



## Brian Mann

### Marketing Services Manager BASF Pest Control Solutions

Indianmeal moth (IMM) mating disruption is an emerging technology now available to use in stored product pest management. It offers many clear benefits for your customers:

- Mating disruption reduces moth reproduction and, therefore, reduces the number of larvae produced;
- reduces the need for frequent space treatments;
- cuts cleanup and shutdown costs associated with traditional treatments;
- provides a continual control strategy;
- offers low mammalian toxicity; and
- is great for sensitive accounts.

#### How does it work?

In nature, IMM females attract males for mating by releasing sex pheromones into the air. The pheromone scent plumes out on air currents and is ultimately sensed by the males. IMM males respond to the scent by following it back to the source, the female, where mating occurs.

The concept of mating disruption is based on interfering with the chemical communication process between females and males. When installed, pheromone dispensers send plumes of false pheromones into the air. Males cannot distinguish the false pheromones from the scent of calling females.

Males become confused and follow the wrong trails, or become so overwhelmed by the stimulus that they don't take flight. Consequently, the population is reduced, and fewer larvae are present to mature into adults and cause damage.

Like other methods, mating disruption relies heavily on an integrated approach, with emphasis on sanitation, exclusion, inspection and maybe even some conventional applications such as space treatment or fumigation. Remember, this approach doesn't kill adults; it simply reduces their ability to mate and grow the population.

It's also important to use IMM pheromone traps. During mating disruption, these pheromone traps are not likely to attract many moths; however, they work as indicators of the effectiveness of the mating disruption. If you see an increase in the monitor trap counts, you might have a new introduction of moths — or further investigation is required.

## Doug VanGundy

### Director of Specialty Products Development Central Life Sciences



Stored product pests, such as Indianmeal moths (IMM), rice moths, red flour beetles and lesser grain borers thrive on common stored food products found in homes and food-handling establishments. With an appetite for rice, flour, cereal, dry pasta, breads and more, these insects can be quite a nuisance and costly, unwelcome visitors in homes and commercial locations.

Infestations tend to increase when food is stored in paper or cardboard containers for long periods of time. Costly food waste is the most common outcome. Control can be a challenge, but here are some prevention tips to implement and pass along to your customers:

- Keep pasta, grains and other foods sealed in airtight, non-paper/non-cardboard containers with tight-fitting lids.
- Rotate products frequently, and do not store food items for extended periods of time.
- Do not mix old and new foodstuffs. If the old product is infested, the insects will immediately invade the new.
- Thoroughly clean containers before filling them with new foodstuffs. Stored product pests can be small and hard to see, and can hang on in nearly empty containers.
- Keep storage areas dry. Moisture increases likelihood of infestations.
- If an infestation is found, immediately discard the infested food and check surrounding food products for cross-contamination.

## James Rodriguez

### Territory Manager J.T. Eaton & Co. Inc.



The eggs of several stored product pest species are so small that they can easily be deposited in cracks and crevices — which makes them inaccessible in voids under cabinets or in adjacent areas around kitchen appliances. Applying a small amount of a low-impact dust, such as diatomaceous earth or boric acid, with a hand-dusting unit allows the dust to flow more easily in the void than a compressed duster. Dusting wall voids adjacent to cabinets keeps insects from laying eggs in these hard-to-reach places.

Be sure to hold the device correctly to avoid overapplying, however — as in any pest management materials application, more is not always better. Also, if you're using different products at different accounts, it helps to color code the dusting units to ensure there's no cross-contamination.

Finally, be careful when dusting around electrical plugs and switches.

## Dr. Reid Ipser

### Development Representative FMC Professional Solutions



Pest management professionals (PMPs) know their customers don't like finding unwanted insect intruders in their homes. But it's even worse when homeowners find insects moving in their food products. Stored product pests are a problem for PMPs all over the country.

The most destructive stored product pests are of the weevil genus *Sitophilus*. Rice (*S. oryza*), granary (*S. granarius*) and maize (*S. zeamais*) weevils are among the most destructive pests of seeds, grains and grain products. They can be introduced into homes unknowingly, infesting foods such as grains, flour, cereal and pasta.

Depending on the species, adult weevils can live two to five months. Females chew through the husks of grain kernels and deposit one egg, closing the hole with mucus. They can deposit up to 500 eggs during their short lives.

Development of the egg depends on the species as well — anywhere from five days to five weeks. Because it can fly, the rice weevil is considered the most dangerous of the three stored pest weevils.

Prevention is the best strategy to avoid insect problems in stored grains and storage cabinets. Remove old grain, dust, flour and other food particles in and around storage cabinets. Inspect and remove infested food products. Prevent re-infestation

by repackaging materials in properly sealed containers. Thoroughly clean and vacuum food storage areas to make sure no insects, eggs or pupae remain.

After infested food is removed and the area is completely clean, treat storage areas with a residual insecticide. Aerosols are particularly good for crack-and-crevice application in cabinets. Remember to treat all areas, including wall and cabinet voids, where insects might be hiding. No visible dust should be left on food storage surfaces after treatment.

Twenty-four hours after application, vacuum dead insects. Store new products in insect-proof containers and replace in cabinets.

# Donna Lingren

**Marketing Manager Trécé Inc.**



Insect pheromones are natural compounds emitted by insects to send messages to individuals of the same species. They are the primary means of insect communication.

When used in combination with traps, sex and aggregation pheromones for moths and beetles provide early-warning detection of potentially damaging insect infestations during commodity processing, transportation, warehousing and marketing of foods and other commodities. This information helps with decisions regarding what protection measures, or further investigation, might be needed to ensure there will be no excessive damage to the commodity.

Pheromone traps provide continuous information about what is going on in food facilities and storage areas, and where the hot spots are located.

## The Usual Suspects

### Common Stored Product Pests

Case-bearing moth and larva	Drugstore beetle
Clothes moth	Fur beetle
Confused flour beetle	Furniture beetle
	House cricket
	Indianmeal moth
	Larder beetle
	Lesser grain borer
	Maize weevil
	Rice weevil
	Sawtoothed grain beetle
	Silverfish
	Spider beetle
	Yellow meal worm
	Varied carpet beetle

