

# IMIDACLOPRID

## Questions and Answers

***What is imidacloprid?*** Imidacloprid (Trade name: Merit®) is a chloro-nicotinyl compound, chemically related to nicotine. It is especially useful against insect pests, such as leafhoppers, psyllids, aphids, and thrips that use their mouth to penetrate plant surfaces and draw out nutrients. Imidacloprid (Advantage®) is used as a flea treatment for dogs and cats. It is also used for the control of common soil and turf pests, such as ants, termites, and grubs. Some common agricultural crops it is registered to be used on are rice, cereal grains, corn, potatoes, some fruits and vegetables, cotton, and hops.

***How does imidacloprid work?*** When applied to the soil, imidacloprid is taken up by plants through their root system, i.e., systemically. When it is applied to plant surfaces, it is absorbed by foliage (leaves), where it migrates through the plant toward the tips of the foliage. When an insect draws up nutrients, it also takes in imidacloprid, but the insect may also absorb it from surface contact. Once taken up by an insect, imidacloprid interferes with nerve transmission in certain types of neurons (nerve conducting systems). This interference results in the insect's death. Insects are more susceptible to this action than are mammals.

***What kinds of tests have been done with imidacloprid?*** The U.S. Environmental Protection Agency and the California Department of Pesticide Regulation have both registered products containing imidacloprid. All required testing for these registrations has been done. This includes tests for acute (short term) and chronic (long term) administration. The acute mammalian toxicity of imidacloprid is considered moderate via the oral route of exposure, but minimally toxic via the dermal and inhalation routes of exposure. No evidence of carcinogenicity was found after lifetime exposure studies. Evidence reported for reproductive and developmental effects in offspring does not indicate a hazard exists for humans from imidacloprid. Imidacloprid is readily metabolized and excreted after it is absorbed. It does not store or build up in body tissues.

***What effect can imidacloprid have on people?*** No reported cases of human poisoning with imidacloprid were found in the literature. Toxicologists suggest that, based on its mechanism of action, poisoning could cause muscle weakness, cramps, and fatigue.

***What effects might imidacloprid have on other animals or the environment?*** Imidacloprid has moderate persistence in both water and soil. Imidacloprid has an affinity to bind to soil and is generally not a high risk for contamination of ground water or movement off site from water runoff. If imidacloprid is applied to plant foliage, foraging bees can be killed. When it is applied to soil, bees are less affected because they do not draw nutrients from within treated plants. Birds can be poisoned, but require doses much higher than what is available from residues remaining after application for insects. Imidacloprid is toxic to aquatic invertebrates however, toxicity to fish is low. Affected non-target insect populations generally recover to pre-treatment levels once the target population is eliminated and eradication treatments cease.

***Why use imidacloprid?*** Imidacloprid is part of an overall treatment strategy to eradicate the glassy-winged sharpshooter from areas within California. It is a soil-applied residual systemic insecticide that provides a long term comprehensive treatment because it remains effective longer than materials that stay on a plant's surface. It will also kill sharpshooters that are present at the time it is being applied to a plant.