

# Gypsy Moth in Indiana

Department of Entomology

## Q&A'S ABOUT USING BTK TO CONTROL GYPSY MOTH

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### Q: WHAT IS THE GYPSY MOTH, AND WHY IS IT A PROBLEM?

**A:** The gypsy moth is an insect with a big appetite for oaks. Each caterpillar can grow up to 2 inches long and can consume up to 11 square feet of foliage from early May until June. When abundant, caterpillars can completely defoliate trees. Although healthy trees can survive defoliation, repeated removal of leaves can kill a tree. Older, less vigorous trees suffering from drought can be killed by a single defoliation. Capable of feeding on 500 plants, this pest threatens Indiana forests and suburban landscapes.

Gypsy moth caterpillars are also a public nuisance in recreational and residential areas that are known for their oaks. The rain of caterpillars and their excrement from treetops can discourage even the heartiest Hoosiers from taking a walk in the park. Some people develop rashes or allergies to caterpillar hairs that float through the air.

### Q: WHAT IS BTK, AND HOW DOES IT KILL THE GYPSY MOTH?

**A:** Btk, short for *Bacillus thuringiensis* var. *kurstaki*, is a bacterium found naturally on leaves and in the soil. These bacteria are tiny little factories that produce protein crystals that kill specific groups of insects.

When eaten, the protein crystals tear the cells that line the intestine of susceptible insects, causing them to die from bacterial infection. The source of this infection can be the Btk spores in Btk insecticide or any of a number of species of bacteria already present in the insect gut. Death can occur within a few hours to a few weeks after Btk application. The strain commonly known as "kurstaki" is used to produce the gypsy moth insecticide that kills the caterpillars of various moths and butterflies.

### Q: HOW IS BTK INSECTICIDE USED TO KILL GYPSY MOTH?

**A:** In Indiana, most Btk applications are applied from aircraft or spray trucks to areas where gypsy moths threaten trees and the public. A series of two sprays is applied in early May, when caterpillars are small and most susceptible to Btk. Sprays outside of the generally infested area are applied to eliminate isolated populations of moths, thereby slowing the spread of the gypsy moth infestation through the state. In counties where gypsy moth is already established, these sprays are designed to prevent or reduce defoliation and nuisance problems.



Gypsy moth larvae feeding.

### Q: IS BTK INSECTICIDE SIMILAR TO BT CORN?

**A:** The same species of bacteria is used to produce Btk insecticide and Bt corn. The protein crystals and bacterial spores in Btk insecticide are extracted from a soup of Bt bacteria that is produced in vats like beer in a brewery. With Bt corn, the genetic recipe for making the

protein crystal is in the seeds. Susceptible insects feeding on Bt corn plants and Btk insecticide die from bacterial infection after the protein crystal tears the intestinal lining.

Btk bacteria do not cause diseases in people, mammals, birds, or fish. Btk insecticide can cause some minor and temporary irritation to exposed skin, eyes, ears, nose, and throat. However, numerous studies of large communities of people exposed to Btk during aerial sprays for gypsy moth and other caterpillars have repeatedly failed to find any significant adverse risks to the health of the general public.

Btk has been safely used against gypsy moth in the northeastern United States to kill gypsy moth since 1980. Btk is so safe that plants can be eaten even after they have been modified to produce their own Btk protein crystals. This insecticide can also be applied on food crops the day they are harvested. Honeybees, ladybugs, and most beneficial insects are not affected.

**Q: ISN'T IT BETTER TO "BE SAFE THAN SORRY" AND COMPLETELY AVOID EXPOSURE TO BTK?**

**A:** Most North Americans have already been repeatedly exposed to *Btk*. Because *Btk* naturally persists in soil and is also sprayed on many crops (including those that are organically grown), it is likely that most of us have been exposed to *Btk* during the course of our daily lives. If a person eats fruits and vegetables purchased at a grocery store, he or she has probably already ingested *Btk*, probably without any ill effects.

**Q: HOW CAN I PROTECT MYSELF FROM THE EFFECTS OF BTK SPRAY?**

**A:** Despite its record as one of the safest pest control methods available, some people may choose to minimize their exposure to the Btk spray. To do so, remain indoors at least 10 minutes after the airplanes have finished spraying. Wait until spray or dew has dried before letting children play outside. If for some reason you come in contact with Btk spray, wash the affected area with soap and water.



Aerial flyover spray application.

**Q: WILL BTK SPRAYS KILL OTHER BUTTERFLIES?**

**A:** Yes, but they will not eliminate them. Btk only kills butterflies and moths that are in the caterpillar stage. Most of Indiana's butterflies, including Monarch butterflies, are not in the caterpillar stage until over a month after the aerial spray, when the Btk protein has degraded. The spray does not contaminate the area with Btk bacteria. Furthermore, only small parts of the forest are targeted for spray. Butterflies outside the spray area are not affected.

**Q: WILL BTK SPRAYS TAKE THE PAINT OFF MY CAR?**

**A:** No. Some people living in spray areas have reported the presence of a fine dust after the spray, but this easily washes off and does not harm the finish.

**TO REPORT GYPSY MOTH**

- Download and use the Great Lakes Early Detection Network App for [Android](#) or [iPhone](#).
- Contact the Indiana DNR at 866-NO-EXOTIC.

**FOR MORE GYPSY MOTH INFORMATION**

- Visit [Purdue Extension Entomology's Gypsy Moth Information Web Site](#) to download free GM series bulletins and get the latest information.
- Order the GM series bulletins at your Purdue County Extension office or by calling 888-EXT-INFO.
- Contact the Department of Entomology, Purdue University, W. Lafayette, IN, 47907-1158, 765-494-5983, or Indiana Department of Natural Resources at 317-232-4120.

READ AND FOLLOW ALL LABEL INSTRUCTIONS. THIS INCLUDES DIRECTIONS FOR USE, PRECAUTIONARY STATEMENTS (HAZARDS TO HUMANS, DOMESTIC ANIMALS, AND ENDANGERED SPECIES), ENVIRONMENTAL HAZARDS, RATES OF APPLICATION, NUMBER OF APPLICATIONS, REENTRY INTERVALS, HARVEST RESTRICTIONS, STORAGE AND DISPOSAL, AND ANY SPECIFIC WARNINGS AND/OR PRECAUTIONS FOR SAFE HANDLING OF THE PESTICIDES.

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