

Getting to the root of green technology

A strong, competitive industry stays that way by continually looking for smarter ways to grow. That's why *Growing Forward* encourages technology firms to find environmentally friendly ways of boosting crop productivity.

Among those leading edge firms is XiteBio Technologies, a Winnipeg company seeking microbiology solutions that can increase profits for farmers by working with nature.

XiteBio is developing bio-active products that enhance yields through the use of micro-organisms, rather than chemicals. The research team focuses on what is happening below the ground, where roots engage in a symbiotic tango with a host of micro-organisms. Their goal is to improve these interactions between soil, roots and microbes by selecting formulations that won't interfere with the large community of soil life.

Since 2009, Manas Banerjee and his small staff of scientists at XiteBio have been transforming their applied research into commercially viable products that are now drawing interest from around the world. Funding from *Growing Forward* has been an incentive to keep building relationships and business from the company's Manitoba base.

"Green technology is a big thing in Manitoba," Manas says. "It makes sense to do business in an environmentally friendly way, and to do it here in Manitoba."

XiteBio's lab is different from other Manitoba facilities because it does only applied research. It also strives to develop products that are truly unique.

"We say that we don't have a department for R&D; we have a department for IRD – innovation, research and development. A product idea has to be innovative, or we won't pursue it."

Manas Banerjee, XiteBio



Manas Banerjee and his team are commercializing products that increase yields and profits by working in harmony with soil micro-organisms.

Manas says the company's most valuable expertise is in taking these innovative ideas through the many steps that lead to a viable commercial product, capable of providing a good return on investment.

"Having a good potential bioactive is not necessarily the same as having a good product. Many things are involved, like proof of efficacy, safety, shelf life, ease of application, suitable packaging and regulatory compliance. That's what we do best."

Through co-op intern programs, XiteBio is sharing its expertise with young people studying biotech, science and microbiology at the University of Manitoba and Red River College. The students receive some hands-on experience in the lab, which makes them more attractive to employers. In return XiteBio gains an injection of youthful energy and infectious enthusiasm.

So far, the company has introduced two innovative inoculant products into the U.S. market – XiteBio® SoyRhizo for soybeans, and XiteBio® PeasRhizo for peas and lentils.

Like other inoculants, these seed or in-furrow inoculants also deliver beneficial rhizobia that attach to roots and then convert soil nitrogen into a form plants can readily absorb. By improving plants' ability to take up and fix atmospheric nitrogen, they reduce the need to apply fertilizer – which in turn saves money for the farmer and minimizes the impact on the environment.

What makes XiteBio's inoculants unique, Manas says, is their ability to work in harmony with rhizobia already in the soil, instead of trying to out-compete them.

"We try to create synergy between the rhizobia that is already there and the micro-organisms we introduce. The aim is to get better and more consistent results for the farmer by working with the rhizobia in the soil, instead of against them."

XiteBio has held successful trials for SoyRhizo and PeasRhizo at U.S. universities and in Canada, and hopes to soon obtain registration approval from the Canadian Food Inspection Agency. The company also plans to adapt the technology for several other crops grown in Manitoba, including canola, corn, wheat, barley and vegetables.

In the medium to long term, XiteBio is looking at expanding into biocontrol of plant pests and diseases. "Wouldn't it be great if we could control some nasty plant pathogens with beneficial bacteria, instead of with chemicals?" Manas asks.

Also in the pipeline are bioremediation products for environmental concerns like hydrocarbon contamination.

Manas believes XiteBio is now the only Canadian ag-biotech company developing products of this kind, and their work is drawing interest from as far away as Africa, Asia, Europe and South America. ■

Food safety tools are just a few clicks away

Manitoba food processors and distributors are eager to learn more about sound food safety management practices, based on the high number of food safety resources downloaded from the Manitoba Agriculture, Food and Rural Initiatives website.

From January to August 2012, there were a total of 95,033 downloads from the Food Safety & Quality section of the website – an average of 11,879 per month.

The most frequently downloaded resources were:

- Basic GMP guidebook
- Food safety training forms
- HACCP forms
- Manitoba HACCP Advantage manual
- Technical documents
- Food safety posters
- Bacteria booklet

About one third of downloads were French language materials.

These food safety materials for processors and distributors are produced by the Technical Resource Centre, which offers information and assistance to the industry and the general public. The team includes specialists with a wide range of backgrounds.

To check out the full range of resources, visit www.manitoba.ca/agriculture/foodsafety.

