

Boll Weevil Aggregation Pheromone (112401, 112402, 112403, 112404) Fact Sheet

Summary

This pheromone combination attracts cotton boll weevils to a malathion trap, where the weevils die. The pheromone mixture has no known toxicity and is not expected to harm people or the environment. Malathion is a recognized toxic insecticide, but the location of the malathion in the trap prevents exposure to organisms other than the target weevils. Therefore, the trap is not expected to harm humans or the environment when used according to label directions.

I. Description of the Active Ingredient

Chemical Name	OPP #	(CAS #)
(IR-Z)-1-Methyl-2-(1-methylethenyl)cyclobutane ethanol	112401	(CAS # 26532-22-9)
(Z)-2-(3,3-Dimethylcyclohexylidene)ethanol	112402	(CAS # 26532-23-0)
(E)-(3,3-Dimethylcyclohexylidene)acetaldehyde	112403	(CAS # 26532-25-2)
(Z)-(3,3-Dimethylcyclohexylidene)acetaldehyde	112404	(CAS # 26532-24-1)

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

Cotton boll weevils, a species of beetle that harms cotton plants, gather in large numbers to mate. The weevils release their aggregation pheromone to attract additional boll weevils to the aggregation site.

When used as part of a pesticide product, the weevil aggregation pheromone is slowly released to the air over a period of weeks. Weevils that are attracted to the pheromone are subsequently exposed to the malathion and killed.

II. Use Sites, Target Pests, and Application Methods

- **Use Sites:** Edges of cotton fields.

- **Target pests** : Cotton boll weevils
- **Application Methods**: Hollow tubes about 3 feet long containing the pheromone dispenser and the malathion are placed around cotton fields before planting. The tubes are replaced three times, for a total of 4 applications per season.

III. Assessing Risks to Human Health

Based on the known properties of insect pheromones and toxicity tests conducted on the weevil pheromone, no risk to human health or the environment is expected from exposure to this pheromone. Although the pheromone is used in a trap that contains malathion, no exposure to malathion is expected if the user follows label directions on the product

IV. Assessing Risks to the Environment

Adverse effects on nontarget organisms (mammals, birds, and aquatic organisms) are not expected because 1) the pheromone chemicals are not toxic, 2) they are released slowly in tiny amounts, and 3) they attract only boll weevils. The malathion is formulated so that it is not accessible to non-target insects or other organisms.

V. Regulatory Information

In November 1993, the four chemicals that comprise the boll weevil aggregation pheromone were registered for use in a trap, with malathion as the insecticide. As of November 2000, EPA had registered (licensed for sale) one product containing these four chemicals as active ingredients.

VI. Additional Contact Information

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