

Fumigants & Pheromones

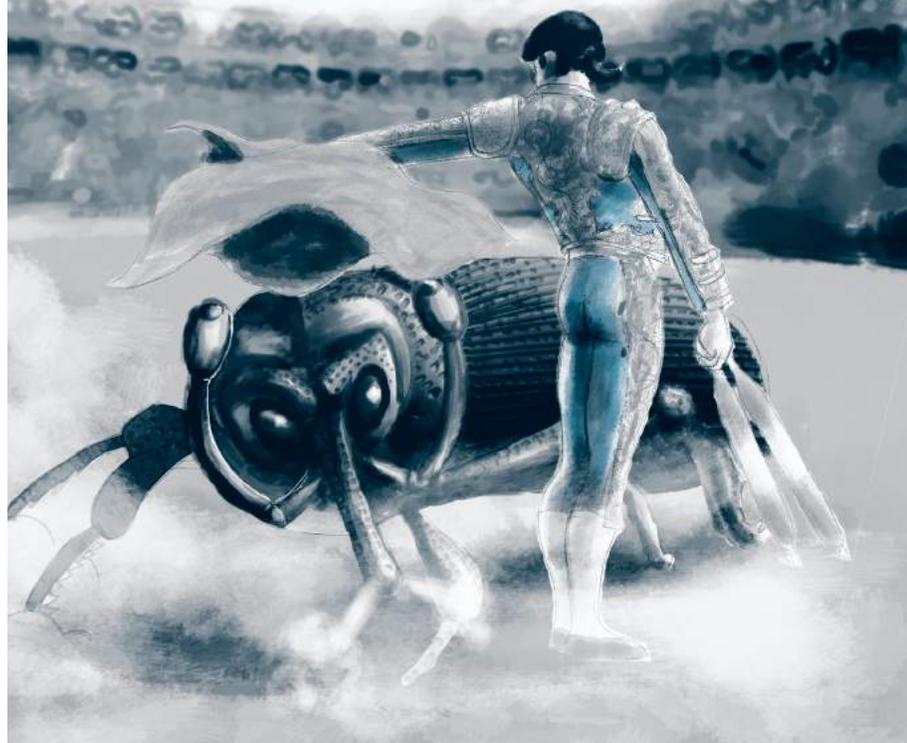
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Routing:



A Newsletter for the Insect Control & Pest Management Industry

VALENCIA 2010



9th Fumigants & Pheromones
CONFERENCE & WORKSHOP



"Sharing through education is one way our industry improves. Valencia 2010 is an opportunity to learn from expert industry speakers and from hundreds of professionals from around the world who share their experiences during this conference and workshop."

IN THIS ISSUE:

- ✂ *Bad Bugs*
- ✂ *Understanding Our Changing Environment*
- ✂ *Valencia 2010*
- ✂ *The Dose Makes the Poison*
- ✂ *Preserving Our History*
- ✂ *Calendar of Events*

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Bad Bugs...

Insects that cause problems



By Alain VanRyckeghem, BCE

Rice Moth

Corcyra cephalonica

The rice moth can be considered the Indianmeal moth of the tropics. It is found in Hawaii and occasionally in some southern U.S. ports. It is much less common on the mainland than the Almond moth, (*Ephesia cautella*), which it is often misidentified. The larvae are general feeders and prefer warm climates and occur commonly in the equatorial regions of Asia, Africa, and Caribbean.

The adult moth is grey, often with darker spots or venation on the wings; the under wings are off white. The wingspan is 20-23 mm. The tips of the wings are more rounded than those of the *Ephesia spp* moths. The larva of the rice moth will grow to 15 mm long and are white or cream in color. The body is covered with fine hairs. A good clue that rice moth larvae are present is the excessively thick layers of webbing.

LIFE CYCLE

This moth undergoes a complete life cycle in as short as 26 days in



Photo: Courtesy of PaDIL

A new pheromone is available for the Rice moth.

warm (88°F; 31°C) humid (70% rh) conditions to as long as 75 days under cooler temperatures. The female will lay 100 to 200 eggs over her short life span of one to two weeks. The eggs will not hatch at temperatures below 61°F; 16°C and pupae will fail to emerge above 100°F; 38°C. Eggs will also fail to hatch below 20% rh. Larvae develop in 33-55 days under average conditions.

BIOLOGY AND BEHAVIOR

The rice moth is a major pest of flour mills in the tropics. It is a general feeder and can be found infesting stored millet, sorghum, rice, cocoa beans, biscuits, flour, and other seeds. The rice moth populations develop well in hot damp or dry (> 20% rh) areas. These moths can infest mills and storage areas simultaneously with Almond moths.

The moth is usually seen in large numbers on walls, poles, or containers where grains are stored. The larvae are exceptionally good at producing "paper thick" webbing for its cocoons. The caterpillars produce a large amount of frass (in which they hide) compared to other stored food moths. This material can attract other stored food pests such as Flour beetles (*Tribolium spp*).

CONTROL

This species of moth is especially sensitive to cold temperatures. Control and prevention of infestation can be easily achieved if product is stored below 59°F; 15°C. Eggs will not hatch and larvae will die. Heat treatment may be available as well if internal temperatures of stored foods can reach 95°F; 35°C for 24 hours.

Fumigation is one of the most effective ways of killing all stages of this insect in commodities and buildings. Fogging with a 0.5% pyrethrin is recommended only for knocking down exposed adult stages. Use of longer lasting synthetic pyrethroid and insect growth regulators in a fog will give superior results.

MONITORING

Both male and female moths produce pheromones that attract each other. The moths are excellent fliers and a typical grid pattern can be established to monitor for their presence and population trends. These moths will not be attracted to the pheromones of other stored food moths such as Indianmeal moths and Almond moths. Separate traps and lure combinations should be used in order to monitor each species efficiently if both species are present.

Understanding Our Changing Environment

By John Mueller

As a fumigator living through and affected by the phase out of methyl bromide, we thought that this would be the end of our environmental concerns in our tiny little agricultural market niche.

Recently we learned that sulfuryl fluoride has been found to be a possible Green House Gas (GHG). Imagine that, the alternative fumigant to replace methyl bromide's environmentally harmful effects could possibly have harmful environmental effects.

It is clear that environmental policy will continue to grow, and with this growth we will be challenged with managing our business successfully while considering environmental management. Some of us will do this with great resistance, some with capitulation, and some with a feeling of obligation. No matter what your opinion is, we must all understand the process unfolding around us.

It is important to first understand the difference between the environmental classification of methyl bromide and sulfuryl fluoride. Methyl bromide was identified as an ozone depleting substance in 1993 by the international environmental treaty—The Montreal Protocol. The purpose of The Montreal Protocol was to identify, establish thresholds, and provide global guidance to regulate and then eliminate all substances above these thresholds.

More recently (2005) the Kyoto Protocol was developed as a step two in international environmental process. The Kyoto Protocol is different from Montreal Protocol in that Kyoto's goal is to achieve "stabilization of greenhouse gas concentrations in the atmosphere..." while Montreal addressed ozone depletion.

Kyoto agreement
 "...aims to lower overall emissions from a group of six greenhouse gases..."

These gases are:

- 1] Carbon Dioxide [CO₂]
- 2] Methane [CH₄]
- 3] Nitros Oxide [N₂O]
- 4] Hydrofluorocarbons [HFC's]
- 5] Perfluorocarbons [PFC's]
- 6] Sulfur Hexafluoride [SF₆]

The best known Green House Gas or GHG is carbon dioxide. Carbon dioxide has become the benchmark molecule in assessing those gaseous compounds with a Global Warming Potential (GWP). All other gases are compared to carbon dioxide. I like to think of a carbon dioxide (CO₂) molecule as a small magnifying lens. When gases are found to have a Global Warming Potential or GWP they are then compared to carbon dioxide and rated on their increased magnification properties or carbon dioxide equivalencies. This is expressed as CO₂e. Some industrial gases range from one [1] to 15,000 CO₂e. Three recently published research projects have come up with a GWP for sulfuryl fluoride at or near 4,800 CO₂e.

What does this mean for sulfuryl fluoride?

Sulfuryl fluoride is not currently listed on the Kyoto Protocol as a controlled substance. These research projects are part of a continuing project to discover GHG's and report collective findings at the next United Nations Environmental Program (UNEP) conference in Copenhagen, Denmark this December. A tremendous amount of data and information will be reviewed and discussed. No one knows what the



outcome of this meeting will be.

What is important to understand about the Kyoto Protocol is that it is designed to manage, not eliminate, substances.

These six gases have been the fledgling of a new environmental economy developed largely through the Kyoto

Protocol. Kyoto provides for a legally binding halt of emissions from these six compounds. The reduction is made over several years. The incentive to reduce usage of GHG's is in the ability to sell or trade your reductions. The environmental economy is set forth in a cap-and-trade program which assigns a value to GHG reduction volume. This allows groups who can reduce emissions to sell or trade them through a monetarily identified value system.

This value system is formed by calculating the CO₂e savings in metric tons and a monetary value is assessed per ton. This value fluctuates like a stock. You can view this trading on several forums, one being the ChicagoClimateExchange.com.

The Montreal Protocol was a great fight over an all or nothing outcome. Kyoto Protocol is a more intelligent approach to what we can only hope to be a workable system of environmental responsibility married with economic opportunity. The challenge is to provide the flexibility needed that does not break economies while successfully managing environmental need. This is a big job and one that will take years of diligent engagement and responsible debate. The intelligent realize that this is not a fight but a long distance race which will be won by the clever and responsible.



Theme

The theme for this conference is: "Reducing Customer Complaints in Stored Products." This starts with the insect first and moves through a detailed process until the customer is satisfied. Along the way many things can go wrong and often do. Protecting the integrity of a product and the reputation of the producer is vital. The

challenge of performing this job with available products and methods will be discussed in two days of lectures from experts.

The workshop will take place in the Port of Valencia. José Roca and his company Roca Defisan will demonstrate various stored product control programs in this busy Mediterranean port.

One of the highlights of this meeting will be the exchange of ideas with others who do similar work. This exchange can be invaluable.

Plan today to attend the 9th Fumigants & Pheromones Conference & Workshop in Valencia, Spain. **Go to www.insectslimited.com for more information and to register on-line.**

Day 1 *Translation available.*

Wednesday, March 3 |
Palacio de Congresos



Palacio de Congresos

Reducing Customer Complaints in Stored Products

Day 1 will begin at 8:00 am. Registration and commercial stands open one hour prior to the meeting.

Welcome and Introductions

- José Roca
- David Mueller (*moderator*)

Opening Speaker

- Dr. Pedro Palomo, Past President Grain and Feed Trade Association (GAFTA), Spain, *Issues in the International Markets*
- Ms. Cristina Clemente, Ministry of Agriculture, Spain
Fumigation and Quarantine Pre-Shipment (QPS) and ISPM-15

VALENCIA



8th Fumigants & Pheromones Bremen Germany

43 Countries Represented

Organized by



Break Commercial Stands Open

- David Mueller, Insects Limited, USA
Start with the Insects First
- Jordi Riudavets, Ph.D., Spain
Reducing Customer Complaints in Rice

Lunch Commercial Stands Open

- Kim Kemp, Nestlé Purina, USA
How Nestlé Purina Reduced Their Customer Complaints by 50% in Two Years
- Franz Rappl, Japanese Tobacco International (JTI), Germany
Reducing Customer Complaints in Tobacco Companies
- Rufus La Lone, The J.M. Smucker Group, USA
Reducing Customer Complaints in the Food Industry

Break Commercial Stands Open

- Alain Van Ryckeghem, Insects Limited, USA
Insect Resistant Packaging
- Benno Rubsamen, Dow AgroSciences, LLP, Germany
Advances in the Use of ProFume™ Fumigant Gas in Europe, Asia, Australia, and Africa
- Alberto Martin, Dow AgroSciences, LLP, Spain
ProFume™ Fumigant Gas Use in Spain

Dinner & Entertainment**Day 2** *Translation available.***Thursday, March 4 | Palacio de Congressos****Fumigation Update***Day 2 will begin at 9:00 am. Commercial stands open one hour prior to the meeting.*

- Ms. Rosario Maria Antón, Ministry of Health, Spain
Biocides Directive Update
- José Roca, Roca Defisan, Spain (moderator)
Grain Pest Management
- Martin Villa, International Maritime Fumigation Organization (IMFO), Argentina
Maritime Fumigation Update

Break Commercial Stands Open

- John Mueller, Fumigation Service & Supply, USA
Sulfuryl Fluoride Fumigation of Structures, Grain, and QPS
- Jürgen Böye, Ph.D., BM Consulting, Germany
New Stored Product Protection Technologies in Europe

Lunch Commercial Stands Open

- Henrik Lange, Tanaco, Denmark
Marketing 'Green' Products
- Vasilos Sotiroudas, AgroSpeCom, Greece
How are the Methyl Bromide Alternatives Performing?

Break Commercial Stands Open

- Kim Kemp, Nestlé Purina, USA
The Next Generation Pest Management Program

Open Evening

9th Fumigants & Pheromones Technical Conference & Workshop **March 3-5, 2010 • Valencia**

**Day 3** **Friday, March 5 | Workshop** *Translation available.*

Workshop Organizers: Pat Kelley, John Mueller, Cesar Altamirano, Jürgen Böye, José Roca.
Buses for the workshop will leave the Hilton Hotel at 9:00 am. and return by 5:00 p.m.

- Preparation for a fumigation, Roca Defisan
- Pheromone demonstrations
 - Basic pheromone use: Cesar Altamirano, Pheromone Service & Supply, Mexico
 - Advanced pheromone use: Patrick Kelley, Insects Limited, USA
 - Mating disruption: Alain Van Ryckeghem, David Mueller
- Grain fumigation demonstration at the Port of Valencia, Roca Defisan
- Quarantine fumigation demonstration, John Mueller, Fumigation Service & Supply, USA
- New Fumigation Technology: Leandro Lombardi, AgroFum, Argentina; Jürgen Böye, BM Consulting, Germany
- Fumigant Detection: Rahul Singh, UNIPHOS, India



The Dose Makes the Poison



By David Mueller

For pesticides and other potentially dangerous substances, “The dose makes the poison.” In other words, the amount of a substance a person is exposed to is as important as how toxic the chemical might be. For example, small doses of aspirin (81 mg/day) can be beneficial to people and even save lives, but a very high dose of this common medicine could be deadly. If a pest manager fogs a warehouse with dichlorovos (LD 50; 53 mg/kg), they may go into the treatment with all the proper safety equipment to minimize their exposure to this potentially toxic and commonly used pesticide in a food processing facility. However, if they spill a small amount on their clothes or boots while filling the foggers, they may increase the exposure time and cause an accumulation of this nerve poison. After multiple exposures this pest manager could have a serious accumulation in his body that could cause mild to serious health effects.

The following formula is important when determining risk from a substance:

RISK = TOXICITY X EXPOSURE

This means that a risk to human health from pesticide exposure depends on both the toxicity of the pesticide and the likelihood of people coming into contact with it. At least some exposure and some toxicity are required to result in a risk. For example, if the pesticide is very poisonous, but no people are exposed to it, there is no risk. Likewise, if there is ample exposure but the chemical is nontoxic, there is no risk. However, usually when pesticides are used, some toxicity and some exposure exist, which results in a potential risk (EPA, 1999).

Salt is something we use to season our food. However, if the human body gets too much salt it can be deadly; “The dose makes the poison.”



Pesticide residues in food and water are expressed as parts per million (ppm), parts per billion (ppb), or parts per trillion (ppt). The following comparisons may help put these quantities into perspective:

Pesticide residues in the American diet come from three sources: Pesticides applied on the farm (15%); pesticides applied post-harvest, including pesticides applied on imported foods (73%); and discontinued pesticides that persist in the environment (12%).

1 ppm = 1 gram (g) of residue in 1,000,000 g of food; 1 inch in 16 miles; 1 minute in 2 years; 1 cent in \$10,000; or 1 pancake in a stack 4 miles high.

1 ppb = 1 gram of residue in 1,000,000,000 g of food; 1 inch in 16,000 miles; 1 second in 32 years; or 1 cent in \$10 million.

1ppt = 1 g of residue in 1,000,000,000,000 g of food; 1 inch in 16,000 million miles; 1 second in 32,000 years; 1 square foot of floor tile on a floor the size of the state of Indiana.

Even though legal uses of DDT ended in 1972, degradation products of DDT are still found in apples and green beans, possibly from DDT applied as long as 50 years ago.

D. K. Mueller

Source: The Food Safety Information Book, Roberts, 2001

Preserving Our History Forever is a Long Time



By Patrick Kelley, ACE

The definition of the word “Forever” from Webster’s New World College Dictionary is the following: for eternity; for always; endlessly. The word also has a very practical meaning to museum curators and collections managers. Forever is the amount of time these custodians of our history are supposed to preserve the pieces that we value most.

Unfortunately, the detrimental effects of light, humidity and pests don’t buy into the whole “forever” philosophy and can rapidly deteriorate those things precious to us. It would be easy to become overwhelmed by this seemingly impossible task and just give up. Instead, museum staffers need to use all of the resources given to them to control what can be controlled. From a pest standpoint, the best means of doing this would be to implement an integrated pest management program. A solid IPM program will keep a museum “forever” vigilant in their pest prevention measures and keep pest damage at an absolute minimum.

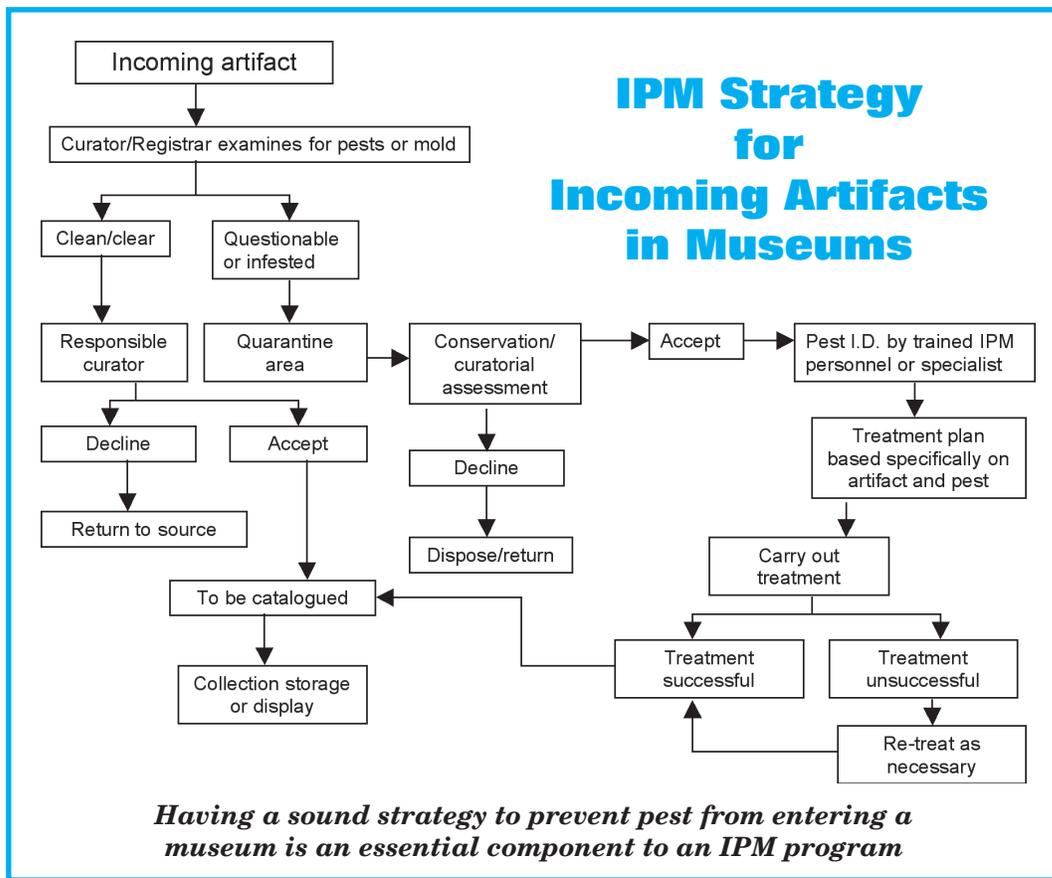
To implement an IPM program, a museum should;

- Choose an IPM Team Leader to spearhead the program
- Create a support team around the leader to assist with IPM issues
- Follow an IPM Strategy for any incoming artifacts (see the flow chart below)
- Focus on the riskiest items in collections. *This could be Fur, Feathers, Wool, Silk, Insect Specimens, Parchment & Velum, Papier Mache, Animal Skins, Dried Plants and Seeds, Sapwood, Any Damp Organic Material*
- Monitor for pests around the riskiest items using sticky traps



The fur and wool on this Tibetan hat were devoured by webbing clothes moths

- and pheromones
- Sanitation—Eliminate food and harborage for pests
- Exclusion—Look for structural improvements that will keep pests from entering
- Be creative and adapt the program to fit your institution needs



MEETING CALENDAR:

- * October 26-29
Pest World 2009
Las Vegas, Nevada
- ** December 13-16
Entomological Society of
America Annual Meeting
Indianapolis, Indiana
- * November 10-13
Methyl Bromide
Alternatives Conference
San Diego, California
- ** January 11-15, 2010
Purdue Pest Conference
West Lafayette, Indiana
- ** November 11-13
(New England Museum
Association) NEMA 2009
Annual Conference
Nashua, New Hampshire
- *** March 3-5 2010
9th Fumigations & Pheromones
Conference
Valencia, Spain
- *** December 1, 2009
Fumigation Continuing
Education Course

See You There!

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



Quotable Quotes

"Sanitation is pest control."

"We need accountability for pest control inspections on the service ticket."



Bobby Corrigan, Ph.D.

"Sound science must drive food safety."

"If you want to be 'True Green' you start with exclusion."

"It is my business to see things that others overlook."

— Oliver Wendell Holmes

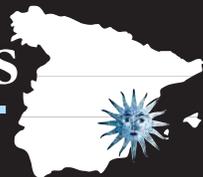
"To the lazy hunter the woods are always empty."

— E. O. Wilson

"Nature loves to hide."

— Heraclites, Greek Philosopher (535-475 BC)

9th Fumigants & Pheromones CONFERENCE & WORKSHOP



March 3-5, 2010

Valencia, Spain

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: Kalah Stocker, Fumigation Service & Supply, Inc., 16950 Westfield Park Rd., Westfield, IN 46074 USA.



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Fumigation Service & Supply, Inc.

16950 Westfield Park Road
Westfield, IN 46074-9374 USA
(1) 317-896-9300
e-mail: insectsltd@aol.com
websites: www.insectslimited.com
www.fumigationzone.com

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