

Two New Races of Wheat Leaf Rust in Southern Idaho

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ABSTRACT

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Two virulent biotypes of wheat leaf rust in southeastern Idaho were identified as new races. The races, designated UN 6 and UN 13, were isolated from and are virulent on the formerly resistant cultivar Dirkwin.

Wheat leaf rust caused by *Puccinia recondita* Rob. ex. Desm. f. sp. *tritici* is a continuing problem in Washington, Oregon, and northern Idaho. In 1978, the cultivar Dirkwin was developed by the USDA/SEA-AR wheat breeding program in Aberdeen, Idaho, and released by the USDA/SEA-AR and the Idaho and Oregon Agricultural Experiment Stations. Dirkwin was resistant to the leaf rust races then in Idaho but in 1977 had been reported susceptible in some areas of

Washington (3). During the winter of 1978-1979, Dirkwin was found to be susceptible to leaf rust isolates obtained in 1978 from fields in southern Idaho.

MATERIALS AND METHODS

Cultures of the leaf rust fungus were

collected from spring wheat in the Aberdeen area during the summer of 1978. Dirkwin was susceptible to some of the cultures. Single pustule isolations were subsequently made from Dirkwin (2). These isolations were increased in rust-free plastic boxes in the greenhouse during the winter of 1978-1979 and used to inoculate the unified numeration (UN) differential set and other selected isolines (1).

RESULTS AND DISCUSSION

Leaf rust races were identified as UN 6 and UN 13, new to southeastern Idaho on the basis of the UN differential set. The

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Table 1. Reaction of leaf rust races UN 6, UN 13, WPR-2, and WPR-4 on selected wheat isolines

| Race ^a | Isolines for resistance to wheat leaf rust ^b | | | | | | | | | | |
|-------------------|---|------|------|------|-----|------|------|------|------|------|------|
| | Lr1 | Lr2a | Lr2d | Lr3a | Lr9 | Lr10 | Lr16 | Lr17 | Lr18 | Lr19 | Lr24 |
| UN 6 | S | R | S | S | R | S | S | S | S | R | R |
| UN 13 | S | S | S | S | R | S | R | S | S | R | R |
| WPR-2 | S | R | S | S | R | S | R | S | S | R | R |
| WPR-4 | S | S | S | S | R | S | R | MS | S | R | R |

^aUN = unified numeration, WPR = western *Puccinia recondita*.

^bS = susceptible, R = resistant, MS = moderately susceptible.

racés were probably carried into the area by prevailing west-southwest winds, since leaf rust does not overwinter in that area. UN 6 is similar to WPR-2, described earlier in Washington (3), but differs by expressing virulence on the *Lr16* gene. UN 13 appears to be the same race as WPR-4, also described in Washington (3).

UN 6 and UN 13 have identical virulence patterns on the selected isolines with the exception of genes *Lr2a* and *Lr16* (Table 1).

LITERATURE CITED

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