

# FUMIGANTS AND PHEROMONES



By: Fumigation Service & Supply, Inc.  
Insects Limited, Inc.  
10505 N. College Ave.  
Indianapolis, IN 46280  
(317) 846-5444 / 846-3399



## Upcoming Fumigation Seminars:

1986 Fumigation Workshop; February 11 & 12, 1986  
Louisville, Kentucky. Contact Dr. Chris Christianson for  
more information (606) 257-5956. An excellent ad-  
vanced seminar for continuing education for fumi-  
gators.

Fumigants & Pheromones; December 1986, Indianapo-  
lis, Sponsored by Fumigation Service & Supply, Inc. and  
Insects Limited, Inc. Contact June Beasley for more  
information (317) 846-5444. Good speakers from  
throughout the country will address these two topics  
and provide the latest information.

Okumura Biological Institute; March 1986, Chicago,  
George Okumura sponsors four days of advanced  
insect identification training. It is the best seminar  
available for those who would like to learn how to  
identify food-related pests. Contact George Okumura  
for more information (916) 421-8963.

## RE-EVALUATION of DDVP PROPOSED

On June 27, 1985, "Notice of proposed decisions  
concerning re-evaluation of pesticide products"  
in which the Department of Food And Agriculture of  
California announces re-evaluation of DDVP (Vapona)  
and other compounds. This evaluation was proposed  
by a recent study by the Department of Health Services  
for in-home use of DDVP. Although this is only a  
potential re-evaluation announcement, in California  
the experienced pesticide companies take this to  
mean that it will definitely be re-evaluated. This is still  
more proof that ALL formulations of DDVP (Vapona)

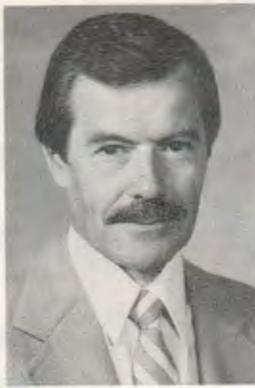
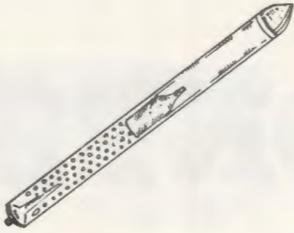
should be restricted-use pesticides. It is important to  
note that many of our potentially hazardous products  
of the past (ie. Carbon Tetrachloride) that were not  
restricted-use, were banned.

## METHYL BROMIDE INFORMATION UPDATE

Vern White, Ph.D., a director at Great Lakes Chemi-  
cal Co., reports that the recent studies continue to  
support the NTP audit of the Dutch study which would  
suggest that there is no evidence of carcinogenicity of  
methyl bromide applications to rodents. A duplication  
of the Dutch gavage study with subsequent post  
dosing recovery periods gave no indications of malign-  
ant growths in any of the rodent tissues and the lesions  
which were observed did exhibit remission after short  
periods of spot dosing recovery. The Dutch rat inhala-  
tion study has now been completed (2 ½ years dosing)  
and the gross pathology is complete. Verbal reports  
indicate there is no evidence of cancer which appears  
to be dosed related. Histopathological examination of  
the tissues is now underway and is expected to be  
completed in the near future. FSS will keep you up-to-  
date on this issue as the reports become available.

## Articles in this Issue of FUMIGANTS & PHEROMONES

- Re-evaluation of DDVP Proposed
- Ultrasonic Devices; Fact or Fiction
- Label Improvement Program for Fumigants
- Methyl Bromide Information Update
- Feature Writer; Wendell Burkholder, Ph.D.
- Fumigation Training; Upcoming Meetings
- Moles, Moles out on Patrol...
- Insect Spotlight
- Indian Meal Moth
- Yellow Jackets
- Grain Storage Outlook
- Lawsuits Hurt Pest Control Companies
- The Rodents are Coming...
- New Products
- Fumigants Registered in the United States



## FEATURED WRITER

### PHEROMONES' POTENTIAL ROLE IN GRAIN INSECT CONTROL

By Wendell E. Burkholder, Ph.D.

Condensed from a presentation at the 1985 international technical conference of the Association of Operative Millers by this USDA entomology specialist. Dr. Burkholder has spent much of his life dedicated to the basic and applied research of pheromones for food-related insects. He has published over 120 papers on this subject and has been a major influence for his many graduate students. The field of pheromones was pioneered and is being fine tuned now by Dr. Wendell Burkholder.

Pheromones are chemicals secreted by an organism which cause a specific reaction by the other members of the same species. There are two common types of pheromones.

The sex pheromones are produced by one sex, usually the female, and attract mates for mating. The aggregation pheromones are produced by one or both sexes and attract both sexes for feeding and reproduction. The sex pheromones are common in the moth species and certain beetles, such as the dermestids, that usually are short-lived as adults. The aggregation pheromones are common among the beetles that are long-lived and feed as adults such as the weevils, borers, and flour beetles.

The many years of basic research in the area of stored-product pheromones have resulted in some commercial applications. Recent advances on trap design, along with success in developing broad-spectrum food lures for stored-product beetles, has stimulated commercial development of new insect monitoring and control systems.

The food and grain industry now have effective new tools for early detection of insects. Packages are offered that include pheromones and attractants for trapping important storage pests such as *Tribolium* (flour beetles), *Trogoderma* (warehouse beetle, khapra beetle), lesser grain borer, saw-toothed grain beetle, Indian meal moth and several moth species.

Pheromones for grain weevils and other species are expected to be available soon. The traps provide vital information about the identity, location, and population density of the pest species. The traps are working continuously over a period of time and therefore, as expected, are often more effective than the conventional sampling procedures. It may be possible to control insects more easily now because of the early and accurate information provided by the traps.

Pheromone traps offer a savings in time spent on visual and manual searches. Pinpointing the source of an infestation allows spot treatments rather than treatment of large areas.

The trapping system has been able to locate construction faults where insects were living. A number of examples of this have been provided by the food industry. Pheromones are powerful tools and, when handled properly, aid in the effective management of pest insects. Newly-designed traps and the food and pheromone lures offer a bright future for detecting, monitoring, and controlling stored-product insects. Pesticide application costs should be reduced because of better timing and reduced areas of application.

It is useful to avoid unnecessary pesticide applications. Advances in other pest management systems will aid significantly in this effort.



### LABEL IMPROVEMENT PROGRAM FOR FUMIGANTS

On June 5, 1980, the EPA announced the establishment of a Label Improvement Program (LIP) under which labels of products were to be upgraded, improved, or revised to meet current labeling standards. Notice of this program was issued in the Federal Register and sent out to the manufacturers of fumigants. Pesticide labels are required to contain precautions and warnings "adequate to protect health and the environment." The label revisions required by this notice, if adhered to by users, will decrease the risks of incidents of death and serious illness related to fumigant use. Fumigants are known to be highly toxic, and a number of incidents of death and serious illness have been reported. The Agency believes that the label information and requirements of this notice are necessary to adequately protect users and the public from the known adverse effects of these fumigants by reducing potential exposure. The improved precautionary information will be beneficial to users, and to medical personnel who may encounter cases of exposure resulting from fumigant use. In addition, by including such information in labeling, the Agency will enhance its ability to enforce the requirements under the misuse provisions, which will encourage greater compliance by users.

#### Required Supplement to Current Labels

- A. Addition of a **Spanish warning statement** to the front panel.
- B. All fumigants will be **Restricted Use Pesticides**.

- C. All fumigants will have the signal words "Danger, Poison", with a skull and crossbones for the human hazard precautionary statement on the label.
- D. Several fumigants are highly flammable. A **statement of flammability** will be required.
- E. Medical treatments listed on the label with **updated practical treatment statements and "Note to Physician" statements**.
- F. **Detailed use directions** for the product's use will be required. This notice requires statement that persons working with the fumigant should be **trained** in fumigant use, and that **two persons** be present during the principal fumigation operations.
- G. A statement will be required that **prohibits the use of fumigants at temperatures below 40 degrees (F)**.
- H. Addition of **protective clothing statements**.
  - I. Statements requiring **respiratory protection devices when the concentration of the fumigant exceeds certain levels**. This will effect reentry, removal of placards after aeration, and spills or leaks of fumigant chemicals.  
Everyone will need to know the Threshold Limit Values (TLV) and Short-Term Exposure Limits (STEL) for the fumigants they use.
- J. Use of **specified direct-reading detector devices** to measure fumigant concentration.



- K. Statements requiring **use of NIOSH/MSHA approved respiratory protection devices**. Specifically, use of a self-contained breathing apparatus (SCBA) is required whenever the concentration level exceeds STEL, or in situations where the concentration level may be unknown (emergency entry, spills, leaks).
- L. Statements requiring **placarding of fumigated areas** in Spanish and English.
- M. **Aeration and reentry statements** are important with respect to concentration levels; STEL.
- N. **Storage and handling statements**.
- O. **Disposal statements**. Hazardous waste is an important consideration.
- P. **Spill/Leak procedures**.

Where are we going to put all of this information?

The Agency strongly recommends that the manufacturers develop supplemental labeling, such as a separate instruction manual that contains the detailed use information. Because of the specialized nature of fumigation operations and the equipment and training needs of applicators, a training manual will be attached to or available with all products. Such a manual is considered to be labeling under FIFRA.

## DEADLINES

If a final printed label is not submitted for each fumigant product by December 31, 1985, EPA may seek to cancel and take action against a fumigant product.

As of December 31, 1985 all products shipped must bear the revised labeling. Product already distributed to dealers and users as of that date may continue to be distributed and sold until June 30, 1986. As of June 30, 1986: all product in channels of trade must bear the revised labeling.

## CONCLUSIONS

LIP 1986 will be one of the most important changes in the field of fumigation. The Label Improvement Program 1986 should make broad changes in the use of most fumigants. The LIP will further restrict the use of all fumigants and stress the importance to monitor levels of gas in the workplace. Detection equipment (ie. Draeger) will be essential on all fumigations. The use of Self-Contained Breathing Apparatus (SCBA, MSA Ultra-lite) will be listed on the labels for most fumigants.

If one reads the above broad requirements for compliance, you will get a good idea of where the Agency's sights are set. The detailed wording for the individual products will continue to be negotiated up until the final compliance dates. Look for these changes on the fumigants that you use after the first of the year. Be ready to comply to this 'new' set of standards. The Agency believes that these practices in many cases are already used in the fumigation industry today. However, the real benefits will be in the more comprehensive and accurate label information, the added training requirements, the much needed information for the physicians, and the greater enforcement capability to insure compliance.

FSS will keep you informed.

David K. Mueller



## FUMIGANTS REGISTERED IN THE UNITED STATES

**I**n 1983, there were 51 fumigants registered by the EPA. 27 of these fumigants contain carbon tetrachloride and other liquid fumigants that will be banned as of 1/86.

24 products will remain on the market to use to fumigate. Methyl bromide, phosphine, and chloropicrin seem to be the survivors.

## Fumigation Training:

A training session will be offered by the Indiana State Chemist at an Initial Pesticide Applicator Training Program in West Lafayette, IN April 8-9, 1986. The lead agencies for pesticide certification and licensing strongly recommend that all who intend to seek certification should take advantage of the training programs offered by the lead agencies, private companies, and trade organizations. Last year over 900 people took the core exam in Indiana after attending core training sessions. Almost 70% of them passed on the first attempt. Not quite 400 people tried the same examination without formal training, and only 48% passed. Similar results were recorded as people tried to pass exams in their specific categories (ie. Fumigation). The investment in formal training is worthwhile.



### INSECT SPOTLIGHT

#### The Foreign Grain Beetle *Ahasversus advena* (Walt.)

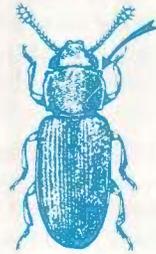
The foreign grain beetle, a reddish brown beetle, is the most frequently found grain insect in the 13 Corn Belt States. It is attracted to damp grain and feeds on the developing molds. It is fastly becoming a nuisance pest for the homeowner as well as the food and grain storage people. It seems to invade inhabited structures all summer long but especially when the corn fields start to dry out. People living or working near a wooded area with rotting logs will frequently encounter this critter. Trash piles of spoiled grain under, around, and in grain storage will team with this tiny beetle.

The foreign grain beetle is a strong flier and is exceedingly common in farm-stored grain that is beginning to go out of condition. It does not damage grain that is clean and dry. When corn is stored for one or more seasons, and was originally put in the bin with a moisture content of over 16%, these beetles will often be found feeding on the surface. Even if the grain is less than 15% moisture by the next summer, the mold and fungus may still develop. In certain years the foreign grain beetle can be found invading wheat storage.

In a survey conducted by Mueller in 1980 concerning stored-product insects on grain and processed food, the Foreign grain beetle was listed as the insect pest that is gaining the most importance in the Corn Belt States from Nebraska to Pennsylvania. Might this be a reflection on our farm-stored grain? Description: Very small dark-brown beetle with rather long, prominent antennae, and slight knobs at front angles of thorax. It is a member of the Flat Bark Beetle family; Cucujidae.

### ULTRASONIC DEVICES; Fact or Fiction

Judging by the countless ads in the newspapers, ultrasonic pest repellers and electric bug killers are an unqualified success. People are buying them by the millions.



The only problem is that they don't work to everyone's satisfaction, including the government's. Cockroaches and rodents ignore them, and they may even make your mosquito problem worse.

Almost 10 million of these 'bug zappers' have been sold since 1980. Killing bugs is one thing; controlling pests is quite another. The electrocuters slaughter hordes of moths and other light-responding insects, but most of them don't bite. Mosquitos, the main back yard pest of a balmy evening, also like the light and more are drawn into the yard at night by the devices than would fly in on their own. However, if on their way to the light they sense people, they quickly change direction. In two controlled experiments to date, the devices did nothing at all to decrease the number of mosquito bites.

The manufacturers of ultrasonic devices are under attack by the regulatory agencies for not supporting their advertising claims. When this device emits this ultrahigh-frequency sound, that supposedly no insect or rodent can tolerate and no human can hear, the pests are driven out by the end of four to eight weeks. According to advertising claims and customer beliefs, all mice, rats, and roaches should be gone.

Many customers are dissatisfied with the ultrasound machines. Since they include the E.P.A., the Federal Trade Commission, and the U.S. Postal Service, trouble may be ahead for the high-frequency devices. Studies conducted by universities, government groups, and independent organizations have shown that these devices do not live up to their claims. The devices fail because the volume of high-frequency sound falls off rapidly within a short distance. The sound will not penetrate metal or plastic, and it is absorbed by walls and furniture. Objects cast "shadows," where the sound cannot reach. To saturate a room thoroughly would take many such devices.

In addition, pests are not bothered by the ultrasonic sound. "In test after test, mice, rats and cockroaches showed no permanent reaction to the noise." Dr. Roger Gold, Professor of Entomology at the University of Nebraska and featured speaker at the 1984 Fumigants & Pheromones Seminar states: "Cockroaches can perceive it, but it's not important to them. Mice and rats can hear the frequency, but they quickly grow accustomed to it and ignore it."

As a result of such findings, the government is taking action against ultrasonic devices. The EPA and the FTC are prosecuting the manufacturers of the ultrasonic repellers for misbranding, unfair and deceptive advertising. In Indiana the State Chemist's office has banned the devices.

What of the customers who still swear by the ultrasonic machines and the outdoor zappers? How is it that their machines get results while those of others fail miserably?

It may be faith, or pride - no one wants to admit he has been duped for \$9 to \$300. But whatever the reason is, it is not science.

Reprinted in part from: Science 85; American Association for the Advancement of Science, by William Jordan, Chicago Tribune 6/16/85.



## INDIAN MEAL MOTH

Five generations of Indian meal moth were hatched in the Midwest this year. Even though it was a moderate year for this pest in terms of customer complaints, it reached its fifth generation by mid-September. By watching the Plodia Pheromone Traps in several locations around the central region of the United States, we were able to pin-point the emergence of new generations of this destructive pest. With a warm, dry spring in this Region, the moths emerged and began reproducing more quickly. Normal emergence of the first generation is about the second week of May. This early first generation may be the reason for the fifth generation in 1985. If one stops to think that one female moth lays between 200 - 500 eggs in her lifetime and you multiply  $250 \times 250 \times 250 \times 250 \times 250$ , that's a lot of moth eggs.

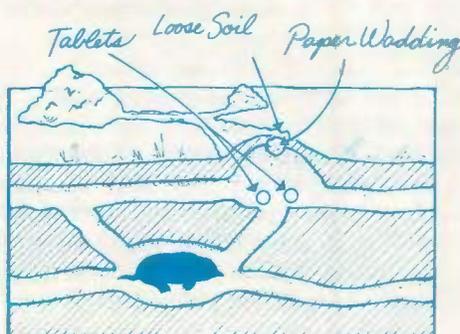
Generation 1 April 15 - 18, 1985  
Generation 2 June 6 - 13, 1985  
Generation 3 July 14 - 18, 1985  
Generation 4 August 14 - 18, 1985  
Generation 5 September 19 - 25, 1985

By watching and recording the numbers of Indian meal moths that are captured in a pheromone trap, one can predict with some confidence the emergence of the next generation. This prediction can help to control a given pest population with the minimum use of toxic chemicals. That's **Pest Management** at its best!

## Moles, Moles,...

Moles, Moles, out on patrol, tearing up lawns out of control. Traps and poisons are doing no good, I ask for help but nobody could. People are screaming, "Look at my lawn, three more tunnels are there by dawn." But wait, but wait, and hear our reply, we won't drive them out, we make them die.

Every year the professional pest control operators and lawn care operators face a unique challenge with this lawn pest. PCO's and LCO's receive calls concerning the damage being done to lawns, playgrounds, cemeteries, golf courses, and gardens. At last, thanks to the EPA, the little diggers can be controlled and/or eliminated. But first, let's get to know the mole. Knowing the pest is half the battle in controlling it.



## Treating with Phostoxin:

### 1. Prior to application

Inspect all visible burrows that can be treated. Inspect all mounds and burrows to determine the active burrows. Active burrows tend to run straighter than foraging burrows, showing signs of freshly excavated soil. Foraging burrows tend to turn constantly, often turning back onto themselves. Abandoned burrows often end abruptly, showing no signs of recent use, and are collapsed along much of their length. If large portions of the system lie on properties that cannot be treated or are too close (15 feet) to occupied structures to be treated safely, the application may not be effective.

### 2. Application

Carefully make a hole in the top of the burrow without it collapsing. Place two Phostoxin tablets every five to ten feet in the active burrows.

If the burrow is deep or goes under a tree or rock, more tablets may be needed. The drier soil may also need more tablets. After a warm rain is a good time to treat, but never place fumigant tablets in standing water. After placing the Phostoxin, put wadded paper in the hole with a little loose soil over it to make a seal. Tablets should be laying in the burrow with neither the paper nor loose soil touching the tablet. Over treating does not make the treatment any more effective. NEVER USE PHOSTOXIN FUMIGANT IN A MANNER INCONSISTENT WITH ITS LABELING. A supplemental label is available for this restricted-use product. Always follow directions when using any pesticide.

### 3. New Activity

Mole control is not always 100% effective on the first application. Give your first treatment three days to work. After three days, have the burrows rolled or walked down so new activity may be noticed. When and if new activity is noticed, treat the new activity in the same manner. This time you will know exactly where the mole is working and have a better chance for control. On large areas, rolling of the mounds before the first treatment may be wise to save on fumigant.

### 4. Problem Areas

Some areas that have a river, creek, or wooded area may have a constant problem with moles invading over and over again. These areas may need a monthly service. After the initial treatment, you might find an occasional invader from outside the treated area.

Yes, folks, mole control is an exciting new field for both the lawn industry and pest control industry.

Training for Mole Control - For more information about mole control contact Jeffrey D. Benjamin at 317-846-5444.

By Jeff Benjamin, Service Manager Fumigation Service & Supply, Inc.

This article was published in Lawn Care Magazine, 9/85 and American Lawn Applicator Magazine, 5/85

## LAWSUITS HURT PEST CONTROL COMPANIES

**E**xterminators aren't dropping like flies, yet. However, about 450 of the nation's 9000 pest-control concerns will go under this year, the National Pest Control Association estimates. Some think the mortality rate will be double that estimate. It is the first year that this industry will decline.

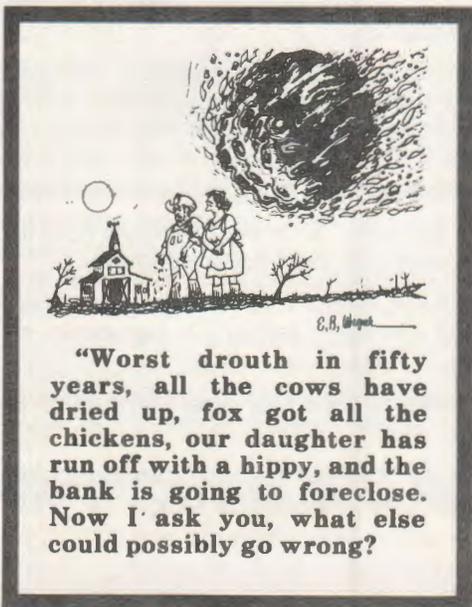
Long a relatively trouble-free business that went largely unnoticed as it rid society of vermin, pest control recently has come under fire from environmental groups and found itself the target of the kind of lawsuits that make insurance underwriters apprehensive.

"The industry is on the brink of some serious liability problems," says Mr. Lipsey, a former Florida state pesticide coordinator and ex-University of Florida professor. "I think we are starting into the same position doctors moved into 10 years ago with malpractice problems."

Many insurance companies stopped covering the industry this year. Insurers still offering coverage are charging three to four times more than a year ago. It is not uncommon to see a small business with three or four employees paying \$12,000 - \$15,000 a year for insurance. This figures out to be 2 - 3% of gross receipts. That means that it cost the company \$2.00 to \$3.00 per \$100. on any sales of service or products, no matter if it is selling gas masks, glue boards, or fumigant.

The outlook for the future seems worse. Increasingly, exterminators are being sued by people seeking to collect damages for illnesses or deaths allegedly caused by pesticides. Insurance companies generally haven't had to pay damages as a result of such litigation, Mr. Savich, an insurance broker from Atlanta specializing in pest control insurance, says. But they foot the costs of defending themselves, which readily mounts up to \$100,000 a lawsuit, he says. It is not uncommon to see a \$6 million suit for a spontaneous abortion allegedly caused by a pesticide application in a home by a PCO.

Reprinted in part from: The Wall Street Journal; 6/10/85



**"Worst drouth in fifty years, all the cows have dried up, fox got all the chickens, our daughter has run off with a hippy, and the bank is going to foreclose. Now I ask you, what else could possibly go wrong?"**

## NEW PRODUCTS

**T**he past year has been an exciting one for those involved in the battle against insects in stored products. Spurred by the elimination of liquid fumigants and the continued ineffectiveness of malathion, some good news is coming from the new product research area.

**RELDAN** One of the most-touted new products on the market is RELDAN 4E, marketed by Gustafson, Inc. The product was made available by the EPA in June. RELDAN is the first stored grain insecticide to clear EPA's standards in recent years.

It is being promoted as a replacement for the protectant Malathion, which has been tested as ineffective against various types of insects. Some of the **advantages** of RELDAN over Malathion are: 1. It lasts longer; 9 to 12 months. 2. It is relatively safe to humans. 3. It is easy to use. Some of the **disadvantages** of RELDAN are: 1. It is more expensive than fumigants or Malathion; 1.4 cents/ bushel. Compared to 1/3 to 1/2 cents/ bushel for Phostoxin fumigants and 1 cent/ bushel for Malathion Dust. 2. The RELDAN must be thoroughly mixed into the grain. Grain that is already in the bin must be turned. 3. Corn is not on the label at this time. It is expected to be placed on the label by next Spring.

Chlorpyrifos-methyl, the active ingredient in RELDAN, kills insects on contact or by ingestion when this liquid is applied to stored wheat, oats, sorghum, barley or rice. Contact FSS for more information on this product.



## TWO BEING TESTED

**T**wo protectants, which have a long wait prior to EPA approval but have researchers very excited, are Fenoxycarb and Methoprene. Both kill insects before they can reproduce and both are essentially non-toxic to humans, other animals, or plants. Karl J. Kramer, research scientist for the USDA, Manhattan, KS, who has worked with Fenoxycarb, says the protectant is very effective in protecting stored products; however, it will not be developed for use as a protectant until it is registered for use in controlling fire ants and flood mosquitos. The protectant works by preventing some insect species from producing offspring.

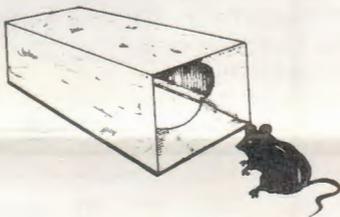


# SEASONAL SPECIALS

## Rodent Control

- Talon-G Mini-pellets
- 10 lb. Pail ..... \$26.10/ each ,
- 4 x 10 lb Pails ..... 96.20/ case
- 100 x 50 gram packets ..... 31.80/ box
- 4 x 1 boxes/ case ..... 108.50/ case
- Talon Weatherblok (New Size)
- 500 x 20 gram blocks/ case ..... 40.70/ case
- Liquid Bait; Liqui-Tox,
- 50 pouches/ case ..... 22.80/ case
- Ketch-All Wind-Up metal mouse traps,
- 12/ case ..... 91.20/ case
- Black Light for Mouse detection,
- Pro-Lite ..... 58.60/ each

## EATON PRODUCTS



- Stick'em Glue Boards, Mouse sized,
- 96/ case ..... \$ 47.00/ case
- Stick'em Glue Boards, Rat-sized,
- 48/ case ..... 49.50/ case
- Eaton's Tamper Proof Metal Bait Stations,
- 12/ case ..... 86.50/ case

## INSECT CONTROL

- One gallon B & G Sprayer w/
- multi-tip nozzle ..... \$131.00/ each
- Flea Control with Precor, 12 x 6 oz.
- aerosols ..... 55.00/ case
- Spider Control with Ficam-W, 10 x 1.3 oz.
- packets/ box ..... 20.00/ box



- FLY Control with Flytek, with Muscamone,
- 5 lb can ..... 17.25/ can

- Empty Bin Spray: Methoxychlor 2lb. EC,
- 5 gal. .... 78.00/ pail

## SAFETY EQUIPMENT



- MSA Full Faced Gas Mask w/ two cannisters and carrying case ..... \$212.80/ each
- MSA Ultralite (SCBA) Composite 30 minute cylinder with carrying case ..... \$1,187.50/ each
- MSA Pesticide Respirator, with 6 cartridges ..... 40.00/ each



- Draeger Gas Detection Equipment
- Deluxe Pump Kit ..... \$ 245.00/ each
- Pump only ..... 145.00/ each
- Phosphine High or Low Range Detection Tubes, 10/box ..... 28.00/ box
- Methyl Bromide High or Low Range Tubes, 10/box ..... 28.00/ box
- Vapona Detection Tubes, 10/ box ..... 28.00/ box

## BIRD CONTROL

- Avitrol (Restricted Use) #011, 5 lb box ... \$ 80.00/ box
- Rid-A-Bird Perches, outdoor,
- 10 perches/ kit ..... 142.50/ kit

## Bio-Lure

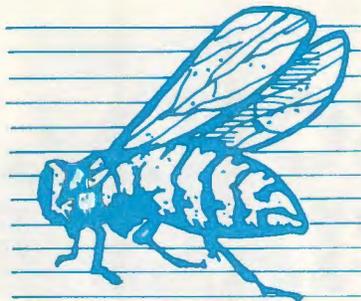


## PHEROMONE PRODUCTS

- Indian Meal Moth BioLures,
- 10/ packet ..... \$ 30.00/ packet
- Trogoderma BioLures, 10/ packet ..... 30.00/ packet
- Storgard Kits for Beetles , 10 trap/ kit ..... 52.20/ kit
- Cigarette Beetle kits, 10 traps/ kit ..... 40.50/ kit

These prices are good until December 31, 1985. Prices are subject to change without notice.

We do appreciate your patronage and support. If you know of someone who could benefit from this newsletter, contact FSS with their address.



## YELLOW JACKETS

**Y**es, Autumn is here with hints of cool days to come intermixed with the last warm days of the year. Apples are ripe on the trees and the air is filled with, well, it's those darned yellow jackets.

If you have been stung this fall or know someone who has, you're not alone. David L. Matthew, Jr., a Purdue Extension Entomologist, says he's had more than the usual number of calls the past month from people with problems with yellow jackets, hornets, and paper wasps nesting in lawns, homes, trees, bushes, and food and grain operations. "There are apparently more of them (insects) this year," says Matthew, who attributes the population boom to an early, warm spring. They've had a longer season in which to develop." Hospital officials agree. Sting victims have been swarming to local hospitals. Especially those who are allergic to bee stings should be aware. Persons who are allergic to bee stings can obtain prescribed bee-sting kits from their physicians. They should keep kits in strategic locations such as in the car, the house, one's purse and so forth. "They can be real life savers." Yellow Jackets can sting more than once and will attack if their nest is disturbed, even

vibrated. A 4-year-old Indianapolis boy was stung 40 to 50 times by yellow jackets in early September while walking with his family in a park. Woodpiles are a common place for yellow jacket nests.

"This time of year," said Matthew, "for some biological reason they start storing up on carbohydrates to help them over winter." Thus they begin attacking fruits - as anyone with an apple tree could attest. Reprinted in part: Indianapolis Star, 9/24/85

## GRAIN STORAGE OUTLOOK

**T**he current low level of new crop price bids provides plenty of incentive for farmers to put corn under the government CCC grain storage loan program. With an average corn price support price of \$2.55/ bushel for nine month storage periods, prices for corn will have to be at least \$2.25/ bushel or better at harvest for a farmer to avoid long-term storage.

"With 70% of this year's acreage in the price support program, loan entries will likely be massive," says University of Illinois economist Darrel Good.

Look for an above average corn harvest in 1985 with little hope for increased overseas export because of the strong dollar. Just think, it has been just two years since the Payment-In-Kind (PIK) program and our bins are filled to capacity again.

A wet fall (eg. 1984) could, 1. Cause problems with proper drying of this new crop, 2. Cause less wheat to be planted in wet, soggy fields, 3. Cause more carryover seed wheat. Late October and November are predicted to be wet again this fall.

## Fumigation Service & Supply, Inc.

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