WHEAT STRIATE MOSAIC, A SWORD OF DAMOCLES HANGING OVER THE WESTERN WHEAT GROWER-OR NOT?

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In a paper entitled "Wheat striate mosaic, a virus disease to watch on the prairies" Slykhuis (1) expressed concern regarding the danger of damage to the western wheat crop from a severe attack of wheat striate mosaic. In early July, 1961, he found striate mosaic at a low rate of infection (less than 1%) in "almost all wheat fields examined on a route from Carlyle, Sask., through Brandon to Winnipeg, Man". In greenhouse transmission tests with the painted leafhopper, Endria inimica (Say), he established that Selkirk red spring wheat and many durum wheat varieties were very susceptible to this disease.

As a result of his findings, Slykhuis inferred that the disease might have been severe in previous years and escaped observation. He said, "It cannot be stated categorically that wheat striate mosaic has or has not caused serious losses in Canadian crops ...".

The position he has taken seems untenable. Striate mosaic has been observed in durum wheat plots and fields in Manitoba for several years but always in low intensities. Even when only a trace of the plants are infected its characteristics are sufficiently distinctive to make it noticeable. It seems improbable that a severe infection could have escaped the observations of plant pathologists in their annual plant disease surveys.

In 1962, as the result of a survey of Manitoba and Saskatchewan, Slykhuis (2) stated, "There was no evidence of wheat striate mosaic in any of the areas of southeastern Saskatchewan and southern Manitoba where it occurred in trace amounts in nearly all fields examined in 1961".

Sylkhuis (3) exhibited continuing apprehension about the potential destructiveness of wheat striate mosaic on the prairies in a paper given at the Annual Meeting of the Canadian Phytopathological Society in June, 1963. He discussed a number of factors that affect the development of the disease, but did not mention what seems to be a very significant factor in relation to the epidemiology of the disease, namely, the rate of reproduction of the vector. Preliminary results of a life history study (4) indicate a relatively long period from egg to adult and a low reproductive potential. It has yet to be shown that the population dynamics of Endria inimica can meet the heavy demands required for wheat striate mosaic to become a destructive disease in the short growing period characteristic of the prairies of Western Canada.

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Whether or not wheat striate mosaic constitutes a potential threat, selection for resistance to it may be prudent in the cereal breeding program. At present there appears to be insufficient grounds for regarding resistance to striate mosaic as essential in a new variety although, admittedly, it would be a desirable characteristic to incorporate.

Literature Cited

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