

STORED PRODUCT PROTECTION PHEROMONE MONITORING

WAREHOUSE BEETLE INDIANMEAL MOTH CIGARETTE BEETLE FLOUR BEETLE PSOCIDS
SAWTOOTHED GRAIN BEETLE FOREIGN GRAIN BEETLE RICE WEEVIL DRUGSTORE BEETLE

STORED PRODUCT PESTS

Stored product pests are a group of insects that infest grain-based products throughout the food chain of custody: from grain to flour to processed food to packaged food. Most stored product pests are small (1/8"-1/4") beetles or moths, and in all cases, the larvae are incredibly destructive to the product. In some species, the adult causes significant damage, as well.

Warehouse beetle



Indianmeal Moth



Psocids



Sawtoothed Grain Beetle



Rice Weevil



Drugstore Beetle



Cigarette Beetle



Flour Beetle

HABITAT

Stored product pests thrive in the habitats that humans are most comfortable in. They will develop at a very wide range of temperatures, but they develop the fastest (30 days) in their ideal climate of 70 F. As it gets colder, it takes longer for the egg to hatch and develop. At very cold temperatures, the egg will go into a hibernation state, waiting for warmer temperatures before it hatches. Freezing temperatures may kill off populations, but cold temperatures will just slow them down. Facilities processing or storing grain-based products are susceptible year round unless the product is stored in temperatures similar to refrigeration or freezing. Unlike other pests such as cockroaches or ants, one or more life stages of stored product pests live in the food source itself. Often, removing the food source (and in turn their home) is the most effective way to gain control. But in order to find the food source, we must monitor.

PHEROMONE MONITORING

Pheromones are species-specific chemicals used for communication. Sex pheromones are emitted by the female to let males know she's ready to mate. Aggregate pheromones are emitted to let others know food or shelter has been found. They have been synthesized for some species and we can utilize them in monitoring traps. We put the pheromone in a little piece of rubber and put that pheromone in a trap. Flying pests are best caught in sticky tents / diamond traps. Crawling pests respond to pit-fall traps.



PEST

Indianmeal Moth
Red Flour Beetle
Confused Flour Beetle
Almond Moth
Mediterranean Flour Moth
Cigarette Beetle
Raisin Moth
Tobacco Moth
Warehouse Beetle
Webbing Clothes Moth

PHEROMONE TYPE

Sex
Aggregate
Aggregate
Sex
Sex
Sex
Sex
Sex
Aggregate
Sex

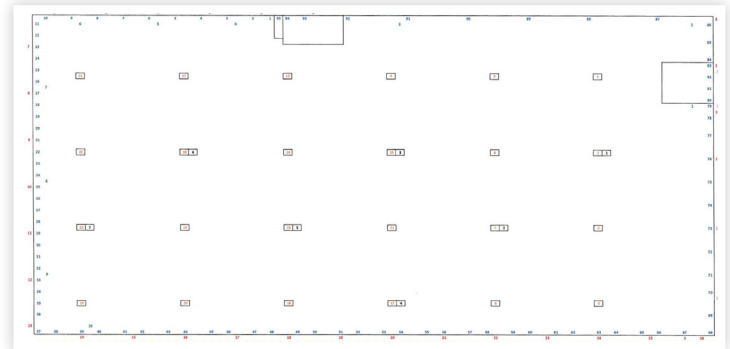
STORED PRODUCT PROTECTION PHEROMONE MONITORING

WAREHOUSE BEETLE INDIANMEAL MOTH CIGARETTE BEETLE FLOUR BEETLE PSOCIDS
SAWTOOTHED GRAIN BEETLE FOREIGN GRAIN BEETLE RICE WEEVIL DRUGSTORE BEETLE

HELPING YOUR COMPANY RESOLVE AND PREVENT STORED PRODUCT PEST INFESTATIONS

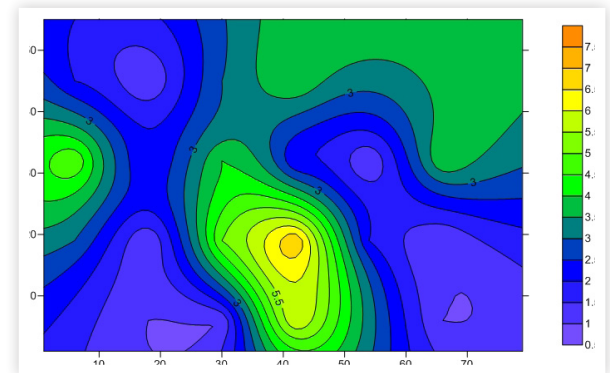
MONITORING AREA

Any facility that stores or processes grain-based products is susceptible to stored product pests. The pheromone program should utilize the pheromone of the target pest. A strong monitoring plan includes the entire susceptible area. Walls and floors serve as structural perimeters to the monitoring area. If grain-based products are only stored on the 4th floor, only that 4th floor needs monitoring. If half the warehouse is grain-based and the other half is canned goods, only half of the warehouse would need monitoring, but keep in mind grain-based products are often found throughout a warehouse, necessitating a larger monitoring area. If counts of flying stored product pests are higher around doors, we may have an exterior population. We would then monitor the perimeter of the exterior. A facility such as a pet food mill, where grain-based products are manufactured and stored throughout would have a much larger monitoring area than the pet food section of a retail store.



GRID PLACEMENT OVER MONITORING AREA

Placing a couple of pheromone traps in a room will tell us if we have a problem or not. But, installing them approximately every 50 feet in a grid pattern will tell us where that problem is, resulting in faster action. If there's a sex pheromone trap in the center of the room, it will draw the male from wherever it may be. We may see that male in the trap and think the source of the infestation is in the center of the room, where the trap is. But, since that male could have come from anywhere in the room, the infestation source could be anywhere. Placing monitoring traps in a grid pattern will allow us to pinpoint the area of infestation. Males hovering around infested product will orient to the closest pheromone trap.



BRAND AND PRODUCT PROTECTION

McCloud Services' Stored Product Protection pheromone monitoring is designed to meet 3rd party auditing standards and provide peace of mind. A properly designed monitoring program lets us identify problem areas and react with the correct control measures before a small problem becomes a large problem that may impact sales and reputation.

McCLOUD SERVICES - A TRUSTED PARTNER

Founded in 1904, McCloud Services is a leader in integrated pest management solutions, serving the food supply chain of custody, health care, hospitality, property management and retail industries. Protecting more than half of the largest food related brands in the U.S., our highly trained and experienced service specialists, food safety professionals and entomologists use an ongoing, flexible approach designed to meet each clients' specific needs.

Our mission is to protect our customer's health, property, food and environment while providing the highest level of safety for our employees and the general public. We adhere to our core values in our relationships with our customers and each other. McCloud Services is a founding member and shareholder in Copesan, an alliance of premier pest management companies with locations throughout North America.

Our specialties include: Integrated Pest Management (IPM), Electronic Data Collection, Bird Management/Exclusion, Structural Fumigation, Container Fumigation, Fumigation Alternatives, Aquatic Weed Management, Organic Compliant Programs, GFSI Audit Compliance, Food Safety Training, Food Safety Audits, Bed Bug Management and LEED Compliant Programs.