THE MONITOR

BECAUSE PEST PREVENTION MATTERS TO FOOD SAFETY

FALL 2015

A PROACTIVE APPROACH TO PREVENTING STORED PRODUCT PESTS

Nearly half of the food and beverage plants in North America – 20,000 facilities – could be susceptible to contamination or damage from insects that feed on or in stored foods and raw materials. Elimination of these stored product pests can be costly, both in terms of the required treatment and production downtime, depending on the species and extent of infestation. (See page 3 for more information on these destructive pests.)

Historically, the food industry has solved most stored product pest infestations with fumigation fogging, or pesticide applications. Today, there is a movement toward proactive efforts to prevent pest populations from getting established, rather than simply reacting to problems.

This proactive approach is due to increases in production, need to cut costs and heightened government regulations, such as the Preventive Controls rules of the Food Safety Modernization Act (FSMA).

The Proactive Program

With this heightened need to be proactive vs. reactive to reputational issues, leading food companies are working with their pest management company to partner in prevention of stored product pests and the problems they cause.

A thorough proactive program should include:

Inspection – Identification of any pests, source and conducive conditions.

Monitoring – Pheromone monitoring of stored product pests and trend reporting on activity. (See page 2 for more information)

Action Threshold Plan – Working with your pest company to establish thresholds of stored product pest activity that will initiate additional steps to manage any activity and drive down pest presence.

Targeted Treatments – Used to help prevent infestations.

Plant Partnership – Maintenance of thorough cleaning and sanitation programs and the correction of any structural, or sanitation findings, and operational inefficiencies that can lead to pests and pest harborage sites.

Real Results

Food manufacturing companies that have implemented a proactive stored product pest program have achieved impressive results including driving down pest activity, avoiding costly fumigation, reducing product loss, lowering consumer complaints, increasing production time and reducing costs.

PASTA MANUFACTURER
PROBLEM: Annual fumigations for beetles costing $190K and 1 week downtime

RESULTS:
$86,600
annual savings

NUT & DRIED FRUIT CO.
PROBLEM: Indian meal moths causing $100K in product loss annually

RESULTS:
$95,500
annual savings

CEREAL COMPANY
PROBLEM: Flour beetle infestations requiring fumigation – preventing organic certification

RESULTS:
30%
reduction in consumer complaints

To read full case studies, go to: Ecolab.com/SPP

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PHEROMONE MONITORS: WHAT THEY ARE AND WHAT THEY AREN'T

Photos provided by Trece.

Monitoring is a critical aspect of a proactive stored product pest program and the setting of threshold levels (See Setting Up a Pest Action Threshold Program, page 4). "A key component of the program is the use of pheromone monitors which can provide an early-warning signal of potential pest infestations through regular analysis of their catch," said Ecolab Pest Elimination Sr. Technical Service Manager Terry Elichuk. Pheromone monitors placed in the warehouse area can help a food or beverage plant reduce losses, maintain the quality and safety of stored foods and enable targeted treatments when and where needed.

"To ensure an effective program is maintained, proper placement, maintenance and catch analysis are essential," Elichuk added. "The number and placement of monitors that are needed will vary from facility to facility, based on facility layout, pest species and type of product." However, there are a few general rules that can be followed for all plants that are susceptible.

- In areas conducive to activity, dome pitfall style monitors should be placed on floors, ledges and shelves, near equipment, on pallet racks near supports or between pallets to check for beetles.
- To monitor for flying stored product pests (e.g., Indian meal moths and flying beetles such as warehouse and cigarette beetles), place hanging tent-style monitors at or above eye level.
- Avoid high-traffic areas, monitors could be easily dislodged or damaged.
- Number each monitor, specifying the location of each on a facility floor plan. Date each monitor on initial and subsequent services.
- Record the number and type of insects captured in each monitor, along with the site.
- Regularly review records of all catches and analyze history and show periods of activity.

"A key component of the program is the use of pheromone monitors which can provide an early-warning signal of potential pest infestations through regular analysis of their catch."

- Terry Elichuk,
Sr. Technical Service Manager

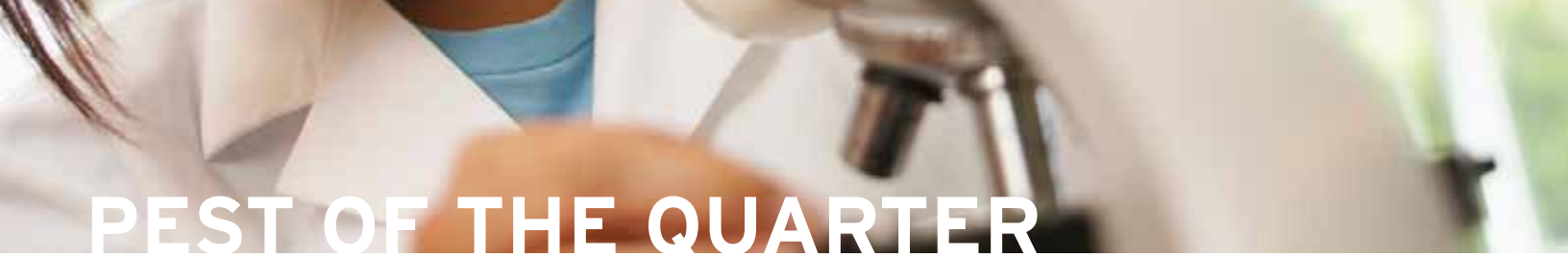
A ***pheromone monitor*** incorporates sex or aggregation pheromones to lure insects. The pheromone-impregnated lure is encased in a conventional monitor such as tent or dome-pitfall traps and hung or placed in areas conducive to stored product pests.

ADVANTAGES

- Monitors can be used to quickly detect when a pest has been introduced in received goods or has come in from the outside.
- They enable detection of low numbers of stored product pests – often before facility personnel are aware of them or pests are detected through visual inspection.
- With monitors, you can pinpoint where actual pest infestations may be occurring helping identify root cause of activity.
- Combination lures allow for multiple-species monitoring.
- Monitoring improves decisions on management options. It can be used to plan insecticide treatments to achieve best results with the least amount of insecticides to targeted areas, and to reduce the number of insecticide applications.

LIMITATIONS

- Pheromone monitors do not provide effective control or elimination of stored product pests; their purpose is to provide for proactive monitoring to spur action to prevent an infestation.
- No monitor can replace the need for sanitation, as the lures will not attract the insects away from an available food source.
- They are less effective at temperatures below 65°F.



PEST OF THE QUARTER

STORED PRODUCT PESTS

Stored product pests are all too common in food production facilities. But a thorough understanding of these often-unseen pests and the destruction they can cause is not always so common.

TOP 5 FAQs

1 WHAT ARE STORED PRODUCT PESTS?

Stored product pests (commonly called "pantry pests" when found in the home) are beetles, weevils or moths that feed and breed on and in stored foods. There are more than 60 species in North America.

2 WHY ARE THEY A PROBLEM?

According to the World Health Organization, insects cause 36% loss of post-harvest grains worldwide. Another 12% is lost to insects before harvest. (University of Florida)

Stored product pests breed and feed on or in grains, seeds, and other stored products, damaging and destroying the foods so they are no longer fit for human consumption. They also can chew through packaging to contaminate the finished product inside.

Even a single insect in your plant can cause deductions on inspection or audit reports.

3 WHAT ARE THE MOST COMMON?

The top five stored product pests that Ecolab has found at food production plants include:

EXTERNAL FEEDERS

1. Indian meal moth
2. Warehouse beetle
3. Cigarette beetle

SCAVENGERS

4. Flour beetles (confused/red)
5. Varied carpet beetle

Despite their name, the larvae of the carpet beetle will feed on many different materials and items – including stored food products.

4 HOW DO I KNOW IF MY FACILITY HAS THEM?

IF YOU SEE ...

- Live or dead insects of any life stage (eggs, larvae, pupae, adults).
- Cast skins of larvae, insect fragments, or frass (excrement).
- Silken webbing or tubes over food.
- Trails in dust.
- Damaged product or packaging that is damp or has bore holes.

... IT IS LIKELY THAT YOU HAVE AN INFESTATION.

5 WHAT CAN I DO TO PREVENT OR ELIMINATE?

The best approach is the proactive approach – especially with FSMA's new emphasis on prevention. Rather than waiting until you think you have pests infesting your food, leading companies institute measures to eliminate problems before they start. Taking such a proactive approach isn't just insurance that you are "checking a regulatory box." Rather, it genuinely benefits your business. Preventing stored product pests will help:

- Reduce consumer complaints – preserving your brand image.
- Reduce product loss of infested foods that must be disposed of.
- Reduce the need for costly fumigation and its required production stoppage.

MOST COMMON STORED PRODUCT PESTS

INDIAN MEAL MOTH

WAREHOUSE BEETLE

CIGARETTE BEETLE

FLOUR (CONFUSED/RED) BEETLE

VARIED CARPET BEETLE

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The Monitor is published by Ecolab to provide general information on pest prevention in Food and Beverage facilities.

Warehouse Beetle

Did You Know...

- 25% of all animals on Earth are beetles. There are 300,000 known species, and of these 75% feed on plants, ***including stored food products***, in both the larval and adult stages.
- Flour beetles can only feed on broken or damaged grain, but their presence can produce ***strong, bitter odors*** contaminating the grain and impacting quality.
- Although Indian meal moth larvae feed on a vast array of stored food products, they cause even greater damage and contamination by the webs they spin over the foods, to which their cast skins, egg shells and feces can stick.

IN THIS ISSUE

SETTING UP A PEST ACTION THRESHOLD PROGRAM

To drive a decrease in pest activity it is important that an action threshold level be set at which pests or damage would cause a food safety or quality issue. Action thresholds refer to the number of pests or level of pest damage before triggering a pest management response. This is done to prevent damage from exceeding tolerable levels.

How do you set an action threshold plan? There are four key steps:

1 Analyze Trends

Look at pest control logs and other records to analyze the history of pests in the plant and timing of any related quality or safety issues.

2 Monitor

Establish a monitoring program in areas conducive to pests to determine any current activity.

3 Review Food Safety Risk/Set The Threshold

From the information of #1 and #2, determine the level at which pests are likely to cause quality or safety issues in your product; from this a threshold can be set. The threshold level may need to be set lower if customer tolerance is lower, there is a known tendency for pests to infest a specific product, or there is an area with an elevated food safety risk of pest activity.

4 Develop An Action Plan

Create a plan by which you would identify the source, amount of activity, and corrective action should the threshold be reached. As improvements are made, threshold levels can be adjusted to fit needs and changes, taking into account seasonal trends and variations across areas in the facility.

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