



Insect Monitor Multi-species Pheromone Trap

DTC: Our Pheromone Philosophy

At DTC, we are firm believers in the “early warning detection” feature provided by pheromones. We are particularly impressed with the effectiveness of the sex pheromones used for the Indian meal moth, the cigarette beetle, and the warehouse beetle.



*The DTC Solutions “**Insect Monitor**” Multi-species Pheromone Trap is “Made in America”.*



The ideal solution for multi-species insect monitoring!

Designed to attract:

Cigarette Beetle



Indian Meal Moth



Warehouse Beetle



Pheromone Traps and Lures

What Are Pheromones?

Pheromones, derived from the Greek words meaning “to carry” and “to excite”, are a special class of non-toxic chemicals. These man-made compounds mimic hormones produced in minute quantities by insects. Insect pheromones attract other insects of the same species, or sometimes a closely related species, but have no effect on non target organisms including humans. These compounds are extensively used in agriculture and forestry to detect the presence of insect pests, and to monitor population increase or decrease over time. Pheromone lures used for stored product insects fall into two categories:

1. **Sex Pheromones** are produced by female insects to attract males for mating.
2. **Aggregation Pheromones** are produced by either or both sexes to attract males and females to food and harborage.

Interestingly, long-lived insects (such as flour beetles which can live for a year after becoming adults) produce aggregation pheromones, while pests with short-lived adults such as the Indian meal moth and the cigarette beetle use sex pheromones. Since no drive in nature is stronger than the need to procreate, sex pheromones are much more effective than are aggregation pheromones. In an attempt to increase the effectiveness of aggregation pheromones, food attractants are usually added to the lure but still only marginally effective as compared to the sex pheromones. We find these food attractant plus pheromone lures to be more effective than aggregation lures alone. Since pheromones are quite species specific and do not counteract one another, we highly recommend placing several different lures in each pheromone trap. Multi lure traps are much more economical and time saving than are single species traps.

Pheromones and IPM

The first step in any integrated pest management program is to correctly identify the pest and to determine the size/location of the infestation. Pheromone lures provide early warning detection of potentially damaging stored product insects such as the cigarette beetle, warehouse beetle and the Indian meal moth. Traps must be inspected weekly and counts must be recorded for follow-up. If no insects are captured in the pheromone lures, these traps provide verification that no stored product insects are nearby to pose a risk to the products under your care.

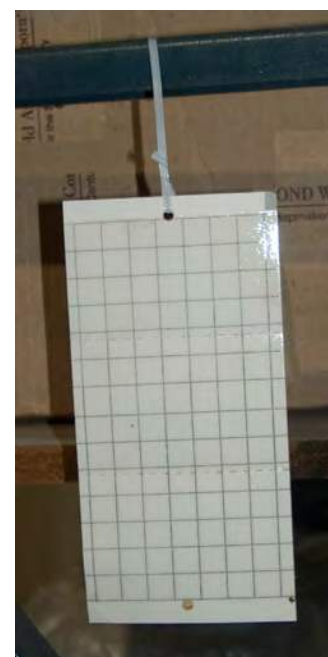
Pheromone Trapping Strategy

1. When traps are installed, mark them with the installation date to ensure proper rotation.
2. Traps should be numbered in sequence; identify placements on a facility diagram for corrective action.
3. Count insects in the trap and record the numbers weekly. Transpose this data onto a line graph with a software spreadsheet program like Excel and watch for population increases over time. When abnormal beetle or moth activity is observed, respond immediately. ***Traps are monitoring tools, they are not controls tools.***
4. As a rule of thumb, traps have an effective range of about 30 feet. Do not place traps within 30 feet of one another, or within 30 feet of a door or other opening.
5. Placing traps outdoors can help determine if insect infestations are present outside the facility. Correlated with indoor trap data, outdoor trap activity can give you a hint as to whether you are dealing with a plant infestation or with insects that are invading the plant. Outdoor traps will become quickly overwhelmed and must be monitored frequently. Outdoor traps should be located on the fence line or as far away from the building as possible so as not to attract pests to sensitive areas.
6. Place traps where they can be protected from fork lift and other damage, and where they can be inspected and serviced without the need of a ladder or safety cage — eye level is best. Traps should be placed on posts or columns, at the end of storage racks or on walls.
7. Pheromone lures need gentle air movement to carry the scent from the trap to the target insect. Do not locate traps in dead airspaces such as inside a steel column.

8. Only adult insects are attracted to pheromones. Larvae, the feeding and growth stage of the life cycle, are not looking for sexual partners even though you may find them in the trap. Since larvae do not venture far from their food source, their capture in a trap shows that the trap is positioned very close to the point of infestation!
9. To better pinpoint the source and narrow down your search, place temporary traps between stations that show high counts. After the source has been located, remove the temporary trap(s).
10. Pheromone lures are harmless to humans and can be handled with bare hands. However, tweezers or latex gloves will keep glue off your fingers.
11. Pheromone traps will capture non target insects like fungus gnats and houseflies. These insects are not attracted to the lure, but glue is non discriminatory. As such, pheromone traps can help you monitor for all kinds of insects, not just stored product pests.
12. After opening, the pheromone lure for the Indian meal moth and the cigarette beetle will last 12 weeks. However, the warehouse beetle pheromone is very volatile and will only last 8 weeks. Replace traps on an 8 or 12 week cycle depending on the primary target pest!
13. When traps become dusty and lose their tackiness, they must be replaced.
14. Even if you do not catch any insects in a pheromone trap, traps are still valuable because they verify that no insects are present. This can prove to regulatory or customer inspectors that you have no insect issues. Also, this could be valuable information during customer complaints.



Suspended in Delta Mode



Attached to Post in Flat Mode

Stored Product Pests



Larger grain borer
Prostephanus truncatus



Maize weevil
Sitophilus zeamais



Rice weevil
Sitophilus oryzae

Grain weevil
Sitophilus granarius



Coffee bean weevil
Araccerus fasciculatus



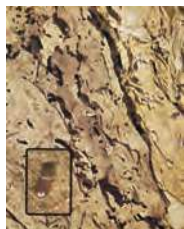
Bean weevil
Acanthoscelides obtectus

China beetle
Callosobruchus chinensis



Groundnut borer
Caryedon serratus

Lesser grain borer
Rhizopertha dominica



Tobacco or cigarette beetle
Lasioderma serricorne



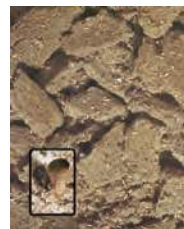
Drugstore beetle
Stegobium paniceum



Copra beetle
Necrobia rufipes



Flour mite
Acarus siro



Khapra beetle
Trogoderma granarium



Larder beetle
Dermestes lardarius



Warehouse moth
Ephestia klutella



Angoumois grain moth
Sitotroga cerealella



Mealworm beetle
Tenebrio molitor



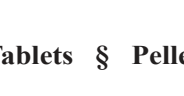
Confused flour beetle
Tribolium confusum



Saw-toothed grain beetle
Oryzaephilus surinamensis



Cadelle
Tenebroides mauritanicus



Almond moth
Ephestia cautella



Indian meal moth
Plodia interpunctella



Mediterranean flour moth
Ephestia kuehniella

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