

# Fumigants & Pheromones

Issue 62  
Winter  
2002

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A Newsletter for the Insect Control & Pest Management Industry

## Insect Resistance Testing

Many of the fumigants and insecticides that our industry now use have been around for over 50 years. The cost of developing new fumigants for a relatively small market is prohibitive. Phosphine fumigants and methyl bromide are examples of vital control tools being used in the United States and throughout the world that are suspected of having various levels of insect resistance occurring.

Insects have the inherent genetic variation that allow them to resist deadly chemicals that normally would kill a susceptible strain. It just takes two resistant insects to mate and pass on these genetically altered traits to the next generation to start a strain of dangerously resistant insect pests. This leads to failures in normal control applications and eventually, like Malathion, a fixed population that can tolerate any treatment made with that particular pesticide.

Malathion is showing fixed resistance in many parts of the United States to Indianmeal moth (*Plodia interpunctella*) and the Red flour beetle (*Tribolium castaneum*). This means that all specimens tested in a population can survive an application of this insecticide that would normally kill the insect according to the label rates. Some populations of Indianmeal moth have shown to be over 90,000 fold resistant to



Malathion in the Corn and Wheat Belt in the United States. This is the highest level of resistance recorded to date. This means that what would have killed this insect in the past would need 90,000 times more to effect a kill today.

Resistance to methyl bromide fumigant has not been reported as a problem in field populations of stored product insects in the United States, but Dr. Ed Bond, famous Canadian fumigant scientist, has demonstrated the potential for such an occurrence in the laboratory in 1972.

Phosphine is suspected to have

resistance creeping into regional populations throughout the world. Strains from India, Bangladesh, Australia and even Oklahoma have reported various low levels of resistance to phosphine. This is of concern to most people who depend on this valuable fumigant to protect their grain, structures, and stored products against destructive pests. Dr. Ed Bond, stated in 1985: "Resistance to methyl bromide and phosphine has been found in several parts of the world. It threatens to become an economic factor in the control of pests with fumigants. In a worldwide survey of resistance to fumigants, 24% of the countries sampled had phosphine resistance and 13% had methyl bromide resistant insects. This has the potential to become economically significant."

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## New Laboratory Service

Many times fumigation will be said to be a failure and then the fumigant is blamed. The real reason for the failed fumigation may be caused by low gas concentrations caused by high winds or poor sealing. The wrong dosage rate could have been chosen for those conditions. The target species could have been more tolerant than most species fumigated for in the past. The most frequent cause of fumigation failure is that the time under fumigation was not adequate for the phosphine to effectively penetrate the commodity and kill all stages of this pest population at that temperature...or maybe the insects being fumigated were genetically resistant to phosphine and a higher dose for a longer time was needed to affect a kill.

The best way to prolong this inevitable resistance to phosphine fumigants is to be proactive and monitor for the presence or absence of phosphine resistance. This can be done in a laboratory set up to screen for phosphine resistance. Such a laboratory service is now available from Insects Limited, Inc. of Westfield, Indiana.

The cost for this laboratory service is prorated upon how many samples and replicates you need tested to give a good level of confidence. This laboratory service costs about \$300.

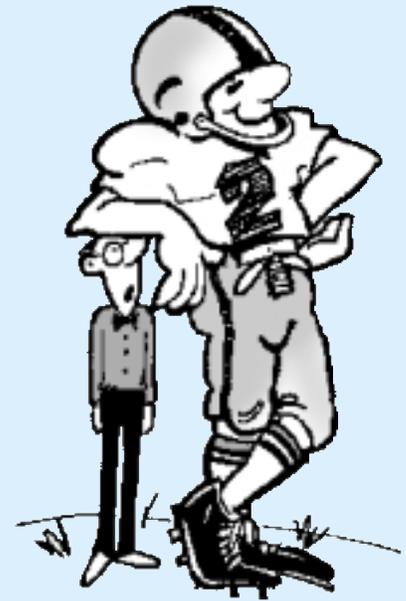


*Pat Kelley has established an Insect Resistance Testing Laboratory and protocols to provide valuable information about fumigant resistance.*

A report follows the laboratory test and a detailed recommendation if resistance is found. If resistance to a group of insects is suspected, further tests can be performed to determine the level of resistance (low, medium, or high) and whether it fails a discriminated dose test. This test shows the level of resistance greater than the dose that would normally kill a test population of insects. This information will be gathered and shared globally to help pinpoint regions and species that have increasing phosphine resistance.

The prolonged life of useful fumigants, like phosphine, depends on the monitoring of potential resistance. The effective monitoring of resistance for these fumigants can prolong the useful life of phosphine by 10 to 20 years and prevent fumigant failures of your stored products.

This **Resistance Testing Service** is now available from Insects Limited, Inc. More information can be obtained by calling Pat Kelley at 1-800-992-1991 or insectltd@aol.com or reviewing [www.insectslimited.com](http://www.insectslimited.com)

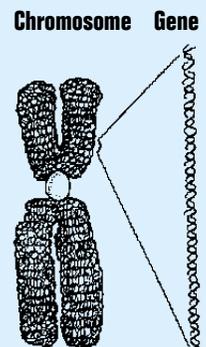


*Large-bodied individuals can tolerate more than a small person. This is called tolerance and should not be confused with resistance, which is genetically linked.*

## Tolerance vs. Resistance

When a population of insects is exposed to an insecticide, some individuals are killed more easily than others. The insects that are more difficult to kill may survive after the treatment and produce offspring that are also hard to kill. These insects are said to be more "tolerant" because they can withstand above-average doses of the poison. If this insect population is repeatedly treated with the same insecticide and each new generation has increasingly higher tolerance, a "resistant" strain may be produced.

*Example: Granary weevils are more tolerant to phosphine than the Indianmeal moth, but they may not be resistant to phosphine. Granary weevils are more tolerant of phosphine at cool temperatures.*



## Dave's Soapbox

...for what it's worth



Just as the effect of Raquel Carson's *Silent Spring* in 1962, people have started talking, asking questions, funding entomological research projects, and motivating corporations to start looking for new uses to old products. The direction of our disciplines and lives of the people in these disciplines have been changed to meet these challenges.

figs and nuts in Turkey, that are different from food factories in the United States. The pests associated with soil require complex research and laborious demonstration to show positive results on a consistent basis. On one investment project in Malawi over 7,000,000 people work on their tobacco crop. The entire economy of these developing countries may depend on one crop like tobacco. The people in these countries need the export income from this crop. In Malawi over 150,000 people must be trained to replace methyl bromide in seedbeds with a new revolutionary floating tray hydroponic technology.

*Entomologists and nematologists are busy fine-tuning each pest management system to work on a consistent basis with various soil types and climates. The USDA has a tremendous task ahead to balance the need of the farmer and American agriculture with the need to fulfill its global commitment to protecting the earth's ozone layer that we are so much responsible for damaging.*

Stored product protection will depend on phosphine fumigants, carbon dioxide under high pressure, sulfuryl fluoride, heat, cold, and inert atmospheres, to replace methyl bromide in outbreak situations. The real replacement for methyl bromide will ultimately be **eliminating the need to fumigate**. This is where pest management professionals (PMP's) come in. Everyone should start looking at why we need to fumigate instead of what new chemical compound can be dusted off the shelf to be patented and developed as the next replacement

## The Montreal Protocol ...and How It Affects Us



The Montreal Protocol was the first international environmental treaty, signed by 178 countries, to provide a plan to help solve a global problem. The ozone layer has no boundaries, and needs to be protected by everyone on this planet from man-made ozone depleting substances (ODS). The Montreal Protocol has workable solutions to this ozone depletion problem. However, Montreal Protocol is, in reality, only a 'FUND'. It is a \$900 million dollar fund. It needs knowledgeable people to solve the problems on a country-by-country basis. For this reason, pest managers and entomologists from around the world are being asked to help. The deadline for the United States and developing countries to phase out methyl bromide is January 1, 2005.

We become engrossed in the every-day struggle to find alternatives to methyl bromide for our particular purposes and forget what positive results this noble cause of protecting the stratospheric ozone layer has offered to our professional careers in Entomology and pest management.

Today, all over the globe, organizations like UNIDO, UNDP, The World Bank, and UNEP are scrambling to solve serious human problems. They have recruited experts in the field of entomology and pest control to review, demonstrate, investigate and phase-out non-critical uses of the valuable but harmful agricultural substance called methyl bromide.

The challenge for methyl bromide is much different than those challenges with chlorine compounds like CFC's or Freon. These, too, were ozone depleting products but were phased-out or replaced in the mid 1990's. Here, a refrigeration system or an automobile was retrofitted with a new chemical or a new piece of equipment. Granted, there were millions of systems to replace and retrofit throughout the world. The less harmful substitute HCFC alternative refrigerant will be phased out in 2002. The efforts of this industry must be commended. However, Freon is the number two most smuggled product into the United States behind illegal drugs. Continued enforcement on this ban is essential.

The problems with methyl bromide are more complex than the chlorine compounds. Soils are very different from one country to another and from one location in a country to another. Wood fumigations in Malaysia are much different than grain fumigations in Zimbabwe which are much different than dried

for methyl bromide in structures and storage. Training people in prevention, monitoring and discriminate uses of chemical control is the future of our industry.

The issue of **insect resistant management** should be reviewed carefully with every new alternative in developing and developed countries. Insect resistance to phosphine could cause more harm in the future than all of the government restrictions combined.

Universities like Purdue, Kansas State and Oklahoma State are leaders in stored product protection. They, along with government laboratories from around the world, are being asked to help solve the problem of replacing methyl bromide.

**The scientists** called upon to write these projects are mostly from university or quasi-government agencies like GDZ in Germany. There are some private individuals who possess the desire, energy, time, and commitment to this environmental protection program that give up time from their work and families to take on these challenges. The monetary rewards are seldom the primary reason for doing this work. Unfortunately, there are companies and lobby groups here in North America that still are trying to the phase out by questioning the science and denying there is a global ozone problem.

## “ QUOTABLE QUOTES ”

**“Citizens today sign 30% fewer petitions, join 40% fewer boycotts and attend 60% fewer club meetings than they did in the mid-70’s.”**

Roper Center

**“Waiting has become a lost art in our society. We’ve practically institutionalized its avoidance. The trick is to value the wait as much as what you’re waiting for.”**

E. Donnell Thomas, Jr.  
Ducks Unlimited—Nov/Dec 2001

I witnessed in Zimbabwe a 1,000-ton stack of maize, being stored by the government in case of famine that was so severely infested with Maize weevils (*Sitophilus zeamais*) that they estimated 70% of the grain was lost to rodents and insects after fourteen months in storage. This is food that was grown by hand, transported long distances to central government storage and placed in large stacks only to be destroyed by stored product insects. The lesson in Zimbabwe was not only one to replace methyl bromide but to prevent the loss of a valuable staple. In Zimbabwe they say: *“When the food line gets longer than the gasoline line, we are in real trouble.”*

**Experts** working in this area have the rewards of meeting new people; experiencing new cultures, new foods, new risks; sharing their experiences with the particular country or industry to help solve this complex problem. Like most experiences in our lives we learn more from these missions than we believe we contributed.



*Growing plants in shredded coconut fiber eliminated the need for the use of methyl bromide on this plantation in the Ivory Coast.*

**Funding** of projects to survey, research, demonstrate, and phase-out methyl bromide seem plentiful in the developed and developing countries. The USDA is providing funds to many universities and organizations searching for viable alternatives to methyl bromide. Entomologists from around the world are searching for specific solutions in soil, structures, storage, and post-harvest applications of methyl bromide. The task looks grim

on most days but the whole picture is that given a task, whether it is in an outer space laboratory or a thin layer of ozone in the stratosphere, man can get together to work together for a solution to a problem.

Many people expect the rich developed countries to offer the developing countries the pre-fabricated and packaged alternatives to methyl bromide. I believe that it will be the demonstration projects and phase-out projects in developing countries that will fill the needs of the developed countries to help offer workable and cost effective solutions. The restrictions on new fumigants are often less time consuming and expensive in these countries. Also, the developing countries more readily ‘buy into’ the United Nations authority because of the many positive experiences they have experienced previously.

In the end, let’s hope that all of these sacrifices will be worth the money, time, and the commitment to a cause that you can’t put in your hand and hold or can’t feel the strength of an unfiltered burning sun like many do in the southern hemisphere where the burn time in Melbourne is now one hour outdoors and in parts of Argentina where it is 30 minutes.

This is **the value** in the Montreal Protocol about which we do not often think. Like Marco Polo discovered, the international exchange of ideas is important. Not only will this help solve this important environmental issue in a timely matter, but the stories and knowledge shifted during this short window in history will affect our industry and people for many years to come.

In the end, we all will be better for the changes that are taking place because of the Montreal Protocol... this I am sure.

*W. K. Mueller*  
Insectsltd@aol.com

# Bad Bugs...

## Big Black Hairy Slow Flies

Cluster flies and flies found during the fall and winter often are found in upper stories or attics. These larger flies use homes and commercial buildings for shelter from the cold but do not reproduce inside the structure. The best control includes caulking entry points and using a fly swatter. If nothing is done, these flies will die on their own. Have you ever found a big black hairy fly on your windowsill in the winter?



A new Cluster Fly Trap is now available from *Insects Limited, Inc.* Call 1-800-992-1991 for more information.

### Biology and Habits:

The best way to prevent fly problems in a structure is to exclude them. The Cluster fly has a unique biology. The larvae lives as a parasite in earthworms in the soil. After pupating it emerges on the sunny side of a structure in the fall. It climbs the wall to a crack in the roofline and crawls into your house or attic only to be found in your house, office building, or cabin. The cluster fly is a big nuisance pest in Canada.

Some food plants have found that besides exclusion, sterilizing the perimeter soil with an approved soil sterilant or cyfluthrin can reduce a Cluster fly problem.

Cluster flies are one of the most annoying flies found during cool seasons. They also can be pests in

office buildings, especially upper stories. Cluster flies are larger than houseflies and during their indoor period they are semi-dormant, flying sluggishly. Cluster flies do not feed on garbage or animal manure like most flies. In late summer, cluster flies seek overwintering shelter and fly to buildings in the afternoons and rest on sun-exposed areas. As the sun sets, the flies seek out cracks and other openings into the building and move to upper stories. When temperatures are cool, cluster flies remain dormant, but on sunny warm days in the fall and winter, these flies become active. It may seem that they are invading the house from outside, but outside temperatures are too cold.

### Cluster Fly Control:

Cluster flies (earthworm parasites) often are difficult to control by breeding area management. The best management tactic is to caulk or fill cracks and crevices around the homes or other structures, especially an earlier infestation has occurred. Before these flies move in for overwintering, treatments can be applied to upper stories of building exteriors for Cluster fly control. Tempo SC® is an effective insecticide to use on the exterior for controlling Cluster flies.

*Source: Flies in the Home by Barb Ogg, Ph.D., University of Nebraska*

## Stored Product Research Center

Oklahoma State University dedicates 54-bin grain research facility.



*Oklahoma State University's new Stored Product Research and Education Center on the Stillwater, Oklahoma campus.*

Finding new ways to help promote profitability in the grain and storage industries in an era of increasing regulation is a primary focus of Oklahoma State University's new Stored Product research and Education Center (SPREC).

This new facility was dedicated on October 11, 2001. "SPREC is going to be important all over the Midwest, the Wheat Belt, the Corn Belt, and everywhere quality stored product research is needed. Insect control and grain quality are issues that affect every segment of our industry. The university performs thorough, scientific research that provides industry an unbiased look at what we are doing and how we can do things better."

## Keep your Eye on this One

**Spinosad Insecticide Tested.** *Spinosad, a reduced-risk low-toxicity biological insecticide, was evaluated as a protectant on several different classes of wheat for its ability to control several important stored-grain insect pests. Applications of 1 part per million (pip) killed all adult lesser grain borers and Indianmeal moth larvae. Survival of adult red flour beetles, saw-toothed grain beetles, and rice weevils varied with wheat class. This project was conducted in cooperation with Kansas State University and Dow AgriSciences. Spinosad could be the next replacement for Malathion on stored grain.*

# Entomology@Purdue

By Steve Yaninek,  
Professor and Department Head



*I wonder how many students realize the opportunities that a background in entomology can offer?*

We all know that entomologists work as professionals in universities, industry, and government. They conduct research, teach students, and work as science educators to help feed the world, preserve our biodiversity, prevent the spread of disease, and fight crime, among other livelihoods. Entomologists today are working to rid the world of malaria, West Nile virus, and many other arthropod-borne diseases; help NASA design new planetary landers that walk like an insect; break the genetic code of major pest insects; develop K-12 science curricula; tame killer bees; protect the environment; invent revolutionary pest control technologies, and discover and name new species of insects. But I wonder if prospective students know that entomologists are also being trained with backgrounds in every cutting-edge field in the life sciences, as pre-professionals pursuing veterinary/dental/medical school, and for a wide variety of entomology careers?

Where are entomologists using their skills? Besides working in government, industry, and academia, they can also be a director of a museum, a CEO of a major corporation, an innovative farmer, a syndicated cartoonist, run an eco-tourism company, and develop special effects for the motion picture industry. These are just a few of the many careers entomologists might consider that make a difference in the world we live in today. While our contribution to society is widely acknowledged, the association with

entomology is often obscure. Did you know that entomologists are members of the National Academy of Sciences, and frequently receive prestigious research, teaching and extension awards including a MacArthur "Genius" Award, Pulitzer Prizes, and a World Food Prize?

Delivering this message to prospective students is one of our challenges today. I'm convinced if we get the



The highly successful and popular public outreach event presented each spring by the Department of Entomology

Bug Bowl 2002 is scheduled for April 13-14 at Purdue University. Bug Bowl is an opportunity for children and adults to have an enjoyable time together while learning about the biology, ecology, and diversity of insects.

Dr. Tom Turpin, Professor of Entomology and promoter of the event states: "It is important for the general public to be able to make enlightened decisions about their world and the environment; and to be able to make such decisions, individuals need to have a positive exposure to science activities and programs. Programs such as Bug Bowl allow children and parents alike to explore, learn, and have "just plain fun" while taking part in activities that inform them about insects and the role they play in the environment."

opportunity to showcase the discipline, we not only attract the traditional students thinking of entomology, but also capture the attention of some of the very best students contemplating a career in the life sciences. To achieve this, the Department has embarked on an unprecedented student recruitment campaign...scholarships available.

For More information contact Dr. Yaninek at: 1-765 494 4554, [steve\\_yaninek@entm.purdue.edu](mailto:steve_yaninek@entm.purdue.edu), [www/entm.purdue.edu](http://www/entm.purdue.edu)

Last year this event was attended by over 20,000 people. Races called the Hessian Breeders Cup for German cockroaches, The All American Trot for American roaches, and the Giganteus Stakes for the large tropical roaches were held. The roaches had names like Plain Disgusting, Night Stalker, Sewer Sam, Crumb Bum, and Base Board.

Fluttering Antennae, a fine little roach sired by Under the Fan from a Dame called Windy, won the Hessian Cup.

More than 20 organized events will take place during the Saturday and Sunday Insect Extravaganza including: a live butterfly exhibit, insect petting zoo, insect crafts and face painting, local school art



Dr. Tom Turpin at Bug Bowl.

contests, honey bees and honey tasting, and the famous Cricket Spitting Contest that has been covered around the world by CNN, Good Morning America, the Jay Leno Show, MTV's Road Rules, and the Guinness World Record Show.

For information about how you can become involved by sponsoring an event contact: Martha Hill at 1-765 494-0997.



## Mice Around Warehouses

**I**n warehouses, it's important to control mice before they get into the building. This is especially true in the fall and winter months. Once they're inside, not only do you have a widespread mouse problem, you also risk product contamination and damage. Establish an outside perimeter defense to protect against inside invasion by mice. The more of the following conditions around the outside of a warehouse or building, the more likely that mice will find their way inside:

### Conditions Attracting Mice to the Perimeter of a Warehouse

- Food or feed spillage around loading dock doors, dumpsters, compactors, delivery entrances, or railroad tracks
- Garbage stored closer than 50 feet from the door
- Open lids on dumpsters and garbage cans
- Odors from garbage or animals
- Piles or stacks of trash, building materials, pallets, etc.
- Equipment stored outside, especially in weedy areas
- Dense, low-growing shrubs around foundations that provide cover and hide burrows and food piles.
- Tall weeds, grass, or vines
- Weed growth along fence lines
- Railroad tine edging
- Fruit trees or farm crops within 300 feet of the building
- A ditch, canal, pond, or other standing water near the building
- Areas of loose soil
- Gravel areas with rock of large diameter (greater than 1/2") rather than small
- Guard dog house or pen
- Neglected sheds, garages, or other outbuildings on the property

Once you have mice around the perimeter of a building, it's only a matter of time until they find their way inside.

### Potential Entry Points for Mice into a Warehouse

- cracks in concrete slab, or in brick and concrete block walls
- openings around conduits for utility lines (electric, gas, phone, water)
- unscreened roof and wall vents
- roof and wall joints and edges without properly installed metal flashing
- gaps around water pipes and lines for fire sprinkler system
- poorly sealed heating and air conditioning ducts
- worn or damaged floor drain covers
- doors hung too high and without a threshold or metal weather strips
- gaps around air shafts, elevator shafts, trash chutes, and laundry chutes
- spaces around loading docks or doors that don't seal tightly
- railroad tracks

Source: *Techletter*, 7/22/01, Pinto & Associates, Inc., phone (310) 884 3020

## Food Safety Specialists

FSS and IL realize that the future of pest management is not with the continued use of insecticides and fumigants. Good pest management includes the strategic use of prevention, monitoring and some control to help manage pest problems in a food establishment. It takes experienced people to steward an effective food safety program.

### Here are two of the best:



**Rick Vincent**

Rick Vincent manages the Nashville Region Food Safety Specialists office. Rick's experience includes four years with Fumigation Service & Supply as an area manager in Indianapolis before moving back to his home to start a regional office as a Food Safety Specialist. His goal is to work with companies to improve their food safety program and to upgrade food plant AIB audit scores. Rick worked for 10 years in the pet food industry and knows both side of the fence when it comes to sanitation and food safety. He is a superior fumigator that has managed Combination Fumigations in large food plant facilities as an alternative to methyl bromide fumigations. Rick's real asset is with his details to customer service. He makes himself available anytime to help his customer solve a food safety problem. Rick Vincent can be reached at 1-615-643-7002 or e-mail: [foodsafety1@aol.com](mailto:foodsafety1@aol.com).



**Scott Pence**

Scott Pence manages the Chicago Region Food Safety office. Scott's experience includes a Quality Assurance/Sanitation Manager at a food manufacturer near Chicago and a National Accounts Sales Representative in the Midwest for sanitation supply company. Scott has assisted food manufacturing plants to comply with USDA, FDA, and OSHA regulatory demands. In his new position in the Chicagoland Region he provides sanitation training, HACCP programs, food safety programs, plant inspections, fumigations, corporate account audits, writing Master Sanitation Programs, and help upgrading food plant AIB audit scores. Scott can be reached at 1-800-992-1991 or e-mail: [fss-chicago@juno.com](mailto:fss-chicago@juno.com).

## MEETING CALENDAR:

- \*\*\*Feb. 20-21, 2002 Methyl Bromide Alternatives Workshop, Indianapolis, Indiana. David Mueller, [www.insectslimited.com](http://www.insectslimited.com) or 1 317 867 5757, 1 800 992 1991 or fax 1 317 867 5757
  - \*\* Feb. 28-March 2 Pest Management Canada 2002 & 53rd Pacific Northwest Pest Management Conference, [ckennedy@pestworld.org](mailto:ckennedy@pestworld.org), Cindy Kennedy
  - \*\* March 5-8, 2002 International Conference on Alternatives to Methyl Bromide, Sevilla, Spain, [tom.batchelor@cec.eu.int](mailto:tom.batchelor@cec.eu.int)
  - \* April 13-14 Bug Bowl, Purdue University, W. Lafayette, Indiana, Martha Hill, 1 765 4940997
  - \*\*\* May 13-14, 2002 2-day Museum Pest Management Workshop, Indianapolis, Indiana, [www.insectslimited.com](http://www.insectslimited.com), Alain Van Ryckghem. 1-800-992-1991.
  - \* July 7-10, 2002 The 4th International Conference on Urban Pests, Charleston, SC, Contact: Richard Cooper, [rcooper@cooperpest.com](mailto:rcooper@cooperpest.com) or fax 609-799-3859
  - \* July 22-26, 2002 8th International Working Conference on Stored Product Protection, University of York, Contact: Nick Price [www.csl.gov.uk](http://www.csl.gov.uk) or fax 44 1904 462252
  - Aug. 19-23, 2002 6th National Stored IPM Training Conference, Manhattan, KS, contact: Dr. Subi Bhadriraju, KSU, 1 (785) 532-4092, [bhs@wheat.ksu.edu](mailto:bhs@wheat.ksu.edu)
  - \*\*\* June 2003 6th Fumigants & Pheromones International Technical Conference and Workshop, Sharing Through Education, Copenhagen, Denmark, Contact: David Mueller, [www.insectslimited.com](http://www.insectslimited.com), tel. 1-317 896-9300, fax 1-317-867 5757 or Henrik Lange, [lange@tanaco.dk](mailto:lange@tanaco.dk).
- \* we hope to see you there  
 \*\* we are an invited speaker  
 \*\*\* organized by Insects Limited, Inc.

## FIRST ANNOUNCEMENT

### Pest Management in Museums, Historical Houses, and Archives

**May 13-14, 2002  
Indianapolis  
USA**

A pest management and pest prevention workshop designed to train museum professionals. Featuring international expert David Penninger, author of *Pest Prevention in Museums and Historical Houses*.

**SPONSORED BY:**  
Insects Limited, Inc. in  
Cooperation with the  
Indiana Historical Society.

**FOR MORE INFORMATION CONTACT:**  
David Mueller  
1-317 896-9300, [insectltd@aol.com](mailto:insectltd@aol.com)  
or view our website:  
[www.insectslimited.com](http://www.insectslimited.com)

### Methyl Bromide Alternatives Conference

**February 20-21, 2002  
Indianapolis**

With the phase out approaching, many people are looking for alternatives to Methyl Bromide. This workshop will discuss real case studies and insight into alternatives from experts with years of experience in ways to manage stored product pests without Methyl Bromide.

*For details, speakers and  
most current program, go to:*  
**[www.insectslimited.com](http://www.insectslimited.com) or  
call 1-800-992-1991**

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