ARS researchers develop method to speed up breeding of scab-resistant barley cultivars

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Agricultural Research Service (ARS) scientists have developed an efficient and cost-effective method to speed up the breeding of scab-resistant barley cultivars, thus improving crop quality for small-grain breeders in the Northern Plains.

Shiaoman Chao, a molecular geneticist at the ARS Cereal Crops Research Unit in Fargo, N.D., collaborated with scientists from North Dakota State University and the University of Minnesota in the study.

Chao used genomics information provided by the breeders to develop DNA markers tagged to important agronomic traits. Once appropriate markers were identified that tagged the useful genes, the markers were used in breeding populations to increase the efficiency of selection. The Fargo lab also developed procedures to speed up marker-assisted breeding.

Marker-assisted breeding is the process used to select plants carrying a trait of interest, such as resistance to scab (Fusarium head blight), which has cost U.S. farmers more than $3 billion since 1990.

This work would not be possible without the cooperation of the breeders, who collected barley samples for the Fargo lab to analyze.

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