New or Noteworthy Diseases

Stem rust (Puccinia graminis) is no longer of economic importance on wheat in the Prairie Provinces. J.H. Craigie (Sci. Agr. 25:51-64. 1944) has estimated recently that the growing of rust resistant wheat varieties in Man. and Sask, "has increased, respectively, the average annual wheat production and farm income in the 'rust area' of Western Canada by 41,339,000 bushels and $27,242,000." Stem rust of wheat was of little importance elsewhere in Canada. Stem rust of oats, thanks to the newer rust resistant varieties, is becoming less important in Man. and elsewhere. Physiologic races which are capable of attacking these varieties were less prevalent in 1944 than in 1943. A new variety, Beaver, which combines resistance to stem rust and crown rust, has proven in experimental trials superior to the parental varieties, Vanguard and Erban, in yield and quality.

Common root rot (Helminthosporium sativum and Fusarium spp.) was destructive throughout the Prairie Provinces. It was slightly more prevalent in Alta., slightly less so in Sask. and much more severe in Man. in 1944 than in the previous year. The phase known as pre-maturity blight was unusually prevalent. Common root rot usually attacks individual plants more or less severely. In southern Sask., however, common root rot was found affecting the plants uniformly in large areas of the field. Take all was recorded for the first time in Ont., when it was found in several fields of winter wheat in the Guelph and Waterloo districts. Browning root rot (Pythium spp.) was about as prevalent as usual. The disease is usually confined to wheat, because summer-fallowed fields are rarely sown to any other cereal crops. Oats and barley are, however, equally susceptible under the same conditions, as the occurrence of a diseased field of oats on fallowed land in 1944 testifies.

False loose smut or black smut (Ustilago nigra) was found to occur quite commonly in the Prairie Provinces as the result of a survey conducted in these Provinces. U. nigra was present in 14% of the collections of loose smut in Alta., 35% in Sask., and 44% in Man. In Que., 25% of the collections were U. nigra.

A strain or species of Septoria, similar to S. nodorum but with longer spores, is reported by T. Johnson from Man., on wheat and barley. Infection was largely confined to the leaves and was followed by the development of a Leptosphaeria stage late in the season. J.E. Machacek (Phytopathology 35:51-53. 1945) has indicated that both this species and S. nodorum occur on the seed, the former more particularly in Western Canada. Grey speck (manganese deficiency) was proven to occur in Man.; previously the disease was known for certainty from only Que. and Ont. A survey of rust nursery material for plant diseases was again carried out; the results published in tabular form give valuable data on the distribution of several diseases. The results of the survey of the physiologic races of cereal rusts in Canada are included for the first time. The rarer varieties of stem rust, which occur on grasses, are recorded. It may be noted that

Bacterial wilt (Corynebacterium insidiosum) continues to spread in alfalfa in Alta.; it has now become established outside the irrigated districts, but it has not yet appeared in the important seed-producing district of Cherhill-Sangudo-Westlock. Crown rot (low temperature basidiomycete), on the other hand, was less widespread and caused less damage in Alta. than in 1943 and true winter-killing was not observed. Cercospora leaf spot (C. zebrina) was observed for the first time in Alta. Stagonospora leaf spot (S. recedens) on red clover was found in Alta. and Man.

Diseases of flax continue to be important. Rust (Melampsora Lini) was less destructive than in recent years. The gradual decline of flax rust is largely due to the displacement of the very susceptible Bison variety by the rust resistant Royal. Stem break and browning (Polyspora Lini) was prevalent early in the season in Sask. as a result of sowing infected seed. However, dry weather during mid season prevented its spread but later rains resulted in the seed becoming heavily infected. Die-back, the cause of which has not been ascertained, was found to be common in the central, west central and southern districts of Sask. It may occur in other provinces. Pasmo (Septoria linicola) was observed in Man. but not in Sask. What was believed to be the perfect stage, Sphaerella linicola, was found on fibre flax affected by pasmo from Portage la Prairie, Man. Alternaria linicola, recently described by Groves and Skolko, is at present only known from the seeds of flax.

Diseases of soy beans were of little importance in southwestern Ont. in 1944. However, bud blight (virus) and charcoal rot (Macrophomina Phaseoli) were recognized for the first time. Diseases of sugar beets were also of little importance. Black root (various fungi) resulted in the loss of some hundreds of acres; Cercospora leaf spot (C. beticola) was virtually absent. In sunflowers, a case of boron deficiency was observed in N.B.

Only a few of the more important or interesting observations on vegetables are recorded here. The black leaf spot of crucifers, which has been attributed to Alternaria circinans, is actually caused by A. oleracea Milbrath according to Groves and Skolko. On the other hand, the grey leaf spot is still ascribed to A. Brassicae (Berk.) Sacc. Besides these two fungi, a third species, Alternaria Raphani Groves and Skolko has been found on the seeds and seed pods of radish; it is probably an important pathogen. The same authors have found on carrot and parsley seed Alternaria radicina, the cause of black rot of carrots, and on carrot seed A. Dauci (Kühn) Groves & Skolko, the leaf blight fungus, long known as Macrosporium Carotae. Although A. radicina appears to produce no pronounced field symptoms, black rot is apparently controlled when treated seed is used to produce the crop and the roots are stored in a house free from infection. Yellows (Callistephus virus 1) occurred in epidemic proportions in carrots across Canada, including one severe outbreak in Ont., from which province it had not previously been recorded. Purple top (virus) was similarly much more prevalent in potatoes than in any previous year. Onion was a new host for Aster yellows; it was fairly prevalent in the Winnipeg area, Man., in 1944, and about Grand Forks, B.C., in 1943. Yellows in celery, known only from a few scattered reports from Alta., was reported this year from Alta. and Sask. Yellows was also reported on buckwheat, kok-saghyz, lettuce, parsnip, pumpkin, squash, Calendula, Callistephus, Centaurea, Clarkia, Coreopsis, Cosmos, Dahlia, Dimorphotheca, Eschscholtzia, Gaillardia, Nigella, Petunia, Phlox, Schizanthus, Tagetes and Zinnia.

Truscott (Can. J. Research 290-304. 1944) has given an account of the storage crown rot of celery, the occurrence of which in Ont. was reported last year. The correct name for the pathogen according to H.N. Hansen and C.M. Tompkins (Phytopathology 35:218-220. 1945) is Ansatospora acerina (Hartig.) n. comb. An undescribed Alternaria sp. of the Brassicae type is recorded on the leaves of celtuce in Man. and from lettuce seed in B.C. The septoria leaf spot already known on lettuce and found on celtuce in Man. is properly attributed to Septoria Lactucae Pk. There are indications that a new strain of Cladosporium fulvum, to which the tomato variety V121 is susceptible, has been encountered in Ontario.

Bacterial ring rot (Corynebacterium sepedonicum) of potato is one of the most important diseases affecting table stock in Canada. The only measure of control that can be recommended is the complete eradication of the disease as it occurs on individual farms. After the disease has become established its elimination can only be accomplished through regulations enacted and effectively enforced by each Province. Up to the present special legislation against ring rot has been passed by B.C., Alta., Man., Ont. and P.E.I. The disease has not become established in B.C., N.S. and P.E.I., although the latter province may not be entirely free from it. In all the other provinces bacterial ring rot is present in varying amounts. An annual survey for ring rot has been carried out in Alta. each year since 1939. Although the disease is still spreading, the rate of spread and the severity of the disease have declined. The exact situation in Sask. is unknown, but in the absence of an extensive survey the disease is probably more prevalent than has been reported. Bacterial ring rot is well established in Man., a light infection having been observed in about 25% of the lots examined in the field or on the market. As a result of a thorough and widespread survey there was a marked increase in the number of fields found infected in Ont. Nevertheless, the eradication campaign on farms where the disease was found in 1943 gave encouraging results. No provincial survey has been undertaken in Que. or N.B., or at least the findings of such a survey have not been disclosed. There is evidence of considerable infection in Que.; in N.B. it is believed some improvement has taken place on account of the present unusually favourable prices being paid for potatoes.

Late blight (Phytophthora infestans) was epidemic in Man. for the fourth consecutive year and a slight infection occurred about Edmonton, Alta. The disease was also prevalent through Northern Ont. Late blight was unusually severe along the lower St. Lawrence and the Gaspé Peninsula. It also caused considerable tuber rot as a result of unusually favourable conditions for infection about digging time in N.B. and P.E.I.

There was a marked drop in the amount of leaf roll and mosaic in the certified crop. This improvement may be due to the greater initial freedom of the seed from virus diseases as fields entered for certification must now be planted with foundation or foundation A seed. On the other hand, the aphid population was at a low ebb in 1943.

Fire blight (Erwinia amylovora) was of importance in few commercial apple orchards in Ont. and Que. The disease, however, was again severe in many of the restricted plantings in Alta., Sask., and Man. It also caused severe damage in several pear orchards and was recorded once on quince. Scab (Venturia inaequalis) caused little damage to the fruit in well sprayed orchards in all the leading commercial apple districts.

Vertilillium wilt (V. Dahliae) was observed for the first time in the Okanagan Valley, B.C., on apricot, cherry and peach.

The occurrence of the Dutch elm disease (Ceratostomella Ulmi) in Canada was established late in 1944 when Dr. R. Pomerleau received specimens from St. Ours, near Sorel, Que. Before the close of the season 28 diseased trees were located in an area about 40 miles long near Lake St. Peter, about 50 miles below Montreal.

Needle blight (Rehmiellopsis bohemica) was found on balsam fir in Cape Breton Island, N.S.; this European disease was previously known from Me., Mass., and N.Y., but not from Canada.

New records among the diseases of ornamentals were: downy mildew (Peronospora Hesperidis) on rocket at Ottawa, Ont.; club root (Plasmodiophora Brassicae) on candy tuft in P.E.I.; crown and root rot (Sclerotium Delphinii) on larkspur and nearby pansy at Montreal, Que.; stem blight (Collectotrichum vermicularioides) on Linaria purpurea in Ont.; smut (Entyloma fuscum) on Papaver Rhoeas and P. orientale and bacterial blight (Xanthomonas papavericola) on P. Rhoeas near Ottawa; leaf spot (Ramularia Tanaceti) on tansy at Winnipeg; and leaf spot (Ramularia Veronicae) on Veronica Teucrium at Ottawa.

MALADIES NOUVELLES OU D'IMPORTANCE NOTABLE

R.O. Lachance

La rouille de la tige (Puccinia graminis) du blé n'a plus d'importance dans les provinces des Prairies. J.H. Craigie (Sci. Agr. 25: 51-64, 1944), dans un article récent, estime que la culture des variétés de blé résistantes à la rouille au Manitoba et en Saskatchewan a augmenté la production annuelle du blé de 41,339,000 boisseaux et les revenus des fermes de $27,242,000.00 dollars dans les régions de l'Ouest canadien propices à la rouille. La rouille de la tige du blé n'a que peu d'importance dans les autres parties du Canada. La rouille de la tige de l'avoine, grâce aux nouvelles variétés résistantes, devient de moins en moins importante au Manitoba et ailleurs. Les races physiologiques capables d'attaquer ces variétés résistantes étaient moins communes en 1944 qu'en 1943. Une variété nouvelle, la Beaver, qui est résistante à la fois à la rouille de la tige et à la rouille couronnée, s'est avérée supérieure à ses parents la Vanguard et l'Erban quant au rendement et à la qualité.

La pourriture commune des racines (Helminthosporium sativum et Fusarium spp.) fut destructive dans toutes les provinces des Prairies; si l'on compare les années 1943 et 1944 l'Alberta a plus souffert de cette maladie en 1944, le Manitoba encore davantage tandis qu'en Saskatchewan les dommages étaient moindres