

# Fumigants & Pheromones

Issue 75  
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A Newsletter for the Insect Control & Pest Management Industry

## Y O U N G   E N T O M O L O G I S T   C O R N E R

### Food for Thought



**Zachary Baker, Age 7**

My science fair project was about Madagascar hissing cockroaches. I think they are fascinating creatures. They are cold-blooded animals, so they slow down when they are in cold environments. If they are in warm environments they stay active. *Do you think a Madagascar hissing cockroach would eat more in a warm or a cold environment?*

To find out, I contacted entomologist Dave Mueller. He loaned me 20 Madagascar hissing cockroaches. I put 10 in one jar and put the jar in a warm environment (in my room). I put the other 10 roaches in a cold environment (at my neighbor's house—they were out of town). Then I put 2 ounces of banana in each jar. I recorded the temperature of each environment every day for one week. The average difference in temperature in the two rooms was 15.4° F (76.5 degrees compared to 61.1 degrees).

At the end of one week, I weighed the bananas in each jar. The banana from the warm environment weighed 0.5 ounce. The banana from the cold environment weighed 1.5 ounces. I also had control bananas to make certain I recorded only the amount of the banana the roaches actually ate. I put a control banana in each environment in a separate jar because I thought that maybe some of the banana might evaporate. I was right.

I determined that the warm control banana evaporated 0.5 ounce, and the cold control banana did not evaporate. Therefore, based upon these controls, the warm roaches ate 1 ounce of banana and the cold roaches ate 0.5 ounces. This means that the Madagascar hissing cockroaches in the warm environment ate twice as much as the roaches in the cold environment.

I'm glad I did this experiment and learned about the way temperature affects the appetite of cold-blooded animals. My mom's glad I don't have roaches in my room anymore.

**If you know a young entomologist that would like to write an article, contact us at [insectsltd@aol.com](mailto:insectsltd@aol.com).**



### New Catalog

Insects Limited, Inc., a company specializing in pheromones, low impact pest management tools, consulting, and education training, has a new 2005 Product Guide available free of charge.

This colorful 16 page catalog lists over 150 items including 20 new items not previously listed. This includes new Bullet Lures, bio-assays, kits, traps, books, and other educational supplies. Receive your new 2005 catalog by going to [www.insectslimited.com](http://www.insectslimited.com), or by calling 1-800-992-1991.

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VISIT US AT: [www.insectslimited.com](http://www.insectslimited.com)

## New Pheromone



Alain VanRyckeghem, technical director for Insects Limited, Inc. of Westfield, Indiana has produced a new pheromone for Hide Beetle (*Dermestes maculatus*). This is the first time this pheromone has been synthesized. It took Alain two years to finalize this compound and test it against live beetles. One of the reasons that this beetle pheromone was never synthesized before is that it took two years and eight components in various ratios to complete. It is a complex beetle pheromone. Alain stated: "I was surprised how active this pheromone is." The insect comes to the pheromone despite placing food material nearby to distract it. We now need to test this pheromone for the Larder beetle and other close relatives to the Hide Beetle.



**T**he Hide beetle adult (*Dermestes maculatus*) is a large blackish beetle with silver marking underneath. This scavenger beetle feeds on dried animal or plant materials of high protein content. It is found in pet food companies, dog treats like pig's ears, poultry houses feeding on fly carcasses, museums on natural history objects, ham houses, and attics of homes where large populations of Cluster flies exist.

The large hairy larvae often burrows into wood to pupate. This accounts for damage to wood in poultry houses and eventually can cause structural damage. They are found attacking such items as taxidermied animals, skins in museums and objects in historical houses. There are some reports in

Southern California where these larvae caused minor damage to structural timbers in attics and substructural areas of homes. The Hide beetle is a member of the genus of insects which also includes the black carpet beetle and the larder beetle. *Dermestes* larvae have two curved dorsal spines on the next to last abdominal segment (see picture), which characteristic of this genus. Notice the tapered fine point at the end of the wings on the adult Hide beetle.

Hide beetles can be beneficial insects since it is an important scavenger. Museums use this insect to debride flesh from animal bones. This insect can eat all the flesh and leave only the bone. Hide beetle's ability to locate a deceased animal allows them to be used by late stages of decomposition, the hide beetle is the predominant insect species associated with carrion. They have been used in forensic (e.g. CSI) cases to solve murders also.

*Life history.* Females can lay over 800 eggs in cracks, on skins, and hides. These large eggs hatch in 2-12 days. This slow growing insect develops from an egg to an adult in 35 to 238 days. The beetle will venture outdoors to flowers and shrubs to eat a nectar source

## Promotion



*John Mueller is now the president of Fumigation Service & Supply, Inc.*

**J**ohn Mueller has been named President of Fumigation Service & Supply, Inc. in Westfield, Indiana. FSS was founded in 1981 by his brother David Mueller. Currently, Fumigation Service & Supply, Inc. has offices located in Cincinnati, Arkansas, Nashville, Indianapolis, and two in Chicago. FSS offers fumigation services, pest control for commercial accounts, and a multitude of products for stored product protection in grain, seed, and food processing companies.

As an educator in the classroom and innovator in the field, John has shared his knowledge and skills to thousands in Europe, South America, Australia, and North America. He is also a founder of the Food Protection Alliance, a group of companies in the US and Mexico that work together to offer a high level of pest management.

that helps it live longer. Most of the damage is done by the larvae which is a voracious feeder that chews large holes in objects.

For the first time, a pheromone has been identified and made commercially available for the Hide beetle. This pheromone is now being tested for other *Dermestes*. For more information about this new discovery, contact Alain Van Ryckeghem at [insecthlp@aol.com](mailto:insecthlp@aol.com).

## Dave's Soapbox



*...for what it's worth*

I recently received a letter from Richard White, Vice President, Global Purchasing

companies that also claim to be good corporate citizens. If more companies like Gerber began publishing their commitment to the UN Global Compact and giving priority to those companies sharing their values, we wouldn't have to explain things like methyl bromide alternatives and Montreal Protocol and ozone depletion and increases in skin and prostate

harms the environment and causes cancer.

I wonder what would happen if a major customer of these food, vegetable, fruit, and grain companies using MB told them that they would not buy products from them if they were treated with this powerful ozone depleting substance. I wonder what would happen if the customer asked the grocery store manager why his product was treated with MB and to please post a list of products publicly of those products treated with MB for everyone to see and select from. I wonder if someday those products had added value if the grocery store placed a small sticker that stated Methyl Bromide Free. I wonder what would happen if companies like Gerber (Novartis) stepped up their efforts to enforce their Corporate Citizenship policy. How many suppliers are there to a company like Gerber or yours?

**Conclusion**—The search for new alternatives and innovations has brought many of us together in educational meetings and trade shows to share our successes and failures with each other. We now are being challenged by our competitors and distracters to prove our methods and demonstrate the best our industry has to offer. The milling, food processing, grain industries will benefit from the loss of methyl bromide in the long run because new products, better methods, knowledge, and technologies will rush in to replace it.

The UN Global Compact of good corporate citizenship simply asks each of our companies to: have respect for human life, follow equitable labor standards and to protect the environment. Maybe it's time we all pulled out and read our company's mission statement again.

*A. K. Mueller*

## Corporate Citizenship

for Gerber Products Company (Novartis Group). Mr. White stated in his letter: "Gerber is committed to implementing a Corporate Citizenship Program and has made it one of our top corporate priorities. Our program is based upon the United Nations Global Compact introduced in 1999. The UN Global Compact seeks to engage corporations in the promotion of:

1. respect for human rights
2. equitable labor standards
3. protection of the environment

"Gerber desires to give priority to business partners, suppliers and contractors who share our societal and environmental values, and we support their efforts to promote these values through their business activities."

After reading this I started looking at dozens of websites in the food and grain industry and found they consistently mentioned three things: 1) We will strive to protect shareholders equity, 2) We will strive to produce a quality product or service, 3) We will strive to produce a safe environment for our workers and our community. Of these food, milling, and grain companies, I also noticed that many were still using the ozone depleting substance methyl bromide. The Critical Use Exemption (CUE) loop hole and excess stockpiles are being utilized for many of these food, milling, and grain

cancer. Anyone who has such an environmental belief will not find it hard to understand that man has done something to harm the environment and man has the ability and the responsibility to correct this problem... starting today.

My decision to stop using methyl bromide was a decision of conscience. What we do in our jobs should not hurt people and the environment. It is stated in our company's mission statement: "We will strive to establish a working environment that is safe to our employees, our customers, and the community."

I am now hearing the explanation that the continued use of MB is really a political issue and not one of cost, shut down time, or even efficacy. It is about ownership. It is about lobbyists that need to justify their job and their association. These uninformed lobbyists, who have never been on a fumigation, are carrying their banner of "questioning the science" and "denying there is a problem", instead of looking to alternatives to help their companies and associations face this serious global challenge. Many countries, outside of the US and Canada, can't understand how the mighty North Americans can prioritize modern technology and food production but ignore the challenge of finding a replacement for an outdated fumigant that



# Monterrey 2005

*Proceedings of the presentations at this conference can be viewed in English and Spanish by accessing the Web site [www.insectslimited.com](http://www.insectslimited.com)*

**Monterrey, Mexico**—More than 200 people from 26 countries traveled to Monterrey, Mexico, March 8-10 to learn and share their experiences in protecting stored products. Thirty-two speakers presented new, practical, and innovative technique to protect stored products from insects and other pests in Spanish and English.

Insects Limited and Fumigation Service & Supply of Indianapolis, along with Pheromone Services & Supplies of Monterrey were the organizers of this international meeting where ***“Real Solutions for Real Pests”*** was the theme.

A fumigation workshop was held at the Molisaba food processing facility in Monterrey where John Mueller and his team demonstrated various techniques including: a Eco<sub>2</sub>Fume grain fumigation, new gas monitoring equipment, methyl bromide alternative with a ProFume mill fumigation, a ProFume wood fumigation, a container fumigation with VaporPH<sub>3</sub>os, and commercial food processing IPM including a pheromone trapping demonstration. This workshop focused on the safe handling of fumigants as well as advanced fumigation techniques. The all-day workshop, translated in Spanish and English, allowed time for questions and hands-on work with the audience.

This international educational series started in 1993 in Lübeck, Germany, and continued to Bologna, Chicago, York, Indianapolis, Thessaloniki, Copenhagen, and most recently Monterrey. More than 1,400 people from 44 countries have attended these conferences. “This is the place to meet people with common interests in stored product protection and share experiences through education,” said organizer David Mueller. The next conference will be in Bremen, Germany, in 2007.



*John Mueller of FSS, Indianapolis, is demonstrating the materials needed for a safe and effective grain bin fumigation at the popular fumigation workshop.*



*The insects identification workshop was well attended by over 150 participants. They viewed microscopes with a variety of insects specimens.*



*Dr. and Mrs. John Osmun, from Purdue University, with hosts Cesar and Ana Altamirano of Pheromones Service & Supplies of Monterrey during the evening Mexican Fiesta.*



*All were welcomed as young Señoritas and a Señor introduced the colorful traditional Mexican regional dances.*



## The Environmental Partner Award For Phasing Out Ozone Depleting Substances

In September of 2004 a group of pest managers from Europe, Africa, Australia, and North America met in Lisbon and discussed a way to recognize companies that were protecting the environment by phasing out ozone depleting substances in their businesses.

**Pest Managers for a Better Environment** decided to present an award called the Environmental Partner Award in recognition of their exceptional contribution to global environmental protection.

The Environmental Partner Award recognizes the sustained phasing out of methyl bromide and is given to individuals or companies that have shown exceptional contribution to global environmental protection.

Nominations were requested and over 50 nominations were made for this award. The criteria for receiving this new Environmental Partner Award is that the recipient must show that they have replaced **all** non-QPS (quarantine and pre-shipment) methyl bromide in their business by using viable and economic alternatives or creating alternatives to replace these ozone depleting substances.

Sustainability is an important part of a methyl bromide phase

out program. It is important to recognize those companies that have successfully researched, tested, and implemented alternatives. These pioneers have worked, many times, under adverse conditions and often with pressure from distracters by stepping forward and making sacrifices to better the planet we all live on.

On March 9, 2005 during the closing of the 1st Latin American Fumigants & Pheromones conference in Monterrey, Mexico, the Environmental Partner Award was announced to recognize ten companies and three individuals.

### Individuals include:

*Dr. Melanie Miller, International Consultant, Brussels*  
*Robert Ryan, BOC Gases, Australia*  
*Dr. Franscius Horn, Fosfoquim, Chile*

### Corporations include:

*Nestle Purina; Kim Kemp and Ricardo Guzman, USA and Mexico*  
*Steritech; Eric Eicher and Dean Stanbridge, USA and Canada*  
*Dow AgroSciences; Jeffery Welker, USA and Europe*  
*Cytec Industries; Brian McSwigan, Australia, USA, and Canada*  
*Morning Song; Cary Guzman, USA*  
*Desinfecta; Daniel Fassbind, Switzerland*  
*Molisaba; Julio Gonzalez, Mexico*

*Frito Lay; Magali Raynaud, France and England*  
*Ketol; Dr. Anton Hasenbohle, Switzerland*  
*Roo Can; Canada*



*Dr. Melanie Miller*

Dr. Melanie Miller, International Consultant from Brussels was awarded the first Environmental Partner Award for her tireless efforts

toward working on the Montreal Protocol with developing countries. Melanie is a member of the Methyl Bromide Technical Options Committee (MBTOC), and an active advisor to other groups that have helped build this first international environmental treaty called the Montreal Protocol. Dr. Melanie Miller has also been recognized by the US EPA with its Stratospheric Ozone Protection Award.

**Nominations:** If you know companies or individuals that have successfully researched, tested, and implemented alternatives over the years and now have phased out methyl bromide and other ozone depleting substances, please contact David Mueller, chairman, at [insectsltd@aol.com](mailto:insectsltd@aol.com). These nominations will be gathered and voted upon for selection for the next round of Environmental Partners Award winners.

Quotable  
Quote

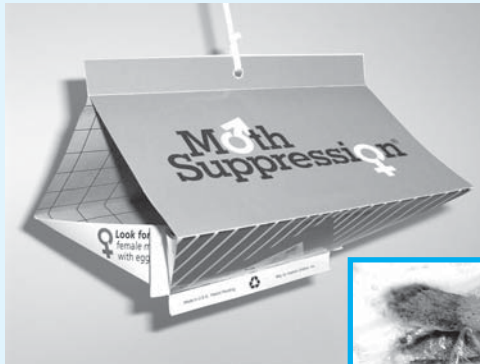
**"Success usually comes to those who are too busy to be looking for it."**

*Henry David Thoreau*



# Moth Suppression

In reviewing the first year's use of the new female egg laying attractant called Moth Suppression (MS), the following observations were made from our many co-operators:



MS female attractant works better in a situation where it

doesn't have to compete against the many odors that are already present in a warehouse of stored ingredients or tobacco. Unlike moth pheromones, this egg laying attractant works when the female moth detects the specific odor and goes to this local spot to lay her eggs. With the abundance of odors and small spills of food or tobacco products in cracks and crevices and food product spills on the shelves, MS captures both males and a few females in this situation.

Last summer Moth Suppression traps placed in large warehouses with raw post harvest commodities stored (nuts, pet foods, feed mills, poultry houses, seed warehouses), performed less than predicted. Why?

**1. Position:** We observed with Indian meal moth pheromone that the traps near the floor and the ceiling captured the most. Many times an insect will search a comfort zone of 75–90°F. If the

ceiling is too hot, females will stay away from this area. They lay their eggs where they have a chance to be protected against natural predators (*Bracon hebator*) and survive. Survival is what insects do well.

**2. Interference:** We saw no interference between the male moth pheromone and the egg laying attractant in the same trap. The female egg laying attractant is a very different chemistry than the moth pheromone. You could put a pheromone in your pocket and the males will crawl into you pocket. Moth pheromones work dramatically well.



As we continue to use Moth Suppression, we will learn more about the attractiveness of this attractant too.

**3. Data:** Go to [insectslimited.com](http://insectslimited.com) to see the test results.

**4. Case Study:** Imagine your stored products are packaged and sitting in a warehouse ready to be sent to the final customer.

If one female moth laid her eggs on this case of finished product, the work of fumigating the product, and performing sanitation in the whole facility would be nullify. Moth Suppression is intended to protect brand reputation by adding one last layer of insurance to give confidence that every step is taken to protect the quality of a product.

Male moths are very sensitive to one odor that tells him a female is around. The female moth has many things to consider while

selecting sites like: where her eggs have the best chance for survival, by choosing harborage from predators including older moth larvae and finding a food source for her young to live on after hatching.

*Mothes are opportunists:* They wait until a product is packaged because the large liquid filled moth eggs are too fragile to survive most processing steps. They infest product and cause customer complaints, many times, at the end of the process. They are attracted to odors and larvae are good at finding defects in packaging and spreading their silken webbing to the customer product.

After many years of studying the male Indian meal moth and their related stored product moths we are finding that the female moth has many different habits and biological needs. Moth Suppression in the first year has offered a glance at these habits and needs. More will be built on this collection of knowledge in the future.

*Future.* Next we will combine the male pheromone and the female attractant in a smaller, easier to work with lure and trap. Test floor traps vs. hanging traps. Use these traps in finished product warehouses rather than commodity storage warehouses where the odors seem to overwhelm female egg laying attractant.

In studies like this under controlled conditions we captures 44% of the release female IMM over 5 days. We know this new female egg laying attractant works if the female can detect the odor of the lure. This is the challenge for 2005. If you are interested in participating in field trials, contact Alain Van Ryckeghem at [insecthlp@aol.com](mailto:insecthlp@aol.com)

## Dangers of Inspecting Grain



Inspecting stored grain is important if grain quality is to be maintained until sale or use. Inspection is particularly important if grain is held through the summer months. Commercial grain handlers and farmers who inspect or fumigate grain must be aware of potential health hazards when inspecting grain. Bins with moldy grain pose a health risk to those who climb in to inspect or fumigate the grain or clean out molded grain.

**1. INHALATION OF MOLD SPORES,** If grain is moldy, workers, fumigators and farmers who climb into their bins to inspect the grain may breathe large amounts of mold spores into their lungs. This can cause a variety of problems, ranging from temporary inflammation of the airway to a flu-like illness (fever, chills, aches, pains) with onset 4-8 hours after exposure. Permanent lung damage can develop in some individuals who become sensitized from repeated exposure to mold spores.

*Be cautious:* wear a respirator when climbing into the bin, especially if there is any risk of mold. A good respirator can often be purchased from local pest control and fumigation suppliers. Paper masks provide almost no protection and should be avoided. A good fitting, disposable dust mask with two straps and an N95 or N100 rating on the mask should provide better protection, if properly fitted to provide a good seal around the face.

**2. SUFFOCATION.** Flowing grain is dangerous. A person buried by grain can suffocate within seconds. This can happen if a person probes "bridged grain"—a 1-2 foot layer of moldy grain with an empty space below the grain surface. Probing a steep pile or wall of grain can also cause the grain to collapse and bury a person. Entering a bin of flowing grain for any reason can quickly lead to burial and death. It is also advisable to lock out the power before entry into the bin so no one else can start unloading while you are inside.

Source: Paul Vincelli, University of Kentucky and the KFGA

**NEW**

## Museum Pest Poster

Common Pests of Museums in North America can be found on an attractive color poster produced by Insects Limited. This poster is neatly organized into groups of pests that can be found in museums, historical houses and homes. Fabric/ Textile, Scavengers/Paper, Fur/ Feathers/Hide, and Wood/ Furniture are the main pest categories.

Over 30 pest pictures are shown along with illustrated examples of pest damage. To obtain this new Pest Poster contact Insects Limited at 1-317-896-9300, or p.kelley@insects.limited.com or go to [www.insectslimited.com](http://www.insectslimited.com) — Cost: \$10.00.

Visit *The Bookstore* for books about Pest Management in Museums.



## Spinosad Launch Delayed

*Product won't be commercialized until global trade standards are established*

The U.S. Environmental Protection Agency (EPA) in January issued a registration for the use of spinosad as a stored grain and seed protectant on commodities including wheat, corn, rice, oats, sorghum, and barley.



Developed and manufactured by Dow AgroSciences LLC, Indianapolis, IN ([www.dowagro.com](http://www.dowagro.com)), spinosad is designed to control key grain and seed pests including the Indian meal moth, lesser grain borer, and other pests.

**Commercial Launch Delayed—** However, Dow AgroSciences said the company will delay commercialization of spinosad-branded products in the United States until key international trade standards or registrations have been obtained (CODEX). "When commercialized this spinosad product will provide growers with an excellent tool to control several hard-to-manage pests in stored grain." Dow AgroSciences said. "But since the grains that will be treated with spinosad are traded on a global basis, it is in the best interest of everyone to delay its commercial launch until the appropriate standards and registrations are established in key countries where grain is exported." Spinosad was awarded the 1999 Presidential Green Chemistry Challenge Award in the United States.

Spinosad will be labeled in 2006 or 2007 for the organic industry as well as the grain trade. It affects insects but has little effect on humans.

Source: Grain Journal



**June 7-8, 2005**

**PestEx\***

Birmingham, England, British Pest Control Association meeting and exhibition

**July 22, 2005**

**Fumigation Workshop\*\*\***

Gilbertsville, KY, Kentucky Dam Village. Contact Kalah Stocker, insectsltd@aol.com, www.insectslimited.com, 1-800-992-1991.

**September 5-8, 2005**

**5th European Vertebrate Pest Management Conference**

Budapest, Hungary, Dr. Daniel Bajomi, igazgatobabolna-bio.hu

**September 20-23, 2005**

**Integrated Protection of Stored Products\*\***

Prague, Czech Republic, Dr. Shlomo Navarro, www.iobc-global.org

**February 16-17, 2006\***

**Eurocido\*\***

Dortmund, Germany

\* see you there \*\* participating

\*\*\* organizing

## Fumigation Workshop



A one day Fumigation Workshop will be offered by Insects Limited in cooperation with the Kentucky Feed & Grain Association on **July 22, 2005** at the Kentucky Dam Village State Park in Gilbertsville, Kentucky (Western Kentucky). This one day continuing education program is for anyone wanting to improve their fumigation knowledge. Whether you are just getting started and want information from experienced fumigators to help pass your fumigation exam or a seasoned fumigator needing to pick up some credits toward your fumigation license, this program is for you. Continued education

credits have been applied for in Kentucky, Indiana, Missouri, Arkansas, Tennessee, and Illinois for licensed fumigators. The Division of Pesticides in Kentucky will be on hand for testing.\*

**Topics include:** *Insect Identification & Monitoring, Mill and Seed Warehouse Fumigations, Fumigation Safety & Gas Monitoring, and New Phosphine Label Changes.*

The charge for this meeting is \$75. before July 1 and \$95 after July 1. This workshop will be limited to 60, so register early.

If you are a licensed fumigator in these states and would like to receive continued education training, contact Kalah Stocker at 1-317-896-9300. The program and details for this meeting can be found at [www.insectslimited.com](http://www.insectslimited.com) or by requesting a program brochure.

\* Continued education credits have been applied for in these states. There confirmation is pending. We will post the states and number of credit hours approved on our website as they become available.

## 8th Fumigants & Pheromones Conference\*\*\* Bremen, Germany, 2007

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