

A Newsletter for the Insect Control & Pest Management Industry, est. 1981

# **Pest Management Around the World**

The 11<sup>th</sup> International Fumigants & Pheromones Conference will be held **June 2-4, 2014 in Krakow, Poland**.

The theme of the conference is "Pest Management Around the World." This educational program includes two days of presentations on current issues in pest management (see page 4).

By gathering people who specialize in stored product protection in one place, it becomes a way to share through education. The people you meet at this conference will share

their experiences with you. The net working that occurs during these days at a Fumigants & Pheromones Conference can lead to a lifetime of friendships with industry leaders.

Having this 11th edition of Fumigants and Pheromones in Central Europe offers a different perspective on stored product protection from speakers from the Baltic countries, Russia, Ukraine, and Poland.

Day Three offers various guided excursions in and around the beautiful city of Krakow. The organizing committee has made Professor Stanislaw Ignatowicz (r) from Warsaw University of Natural Sciences, will welcome guests from around the world to his country.

this a family friendly meeting at a time of year that offers a great opportunity to tour Southern Poland and the beautiful city of Krakow.



The UNESCO Wieliczka Salt Mines near Krakow will be

the venue for this year's gala dinner on June 3rd. These famous salt mines were the economic driver for Krakow for over four hundred years. Preserving meat with salt was important without modern day refrigeration.



There was a period in history when salt was more valuable than gold.

Join us in Krakow! For conference information and to register online go to www.insectslimited.com.

Bad Bugs...



Webbing Clothes Moth (Tineola bisselliella)

# Does Mating Disruption or Confusion Occur When Using Webbing Clothes Moth Traps?



By Alain VanRyckeghem, BCE Technical Director

With the use of mating disruption (MD) products for the management and control of food infesting moths, discussions have ensued regarding the potential effect of using too many traps in a home location to capture Webbing Clothes moths. I receive calls from home owners who state that their PCO said not to use too many traps in a room because it can "confuse" the moths. A common belief by many non-entomologists is that all moths respond to pheromones the same way, which is certainly not true.

Food moth mating activity can be disrupted by suppressing flight activity in males, or redirecting males to synthetic lures rather than females (sometimes called a 'Confusion' technique). Food moths, including Indianmeal moths, almond moths, Mediterranean flour moths, and warehouse moths, are extremely active fliers and are attracted to the smallest amounts of pheromone in the air. Female moths quickly disperse from infestations to locate new food sources then position themselves on a nearby wall or ceiling and release their pheromone to attract males. The males will fly long distances to seek the calling females. Too many of these food moth lures in a home situation can certainly attract food moths from outside.

Webbing clothes moths (WCM) however, do not fly well and cannot fly for long distances in a single attempt. They can certainly move through a home with time and several short flights through rooms or hallways. Females produce pheromone to attract males and males use clicking noises to attract females. Females will fly away from food sources to search for new locations, usually when the existing one is nearly consumed or they are disturbed. Pheromone is continually deposited on infested materials and accumulates over time. Articles that have been frozen, but not cleaned (like feather materials) continue to attract moths and can quickly become reinfested because the pheromone has not been removed. This moth behavior is very different from food moths, and the placement of numerous traps in a closet will not cause confusion or even create mating disruptions. Webbing clothes moths favor enclosed spaces, with little disturbance and can respond to strong pheromone cues and sound signals to find each other without difficulty.

To prove this point, Insects Limited performed several 'closet tests' to determine if a small population of larvae could be controlled with 'mating disruption' conditions. In 2 separate trials, 50 larvae were placed in a sealed closet (100ft<sup>3</sup>) with food and 4 additional uninfested food sources. Pheromone lures that released pheromone in excess of the EPA limits for mating disruption, were used. The initial population of 50 larvae went through two adult generations (4-6 months) with final populations of 727 (trial 1) and 1338 (trial 2). All food sources were infested and there was clearly no significant Mating Disruption effect.

An additional 'closet test' was done in a 150 ft<sup>2</sup> room where 10 traps were placed at different heights and locations on floor, desks and shelves with a single Webbing Cloths moth culture as the infestation source. Over 700 moths were caught in 10 days in all the traps. This test also confirmed that hanging a WCM trap reduces the capture rate. Traps on shelves, floor and horizontal surfaces caught the most webbing clothes moths; and there was no confusion effect since all the traps were easily found by the moths. Webbing clothes moths seldom live outdoors, so use of numerous traps in a home will not bring any in from outside. In fact using more traps in one location will catch more moths faster.

#### **Fumigants & Pheromones**

# Curt's Soapbox



### Cleaning is Expensive — Not Cleaning is Even More Expensive

So the budget is tight and you need to trim costs. Corners are cut to maximize profits. Which departments are some of the first in line to get the hatchet? Sanitation and Maintenance. Why? Because your Sanitation and Maintenance departments aren't actually producing your product, and since, theoretically, they are not producing anything, someone up the corporate ladder decides that these departments are areas where money can be saved.

But is this always a wise decision? Ask any sanitation manager and they will emphatically answer "No!" Well, obviously any manager looking at getting their budget sliced is going to be met with resistance. I am here today to help plead their case.

Eliminating positions and hours in your cleaning staff ultimately means reducing the frequency of the cleaning schedule, or at least the depth of the cleaning process. Any area that once was on a weekly cleaning schedule will be reduced to every other week, month, or in some cases, will get eliminated from the schedule altogether. These areas, over time will begin to rear their ugly head, and the results will be pest sources that can sometimes take weeks and months to track down. As the number of reportable customer complaints rises, the plant manager receives a call from corporate headquarters quality department to ask why? In the meantime, products and your



company's good name is at risk.

Consider purchasing a very well maintained used automobile where the oil was changed and chassis lubricated every three

thousand miles, tires were rotated every 10,000 and someone was diligent enough to give it a good weekly scrub. You have acquired yourself a "Cream Puff". You could probably drive this car thousands of miles trouble free, with doing little or no maintenance. But eventually, the engine uses oil, the valves are shot and the transmission starts slipping. The tires wear out early because the front end needs alignment. In fact the whole front end needs to be rebuilt. New spindles and ball joints, new bearings and tie rod ends and to top it all off, rust is starting to show up on the fender tops and rocker panels. And you say to yourself: "What happened? Everything worked so well for so long, and now it is all falling apart at once!" Now, all of

the repairs far outweigh the costs of maintaining it in the first place. Get the picture?

The very same thing will happen in your facility if you cut too deep into your sanitation and maintenance budgets. Some areas of the plant can go a long time with "smoldering" pest issues that go undetected. When pest populations in micro environments such as an unused batch bin or product hung up in an idle shipping conveyor reach a saturation point, there can be mass exodus from the source. By the time the source is located, it is too late: the damage has been done. Fertilized females have moved away from the source and have laid eggs in multiple areas of your facility.

Now you have to pay the staff overtime during a holiday shut down to do extensive cleaning. You may have to fog the facility, or possibly fumigate, and pray that you don't wind up with a product recall. These costs can sometimes far outweigh the costs of regular cleaning and maintenance.

### **Meet Curt Lilleodden**

*Curt Lilleodden* is the Regional Manager for Fumigation Service & Supply in Iowa, Wisconsin, Nebraska, and Minnesota.

Curt and his wife Tammy and four children live in Solon, Iowa. He maintains a fumigation office in Cedar Rapids, IA with three fumigation technicians. Curt comes from Hanska, Minnesota where he grew



up on a farm. He graduated from Alexandria Technical College in 1987. Curt spent 19 years in pest control before coming to FSS in 2009. His expertise is in structure fumigations, food safety inspections, commodity fumigations and large food safety pest management programs. Curt enjoys hunting and watching his children's activities. Curt and Tammy's daughter Sarah was the first recipient of the FSS Scholarship and she attends the University of Minnesota in Duluth.

Curt stated: "After spending nearly 20 years in the general pest control industry, I welcomed the opportunity to focus my work on stored product pests. The success of a program to manage stored product pests, probably more than any other group of pests, hinges on the joint effort, cooperation, and communication between the pest control provider and the customer. Building these close relationships with my customers and the results that are realized because of these efforts, has been the most rewarding aspect of my career in pest management."

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### VISIT US AT: www.fumigationzone.com

### **Fumigants & Pheromones**



### 11<sup>™</sup> INTERNATIONAL

# **Fumigants & Pheromones Conference**

### JUNE 2-4, 2014 • KRAKOW, POLAND







### SCHEDULE

Dr. Rikiya Sasaki

Panel Discussion:

JAPANESE TOBACCO, FUJI FLAVOR CO. LTD., JAPAN

Pheromones in the Tobacco Industry

New Technologies in Pest Management

David Liszka ICB PHARMA, POLAND

A European and North American

Vasilis Sotiroudas AGROSPECOM GREECE

*Perspective of Heat Treatment* Larry Dean NESTLE PURINA, USA

Dr. Austin Frishman USA

Food Facilities

Pest Management in Large

Two Major Insect Pests and Use of Their

### JUNE 2 • Day 1 — Invited Speakers

**Dr. Bobby Corrigan** RC CONSULTING, USA What I Learned from the Rats in New York City

**Professor Stanislaw Ignatowicz** WARSAW UNIVERSITY OF NATURAL SCIENCES, POLAND *Pest Management; A life study* 

**David Mueller** INSECTS LIMITED, USA Stored Protect Protection; Start with the Insect First

**Dr. Otto Mück** BM SEMINAR & CONSULTING COMPANY, GERMANY Pest Control through Hygiene in the Food Industry

Alain VanRyckeghem, BCE INSECTS LIMITED, USA New Pheromone Technology

### JUNE 3 • Day 2 — Invited Speakers

Annette Johansson SNIFFERDOGS SWEDEN Using Trained Dogs to Detect Insect Pheromones

Dr. Bobby Corrigan RC CONSULTING Mouse Control; Case studies from the Real World

Museum Pest Management

- Patrick Kelley INSECTS LIMITED, USA
- Professor Stanislaw Ignatowisz, Poland THE CHOPIN MUSEUM PEST MANAGEMENT PROGRAM

Panel Discussion: *Grain Fumigation* • Pete Mueller

Evening is open to enjoy Krakow

- FUMIGATION SERVICE & SUPPLY, USA
- Alexander Zrely ODESSA, UKRAINE
- Professor Gennady Zakladnoy RUSSIA

2014 Wendell Burkholder Lecture on Stored Product Protection by Dr. Franklin Arthur UNITED STATES DEPARTMENT OF AGRICULTURE, USA New Grain Protectant Research

Gala Dinner; buses provided.

### JUNE 4 • Day 3 — Organized Excursions

(A tour is included in your conference registration; tours will return to the Sheraton by 15:00)

- 1. Wawel Castle, Pope John Paul's Cathedral, and Krakow Old Town guided tour
- 2. Schindler's Museum, New Modern Art Museum, and Jewish District guided tour
- 3. Auchwitz-Birkenau guided tour; Poland's most visited museum

### VISIT US AT: www.insectslimited.com

### **Grain Temperature Management**



By Mel Ulrich Regional Manager

Grain insects are like humans. They seek environments that are comfortable and safe, with a good food supply. The task in grain management is to create an environment that will cause them to leave or die.

The number one environmental condition for insects is temperature. They thrive on temperatures between 70 and 90° F (22 to 32° C). In grain, they now have the perfect atmosphere with a good food supply. High grain temps cause other grain storage problems. Mold also needs elevated temperature to grow. As molds increase, the odor given off attracts insects and we have an unwanted cycle on our hands. Insect activity creates heat which causes mold, and the cycle escalates to a point that economic losses occur, not to mention the costs associated with an insect infested food product.

Controlling grain temperature then, becomes one of the non-chemical tools we have to prevent insect contamination. A very high percentage of insect activity happens in the top 4 inches (10 cm) of grain. With a higher



Grain temperature control is the key tool to non-chemical insect control in stored grain.

level of foreign material (FM) in the center of a grain pile, this becomes the place to be contaminated first.

As late fall and winter approaches it is essential to cool grain, making sure you have moved the cooling front entirely thru the grain mass. Operators not using temperature cable systems should check top grain temperatures prior to shutting off fans to insure this has been accomplished. At that point the grain is generally safe for wintertime storage. One thing to monitor is snow that may have blown in through roof vents and eaves, which will melt as sun warms roof tops. Additional aeration may be needed to eliminate mold on the top layer of grain.

As ambient temperatures increase with the coming of spring, aeration must be carefully controlled. The low grain temps of winter must be increased to avoid thermal warming from the sun on the side of a bin, but we must not let that grain go above  $65^{\circ}$  F ( $18^{\circ}$  C). The real challenge comes in summer, as daytime temperatures rise above  $80^{\circ}$ and even  $90^{\circ}$  degrees and nighttime temperatures many times stay above  $70^{\circ}$ . Running the aeration fans during the coolest hours is essential in maintaining the grain at the lowest temps possible.

Insect life cycles increase in time as we are able to decrease the temperature of their habitat. Reducing the grain temperature by  $5^{\circ}$  F, will lengthen the life cycle of Indian meal moths by 15 days. Over the course of a 90 day warming period (July thru Sept.) this can mean the reduction of an entire generation of insects. Indian meal moth females produce hundreds of progeny per generation. The elimination of 1 generation a year can reduce insect counts in the millions.

To learn more contact: M.Ulrich@fumigationzone.com.

### Antique Furniture and Historic Artifact Treatment



### By Pat Kelley, Vice President

Imagine that you have just laid out several thousand dollars for a beautiful Louis XV style Grandiose Desk,

ornate with bronze decorations, leather top, and made with high quality ebonized wood with the typical Boulle 17<sup>th</sup> Century inlaid brass. Now imagine that you are finding small conical piles of sawdust on the floor beneath several of the corners. What is your next step? It is always good to start with the insect first. With wood boring beetles, it is best to locate which pieces of wood are affected, determine if it is an active infestation and then identify the species. This information is crucial for determining your next action. With higher valued materials like antiques and other historic pieces, it is also extremely important to take into account the types of materials that are part of the piece. This particular desk has wood, leather, brass and bronze components. Each separate component can have adverse reactions to fumigant gasses or other forms of treatment. The trend in museums over the past decades has been to freeze first. Freezing is generally accepted as one of the friendliest forms of treatment to both the applicator and the artifact. But with the case of our very large desk, it would be difficult to find a freezer big enough to place it in. There are only a limited amount of other accepted treatment options for these highly valuable objects.

Let's discuss each below:

**Anoxia:** A target of less than 0.3% oxygen over a 3 week period is needed to achieve a kill. This can be achieved using nitrogen gas or argon gas to flush out the oxygen to this extremely low level. For large items such as furniture, a barrier film that includes foil, polyethylene, and Mylar is commonly used to seal off the item. The procedure can also be done inside a fumigation bubble. Standard

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# Fumigation Registration... Let's Be Proactive Instead of Reactive



By Dave Mueller Vice President

Three fumigants will be going through the EPA label review process in 2014. If you use fumigants or have a fumigation service for your facilities, you may want to read and save the following information.

# **Phosphine** (aluminum phosphide and other metal phosphides)

Herb Yeaman, president of Degesch America in Virginia stated at the recent NPMA meeting: "This is a marathon and not a sprint. It will take 5-7 seven years and could be completed in 2020." The Phosphine Coalition Leaders: Susan Nichols; Degesch America, Ted Rodgers; USDA, and Farm Bureau. The Farm Bureau is a powerful lobby group in Washington that worked as the leader for the last registration of phosphine. It represents over 400,000 members and their interests.

### Points of interest:

- First comments to EPA by fumigant users was November 25, 2013
- Bystander exposure
- Buffer zone notification
- Registrants comments to follow
- Reregistration Eligibility Document (RED) to be issued by EPA

### **Methyl Bromide**

There are two types of methyl bromide labeled by EPA in the United States: Meth-O-Gas 100 and Methyl Bromide Q-Gas. The Montreal Protocol and the US Clean Air Act prohibit the use of Meth-O-Gas 100. The critical use permits are running out in the United States and use of methyl bromide has ceased in Europe and many parts of the world.

However, Methyl Bromide Q-Gas is still used legally for export and quarantine. Some of these uses are being replaced with heat treatments and sulfuryl fluoride but there still is approximately 6,000 mt of methyl bromide used for quarantine throughout the world.

The reregistration of the EPA label for Q-Gas will be reviewed by the United States Department of Agriculture to safeguard outbound and inbound materials that may contain invasive pests that could be harmful. An example of this is that FSS fumigates logs grown in Indiana but are being exported to Asia, Europe, and India. The emerald ash borer is an invasive beetle that kills ash trees. The standard says that any logs leaving the state of Indiana will be fumigated with methyl bromide at set rates for various wood species, under specific temperatures and times.

This label review should take the same path as Phosphine with a 5-7 year process. With the political pressure from USDA, this fumigant label should survive along with most of its export uses. Some countries are starting to require methyl bromide to be scrubbed to destroy it before release in the atmosphere. This review process will likely take a close look at the potential for scrubbing methyl bromide and other fumigants.

### Sulfuryl Fluoride (ProFume/Vikane)

Sulfuryl fluoride (SF) is used to fumigate structures like homes for dry wood termites, flour mills for flour beetles, and seeds in storage. It is even starting to be approved to fumigate export materials like wood dunage and fiber. SF was registered by the US EPA in the US in 2004. The normal process of a new product is to expand the label to include other products like cocoa beans and potentially logs for export. Over the last ten years many products have been added to the EPA label for SF.

Several years ago a group challenged the addition of fluorine in the food supply. SF offers a small dose of fluorine to our daily food intake. This challenge has led to much negotiation with the government over the impact or lack of impact for SF.

This is the statement that Dow AgroSciences made on January 6, 2014, concerning the future of the ProFume label: "A Senate-House Conference Committee is nearing conclusion on drafting a final Farm Bill for congressional floor consideration in mid-to-late January. A broad, nationwide coalition of agriculture and food groups has been working hard to strengthen language in the bill that protects the vital fumigant sulfuryl fluoride (SF). There is significant bi-partisan support for the coalition's efforts on SF and we hope the language will be included." (Dow AgroSciences LLC)

Label changes to Vapona should occur in 2014.

### Dichlorvos (Vapona, DDVP) is a

fogging insecticide and not a fumigant. It has vapor like properties and is being used as an alternative to fumigation in some flour mills, food manufacturing facilities, and structures warehousing stored products. The label for Vapona will be under review this year by the EPA. EPA will initiate new tolerance studies on DDVP

The review process is much different than the normal insecticide review process. Vapona was evaluated under an old set of standards that don't apply to today's Food Quality Protection Act. The FQPA is interested in protecting infants and humans that are not the normal six foot healthy male without health issues. It has used a 10X factor for safeguarding infants and frail adults, or it can go under a reevaluation process that the EPA has established for other insecticides. Because Vapona is used readily by the Food industry they have be called out by the Natural Resources Defense Fund (NRDC) with a proposed law suit challenging the current EPA label for Vapona. The EPA has agreed to reevaluate the tolerances for Vapona starting in the summer of 2014. The outcome for this re-labeling is uncertain at this point but should become more clear this summer.

Vapona is a toxic insecticide with a DANGER LABEL. The LD50 for Vapona is 52 mg/kg weight. This lethal dose for mammals is one of the lowest and most toxic insecticides used today. It can cause poisoning through the skin (dermally) or through inhalation. In short, Vapona should be treated much like a fumigant when making applications.

#### Summary: What can you do?

"Fight every step of the way."

It is important to be proactive when tools we use to protect our food supply are challenged with regulatory change. The fumigation field already has many hurdles and regulations to deal with. More could eliminate some uses of fumigants. Buffer zones and boundary lines could eliminate the use of phosphine at many facilities. Added liability and additional paperwork with our Fumigation Management Plans (FMPs) will surely change the way we fumigate. The cost of fumigation increased significantly after the last round of label changes. Fumigation boundary lines shut down several ports in the United States when a 1200 foot boundary line from a fumigated truck or container was imposed. Homeland security has standards that make storing phosphine gases (any quantity) so stringent that the small user will become extinct. Department of Transportation (DOT) fines can be six figures for the illegal transportation of fumigants. These are just a few of the regulatory oversight groups that change how we do our job.

### Update/Effort to Retain SF's Food Uses

I'm pleased to report that the long-delayed Farm Bill that was finalized today contains language retaining the food uses for the fumigant sulfuryl fluoride. Specifically, Section 10015 of the legislation precludes the U.S. Environmental Protection Agency from considering non-pesticidal fluoride as part of sulfuryl fluoride's aggregate risk assessment, as required by the Federal Food, Drug, and Cosmetic Act. (Below is the actual language.) The provision effectively reverses a proposed order revoking or withdrawing sulfuryl fluoride's food tolerances that EPA put forward in January of 2011 under the threat of activist group litigation. The activists claimed that sulfuryl fluoride's tolerances were not permissible because the "risk cup" for sulfuryl fluoride was already filled with fluoride in drinking water and dental care products. You can write letters to the EPA when the time comes. These letters are very effective from the end user. Each letter is reviewed by the EPA and the outcome for the final rules on label changes can be changed by your participation. The letter you write will take about 30 minutes to compose and mail. Examples of letters with points of interest are always useful. Contact your suppliers and manufacturers from time to time to stay up on movement for the negotiations. You can call me at 1-317.896.9300 if you would like the latest update. We intend to be a proactive part of the process.

The inclusion of the sulfuryl fluoride provision in the Farm Bill Conference Report represents a significant legislative victory for NPMA—one that would not have been possible without your lobbying your federal lawmakers about the importance of retaining sulfuryl fluoride's food uses. This bill has been signed by both houses of Congress and is ready to be signed by President Obama. Congratulations on a big legislative triumph! — Gene Harrington, NPMA

#### SEC. 10015. REGULATION OF SULFURYL FLUORIDE.

Notwithstanding any other provision of law, the Administrator of the Environmental Protection Agency shall exclude nonpesticidal sources of fluoride from any aggregate exposure assessment required under section 408 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 346a) when assessing tolerances associated with residues from the pesticide.

### **Antique Treatment**

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polyethylene alone is insufficient to keep oxygen levels low enough. This treatment requires quite a bit of effort and daily monitoring of the oxygen levels.

**CO2:** When using CO<sub>2</sub>, we typically shoot for a concentration of 80% for at least 14 days at a temperature of 77 degrees F. CO<sub>2</sub> increases the respiration rate of insects. With CO<sub>2</sub> we see an increase in the breathing rate; we see a loss of energy as the oxygen level drops; we see a loss of water in the insect and eventual dehydration and we also see both CO, poisoning and suffocation of the insect. The use of a fumigation bubble or permanent CO<sub>2</sub> chamber is necessary to contain this very active gas molecule. A humidifier will also be needed to keep the RH levels high enough to prevent damage from desiccation to the furniture.

**Phosphine:** If there is any metal incorporated into the furniture, this is not the

method to use. Phosphine can be extremely corrosive to copper and copper alloys such as brass. If the antique item that you want to fumigate is wood and wood only, phosphine can be a very effective gas to use. Simply tarp the furniture in a 4 ml or thicker polyethylene in a safe location. Then, let it sit for 3 days or more at room temperature with the prescribed dosage for that volume of space. The penetrating gas will find its way to the insects that have burrowed deep within the wood.

**Sulfuryl Fluoride:** Sulfuryl fluoride is typically a nice fumigant to use on most antiques. While pure SF does not cause any corrosion to metals, the small amount of impurities that come in the cylinders of sulfuryl fluoride can cause slight corrosion to some metals, but at a much lesser rate than phosphine corrosion. Care must be taken with the shipment and application using these high-pressured cylinders of gas. The monitoring equipment to correctly use this fumigant gas is also relatively expensive.

A great piece of advice when treating antiques is: "know what material compo-

nents are incorporated into each and every object. Select a treatment option that will kill the insects but not damage the antique. Make sure that whoever owns the object being treated agrees with your choice of treatment prior to starting the treatment. Finally, plan in advance for every aspect of your treatment so you don't get any unpleasant surprises."

To learn more contact: P.Kelley@InsectsLimited.com.



This King George XV desk has wood, leather, brass and bronze components. Each separate component can have adverse reactions to fumigant gasses or other forms of treatment.

#### **Fumigants & Pheromones**







Fumigation is a highly skilled and potentially risky business. In December an educational fumigation workshop was held at the Westfield IN facility. Numerous topics were covered by our training staff, and a sharing of fumigation knowledge was at the forefront. Education is a priority with our companies and we would like to share this valuable and useful information with you. Now available on YouTube are videos relating to the fumigation industry and real-world situations. To view videos go to:

> www.youtube.com/ InsectsLimited or www.youtube.com/ FumigationService.