

Fumigants & Pheromones

Issue 78
Winter 2006

Routing:



A Newsletter for the Insect Control & Pest Management Industry

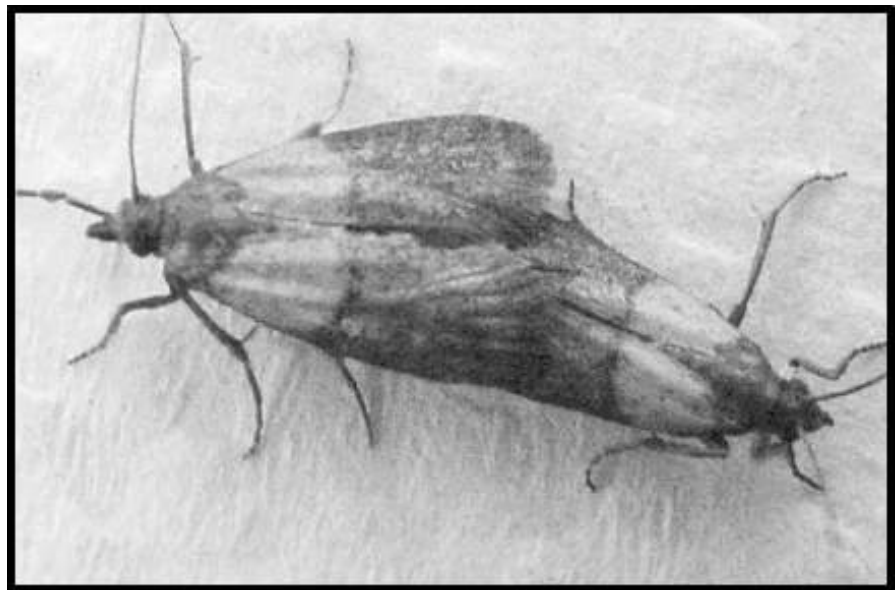
Evaluation of Moth Suppression®

Every female Indianmeal moth captured in a warehouse reduces the probability of 200-400 eggs from being laid on food packages ready to go to consumers.

Charles Konemann¹, Thomas Phillips¹, and Paul Fields²

The Indianmeal moth (IMM), *Plodia interpunctella*, and closely related moths infest stored products such as wheat, corn, dry pet food, and animal feed throughout the world causing millions of dollars of damage each year. These losses make it one of the most important pests of grain storage facilities, grocery stores, food production facilities, and homes.

A female IMM has a relatively short life span of 7 to 9 days, and her main goal is to mate and lay eggs where her offspring, the larvae, will have plenty to eat to continue the cycle of life. IMM females lay 200 to 400 eggs in their life time. While current

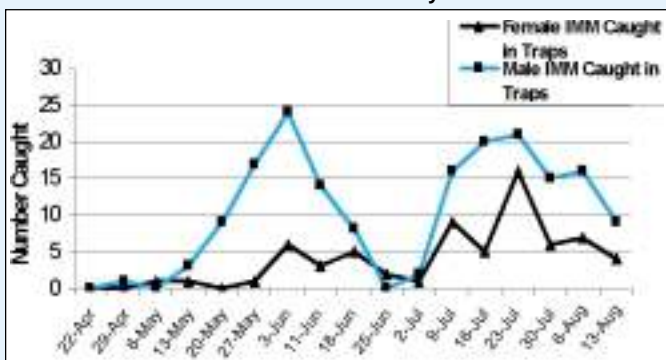


After mating, female Indianmeal moths fill up with fertile eggs and become attracted to special odors to guide them where to lay their many eggs.

methods of trapping males is a successful monitoring tool, trapping females should be a better way to control IMM populations.

moths to locate grain-based food material for egg laying. We showed that various food odors and oils could be used to stimulate oviposition at close range. Key
(continued on page 2)

Results: Field Study



Moth Suppression® Traps were placed in the pet treats aisle from April until August 2004 for a total of 17 weeks.

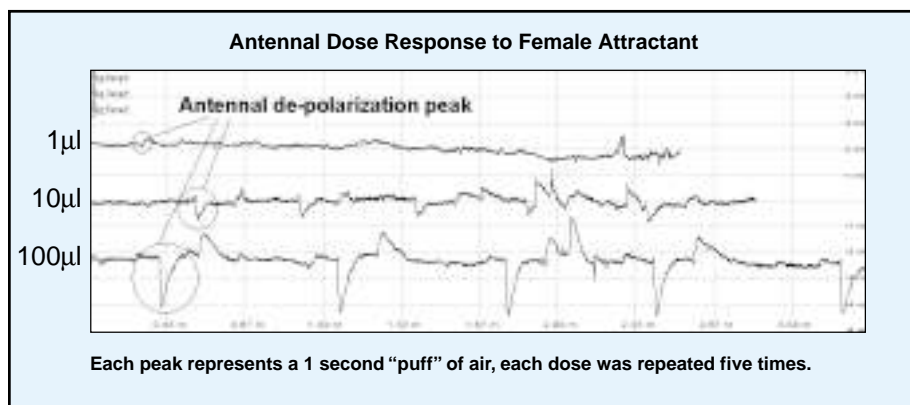
Several studies in our lab at Oklahoma State University demonstrated the ability of female Indianmeal

IN THIS ISSUE:

- ✧ *Moth Suppression*
- ✧ *Museum Papers*
- ✧ *Quotable Quotes*
- ✧ *Pat Kelley & Curt Hale*
- ✧ *Wood Quarantine*
- ✧ *FLASHPOINT*

Evaluation of Moth Suppression®

(continued from page 1)



After a microscopic sensor is attached to a female moths antenna, various compounds are offered to the female moth at various concentrations. This chart shows the level of attraction to the Moth Suppression female lure.

experiments showed that female Indianmeal moths were attracted to chemical extracts of food materials. These and other experiments led to the development of the Moth Suppression lure, a lure made up of a blend of natural compounds designed to attract IMM females (Phillips et al. US patent pending).

Two recent studies were performed to test the female attractant for attractiveness to female IMM. In a laboratory test, traps baited with the female attractant caught significantly more females than the traps with no attractant. In a

warehouse test, 10 traps were baited with the female attractant and the female pheromone (male attractant) and placed in part of the warehouse that held pet food. A total of 67 females and 174 males were trapped during the 17 weeks the traps were in the warehouse. After the removal of the Moth Suppression Traps, IMM males were captured in pheromone traps. There are three possible reasons for this. The Moth Suppression Traps did not trap enough females, or did not trap females

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²Cereal Research Centre, Agriculture and Agri-Food Canada, Winnipeg, Manitoba, Canada, R3T 2M9

Moth Suppression®

New Moth Suppression® lures now include both female egg laying attractant and male pheromone in the same lure.



Go to www.insectslimited.com for more information on this new product.

early enough in their life to prevent the build up of IMM populations. Other parts of the warehouse had IMM infestations, and the moths caught could be from outside the area where we placed the Moth Suppression Traps.

These studies show that Moth Suppression Traps are a useful tool in monitoring populations of Indianmeal moth. Better controlled studies are required to determine if these traps can reduce IMM populations.

What's New from Insects Limited?

Pheromones that capture both Webbing clothes moth & Casemaking clothes moth.

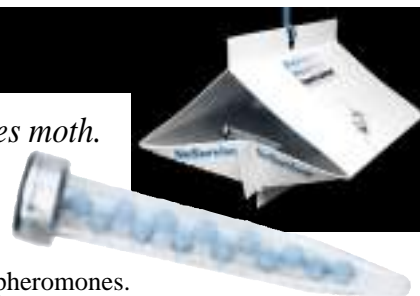


Webbing clothes moth
(*Tineola bisselliella*)



Casemaking clothes moth
(*Tinea pellionella*)

Get the new Clothes moth pheromones. Ask for the **Bullet Lure**.



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Now is the time of the year to trap these serious fabric pests.

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FlashPoint.

Radical Environmentalism

The second in the *FLASHPOINT* SERIES is the growth of Environmentalism. A *Flashpoint* is any event that had an effect on our industry or our lives for over a decade.

Before we had Rachel Carson, Earth Day, and the EPA we had Murray Bookchin. This radical environmentalist set the stage for the 1960's movement of environmentalism. He also was the first to predict global warming.



Murray Bookchin, Social Ecologist

During the Cold War Era and after the World War II there emerged a group of ecological radicals that thought about issues that affected not only the planet but the social well being of the people that lived on this planet. Murray Bookchin was one of those people that was born in the counter culture era that muckrakers like Upton Sinclair, *The Jungle*, (*Flashpoint* #1) belonged to. This group of socialist turned radical environmentalist bridged the time between 1906 and 1962. They were

the people that set the stage for Rachel Carson's *Flashpoint* book *Silent Spring* and her story about environmental degradation. People like Murray Bookchin traveled the country for decades telling the story about the destruction of the environment and such topics as global warming potential back in the 1960's! Here is the story by the writer Janet Biehl of a man who helped set the stage for today's environmental protection:

"In the aftermath of the cold war, in a world that glorifies markets and commodities, it sometimes seems difficult to remember that generations of people once fought to create a very different kind of world. The early pioneers of the environmental movement were free thinkers who brought forward ideas about nature and man and natural resources and pesticides and living in a capitalist society that helped develop stories like the ones Rachel Carson published in *Esquire Magazine* in 1962."

"Before there was *Silent Spring* there were other free thinkers on the environment and ecology. For almost half a century Murray Bookchin, spoke about the social causes of ecological problems. He elaborated these ideas further in *Our Synthetic Environment*, a pioneering 1962 work that was published five months before Rachel Carson's *Silent Spring*; unlike Carson's book, *Our Synthetic Environment* did not limit its focus to pesticides. A comprehensive overview of ecological degradation, it addressed not only the connections between food additives and cancer but the impact of X-radiation, radio-nucleides from fallout, and the stresses of urban life, giving an explanation of what in those days was called "human ecology."

"Born in January 1921 in New

York City to Russian Jewish immigrants, Bookchin was raised under the very shadow of the Russian Revolution, partaking of the excitement that it aroused among his immigrant and working-class neighbors. Due to his family's poverty, he went to work in heavy industry directly after high school. In whatever factory he worked, he engaged in union activities as a member of the burgeoning and intensely militant."

In the 1950s

"The American economy of the early 1950s was undergoing enormous expansion, with unprecedented economic advances that catapulted even industrial workers into the booming middle class. It was not only military spending that propelled this growth; with government support, science and industry had combined to spawn a wide array of new technologies, suitable for civilian as well as military use. These new technologies seemed poised to cure all social ills of the time."

"Automobiles, fast becoming a standard consumer item, were promising mobility, suburbs, and jobs. As for pesticides, an environmental historian Robert Gottlieb observes, they were "being touted as a kind of miracle product, supported by advertising campaigns ('Better Things for Better Living Through Chemistry'), by government policies designed to increase agricultural productivity, and a media celebration of the wonders of the new technology. Most of the American public welcomed these new technologies."

"It was just at this moment that Murray Bookchin audaciously suggested that an ecological crisis lay on the horizon. 'Within recent years,' he wrote in a long 1952

(continued on page 2)

Flashpoint.

(Continued from page 3)

essay, 'the rise of little known and even unknown infectious diseases, the increase of degenerative illnesses and finally the high incidence of cancer suggests some connection between the growing use of chemicals in food and human diseases.' The chemicals being used in food additives, he insisted in 'The Problem of Chemicals in Food,' could well be carcinogenic. The new economic and technological boom, despite all its rosy promises, could also have harmful environmental consequences."

"So it was that before most Americans even realized that an environmental crisis was the future, Bookchin was telling them it was. Even more striking, he was already probing its sources. 'The principal motives for chemicals,' he warned, and the 'demands imposed upon [farm] land' are 'shaped neither by the needs of the public nor by the limits of nature, but by the exigencies of profit and competition.'" The use of carcinogenic chemicals was rooted in a profit-oriented society. Bookchin had rooted environmental dislocations in modern capitalism."

"Amid the McCarthyite intolerance of all social radicalism in 1952, it required considerable courage to write and publish a radical social analysis of environmental problems. But Bookchin

would continue his battle for the next twenty-five years."

In the 1960s

"The freer political atmosphere of the 1960s allowed Bookchin to express more clearly his revolutionary perspective. His 1964 essay 'Ecology and Revolutionary Thought,' the first manifesto of radical ecology, overtly called for revolutionary change as a solution to the ecological crisis."

"The list of Bookchin's innovations in ecological politics does not stop here. To take another example:

"Warnings of a greenhouse effect were hardly common in the early 1960s, yet Bookchin issued just such a warning in 1964."

Bookchin stated: "It can be argued on very sound theoretical grounds that this growing blanket of carbon dioxide, by intercepting heat radiated from the earth, will lead to rising atmospheric temperatures, a more violent circulation of air, more destructive storm patterns, and eventually a melting of the polar ice caps (possibly in two or three centuries), rising sea levels, and the inundation of vast land areas." His only problem was that he was off his projection by 100-200 years.

Source: Janet Biehl, *Montreal*



Clarifications by EPA

"I would like to help clarify the Quotable Quote on the penalty for illegal use or transfer of critical use methyl bromide (in Issue 77). In the critical use exemption regulation for methyl bromide there are 2 kinds of violations: (1) for illegal production, import, transfer or sale, and (2) for illegal use. For the former (the illegal production, import or transfer of critical use methyl bromide) each KILOGRAM (2.21 lbs.) is a separate violation. For the second (the illegal use by an end-user) each 200 kilograms is a separate violation. The current Clean Air Act penalty is \$37,500 per violation. This means that the penalty for illegal production, import, transfer or sale of a 200 pound cylinder (90.74 kilograms) would be up to \$3.402 million. This is quite a bit higher than the \$25,000 in his quote. For the second scenario, the penalty for the illegal use of critical use methyl bromide could be up to \$17,010, which is lower than the \$25,000 he quotes. I'm fairly sure that (he) understands that his company's potential penalties for the illegal production, import or transfer of a 200 lb. cylinder are as high as \$3.4 million. We'll be sure to let him know."

All the best.

Tom Land
EPA/ Washington, DC



THE BOOKSTORE

Stored Product Protection... A Period of Transition

by David Mueller, BCE

Hardcover, 357 pp.
Price: \$67.50

This book provides comprehensive coverage of the dramatic changes in stored product protection. A must read for those new to the field or for the experienced pest management professional. This fully illustrated guide offers chapters in these industry topics:

- Methyl bromide alternatives
- Fumigation tips
- Heat sterilization
- Long-term control strategies
- Pest control vs. Pest management
- Stored product insect ID
- New technology update
- The practical use of pheromones

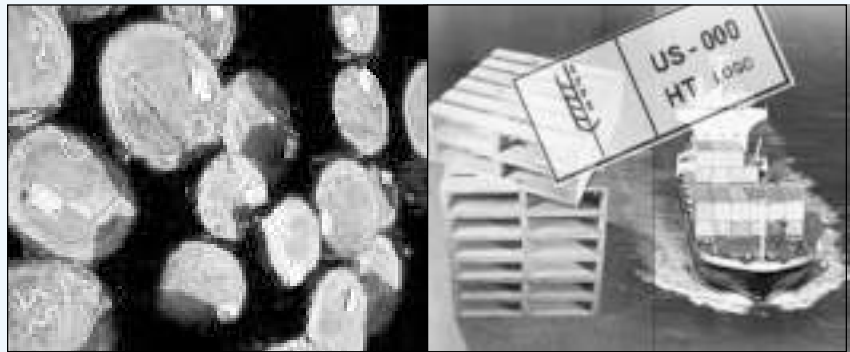
Now more than ever is it important to search for alternatives for conventional control measures. The eminent loss of methyl bromide will cause change in every country in the world. This book was written for the person needing to know more about the field of stored product protection. Besides the topic of methyl bromide and stratospheric ozone depletion David Mueller discusses the popular subject of pheromones. These chapters will explore the use of non toxic pest management tools and how they play an important role in a modern pest management program.

Order from: *The Book Store at*
www.insectslimited.com

NEW! Insect Management for Food Storage and Processing, 2nd Ed

Editor: Jerry Heaps, BCE

248 pages
Price: \$169.00



ISPM 15/IPPC

Wood Quarantine; Logs & Pallets

Fumigation Service and Supply, Inc. (Located in Cincinnati, Indianapolis, Cedar Rapids, IA, Jonesboro, AR, Nashville, and Chicago) is a certified fumigator for your wood quarantine needs. Our Indianapolis location has heated bays that can accommodate 53' trailers and additional space for break bulk loads that need to be unloaded and tarped. Our facilities are secure and we have space for your shipment. Your crates, pallets, or other quarantine wood or other items will be fumigated according to the highest standard of treatment practices and delicate articles handled with care. We stamp the fumigated product which serves as notice of fumigation at its final destination, avoiding delays and costly treatments abroad. We are inspected by Timber Product Inspection who has been appointed to govern all treatment practices in our region.

Please contact us to discuss possible options for your freight or to make an appointment to observe first hand this wood quarantine treatment.

Contacts: John Mueller at j.mueller@fumigationzone.com
Brian Wendell at b.wendell@fumigationzone.com
Jeff Waggoner at j.waggoner@fumigationzone.com

Insect Management for Food Storage and Processing, Second Edition has been completely revised and updated with new chapters on topics including, inspection techniques; retail pest management; environmental manipulation (e.g. hot, cold, modified atmospheres, ionization) to control insects; and the latest scientific research on integrated pest management (IPM) control techniques. Common and unusual exterior/interior pest insects are covered and examples of both chemical and non-chemical pest insect control strategies are thoroughly discussed. The book provides the latest practical and scientific research information on how to solve pest insect problems in a timely and economical manner.

Chapter authors are recognized around the world as experts in their respective fields. David K. Mueller, BCE and Alain Van Ryckeghem, BCE, stored product entomologists from Insects Limited, Inc. authored the chapter on Pheromones for Stored Product Insects in this new insect management book. It is a must read for commercial and structural pest control operators, technicians, or directors; food plant inspectors, auditors, and plant sanitarians; as well as QA managers, food safety consultants, and university extension personnel.

Find this and other titles of stored product protection at *The Book Store*, go to www.insectslimited.com

Still Learning



Pat Kelley



Pat Kelley is the General Manager of Insects Limited, Inc. He celebrates his 20th year with Insects Limited in March, 2006. Over the years Pat has helped solve countless entomological problems in stored products for customers even though his degree at Purdue University was in Geological Sciences and not Entomology. Pat's ability to apply the principals of prevention, monitoring, and control in his daily work philosophy has made him a specialist in the field of museum pest management.

This field is particularly difficult because of the wide variety of highly susceptible and extremely sensitive museum artifacts that are to be stored for all of time. A typical museum environment of today consists of a unique mix of priceless/irreplaceable artifacts on display within a few feet of a food court (and all of the pests associated with restaurants and stored food). Add a variable of bus loads of school aged children and the pest issues that they may bring with them from their homes and in their lunch bags and you have a recipe for a pest crisis. It is only through a thorough knowledge of pests, museum materials, and people that museum pest problems can be avoided.

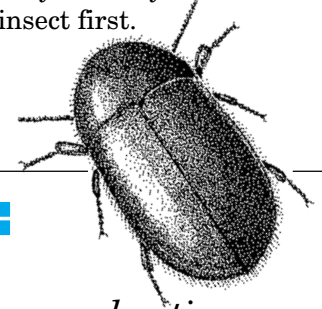
The Entomological Society of America, long the industry leader in certification through its Board Certified Entomologist (BCE) program, has a new certification

option geared specifically toward the pest management industry. Launched in May of 2004, the ACE program is rapidly becoming the industry-standard for professionalism and training.

Patrick Kelley studied hard to take this certification exam in late 2005. Stuart Mitchell, PhD., ACE Oversight Committee Chair for the ESA stated in a letter to Pat: "Congratulations on becoming an Associate Certified Entomologist

(ACE). It is a pleasure to inform you that you have passed your ACE qualifying examination with an excellent score of 93%. Congratulations, the exam is not an easy one. "

Pat becomes the fourth certified Entomologist at FSS/Insects Limited. At Insects Limited we believe that you always start with the insect first.



MUSEUM Papers:

Monitoring insect pests in a large herbarium for ten years: implications and actions.

Adrian Doyle and David Pinniger

The Herbarium at the Natural History Museum in London houses six million specimens in four main storage areas. Historically, specimens were protected from attack by insect pests by the use of chemicals such as naphthalene, paradichlorobenzene, and lauryl pentachlorophenate. In 1995, it was decided to monitor for pests using sticky insect traps as part of a Integrated Pest Management (IPM) programme.

The major pest species is biscuit beetle *Stegobium paniceum* but cigarette beetle *Lasioderma serricorne* was discovered on traps in 2000 and subsequently caused some severe infestations. Other pest species commonly found include Guernsey carpet beetle *Anthrenus sarnicus*, vodka beetle *Attagenus smirnovi* and the odd beetle *Thylodrias contractus*. Trap results have given warning of pest infestations, which have then been treated by freezing the specimens and targeted cleaning and spray treatment of the infested storage area. The demonstrable value of the trapping programme has been crucial to the wider implementation of IPM across the Museum.

Risk zones for IPM: from concept to implementation

Adrian Doyle and David Pinniger

The loss of dichlorvos [DDVP] resulted in a need to implement an Integrated Pest Management [IPM] programme to protect vulnerable collections in storage areas and displays at the Natural History Museum in London. With such a large diverse collection in a complex series of interconnecting buildings, it was necessary to break the programme down into sections. A key to this was the decision to define and adopt the concept of "Risk Zones" from high risk A, to low risk D, for all areas of the museum. The paper was presented describing the development of ideas and subsequent implementation of the "Risk Zone" concept. They also made observations on the need to identify priorities and the importance of training staff at all levels in pest awareness.

Look who's coming to dinner?



Curt Hale

Curt Hale joined the staff of Fumigation Service & Supply/Insects Limited at the beginning of 2006. He will be located in Cedar Rapids and will manage the Iowa region. Eric Potter has also been hired as a service technician to assist Curt with large food accounts and fumigations.

Curt brings many years of experience in entomology, fumigation, pest control, and sanitation. He spent the past three years improving quality in the expanding educational testing field and served as a Malcolm Baldrige National Quality Award Examiner. Prior to that Curt was employed by General Mills for over 21 years in a number of jobs and locations.

Curt is a graduate of Purdue University and has been qualified as a Certified Professional Sanitarian, commercial fumigant

applicator, Certified Quality Auditor, and Board Certified Entomologist. He is also recognized as an expert in dealing with food allergens and has been a consultant, trainer, and friend to many people throughout the world dealing with this important issue.

"Associating with FSS allows me to continue my passion of working on food allergens, live in Iowa with my family, and also help improve the environmental impact and safety of pesticides which is another issue I deeply care about. We have a chance to make a difference especially in eliminating known environmental hazards, such as Methyl Bromide, with safer alternatives. The current issue with MB is similar to the early 1980s when we finally phased out of hazardous liquid and spot fumigants. I look forward to working with FSS as they have continuously been on the leading edge of searching for the best overall insect control strategies for our industry."

Curt can be reached at:
FSS, 162 Collins Road, NE #224
Cedar Rapids, IA 52402, USA
1-319-360-6414

Quotable Quotes

"I thought I was out of the picture, but I guess they found an old negative."



Dr. John Osmun
Professor Emeritus, Purdue University
at a special ceremony in his honor.



"We have seen good results with ProFume (sulfuryl fluoride) and, overall, we are happy with it. We are committed to continuing to use ProFume at our facilities, and have no plans to going back to methyl bromide."

Rita Bradley
Quality Assurance Manager
H.Nagle & Son- Brighton Mills
Cincinnati, OH, USA



"A lot of energy and effort has gone into defending CUEs (critical use exemptions) rather than implementing alternatives."

The Banned Pesticide
by Alison McCook
The Scientist, January 2006.

New from our Website:

www.fumigationzone.com

It is easy to find out more about fumigation by searching words that you want to research. If you are searching for current information about fumigants go to www.fumigationzone.com and fill in the search word you are researching (e.g. methyl bromide alternatives, seed, milling, food safety, pheromones, etc.). Make www.fumigationzone.com your source of information or call 1-800-992-1991 to discuss your particular problem with a fumigation expert.



8th Fumigants & Pheromones Technical Conference

March 6-8, 2007
Bremen, Germany

Insects Limited, Inc. and B & M Consulting will host this program that brings together over 200 pest managers from 25 countries to learn about the latest methods and technologies in stored product protection. This includes alternatives to methyl bromide, new integrated pest management methods, and advances in pheromones, food allergens, new methyl bromide scrubbing technologies, heat treatments, museum pest management, and more. Plan today to attend this meeting by going to www.insectslimited.com for more details about registering for Bremen 2007.

Call for papers: If you are interested in making an oral presentation or presenting a poster at Bremen 2007, contact Dave Mueller at Insectsltd@aol.com with the title, abstract, and a brief summary about your current stored product research.

IN MEMORY



Etta Mueller

"Don't forget to stop and smell the roses."

"Ever be mindful of the needs of others."

"Now say three nice things about them."

(If you said something negative about a person)

"I can try!"

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

Etta Mueller
1921-2005

She defined grace.

THE NEWSLETTER

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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