Fumigants & Pheromones

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Routing:

A Newsletter for the Insect Control & Pest Management Industry

The Annual Lady Beetle Invasion

by Pat Kelley

With the arrival of autumn in North America, we experience large numbers of Asian Ladybird Beetles (or Halloween Beetles) swarming at our homes, businesses, museums and picnics. The beetle may land on you and nip your skin. They are tasting you to see if you are a good food source.

We are often asked the question: ***"Why have they been so bad lately?"*** Our first reply is that these aren't the lady bugs that we grew up with as kids. The species seen in such large numbers is a non-native species brought here from different parts of Asia as a biological control tool. They can be distinguished from their counterparts by a black "M"-like shape on the pronotum *(see photo)*.

They were actually brought in as a beneficial insect to eat aphids, mites, and scale insects that attack gardens, trees, or crops. The first species were brought into North America as early as 1916. The larger numbers we are seeing today probably stem from a Korean species brought into the United States in the 1970s and 80s. For the majority of the warm months, beetles will reside where they can find their food. This includes gardens, trees, and most importantly, soybean fields where aphids are in high numbers. Once fields are harvested and temperatures start to drop, lady beetles will look for a place to overwinter. In nature this would include hollow trees and rock crevices. They seem especially attracted to the sunny side of light (white or cream) colored man-made structures. Tall manufacturing facilities, museums or even farm houses tend to be a beacon for the beetles to gather. Once they land on the sun-warmed siding, they will eventually find their way into the structure through cracks, holes, un-caulked windows or unsealed doors. They will congregate in attics, wall voids, or even out in the open if the environment is inducive. Insects Limited has found clusters of lady beetles the size of a softball in the attic of an historic house. Although these

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Asian Ladybird Beetles feeding on Aphids.

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Special Report on Methyl Bromide:

A Decision on US Critical Use Exemption Requests has been Deferred to Next Year by the Parties to the Montreal Protocol. Delegates attending a meeting at the headquarters of the United Nations Environment Programme (UNEP) in Nairobi, Kenya, agreed that they needed more time to discuss the complex questions of how big such exemptions should be. *(See pg 6.)*

Board Certified Entomologist

Alain Van Ryckeghem, BCE

The Entomological Society of America (ESA) conducts a program that tests the knowledge and experience of practicing entomologists and certifies their professionalism.

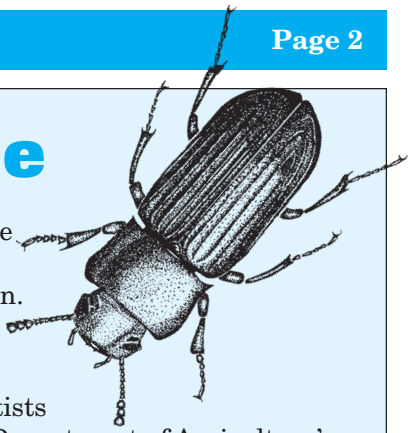
Those who participate and meet the requirements of the certification program earn the designation *Board Certified Entomologist* (BCE).

Alain VanRyckeghem, technical director for Insects Limited, Inc., has become board certified in the specialty of Urban and Industrial Entomology. There are only 130 Board Certified Entomologists in this specialty in the United States. David Mueller, president of Insects Limited, Inc., is also a Board Certified Entomologist in Urban and Industrial Entomology.

The candidates must pass a 300-question examination in general entomology and their specialty. BCEs are required, through a strict professional maintenance program, to demonstrate current knowledge in entomology. Log on **www.entsoc.org/bce**.

Call on Alain or Dave to answer your insect related question.

Red Flour Beetle



MANHATTAN, KAN. — The red flour beetle can be a pest in massive grain elevators or in the 5-pound sack of flour in your kitchen. It also can be an important organism in the field of genetic research.

As the result of research performed by scientists from Kansas State University and the U.S. Department of Agriculture's Grain Marketing and Production Research Lab in Manhattan, the red flour beetle has been selected from a long list of nominated organisms for genome sequencing by the National Human Genome Research Institute, an arm of the National Institute of Health.

As in the case of the human genome, the description of the entire genetic information of the red flour beetle will facilitate a number of important new experimental approaches, according to Susan Brown, associate professor of biology at K-State and principal investigator for the red flour beetle genome project. According to Brown, "With completion of the human genome project, the National Human Genome Research Institute has a great deal of sequencing capacity at its disposal, and has been establishing priorities for sequencing other organisms," Brown said. "Other animals given high priority for genome sequencing during the past year and a half include the chimpanzee, chicken, cow, and dog. Clearly, we are in important company."

The multimillion dollar commitment by the National Human Genome Research Institute will be accompanied by a $200,000 contribution from the U.S. Department of Agriculture. The researchers, including Richard Beeman, will interpret the data and make the information available to the scientific community via the World Wide Web.

The Annual Lady Beetle Invasion

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beetles will not eat stored products, they can cause problems just because of their large numbers. In food processing facilities they can contaminate food goods by falling into the product stream. In museums, they have been known to collect on art pieces and cause damage by defecating on the piece. Anywhere they collect, many will die and the large volume of dead insects will eventually attract Dermestid beetles to eat them. The entire ductwork system of one museum had to be vacuumed out due to the fact that Dermestids (e.g. Cabinet beetles, *Trogoderma*) were emerging from the copious amounts of dead ladybird beetles. Once they have collected in your facility, they will continue to slowly move about until spring arrives.

Control: The best means of protecting yourself against these beetles is to pest-proof your structure and keep the beetles outdoors where they belong. This can be achieved through a thorough inspection for any structural cracks, loose fitting doors, windows or roof vents. Weather stripping, door sweeps, caulk, foam, and screening will work well to seal out this as well as many other outdoor pests. Once indoors, a good vacuum is the best means to be rid of them.

Entomology: The study of Insects

Dave's Soapbox

...for what it's worth

J. Henri Fabri was one of the most brilliant and unique entomologists in history. This French professor spent forty years in the classroom before purchasing a small plot of ground where he retired to his 'Paradise'. He was known for his books on insects that he observed in his backyard in the south of France between 1880 to 1915. Fabri was famous for his keen ability to observe. He spent days and weeks observing the behavior of an insect in its natural surroundings. The insects he studied and about which he wrote filled eleven volumes about bees and moths and grasshoppers and beetles that he treated like guests in his backyard.

Observation and monitoring is what we do in pest management. Much can be learned from this old professor that lived in France 150 years ago.

Here are a few observations from Fabre's *Book of Insects*, 1921:

"This barren Paradise of mine is the happy hunting-ground of countless Bees and Wasps. Never have I seen so large a population of insects at a single spot. All the trades have made it their centre. Here come hunters of every kind of game, builders in clay, cotton-weavers, leaf-cutters, architects in pasteboard, plasterers mixing mortar, carpenters boring wood, miners digging underground galleries, millers grinding their seeds, workers producing skins, and many more. Such are my companions. My dear beasts, my friends of former days and other recent acquaintances, are all here, hunting, and building, and feeding their families."

"To measure the importance of things by one's own turnip-patch is a horrible method. The short-sighted man would upset the order of the universe rather than sacrifice a dozen plums. If he thinks of the insect at all, it is only to kill it."

"High above the laws that govern matter, rise other laws that govern instincts." J. Henri Fabri

One day, some of Fabre's fellow scientists were displeased because the books he wrote were too interesting! He defended himself from this extraordinary complaint in a characteristic way: *"Come here, one and all of you," he addressed his friends, the insects. "You, the sting-bearers, and you, the wing-cased armor clads—take of the intimate terms on which I live with you, of the patience with which I observe you, of the care with which I record your actions. Your evidence is unanimous; yes, my pages, though they bristle not with hollow formulas or learned smatterings, are the exact narrative of facts observed, neither more nor less; and whose who care to question you in his turn will obtain the same replies.*

"And then, my dear insects, if you cannot convince these good people, I will tell them: You rip up the animal and I study it alive; you turn it into an object of horror and pity, whereas I cause it to be loved; you labor in a torture-chamber and dissecting-room, I make my observation under the blue sky to the song of the cicadas; you subject cell and protoplasm to chemical tests, I study instinct in its loftiest manifestations; you pry into death, I pry into life... I write above all for the young. I want them to love natural history which you make them hate. That is why I avoid your scientific prose." Jean Henri Fabre, 1855.

Fabri was invited to Paris to receive the Legion of Honor from Napoleon III. He was offered the post of tutor of the Prince Imperial, but preferred his country life. J. Henri Fabri died in 1915 at the age of 92.

Charles Darwin called Fabri: "incomparable observer."

So what's your point, Dave?

Entomology is a series of observations. People have often not understood this strange science with a funny name that speaks of the study of insects. But one man understood very clearly that to study insects you had to observe insects in the field. The Frenchman J. Henri Fabri can teach us many lessons about the science of entomology in his books. From these books he teaches how to learn the skill of observation.

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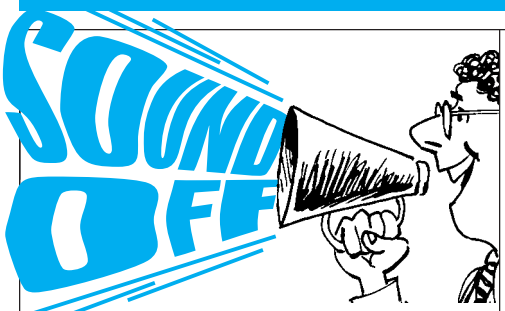


Enough is Enough:

The last Dave's Soapbox received more mail and comments from around the world than any of the previous 67 issues. Most were very positive and expressed similar personal feelings but one didn't:

"We have done little or no business with your company, but usually get some helpful information about pest control from your newsletter. Every so often something Dave writes make me so angry, I have to respond. This editorial, this column, this whatever you want to call it, makes me sick. It's your newsletter, but don't bore us..."

—Kim Johnson

TIME

"Dave, I agree with your article about 'Enough is Enough' I go to the sporting goods stores and look at all the great fishing and hunting equipment. What I need is not new equipment but simply the time to use it. What I need is more TIME to get out in the field and rivers."

—John Van Deusen

A Tough Challenge, But We Can Do It

This is in response to a "Face Off" article written in the September issue of *Pest Control Magazine*:

"As our industry has evolved, in my experience, we have gained and lost many products that were considered excellent tools toward providing our customers with service. They were used, usually because they were deemed the best choice at the time, of the tools available. Sometimes those choices were made because of: cost; good marketing on the part of the manufacturer; lack of better choices; or because they were actually the best product for the job we were doing. None of these "losses" has caused us to go out of business. Most have given us the opportunity to come up with new approaches, and we have done so admirably.

So where does this leave us? Well, I see that we have to pull up our britches and roll up our sleeves and embrace the innovation needed to respond to the needs of our customers, and to do so by developing alternatives to methyl bromide."

Let's do what makes me proud to be a part of this industry: Think, innovate, commit and embrace change as a reason to get up and go conquer another challenge. Isn't that what makes this business so exciting? Phasing out the use of methyl bromide, or any tool we have become confident in, is a tough challenge, but we can do it.

—Steven Miller, Nature, Environment, Conservation, Integration, Inc., Orlando, Florida, miller243@aol.com

Canadian Speaks Out

"I have very strong opinions on the continued use of methyl bromide. It was a fabulous product, but so were buggy whips. I find it offensive that an industry that promotes safety and health continues to promote the use of a product that is a known ozone depleter. Should the scientists be even half right, how can we as an industry stand behind the product? The alternatives are real, and they are available. Wake up and smell the coffee. The termite business didn't shrink when we lost chlordane. We will survive and prosper without methyl bromide."

—Bernie McCarthy, "B" There Services, Industry Consultant, Toronto, Canada

If you want to SOUND OFF, send it to insectsltd@aol.com

Dave's Soapbox *(continued from page 3)*

Pest management is all about observation. Observing temperature changes in a building, observing spider webs in the corner, observing how people move around a building and where they eat and take a break. Observation is detecting moisture change and realizing that certain insects can only exist and populate in narrow ranges of temperature and moisture. Observing is monitoring and monitoring is a major part of pest management and how we solve pest problems.

D. K. Mueller

FIRST ANNOUNCEMENT

Fumigants & Pheromones Conference:

Monterrey, Mexico

March 2005

Co-hosted by Pheromones Service & Supply and Insects Limited, Inc.

WORKSHOPS

Insects Limited

"Sharing through Education"

Fumigation Update and Recertification Training

December 10, 2003

This continued educational training course is designed to offer certified applicators a review of changes in fumigant labeling, new products, fumigant stewardship training, and case studies from the real world. Much has changed since the announcement that methyl bromide is to be phased out in January 1, 2005. New ideas and technologies have emerged at a rapid pace. This continued education program will educate you on those new ideas, new products, and technologies.

Workshop Fee: $295. (after Dec. 1: $325) includes lunch, three breaks, and a Fumigation Training Manual

Instructors: David Mueller, John Mueller, Pat Kelley, Alain Van Ryckeghem, Jeff Waggoner.

Basic Insect Identification Workshop

Start with the Insect First

January 20, 2004

Upon completion of this workshop the student is expected to be able to identify most of the common stored product insects associated with grain, food processing, and museums. Emphasis will be on the identification features but will include basic biology, conditions conducive to infestions, damage and detection, and collecting field insects. Quizzes will be used to reinforce ID features. Stereomicroscopes will be provided.

Workshop Fee: $295. (after January 6, $325) includes lunch, three breaks, and a manual.

Instructors: Alain Van Ryckeghem, Patrick Kelley, David Mueller.

Alternatives to Methyl Bromide

Advanced Fumigation Training

January 22, 2004

This one day workshop will be held at the new Westfield training facility. Nowhere else can you receive tailored training to your particular needs and experience level. This course will start in the classroom and finish in the field to see for yourself how these alternatives to methyl bromide are used. With the impending phase out of methyl bromide, this workshop is important to help you select from the menu of choices that are available and the advantages and disadvantages of each. This staff of instructors is the leader in ozone protection technologies, working on projects for alternatives to MB throughout the world. These experiences will be discussed in a case study format.

Workshop fees $325

Pest Management for the Bird Food Industry

February 23, 2004

Pest Management for the Popcorn Industry

Targeted Skill Building

February 24, 2004

Bird food and popcorn is an assortment of grains that are highly attractive to stored product insects. This one-day skill building course will discuss basic pest management and insect ID during the morning sessions and review control methods in the afternoon.

Many large retail companies are asking for a higher standard from the bird food and popcorn industries these days. This course is designed to bring the standard of food quality to a higher level.

Continued education credits have been approved in IN, KY, IL, OH, TN, GA, SC, AR, VA, and WI.

Classroom limitation: Registration is limited to 30 enrollees per workshop. Past workshops have filled up early. To receive more details and register, go to our website www.insectslimited.com. and select CONFERENCES or call 1-317-896-9300.

Honeymoon:

The word is based on the practice of honey from bees being offered to newly married couples in the Middle Ages. The concentrated sugar and acid of honey did not spoil and would keep for long periods.

Source: Purdue Entomology Department

Methyl Bromide

A Decision on U.S. Critical Use Exemption Requests has been Deferred to Next Year by the Parties to the Montreal Protocol

Nairobi—A decision on whether to grant so called Critical Use Exemptions (CUE) for methyl bromide, the pesticide and ozone layer depleting chemical, was deferred to next year. Delegates attending a meeting at the headquarters of the United Nations Environmental Programme (UNEP) in Nairobi, Kenya, agreed that they needed more time to discuss the complex questions of how big such exemptions should be for the developed world.

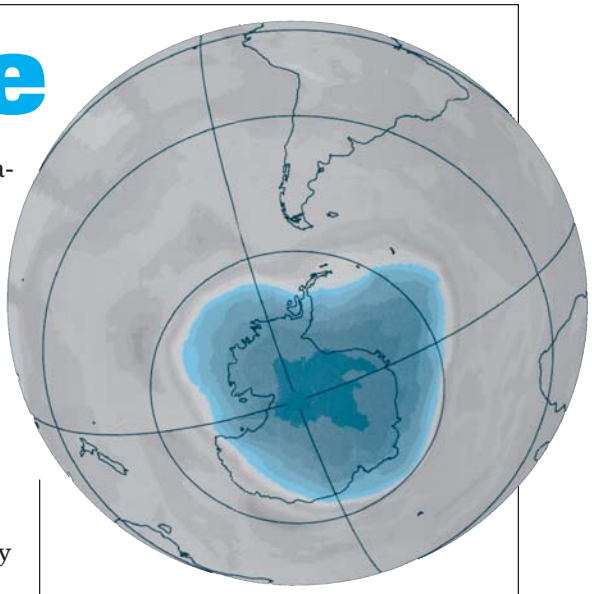
After five days of intense discussions, the world community stood its ground and refused to accept the United States, Canada, and Australia's 10,000+ ton (this is more than all of the 150 developing countries presently use) request for critical use exemptions.

Under the terms of the Montreal Protocol, developed countries (e.g. US, Canada, Australia, EU, New Zealand) have agreed to phase-out their consumption of methyl bromide, a fumigant used to kill pests, by 1 January 2005. However, some farmers, including strawberry, melon, pepper, and tomato growers and flour millers predominantly in North America, Australia, and Europe, have argued that the current available alternatives are not technically or economically feasible to use. They had asked Parties (countries) to the Montreal Protocol, the international agreement drawn up to phase-out ozone depleting chemicals in order to heal the ozone layer, for exemptions amounting to around 15,000 tonnes of methyl bromide for the year 2005.

The United States asked for nearly 10,000 tons alone. This represents 39% of its baseline amount or 9% more than currently allowed. This is where the real disagreements were vocalized during the meeting in Nairobi.

Tom Batchelor, head negotiator for the European Communities, addresses the 15th Meeting of the Parties of the Montreal Protocol in Nairobi, Kenya

Klaus Toepfer, UNEP's Executive Director, said: "Unfortunately and despite a great deal of discussion, governments could not find consensus on this complex issue at this week's meeting. They felt they needed more time to find an agreement, which balances the interests of farmers and other users of methyl bromide with international agreements to repair the Earth's protective shield. The agreement to defer decisions to an "extraordinary meeting" underlined the importance that all governments attach to the Protocol and its provisions for healing the ozone layer which filters out harmful levels of ultra violet light from the sun."



In 2003 the Ozone Hole over Antarctica was the second biggest in history. It is 72 times the size of Texas or 15 times the size of the United States. This shows the size and depth of the current 2003 Ozone Hole from NASA's satellite. Methyl Bromide has a short half loss time (1-2 years). By accelerating the phase out of methyl bromide, we can accelerate the recovery of the Ozone Layer. If we don't, earth's filtering system may not recover until 2100.

Marco Gonzalez, Executive Secretary of the Ozone Secretariat, said: "I am looking forward to the coming extraordinary meeting where I fully expect that parties will conclude this round of discussions about methyl bromide."

Among over 30 other key decisions announced at this meeting were the successes of the pharmaceutical industry to phase down the use of ozone depleting substances in metered release inhalers for the treatment of asthma and the appointment of Maria Nolan of the U.K. to the post of Chief Officer of the Multilateral Fund for the Implementation of the Montreal Protocol.Go to www.fumigation zone.com to see more pictures from the 15th Meeting of the Parties in Nairobi.

Intervention

David Mueller, President of Fumigation Service & Supply, Inc. attended the Meeting of the Parties in Nairobi. David was called upon to present a position paper for the Coalition of Pest Managers before the 185 countries attending this meeting. He displayed five posters showing various alternatives to methyl bromide in structures and post harvest. David has been attending these United Nations meetings since 1995.

Nairobi, November 11, 2003

Intervention:

"My name is David Mueller. I am a fumigator from the United States. I own a fumigation company that uses alternatives to Methyl Bromide for fumigating flour mills, rice mills, and food processing facilities. I also represent the Coalition of Pest Managers for the Replacement of Ozone Depleting Substances—a group of fumigators from the European Community, Canada, and the United States. We have replaced over 100 tons of Methyl Bromide in 100 structures in the EC, USA and Canada. Companies that have used alternatives include: Nabisco, Frito Lay, Riviana Rice Millers, PepsiCo, Nestlé Purina, Quaker Oats, Colgate, Monsanto, over 30 flour mills, and others."

"Why should these companies, that have met the challenge of searching for MB alternatives be punished by these excessive exemptions when they have invested their time, effort, and research into alternatives? Why should the companies with the 'wait and do little' strategy get favored treatment? We have had 10 years notice on this and excessive critical use exemptions are simply unfair."

"The second point, Madame Co-Chairman, has to do with something that has not been discussed during the past two days: Stockpiling of Methyl Bromide, a type of legal smuggling. With 14 months before 2005, we are starting to see stockpiling of Methyl Bromide."

"Finally Madame Co-Chairman, if you calculate the tonnage of exempted Methyl Bromide for quarantine and pre-shipment, calculate the worldwide tonnage for methyl bromide for critical use exemptions, and calculate the Methyl Bromide being stockpiled, we are concerned that the Montreal Protocol is not going forward, but going backward."

"Thank you Madame Co-Chairman"

An intervention is allowed from non-government organizations when all participating parties (countries) have finished with comments and questions on this agenda item. David Mueller was interviewed by the New York Times, Associated Press, and various other international news agencies. See: http://www.iisd.ca/ozone/mop15/tue11.html and http://www.nytimes.com/2003/11/10/politics/10OZON.html?page wanted=print&position=

Wednesday, November 12, 2003

Negotiations over Methyl Bromide exemptions went on for five days and nights at the United Nations in Nairobi and a decision on exemptions will not be decided until March 2004.

Nominations for Critical Use Exemptions for Methyl Bromide: presentation by the TEAP/MBTOC: Co-Chair Nolan invited delegates to comment on the presentation made by TEAP/MBTOC on Monday, 10 November, CANADA, NEW ZEALAND and the US expressed preference for a multi-year nomination for CUE's in order to avoid duplicating TEAP's work, while NORWAY, SWITZERLAND and others supported one-year approval only. The EC proposed that CUE nominations should be capped to a maximum of 30% of each country's total consumption. The US argued lack of legal justification for the concept of 30% capped nomination; while CANADA noted that the concept reaches beyond the language of the

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ozone treaty. JAPAN said that 30% is too high, MEXICO, supported by ARGENTINA and GUATEMALA, said that CUEs would create a difficulty for Article 5 Parties and affect their ability to compete in the international market, and the exemption will lead to an increase of methyl bromide phase-out. A representative from the California Strawberry Growers Association stressed farmers' need for CUEs. A representative from the fumigation industry stated that those attempting to phase out methyl bromide should not be punished by CUE grants. The EU said it would draft a decision on the item. KENYA presented its draft decision on trade in products grown in soils treated with methyl bromide, since it conflicts with WTO rules and harms Article 5 Parties' economies, especially in Africa. CANADA and the US requested the right to revisit the issue after consulting with capitals.

By the Numbers

12 Countries submitted Critical Use Nominations

Sectors requesting CUEs

Mills:	686 tonnes
Strawberries:	4157 tonnes
Tomatoes:	4051 tonnes
Cucurbits:	1574 tonnes
Peppers:	1552 tonnes
Orchards for replant:	700 tonnes

14,903 metric tonnes total nominated

TEAP (Technical and Economic Assessment Panel) recommended only one year for a nomination because alternatives are rapidly proceeding.

For more information, contact:
David Mueller, (1) 317-896-9300,
fax: (1) 317 867 5757
e-mail: insectsltd@eaol.co

Methyl Bromide Elimination... Site by Site


John Mueller

Eliminating the need for methyl bromide for post harvest infestation control is simple. The elements of this process involve commitment, a little research, process management, and common sense.

Commitment

Top level management must communicate to operations management that the use of methyl bromide will no longer be available to this particular site after a target date.

Research

Go back to the beginning when methyl bromide (MB) was first used at your site. You may need to call some retired sanitation department personnel. Here are some questions for your phase-out team:

- Why did we start using MB?
- Did we ever operate without MB?
- Where was it used initially?
- What was the dosage rate vs. how much fumigant was used?
- Were fumigations monitored?
- What are the half loss times of these treatments?
- What were some of the initial problems with MB fumigations?
- How long after fumigation do you start seeing evidence of insect activity in fumigated areas?
- If you have sifters—how long is it before you start seeing insect activity in the tailings?
- Were there ever claims of human over-exposure to MB?

The next part of research is to sit down with the pest controller and review the historic pest status of the facility. Rate these areas from most "buggy" to least. In each area discuss the insect problems, determine if the insect presence is isolated or broad. Many times a large area is treated because only one small area is problematic.

Gather operational manager[s] and discuss "most sensitive" areas. These are areas, which have zero insect tolerance. Rate the areas of the facility from most critical to least critical.

"Dead is dead, the rest is just excess cost and harm to the ozone layer."

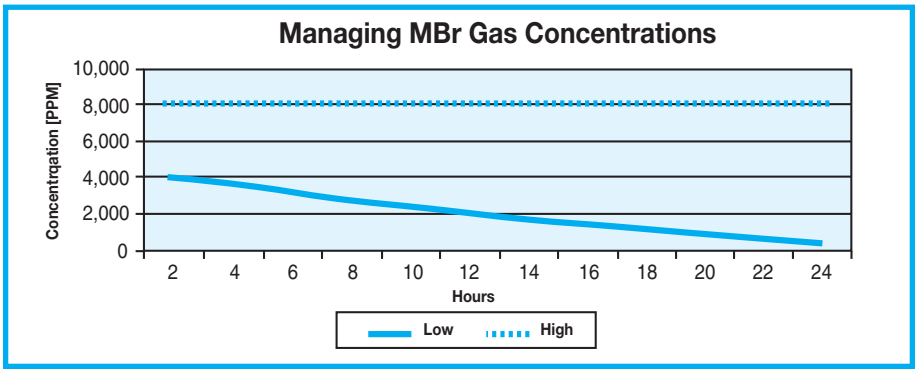
Bring all parties together and compare these rated areas. Many times methyl bromide treatments have evolved over the past few decades to include areas, which may no longer need to be fumigated. This may seem strange but when methyl bromide was 85¢ per pound, it was cheap insurance to include an area in question. When the next fumigation came along, they continued to include the new areas. No one wanted to change this habit because if they did and an outbreak led to a shut down—"well you could lose your job." Today with the current perverted prices of methyl bromide this is no longer cheap insurance.

MB Misapplication

We reviewed the historic methyl bromide usage at many facilities and discovered that in one case, twice as much methyl bromide was being used then labeled [Federal and state violation]. In this case we eliminated 9,000 pounds before we even began. We discovered that the reason the fumigator was doing this is that they did not have time to stay around and take gas readings so they "padded the dosage a little to carry them". Unfortunately the mismanagement of methyl bro-

mide usage has been a very common finding as we have helped post harvest food processors adapt [Will these mismanagers receive Critical Use Exemptions in March, 2004?].

If you have graphic gas readings on MB monitoring for your facilities, your fumigator should be managing gas concentration from fumigation to fumigation. Gas concentrations should not fall below this blue line of minimal efficacy. Gas concentrations should never go above the red line and fumigations of facilities over one million cubic feet should not have gas concentrations above 4,112 PPM. When reviewing your data, observe the time it takes for the gas concentration to drop to half the initial dosage rate. A half loss time of 10 hours or more will give you maximum efficacy and eliminate add gas costs. Remember: "Dead is dead. The rest is excess cost and harm to the ozone layer." These observations will help you understand your ability to choose from existing and future alternative treatments.



Process Management

The process you are managing is conversion from MB dependence to an alternative strategy...

Now that you have everyone onboard and you have gained clarity to your MB situation, start matching common sense control solutions to each given area. The alternatives are many and it is a lazy myth that post harvest MB alternatives require a "drop in" replacement to MB. Fact is that many food processors have adapted with integrating many strategies to solve their infestation / pest problems. USDA gave birth to the acronym IPM and it is alive and well as a productive post harvest MB alternative.

Plan the work and work the plan...

Process management is the most difficult stage of withdrawal. This period of discovery is truly interesting, you learn so much about your facility. You will learn that methyl bromide was like an insect bilge pump—it baled the insects out of the plant but did not fix the leak. Focus on the end and realize that each time you conquer a problem area you are one step closer to phasing out MB. Your facility will benefit by eliminating the need for critical pest control down time—you will help increase production time and profits and, on your employee performance evaluation, you can show your contribution to the bottom line very clearly.

Should Critical Use Exemptions be available to those who have not used the last 10 years wisely and legitimately invested in alternatives?

In Summary

To those people waiting—sitting on the fence—for politics to play out: You will eventually wake up to the fact that even if MB gets some critical use exemptions, the proven environmental detriment and now the most recent health issue are not going to go away. **The promised paperwork, laborious licensing procedure, licensing fees, and detailed justification to the EPA and the Montreal Protocol for each and every use of MB will bury most companies.** One NASA ozone depleting substance request for a space shuttle was over 150 pages of documents to fill out yearly to use less than 20 lbs of chemical. We are very close to the moment when it takes more effort, more expense, and is riskier to hold on to MB then to move on and adapt to the future.

I have had the pleasure of consulting with many post harvest grain processing facilities with the objective of reducing or eliminating methyl bromide. I have seen intense mismanagement by the fumigation companies, fraudulent gas readings / documentation, and worst of all the shameless unwillingness to help the customers with alternative treatment methods in the customers best interest.

Look at the positive results in California—they have reduced their MB usage over the past three years from 15 million pounds to 6.6 million pounds. If you look, there are many success stories by those willing to change. I stand corrected, there is a "drop in" replacement to MB—it is the will to change.

John Mueller is the Vice-President of Fumigation Service and Supply, Inc. He has over 20 years of experience in fumigating structures and commodities. He can be contacted at fumig8r@aol.com / 1-317-896-9300. Search for methyl bromide alternatives at www.fumigationzone.com.

Food Warehouse Monitoring

Case Study: Controlling a beetle outbreak

The sawtoothed grain beetle *(Oryzaephilus surnamansis)* is a major pest of stored products in warehouses and retail settings. Until 2003, an effective monitoring trap was not commercially available for this non-flying, fast crawling, 1/10th of an inch stored product infesting beetle that can invade packaging material. The PC Floor Trap® has performed excellently in warehouses and retail stores to detect the presence or absence of storage beetles and its close cousin the merchant grain beetle *(Oryzaephilus mercator)*.

PC Floor Trap

Often a truckload of processed cereal food is brought to a food distribution warehouse with trace infestations. As the product ages in a hot warehouse, the beetles go through multiple generations. A load of material may be unloaded and placed in the warehouse along with various other products that are potentially infestable. Uninfestable pallets of product, like can goods and beverages, located next to an infested pallet of breakfast cereal or bird food can still be a potential customer complaint and/or a contamination recall.

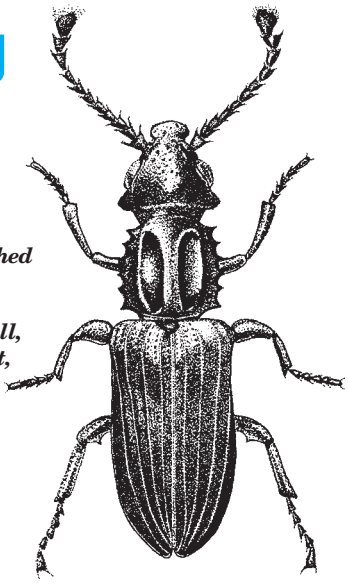
History

In a recent case where two truckloads of instant breakfast product manufactured in March and April, 2003 were moved from warehouses in the South and shipped to Indianapolis in Mid-July. The hot climate of the South allowed for optimum conditions for the sawtoothed grain beetles to survive and populate one truckload of the same breakfast cereal.

On August 30 the cereal products were carefully inspected. Numerous STGB crawling around the pallets under the stretch wrap and on boxes of food product next to the initially infested pallets were found. The two truckloads (30 pallets, 6000 boxes) of suspect product were moved to the loading dock and carefully broken down and inspected pallet-by-pallet. A determination was made to fumigate the product in trailers with Degesch magnesium phosphide Fumi-Cels® for five days.

Monitoring

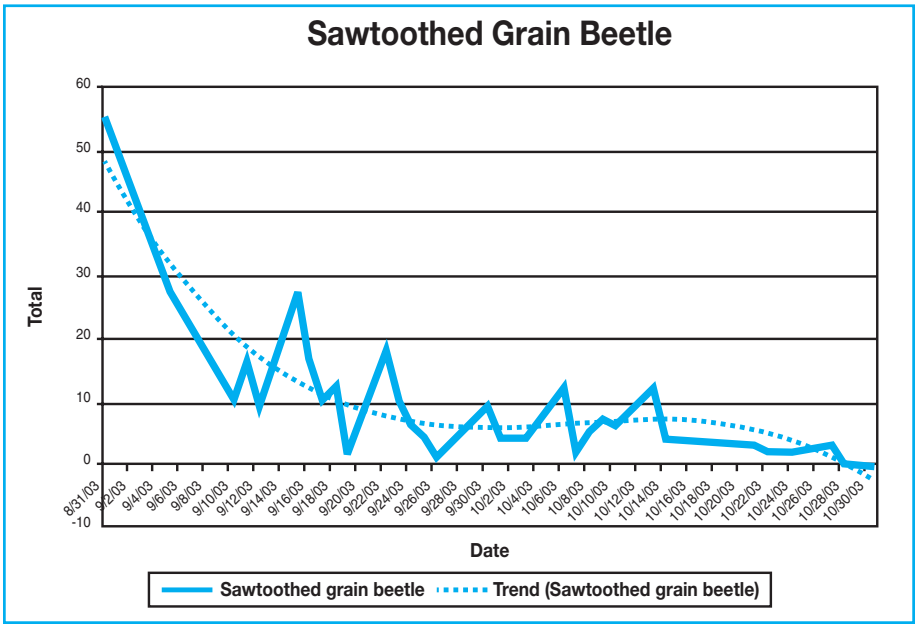
Important questions to ask: Has the infestation spread to the surrounding pallets of infestable and non-infestable products? If so, how far away did it spread?



Sawtoothed grain beetles are small, flat, fast, and can't fly.

PC Floor Traps and Pantry Patrol® Pheromone traps were placed every 3 feet in the slots where the product was removed. A total of 60 monitoring traps were used (50 Pantry Patrol and 10 PC Floor Traps). Traps were placed in adjacent aisles around the infested area. This would be 7 and 14 feet surrounding the empty slots.

Traps were checked after 24 hours and 54 STGB were captured in



The sawtoothed grain beetles were counted daily and the population was reduced to zero after 60 days.

[Slot A] and 0 insects captured in the [Slot B] 100 feet away.

After five days the traps were checked again and 71 STBG, 2 cigarette beetles, and one pscoid (booklouse) were captured in the traps. Most of the STGB were captured in the PC Floor Traps (93%). The PC Floor Traps do not contain a true pheromone but a preferred food attractant that is a fractionated food volatile discovered by Central Science Laboratory in York, UK.

Traps placed in the surrounding aisles showed that two STGB traveled 14 feet (two aisles) to two traps around uninfestable (beverage) pallets. The cereal based food items showed no activity. The beetles that had fallen or crawled from the infested pallets were likely searching for food located in the traps. After entering the traps, the live beetles continue to release pheromones that help the trap capture higher numbers. This unique characteristic of the PC Floor Traps helps capture higher number of insects without a true pheromone /sticky trap monitoring approach.

Conclusion

The saw-toothed grain beetles captured around the truckload of infested product warranted further investigation of the products around the infested lot. These products were placed on hold until the trap catches were reduced to zero in 60 days. The surrounding product could not be fumigated because of the absorptive nature of the plastic containers. The warehouse was not able to be fogged with pyrethrin or dichlorvos because the plastic bottles would absorb the pesticide and solvent carriers. If found infested, it would have to be discarded. This would have added a larger expense to the case. The cereal based products near the infested lot were released for sale after close visual inspection. The truckload of suspected food product located where no insects were found in the traps was released for resale saving several thousands of dollars.

Monitoring with traps in food warehouses can be more than just trapping Indianmeal moths in sticky traps. New beetle traps can help identify an infestation of suspect product, determine if the infestation spread to surrounding products and determine when the population is decreasing or eliminated.

In past years, entire lots of suspect or old code dated product may have been systematically fumigated or discarded if insects were found. Now, with sensitive monitoring traps, pin-point inspections can help the pest manager, warehousemen, and retailer make confident decisions based on data collected in improved monitoring traps.

The important discovery from this case was that an entire population of sawtoothed grain beetles was trapped out in a 60-day period of time.

David Mueller, BCE
Insects Limited, Inc.

The important discovery from this case was that an entire population of Sawtoothed grain beetles could be trapped out in a 60 day period of time.

Merle 'DW' Bennett New Sales Manager

After being with Fumigation Service & Supply, Inc. for six years, DW is taking on a new responsibility: Sales Manager.

DW grew up in the flint hills of Kansas on a farm. He is the father of two and grandfather to six and husband to one Mrs. 'Linda.' His hobbies include fishing, gardening, and travel.

DW has a very diverse working background that has taught him how to do almost any job well, including fumigation. He is a licensed fumigator and has experience in many types of pest management and fumigation. Merle has been in charge of shipping and handling and inventory control for FSS and IL. Many times your order goes directly to DW and he gets your order out the same day.

As Sales Manager, DW will be calling on customers in the coming year. Please feel free to contact DW at 1-800-992-1991 if you would like a visit.

Winter Fumigations:

FSS fumigates a Slave Jail in their fumigation chambers. This 160-year-old jail will go into a museum in Cincinnati.

When it is freezing outdoors, Fumigation Service offers options to fumigate in the winter months:

1. **Heated Fumigation Chambers**—We have three fumigation chambers that are heated and designed for truck trailers up to 53 feet long. The product is heated, the fumigant is carefully monitored, topped off if needed and aerated after the labeled duration. Bioassays are placed in the trailer to monitor for effectiveness.
2. **Antique Furniture Fumigations**—We fumigate many types of new and old furniture and wood products in our fumigation chambers year round including export wood pallets and dunage.
3. **Structure Fumigations** can be performed in the summer and winter months. (Flour mills, food processing plants, wooden pallets under tarp, etc.)

Call John Mueller for more details: 1-317 896-9300.

"Quotable Quote"

"Failure to comply with the Montreal Protocol would delay or could even prevent recovery of the ozone layer."

Scientific Assessment of Ozone Depletion: 2002: NASA, UNEP, WMO, EC, NOAA.

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"Time is the currency of the future."

Fred Strickland, Terminix; at the Kentucky Short Course

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"How happy are you? Happy as a termite in a lumber yard."

Anonyomous

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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