

# Fumigants & Pheromones

Issue 81  
Autumn 2006

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A Newsletter for the Insect Control & Pest Management Industry

## A Celebration...

by *Kalah Stocker*

The stage was set on this beautiful, sunny, fall day in October...Insects Limited and Fumigation Service & Supply's 25th Anniversary Celebration. Background music was heard from a local band and the aroma of fried chicken and barbecued ribs filled the air.

While the final touches were being applied, guests began to arrive. Dr. John Osmun and his wife Dortha were the first, followed by Dr. Ray Liscombe. Both of these



1981-2006

*Fumigation Service & Supply, Inc.  
and  
Insects Limited, Inc.*

arrivals were quite apropos in their arrival. Dr. Osuman was an influential professor that David Mueller had at Purdue University, and Dr. Ray Liscombe hired Dave Mueller directly out

of college. Memories of the past 25 years became encapsulated in conversations while family, customers, friends, current and past employees, business acquaintances, and citizens in the community gathered together.

While looking around the tent full of people and hearing the buzz of conversation I realized that each and every one of them had assisted Insects Limited and Fumigation Service & Supply in reaching this 25 year milestone. Whether they were involved with the company for the full 25 years or they had recently been introduced, this anniversary could not have happened without their support.

As the sun began to set, the celebration continued. Dave Mueller became a tour guide for those who wished to take a walk through the facilities while Laura Kelly (Pat's wife) added her beautiful voice and guitar playing to that of the band. New memories of this celebration and the people that attended will be a good starting point for our next 25 years.



*Dave Mueller, Dr. John Osmun, and Dr. Ray Liscombe*



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# Antarctic ozone hole bigger than ever



Image: NASA

A composite satellite image of Antarctica...the hole in the ozone layer over Antarctica is larger than ever.

Wednesday, 4 October 2006  
Agence France-Presse

**GENEVA:** The hole in the ozone layer above Antarctica has beaten the record size logged six years ago, according to the United Nations' weather agency.

The World Meteorological Orga-

nization (WMO) said that data from the U.S. space agency NASA showed that the hole in the atmospheric layer that guards the world against dangerous ultraviolet light had grown to 29.5 million square kilometers (18 million square miles).

"This is the most serious on record," said Mark Oliver, spokesman for the WMO. "It has been caused by a particularly cold stratospheric winter."

The hole was recorded by NASA on September 25, he said, and just beat the previous record of 29.4 million square kilometers which was set in September 2000.

There is a growing body of evidence that 2006 will be a bad year for the Antarctic ozone

layer, with scientists agreeing that the hole has reached record proportions. This is largely due to temperatures above Antarctica reaching the lowest recorded levels since 1979.

However, the ESA also discovered other records: a loss of 40 million tonnes of ozone in October, exceeding the previous high of 39 million tonnes set in 2000.

Ozone loss is calculated by measuring the area and depth of the ozone hole in the stratosphere, about 25 kilometers above the Earth's surface.

The depth of the hole rivals a record set in 1990, the ESA said.

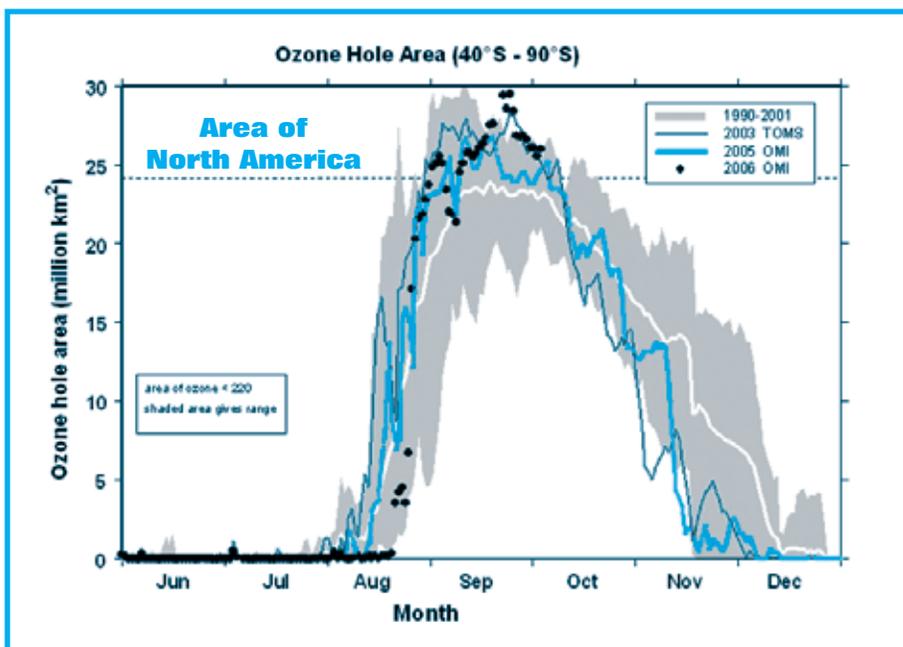
Ozone, a molecule of oxygen, filters out dangerous ultraviolet rays from the Sun that damage vegetation and can cause skin cancer and cataracts.

Scientists say the layer has been badly damaged by man-made chemicals.

The chemical reaction that thins ozone reaches its peak with colder high altitude temperatures in the southern hemisphere winter, normally in late August to October.

CFCs and other ozone enemies like methyl bromide are controlled by an international treaty signed 19 years ago. However, large ozone holes are expected to persist for the next couple of decades because of the amount of pollutants already stored in the atmosphere.

According to officials from the WMO and the UN Environment Programme (UNEP), the ozone layer over the Antarctic looks to be replenished 15 years later than originally predicted, setting the date back to 2065.



## Dave's Soapbox

...for what it's worth



## I love this story... it really happened to me

I was recently in Germany making local arrangements with Dr. Juergen Böye for Bremen 2007. We stopped in a local grocery store to get some items when I passed through the pet food aisle. It is always interesting to see what people eat in other parts of the world but I especially wanted to inspect the pet food aisle in this store and pick up some dog food to take back to our lab to test a new packaging against storage pests. Their packaging was different than ours in the United States because they were heat sealed, instead of glued bags. I admit, living with an entomologist can be somewhat strange at times.

So on the last day of the trip I carefully packed the three small bags of dog food and headed to the airport; Bremen to Amsterdam to Detroit and on to Indianapolis.

We arrived in Detroit to clear customs when I noticed a cute little beagle walking around. I found it amusing to watch as I waited for my baggage.

I collected my bag and started to head for the checkout line where you hand the attendee your stamped card showing what you declared (chocolate, \$10.00, shirt \$35.00, bottle of wine, \$12.00, etc). As I got closer to the attendee I noticed that the beagle came to my

bag and not only stopped, not only didn't sit next to my bags to show the inspector it was on point, but jumped on my bag with its front legs and tackled my large black luggage bag. You could hear an inhale of the people near me and the chatter that followed when the beagle wouldn't get off my bag. I looked up at the U.S. Customs



officer and she put out her hand to take my passport and pointed with the other hand for me to: "Go to that line over there." This is the line where they open your luggage for a close inspection and where they ask you to start taking your shoes and clothing off for a "closer inspection" of your person.

I quickly started thinking about a banana I ate that day. Did I have any fruit or other agricultural products or did, maybe, someone put drugs in my bag in Amsterdam?

As the U.S. Customs Inspector looked through my luggage I remembered for the first time that it contained three bags of dog food. Apparently, this lil' hound dog was hungry and could smell the tender morsels.

I expect that the look on my face told a real story, but I got through the inspection and made it home with the three bags to test for storage pests.

Now that I think about this 'some-what' amusing story, I believe that a pet food company and their advertising agency should re-tell this story for a TV commercial... the beagle already knows its lines.

*D. K. Mueller*

## Certification Training

Over the past 30 years, Insects Limited and Fumigation Service & Supply, have helped train hundreds of fumigators to make the industry safer and better.

Fumigation Continued Education training for credits to your fumigation license: December 7, 2006, Westfield, IN. This one day fumigation update will offer continued education credits for your licenses prior to the 12/31/06 deadline. For more information, contact Kalah Stocker at [k.stocker@insectslimited.com](mailto:k.stocker@insectslimited.com) or 1-317-896-9300. The charge is \$295.

Initial fumigation certification training for category 7D (Fumigation), and the certification examination will be offered by Insects Limited on January 30, 2007 in Westfield, IN. This one day comprehensive training program is offered one time a year for people hoping to gain knowledge on fumigation in order to pass their category 7D examination to become a certified pesticide applicator.

The charge is \$185 for the training. Mr. Carl Rew of the Indiana State Chemist's office will offer the certification examination immediately after the training. Contact Kalah Stocker at 1-317-896-9300 to register.

## Flashpoint #5

the creation of the United States Environmental Protection Agency and the passage of the Clean Air, Clean Water, and Endangered Species Acts.

Earth Day was first observed in the Spring of 1970. An estimated 20 million people nationwide attended festivities out of which came the largest grassroots environmental movement in U.S. history and the impetus for national legislation like the Clean Air and Clean Water Acts. By the twentieth anniversary of that event, April 22, 1990, more than 200 million people in 141 countries participated in Earth Day celebrations.

day across the United States, and more than 20 million people took part in parades, marches, rallies, neighborhood clean-ups, tree plantings, and demonstrations against pollution. Folk singer Pete Seeger performed at the Washington Monument and 42 states passed Earth Day resolutions. This was the largest organized demonstration in U.S. history. As a result, Congress passed the Clean Air Act and Clean Water Act revisions, and the Environmental Protection Agency was created before year's end.

*By Senator Gaylord Nelson—*  
Earth Day occurred to me while



# 1970. The Year of the Environment

“Historians may one day call 1970 the year of the environment—a turning point, a year when the quality of life more than a phrase...”

Eight years after Rachel Carson first published her ideas on man made environmental degradation of the environment; the cry came from the general public for the need of governmental protection and accountability for the environment.

In 1970, the war in Vietnam was fully escalated while the domestic battle with civil rights was on the front page of every newspaper. It was a time of change and discontent and the time to protect the environment had arrived.

On April 22, 1970 twenty million Americans turned out for the first Earth Day. No one expected such uprising of social conscience. Truly, a Flashpoint that affected us all and would last more than 10 years.

Earth Day 1970 achieved a rare political alignment, enlisting support from Republicans and Democrats, rich and poor, city slickers and farmers, tycoons and labor leaders. The first Earth Day led to



## EARTH DAY, April 22, 1970

The first Earth Day in 1970 was organized by Wisconsin Senator Gaylord Nelson who thought that, just as students had mobilized against the Vietnam War in the 1960's, they could also support a national day of rallies and teach-ins about the environment. He teamed up with Denis Hayes, a Harvard law student, and on April 22, 1970, the first Earth Day was held.

They chose Wednesday, April 22nd as the best day for college students. It was a beautiful spring

on a conservation speaking tour out West in the summer of 1969. At the time, anti-Vietnam War demonstrations, called “teach-ins,” had spread to college campuses all across the nation. Suddenly, the idea occurred to me—why not organize a huge grassroots protest over what was happening to our environment?

I was satisfied that if we could tap into the environmental concerns of the general public and infuse the student anti-war energy into the environmental cause, we could

generate a demonstration that would force this issue onto the political agenda. It was a big gamble, but worth a try.

At a conference in Seattle in September 1969, I announced that



Former senator  
Gaylord Nelson



Denis Hayes

in the Spring of 1970 there would be a nationwide grassroots demonstration on behalf of the environment and invited everyone to participate. The wire services carried the story from coast to coast. The response was electric. It took

### *So long as the human species inhabits the Earth, proper management of its resources will be the most fundamental issue we face.*

off like gangbusters. Telegrams, letters, and telephone inquiries poured in from all across the country. The American people finally had a forum to express concern about what was happening to the land, rivers, lakes, and air—and they did so with spectacular exuberance. For the next four months, two members of my Senate staff, Linda Billings and John Heritage, managed Earth Day affairs out of my Senate office.

Five months before Earth Day, on Sunday, November 30, 1969, The New York Times carried a lengthy article by Gladwin Hill reporting on the astonishing proliferation of environmental events:

“Rising concern about the environmental crisis is sweeping the nation’s campuses with an intensity that may be on its way to eclipsing student discontent over the war in

Vietnam...a national day of observance of environmental problems... is being planned for next spring... when a nationwide environmental ‘teach-in’...coordinated from the office of Senator Gaylord Nelson is planned....”

It was obvious that we were headed for a spectacular success on Earth Day. It was also obvious that grassroots activities had ballooned beyond the capacity of my U.S. Senate office staff to keep up with the telephone calls, paper work, inquiries, etc. In mid-January, three months before Earth Day, John Gardner, Founder of Common Cause, provided temporary space for a Washington, D.C. headquarters. I staffed the office with college students and selected Denis Hayes as coordinator of

activities.

Earth Day worked because of the spontaneous response at the grassroots level. We had neither the time nor resources to organize 20 million demonstrators and the thousands of schools and local communities that participated. That was the remarkable thing about Earth Day. It organized itself.

Our very survival will depend upon whether or not we are able to preserve, protect and defend our environment. We are not free to decide about whether or not our environment “matters.” It does matter, apart from any political exigencies. We disregard the needs of our ecosystem as our mortal peril.

That was the great lesson of Earth Day. It must never be forgotten.

## Newsletter Turns 25

How do you communicate with your customers and potential customers on a regular basis?



The first task any businessman has after he decides the name of the new business, thinks of a logo, writes a business plan, and obtains business cards and stationary, is to tell everyone that he has started a new business.

The idea of a newsletter is not new. Many have done it but have they done it for 25 years? Issue 81 represents a commitment to communicating newsworthy information to the Pest Management Industry. The present circulation of *Fumigants & Pheromones* is about 14,000 by hard copy and 2000 via the internet. This newsletter is written and mailed quarterly to over 60 countries worldwide. This means that nearly 1,000,000 newsletters have been sent out in the past 25 years. This has been our commitment to keep our customers informed.

I hope you have enjoyed this newsletter over the past 25 years and that you in return will support our business in the future.

# Fumigation Technology



By Pete Mueller

*will be starting full time with Fumigation Service & Supply, Inc. in Bloomington, Illinois.*

**P**eter is a senior at Purdue University. He is majoring in Interdisciplinary Agriculture upon graduation in December Peter

years, sulfuryl fluoride is not new to the pest control arsenal. For many years sulfuryl fluoride has been used in the United States for home fumigations for termite infestations. Fumigations have changed in perception over the past 100 years, and looks now to be an ever evolving process. The industry has changed from a low tech pesticide application with many personal injuries, to a sci-

fumigations. In this case the structures included buildings like flour mills and food processing facilities. Though it is new to the food market, it has been used commonly for several decades in fumigations for termites in the southern United States. It is common to see a home in Southern Florida, California, or Hawaii completely covered with a tent. The chemical used for such a fumigation is identical to ProFume, but registered under the name of Vikane®. Vikane has been used in the museum industry for

**The future—**I believe there will always be a need for commercial pest control, however, the need for fumigations will be greatly reduced. This is due to trends observed over the past ten years; the loss of methyl bromide, the growing acceptance of integrated

pest management (IPM) programs, and recent advances in sanitation practices. With that said, man's ability to wait until there is a pest outbreak or an emergency shut-down will prolong the need for fumigations indefinitely. It is said that there was an insect on this planet long before the first man walked across it, and they will be here long after we are gone. What is meant by this is that there is no foreseen end to the constant struggle between humans and the invasive stored product pests that wish to consume our food.

**A New-Old Fumigant—**Sulfuryl fluoride is a chemical which, at a required temperature and pressure, can exist in a gaseous state in sufficient concentration to be lethal to a given pest organism. Though being around for many



**Flour mill, grain storage silos, railcars all need different fumigation technology.**

ence with advanced technology with the input from Entomologists and Biologists to understand the biology of the pests.

**Entomological influences allow for the problem insect to be diagnosed and a logical assessment based on non-chemical controls to be used first and chemicals as a last resort.**

## Mills and Food Processing Structures

ProFume® fumigant is a new concept in stored grain and structural

many years to fumigate valuable, artifacts from the attack of an array of pest insects. The Smithsonian in Washington DC developed a fumigation chamber onsite costing over \$250,000. Because of fear of potential gas leaks and safety concerns it was never used. It is common practice for museums to send these artifacts offsite to be fumigated to reduce any chance of a possible human poisoning. A fumigation chamber is a specialized room that is already set up so that there is only one door to be sealed to make a quick airtight structure. In California, these structures are required to have exhaust chimneys 50 feet tall to prevent the gas from settling near people.

Under EPA registration, the permissible level of SF for re-entry of

the structure is 5 ppm (5 mg/m<sup>3</sup>) for Vikane, compared to the ProFume permissible level of 1 PPM. The chemical name of both ProFume and Vikane is sulfuryl fluoride. This gas is colorless, odorless, and non-flammable. In termite fumigations of homes with Vikane, a strong warning additive is used in the form of another registered fumigant called chloropicrin. Chloropicrin is a good warning because it is a commonly used with tear gas by police.

Chloropicrin can not come in contact or be used in facilities that contain food or food commodities.

Another advantage to ProFume is it is required by the label to be externally administered. This reduces the exposure to the fumigator and makes the job much safer. Also ProFume has an electronic label called the FumiGuide®. The



electronic label is a software program that requires input of specific information including: type of structure, time period required, target life stage, and target pest. It is said that, *“If you are not monitoring, you are not fumigating.”* This new program will highlight specific areas where you need to add gas or extend the length of the fumigation. Add gas is any fumigant that is added after the initial fumigant release to achieve the proper concentration over time (CT value) according to the electronic label.

ProFume gave the commercial fumigation industry an alternative to methyl bromide that is not corrosive to metals. Phosphine commonly would cause corrosion to computer parts and other sensitive materials that were mentioned before. This caused much concern to both the fumigation company and the business owner in which the fumigation was conducted. Much time was devoted to removing such potentially corrosive items, but this is not the case with ProFume.

**ProFume has been called the “drop-in replacement for methyl bromide that works better on structures.”**

ProFume is labeled to treat stored grain and seed. For seed to maintain an extended shelf life and maintain fertility, it is stored in large refrigerated warehouses. The benefit of this is that these ware-

houses are generally airtight and require little time devoted to sealing. The disadvantage is that the temperatures are kept well below the recommended minimum for a ProFume fumigation at 65° F (20° C). It will work but requires up to a week to meet the requirements of the FumiGuide.

#### Determination of dosage rate

What is the target life stage of the insects? (All life stages or post embryonic) Are rodents the targeted pest? If post embryonic insects are the target, it will require a much smaller concentration of gas compared to all life stages insects. This is due to the reduction of respiration during the pupa and egg stages. This is based on the specific information that is entered into the FumiGuide®. The FumiGuide will then calculate the amount of Profume needed in each location.

#### Amount of Time

The amount of time needed to perform a fumigation is dependent on many factors. A ProFume fumigation may take a day or two depending on the temperature, target pest, and life stage. Before the fumigation can even be started there are many details that need to be worked out. Time is very important; when a manufacturer must be shut down it is very costly. ProFume can be used in structures like flour mills and food factories that need minimum shut down time.

Making charts and maps to note problem areas from past fumigations will aid in better understanding of the time and man power needed and assignment of tasks. There are many factors to consider when planning a ProFume fumigation. The amount of time needed is dependent on the size of the structure and the amount of preparations.

#### Conclusion

Professional fumigators throughout the world are showing everyday that they no longer need methyl bromide. Fumigation Service & Supply, Inc. has used ProFume for six years to fumigate flour-milling, food processing structures, rice, seed, and grain facilities. In all, over 100 fumigations with ProFume have offered increasing evidence that sulfuryl fluoride, when used properly, is a viable and economical replacement for methyl bromide.

This means that ProFume when used in 18 to 36 hours is a better penetrating gas than methyl bromide. It is proven to be safer to use with the added stewardship requirements, outside applications, and advanced gas monitoring. And importantly, it doesn't cause environmental problems to the ozone layer.

## Fumigation Training



*In September, David Mueller (lower left), Dr. Otto Mück (standing left), and a group of fumigators met at this large Soviet-built grain elevator in Lithuania to demonstrate alternatives to methyl bromide. The workshop was sponsored by the United Nations Environmental Programme (UNEP). Other workshops, like this one, will be offered in Poland, Bulgaria, and Georgia in the coming months. The 27 countries of the European Community, with its 600 million people, are nearing a complete phase out of methyl bromide under the Montreal Protocol.*



### 8th Fumigants & Pheromones Technical Conference

March 6-8, 2007  
Bremen, Germany

Rathaus and Cathedral in Downtown Bremen. The original cathedral dates back to Charlemagne's time. The Rathaus is where the ship captains of the North Sea organized their trade union and did their business. A special dinner for Bremen 2007 will be in the famous 600 year old Rathaus on March 6. Plan to attend.

To see the new program go to [www.insectslimited.com](http://www.insectslimited.com) to find out more about Bremen 2007.

## 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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### Fumigation Service & Supply, Inc.

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

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