Natural Resources Canada
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Impact Note - CFS Atlantic - Making a difference

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Controlling the Balsam Fir Sawfly

Canadian Forest Service researchers at the Atlantic Forestry Centre have created a real Atlantic Canadian success story: after more than 10 years of hard work and over $5 million dollars in investment, they have launched Abietiv™, a market-ready natural control product to combat the balsam fir sawfly (*Neodiprion abietis*).

The balsam fir sawfly (BFS) has severely threatened Newfoundland and Labrador's forests and forest industry since the early 1990s. As of 2007, 200 000 ha of forest have been affected, and the continuing expansion of the infestation in western NF is causing concern. Since the outbreak began, the Province has lost more than 2 m^3 of growth each year for every hectare infested—more than 400 000 m^3 of incremental growth. If left unchecked, the infestation will destroy a substantial investment (average cost of $1000/ha) in established precommercial thinning.

The infestation in Newfoundland is unprecedented in its seriousness and geographic scope. Normally, BFS populations are regulated by natural pathogens, parasites, and predators, and outbreaks generally don't last long. However, by the time a natural collapse of this current infestation occurs, serious damage will have been inflicted on the forests of Newfoundland and Labrador.

Because there were no existing viable control options when this threat was first recognized, a partnership was formed between Natural Resources Canada's Canadian Forest Service (NRCan-CFS), the Newfoundland and Labrador Department of Natural Resources (NLDNR), Forest Protection Limited (FPL), Corner Brook Pulp and Paper, and Abitibi Consolidated Inc. to find a solution.

Dr. Christopher Lucarotti and colleagues at the CFS's Atlantic Forestry Centre (AFC) set out to enhance the natural collapse of BFS populations triggered by a naturally occurring virus (the species-specific baculovirus called NeabNPV) in BFS populations. Lucarotti was able to isolate NeabNPV from BFS populations in western Newfoundland. When a susceptible BFS larva ingests NeabNPV, the virus particles are released and spread infection throughout the insect's gut tissues. Subsequently, the insects quickly become sick, stop feeding, and die. However, before dying, infected larvae produce and release NeabNPV into the environment where it can be picked up by other, healthy BFS larvae.

NeabNPV was subjected to an extensive series of laboratory tests to determine the potential risks to other organisms, including beneficial insects and mammals. No adverse effects were found in any of the various indicator species tested by CFS researchers as part of the data package for federal registration. In aerial

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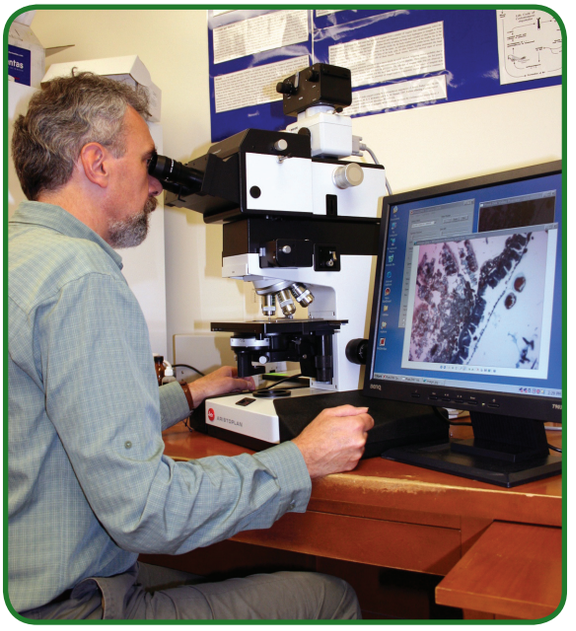
field trials, NeabNPV was found to accelerate the natural collapse of BFS populations. The end result of this extensive research program is a biological control product called Abietiv in which NeabNPV is the active ingredient.

Abietiv has been registered with Health Canada's Pest Management Regulatory Agency, and the license to market Abietiv has been given to Sylvar Technologies (a subsidiary of Forest Protection Limited) by NRCan-CFS.

Abietiv is a true Atlantic Canadian success story: innovation by CFS-AFC researchers has spurred the development of a solution to ensure the future health of our forests and forest sector. Through partnership, hard work, and scientific expertise, CFS-AFC researchers were able to conceptualize a solution to a significant problem and turn it into a reality for forest protection.



Dr. Chris Lucarotti examining the balsam fir sawfly virus.

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