Industrial Research Assistance Program (IRAP)

Region:
British Columbia and Yukon
Kelowna

AgriForest Bio-Technologies Ltd.

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Dr. Kamlesh Patel, Vice-President Research, AgriForest Bio-Technologies Ltd.

Okanagan company comes out on top

AgriForest Bio-Technologies Ltd is a small Kelowna company that produces more than a million plants a year for nurseries, garden centres and orchards across the country. The National Research Council's Industrial Research Assistance Program (IRAP) helped it find a profitable market niche producing customized ornamental shrubs, shade trees, roses, Clematis, lilacs, Saskatoon berries and sea buckthorn through tissue culture technology. Today, AgriForest Bio-Technologies is the largest producer of tissue cultured plants in Canada.

It was a different story when the company first partnered with IRAP in the mid-1980s. At that time, it was cloning fruit trees for local Okanagan orchards, and its first IRAP project was developing tissue culture protocols to produce dwarf apple and cherry rootstock for orchardists who were finding it difficult to propagate them through conventional methods. But the fruit tree market slid into decline and the AgriForest was struggling to stay afloat.

"We knew we had to tap into different markets in order to survive," says AgriForest's co-owner and vice-president research Kamlesh Patel. One of the advantages of tissue culture technology is that it propagates large quantities of plants very quickly and can bring a new plant variety to market within a year. So in 1990, the company embarked on an IRAP project to develop protocols for tissue culture cloning of new, cold hardy rose varieties that were being bred by Agriculture Canada. "We brought them to market in the numbers required to meet the market demand," Patel says.

Tissue culture techniques produce 10,000 plants from a single cutting in six months or less, each a clone of the mother plant. They are disease-free, have healthier root systems than conventionally-produced plants, and grow

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Web site:

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quicker and have a higher survival rate after transplanting. The plant tissue is grown in sterile conditions through a tailored regime of nutrients, hormones and light. As the tissue produces offshoots, the process is duplicated again and again until desired numbers are reached. The shoots are then transferred to a nutrient medium containing rooting hormones. Within two weeks, the plants develop roots and are moved into the greenhouse.

Nurseries grow specific varieties of shrubs and flowers under licence and AgriForest develops their products on a custom basis. “Our list of customers is not long, but the number of plants they order is very large,” Patel says. With IRAP support the company continued to develop patented protocols, including ones for Saskatoon berries and medicinal plants, and investigated methods of eradicating soil-borne diseases that cost Okanagan Valley orchardists $1.5 million a year. It also collaborated with Agriculture Canada to develop a DNA fingerprinting process that allows the company to positively identify plant varieties.

Over the years, the company has worked with the IRAP Industrial Technology Advisors: Duncan Morgan, Jan Langton, and currently, Maureen Hatanaka. “We are where we are today because of the ITAs,” Patel notes. “They understood the problems we were going through and where we needed help. When AgriForest was going to close its doors, they showed us what we needed to do to keep going.”

Since 1996, business has mushroomed by 700 percent and AgriForest now produces 300 different plant varieties. Back in the 80’s, it employed just four staff members, today it has 20 full-time positions. “We’re not like other garden centres that have seasonal staff,” Patel says. He is also proud of the fact that tissue culture production is a “clean” industry in a rural community and notes the company’s products are beginning to win awards, most recently the B.C. government’s “Award for Best Business Achievement”.

Last year, AgriForest doubled its lab space to 4,500 square feet, and added 30,000 square feet of new greenhouses and equipment. Expanded research and development space means larger production capabilities, and the company knew it was finally time to hire a full-time marketing person. In May 2002, the IRAP’s internship program helped them to do just that.

IRAP is a key component of a country-wide innovation systen linking a diverse network of institutions, organizations an programs to help small and medium-sized enterprises (SMEs develop and exploit technology in a competitive, knowledge based economy. The National Research Council is the federa government agency that supports scientific research development and innovation in every region of Canada. ■

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