



Ug99 stem rust update



by **Blaine Recksiedler, PAg**
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A new form of stem rust has emerged and has the potential to threaten global wheat yields. According to Nobel laureate Norman Borlaug, “If we fail to contain Ug99 it could bring calamity to tens of millions of farmers and hundreds of millions of consumers,” and “This thing has immense potential for social and human destruction.”

The new pathogen was first found in Uganda in 1999, hence the name Ug99. It is estimated that up to 90 per cent of all wheat varieties grown around the world are susceptible to Ug99. While some varieties that are grown in Canada have some level of resistance, most do not. The last major stem rust epidemic in North America occurred in the 1950s, destroying up to 40 per cent of the spring wheat crop. It is important to note that *Puccinia graminis* f. sp. *tritici* is virulent on wheat and barley.

As mentioned, this isolate was first found in Uganda. From Uganda, Ug99 spread to Kenya and Ethiopia. In April 2007, it was reported to have spread to Yemen on the Arabian Peninsula. In March 2008, it was found in major wheat growing areas in Iran. According to the Food and Agriculture Organization of the United Nations (FAO), countries in the predicted pathway grow approximately 25 per cent of the global wheat crop. It is quite likely that this strain, or its variants, will eventually be found throughout the world.

An international consortium, Borlaug Global Rust Initiative (BGRI), has been formed to combat this particular pathogen. Current funding is being provided by various agencies around the world, including the Canadian International Development Agency.

A new initiative was recently announced. The Bill and Melinda Gates Foundation has provided a \$26.8 million grant to Cornell University to launch the Durable Rust Resistance in Wheat project. Fifteen institutions from around the world will combine forces to combat Ug99 and its variants. Dr. Tom Fetch, stem rust pathologist with Agriculture and Agri-Food Canada (AAFC), is a collaborator on the project. The money will supplement AAFC’s ongoing commitment to finding solutions to Ug99.

FOR MORE INFORMATION

- Visit the BGRI website at <http://www.globalrust.org>.
- Contact Blaine Recksiedler, Provincial Cereal Crops Specialist, Crop Development Branch, at 306-787-4664.



Stem rust

TREES - A NEW IRRIGATION CROP?



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Rising costs of fossil fuels, interest in carbon sequestration, and a need to effectively and safely utilize waste waters has brought a focus to tree cultivation. From an agronomic and economic viewpoint, it is initially difficult to see trees as a potential new irrigation crop. However, trees may represent a significant new opportunity for



Sixth year of growth of Walker Hybrid Poplar in Saskatchewan.

irrigation farmers and those managing waste waters. While trees require a longer term commitment than traditional crops, they do respond well to irrigation. Trees respond well to water and heat, growing faster

where these are available. However, irrigation of trees using either fresh water or effluent presents some unique challenges. Trickle irrigation systems have a significant up-front cost but generally work well when applying fresh water to trees.

Application of effluent and other water sources with a high concentration of particles and nutrients presents significant challenges for those designing trickle irrigation systems due to filtration and clogging problems, but these can be managed. Flood irrigation or a travelling gun are also used to irrigate trees.

Agroforestry (cultivation of trees on agricultural land) is used to produce lumber of varying values and end uses. Management and pruning of the trees is essential to produce high-value timber. Opportunities exist to utilize agricultural land as uniform managed woodlots for higher-value saw logs and veneer wood.

If willow or poplar is to be used for biomass production for conversion to energy, coppiced trees can be harvested every two to three years using modified forage harvesting equipment. Coppicing is a way of managing trees to allow repeated harvesting of suckers. The young tree stems are cut down to near ground level. In subsequent growth years, many new shoots will emerge, and, after a number of years, the cycle begins again and the coppiced tree, or *stool*, is ready to be harvested again. This material can be safely stored as bales or chips and converted to energy by a variety of processes in development in Saskatchewan.

The Saskatchewan Forest Centre is an excellent resource for those interested in trees as a crop.

FOR MORE INFORMATION

- Contact Lana Shaw, Irrigation Agrologist with the Irrigation Development Branch at (306) 867-5512
- Contact the Saskatchewan Forest Centre at 306-765-2840 or visit www.saskforestcentre.ca.

