DISEASES OF RAPESEED IN CENTRAL AND NORTHERN ALBERTA IN 1972

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Abstract

Rapeseed (Brassica campestris) crops in central and northern Alberta were surveyed for diseases by sampling 91 fields from July 4 to July 31, 1972. About 50 fields in the same area were examined in August and September. The early survey showed disease intensities of: white rust, 2.5% leaf area affected; staghead, 0.5% heads affected; alternaria black spot, 1.5% leaf area affected; and root rot, 11.9% roots and crowns affected. white rust and alternaria black spot increased in severity, and staghead and root rot decreased in severity in comparison with a 1971 survey. Ringspot, black spot on pods and stem rot appeared in August and September. Results indicate that the crop should be examined at intervals during the season to give a progressive measure of disease effects.

Resume

On a étudié l'état de contamination des cultures de navette (Brassica campestris) dans le centre et le nord de l'Alberta en échantillonnant 91 champs, du 4 au 31 juillet 1972. On a en outre examine environ 50 champs dans la même region en août et en septembre. La premiere enquête a permis de recueillir les taux d'infestation suivants: rouille blanche, 2.5% de la zone foliaire; albugine (bois de cerf), 0.5% des inflorescences; tache noire, 1.5% de la zone foliaire; pourridié, 11.9% des racines et des collets. Par comparaison avec une enquête effectuée en 1971, les infestations de rouille blanche et de tache noire étaient plus graves et celles d'albugine et de pourridié l'étaient moins importantes. La tache annulaire et la tache noire ainsi que la pourriture sclérotique se sont manifestées en août et en septembre. D'après ces résultats, il serait souhaitable d'inspecter cette culture régulièrement pendant la saison pour determiner l'effet progressif de la maladie.

Rape acreage in Alberta decreased from 2.3 million acres in 1971 to 1.3 million acres in 1972. In both years, surveys were carried out to determine the distribution and intensity of diseases affecting the crop in central and northern Alberta. In this area almost all the rape grown is turnip rape, Brassica campestris L.; only rarely in summer rape, B. napus L., encountered.

Materials and methods

The survey in 1972 used similar methods to those reported in 1971 (2). Ninety-one fields were sampled from July 4 to July 31, by pulling 10 plants two paces apart, beginning 10 paces from the edge of each field. For each plant the percentage area of leaves, stems, and pods affected by diseases was estimated. In the case of staghead, the percentage of flowering shoots affected was recorded. Root rot was recorded as the percentage of plants showing symptoms.

About 50 additional fields were examined later in the season to determine the progress of diseases detected earlier and the incidence of later appearing ones.

Results and discussion

The intensity and distribution of rapeseed diseases in Census Divisions (C.D.) 8 to 15 are shown in Table 1. Limited production in C.D. 9 and C.D. 14 precluded sampling.

The 1972 survey showed an increase in the disease index of rust caused by Albuqo cruciferarum S. F. Gray on leaves from 0.3 to 2.5 over 1971 (2), whereas the index for the staghead phase of white rust decreased from 1.2 to 0.5. This change could be due to the fact that a qreater number of the fields sampled in 1971 were at a more advanced stage of growth. As the plants mature, the leaves drop off but the flowering head is exposed to white rust infection from which staghead develops.

The index for black spot on leaves caused by Alternaria brassicae (Berk.) sacc. and A. raphani (Groves and Skolko) was similarly affected by the earlier sampling in 1972, with an increase from 0.2% to 1.5% of the leaf area affected. The high percentage of root rot (Rhizoctonia sp. and Fusarium spp.) in C.D. 12 in 1971, may be partly accounted

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Table 1. Distribution and intensity of rape diseases in central and northern Alberta in 1972

Census Division	Fields assessed		Disease index (avg)			
	NO.	Date	White rust	Staghead	Black spot	Root rot
8	14	July 14	1.8	1.3	1.1	11.4
10	19	July 11	3.5	0.1	1.4	5.0
11	5	July 13	3.6	2.0	1.0	6.0
12	7	July 10	5.6	0.0	2.3	0.0
13	17	July 17	1.2	0.7	1.4	19.4
15	28	July 19	1.9	0.1	1.7	16.4
Average		July 15	2.5	0.5	1.5	11.9

for by the late date of sampling, August 12, as July 10, 1972, samples from the same area showed essentially no root rot.

Staghead and black spot occurred in all 50 fields observed in August and September. Staqhead was more severe in thinner stands, whereas black spot was generally more severe in denser stands (3). In the late 1972 survey, 26 fields could be classed as sliqhtly, 20 moderately, and 4 severely infected with alternaria black spot.

In a plot study of alternaria black spot made in 1972, yield losses caused by the disease on the Brassica campestris L. var. Span were 11% for slight, 14% for moderate, and 58% for severe infection. On B. napus L. var. Zephyr, of which only one field was encountered in the survey, the corresponding losses were 5%, 17% and 39% respectively (3).

Alternaria black spot was more severe in 1972 than in 1971, probably encouraged by favorable weather and increased inoculum (2). The summer of 1972 was wetter than average with slightly higher than normal temperatures (1). Increased inoculum probably contributed to the increase in black spot, since in Saskatchewan the disease has doubled annually from 1970 to 1972. (G. A. Petrie, personal communication.)

Ringspot caused by Mycosphaerella brassicicola (Fr.) Lindau was found in only a few fields late in the season, during ripening. Stem rot caused by Sclerotinia sclerotiorum (Lib.) de Bary was observed in several fields during September, with up to 20% infected plants.

In Alberta the leaf diseases of rapeseed appear early in the growing season and increase in severity until the leaves become senescent and drop. The flower and pod diseases appear later in the season and increase in severity as the plants mature. This variation in severity of diseases with date of sampling is evident in comparing the 1972 survey and the early and late 1972 surveys.

Literature cited

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