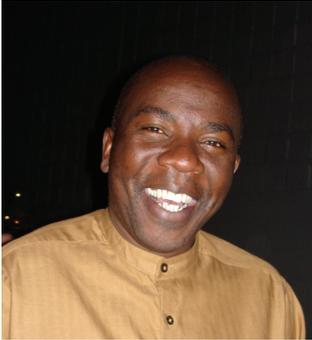


Innovations for Farmers to Produce More from Less



The world's farmers face many challenges for the future – rising demands for food, the impact of climate change, and diminishing land and water resources. These factors are top of mind as Francis Kirigwi develops new wheat varieties to help Western Canadian farmers respond.

“We continue to need more and better quality food, and we have to do this in a sustainable way,” says Kirigwi. “We have to develop innovations that give us more from less resources.”

Kirigwi is a wheat breeder with Syngenta Seeds Canada, based in Morden, Manitoba. Although he is relatively new to Canada, he brings over 15 years of wheat research experience from Africa and the United States, focused on improving drought tolerance and resistance to diseases such as stripe rust. At Syngenta, Kirigwi is dedicated to wheat breeding with an emphasis on grain quality and disease resistance.

“We’ve had great success this past year, releasing two new wheat varieties for Western Canadian farmers – BW878 a CWRS wheat, and HY985, a CPS wheat that provides high kernel weight and protein,” says Kirigwi. “Providing wheat varieties of high quality is very important for Canadian agriculture. Canada exports almost 80% of the wheat it produces so we need to maintain this high quality standard to keep our farmers competitive in the global market.”

A major focus of Kirigwi’s disease resistance efforts is on fusarium head blight, a disease responsible for over \$1 billion in losses to Canadian agriculture. “Fusarium not only causes a reduction in yield, but contamination through the mycotoxin deoxynivalenol (DON). And in the last couple of years a new variant of fusarium is emerging that produces more toxins, and seems to grow faster and produce more spores,” says Kirigwi. “We are carrying out very vigorous selection procedures so that we can continue to release wheat varieties with increased tolerance and low DON so that farmers can continue to benefit from our research.”

Syngenta’s commitment to research and development is critical to enable Kirigwi to develop these new varieties. “When you look at R&D of wheat varieties, it is a big investment in terms of resources and time, so budgets can be a limiting factor for future research,” says Kirigwi. “This is where intellectual property (IP) protection tools become particularly important.”

By purchasing certified seed and complying with the legal practices for saving and replanting seed associated with the various IP methods such as Plant Breeders’ Rights or Technology Use Agreements, farmers are helping plant breeders like Kirigwi bring these seed innovations to the field.

“Intellectual property is very critical to my future role as a plant breeder,” says Kirigwi. “IP gives people the confidence to continue to invest in research and bring more technologies that directly benefit farmers. Any country that does not recognize intellectual property cannot attract those research dollars and will always lag behind in commercialization of innovations, so this is absolutely essential.”

Stimulating innovation becomes even more important to address future challenges facing agriculture like limited land and water and an increasing population. “We have to continue to develop wheat varieties that work well given those limited resources. Water use efficiency and nitrogen use efficiency are traits that I am always on the lookout for,” says Kirigwi.



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“My goal is to continue doing a better job in wheat breeding, focused not only on providing Canadian farmers with high quality, disease resistant varieties but those that are suitable to grow and work in sustainable agricultural systems to meet future challenges.”

This article is brought to you by the Canadian Seed Trade Association.