

# Fumigants & Pheromones

Issue 83  
Spring 2007

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A Newsletter for the Insect Control & Pest Management Industry



**B**remen was the site of the 8th Fumigants & Pheromones Conference and Workshop organized by

Insects Limited, Inc., USA and BM Seminar, Germany. On March 6-8, this conference focused on modern methods of protecting stored products.

Over 200 pest managers from 43 countries and six continents attended this three day conference in Northern Germany. This international exchange of education began in Lübeck, Germany in 1993 and has continued on to Bologna, Chicago, York, Thessaloniki, Copenhagen, and Monterrey. Twenty-eight invited speakers, 20 poster displays, and an open night session offered ideas, new products, and practical ways to solve pest problems.

A workshop located in the harbors of Bremen and Hamburg concluded the three days with demonstrations on fumigants, pheromones, and new control methods staged in a large cocoa bean warehouse. The workshop was followed by a boat ride around the busy Hamburg harbor.



Dr. Andreas Varnava introduces Professor Stanislaw Ignatowicz from the University of Warsaw to his colleague Demetris Yiasoumis also from the Cyprus Grain Commission.



**BREMEN 2007:** Over 200 pest managers from 43 countries attended this three day conference in Northern Germany to discuss advances in stored product protection.

One highlight of the conference was an evening dinner in the Rathaus built by the local ship captains over 600 years ago and located in historical downtown Bremen.

David Mueller, organizer for the conference, stated: *"I really enjoy hearing the new ideas and research presented by these world class experts, but my real thrill is at the beginning of the conference when everyone stands and introduces themselves and tells what country they are from. To have people from Mongolia and Eastern and Central Europe attend this time along with more people from developing countries in Africa and Asia is very encouraging. The friendships and personal relationships started or continued at these educational meetings continues to grow."*

The next conference will be held in March 2009 in Argentina.

**Pictures and more information about Bremen 2007 can be found at [www.insectslimited.com](http://www.insectslimited.com)**

*From Michel Maheu's presentation in Bremen on Food Plant IPM:*

"Today people don't want to know what we did right...they want to know:

1. What went wrong?
2. What are we doing to correct it?
3. What are we doing to document it?"

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# The Practical Use of Pheromones

**E**ffective use of pheromone-baited traps requires much more than simply placing a trap in a warehouse.

## Placement of Pheromone Traps:

Pheromone traps are effective tools for monitoring stored product pests, especially moths, such as Indian meal moths and Mediterranean flour moths. Pheromone traps are often used in food warehouses and food processing facilities.

Traps should also be placed near potential insect harborages, such as corners, beams, and entry and exit points. As a rule, traps for flying insects should be placed at a height of about 6 feet. Avoid placing traps near exterior doors and windows, as this could lure insects from outdoors.

*“It is important to be flexible when starting a pheromone trapping program. The inspector must be prepared to move traps, add traps, and remove traps in a building being monitored.”*

The use of pheromone traps should not be limited to large food warehouses and food processing plants. They can be useful as well in smaller facilities such as restaurants, grocery stores, museums, health food stores, pet stores, and even private homes. A few well-placed traps can be an early warning system to detect newly arrived infested goods and prevent wider infestations.



## Outdoor Trapping with Pheromone Traps:

Insects are naturally present outdoors feeding on grass seed, dead animals, bird nests, pollen, and spilled grain. The purpose of an outdoor trapping program is: (1) to mass trap as many target pests as possible so that they do not enter the building; (2) to intercept the target pest from truck doors and other openings around the building; and (3) to pull insects from truck doors that are often left open during warm weather and serve as a possible entry point for pests.

## Using Pheromone Traps in a Warehouse:

Determination of the presence, or absence, of potentially harmful pest insects is needed wherever stored commodities are held for extended periods of time. Pheromone traps are excellent tools for this purpose.

All pheromone traps were not created equal. Traps for moths may perform differently than beetle traps. Pest management professionals cannot treat all stored-product pests the same when it comes to recommending an effective trapping program. Long-lived insect adults (e.g., flour beetles) tend to be less attracted to pheromone traps than short-lived insect adults. A flour beetle adult that lives for 12 to 18 months does not react as dramatically to a pheromone lure as an Indian meal moth adult that may only live for one or two weeks.

## Interpreting Trap Capture:

A common misconception in a strategy used to manage grain, bulk commodities, and bagged food products using pheromone traps is that a set numerical threshold exists to trigger either an action or reaction, but **no such magic number exists**. The inspector must weigh all factors before making a decision. The key factor for interpreting trap catch is to **look for population increases** of insects from one trapping period to the next (e.g., 1-5-30). It is easy to see when an outbreak or new generation emerges. At that point, the appropriate corrective actions (e.g., chemical, non-chemical, sanitation, discarding product) may be devised and implemented.



*Now is the time to place your Pheromone Traps!*

# PHEROMONES




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## Dave's Soapbox

...for what it's worth



## Can you hear me now?

Dave recently got a cell phone! This may be one of 120 million cell phones in the US but somehow this one was something else and please allow me to explain:

For years I have worked hard to **NOT** own a cell phone. This technology was something I truly loathed. Battles between personal freedom and convenience clashed for over twenty years as this technology caught hold like a wildfire throughout the world.



Recently I was walking through the Denver Airport looking for a pay phone to call a person who was trying to pick me up from a delayed plane. I looked for a pay phone and all I could see is empty shells of phone booths with no phones. I found a phone but it didn't take quarters, but only credit cards. I asked the operator how much the call was and she said \$21.95 for the first three minutes...wow! Preying on non-cell phone owners must be a lucrative business these days.

Over the past years I have watched this unbridled technology develop its own set of rules of convenience. Maybe there needs to be a cell phone license like a driver's license or a pesticide license to set minimum competency and etiquette for governed use.

### Cell Phone Ten Commandments

*Thou shalt:*

1. Be respectful.
2. Not talk loud in public.
3. Not lose your cell phone.
4. Turn off your cell phone during meetings and other quiet gatherings.
5. Not drive and text message at the same time.
6. Impress your friends with upgrade models regularly.
7. Remember to charge your battery regularly.
8. Not stare at the screen of your cell phone like a zombie.
9. Not drive without hands free capabilities.
10. See #1.

*Here are some lessons learned from years of non-cell phone ownership:*

1. When a new technology is created like cell phones and the Internet, people will find a way to abuse it.
2. People using cell phones in public are often rude, loud, and disrespectful.
3. Cell phones are addicting and can control your life.
4. Cell phone companies are generally predators offering poor service, many excuses, and add-on expensive conveniences.
5. Cell phones are convenient...too convenient.
6. Cell phone bills are normally more expensive than we originally were told they would be.
7. Blue-Toothed™ appendages are

'attractive'...especially when worn in meetings with the blue light flashing.

8. Cell phone users develop multi tasking skills: Like being able to talk with their phone squeezed tight to your shoulder while eating a 1/4 pounder and holding a large drink in the other hand and driving 70 miles per hour in a four ton vehicle.
9. It is important to check your phone immediately after your foot pushes on the accelerator.
10. It is mandatory to pull out your cell phone in a crowded air plane after landing and call someone. One hour in the air causes twitching and cold sweats from the true addicts. *"I really don't want to know about his life...Really I'm not listening to your loud and rude conversation about nothing."*
11. If you get lonely, you can still read the paper, converse with the person next to you or even read a book.

Even with my new cellular telephone I feel inadequate when three other men in a social gathering spend more time checking their shiny black Verizon 750e super neutron mini computer strapped to their belt like a weapon of mass destruction instead of talking to the group in front of them...*"But oh, I only carry this thing in case my daughter needs to be picked up or I get trapped in a snow storm or if any athletic event is going on somewhere in the world."*

As a newbie to this cell phone generation, I feel strange carrying a phone around and even more strange admitting it. Is there a teenager around that can show me how to use this thing?

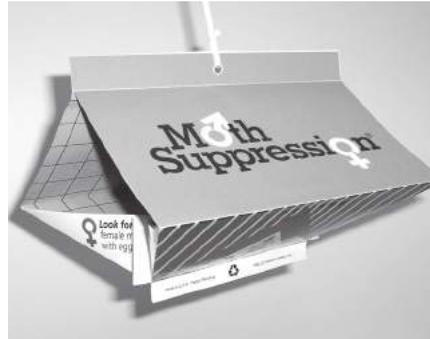
*D. K. Mueller*

## Moth Suppression Field Studies

### *A Female Indian Meal Moth monitoring tool*

One way to reduce the customer complaints from stored product moths is to use the Moth Suppression traps. They contain both male pheromone attractant and the new female adult attractant.

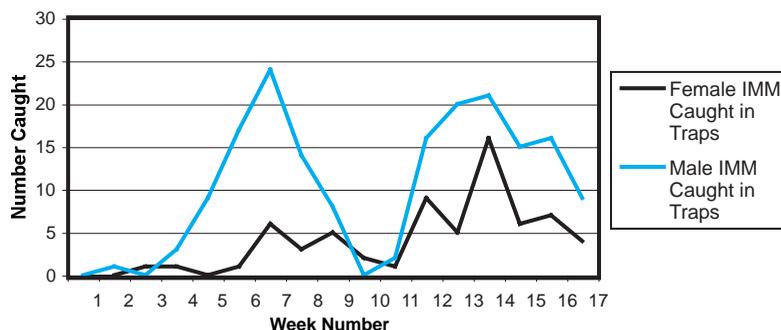
This superior moth trapping tool should be placed near stored food. It will monitor for male moths like previous pheromone traps but it now contains a special formulation to attract egg laying females to the sticky traps.



Each female moth lays between 250 and 400 eggs each. These eggs can be seen with the naked eye when the females are caught in the sticky trap.

Now is the time to place your monitoring tools to capture the first generation of pest insects. This information can then help you manage this population. Capturing and eliminating the first generation is important in any Integrated Pest Management program. If you have used IMM traps in the past, try the new Moth Suppression traps from Insects Limited by calling: 1-800- 992-1991 or go to [www.insectslimited.com](http://www.insectslimited.com) for your latest Product Guide and ordering information.

### Male & Female IMM Caught Over 17 Weeks



*Moth Suppression™ Traps were placed in the pet treats aisle from April until August for a total of 17 weeks by Dr. Paul Fields, Cereal Research Centre, Agriculture and Agri-Foods Canada, Winnipeg. Here are the results.*

## Quotable Quotes

**“In Germany we don’t consider beer an alcoholic beverage.”**

—Dr. Otto Mueck, BM Seminars in Bremen

**“Change is the law of life. And those who look only to the past or present are certain to miss the future.”**

—John F. Kennedy

**“Richard Nixon is the kind of politician who would cut down a redwood tree and then mount the stump and make a speech on conservation.”**

—Adlai Stevenson, Statesman Senator

**“Democracy is not a spectator sport.”**

—Indianapolis Chamber of Commerce

**Upon hearing about the New Smart Way Fruit Fly Trap:**

**“This, I want to try. My husband chews tobacco and fruit flies are drawn to his spit cup.”**

—Manchester, Tennessee

**“Trust the science.”**

—Dr. Robert ‘Bobby’ Corrigan

### New European Biocide Directive Traps for Monitoring Purposes:

Sec. 2.5.9.5.

**Question:** Traps, which contain attractants, are sometimes used for insect monitoring purposes only. Are they covered by the Biocide Directive (Western Europe’s rules for pesticide usage)?

**Answer:** Traps containing attractants, which are used for insect monitoring only, are not within the scope of the Directive according to the definition of a biocidal product.

# AFRICAN "SMALL GAME" SAFARI

Most people go to Africa to see big game like elephants, Cape buffalo, lions, and rhinos, but my son Pete and I visited this great country in search of "small game" like rhinoceros beetles, scorpions, spiders, and large nocturnal moths in South Africa's Zululand.

The two-week trip to South Africa included many sights and sounds not found in Indiana. Each day a game drive was offered by a veteran ranger on a 15,000-acre private reserve. Here, many sightings of crocodiles, elephants, wildebeest, hippos, warthogs, colorful birds, giraffes, lions, Cape buffalo, and eagles would occur along with varied antelope species. This was like being in Jurassic Park...but real.

The warm nights brought out many different insects, frogs, and snakes to the lights around the game lodge. It attracted large, 4-inch-long horned beetles, energetic dung beetles, 12-inch-long emperor scorpions, giant water boatman the size of a small bird, and venomous spiders, but the real trophy was the capture of a "Red



*Searched for large game, such as this rhinoceros by day and large insects by night in South Africa's Zululand.*



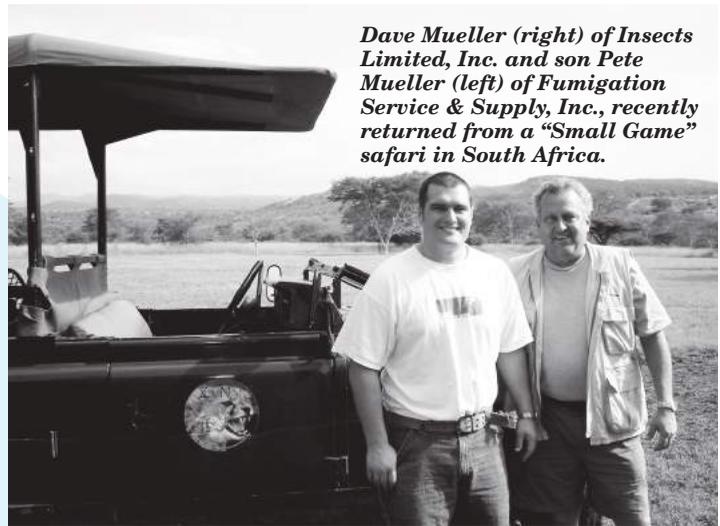
*8-inch long scorpions ruled the night.*

Roman." This 3-inch-long, fuzzy eight-legged predator with an attitude was as mean as a rattlesnake. It ran back and forth near the lights, eating everything in its way.

Each night, specimens would be prepared after capturing by steaming them over the coffee pot to kill them and pinned in a collection box by Pete who put to use some of his collecting skills learned in his entomology classes at Purdue.

People saw us walking around the game lodge at night with flashlights and asked what we were doing. After showing them the mounted collection boxes, they would tell others and before long they were asking to see what was found that night. They also helped us spot insects they found (some in their rooms).

Watching the persistent dung beetles gather their perfectly sculptured balls of rhino dung and rolling them quickly over



*Dave Mueller (right) of Insects Limited, Inc. and son Pete Mueller (left) of Fumigation Service & Supply, Inc., recently returned from a "Small Game" safari in South Africa.*

the rough landscape to a spot to be buried is a sight to see.

Small game hunting was an unexpected adventure on this father/son trip to South Africa but one that will offer great memories for years to come. The pictures, maps, postcards, and collection boxes of exotic specimens will tell a special story, but the real story is about the time spent and experiences together in a place where new discoveries come around the lights each night.



*Members of the safari camp were fascinated by the large collections of African insects, spiders, and scorpions, collected and preserved by Pete Mueller.*

# ProFume™ Fumigant

The US EPA approved a new and expanded label for the methyl bromide alternative sulfuryl fluoride products called ProFume™. Dow AgroSciences announced that this new label will fill in some missing details about the use of this new flour mill and food processing facility structural fumigant along with grain and seed uses. At any time a new label is approved, there are gray areas and questions about detailed uses that need to be addressed. Dow AgroSciences' regulator affairs

staff have worked hard since the initial federal label approval in January 2004 to collect those questions and submit improved language that will help the fumigator and the food industry understand where and when this sulfuryl fluoride can be used.

There have been over 100 applications of ProFume performed since January 2004 by Fumigation Service & Supply, Inc. John Mueller, President of FSS remarked: "Even though ProFume

comes in a cylinder, it is a completely different fumigant that Methyl Bromide. It has a different mode of action, special needs for scaling, and more extensive stewardship. The performance of ProFume has been excellent and we have not used Methyl Bromide for two years. We are scheduled to fumigate about one mill per week this summer with ProFume and 3-4 on busy holiday weekends. One flour mill in Indiana has been fumigated eight times with ProFume over the past four years. The key to success with this new fumigant is the **FumiGuide™**. This computer software has made a huge difference in how we do our fumigations today. The precision that it offers allowed for the right amount of gas to be used under the alternative to methyl bromide for our company and our customers."



## Mortality of Sulfuryl Fluoride Two Field Studies in Flour Mills

### 1. A Preliminary Report of Sulfuryl Fluoride and Methyl Bromide Fumigation of Flour Mills

by Wan-Tien Tsai, Linda J. Mason, & Klein E. Iteleji, Purdue University, West Lafayette, IN

**Table 1:** Preliminary evaluation of mortality (%) of Red flour beetle life stages under SF or MB fumigation in four different flour mill facilities.

Facility	EGG		Larvae	Pupae	Adult
	Type I*	Type II**			
SF 1	40.61	100	100	100	100
SF 2	90.67	99.33	100	100	100
SF 3	NA	89.47	100	98.67	100
SF 4	93.84	98.61	100	100	100
SF 5	73.81	86.46	100	100	100
MB 1	68.24	70.58	100	100	100
MB 2	NA	100	100	99.6	100
MB 4	97.62	NA	95.1	93.63	95.1

**Table 2:** Preliminary evaluation of mortality (%) of Indian meal moth life stages under SF or MB fumigation in four different flour mill facilities.

Facility	EGG		Larvae	Pupae	Adult
	Type I*	Type II**			
SF 1	100	100	100	100	100
SF 2	90.67	100	100	100	100
SF 3	NA	80.46	100	100	100
SF 4	90.65	91.67	100	100	100
SF 5	98.89	87.21	100	100	100
MB 1	88.67	95.40	100	100	100
MB 2	NA	100	100	100	100
MB 4	98.61	NA	100	100	100

**Mortality Definitions:**

\* Type I: Unhatched eggs even if they died before adult stage.

\*\* Type II: A hatched egg that couldn't successfully make it to the adult state. This included unhatched eggs and eggs that hatched but failed to reach adulthood.

### 2. A comparison between the impact of sulfuryl fluoride and methyl bromide fumigations on stored product insect populations in UK flour mills.

by Graham J. Small, Insect Investigations Ltd., Cardiff, UK

Percent reduction in infestations of Red and Confused Flour beetles (*T. confusum* and *T. castaneum*) and Mediterranean flour moth (*Ephestia kuehniella*) during the first post-fumigation monitoring period.

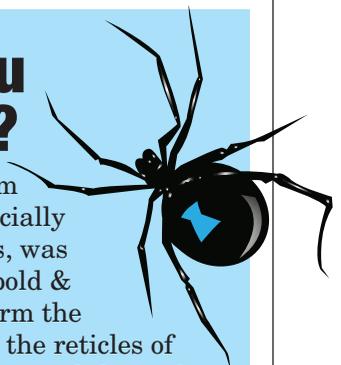
Insect pest	Sulfuryl fluoride		Methyl bromide	
	Mill A	Mill B	Mill C	Mill D
Stored-product beetles	94.64	97.47	96.41	98.79
Stored-product moths	90.25	***	94.23	91.11

\*\*\* no *E. kuehniella* (Mediterranean flour moths) or *Plodia interpunctella* (Indian meal moth) were collected inside this mill during the study

See on-site fumigation pictures with ProFume on our website: [www.fumigationzone.com](http://www.fumigationzone.com)

## Did You Know?

That silk from spiders, especially black widows, was used by Leupold & Stevens to form the crosshairs in the reticles of its rifle scopes until the mid 60's. Today, the company uses fine platinum wire to construct the crosshairs in its scopes.





## Flashpoint #7

***“Let’s Educate Rather than Regulate!”***



*Dr. John V. Osmun, Professor Emeritus of Entomology, Purdue University, was one of the primary architects of the pesticide laws in 1972-1974 that became the model for pesticide laws around the world. He believes in education and recognized that many pesticides are safe in the hands of professionals. These professionals needed to be trained and this was the beginning of the need for continued education programs for our industry that is common today in the U.S. and around the world. His simple phrase: “Let’s educate rather than regulate!” rings out today, 35 years later.*

Before FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) was further amended, I had the opportunity to have a Congressional friend insert some changes in the wording of this comprehensive pesticide law—small but very important. Here are couple of them:

The 1972 amendment, Sec. 23, stated that the EPA Administrator **“may”** use the services of the State cooperative extension services to inform and educate pesticide users about accepted uses and any other regulations made under this act. That didn’t always give us the muscle we needed to get our job done. I was able to get that changed to read **“shall.”** What a help.

Another change related to the procedures or canceling a registration: Sec. 6 was rewritten. It had been the request of EPA that there should be no options of how to cancel a pesticide registration. They wanted a provision for out and out banning of a troublesome pesticide. We got Congress to recognize that consideration must first be given to using the provisions for “Restricting a Pesticide’s Use”. This was recognition that

indeed, in some cases, a certified, competent person very well should be able to provide safe, effective use of the product (including fumigants). Some of my old “friends” in the EPA didn’t like this but indeed it saved some pesticides from complete extinction.

This bears out what I’m sure you have heard me say, that often it is easier to change a law than to change the opinion within the EPA.

## The John V. Osmun Endowed Professorship

by Dr. Steve Yaninek  
Head, Entomology, Purdue University

Good things come to those who persevere, and thanks to the hard work of our campaign committee, I’m pleased to announce the establishment of the John V. Osmun Professorship in Urban Entomology. Credit goes to the 51 donors who committed gifts and pledges totaling just over \$1 million to endow the first ever professorship in Entomology. The endowment is a tribute to John Osmun’s many important contributions to the partnership between Purdue and the pest management industry.

The campaign enjoyed an unexpected surprise in 2005 when the O. Wayne Rollins Foundation endowed the O. Wayne Rollins/ Orkin Chair in Urban Entomology. This gift also helped us qualify for a matching William Bindley chair. While this accomplishment technically met our original campaign goal of endowing a chair in urban entomology, we had raised only two thirds of the funds needed to endow a professorship. The campaign committee was determined to complete the challenge and honor a giant in urban pest management field.



**“This endowment reflects the strength, character, and commitment of our partnership with industry. This professorship will raise the stature of our urban programs, and help us recruit and retain expertise from the best and brightest prospects with research interests focused on priorities important to industry.”**

—Dr. Steve Yaninek

We thank the pest management industry for their generous contributions, and for continuing their unique partnership with Purdue Entomology, the donors who contributed so generously to honor John Osmun, and the campaign committee who worked with a great sense of purpose and dedication on this project for the past four years. A formal ceremony to recognize the establishment of this gift will take place later this spring.

## Personalized Training



*The corporate Food Safety Team from Smuckers and Insects Limited during a recent two day education tailored training program in Westfield, Indiana.*

If your company would like a continued education training program, Insects Limited provides on-site and in-house training in its classroom facilities. Here educational materials are provided and presented by an expert staff with capabilities to do hands-on training on a variety of topics. Let us tailor a program for you. If you or your company needs specialized training and continued education, contact Kalah Stocker at [K.Stocker@insectslimited.com](mailto:K.Stocker@insectslimited.com)

## CALENDAR OF EVENTS

### *We Hope to See You There...*

- **May 6-8, 2007:** Int'l Assoc. of Operative Millers, *Overland Park, KS* \*\*
- **May 6-8:** All Things Organic, *Chicago, IL* \*\*
- **May 14-17:** Assoc. of American Museums, *Chicago, IL* \*\*
- **May 28:** Indianapolis 500\*
- **July 20:** Kentucky Feed & Grain Assoc., Fumigation training, *Mammoth Caves, KY*\*\*\*
- **August 1:** Illinois Pest Control Assoc. Pheromone training, *Hanna City, IL* \*\*
- **September 17-20:** Nestle Purina, Food Safety Symposium, *Atlanta, GA* \*\*
- **December 4:** Fumigation continued education training, *Westfield, IN*\*\*\*
- **December 8-11:** Entomological Society of America, *San Diego, CA* \*
- **January 2008:** Fumigation Certification Training, *Westfield, IN*\*\*\*
- **July 6-11, 2008:** Int'l Congress of Entomology, *Durban, South Africa* \*

\*\*\*organizing \*\*presenting \*attending



# 2nd Latin America Fumigants & Pheromones CONFERENCE & WORKSHOP



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A R G E N T I N A



Fumigants & Pheromones is published by Fumigation Service & Supply, Inc. and Insects Limited, Inc. We hope that the information that you receive from this newsletter will help you in your business, and you, in turn, will support our business efforts. If you have an associate who would be interested in receiving this newsletter, please contact the address below. We would welcome any comments or suggestions for topics. Address correspondence to: David K. Mueller, Fumigation Service & Supply, Inc., 16950 Westfield Park Rd., Westfield, IN 46074 USA.



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