BOOK REVIEW

An annotated index of plant diseases in Canada and fungi recorded on plants in Alaska, Canada and Greenland.

by H.L. Conners

Canada Department of Agriculture Publication # 1251. 381 pp. 1967. Queen's Printer, Ottawa, Canada. $8.50.

This volume includes both Canadian records of all diseases of cultivated plants (including nematode infections and physiological disorders); and also all published records of the occurrence of saprophytic and parasitic fungi on native and introduced vascular plants in Canada, Alaska and Greenland. It is difficult to say which of these two classes of data will be most widely used; but it is safe to say that both will be of great benefit to a wide range of biologists.

The primary breakdown is by genera of plants, which are listed alphabetically. Under each genus the included species are listed with English and French common names, approximate range, and an identifying number for reference under the fungus, other organism or condition. Under each fungus or disease entry the geographic area is given along with appropriate bibliographic references. Notes of varying length are included on history, control, etc., of major diseases, varying from a few lines to about 2500 words, which greatly increase the usefulness of the book to plant pathologists and workers in related fields. The index is very complete, and it should be noted that a repeated page number warns the user when the organism is reported on two hosts. The bibliography includes nearly 1300 references.

As one who watched the evolution of this book over several years, much of the time under most distracting circumstances, I can say without hesitation that it has been a very great undertaking, painstakingly and meticulously executed with a degree of precision that would be impossible for anyone without Ibra Conners' unusually dedicated approach.

The literature coverage is essentially complete to the end of 1964. As an example of the value of such detailed coverage, I may point out that for the plurivorous saprophyte Mycosphaerella tassiana there are some 180 citations. The names of the fungi have been very thoroughly revised. The host names have usually been well checked, but a few recent revisions have been excluded. (I am embarrassed to find I omitted to provide names in Saxifraga to replace a few revised after I wrote up their rusts.)

Such a book can never stay up to date, and many new records have appeared during its two years in press. It has also been impossible to include a vast number of unpublished records. However, this book will be a primary source of records for fungi and diseases in the northern half of North America for many years.

It is scarcely conceivable that, in nearly 400 double-column pages of fairly small print, there should be no typographic errors. A few have survived the attention of D. W. Creelman, who edited the book, the author, and several volunteers who helped from time to time; but those that I have seen have been very minor. Readers may note that the reference 571 at the foot of the first column of p. 3 should read 511.

The printing is clear, the binding allows the book to lie open at any page without "massage", and in all respects the book is simple to use.

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NEW AND NOTEWORTHY DISEASES

The cereal rusts, although generally widespread in Western Canada, caused little damage except in late-seeded fields. The incidence of common root rot (Bipolaris sorokiniana, Fusarium spp. remained at normal levels on wheat in Saskatchewan but caused moderate to heavy losses in barley in Alberta. Browning root rot (Pythium spp.) was present in many winter wheat fields in Ontario. Eye spot (Selenophoma donacis) was reported, for the first time in Canada, on durum wheat in Saskatchewan. The incidence of aster yellows virus in oats in Manitoba was the highest ever recorded. Barley yellow dwarf virus was commonly found in fields of wheat, oats and barley in the same province.

Bacterial wilt (Corynebacterium insidiosum) was commonly found in alfalfa stands in British Columbia and southern Alberta and new infestations of the bulb and stem nematode (Ditylenchus dipsaci) were found in southern Alberta. Leaf spot (Stemphylium loti) was reported, for the first time in Canada, on birdsfoot trefoil from Quebec. Northern anthracnose (Kabatiella caulivora) was destructive on red clover in northern Alberta and the same host was severely affected by common leaf spot (Pseudopeziza trifolii f. sp. trifolii-pratensis in Quebec. Clover phyllody virus was commonly seen in alsike and ladino clovers in Quebec and New Brunswick.

Stem rot (Sclerotinia sclerotiorum) caused extensive damage to yellow mustard in Saskatchewan and was more prevalent than usual on rape in Western Canada. Leaf and pod spots (Alternaria brassicae and A. raphani) were prominent on rape in the Prairie Provinces and particularly serious in Manitoba. Brown stem rot (Cephalosporium gregatum) and bacterial blight (Pseudomonas glycinea) were commonly observed in soybean fields in Ontario. A previously

unobserved head abnormality was seen in most sunflower fields in Manitoba.

Root and stalk rots (Fusarium graminearum) of field corn were more prevalent than in recent years in western Ontario. Black root rot (Thielaviopsis basicola) was destructive in tobacco seed beds in Ontario but field losses were light. Pole rot, caused by Rhizopus spp. and bacteria was frequently encountered.

Fusarium root rot and sclerotinia wilt caused damage in most bean fields in Ontario and halo blight (Pseudomonas phaseolicola) was troublesome on beans for processing in Quebec. Club root (Plasmodiophora brassicae) continues to be a problem in cruciferous crops in British Columbia's Fraser Valley. Molybdenum deficiency was severe on early cabbage varieties in western Newfoundland.

Root-knot nematode (Meloidogyne hapla) was reported to have caused severe damage to carrots in western Nova Scotia. Severe infections of aster yellows virus occurred on the same crop in Ontario and New Brunswick. Bacterial blight (Pseudomonas apii) was more prevalent than usual on celery in Quebec. Cucumber scab (Cladosporium cucumerinum) caused significant losses in Quebec and New Brunswick. Verticillium dahliae was prevalent in plantings of eggplant and pepper in British Columbia and Ontario.

Lettuce big-vein virus was reported for the first time from British Columbia. Basal rot (Fusarium oxysporum f. cepae) caused appreciable losses in onion crops in British Columbia, Ontario and Quebec and sour skin (Pseudomonas cepaica) was found, for the first time in Canada, in stored onions in Ontario.

Bacterial ring rot (Corynebacterium sepedonicum) reached epidemic proportions in seed potato fields in Manitoba but showed a marked decrease in incidence in Prince Edward Island. Violet root rot (Helicobasidium purpureum) was reported on potatoes from Prince Edward Island. Losses from late blight (Phytophthora infestans) were negligible in all potato-growing areas. Heavy infections of wart (Synchytrium endobioticum) were common in Newfoundland.

Bacterial canker (Corynebacterium michiganense) was responsible for serious losses in both the spring and fall greenhouse tomato crops in western Ontario. Buckeye rot (Phytophthora parasitica) was severe in many fields of tomatoes in the same province.

Scab of apple and pear (Venturia inaequalis, V. pirina), for the second successive year, caused no economic losses in commercial crops. Fire blight (Erwinia amylovora), previously unknown in Nova Scotia, was found to be widely distributed in pear orchards and was found as well on apple and hawthorn. Powdery mildew (Podosphaera leucotricha) was severe on susceptible apple cultivars in British Columbia and Ontario and was also reported for the first time in commercial orchards in Nova Scotia. Symptoms of virus diseases of apples in British Columbia were generally moderate but freckle pit of Anjou pear was more evident than for some years.

Coryneum blight (Stigmina carpophila) caused widespread spotting of apricots and peaches in British Columbia orchards and bacterial spot (Xanthomonas pruni) caused losses in the same crops in southern Ontario. Gray mold (Botrytis cinerea) was responsible for losses in stored cherries in British Columbia but the incidence of rots caused by Monilinia fructicola and Rhizopus nigricans was low in both Eastern and Western Canada. Heavy infections of powdery mildew (Podosphaera clandestina) occurred on sour cherry in British Columbia and Ontario. It was also recorded, for the first time, in Nova Scotia. Canker caused by Valsa spp., caused significant damage in peach orchards in Ontario. A bacterial blight attributed to Pseudomonas syringae has become established in raspberry plantings on the British Columbia mainland.

Red stele (Phytophthora fragariae) continues to be a problem in some areas of British Columbia. Symptoms of green petal of strawberry (clover phyllody virus) were widespread and severe in eastern Quebec and in the Maritime Provinces. Intensive surveys showed that few fields were free of the disease and plant losses were high.

Leaf spot (Septoria caraganae) was destructive on windbreaks of Caragana arborescens in the Prairie Provinces. Twig blight (Phomopsis juniperovora) damaged cultivated junipers in British Columbia and Ontario. Dutch elm disease (Ceratocystis ulmi) has spread eastward to within ten miles of the Nova Scotia border.

Among new records of parasitic fungi were the following: Alternaria passiflorae on Passiflora, Mycosphaerella nigro-maculans on cranberry and Phyllosticta vaccinii on highbush blueberry in British Columbia, Stemphylium floridanum on chrysanthemum and Phyllosticta dracaenae on dracaena in Ontario and Colletotrichum gloeosporioides on eggplant in Quebec.