Management

Outbreaks often last two to four years. Weather conditions, parasites and predators are contributing factors to population decline. A reduction in pollen cone production following sustained severe defoliation often causes population collapse. Without the nutritious pollen food source there is a high mortality rate in young larvae.

Insecticide application is sometimes necessary to protect high value forests against top-kill, timber volume loss and mortality during severe outbreaks. At present, a bacterial insecticide, *Bacillus thuringiensis* subspecies *kurstaki* (Btk) and tebufenozide (Mimic) are the only insecticides registered in Canada for jack pine budworm control. Timing of application coincides with the elongation of the shoots and formation of the needles.

Moth

Thinning of Foliage

Male pollen cones

For more information on jack pine budworm call:

The Tree Line
204-945-7866
or Toll Free 1-800-214-6497

or write:

Manitoba Conservation
Forestry Branch
200 Saulteaux Crescent
Winnipeg, Manitoba R3J 3W3

manitoba.ca/conservation/forestry

Jack Pine Budworm

Destructive Forest Pest

Protecting & Managing *our Future*

Manitoba

Moth

Jack pine budworm, *Choristoneura pinus Freeman*, is a destructive insect that attacks pines in central and northwestern Ontario, Manitoba and Saskatchewan and in the Great Lakes region. Severe outbreaks seriously affect the growth and quality of vast areas of pine.

This insect prefers jack pine, but red pine, Scots pine, lodgepole and occasionally white pine and black spruce that grow with jack pine can also be attacked.

Description of Life Stages

The adult moth has a wingspan of 15-to-28 millimeters (½ to 1 inch). The rust-coloured forewings have silverywhite patches. The hind wings are grey-brown.

Light green eggs are deposited in long masses on the needles. Approximately 40 eggs are laid in two rows which overlap, similar to shingles on a roof.

Egg Mass

A mature larva is 20-to-22 millimetres long (¾ to 1 inch). Its head is shiny reddish-brown to black. The reddish-brown body has yellowish sides and two rows of white dots along the back. There are six or seven stages called instars during larval development.

Larva

The pupa (transition stage from larva to moth) is approximately 12 millimeters long (½ inch) and is pale green when first formed. Later it becomes dark reddish-brown.

Severe Defoliation

Life Cycle

The female moth lays its eggs through mid July to early August. The eggs hatch in seven to 10 days. The larvae emerge and spin a silken cover under bark scales or between pine needles. Then the larvae molt without feeding and remain under the silken cover until the following spring.

They emerge in late May and early June when the male cones of jack pine produce pollen. Young larvae feed initially on pollen. The majority then move to the new foliage when it is well developed. Needles are seldom consumed entirely, but are often clipped at the base and webbed together. The accumulation of this feeding debris gives pine trees a scorched appearance in mid-summer.

Feeding lasts for approximately six weeks. Pupae develop among the needles or between webbed shoots from early to late July. Moths emerge in July and early August, mate and lay eggs. There is one generation per year.

Damage

During light and moderate infestations, damage is restricted to a partial loss of new foliage, particularly in the upper crown of the tree. When populations reach epidemic proportions, much of the current foliage is destroyed.

Trees may die after two to three years of severe defoliation. Top-kill, reduced tree health and substantial growth loss are the common forms of damage. Reduced vigour makes trees susceptible to secondary diseases and insects. In heavily infested forests, tree mortality or serious deformity can occur.

Top-kill