



Florida Department of Agriculture & Consumer Services
Adam H. Putnam, Commissioner

Florida Department of Health
John H. Armstrong, M.D., State Surgeon General

Frequently Asked Questions about Boric Acid for Control of Snails

What is boric acid?

Boric acid and sodium borate salts are registered by Florida Department of Agriculture and Consumer Services (FDACS) and the U.S. Environmental Protection Agency (USEPA) as pesticides for use on many food crops (including certified organic crops), lawns, gardens, and non-crop areas. Borates may also be present in some commercial fertilizers, since boron is an essential plant micronutrient. It is believed that boron is also needed in the human diet for bone health; therefore, boron may be found in many vitamin supplements. Boron is also present in many consumer products including soaps, bleaches, detergents, cosmetics, pharmaceuticals, fire retardants, glass, and ceramics. Boric acid can be produced industrially, but also occurs naturally in soil, plants, water and air.

How does boric acid target and kill snails and slugs?

Boric acid in Niban[®] Granular Bait is formulated with attractants to promote consumption by snails, slugs, ants, cockroaches and other targeted pests. The granules should not be attractive to dogs, bees, beneficial insects, or other non-target animals. Once the bait is eaten, the boric acid affects the snail's ability to generate energy and the snail eventually dies.

Where, when, and how much boric acid may be applied?

The boric acid product chosen for control of giant African land snails is Niban[®] Granular Bait, which contains 5% boric acid. The bait granules will be scattered on the ground around or near areas infested with the snails or around plants to be protected. Broadcast application equipment and spreaders may be used to cover larger areas. Niban[®] Granular Bait is approved for controlling snails in a variety of areas such as lawns and ornamental plants, gardens, farms and non-crop areas. Typical application rates are 3.2 ounces (2/3 cup) to 6 ounces of granules per 100 square feet. The bait can be reapplied every four to six weeks, as needed.

What happens to boric acid in the environment?

Following application, rain or irrigation will not readily dissolve the bait pellets to release the boric acid. However, with time, the boric acid will be slowly released to the topsoil. Any boric acid not consumed by snails and slugs will eventually be taken up as a micronutrient by plants and soil microorganisms. Some boron will eventually leach through the soil profile due to the sandy nature of the soil and high rainfall that are common to South Florida. However, there is no risk to drinking water due to the very low application rates and further dilution in the ground water.

Is boric acid harmful to people's health?

Boric acid exhibits low acute (single exposure) toxicity in laboratory animals when eaten, although human poisoning incidents suggest that it may be moderately toxic when consumed in large quantities by people. Boric acid is of low acute toxicity to mammals when applied to the skin, and moderately toxic if inhaled. Boric acid may be irritating to the eyes and skin. Niban[®] formulated bait is considered non-irritating and practically non-toxic by all routes. No evidence exists to suggest boric acid would cause cancer. Laboratory animals fed a consistent supply of very high levels of boric acid showed reproductive, developmental and neurotoxic effects, but the exposures were much greater than what could be expected with this use. The USEPA has evaluated the health risks for boric acid and borate salts and concluded that there is a reasonable certainty that no harm will result from exposure to pesticides containing boric acid and borate salts when used according to label instructions. The formulated product that will be used, Niban[®] Granular Bait, has the signal word "Caution," signifying the least acutely toxic category. Given the nature of the granule formulation and method of application, unacceptable exposure of humans to boric acid from this bait are not expected and can further be prevented through education of residents to avoid contact with the bait in the infested areas.

Will boric acid harm my pets?

Boric acid is considered low to moderately toxic to dogs and other mammals when eaten. The formulated product contains only 5% boric acid and is not expected to harm pets. Only ingestion of very large amounts of the granules could cause harm.

Will boric acid harm wildlife or other non-target organisms?

Boric acid is of low toxicity to mammals and is practically non-toxic to birds, fish, and other aquatic organisms. Based on its low toxicity and natural presence in terrestrial and aquatic environments, the USEPA considers boric acid to pose minimal risk to wildlife and aquatic organisms. Boric acid is also considered non-toxic to bees.

What can I do if I believe that boric acid might be making me sick?

If you are ill, you should call your doctor. You can also call your local county health department or call the Florida DOH Bureau of Epidemiology, Pesticide Exposure Surveillance toll-free number at 1-800-606-5810. You can also call the Florida Poison Control Center at 1-800-222-1222.

How do I get more information about boric acid?

You can get more information on the use of boric acid in giant African land snail control from the FDACS Division of Plant Industry by calling: 1-888-397-1517. You can also get more technical information about boric acid by calling the FDACS Bureau of Pesticides at 1-850-617-7917 or visiting the website at <http://www.flaes.org/pesticide> for further contacts.