

Prevention of Pine Beetles: What Homeowners Need to Know for Health Protection

What are pine beetles?

The mountain pine beetle, *Dendroctonus ponderosae*, is native to the forests of western North America. Mountain pine beetles develop in pine trees, especially Ponderosa, Lodgepole, Scotch and Limber pine with less frequent attacks in Bristlecone and Pinyon pine. Periodic outbreaks of the pine beetle can result in losses of millions of trees.

What pesticides can be used to spray for pine beetle?

There are three pesticides commonly used to prevent pine beetle damage: carbaryl (also known as Sevin SL), permethrin (also known as Astro), and bifenthrin (also known as Onyx). All three pesticides are marketed to commercial applicators. Pesticides need to be labeled for mountain pine beetle.

What are pesticides?

A pesticide is any material (natural, organic, or synthetic) used to control, prevent, kill, suppress, or repel pests (insects, weeds, plants, or fungus).

How could these pesticides affect my health?

The United States Environmental Protection Agency (EPA) has approved all three of these pesticides for use to prevent pine beetle damage. **Read the label completely before beginning use.** If the label directions are closely followed, risk of adverse health effects is low. However, when not used according to label instructions the risks may be the following:

- Carbaryl: Moderately to very toxic. It can produce adverse effects in humans by skin contact, inhalation or ingestion. Early symptoms may include headache, muscle weakness, nausea, stomach cramps, sweating, and restlessness. Greater exposures may lead to pin-point pupils, tearing, excessive salivation, nasal discharge, vomiting, diarrhea, muscle twitching, and coordination problems. Severe poisonings can result in convulsions, coma, and death. It is likely that carbaryl causes cancer in humans.
- Permethrin: Low to moderate toxicity to humans for short-term exposures. Similar insecticides can cause skin or respiratory reactions in people with hayfever or in people who are sensitive to ragweed and pollen. These reactions may include irritation or inflammation of the skin, sneezing, nasal stuffiness, or asthmatic breathing. Exposure may occasionally produce numbing, burning, or tingling sensations of the skin. These sensations are reversible and usually go away within 12 hours. Human cancer data are not available.
- Bifenthrin: Classified as moderately toxic. Can cause sensations such as stinging, burning, itching, and tingling, progressing to numbness, with the face most commonly affected. This pesticide can be corrosive to the eye. EPA considers bifenthrin a possible human carcinogen.



Human health effects from any of these pesticides depend on:

- The amount of pesticide used
- The length and frequency of exposure
- The health status of an exposed person
- The environmental conditions under which exposures occur

Why should I use a commercial licensed applicator to spray my trees?

These individuals are trained in the application of pesticides to tall trees. Licensed applicators have all of the necessary equipment to properly apply the pesticide to best protect valuable trees in the most cost effective manner. Additionally, they are trained to apply these pesticides with less impact to the surrounding environment. Finally, these pesticides can only be purchased in large quantities; therefore, the use of a licensed applicator eliminates the need to store or dispose of unused pesticides.

What can I do to protect myself if I choose to spray my own trees?

- Always read and carefully follow all precautions and safety recommendations given on the container label.
- Be sure that you have the proper equipment for applying the pesticide safely. You will need appropriate clothing to protect yourself from exposure even when applying the safest pesticides. Appropriate clothing includes:
 - Long sleeved shirt
 - Long pants
 - Chemical resistant gloves
 - Closed-toe shoes and socks
 - A respirator. If a respirator is required, the specific type of respirator will be listed on the label. Even if not required, a respirator, like those available in the painting supplies at home improvement or hardware stores, can provide valuable respiratory protection.
- Wash the clothes worn during pesticide application separately.
- Try to purchase only as much pesticide as you will use in the immediate future.
- Never use more than what the directions recommend.
- Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock
- Contact a medical professional immediately in all cases of suspected poisoning. Have the container or label with you when calling a poison control center, medical professional, or when seeking treatment.



More information on how to read and understand pesticide labels can be found at:

- <http://www.ipm.ucdavis.edu/WATER/U/label.html>
- <http://www.epa.gov/pesticides/label/>

On-line versions of the labels for these pesticides can be found at:

- <http://oaspub.epa.gov/pest/abl/ppls.home>

Where can I find more information about how to most effectively use these pesticides if I choose to spray my own trees?

More details about how many trees to spray, which trees to spray, and when or how often to spray trees can be found here:

<http://www.extension.colostate.edu/gilpin/docs/Thoughts%20on%20spraying%20trees-version2-070208final.pdf>

For more information about health effects that could be related to the use of these pesticides, please contact Shannon Rossiter, MPH at 303-692-2617, or toll free at 1 (888) 569-1831, extension 2617.

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Additional Resources:

For Effective Pesticide Application:

Colorado State University Extension - Mountain Pine Beetle:

<http://www.ext.colostate.edu/pubs/insect/05528.html>

Colorado State University Extension - Thoughts on spraying trees to protect against Mountain Pine Beetle:

<http://www.extension.colostate.edu/gilpin/docs/Thoughts%20on%20spraying%20trees-version2-070208final.pdf>

University of California Agriculture and Natural Resources - How to Manage Pests

Warning on the Use of Chemicals: <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/warning.html>

University of California Agriculture and Natural Resources - Pesticides: Safe and Effective Use

in the Home and Landscape: <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74126.html>

For Health Effects:

Extension Toxicology Network – Bifenthrin:

<http://pmep.cce.cornell.edu/profiles/extoxnet/24d-captan/bifenthrin-ext.html>

Extension Toxicology Network – Carbaryl:

<http://pmep.cce.cornell.edu/profiles/extoxnet/carbaryl-dicrotophos/carbaryl-ext.html>

National Pesticide Telecommunications Network – Carbaryl:

<http://npic.orst.edu/factsheets/carbgen.pdf>

National Pesticide Telecommunications Network – Permethrin:

<http://npic.orst.edu/factsheets/permethrin.pdf>

University of Florida IFAS Extension - Pesticide Toxicity Profile: Synthetic Pyrethroid Pesticides:

<http://edis.ifas.ufl.edu/PI091>