



THIS IS BIOTECH

BEYOND MOOSE AND MOUNTAINS: BUILDING CANADA'S BIO-BASED ECONOMY.



Insect Viruses Key to Controlling Forest Pests

Sylvar Technologies Inc., Fredericton

In the epic battle between man and insect pests it appears that nature, with a little help, is the best weapon.

Scientists have discovered that it's possible to replicate a deadly natural virus that infects a single pesky insect, convert it into a liquid form and then spray it across great swathes of infected forests. The liquid virus, known as a baculovirus, selectively wipes out the targeted insect infestation, thus saving the forest. A biopesticide is born.

In Canada, Sylvar Technologies Inc., leads the way in developing and manufacturing biopesticides that naturally control insect infestations that cause devastating timber losses in forests. With forestry as one of the pillars of our economy, safely protecting this industry is essential and doing it through biotechnology is a responsible way, says Stefan Richard, general manager of Sylvar.

In spring 2008, infected swathes of commercially valuable forests in western Newfoundland were aerially sprayed with Sylvar's flagship virus product, *Abietiv* (mixed with molasses for extra sticking power), to successfully control an outbreak of Balsam Fir Sawfly, the larvae of which can severely weaken or kill fir trees. This spraying of Sylvar's biopesticide saved thousands, if not millions of valuable trees, from destruction.

Next on the horizon for Sylvar is introducing baculoviruses that will selectively control over the next two to five years, gypsy moth populations and eventually forest tent caterpillars. Homeowners abhor both gypsy moths and tent caterpillars, and will do almost anything to eradicate colonies. The National Forestry database pegs gypsy moths' and tent caterpillars' forest destruction at a rate of 353,415 and 1,563,126 hectares in 2002 and 2004 respectively.

Sylvar's biopesticides promise to eradicate these infestations safely and without chemicals. It is this "green factor" of selective biopesticides that sets it apart from the non-specific destruction of multiple insect species that conventional chemical pesticides are known for and makes Sylvar unique, says Richard. Already, woodlots and urban parks in Ontario have been treated with Sylvar's "green" biopesticides.



But what perhaps will be Sylvar's biggest contribution in protecting our forests from devastating insect infestations is its work on a "baculovirus bank". This repository will store viruses that are particular to insects with 10-20 year life cycles. By creating a bank of the viruses that are easily available to foresters, it allows for full scale production of a biopesticide within one or two years of an infestation breaking out, according to Richard. Without such a virus bank to draw from, foresters would have to start from scratch in trying to control outbreaks, which could take many years and result in devastating timber losses. With Sylvar's baculovirus bank, scientists would simply withdraw the appropriate virus to fight a particular insect infestation.

Sylvar's expertise is rooted in its parent company, Forest Production Limited, which has worked closely with Natural Resources Canada and foresters since 1952, providing fire management, pest management and aerial surveys. This long-standing parent partnership gives the three-year-old Sylvar Company added credibility with foresters who are charged with the stewardship of our nation's forest resources.

"We ensure a pipeline of products for the forest industry," says Richard. That's good news for Canada's forests and bad news for forest pests.