

Without adequate funding, deadly wheat disease could threaten global food supplies

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Disease-resistant wheat developed over the past half century helped ensure steady world food supplies, but a global team led by researchers from the University of Minnesota warns in a new paper that without increased financial support for disease resistance research, new strains of a deadly fungal disease could leave millions without affordable access to food.

The study, published in the current edition of the journal *Science*, examines how Ug99 – new virulent forms of [stem rust](#) first found in Uganda in 1999—could continue its movement across Africa, the Middle East and southwest Asia. It threatens food supplies for millions of people who depend on wheat and other small grains. Scientists have developed new [wheat varieties](#) with some resistance to the deadly disease, but the disease evolves and mutates into new forms, requiring new resistant varieties to be developed.

Several projects to develop resistance to Ug99 are under way, including an international consortium known as the Borlaug Global Rust Initiative, a \$26 million, five-year effort funded by the [Bill and Melinda Gates Foundation](#). But the University of Minnesota economists estimate that as much as \$51 million a year is needed. They arrived at that conclusion by estimating the economic losses that would likely have occurred without the 20th century research that kept earlier variations of the disease at bay.

"Failing to increase and sustain investments in rust-resistance research is

tantamount to accepting an increase in the risk of yield losses on one of the world's food staples," said Phil Pardey, leader of the research team and a professor of applied economics at the University of Minnesota. "Spending on stem rust research has been inadequate for some time, and increased research investment must be sustained over the long haul if science is to keep on top of these ever-evolving [crop diseases](#)."

The University of Minnesota's work on [wheat rust](#) goes back to the early 20th century; one of its most famous alumni, Norman Borlaug, earned the Nobel Peace Prize in 1970 for his work on developing disease-[resistant wheat](#). Today, scientists at the university are deeply involved in the Global Rust initiative and other related projects. The university is home to the world-renowned Cereal Disease Lab, where U.S. Department of Agriculture scientists work closely with U of M plant breeders and disease specialists on learning more about Ug99 and other diseases that affect grain production.

Provided by University of Minnesota

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