

Stem rust-resistant wheat landraces identified

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U.S. Department of Agriculture (USDA) scientists have identified a number of stem rust-resistant wheat varieties and are retesting them to verify their resistance.

Stem rust occurs worldwide wherever [wheat](#) is grown. Over a large area, losses from [stem rust](#) can be severe, ranging from 50 to 70 percent, and individual fields can be destroyed.

Agricultural Research Service (ARS) plant pathologist Mike Bonman at the agency's Small Grains and Potato Germplasm Research Unit in Aberdeen, Idaho, and his colleagues screened more than 3,000 wheat landraces from the U.S. National Small Grains Collection against new races of the stem rust pathogen found in wheat fields in Kenya. Landraces with confirmed resistance are being crossed with susceptible wheat to determine the genetic basis of the resistance.

ARS is USDA's principal intramural scientific research agency, and the research supports the USDA priority of promoting international food security.

Field trials in Kenya to screen for resistance are vital to this work, according to Bonman, who worked at the [International Rice Research Institute \(IRRI\)](#) for 9 years before coming to ARS. He is now working collaboratively with the International Maize and Wheat Improvement Center (CIMMYT) near Mexico City, and the Kenya Agricultural Research Institute (KARI).

Excellent procedures have been developed by CIMMYT and KARI personnel to promote rust disease in the nursery, enabling Bonman to evaluate which ARS accessions are resistant to rust. According to Bonman, CIMMYT facilitates the nursery and site logistics, and ARS helps with evaluating the level of rust development in wheat varieties.

The research team's goal is to find new genes for [resistance](#) to a rust strain called Ug99, because that strain has the capacity to overcome many of the [resistance genes](#) that have been used for the past 50 years. This work will help Africa's growers now and will help suppress disease and reduce damage in developing countries. It also will prepare the United States for Ug99 if the disease arrives here, according to Bonman.

More information: Read more about this and other cooperative studies between ARS and international research partners in the October 2011 issue of *Agricultural Research* magazine.

Provided by United States Department of Agriculture

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