Wheat leaf rust virulence in the United States in 2006

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Collections of *Puccinia triticina* were obtained from rust infected wheat plots and fields by cooperators throughout the United States and from surveys of wheat fields and nurseries in the Great Plains, Ohio Valley, southeast, northeast, California, and the Pacific Northwest, in order to determine the virulence of the wheat leaf rust fungus in 2006. Single uredinial isolates (718 in total) were derived from the wheat leaf rust collections and tested for virulence phenotype on lines of Thatcher wheat that are near-isogenic for leaf rust resistance genes *Lr1, Lr2a, Lr2c, Lr3, Lr9, Lr16, Lr24, Lr26, Lr3ka, Lr11, Lr17, Lr30, LrB, Lr10, Lr14a, Lr18, Lr21, Lr28, Lr41* and *Lr42*. In 2006, 60 races of wheat leaf rust were found in the U.S. In the southeast, the most common race, TDBJG (23.1%), had virulence to *Lr2a* and *Lr24*. In the northeast, the most common race, MCBJG (20.0%) had virulence to *Lr26*. In the Ohio Valley, TDBJG (18.6%) was the most common race. TDBJG was also the most common race identified in the southeastern states. In Texas and Oklahoma, the most common race MLDSB (16.0%) had virulence to *Lr9* and *Lr17*. In Kansas and Nebraska, MLDSB (20.0%) was also the most common race. In Minnesota, South Dakota, and North Dakota, the most common races MFPSC (7.8%) had virulence to *Lr24, Lr26, Lr17,* and *Lr42,* and race TDBJH (7.8%) had virulence to *Lr2a, Lr24* and *Lr42*. Races with virulence to *Lr24* increased in frequency throughout all wheat growing regions of the U.S. Virulence to *Lr24* was highest throughout the Great Plains region, where a number of winter wheat cultivars have *Lr24*. Races with virulence to *Lr9* were found in all regions except for Washington State. Virulence to *Lr9* was highest in Texas and Oklahoma. Virulence to *Lr26* occurred in all regions of the U.S., and was highest in the northeast region. Virulence to *Lr16* occurred in only two regions, and was highest in the spring wheat region of Minnesota and North and South Dakota. Virulence to *Lr17* was found in all regions of the U.S., with the highest frequency in Kansas and Nebraska. Virulence to *Lr18* occurred in the southeast, northeast, and was highest in the Ohio Valley region where a number of soft red winter wheats have this gene. Virulence to *Lr21* was not found in any region, while virulence to *Lr41* was found in all regions except the central plains (Kansas and Oklahoma), California and Washington. Virulence to *Lr42* was found in all regions except California and Washington.