

Atlantic Canada and the Spruce Budworm

The spruce tree is an important resource in Atlantic Canada. It is used extensively in the construction and pulp and paper industries. Few pests have created as much concern as the spruce budworm (**Figure 4**). During its reproductive cycle,

- adult moths lay eggs on trees in June
- eggs hatch and larvae move into the interior of the tree, spin webs, and move into the dormant phase
- larvae awaken in May and feed on old needles, unopened buds, and male flowers
- larvae work their way out onto branches to new shoots

If the larvae population is high, all the new shoots could be eaten, reducing tree growth. Removing the needles weakens the tree, making it easy for other insects and infections to attack it. After years of this cycle, the tree dies.

The pie graph in **Figure 5** shows pesticide use in Atlantic Canada. Despite the longest-running pesticide program in the world, New Brunswick has still not eliminated the spruce budworm.

- (g) What industry uses the most pesticides?
(h) Why do you suppose the spruce budworm has not been eliminated after 40 years of pesticide spraying?
(i) What might happen if biologists used really large amounts of pesticides to kill all the spruce budworms?
(j) What groups of people might have benefited from New Brunswick's spraying program?

No spraying has been done on Cape Breton Island. There, the spruce budworm infestation has been allowed to run its course. After a few years, the budworm population stopped growing, and about 50% of the island's softwoods (spruce, fir, and pine) have been lost.



Figure 4

The spruce budworm is a wasteful eater. It rarely eats a whole needle; it just bites it off at the base. Masses of dried, red-brown needles are left hanging from the end of branches.

Pesticide Use in Atlantic Canada

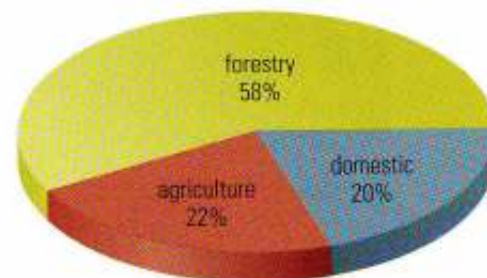


Figure 5

Pesticide use in Atlantic Canada, showing the influence of the spruce budworm spraying campaign.

- (k) Identify groups of people who may have suffered as a result of the decision not to spray.
(l) What are the benefits of not spraying?