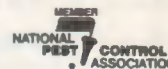


# FUMIGANTS AND PHEROMONES



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



## PYRETHRUM SHORTAGE... AGAIN

Pyrethrum is in short supply worldwide. This is similar to the pyrethrum shortage of ten years ago. The only country supplying refined technical pyrethrum is Kenya. The Kenyan Pyrethrin Board sets the prices for the export of this valuable commodity. The prices have been relatively low for the past three years, and the growers in Kenya have switched their acreage to more profitable crops (ie. coffee and cotton).



Mr. Bill Eichler, Vice-President of Prentiss Drug & Chemical Co. in Chicago stated: "We are starting to get calls from people we haven't heard from for over five years wanting pyrethrum. We are starting to get calls from England and Europe for pyrethrum so, the shortage is worldwide. This (shortage) is what put the synthetic pyrethrum in business ten years ago. The head of the Kenyan Pyrethrum Board says that the switching back to other crops and poor foresight has caused many growers to get out of the business. Other countries are producing unrefined pyrethrum but there are not enough formulators in the United States that have the capability to refine pyrethrum."

Pyrethrum is a safe natural insecticide that comes from the yellow disc inside the bloom of a flower that grows in Africa. It has been used and traded since King Solomon's time.

### FUMIGATION WORKSHOP

February 10 & 11, 1988

Louisville, Kentucky

Executive Inn

Call Dave Mueller for details



"It is easier and more economical to save a bushel of grain than it is to grow a bushel to replace it."

## QUOTABLE QUOTES

Tobacco has one of the highest per acre farm values of all U.S. agricultural crops (\$3,645 per harvested acre in 1985)" SRI publication on Fumigants.

"Which office do I go to get my reputation back?" Raymond J. Donovan, former secretary of labor, following his acquittal on fraud charges.

"I can't believe you killed my rat, it took me four years to train him to watch that conveyer for me." A seed company worker's reaction to a fumigation of his warehouse.

"In a food plant, you don't need to know what pests you have but moreover what insects you don't have." "We need to stop thinking like entomologists and start thinking like ecologists," Dr. Lee Truman, Life Master pest control operator and entomologist, Indianapolis.

The late Sen. Hubert Humphrey made the comment upon the passage of the

Grain Standards Act of 1976: "The integrity of the United States was at stake," and that "the seal of the United States of America is placed on these (grain) cargoes and that should represent something."

## ANOTHER FUMIGANT BITES THE DUST

Another fumigant is no longer available. The product Calcium Cyanide will no longer be available for outdoor burrowing rodent control. In a statement from Don Shaheen, VicePresident/ Technical director of Degesch America, Inc., A-Dust and G-Dust will no longer be available.

It's another case in which the Environmental Protection Agency required additional research to grant a new federal label for this product. The cost to gather this data would run in the \$100,000's range. Because of economics, the product is no longer available.

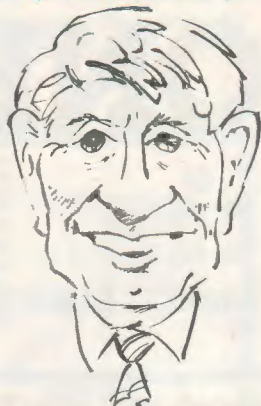
Again, the product is 'guilty' until proven innocent. If it is too costly to prove the product innocent, it becomes unavailable.

## ARTICLES IN THIS ISSUE

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## CHARLEY STOREY

... Insect Revisions in the Grain Grade Standards (What's at Stake?)



Charley Storey conducted research over a thirty year span on the prevention and control of insect infestations in bulk stored commodities with special emphasis on fumigation, protectant use, pest bio-nomics, and the use of modified atmospheres for pest management in farm and commercial storage facilities.

Charlie has authored seventy-six papers in scientific journals, government research reports, farm bulletins, and book chapters, and served as chairman of USDA's National Fumigant Assessment Team for Cereal Grains. He is presently serving as a consulting entomologist at (913) 539-4379.

This is a two-part article dealing with the proposed changes in the official grain grade in the United States. This regulatory change will have a major impact on the economics of storing commodities. Part I will deal with the history of the grain standards and Part II will address the final outcome of the new regulations.

At issue is the long established official sanction of permitting a tolerance for live insects in grain and the attempts by the Federal Grain Inspection Service (FGIS) to revise grain inspection procedures and standards. Critics of the present grading system charge that 1) U.S. insect tolerances are the most lenient for any major grain exporting country in the world. 2) Undetected or undeclared levels of insects in grain are a significant source of foreign complaints about the quality of U.S. grain. 3) These permissive insect guidelines have not kept pace with the sanitation requirements and quality advancements necessary in the processing of cereal food products.

*Grain marketers insist that the decline of U.S. exports is not related to quality but to price,*

that insect problems can readily be addressed when they happen by in-transit

fumigations during shipment, and that much of the impetus to "tighten infestation standards is rooted in domestic miller's problems rather than for export satisfaction".

Insect tolerances were first established in the grain grading system in 1924 when the Grain Standard Act of 1916 was amended to change the grading of most grains that were infested with live "weevils" from Sample Grade to a Special Grade "Weevily". The rationale for moving grain infested with insects from an essentially unmarketable Sample Grade category to one in which the biological activity in grain was separated from the physical factors was likely based on the general belief that some "bugs" were an inherent and inescapable consequence of normal grain storage and marketing practices. This basic concept of insect infestations in grain continues to persist throughout much of the U.S. grain marketing system today some 60 years later. The problems related to characterizing insect infestations became a "numbers" game. The tolerances with different types of grains and different types of insects becomes very complex.

The scientific basis for selection of the numbers and specie differences established in the "weevily" guidelines appear to have been "lost in antiquity", but it is believed they were loosely based on the general classification of grain insects in two groups: those insects that develop inside grain kernels and those that develop outside the kernel. Tolerances for internal infesting insects was set at 1 or 2 depending on the commodity and the presence of other insects in the sample. Tolerances for external feeding insects was set at 5 to 15 depending on commodity and the presence of "weevily" species. The secretions and excretions from many of the common external developing species found in grain were shown to adversely affect such processing properties of milled products as odor, taste, color, loaf volume, and texture.

Storage pests continue to develop and multiply exponentially under generally favorable temperatures and moisture conditions since their food supply is not seasonal, but continuously available within the sheltered confines of a grain bin. It is generally characteristic of stored grain insects that their period of development is short (typically 3-9 weeks), their rate of reproduction high (females may lay from 50 to 500 or more eggs during their lifetime) and individual insects are relatively long-lived for their size (ranging from a few weeks for moth species to as long as 3 years for some beetle species such as the

flour beetles). The significance of these characteristics is that when temperatures are favorable (generally between 70° F to 90° F) and grain moisture is neither too dry (10% or less) or too wet (generally above 18%) even very low levels of infestation encompassing internal and/or external developing species can develop into damaging populations as grain passes through the marketing system from farm storage to elevator terminals to domestic processing and export. Despite the loss of some fumigant materials, technologies involving new grain protectants, other fumigant compounds, modified atmospheres, pheromone monitoring, aeration cooling, and aspiration are available to form the basis for pest management strategies to prevent, control, and limit the development of these pests.

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**What has long been missing in the past, however, is the economics and/or regulatory incentive to implement such ongoing pest management programs.**

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Now the winds of change are blowing. Revisions being proposed by FGIS in the insect guidelines would establish an "infested" definition giving equal value to all insects. The new proposed revisions would virtually eliminate tolerances for grain insects by the year 1992. This proposal removes the disparity that exists between the insect tolerances presently allowed in U.S. grain and essentially zero tolerances permitted by other grain exporting countries such as Canada and Australia. In the United States, we are the supplier of last resort for the world grain market. It's been this way for a decade. The Europeans buy less than 11% of their grain from us. It will continue this way unless something is done to change our grain standards.

### Charlie Story

Part II will be featured in this Issue 13 of FUMIGANTS & PHEROMONES. It will outline the finalized revisions in the grain grade standards.

### Aluminum Phosphide (Phostoxin) Sales for 1985

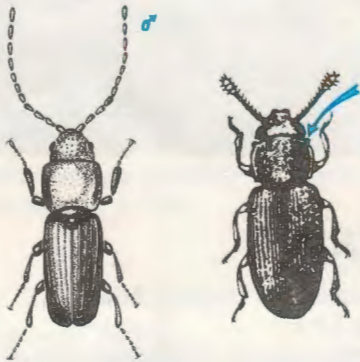
Total sales of aluminum phosphide for the United States for 1985 was estimated at \$27,000,000. This is enough fumigant to fumigate 11 billion bushels of grain.

- 70% Used on Grain & Rice
- 20% Used on Tobacco
- 10% Used on Peanuts, Dried Fruits, Tree Nuts.

## INSECT SPOTLIGHT

### Flat Grain Beetle

The flat grain beetle, *L.pusillus* is one of the smallest beetles commonly found in stored grain. It is a flattened, oblong, reddish-brown beetle about one-sixteenth of an inch long, with long antennae about two-thirds as long as the body. It is found throughout the world and is one of the most common 'bran bugs' in stored grain. The flat grain beetle is a scavenger by nature and prefers grain and meal that is out of condition or that which has already been attacked by the rice weevil. In flour mills it can be found by the thousands in



accumulations of stock in elevator boots and dust collectors, particularly if the stock is a little damp.

The flat grain beetle is of particular concern to the seed industry in that the larvae will chew the germ out of a kernel of grain. The larvae also feed on dead insects.

Under favorable conditions this insect can complete its development from egg to adult in about 5 weeks. The adults are good fliers and can be seen swarming around a grain elevator office during the summer months. Often the flat grain beetle is misidentified as a foreign grain beetle. The flat grain beetle is smaller and flatter in shape while the foreign grain beetle is more oval in appearance with knobs on the front thorax (a.k.a. the beetle with shoulder pads).

Source: Cotton, USDA "Knowing the pest is half the battle in controlling it."

## INSECT IDENTIFICATION

Insects Limited, Inc. offers a free service to its customers to help identify insect pests. If you would like a second opinion on the stored product insects that are causing you problems, we can provide identification assistance. The specimens should be carefully preserved (legs and antennae too) for a positive I.D. Please include a note describing the circumstances

under which the insects were found (type of product, moisture conditions, etc.)

**"KNOWING THE PEST IS HALF THE BATTLE IN CONTROLLING IT."**

### Insect Population in Wheat, Corn, and Oats on the Farm

One or more live, stored-product insect species were found in:

25.1% of the wheat, 56.4% of the oats, and 79.7% of the corn samples obtained from over 8,000 farm storages across 27 states. The average number of insects per 1,000 grams in the infested samples was 26 for corn, 39 for oats, and 105 for wheat.

Source: Storey, Sauer, and Walker, U.S. Grain Marketing Laboratory, ARS, USDA, Manhattan, KS, 1983.

## BE CAREFUL, FRED!

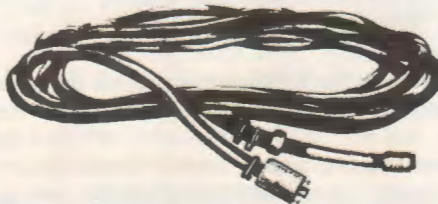


FRED THE FUMIGATOR

Accidents related to using ladders are the leading cause of injuries during fumigations.

## NEW PRODUCTS

Draeger Gas Detection Extension Hose: With the new EPA labeling requirements for monitoring the gas concentration of virtually every type of phosphine and methyl bromide fumigation, a new tool is available. These extension



hoses will allow you to remotely check gas concentration without entering the contaminated atmosphere. This will work especially well when receiving inbound railcars that need to be checked before they are unloaded. These hoses attach to the Draeger pump.

Cost: 3 meter hose \$47.00 ea.  
10 meter hose 63.00 ea.  
15 meter hose 70.00 ea.



The Tenth  
Pan American Games  
Indianapolis  
7-23 August 1987

Come to Indianapolis this summer for the Tenth Pan American Games and be sure to come by and see us.



## TIM HODGSON

Tim is responsible for shipping and receiving for Fumigation Service & Supply, Inc. He lives in Anderson, Indiana and graduated from Lincoln Technical Institute. He is certified in Indiana, Ohio, and Michigan to fumigate. Tim is fumigator-in-charge for one of the crews of custom fumigators that range throughout the Midwest applying Phostoxin and methyl bromide to grain bins, seed warehouses, feed mills, flour mills, and barges. He helped fumigate over 20,000,000 bushel of stored corn in 1986.

Tim enjoys playing with his 2 year old daughter Jessica. He is an avid auto racing fan and in his spare time works the pits on a sprint car team.

Tim is an energetic, charismatic individual who has a gift of being able to fix just about anything.

"Getting orders out the door the same day that they are placed can get hectic, but we get most of them out. If you have a special need, please feel free to contact me. When we ship to big companies, sometimes they have certain requirements that make the flow of paperwork and receiving easier. Any communication that you can offer will speed up our deliveries to you. We have some pretty good discounts from trucklines here in Indy; up to 35%. UPS picks up every day about 4:00 PM. So, if you can call in your orders before 3:00 PM, we'll do our best to get you a good discount and hurry them on their way."

## FUMIGATION... A Trend Has Developed.

*It is the year Two Thousand and ? and two old grain elevator managers are standing around talking while unloading a truck of grain:*

"Hell, I remember when I would take a couple-a-gallons of that EDB or Carbontet liquid fumigant and 'pickle' the grain at this here grain dump. Boy, that sure would take care of those darn weevils. Roy, times sure have changed since the 1980's. Nowadays the EPA Marshal won't let us use any chemicals on our grain or mills at all".

"I just bought one of those new-fangled CO<sub>2</sub> machines over there. It pumps all of the oxygen out of the grain and replaces it



with carbon dioxide and nitrogen; hell of a deal. It's as slow as molasses though. It took six weeks to kill the bugs last time. The price of that contraption was 'only' \$46,000. Well, I could buy a mess of that Phostoxin fumigant from 'ol Dave Mueller. But those days are over..."

"If we take any buggy grain to the flour mills anymore, they will turn it down or dock me a buck-a-bushel. Sure can't afford that stuff at \$5.00 corn prices."

"Well, the bin's about full. Better go back to work at my computer terminal, Big Brother is watching."

"Roy, those were the good old 'ol days... but, those days are over."

"The future of insect control is not with the use of toxic chemicals."

David K. Mueller

## RESISTANCE

There are over 450 reports of insect resistance in the United States. There are 20 insects that are resistant to every single insecticide listed to control it. Our dependence on pesticides will decrease in the near future as insects and plants continue to rapidly change their genetic make-up. Integrated pest management (IPM) is the only real long range solution to any pest problem. *The judicious use of pesticides will also allow all of us to be kinder to the environment.*

## PHEROMONE TRAPS... A New Use.

Many of our insect pests that reach our facilities come in from the outdoors. Indian meal moth and *Trogoderma* spp. (warehouse beetles), along with other stored product insects, can be found foraging outdoors throughout the United States. If they smell a preferred food source, they will enter your company's building and start to multiply.

Several progressive sanitation programs in the food and pharmaceutical industries include the perimeter trapping of pest insect populations. Similar to rodent control perimeter control, pest insects can be intercepted before they enter sensitive areas. These insects will be drawn away from the buildings and into pheromone traps.

One candy company in Illinois has written a computer program to map the numbers of *Trogoderma* found indoors and outdoors. The first year, they monitored for this serious food insect indoors only. They collected their data and stored it. The next two years they trapped for these small black beetles outdoors by placing a sticky trap every 75 apart on the boundary fencing (75 to 100 feet from the candy company). The number of *Trogoderma* captured in the indoor traps dropped significantly after the outdoor perimeter trapping program was established. By entering the three years worth of data from these pheromone traps, the sanitation manager was in complete control of any cycles of insect activity that might occur. He could predict the population from one generation to another and would prescribe control procedures accordingly.

By examining the adult insects that were captured in outdoor pheromone traps at a pharmaceutical company, it was observed that the setae (hairs) on the *Trogoderma* wing covers had a white substance and a yellow substance clinging to them. These insects had last crawled around in product from some bulk bins located inside the building and had left the building to be captured by the pheromone traps.

In many cases we are able to tell where the pest insects came from by closely examining the substances found on the insect

(ie. nectar from outdoor flowering trees and shrubs, flour from processing equipment, or fish meal from storage bins).

You might consider starting an outdoor perimeter pheromone trapping program to determine the stresses that your facilities are feeling from outdoor pest insect invasion. Charlie Knote says; "95% of the mice that enter a warehouse come in from the outdoors." How many insects are entering your facility from outdoors?



## TRENDS

Consumers fear chemical hazards in their food.

The vast majority of consumers believe chemical residues in food present a "serious health hazard," according to a recent supermarket trade association poll.

76% of those surveyed, in fact, said compounds such as pesticides and herbicides continue to pose a major threat to food supplies. An additional 20% believed the agricultural chemicals were "some-what of a hazard," while only 3% said the substances were no such problem.

The responses were a part of "Trends 1987: Consumer Attitudes and the Supermarket," an industry overview presented by the Food Marketing-based retailers and wholesalers group.

**Today's consumer has a very great concern about the presence of chemical residues on his food.**

Now in its 16th year of charting consumers' viewpoints and buying habits, the report also found widespread concern about other food safety issues as well.

For instance, 61% of those queried said they believed antibiotics and growth hormones in poultry and livestock feed are also a serious hazard. Another relatively new question, about irradiation, was also included on the survey. 43% of the respondents believed the use of gamma rays on food was a serious hazard while 20% were unsure whether irradiation was hazardous in food protection.

Source: Los Angeles Times, D. Puzo, 5/87

## DEGESCH PRODUCTS HIGHLIGHT

There are *not* a lot of new products coming on the market to control insects, but there are better techniques and more conveniently packaged products available for specific types of fumigations. Degesch America, Inc. of Weyers Cave, Virginia is the manufacturer of Phostoxin. They also have many other products and equipment available to offer the safest and most effective fumigation program available. We at Fumigation Service & Supply, Inc. could distribute any number of solid fumigants on the market today. We distribute Phostoxin and Degesch Products because they are simply the best. Their consistent quality shows a real commitment to quality control that can not be seen with the other 'copy cat' products. If you were to line up twenty cases of Phostoxin and take random samples of this product for analysis, Phostoxin will show consistency from one-to-twenty with the fumigant and the *packaging*. This cannot be said with the import products. The highly trained quality control laboratory at Degesch America, Inc. (2 Ph.D.'s and 3 M.S. chemists) sample every batch that is formulated and these samples go through a battery of tests. You may be able to purchase less expensive aluminum phosphides, but you cannot buy a better product than Phostoxin fumigants.

### Phostoxin Pellets

1660 pellets/ flask, 21 flasks per case

The pellets are used in steel and concrete grain bins and for space fumigations. It is the most versatile form of aluminum phosphide because of its quicker breakdown and better distribution in commodity. A normal pellet fumigation is at least 3 to 4 days. Container sizes: 4-pack; 4 flasks

(UPS shippable, 15 lbs)  
Cases : 21 flasks  
(truck freight, 56 lbs./cs)

### Phostoxin Tablets

Regulars: 500 tablets/case, 14 flasks/case

Smalls: 100 tablets/case, 70 flasks/case

Tablets are used on flat storage and small grain bins because of their inherent lack of tightness. Tablets are also widely used on ship fumigations and in tobacco storages. The tablet smalls are the same sized tablet but only in a smaller container. It is convenient for mole control and farm storage retail sale. Container sizes: 10-pack, 100 tablets/flask

(UPS shippable, 10 lbs./pk)  
Cases, 14 flask/cs  
(truck freight, 56 lbs./cs).

### Phostoxin Pellet Prepac

165 pellets/strip, 4 strips/can, 12 cans/case

This is a convenient pre-packaged form of aluminum phosphide. There are 165 pellets in a 24" long strip. The dust from the pellets is retained in this permeable container so as not to come in contact with processed food. Processed food has no tolerances set for the dust from the aluminum phosphide. This packaging style is being phased out by Degesch America, Inc. and the new, more convenient, Phostoxin Prepac Tablets is being phased in.

Container size: truck freight, 33 lbs./cs.

### NEW Phostoxin Tablet PrePac

33 tablets/strip, 1 strip/pouch, 48 pouches/ pail

33 tablets/strip, 3 strips/pouch 16 pouches/pail

33 tablets/strip, 4 strips/pouch 12 pouches/pail

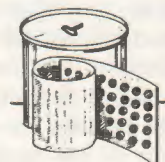
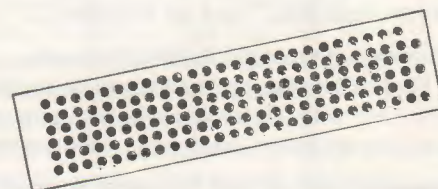
No more hard to open sharp cans and no more wasting left over pellet prepac. Degesch America, Inc. now offers a new prepac that can change railcar fumigations. The foil pouches are easy to open and individually packed with one, three, or four prepac for accurate dosing. The pouches come in a resealable, easy to carry to the site, six and-a-half gallon pail. Container size: UPS or truck freight, 21 lbs./pail.

### Degesch Magtoxin

(Magnesium phosphide modified prepac)

66 pellets/strip, 5 strips/pouch, 12 pouches/ 6 1/2 gallon pail

This product is exclusively used for the spot fumigations of machinery, milling equipment, silos, and brewery equipment. It is not registered in all states with a Federal EPA label. However, it is registered with most states under a 24c, special use, agreement. It is a replacement for ethylene dibromide (EDB). The strips can be divided for accurate dosing. Container size: UPS shippable, 21 lbs./pail.



## NEW Degesch Tablet Ropes

1057 Phostoxin Tablets/ rope  
2 ropes/pail.

This conveniently packaged form of Phostoxin can decrease the application and disposal time on a space fumigation. It is used to fumigate grain on ships to help retain the dust (aluminum hydroxide). Each tablet is separated for quick breakdown. After the fumigation, the fumigator can roll the 15 foot long rope up and dispose of the dust all together. Container size: truck freight, 29 lbs

## Degesch Fumi-Strips

20 plates/strip, 2 strips/tin, 3 tins/case

The magnesium phosphide fumigants are a fast reacting, easy to apply method. The plate is 11 inches by 8 inches and is one quarter of an inch thick. It weighs 116 grams and releases 33 grams of phosphine gas. The strips are packed accordion-type for ease in distributing the fumigant on the floor. Disposal with magnesium phosphide can be tricky; consult FSS for directions. Container size: truck freight, 64 lbs/case (wooden crate).

## Degesch Fumi-Cels

1 plate/foil container, 40 plates/tin,  
3 tins/case

This magnesium phosphide fumigant is identical to the Fumi-Strips, except that it comes individually wrapped one plate per foil package. One plate-at-a-time can be removed and used. This provides the dosing flexibility necessary to fumigate various sized sealable enclosures.(bins, static trucks, railcars, tarped commodity, etc.) Container size: truck freight, 64 lbs. (wooden crate)

## Degesch Fumigation Accessory Items

### Cotton Bags for Fumi-Cels

This can be placed in railcars or places where Fumi-Cels are to be hung. Onion or potato produce bags work equally well.

### Wire Disposal Baskets

Disposal of packaged forms of Phostoxin and Magnesium phosphide products can be potentially dangerous. These locking disposal baskets have taken most of the risk out of disposal. If phosphine is *not* contained, it will *not* catch on fire. Dumpster fires and disposal in sealed plastic bags should be eliminated when this type of dry disposal is implemented.

### Degesch Fumi-Disks

These are cardboard disks that are placed in railcars. The Phostoxin Prepacs are slipped into the fumi-disk. There are two sizes; 22" and 33".

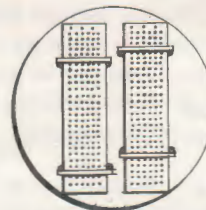
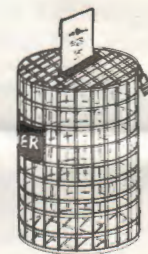
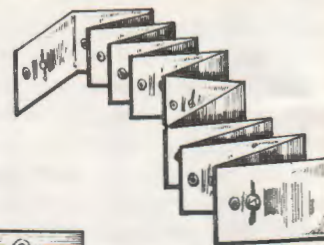
### Phostoxin Automatic Pellets Dispenser

Phostoxin pellets and tablets can be applied to the grain stream more easily and effectively with this 'modified bubble gum machine'. It can take the hazard away from the fumigant applicator, making it a safer method to use Phostoxin fumigants.

### Degesch America, Inc. Technical Support

Literature, labeling, warning signs, technical research papers, material safety data sheets are all necessary to complete a fumigation program. The staff at Weyers Cave participates in training seminars all over the United States, Canada, and the Caribbean to assist the end users of Phostoxin. Degesch has been the leader for 30 years in fumigation training. Updated literature, research, and training along with regulatory lobbying is essential in this everchanging world of restricted-use pesticide application. This is another reason to use *American made Phostoxin.*

Jeremiah Sullivan, Ph.D.  
President, Degesch America, Inc.



## PHOSTOXIN'S NEW LABELING

Look close at the new cases of Phostoxin and Magnesium phosphide that are being shipped. They have a small (3" x 3") white sticker on the top of each case. This sticker indicates that this case of fumigant contains the new labeling changes. Inside the cases is a labeling

booklet. This 16-page booklet will explain, in detail, all of the new requirements for handling these products. You are now obligated under federal law to use this product in compliance with this new labeling.

DEGESCH aluminum and magnesium phosphide fumigants are required to be used in accordance with the procedures and safeguards described in the products' Applicator's Manuals. A copy of the Applicator's Manual is enclosed in this case. You are required to review this manual before using this pesticide. If you are purchasing less than a full case, your retailer or distributor must provide you, without charge, a copy of this manual. **Notice to Retailers** - Each purchaser of this pesticide, whether by the case lot or less than a case lot, must receive a copy of the manual described in this notice.

FORM 17817

## ACTELLIC/RELDAN UPDATE

The two new grain protectants that are on the market have gone through some changes. In an effort to keep you up-to-date on the labeling progress for these two valuable insecticides, below is the latest information:

**Actellic:** ICI America has received federal EPA approval to use Actellic 5E on popcorn and seed corn. The popcorn addition can be found on the new labels. The seed corn addition will not appear on the ICI America label, but it will appear on a private label from Brayton Chemical Co. This is the company that did most of the research and packaging testing to satisfy the EPA's requirements. This new seed corn label will just about eliminate the use of methoxychlor and Dipel on seed corn. Any leftover seed corn can now enter direct grain channels without any addi-

tional procedures if it contains 6 - 8 ppm levels or less.

Soybean oil mixture has been added to the label. Those using soybean oil as a dust suppressant can now add Actellic 5E to the mixture. Note: Mineral oil is not on the label and has not shown good results



when mixed with this insecticide. There seems to be a separation that takes place when they are mixed together.

**TOP DRESS Labeling.** ICI America has issued a Top Dress Technical Bulletin that states that Actellic 5E can be used to top dress corn if the grain has not been previously treated with Actellic 5E. Shiela

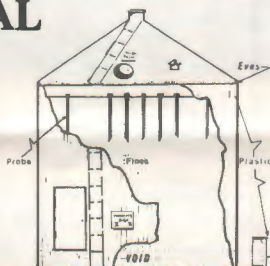
Lingle, Product Manager for ICI America stated, "6 to 8 ppm is 6 to 8 ppm no matter how it gets on the grain." Reldan 4E has been used for wheat as a top dressing for two years.

You can get a copy of this Technical Bulletin and other pertinent information about this new grain protectant by calling the Actellic Hotline 1-800-441-7757.

**Reldan 4E:** Jeff Weber of Gustafson, the marketing company for Reldan, recently stated, "It looks like we may have a 50 - 50 chance, of getting a corn label by fall. It would probably be a farmers use (on-site) label only".

The hold-up in the expanded labels for these two products stems from the lack of information about what happens to Actellic and Reldan when they break-down. The EPA wants to know what they degrade into and are the metabolites more toxic than the parent compounds? To answer these questions for the EPA, it takes research, money, and time.

## GRAIN FUMIGATION MANUAL



A grain fumigation manual is available free of charge from Fumigation Service & Supply, Inc. This is an accumulation of the featured articles from Issues 9 & 10 of the Fumigants & Pheromones Newsletter. Covered, in detail, in this Grain Fumigation Manual are procedures to treat 1. Small grain bins (less than 25,000 bushel) 2. Large grain bins (over 25,000 bushel) 3. Flat storage, with Phosphorus fumigant. These are proven methods

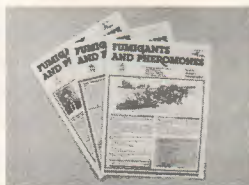
of fumigation that help organize a safe and effective grain storage fumigation.

### Fumigation Manual

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 State, Zip \_\_\_\_\_  
 Phone Number ( ) \_\_\_\_\_

### Fumigants & Pheromones Newsletter

If you are not currently on our Newsletter mailing list or, if there are any corrections needed, please complete the following information and return it to us.



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## 1987 PRODUCT GUIDES



"You can't tell a player without a score card."

The New Product Guide for Fumigation Service & Supply, Inc. and Insects Limited, Inc. is now available. It was recently sent to over 1200 active customers.

Some new features of this Product Guide are:

1. An easy to locate index for product groups
2. Over 300 products available
3. An alphabetical listing of products
4. A stored-product identification guide
5. New listing of pheromone traps and lures

FSS & IL have doubled their stocking inventory for the items in this catalog. We pride ourselves on the fact that over 90% of the orders we receive from you before 3:00 pm get filled the same day they are placed. This type of service is important when you are working with situations that

often need to be remedied immediately (ie. insect infestation). We believe that we can offer to you "Competitive Pricing and Unbeatable Service".

If you would like to receive one of our new product guides, call us at (317) 846-5444 or mail the following slip.

Yes, I would like for you to send me your 1987 Product Guide.

Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_  
 State, Zip \_\_\_\_\_

## FUMIGATOR'S TIP

Test insect cages can help show the effectiveness of a fumigation. In the past, fumigators grew their own test insects and placed them in some kind of gas permeable containers.



A great idea has emerged from LSB Products of Manhattan, Kansas. BUG-CHEK; Fumigation Efficacy Bio-Assay is a ready-to-use insect cage with about 10

adult confused flour beetles inside a 2" by 3" card which contains enough food to keep the test insects alive for about 30 days. This card has a fine screen mesh on one side allowing gas to readily penetrate. It can be placed deep in sealed packages, grain, tobacco hogheads, or high on I-beams to check on the fumigation kill.

Fumigation Service & Supply, Inc. uses the BUG-CHEK on most of its custom fumigations. Insect cages are given to the customer who places the BUG-CHEKS around the warehouse and marks them for easy recovery.

The manufacturers of BUG-CHEK have only confused flour beetles at this time but plan to culture other species of stored product insects in the future. The cost of the BUG-CHEK is \$1.95 each, with a \$20.00 minimum order. They are shipped UPS Blue Label (second day delivery) and can be ordered by calling (913) 537-9773 at LSB Products, 731 McCall Rd., Manhattan, KS 66502 or by calling FSS.

You can definitely increase your credibility and confidence in a fumigation by placing test insect cages in the fumigated structure if the test insects are all dead. Add this technique to your fumigation procedure.



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### THE NEWSLETTER

Fumigants & Pheromones is published by Fumigation Service & Supply, Inc. and Insects Limited, Inc. for the professional pesticide applicator. 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 that 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., P.O. Box 40641, Indianapolis, IN 46280 (317) 846-5444.

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