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Features

Feeding the World, One Link at a Time

Networking project aims to help crop experts find order in maze of online research resources

BY ANDREW VOWLES

Call it everything a scientist ever wanted to know about maize research but didn't know whom to ask. Prof. Manish Raizada, Plant Agriculture, and U of G graduate Rohit Makhijani are preparing this spring to unveil a comprehensive electronic resource intended to link maize researchers around the world.

Their project, some three years in the making, will be the first of a planned series of international research databases into the world's most important agricultural crops. Raizada hopes virtual connections among crop experts worldwide will spur research that will help feed a hungry world.

Not incidentally, the molecular biologist also hopes to cement Guelph's reputation as a hub for information about research on agricultural crops and international development. Gesturing toward the computer monitor in his office in the Crop Science Building, he says: "We want this to be the meeting place for the life sciences community."

Information age scientists working on various crops can already log on to the World Wide Web and find no shortage of references to other researchers and resources in their field. But much of that information is scattered among numerous websites without coherent organization or too narrowly focused on subdisciplines or regions, says Raizada.

"Type 'maize economics' into Google, and what comes up is a lot of very disorganized information. I can't tell whether it's good or bad."

Hence his first attempt at developing a dedicated, comprehensive database called MaizeLink. The site (www.MaizeLink.org) will provide a gateway to researchers and resources around the world.

Registered users can log in and use keywords or names to search the site's database of more than 2,750 profiles of international scientists, academics and graduate students working in universities, governments, non-profit organizations and private organizations. The site contains information on about 80 subdisciplines from agronomy to food safety to agribusiness.

Type in "Raizada," for example, and the site returns the scientist's contact information as well as a summary of his maize genomics work, including lists of publications, patents and grant abstracts and links to his own favourite websites. The site also contains an electronic bulletin board for user discussions. Connecting to LifeSciencesLink yields access to publications, patents and grant abstracts for all life sciences researchers, not just those registered in MaizeLink.

Clicking on EquipmentLink takes users to an electronic marketplace intended to foster research in the developing world. Modelled after eBay, this section is aimed at organizations looking to obtain or donate agricultural and research equipment or books for researchers or classrooms in poor countries.

"MaizeLink allows you to find information quickly, in an organized way," says Raizada. "This automatically puts it all in one place. As with Google, the key guiding principle is that the database should be simple and fast."

Beyond the obvious users in agriculture, the site is also intended for other researchers, even those in seemingly unrelated fields such as social sciences. That patent lawyer he met recently in New Brunswick, for instance, might easily find Raizada's work and those of related scientists on the site.

Makhijani, a graduate of the Department of Computing and Information Science, is conducting final testing this month. They plan to launch MaizeLink for public use by the end of June. For that launch, they will broadcast an introductory e-mail to the nearly 2,800 people on the list, inviting them to enter their profile data on the site.

They hope those initial entrants will also tell other researchers about the site. "We don't know how many agricultural researchers there are in the world," says Raizada.

Pointing out that many researchers in the developing world may lack websites, he adds that users will be able to employ MaizeLink's simple generic design to enter information for a free web page.

Raizada hopes the database will connect researchers not only online but also in

real-world collaborations, particularly in projects intended to lend expertise from developed nations to developing countries.

"I know scientists would love to make a real-world impact in the developing world. We must feed more people in the next 40 years than we have in the last 10,000 years combined."

Using MaizeLink as a model, he and Makhijani plan to assemble databases for about 20 major crops, beginning with soybeans, rice, wheat, potatoes, teff (an African cereal crop), lentils, peanuts, sugar cane and yams. Their goal is to roll out various "link" sites and introduce an umbrella site for the project, to be called PlantLink, in about a year. Their database for these crops already includes about 13,500 researcher profiles.

Using funding from the Ontario Ministry of Agriculture and Food and a Premier's Research Excellence Award, Raizada began developing MaizeLink about three years ago with Makhijani, who now works at a software training company in Mississauga.

Last summer, they also enlisted undergraduate students Carly Wight, Devon Radford and Arani Kajenthira to help collect candidates for the database by scanning online references as well as publications and conference proceedings.

The group continues to update the directories to build comprehensive listings of worldwide researchers, and hopes to find funding to help develop and maintain the project, including its planned umbrella site, says Raizada.

"Our goal is to make PlantLink into the world's most comprehensive online researcher-to-researcher portal for researchers with a common interest in agriculture, whether they be social scientists, soil scientists or molecular biologists."

University of Guelph | Guelph, Ontario, Canada | N1G 2W1 | Tel: (519) 824-4120