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Ug99, a threat to food security

WHEAT ALERT The fungal disease can wipe out economies. Thus far, it hasn't hit India. But we can't be complacent, as it has reached Iran, only a gust-of-wind away

Guest column



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The Borlaug Global Rust Initiative (BGRI) workshop held at the University of Minnesota, St. Paul (US), last month has raised the alarm on a wheat fungal disease that has the potential to cause famines and cripple national economies.

It has spread to African countries such as Kenya, Ethiopia, and South Africa, and has been reported in Iran. Fortunately, it is yet to touch down in India. But that does not mean we can be complacent, as all major wheat-producing areas of Asia face a real threat.

And it is the seriousness of the threat from Ug99 - a new

devastating variety of stem rust (*Puccinia graminis*) - that was the focus of the workshop organised by the BGRI (www.globalrust.org), launched under the direction of Nobel laureate Dr Norman E Borlaug in 2005. The current chairperson of the BGRI is Dr Borlaug's daughter, Jeanie Borlaug Laube.

Dr Borlaug, besides being called the Father of the Green Revolution, was also known as the "Rust Fighter". Rusts, incited by fungi, are known to wipe out wheat and barley crops at such scales as to destroy economies. Ug99 was first discovered in Uganda in 1998-99. At present, none of its variants are present in India, but fungal spores can travel on wind across borders from Iran to Afghanistan to Pakistan, and to India!

Dr Borlaug once said, "If we fail to contain Ug99, it could bring calamity to tens of millions of farmers and hundreds of millions of consumers." He

THE RUST NEVER SLEEPS, NEITHER SHOULD YOU, AGRICULTURAL SCIENTISTS TOLD AT BORLAUG GLOBAL RUST INITIATIVE WORKSHOP

also commented on the continuously evolving nature of the fungi, saying, "The rust never sleeps", and exhorted scientists to be ever vigilant. Ug99 today has eight variants. Fortunately, the number of countries involved in tackling the threat has increased from the original two to 20 now. It is expected to increase to 35 in a few years.

The "Durable Rust Resistance in Wheat" (DRRW) project committee expressed at the workshop that India was not exchanging data with the group, despite the Indian Council of Agricultural Research being a research

partner in the project.

India can earn the goodwill of countries affected by Ug99 by sharing with them its data on research and surveillance on the fungus. Collaboration and cooperation is a two-way street, and a win-win situation for the collaborating partners.

Dr Ravi P Singh, senior wheat breeder with CIMMYT, Mexico, threw the scientists a challenge: "The rust never sleeps, neither should you." Potentially, Ug99 and its variants can attack 70% of the commercial wheat and barley cultivars of the world. There is no time for complacency, as the world needs a 50% increase in wheat production by 2020.

Certain organisations have taken the Ug99 threat seriously. The Bill and Melinda Gates Foundation and the UK Department of International Development have supported DRRW with a grant of US \$40 million. DRRW Phase II (2011-2016) is geared towards mitigating the threat of Ug99 in

affected areas via coordinated surveillance.

The project plans to embark upon new initiatives, such as breeding for durable rust resistance, gene stewardship, seed multiplication, gender equity projects, and capacity building. The University of Minnesota has established a "Stakman-Borlaug Cereal Rust Center" at its St. Paul campus (www.rusts.umn.edu). The US Department of Agriculture and the US Agency for International Development have set up a Cereal Disease Laboratory at St. Paul. The world is awake. And India too must rise to the occasion and invest in research to ward off the serious threat to national food security.

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