

(R,Z)-5-(1-decenyl) dihydro-2(3H)-Furanone (Nuranone) (116501) Fact Sheet

Summary

Nuranone is a sex pheromone produced by female Japanese beetles to attract males for mating. As a pesticide, it is used to lure male Japanese beetles into traps so that the males are not available for mating. When used as directed on the label, nuranone products do not pose risks to humans, pets, wildlife or the environment.

I. Description of the Active Ingredient

Name: (R,Z)-5-(1-decenyl)dihydro-2(3H)-Furanone (Nuranone) is an alternate name)

OPP Chemical Code: 116501 (CAS # 64726-91-6)

Pheromones are volatile chemicals produced by a given species to communicate with other individuals of the same species. The purpose is to change the behavior of the individuals who detect the pheromone. For example, many kinds of female insects, including beetles and moths, produce specific pheromones that attract males of the same species. Mammals may use pheromones to mark territory (dogs, bears), or to warn other individuals of danger. Pheromones are effective in tiny amounts, and usually act only on one species or a few closely related species.

Nuranone is the sex-attractant pheromone of the female Japanese beetle. Although the pheromone was originally isolated from female beetles, manufacturers now produce the substance synthetically.

The pesticide product gradually releases nuranone into the air. Males are then attracted to the trap. As a consequence, many females have no opportunity to mate, resulting in a decreased number of beetles in the next generation.

II. Use Sites, Target Pests, and Application Methods

- **Use Sites:** Traps can be placed on agricultural and residential outdoor and indoor sites, including greenhouses, and sites with food crops or ornamental plants.
- **Target pest:** Japanese beetle

- **Application Methods:** Pesticide products containing nuranone generally consist of three major components. For attracting male beetles, there is a nuranone mix designed to release the pheromone into the air slowly over a period of weeks. Then there is a mix of floral scents, which attracts female Japanese beetles and helps attract the males. Third is a trap for the beetles. The products are used when female Japanese beetles are emerging as adults ready to mate.

III. Assessing Risks to Human Health

Nuranone is not harmful to humans. No adverse effects are expected at the tiny air concentrations resulting from use of the traps. The amount of nuranone released by the traps leads to an air concentration that is similar to that found in natural infestations of Japanese beetles.

IV. Assessing Risks to the Environment

No harm is expected to the environment because the nuranone is contained in a trap and serves as a lure only to male Japanese beetles. The floral attractants would attract female Japanese beetles, and possibly some additional insects.

V. Regulatory Information

Nuranone was initially registered (licensed for sale and distribution) in 1979 as an attractant for Japanese beetles. A reregistration document was prepared in 1995 to ensure that nuranone products met updated safety standards. As of January 2001, there were six end-use products containing nuranone as the active ingredient.

VI. Producer Information

Several companies have registered pesticide products with nuranone as the active ingredient.

VII. Additional Contact Information

[Ombudsman, Biopesticides and Pollution Prevention Division](#) (7511P)
Office of Pesticide Programs
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460