

It's our
100th
Issue!

Issue 100
Fall 2011

Routing:



EPA Award Winner
Best of the Best

Fumigants & Pheromones

Celebrating 30 Years in Business • 1981-2011

Save The Date

May 16-18, 2012.

The 10th Fumigants & Pheromones International Conference will be held at the University Conference Center in downtown Indianapolis.

The theme for this conference will be *Pest Management Around the World*. The conference speakers consist of international experts including keynote speaker Dr. Gebisa Ejita; 2009 World Food Prize laureate from Purdue University.

Attendees from over 30 countries and six continents are expected to participate in this three day conference and workshop. The workshop will be held in the field where practical experiences will be shared and discussed by leading experts.

This newsletter will offer details on this program, its speakers, and how to register to be a part of the 10th Fumigants & Pheromones International Conference and Workshop.

Indianapolis was chosen because of its central location, easy access and excellent airport. The 2012 Super Bowl in February will bring a special feel to this Super Bowl city. The conference has been in

Europe for over 15 years and many people suggested a meeting in the US. In addition, it has been planned to coincide with the famous Indianapolis 500, Practice sessions, and Time Trial. Racing fans can witness the greatest spectacle in racing and attend the 10th Fumigants & Pheromones Conference and meet people from around the world that perform similar jobs and solve similar pest issues on a daily basis.

Most companies have a travel budget for allocating continued education for their employees. It is not too early to save the date for this conference for the 2012 travel and education budget. It promises to be different from any educational program you have ever attended. Some companies have used this time to have their managers meetings and then attend the conference. Special arrangements can be made for these meetings.

Save the date, register, and we will save a seat for you at the 10th Fumigants & Pheromones International Conference to share through education.



May 16-18, 2012

10th Fumigants & Pheromones Technical Conference

Indianapolis, IN USA



Indy
May 16-18, 2012

"Pest Management Around the World"

Organized by



Plan to attend the 10th Fumigants & Pheromones Conference and Workshop in Indianapolis, USA.

See pages 4 & 5 for more details!

VISIT US AT: www.insectslimited.com

Bad Bugs... Psocids



By **Alain VanRyckeghem, BCE**
 Technical Director
 InsectHelp@insectslimited.com

Identification

The psocids (SO-sids) found in food/ grain storage or food manufacturing facilities are soft bodied insects, 1-2 mm (1/16 inch) long. They have slender antennae, chewing mouthparts and may have four wings or be wingless. They are generally gray or brown in color. Psocids are readily identified (under magnification) by the presence of a large, noticeable bulge where we might call a nose (clypeus). Their hind femurs are characteristically enlarged and flattened.

Life Cycle

There are four species of wingless psocids that are cosmopolitan and may be seen commonly in buildings, usually *Liposcelis* spp. Psocids are not harmful to people or pets; they cannot bite or sting and are pests only by being present. Psocids can however, produce significant weight and quality loss in grains (up to 10%). They selectively feed on the germ of broken or damaged kernels.

Eggs are one-third the size of the adult, are ovoid in shape, glistening, translucent, and glued to the substrate or deposited into crevices. The average development from egg to adult takes 18 days at 32.5°C (90°F). Adults live for up to 90 days, and produce a maximum 75 eggs during that time.



Biology and Behavior

Infestations of psocids are more likely in commodities with high moisture content which have mold growth. Psocids feed most commonly on molds as well as fungi, grains, insect fragments, and other starchy material. Flour and other farinaceous (powdery) products are the foods most frequently found to be infested. Residual layers of powdery food dust, wood (e.g. pallets) or paper packaging (e.g. stitched bags, cardboard) can provide a substrate for mold growth. Psocids will also attack insect collections and other museum exhibits.

In structures, they can be found in damp, warm, undisturbed and poorly vented locations where mold and fungi are growing. In cases where there is no air handling/ management system, an entire warehouse and its contents can be conducive for mold growth. They are more likely to be a problem during middle to late summer when humidity increases significantly. They are rarely damaging inside buildings but they can become a serious pest because of their presence, especially when they occur around processed food ingredients, food packaging or finished products.

Monitoring and Control

There are no specific devices with pheromone for monitoring psocids. Flat glue traps or blunder traps are sufficient to detect their presence. In grain facilities cardboard refuges can be very useful to pick up psocid activity. Visit the ARS USDA site below for more information.

In structures, the most effective method for controlling booklice is to reduce moisture. Most psocids do not survive when humidity falls below 50%. A dehumidifier or fan is effective in reducing moisture. Sometimes air movement may be sufficient. Also repair any moisture problems and store boxes, bags, books, and papers off the floor to minimize exposure to dampness. Sanitation is also a key element in the management of psocids in food facilities.

In commodities, grain protectants and fumigants are the most common choices. Some psocid species are resistant to residual insecticides and the fumigant phosphine, while others are not. *L. bostrychophila*, *L. entomophila*, and *L. decolor* are grain storage pests. *L. bostrychophila* shows the greatest resistance to phosphine, but the least resistance to the organophosphate and pyrethroid grain protectants. It is important to identify the species found in grains as it can have importance on selection of control strategy or dosage rates of fumigant.

This USDA site has an excellent picture key to help identify psocids. It has links to the most recent research done by George Opit, James Throne, and Paul Flinn. Other information on biology and management of psocids in the United States can be found on this site. <http://www.ars.usda.gov/Services/docs.htm?docid=16769>

Dave's Soapbox

...for what it's worth



Milestones

This is the 100th Issue of *Fumigants & Pheromones*. Since the first day in business, 30 years ago, on October 1, 1981, Fumigation Service & Supply and Insects Limited have tried to be a resource for current and insightful information to the insect control and pest management industry. The two companies, Insects Limited, Inc. and Fumigation Service & Supply, Inc. focused on the following principals:

- 1 To be daring, be safe, be different, and be fair.
- 2 To establish a working environment that is fun, intellectually challenging, and foremost, safe to our employees, our customers, and our community.
- 3 We must show our respect for our customers and ourselves in all our research, product development, sales, and daily life.
- 4 We must maintain high integrity and be known for our integrity and fairness to our customers.
- 5 To be known as innovators for the future of fumigation, pest management, and pheromones.
- 6 To use the target pest as the initial starting place when a pest problem needs to be solved.

7 We will strive to be an education and training leader in our industry.

In all, our aim is to strive for quality service, provide the absolute best products available worldwide, be a respected world-class organization, and maintain profitability with innovation, alternatives, and education.

The interesting thing about these principals is that they were written in 1991, twenty years ago, by the employees of FSS and IL on a train trip to SC Johnson in Racine, Wisconsin. Since then, this statement of purpose has not changed by one word.

During this milestone of 30 years in business and 100 issues of this newsletter, let me take a moment to thank you for your support throughout the years. If it weren't for you, we would not have survived.

On a personal note, the two things that stand out to me about the past 30 years is the satisfaction of making payroll each Friday. That pay check helps support families and their dreams. Dreams like educating children and improving lives. We have made 1560 payrolls ... on time. The second thing that I am extremely proud of is watching young people grow in their professional and personal lives. The greatest reward for a business owner is to know that someone is motivated and fulfilled during the working day rather than just waiting to go home at the end of the day. Finally, I want to thank the many men and women who have worked *with* me, and not for me, over the past 30 years. It has been fun and rewarding and a privilege.

Dave Mueller
President/ Entomologist



FSS Managers and Safety & Compliance Coordinator perform hands on safety training with their new HDS Phosphine Generators.



Dr. Gebisa Ejeta, 2009 World Food Prize Laureate



The theme for the 10th Fumigants & Pheromones Conference is **"Pest Management Around the World."** This conference will feature new and practical applications of pest management with a hands-on workshop with field demonstrations. Each speaker has been carefully selected to offer an international perspective on how we protect our food, grain, structures, wood, and fiber from pests. The keynote speaker is Dr. Gebisa Ejeta, World Food Prize Laureate, from Purdue University. It is an honor to have Dr. Ejeta explain how his research has reduced hunger in marginal growing regions in the world. Speakers from Africa, Europe, and North America will tell how they perform their jobs under varied conditions and regulations.

Throughout the past twenty years, this conference has followed the guiding principal of **'Sharing through Education.'** The 2012 version will be no different. Since our first conference in Lübeck, Germany in 1993, we have had over 2400 attendees from 60 countries attend this stored product protection conference. In Valencia in 2010 pest managers from 44 countries participated. They came to learn and share their ideas and knowledge.



Gala Dinner Wednesday, May 16

We visit the famous Indianapolis 500 Motor Speedway and Hall of Fame Museum, food and open bar, Gift Shop, narrated trip around the track and a stop at the Indy 500 Speedway finish line bricks. Buses provided.

Conference Location:

A poster display on pest management will be available to commercial groups and university scientists wanting to explain their products and research. This is an excellent opportunity to learn directly from the poster author in a relaxed setting. New products are often launched at this conference. Contact the organizers or www.insectslimited.com for more information.

Sponsors:

The organizers are actively seeking sponsors to help support this conference. The quality of any conference depends on the help we receive from our sponsors. If you would be interested in being a part of this event contact the organizers or go to the conference website. All sponsors will be recognized for their financial support.

Day 1



Dr. Gebisa Ejeta
Purdue University, USA/Ethiopia
Food Security Around the World



Dr. Michael Doyle
University of Georgia
Center for Food Safety, USA
The Changing Dynamics of the US Food Supply and Major Food Safety Implications



David Mueller, BCE
Insects Limited, Inc.
Indianapolis, IN USA
Reducing Customer Complaints in Stored Products



Dr. Darka Hamel
Croatian Centre for Agriculture
Food and Rural Affairs
Zagreb, Croatia
How is Europe Surviving Without Methyl Bromide?



Dr. Paul Fields
Agriculture and Agri-Food Canada
Winnipeg, Canada
Pest Management on Stored Products in Canada



Dr. Dieudonne Baributsa
Purdue University, Nigeria
The Bill and Melissa Gates Grant for Food Storage in Western Africa



Dr. Dave Barnekow
Dow AgroSciences
Global RSGA Regulatory Leader
for Fumigants, Indianapolis, IN USA
Status of ProFume® Gas Fumigant; Regulatory and Label Update



Kim Kemp
Director of a Food Safety
Nestle Purina, St. Louis, MO USA
Protecting a Brand



10th Fumigants & Pheromones Conference

Day 2



Dr. Bobby Corrigan
President, RC Consulting, USA
What I Have Learned from the Rodents in New York City



Keith Delpert
Delpert Fumigation Company
Managing Director, Harare, Zimbabwe
Pest Management Experiences in Central Africa



Vasilis Sotiroudas
Managing Director
AgroSpeCom, Thessaloniki Greece
Heat Treatment and Controlled Atmosphere Treatments in Europe



Alain VanRyckeghem, BCE
Technical Director
Insects Limited, Inc., USA
The Dirty Dozen: Stored Product Insect Biology and Identification



Agustín Baruttia
Managing Director
Estudio Ingeniero Ingeniero Inferiero Barrutia, Argentina
Integrated Pest Management of Mites in Seeds



David Liszka
ICB Pharma, Krakow Poland
Advancements in Pest Management in Central Europe



Dr. Mike Scharf
O. Wayne Rollins/Orkin
Endowed Chair in Urban Entomology, Purdue University, W. Lafayette, IN USA
How We Use Molecular Physiology to Better Understand Pest Biology and Resistance, and Translate This Into More Effective Pest Management

Announcement of the location of the 11th Fumigants & Pheromones Conference

Day 3

Fumigants & Pheromones Workshop
Buses will leave at 9:00am from the University Place Hotel

ULD Fogging Demonstration
Dennis Roudebush, Curtis Dyna-Fog Ltd.
Sebastian Barrutia, Estudio Ingeniero Barrutia

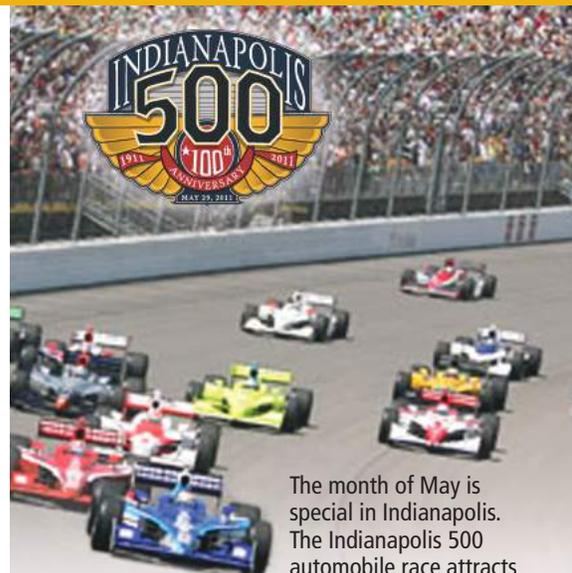
Bar Coding Demonstration
Josh Wilhelm, Fumigation Service & Supply
Todd Wilhelm, Fumigation Service & Supply

Pheromone Demonstration
Patrick Kelley, ACE, Insects Limited
Alain VanRyckeghem, BCE, Technical Director, Insects Limited
Pete Swords, Pheromone Chemist, Insects Limited

Grain Bin Fumigation & Safety Demonstration
Pete Mueller, Fumigation Service & Supply
Ryan Yutzy, Fumigation Service & Supply
Corey Kirby, Fumigation Service & Supply

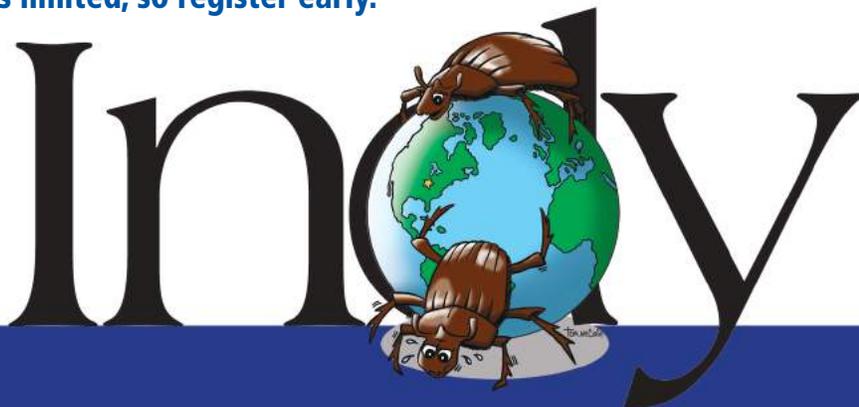
ProFume® Gas Fumigant Demonstration
Marty Morgan, Dow AgroSciences LLP
Jeff Waggoner, Fumigation Service & Supply
Curt Lilleodden, Fumigation Service & Supply

New Safety Regulations & Gas Monitoring Equipment Demonstration
Jeff Moorhead, Fumigation Service & Supply
Ryan Yutzy, Fumigation Service & Supply



The month of May is special in Indianapolis. The Indianapolis 500 automobile race attracts people from all corners of the world. This conference was purposefully positioned to allow the attendees to spend time at the famous Indianapolis Speedway to observe the magic of open wheeled racing at over 240 MPH (400 KPH) on a 2.5 mile oval track, pit stops that change four tires and fill the tanks in less than 7 seconds, of 300 thousand fans gathered to celebrate spring time in Indiana. The Indy 500 is the Greatest Spectacle in Racing. A special conference Gala dinner will be held in the middle of the Indianapolis Raceway at the Indianapolis 500 Museum. Here you will relive the one hundred years of history of the Indy 500.

Plan to attend the 10th Fumigants & Pheromones Conference and Workshop in Indianapolis, USA. Go to www.insectslimited.com for more information and call 1-317-896-9300 to register. Seating is limited, so register early.



**Fumigants and Pheromones
Conference & Workshop**

May 16-18, 2012 • Indianapolis

Fumigating Containers/Trailers and Their Common Sizes



Pete Swords
Insects Limited, Inc.

Each year millions of containers and trailers containing a wide variety of cargo require fumigation before shipping. Failed fumigations can lead to repeat fumigations resulting in higher expenses, cause delay in cargo release, and can be hazardous to worker safety and the environment due to multiple uses of fumigant. Appropriate dosage calculations of chosen fumigant can accompany correct dosage rates / concentrations to ensure kill efficiency.

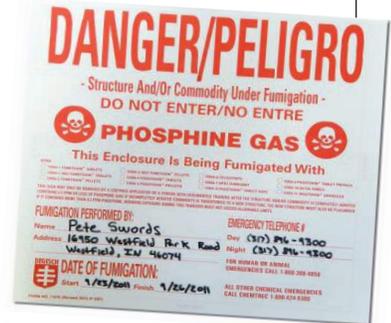
In order to achieve a proper dosage rate, the area in cubic feet of the container needs to be known. Always read the label (as it is the law) and follow directions when making your calculations based on the labels standard rate usually in grams or pounds of fumigant per 1000 cubic feet.

Using the correct amount of gas at the recommended label rate and length can significantly reduce your chances of a failed fumigation.



Reminder: Trailer/Container must be marked for date of fumigation, type of fumigant used, warning symbols and display of the fumigator's name. This information must stay attached until proper aeration has occurred.

The following table can be used as a guide to finding the correct volume (cubic feet) of common containers so appropriate dosages of fumigant may be applied:



| Common Container Sizes | | | |
|------------------------|-------------|----------------|--|
| Length | Width | Height | Volume |
| 20ft. (6.1m) | 8ft. (2.4m) | 8.5ft. (2.6m) | 1,360ft. ³ (39m ³) |
| 40ft. (12m) | 8ft. (2.4m) | 8.5ft. (2.6m) | 2,720ft. ³ (77m ³) |
| 45ft. (14m) | 8ft. (2.4m) | 8.5ft. (2.6m) | 3,060ft. ³ (87m ³) |
| 48ft. (15m) | 8ft. (2.4m) | 8.5ft. (2.6m) | 3,264ft. ³ (92m ³) |
| 53ft. (16m) | 8ft. (2.4m) | 8.5ft. (2.6m) | 3,604ft. ³ (102m ³) |
| High Cube | | | |
| 20ft. (6.1m) | 8ft. (2.4m) | 9.5ft. (2.9m) | 1,520ft. ³ (43m ³) |
| Half Height | | | |
| 20ft. (6.1m) | 8ft. (2.4m) | 4.25ft. (1.3m) | 680ft. ³ (19m ³) |

New Multi-Fumigant Abatement and Destruction System

by Pete Swords *Insects Limited, Inc.*

A new scrubbing system has been developed to capture and destroy any harmful spent fumigant gas, such as methyl bromide or sulfuryl fluoride, that might otherwise be released to the atmosphere after fumigations. The system can be used with pallets, logs, shipping containers, fumigation chambers, trailers and when up-scaled, may be able to fumigate small buildings, ship holds and bins from a truck-based mobile system. Methyl bromide or sulfuryl fluoride can be drawn out of the area fumigated by the system which forces contact of the gas with non-carbon based scrubbing material through a specially designed filter head. The fumigant is agitated through the solution causing a complete chemical

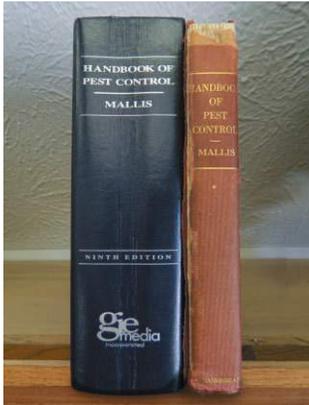


breakdown of the fumigant gas into liquid and other non-hazardous by-products. Unlike most abatement systems, this technique has the ability to destroy harmful fumigants on site, whereas others only capture the fumigant for a short time, eventually allowing it to be released into the atmosphere.

More detail about this patent pending system will be offered at the 2011 Methyl Bromide Alternative Outreach Conference at the end of October and the 10th Fumigants and Pheromones Conference in May of 2012.

For more information please contact Pete Swords email: p.swords@insectslimited.com.

New MALLIS



The Handbook of Pest Control, 10th edition and 1st edition

In 1944 Arnold Mallis wrote the first Handbook of Pest Control. Professor E.O. Essig of the University of California in Berkley wrote in the foreword: *“The need for the last word on the control of household pests is especially urgent during these critical times of national emergency when the conservation of building materials, chemicals, foodstuffs, and clothing is of greatest necessity to the individual and to the nation.”* Arnold Mallis was a practical entomologist that studied the behavior, life history, and control of household pests. His first handbook of pest control was followed every seven years with a new edition to update the advancements and knowledge of the pest control industry.

Excerpt from the *Handbook of Pest Control* by Arnold Mallis, 1945: “Various individuals have remarked to the author, what we need is just one good method of control for each group of pests.” The author can merely reply that this is a Utopia as yet attained, and some reasons for this are indicated below:

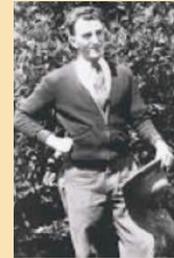
- No *one* good method to control is effective against all the species in a group, e.g. cockroaches.
- No *one* good method of control is effective against all the species in different localities, e.g. ants.
- No *one* good method of control is always the most applicable, e.g. fumigation against mice.
- Insecticides for the *one* good method of control are not always available, e.g. pyrethrum powder.



*Alain VanRyckeghem and Patrick Kelley
Authors of the new
PHEROMONE Chapter*

A new edition of the Mallis Handbook of Pest Control is now available from Insects Limited. Mallis 10th edition is US\$179 and can be ordered on-line at www.insectslimited/bookstore.com

Arnold Mallis



*Arnold Mallis,
1950's*

“If the author has on occasion treated the introductory material lightly in this book, it must be remembered that entomologists and pest control operators in time spin about themselves a protective cocoon of humor to fend off the good-natured jests directed at their profession.” Arnold Mallis, *Handbook of Pest Control*, 1944.

Now Hiring...

Applications are now being accepted for career positions at Fumigation Service & Supply, Inc. for the following positions:

Technician, Assistant Manager, Regional Manager, and Sales & Marketing. FSS is 30 year company with 50 employees that help protect grain, seed, food processing facilities, museums, lumber and logs in the Midwestern region in the United States. To learn more about FSS and to fill out a job application, go to www.fumigationzone.com.

New Pest Jests

The Best of Pest Jests and other tails is now available from Harold Leyse. Dan Moreland of PCT Media Group stated in the Preface: “An so, upon reflecting on Harold’s career, there could be no better legacy than the gratitude of a loving family; the appreciation of loyal employees; the admiration of his peers; and perhaps most important of all, the smiles on the faces of all the people he and Cliff Johnson touched through the wit and wisdom of Pest Jests.”

Pest Jests is available online at:
www.adamspestcontrol.com/order

NATIONAL CALENDAR OF EVENTS:

**October 19-21

National Pest Management Association, New Orleans

**October 31 - November 2
Methyl Bromide Alternatives Outreach, San Diego, CA

*October 26 -28 2011 Museum Odyssey, London

* November 17, Grain Elevator & Processing Society, Covington, IN

***December 6, Fumigant Alternatives and Abatement Roundtable, Lübeck

**January 9-14, 2012
2012 Purdue Pest Management Conference, 2012, 100th Anniversary of the Purdue Entomology Department

*we will attend, ** we will speak, *** we will organize this meeting

February 3, 2012

Super Bowl XLVI, Indianapolis

**March 3 - 6, 2012

Grain Elevator & Processing Society, Minneapolis

**April 7, 2012

International Association of Operative Millers (IAOM) and Grain Elevator & Processing Society (GEAPS), Pest Management Training Program, Angola, Indiana.

***May 16-18, 2012

10th Fumigants & Pheromones International Conference and Workshop, University Place Conference Center, Indianapolis (www.insectslimited.com)



Quotable Quotes

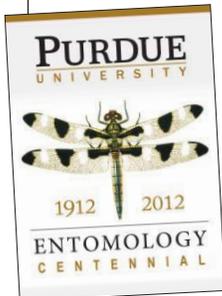
"Every day, pick up at least one piece of trash and allow one person to get in front of you when waiting in line"

— Anon

"Mankind assumes the limits of its own field of vision for the limits of the world."

— Arthur Schopenhauer, 1840

Purdue Entomology Turns 100



Entomology is the study of insects. Many students have graduated with a degree in entomology and gone on to work in industry. Next year Purdue will celebrate 100 years as a Department of Entomology at Purdue University in the College of Agriculture. Entomology has been part of Purdue since it was founded in 1869, but in 1912 the Department of Horticulture and Entomology were split into separate departments.

To recognize this milestone, a lecture series will occur monthly throughout the year.

The Purdue Pest Management Conference will have a ceremony in January to officially begin the Centennial Celebration. Special events are planned at homecoming, Entomological Society of America meetings, the popular 'Bug Bowl' and other events during 2012-2013. To learn more about Purdue's Entomology Department and its Centennial Celebration, go to: www.ag.purdue.edu/entm/Pages/AboutUs.aspx

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: Peggy Rutkowski, Fumigation Service & Supply, Inc., 16950 Westfield Park Rd., Westfield, IN 46074 USA.



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