

# Talking Technology

## Biotechnology an emerging Okanagan industry

By Steve Burns, Capital News contributor



The Okanagan Valley is one of the most interesting places in Canada to live.

Despite our forest fire experience, Kelowna still has an unprecedented lifestyle where balance of life can be achieved. With all of its attractions, the Okanagan Valley continues to thrive with emerging industries.

One of these industries is biotechnology.

At first, the biotechnology industry seems difficult to define. Biotechnology uses living organisms to create new products that improve the quality of our food, our health and our environment.

The range of biotechnology related research is quite broad– from early diagnostic tests used to assist physicians in identifying diseases such as cancer to creating new forms of plants and fruits.

The biotechnology sector in B.C. is one of the fastest-growing research communities in the world. It comprises over 90 private sector firms, as well as a number of research centres located at government institutions, universities, teaching hospitals and technical colleges.

According to Statistics Canada's BioTechnology Use & Development Survey conducted in 2001, B.C. spent more than \$420 million on biotechnology research and development, which was the highest of all of the provinces.

Canada-wide revenues produced by this sector in 2001 were over \$3.6 billion with the most significant sectors being human health at \$2.5 billion, food processing at \$581 million, environment at \$268 million and agriculture biotechnology at \$245 million.

But how much biotechnology really occurs in the Okanagan Valley? Is this an emerging industry cluster that we should watch closely? The simple answer is absolutely.

While the Okanagan Valley may not yet be able to boast of the large biotechnology research based facilities, full post-graduate programs and spin-off companies that UBC's Biotechnology Laboratory has become famous for, it is home to some very interesting biotechnology related companies.

For instance, AgriForest Bio-Technologies Ltd. uses their patented technology to produce over a million cultured plants a year for nurseries, garden centres and orchards across the country.

The company is now one of the largest producers of tissue cultured plants in Canada.

Okanagan Biotechnology Inc. develops new commercial tree fruit varieties.

Using their patented PPO technology they are able to silence the browning reaction and deliver a fruit that will not go brown when cut or bruised.

Other innovative biotechnology companies focus on the wine industry by using biotechnology to help grape production and to create innovative grape varieties, while others are assisting in the health care sector's growing genome research initiative.

AgriForest Bio-Technologies Ltd. represents one of the most interesting examples of this emerging biotechnology cluster in the Okanagan.

Under the direction of Dr. Kamlesh Patel, AgriForest has grown rapidly since its inception in 1984.

Originally established to provide tissue culture dwarf fruit tree rootstocks to local orchardists, it now uses patented tissue culture protocols to produce ornamental shrubs, shade trees, roses, Clematis, lilacs, Saskatoon berries and sea buckthorn.

Tissue culture technology is a very interesting process that involves exposing plant tissue to a specific regimen of nutrients, hormones, and light under sterile, in vitro conditions to produce many new plants, each a clone of the original mother plant, over a very short period of time.

AgriForest's tissue culture plants are characterized by disease free growth, a more fibrous, healthier root system, a bushier branching habit, and a higher survival rate.

AgriForest also undertakes custom propagation projects for growers who want to commercialize a new variety, or have plants they find difficult to propagate conventionally, as tissue culture is often quite successful in propagating these varieties.

The company has developed some unique products using culture protocol for the production of Flower Carpet Roses marketed by Pan American Nursery Products and the hardy Explorer, Parkland, and Morden Series Roses developed by Agriculture Canada.

A DNA fingerprinting project, funded by the Science Council of B.C. and conducted in collaboration with Agriculture Canada, now allows AgriForest to identify plant varieties and find out if they are true to type.

This provides a useful tool for orchardists and nurseries, as well as for growers interested in filing patents for proprietary plant varieties.

While the industry is still in its infancy in the Okanagan with many pieces still missing, innovation does thrive in this emerging technology cluster.

With the right mix of qualified research personnel, access to local university-based research programs, continued support from the National Research Council's research programs, increased access to early stage growth funding and a focus on an economic strategy to attract other biotechnology firms, the Okanagan is well positioned to become a thriving incubator for this emerging industry.