



# OHIO DEPARTMENT OF AGRICULTURE GYPSY MOTH PROGRAM

Division of Plant Industry, Plant Pest Control Section  
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## FORAY 48B Fact Sheet

### What is Btk and how does it work?

*Bacillus thuringiensis* (**Bt**) is a naturally occurring bacterium found in soils across Ohio. The active ingredient in FORAY 48B is *Bacillus thuringiensis var. kurstaki* (**Btk**), a variety of **Bt**. The insecticidal properties of **Btk** are specific to caterpillars of certain moths and butterflies. The alkaline conditions present in the mid-gut of these caterpillars releases a toxin from the insecticidal crystalline proteins (ICP's) found in the **Btk**. Once the toxins have attacked the stomach wall, the caterpillar stops feeding on the leaves of trees and within a few days the caterpillar dies. The **Btk** must be eaten by the gypsy moth caterpillar, not just come in contact with it, for it to be effective. The effectiveness of **Btk** declines rapidly, due to sunlight and other microbes, usually only lasting for days after application.

### Does Btk Affect Humans, Mammals, Birds, Fish, Honey bees or any beneficial insects?

No, Btk is not toxic to humans, mammals, birds, fish, honey bees or many beneficial insects. Btk needs alkaline conditions to release the toxin from the ICP's. These alkaline conditions are only present in the stomach of Lepidoptera larvae. Alkaline conditions do not exist in the stomachs of humans, mammals, birds, honey bees or fish which is why the Btk does not affect them.

As with the application of any control product, people, pets or domestic animals with known health concerns may wish to avoid exposure by staying indoors during the spray operation and until the Btk product is dry (usually 30 minutes). Foray 48B has been approved for organic crop production.

### Beneficial Effects

The effectiveness of **Btk** starts to decline rapidly, usually starting within hours after application, due to sunlight and other microbes, and usually lasting only 4-6 days after application. No long term environmental effects occur.

By preventing tree defoliation we can reduce tree mortality, maintain water quality and temperature for all of the organisms living in, and depending on, the water, prevent increased predation of nesting songbirds, protect all native leaf eating and canopy dependent insects, preserve acorn production that is important for the many species of birds, rodents and mammals dependent on this food source, reduce the risk of forest fires, and allow the natural cycles of the forest ecosystem to continue to thrive and sustain diverse, interdependent populations of plants and animals.

### Adverse Effects

Btk applications may reduce the number of non-target moths and butterflies that are specifically in the caterpillar life stage and are feeding on leaves containing Btk during the short window of effectiveness. Each species of Lepidoptera has a little bit different life cycle and they have different tolerance levels to Btk than gypsy moth. The number of species that could be effected are small due to the timing of the application (early May) and the low rate being used.