

Samantha Beattie, Special to the Mercury Fri Feb 15 2013 00:40:00 | [0 Recommend](#)

University of Guelph researcher develops new tools for old crops

GUELPH — Some consider millets the golden grains of the crop world.

Their hardy seeds, no bigger than the head of a pin, have proven their ability to thrive in dry, parched regions of the world. As well, the small-seeded grasses are more nutritious than rice. That makes them potentially important crops for subsistence farmers in Asia and Africa. Indeed, in South Asia alone, seven million farmers produce minor millets.

But University of Guelph researchers say there's still room for improvement. Simple and cost-effective technological innovations — such as simple seed planters — and micronutrient intervention with metals such as zinc, will go a long way to improve production and sustainability.

With that goal, and the support from the International Development Research Centre and the Canadian International Development Agency, U of G plant agriculture Prof. Manish Raizada is introducing what he calls agricultural tool kits to more than 2,000 marginalized farmers in Nepal, Sri Lanka and India.

"We're making this project as all-encompassing as possible," said Raizada. "We're ensuring that local knowledge and technology is at the same level, sustainability is considered and indigenous knowledge is valued."

To target the farmers most in need, the team approached non-governmental organizations that have established relationships with impoverished local people in the countries' most isolated regions. The team is working with these organizations to extensively survey farmers and uncover their individual needs to create truly effective tool kits.

"Our goal is to prove that our approach works, and can be scaled-up to large aid agencies," said Raizada.

The tool kit helps farmers conduct simple field trials to independently improve productivity long after the project is over. Its contents include everything from seed packages and low-cost technologies to instructional picture books, as well as micronutrients, such as zinc, magnesium and iron.

Depending on the local need, technologies can vary from reusable storage bags that prevent fungus and insects from spoiling harvested millets to two sticks joined by a string that serve as seed planters.

The instructional picture books explain how to use the tool kit contents and guide farmers on how to undergo a field study — for example, to try applying micronutrients to one site and leave the other untreated. Once the millet has grown, the farmer can determine which strategy produced the highest yield.

But the learning process doesn't end here. After the testing phase, the tool kits will be available for \$5 to \$10, a low cost considering that improved millet production may render farmers an extra \$100 to \$500 a year. The researchers are encouraging farmers to use that money to send their children to school. Anthropology and sociology Prof. Sally Humphries, the project's gender adviser, said special encouragement is being directed toward schooling girls because culturally they are seldom educated.

"We determined early on that targeting women is key to the success of this project," she said. "They usually take on the brunt of the labour and yet remain the most marginalized, indicating that something needs to change."

Collaborators are integrative biology Prof. Steven NewMaster, food science Prof. Koushik Seetharaman and graduate student Vijay Bhosekar.

editor@guelphmercury.com



University of Guelph Prof. Manish Raizada holds up a handful of minor millets, a hardy grain he's improving for subsistence farmers in Nepal, Sri Lanka and India.

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