

Fumigants & Pheromones

Issue 82
Winter 2007

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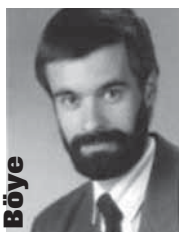
A Newsletter for the Insect Control & Pest Management Industry

Bremen 2007

Organizers



Mueller



Böye

Sharing through education is one way our industry improves. Bremen 2007 is another opportunity to learn from expert speakers and from the hundreds of pest managers fumigators from around the world who share their experiences during the conference and workshop.

New Session Added

A night session has been added to an already complete program. This will allow participants to share their practical experiences at the Fumigants & Pheromones Conference in Bremen, Germany on March 6-8, 2007. With many experts and a varied audience registered for this international exchange, it is a perfect fit to have an "Open Mic." night. Here, a discussion of topics can be proposed and people working on their own practical research can present their findings to the group.

Dave Mueller, conference organizer and President of Insects Limited, Inc. of Westfield, IN said: "I received several offers to present topics at Bremen 2007 after the program was set. We already have 25 invited speakers. It was hard to



8th Fumigants & Pheromones Technical Conference

March 6-8, 2007
Bremen, Germany



refuse good speakers with information to share so we decided to open the evening on the second day for a unique and casual exchange of ideas."

The new evening session will be moderated by Dr. Shlomo Navarro, international stored product expert from Israel. Dr. Navarro will



begin this evening program with a synopsis of his research on stored product protection.

IN THIS ISSUE:

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8th Fumigants & Pheromones Technical Conference

March 6-8, 2007 • Bremen, Germany

For info & registration—www.InsectsLimited.com



300 people came to the last Fumigants & Pheromones conference on stored product protection in Monterrey, Mexico in 2005.

Day 1 Translation available.

Welcome and Introductions

- David Mueller, Insects Limited, USA
- Dr. Jürgen Böye, BM Seminar, Germany

IPM Case Studies from the Real World

- Dr. Jürgen Böye, BM Seminar, Germany, *Why IPM is less expensive than Methyl Bromide treatments—a cost comparison*
- Michel Maheu: Maheu-Maheu, Canada, *Creative Pest Management in Canada*
- Vasilos Sotiroudas, AgroSpeCom, Greece, *A HACCP driven IPM program*
- Curt Hale, Fumigation Service & Supply, USA, *Large food plant pest management programs in the US*
- Paulo Guerro, ISS-Milan, Italy, *Large food plant pest management programs in Italy*

Methyl Bromide Alternatives

- John Mueller, Fumigation Service & Supply, USA, *PROFUME® (sulfuryl fluoride) in flour mills and food factories*
- Benno Rübsamen, Dow AgroSciences, Germany/Europe, *The Current Status of PROFUME® in Europe*

Methyl Bromide Alternatives in Central and Eastern Europe

- Dr. Otto Mück, BM Seminar, Germany, *Methyl bromide phase-out through training*

- Jerome Malavelle & Prof. Stanislaw Ignatowicz, UNEP project for CEIT countries, *Current status, lessons learned and future perspectives*
- Dr. Zurab Loladze, IPM Expert, Georgia, *IPM in Georgian flour mills*

Heat Treatment in the Post Harvest Sector

- Hans Hofmeier, ThermoNox, Germany, *Heat Treatment in Europe*
- Kim Kemp, Nestlé Purina, USA, *Heat Treatment in North America*
- Manuel Wegmann, ISS-Ketol, Switzerland, *Heat Treatment for pest control*

Dinner and entertainment in the famous Rathaus of Bremen

Day 2 Translation available.

Stored Product Mites

- David Mueller, Insects Limited, USA

New Technologies

- Professor Dr. Dirk Maier, Purdue University, USA, *Fumigation Systems Research & Development*
- Bob Ryan, BOC Gases, Australia, *New Discoveries in Fumigants and Fogging*
- Dr. Cornel Adler, BBA, Germany, *A Review of Research on Stored Product Protection in Germany*
- Gerhard Jakob, Detia GmbH, Germany, *New fumigation research from Detia / Degesch*

Wood Fumigations

- John Mueller, Fumigation Service & Supply, USA, *Invasive Insects and ISPM-15 Treatments*
- Dr. Uwe Noldt, Federal Research Center for Forestry, Germany, *Practical treatment experience of wooden structures*

Pheromones and Biological Control

- Alain Van Ryckeghem, Insects Limited, USA, *New Developments in Pheromones*
- Dr. Rudy Plarre, BAM, Germany, *New Developments in Pheromones*
- Daniel Fassbind, Desinfecta, Switzerland, *Beneficial insects in Stored Products*

Night Session

- *Sharing Practical Experiences, Open discussion and short presentations from the audience*, Dr. Shlomo Navarro, Moderator/Facilitator

Poster displays will be displayed throughout the conference.



Day 3 Translation available.

An Educational Workshop to the Ports of Bremen & Hamburg

Port of Bremen, overview of various port activities (Breakfast cereal, fish-meal, grain, coffee, trip to Roland Flour Mill, explanation of heat and IPM), Travel to Hamburg Harbor to visit a large cocoa bean warehouse, Harbor sightseeing tour via special boat: Explanation of Hamburg harbor and its many facilities and activities by Prof. Dr. Jochen Schlieske including pheromone trapping in warehouses and a fumigation demonstration.

Sponsored by:



Seed Fumigations



By Brian Wendell
FSS Manager of Seed Fumigations
b.wendell@fumigationzone.com

Sulfuryl fluoride (ProFume®) offers many advantages when fumigating stored products like seed. Methyl

bromide can not be used on seed due to its high toxicity to the germ. Phosphine has been the fumigant of choice for many years. Recently it is being replaced because of its corrosiveness to the copper refrigeration systems in many modern seed warehouses and because of the length of time necessary to affect a kill with phosphine compared to sulfuryl fluoride.

Fumigations performed with ProFume (thru 9/30/06):

United States	200 +
Italy	40
Switzerland	15 *
Germany	30
United Kingdom	3
Canada	2

*represents all the flour mills in this country.

Brian Wendell, Manager of Seed Fumigations for FSS stated: “We have found that ProFume offers several advantages such as good penetration of densely stacked and poly wrapped pallets of seed and excellent insect and rodent mortality in walls and other hard to reach areas.”

Because ProFume comes in cylinders in a gaseous state, the lower humidity as well as the low temperatures (50% RH and 50°F) used in refrigerated seed storage have little to no effect on the gas’s ability to reach the target pest like solid formulations of phosphine. Another advantage of sulfuryl fluoride is its non-flammability

characteristic which can be a reoccurring fear in high humidity environments that are also conducive to corrosion. The non-corrosive nature of SF greatly reduces the time that the customer needs to spend preparing for fumigation, because the removal of sensitive electrical components is no longer necessary.

Disposal of phosphine can be problematic at times. Many incidents of fires and heavy smoke have occurred during phosphine disposals. Some companies will not allow the fumigator to dispose of the solid aluminum or magnesium



Pat Kelley inspects a pheromone trap to determine the population of Indian meal moth in a seed warehouse.

phosphide on their property and this adds to the problem of how to transport a potentially hazardous and flammable solid material offsite to be properly disposed.

Lastly, the inorganic nature of this gas allows the quick penetration of palletized products. SF enters the seed bags quickly to offer a kill of internal insects, including the Indian meal moth, but de-gases faster than phosphine which allows for the facilities to be opened for reentry sooner. This has been a problem in the past because the fumigator may open the warehouse and aerate the open spaces to below the threshold limit

Quotable Quotes

“The challenge of statesmanship is to have the vision to dream of a better and safer world and the courage, persistence, and patience to turn that dream into a reality.”

—President Ronald Reagan

“We never did use methyl bromide in the 30 years I was there. Dawson 73 (73% EDB) was what we used to fumigate the mill along with a good fumigation of the wheat with Phostoxin.”

—Albert Mueller, head miller, Iglehart Brothers Mill, Evansville, IN

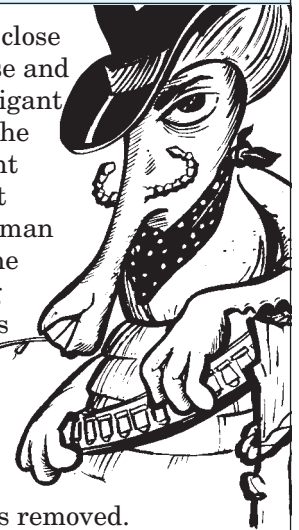
“Where there is a will, there is a way.”

—Etta M. Mueller, a lesson to her children

value only to close the warehouse and have the fumigant escape from the bags overnight to a level that could be a human health risk the next morning when workers enter a building full of fumigant with warning signs removed.

Advantages of Sulfuryl Fluoride Fumigant

- Non-corrosive
- Good penetration
- No disposal of undecomposed phosphine
- Less aeration time needed
- Re-entry hazards reduced
- Add fumigant with cylindered gas
- No effect on seed germination
- Introduce gas from the outside
- Less shutdown time needed
- Fumiguide® software label

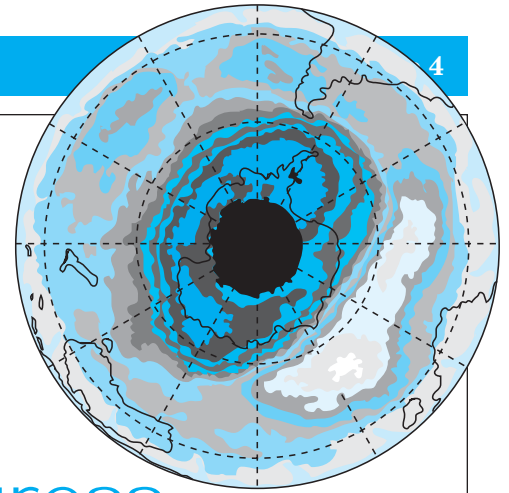


Dave's Soapbox

...for what it's worth



Meanwhile, the US has just authorized 24% of the amount consumed in 1991. The US started with a very high methyl bromide CUE request of 10,754 tonnes in 2005 (42% of use in 1991). The US was very slow about reducing MB in the period leading up to 2005. The international ozone protection agreement (Montreal Protocol)



Global Environmental Progress

In 1991, Europe used almost as much methyl bromide (MB) as the US, but Europe has reduced MB critical use exemptions (CUE) much faster. Critical use exemptions are requested when no other alternatives are available. This means that a country can apply for methyl bromide for a specific use at a specific location. (i.e. NASA needs six pounds of an ozone depleting substance in the Space Shuttle and they can't find a replacement for this chemical or in the UK for specialized cheese stores for 1100 lbs of MB.) These requests are then carefully reviewed by various international committees before granting these exemptions. The process is quite involved.

In 2005 alone, Europe used less than half the quantity of CUEs that it originally requested for that year. Over the last two years the Europeans have reduced their CUEs from 30% to less than 3% of the quantity of MB they consumed in 1991. The tables show how Europe initially requested 5,754 tonnes CUEs for 2005 (30%), but reduced this to 519 tonnes authorized in 2007 (less than 3% of the quantity used in 1991). Europe will also deduct MB stockpiles from this 519 tonnes. The US is still sitting on approximately 1.5 years worth of MB stockpiles that will need to be accounted for with reduced new production.

required all industrialized countries to reduce MB consumption to 25% (of the 1991 level) in 2003, but we've only just achieved it now in 2007 in the US, which is 4 years late. This slow reaction has given the US an 'environmental black eye' from both developed and developing countries that are working to eliminate methyl bromide.

What did Europe do differently? First, they started early. They set targets for reductions that were slightly earlier than required by

the international Protocol, which encouraged many companies to focus on the need to adopt alternatives. Europe carried out a detailed review of available and economically feasible alternatives for CUEs. They also compiled a large database identifying many different types of alternatives that farmers and companies currently used for major crops, stored products, mills and other structures. The Europeans as a result found that alternatives were a lot more available and feasible than they

"Where there is a will there is a way."

Table 1. CUEs in USA

Metric tonnes, with percentage of baseline in brackets*
Baseline MB consumption in 1991 = 25,529 metric tonnes

	2005	2006	2007
Requested CUEs (nomination)	10,754 (42%)	9,386 (37%)	7,418 (29%)
Approved by Protocol	9,553 (37%)	8,081 (32%)	6,749 (26%)
Authorized in USA	8,942 (35%)	7,958 (31%)	6,230 (24%)
Used in USA	7,170 (28%)		

Table 2. CUEs in Europe

Metric tonnes, with percentage of baseline in brackets*
Baseline MB consumption in 1991 = 19,217 metric tonnes

	2005	2006	2007
Requested CUEs (nomination)	5,754 (30%)	4,214 (22%)	1,240 (7%)
Approved by Protocol	4,393 (23%)	3,537 (18%)	689 (4%)
Authorized in Europe	2,777 (15%)	1,654 (9%)	519 (3%)
Used in Europe	2,530 (13%)		

* data from Montreal Protocol reports, Federal Register, European EC Decisions, Chris.

initially thought. In addition, they banned the use of MB except for approved CUEs and quarantine and required existing stocks and supplies to be used up.

This difference highlights, yet again, how the large methyl bromide CUEs available in the United States, backed by determined Washington DC lobbyist organizations like the North American Millers Association, the Crop Coalition, and the National Pest Management Association are due to a lack of will rather than a lack of alternatives. Alternatives are out there—other people are using them in developed and developing countries—in virtually all of the specific situations where people claim there are no alternatives.

Developing Countries

(under \$10/day/person income) have also made large reductions in their use of MB, as the following statistics illustrate (#)

- MB consumption in developing countries peaked at more than 18,000 tonnes in 1998, and fell to less than 9,300 tonnes in 2005.

- By 2004, 80% of developing countries (115 out of 144 countries) had reduced their national MB consumption to less than 50% of the quantity they used in 1991. This shows excellent progress, far better than expected, because the current Protocol limit for developing countries is 80% of their 1991 level.
- Many countries are carrying out projects that are phasing out MB by training MB users how to use alternatives, with assistance from the Multilateral Fund of the Protocol. This includes 14 of the 15 largest MB consuming countries (the exception is South Africa, which is currently preparing a project).
- 47 (50%) of the 95 developing countries that use MB have now phased it out. This is much earlier than expected because they are not obliged to achieve phaseout until 2015.
- All of this progress has helped the ozone layer and will avert many preventable cases of eye cataracts and skin cancer around the world. Scientists have found that the concentra-

tion of MB in the atmosphere dropped substantially from 1998. This positive effect was achieved by many, many thousands of individual companies and farms, each taking their own small step to phaseout MB.

I still hear comments like “There are no viable alternatives!” “Food production is impossible without methyl bromide,” “Thousands will become jobless if MB is phased out,” “Blame it on the oceans,” but the reality is that many thousands of former MB users around the world—and many in the US—have progressively helped the global environment by eliminating MB and are still operating successful businesses as before. Their world did not fall apart when they said farewell to MB. In fact, many of us have found that alternatives offer different and greater advantages than MB.

I guess my Mother was right;
Where there's a will there is a way.

A. K. Mueller

(#) Report of the Technology and Economic Assessment Panel. May 2006 Progress Report. UNEP

What's New from Insects Limited?

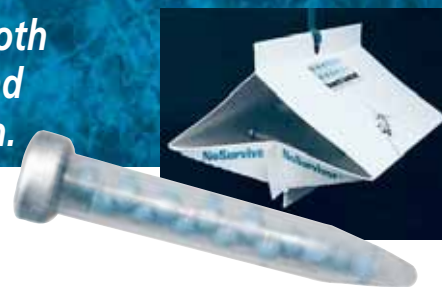


Webbing Clothes Moth
(*Tineola bisselliella*)

*Pheromones that capture both
Webbing Clothes Moth and
Casemaking Clothes Moth.*

Now is the time of year to trap these serious fabric pests. Get the new Clothes Moth pheromones by contacting your **Pest Control Distributor** and asking for the **Bullet Lure**.

Get your **FREE** catalog by going to www.insectslimited.com or by calling **1-800-992-1991**.



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Insect Monitoring



By Pete Mueller

A pheromone trap is not a control tool, but it is a means to monitor insect activity. The pheromone trap is covered with sticky adhesive glue. The pheromone lure is a controlled release device that is placed in the center of the trap. A pheromone is a mixture of complex chemicals used by the insect to communicate with others in the same species or family to find mates. In many cases it is a female sex attractant that is synthetically produced in our lab and placed in a small polyethylene container.

When monitoring for insect activity, it is a good idea to record the week to week findings from the inspections, as well as the date the lure was first placed in the trap. Most commercial lures can be expected to be effective for six



The Bullet Lure contains an Indian meal moth female sex-attractant that lasts for 6-8 weeks indoors.

to eight weeks indoors and four weeks outdoors. To help with documentation, each trap should be numbered and have the individual trap correspond with some kind of floor-by-floor blueprint. This will help show where the traps can be found and show the customer areas that might be at risk for a pest infestation.

In most locations, traps like this are placed evenly throughout the building on a grid. The traps are secured around eye-level on support beams for ease of checking. Because fire extinguishers can not be blocked, this is a good open place to put a pheromone trap. If the fire extinguishers are placed according to fire code, this will help provide even spacing throughout the building.

New Central Illinois Office: Peter Mueller, 2203 Todd Street, Ste #5, Bloomington, IL 61704 (309) 830-9386 • p.mueller@FumigationZone.com

Quarantine Fumigation

The Australian Quarantine and Inspection Service (AQIS) relies on effective fumigation treatments performed offshore to address quarantine risks associated with imports of plants and plant products into Australia. Because there is no way for AQIS to determine how effectively an offshore consignment has been treated, we rely heavily on the integrity of the fumigation certificates.

However these fumigation certificates don't always guarantee that a consignment is free of pests, and

AQIS often encounters problems with failed fumigations. Fumigation failures not only pose a threat of exotic pest incursions into Australia, but repeat fumigations are expensive, cause delays in the release of cargo, and are detrimental to the environment because of the repeated use of methyl bromide.

AQIS felt that the traditional response of blacklisting fumigators responsible for failures was reactive and not effective. There had to be a better way. So to find a solution, a team from AQIS visited countries from a 'top ten' list of problematic countries. These visits identified poor fumigator training and faulty equipment as the significant causes of fumigation failures. There was also a need for improved government administration.

In response, AQIS developed The Australian Fumigation Accreditation Scheme (AFAS). AFAS offers overseas Government agencies a way of ensuring the responsible and reduced use of Methyl Bromide for quarantine purposes through fumigator training, and assistance for the responsible government agency with the development of fumigation company assessment, registration, and audit arrangements. The training focuses not only on how to fumigate to meet the AQIS Methyl Bromide Standard but also reinforces the occupational health and safety aspects of fumigation.

AFAS is developed under bilateral arrangements between AQIS and the overseas government agency and uses feedback on fumigator registration, fumigation outcomes, and auditing to ensure its effectiveness.

(continued on page 7)



Flashpoint #6

EDB

Most flour mills and food processors didn't use methyl bromide (MB) prior to the loss of ethylene dibromide (EDB) in 1983. This effective spot fumigant was applied as a liquid into the equipment of milling and food processing equipment and the need to fumigate their structure with methyl bromide was minimized.

In a shock to the pest control industry, the US EPA ordered the immediate emergency suspension of EDB for fumigation of stored grain, felled logs, and spot fumigation of grain and flour milling machinery to prevent or remove insect infestation on September 30, 1983.

Quarantine

(continued from page 6)

The benefits of AFAS include increased capacity of the country's fumigation industry, promotion of trade through reduced risks of pests and disease, and improvements in occupational health and safety.

Another important benefit of AFAS is that it promotes environmentally sustainable development by decreasing the use of methyl bromide fumigant (an ozone depleting substance—in accordance with the Montreal Protocol).

AQIS has implemented AFAS with Indonesia, Malaysia, Thailand, and India. It's anticipated that the Philippines and China will implement the program in 2007. Discussions are taking place with Vietnam, Fiji, and Papua New Guinea.

You can find out more about AFAS by visiting <http://www.aqis.gov.au/afas>

At the same time, the Agency announced the cancellation and phase-out of all other major pesticide uses of EDB.

History Lesson

Imagine you are the director of a major brand named food company and one day you are told that your products would appear on the front page of the large city newspaper, *The Boston Globe*, with the amounts of a newly banned pesticide that is a proven carcinogen named EDB on your products. What would be your next action?

This happened to many executives of food companies when a sudden *FLASHPOINT* occurred to the food and grain industries without warning.

In taking this emergency action, EPA cited significantly new evidence that EDB was contaminating ground water supplies in a number of states. Laboratory tests results showed EDB to be a carcinogen and mutagen and that it caused reproductive disorders in test animals.

This emergency suspension is the most restrictive measure the EPA can take under law. It immediately halted the sale and distribution of EDB for soil fumigation also. 122 manufacturers and registrants had five days to appeal EPA's emergency suspension order. These decisions were based on an evaluation of risk vs. benefits of this pesticide to society. EDB was used on soil for ground sterility before methyl bromide was used as a soil fumigant.

The Agency and the Food and Drug Administration (FDA) began monitoring residues of grain, flour, and finished baked goods already on the grocery shelf. In addition, flour and baked goods, milk, and meats—including beef, poultry

and pork—were sampled throughout the country.

The spot fumigation of EDB into milling machinery was a common pest control practice. Dawson 73 or 37 (73% and 37% concentrate EDB) would be squirted into pre-set openings in the milling equipment. EDB, being heavier than air, would stay inside the equipment long enough to effect a kill of any hidden infestation. This treatment was performed with a gas mask and two people working together. This treatment with good cleaning and crack and crevice spraying would offer "Pest Free" conditions to operate the mill or food plant. The need for MB was greatly reduced or eliminated by most millers and food processors. In short, they depended on EDB on their grain and in their equipment to solve their insect problems.

Conclusion

The problem with EDB was that it was used on food products, like bread, that was consumed by almost everyone. The EDB was absorbed in the bread and grain based foods and its residues stayed persistent for weeks and months. In one government study, 95% of the EDB was still found in the bread after 10 days and grain after 35 (Sinclair et. al. 1962).

This, along with the increased paranoia about cancer in rats and people, offered a *FLASHPOINT* that led to the need for a replacement for EDB. The replacement alternative in soil and structure fumigation became MB. It was in 1993, ten years later, that methyl bromide was found to be a serious ozone depleting substance that would be listed as a controlled substance under the Montreal Protocol and the US Clean Air Act.

Source: EPA documents

**Mark Your
Calendar!**



**For more details
contact Kalah Stocker,
1-317 896-9300,
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insectslimited.com**

January 30: Initial Certification Training, Indiana examinations and general training for other states, Westfield, IN

February 6: Mid America Ag Show, Indianapolis, IN

February 7: Seed Fumigation Training Seminar, Iowa State University, Ames, IA

February 7-8: Indiana Hardwood Lumberman's Assoc. Convention, Indianapolis, IN

February 24-27: GEAPS Exchange, Grapevine, TX

March 5: Insects Limited, Inc. Distributor Meeting, Bremen, Germany (by invitation)

March 6-8: 8th Fumigants & Pheromones Conference & Workshop, Bremen, Germany

March 27: Food Safety Pest Control Training, Arkansas

March 28: Pest Management Training, Smuckers (contracted training), Westfield, IN

May 5-9: International Assoc. of Operative Millers, Overland Park, KS

July: Fumigation and Seed Fumigation Re-certification Training, Kentucky Feed & Grain Association, Mammoth Cave State Park, (contracted training)

September 17-20: Nestle Purina Food Safety Symposium, Atlanta, GA

December: Fumigation Continued Education Training, Westfield, IN

Seed Fumigation Seminar

Wednesday, February 7, 2007

A Seed Training Seminar is being offered by Fumigation Service & Supply, Inc. on Wednesday, February 7 at the Iowa State Center in Ames, IA. Many changes have recently occurred in the seed industry—namely Fumigation regulations and Treatment. Topics that will be covered are Insect Control, New Fumigants, Fogging, Rodent Control, and Safety. We are pleased to announce Curtis Ross with Remington HyBrids will be presenting the Keynote Address. Additionally, there will be presentations from Iowa State Professor Ken Holscher—Extension Entomologist, along with other professionals in the industry Alan Gaul—Seed Specialist and Bob Braun—Dow AgroSciences. Credits are being applied for in IA, NE, IL, IN, MI, and MN. Please contact Kalah at (800) 992-1991 for further information.

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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