations to be the principal rot of balsam fir in N.B. Poria obliqua was found to be the cause of heart rot of Betula papyrifera var. commutata in B.C. Die-back (cause unknown) of birch is now ubiquitous in the Maritime Provinces. Cone rust (Chrysomyxa Pyrolae) was unusually heavy on Picea Engelmanni and P. glauca var. albertiana in B.C. Leaf rusts (C. ledicola and C. Empetri) were heavy on white and black spruce in northern Que. Shoot rust (C. Woronini Tranz.), hitherto unrecorded in the new world, was found on P. glauca in northern Que. and on the alternate host, Ledum palustre var. decumbens in Yukon.

Needle blight (Hypodermella concolor (Dearn.) Darker) was heavy on Pinus contorta var. latifolia in parts of B.C. Pole blight (cause unknown) of Pinus monticola is now known to be well established in southeastern B.C. Canker (Phomopsis lokoyae) caused considerable damage to Douglas fir at two places in B.C. Some further extension of the areas infected by Dutch elm disease (Cerastostomella Ulmi) took place in southern Que.

Rust (Puccinia Millefolii, formerly reported under the synonym P. Ptarmicae) was again heavy on Achillea Ptarmica in eastern Que. Downy mildew (Peronospora ?Antirrhini Schroet.), a new disease

for Canada, was found on cultivated snapdragons in Ont. Core rot (Sclerotinia Gladioli) caused losses of 65-95 per cent in several gladiolus varieties stored at Norwich, Ont., after inadequate curing. Severe injury to gladiolus corms from naphthalene fumigation occurred at Ottawa, Ont. Powdery mildew (Oidium sp.) caused heavy loss of hydrangeas in a greenhouse at Toronto, Ont., and stem rot (Sclerotinia sclerotiorum) destroyed most of a shipment from B.C. to Ont. Rust (Cumminsiella sanguinea) was found on Mahonia Aquifolium in eastern Que.; first report in eastern North America. Decline (virus) of narcissus is widespread in B.C.; although known for some time under various names, it has not been reported in the Survey.

Leaf and stem blight (Helminthosporium Portulacae Rader) was found in Ont. on Portulaca grandiflora and in Sask. and Que. on the weed, P. oleracea.

Maladies nouvelles ou d'Importance notable

Au Canada, il y eut généralement peu de rouille de la tige (Puccinia graminis) sur le blé, au cours de 1949. Au Manitoba, cette rouille, auparavant destructive, était pratiquement absente sur les variétés communément cultivées. Il n'y a que l'orge qui aît légèrement souffert de cette rouille. Par contre, la rouille des feuilles du blé (P. triticina) fit son apparition à bonne heure au Manitoba, et elle s'est disséminée rapidement pour atteindre des proportions épidémiques tant au Manitoba que dans l'est de la Saskatchewan; l'épidémie fut assez grave pour causer une diminution de rendement. L'infection fut également grave dans certaines localités de l'est du Canada. A l'heure actuelle, on ne peut guère trouver, dans les Prairies, que des races capables de s'attaquer au Régent et au Renown. La nouvelle variété américaine Lee (Hope x Timstein) s'est avérée très résistante au cours d'essais récents dans les Prairies; toutefois, certaines collections de rouilles provenant du sud de l'Alberta et du sud-est de la Colombie ont attaqué cette variété plus ou moins gravement. La rouille de la tige et la rouille des feuilles de l'avoine (Puccinia coronata) furent généralement peu graves cette année.

La carie naine (une race de Tilletia caries) fut observée cette année encore en Colombie Britannique, principalement aux environs d'Armstrong.

On a observé le Cercosporella herpotrichoides, cause de la pourriture des tiges, sur un échantillon de blé d'automne provenant d'un champ gravement atteint. Ce champ était situé dans le comté de Durham, Ontario. Cette maladie n'a pas été rapportée auparavant au Canada, mais depuis sa découverte, en Angleterre, en 1935, on s'est rendu compte que c'est une maladie importante.

La pourriture commune des racines du blé (Helminthosporium sativum et Fusarium spp.) fut plus grave en Saskatchewan en 1949 qu'en toute autre année pour laquelle nous possédons des chiffres comparables. De même, cette maladie fut apparemment plus grave que d'habitude en Alberta et au Manitoba.