

Hemlock Woolly Adelgid Management Program Factsheet

About hemlock woolly adelgid and why a management program is needed:

- Hemlock woolly adelgid is an invasive pest which was first detected in Nova Scotia in 2017.
- It has spread rapidly and is found in seven western counties (Shelburne, Yarmouth, Digby, Annapolis, Queens, and most recently Kings and Lunenburg).
- Recently it was detected for the first time in the central counties of Halifax and Hants Counties.
- It is an aphid like insect that feeds on water and nutrients found in hemlock twigs.
- This feeding causes loss of foliage and new growth and eventual tree death.
- The presence of white, cottony masses on twigs at the base of needles indicates the presence of hemlock woolly adelgid.
- 95% of trees in hemlock stands can die from hemlock woolly adelgid within 4-15 years.
- Death and rapid decline of hemlock is already being observed in parts of western Nova Scotia where hemlock woolly adelgid has been present the longest.
- The loss of hemlock will have severe ecological and cultural consequences.
- Hemlocks store large amounts of carbon to help mitigate climate change. We estimate there are 15-21 million tons of carbon stored in hemlock stands in the province.

Management program administration and funding:

- The Department of Environment and Climate Change is administering this 5-year program in collaboration with the Department of Natural Resources and Renewables.
- Funding is coming from a federal provincial agreement with the Nature Smart Climate Solutions fund administered by Environment and Climate Change Canada – this fund is being used to conserve, manage, and restore ecosystems to mitigate the impact and adapt to climate change.
- Funding to support this program is also coming from the Environmental Trust Fund and from provincial commitments to conserve additional crown lands.

Management program deliverables:

- Short-term control - selection and chemical treatment of approximately 1,500 ha of high priority hemlock stands on Crown and protected lands.
- Outreach to help protect hemlock from hemlock woolly adelgid on other lands – information will be made available to private landowners who want to conduct treatments on their own lands.
- Private landowners who conserve hemlock on their properties using an easement can receive assistance for treatment.
- Long-term control - research to evaluate biological controls as a long-term management solution.
- Continued engagement with other hemlock woolly adelgid partners and stakeholders:
 - Mi'kmaq of Nova Scotia
 - Hemlock Woolly Working Group – Maritimes

Selection of high-priority hemlock stands for treatment:

- A scoring system originally developed by Cornell University and modified for Nova Scotia is being used. This system assigns a ranking to stands using values for various criteria.
- The goal of ranking these stands is to ensure the stands selected are those with the greatest ecological and cultural benefit.

Short-term control using chemical treatments:

- Chemical treatments to individual trees are currently the only effective way to control hemlock woolly adelgid.
- Registered systemic insecticides are applied either through stem injection or basal application.
- These insecticides are water soluble and move through the vascular system of the tree.
- Currently there are five insecticide products registered or approved for use in Canada through Health Canada's Pest Management Regulatory Agency.
- Three products (IMA-jet 5%, IMA-jet 10%, TreeAzin) are injected directly into the stem of the tree – IMA-jet takes 6-9 months to take full effect, and it provide 4-5 years of protection, whereas TreeAzin takes only 1-2 months to take effect, but provides only 1-2 years of protection.
- Two products (Xytect 2F and Starkle 20SG) are applied to the bark as a basal application – Xytect 2F takes 6-9 months to take effect and can provide 5-7 years of protection, whereas Starkle 20SG takes 1 month to take effect, but only provides 1-2 years of protection.
- These are all commercial pesticides requiring a pesticide applicators certificate to apply.
- There is no domestic or over the counter pesticide currently available for use against hemlock woolly adelgid in Canada.

Safety of products and treatments:

- All chemicals have been evaluated by Health Canada and are safe for use and provide effective control when used per label directions.
- Treatments will only be done by or under the supervision of qualified pesticide applicators.
- All mixing and loading of pesticides will be conducted 30 or more meters from water and within a portable berm for containment.
- Basal bark applications will only be made when weather (i.e., low winds, no rain) and other environmental (i.e., plants near trees are not in flower) conditions permit.
- All pesticide will be safely stored.

Long-term control using biological agents:

- On the west coast of Canada, hemlock woolly adelgid is present, however, little or no damage is observed on hemlocks because natural predators are present to keep hemlock woolly adelgid populations low.
- Studies have shown that these predators attack only adelgids and prefer hemlock woolly adelgid. They do not affect other insects.
- The absence of biological control agents can result in rapid growth and damage from invasive species – research done in Nova Scotia has found no natural predators or biological agents present.
- This was also the case in the eastern US, however, biocontrol research involving the release of these agents has found that they can establish and can help to regulate hemlock woolly adelgid populations without impacting other species.
- Research on the release of these insect predators to regulate hemlock woolly adelgid populations in Nova Scotia will be evaluated. If successful, a biological control program could provide a long-term solution to the management of hemlock woolly adelgid and protection of hemlocks in the province.

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