DISEASES OF BROMEGRASS IN SASKATCHEWAN IN 1965

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General

Field surveys for leaf-spot diseases of bromegrass, Bromus inermis Leyss., were made between 30 June and 5 August in 55 districts of the province when 89 fields and roadside areas used for hay were examined. Field diagnoses were confirmed by microscopical examination and isolation of the organisms involved in pure culture when necessary. The principal aim of the survey was to obtain information on the severity and distribution of the leaf spots caused by Selenophoma bromigena (Sacc.) Sprague & A. G. Johnson and Pyrenophora bromi (Died.) Drechsl. and to collect isolates for pathogenicity studies. Noviello (1) found these to be the most prevalent diseases of brome in Saskatchewan.

Frequency and distribution of selenophoma and pyrenophora leaf spots

The symptoms of selenophoma leaf spot did not become apparent on bromegrass plots at Saskatoon until early June and little leaf blotch was noted there all season. P. bromi was first isolated from brome collected at Outlook on 3 June.

In the first field survey, 30 June - 1 July, from Saskatoon to Swift Current and Regina, S. bromigena was found at 15 and P. bromi at 2 of 17 locations.

In the survey to the northwest, 20-22 July, P. bromi was not encountered between Saskatoon and Unity and then was found as frequently as was S. bromigena. At three locations near Big River no S. bromigena was collected. On the return trip P. bromi faded out south of Shellbrook. S. bromigena was found on 12 and P. bromi on 11 of 15 stands of bromegrass.

S. bromigena was noted at 40 and P. bromi at 28 of 42 locations in a survey through the northeast from St. Louis, Nipawin, Carrot River and Tisdale to Melfort between 28 and 30 July. P. bromi was as frequently noted as S. bromigena north of latitude 53° on this survey but the latter was more common to the south.

On 5 August, in a survey southeast of Saskatoon towards Watrous and Nokomis, S. bromigena was found on brome at 15 and P. bromi at 8 of 16 locations. In late August S. bromigena and P. bromi were found on roadside brome north of La Ronge and S. bromigena at Otter Rapids. Isolations of both fungi were made from active spots in late October at Saskatoon. Rarely was P. bromi found in the conidial form in leaf lesions during the surveys.

Table 1. Severity+ of two bromegrass leaf spots at 89 localities.

	4	3	2	1	0
Selenophoma leaf spot	11	12	25	31	7
Pyrenophora leaf blotch	2	12	26	11	35

* Where 4 is severe disease and 0 no symptoms seen

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Clonal reaction to S. bromigena

There are marked differences in susceptibility of bromegrass clones to infection by this fungus. Spacedplants in a nursery at Saskatoon were scored for natural infection by the disease in late July. The results are presented in Table 2. Considerable differences were also noted by Dr. R.P. Knowles in spaced plants of known parentage in other locations.

Table 2. Disease ratings for strains of B. inermis,

Strain	Mean* Rating	Strain	Mean Rating
Commercial (1)	1.80	S-6324/1	1.52
" (2)	2.02	" /2	1.47
" (3)	2.06	6325/1	1.59
Carlton	2.08	6349 (USSR)	2.08
Lincoln	0.82	6362/1	1.35
Saratoga	1.42	6363/2	1.07
Red Patch	1.05	6732/1	1.60
S-4088/1	1.37	6733/2	0.89
" /2	1.21	6430 (Bulgaria)	2.00
" /3	1.48	6433 (USSR)	1.77
" /4	1.54	6449/2	1.58
" /5	1.19		
S-5824/2	1.59		
S-6211/1	1.30		

* On a scale 4 to 0 where 4 is severe disease and 0 no disease. Mean of 22-23 plants.

Other diseases of B. inermis

SEPTORIA LEAF SPOT (Septoria bromi Sacc.) was seen from late July through September. The fungus was isolated from 11 localities. It was frequently found on leaves with S. bromigena and P. bromi and the symptoms might be confused with those caused by the former. Infection was never seen to reach the severe category.

SCALD (Rhynchosporium secalis (Oud.) Davis. Light infections were noted on plants at Saskatoon in July and August and at Weirdale in July.

ROOT ROT. White rhizomorphs of an unidentified fungus were found on living roots of spaced plants in two nurseries and on roadside brome near Saskatoon. The affected plants were of low vigor and seed yield. One small fruiting body, associated, indicated that the fungus was a basidiomycete.

LEAF SPOT. A Sporotrichuin was associated with linear gray lesions on brome leaves in September on the University campus at Saskatoon.

Literature cited

1. Noviello, C. 1963. A survey of leaf and head diseases of bromegrass in Saskatchewan 1963. Can. Plant Dis. Surv. 43: 163-165.