The protection of the world’s food supply is important. Especially without the perceived or hidden dangers of food contamination of pests or elevated pesticide contamination. A transition is occurring in stored product protection throughout the world. The consumer is demanding pest free food and a living environment without the hidden risk of ozone depletion and cancer caused by pesticides.

This Period of Transition has evolved from 1962 when Rachel Carson wrote Silent Spring and awakened people to the problems of pesticide misuse. It has evolved from the establishment of the U.S. Environmental Protection Agency in 1972 with its powerful paranoia to cancel, register, and re-register pesticides.

It has evolved from Earth Days and “Plant a Tree” programs to teaching our children that recycling was not a fad but a way of life.

Stored Product Protection has evolved from a ‘scheduled by the calendar’ pesticide treatment to “show me there is a problem before I will allow my facility to be treated” philosophy. Placing more time and resources on PREVENTION and MONITORING of pest populations will help transform a new generation of people who are pest problem managers rather than pesticide applicators. By working more with PREVENTION and MONITORING and less with CONTROL, we learn to focus on starting with the insect or pest first. We then can develop an environment that this insect or pest cannot tolerate. It will leave or it will die. We should explore those least toxic alternatives first. We do need viable CONTROL tools to meet the outbreak challenges of protecting stored products and our homes, but the key to today’s protection is a proactive exploration with toxic CONTROLS as a final, rather than the first alternative.

The book STORED PRODUCT PROTECTION... A Period of Transition offers the reader alternatives, options, and strategies. It presents a close look at alternatives to the serious ozone depleting product methyl bromide. What will replace methyl bromide? Will it be another fumigant or will it be the reduction of the need for methyl bromide?

See page 7 for order form and instructions.
Over 160 people from 23 countries gathered in York, England to “share through education” at the 11th Fumigants and Pheromones Technical Conference.

York dates back to before the Vikings and the Romans, but the new Central Science Laboratory dates back to 1997. This newly dedicated scientific research facility played host to over 160 attending this year’s Fumigants and Pheromones conference.

Sharing through education has been the theme for the 11th Fumigants & Pheromones Technical Conferences since they were established in 1982. Since that first seminar, over 2000 people have attended this series of stored product protection educational programs.

The real importance of this conference was that alternatives to methyl bromide became the main theme discussed in and outside the lecture hall. People are very concerned with what will replace this ozone depleting substance and very concerned regarding the speed at which they are expected to phase it out.

Over 40 experts were selected to present the latest technology in the field of food protection. Besides the two-day lecture format, there was a tour of the new CSL with interaction with many of the scientists of CSL working on projects in the stored product arena. On the third afternoon a Food Protection Workshop organized by John Mueller allowed participants a chance to experience alternatives to methyl bromide and advanced techniques in food protection from around the world.

Food Protection ’98 was a mix of applied, practical, and research based information that offered each person a chance to meet people from over 23 countries representing five continents that came to learn and share their experiences. Sharing through education is the way we become better at what we do. The next Fumigants and Pheromones Conference (12th) will be held in Chicago, Illinois.

Dr. E. Horn of Chile demonstrates the Horn Phosphine Generator with live fumigant.

Dr. Jane Wright from Australia’s CSIRO. Maureen Wakefield, Paul Cogan, CSL, York, England.

John Mueller, FSS, USA, “Shares through Education” in a hands-on workshop.
What Does Your Pest Management Program Look Like?

A TRUE STORY
(From Chapter 1, STORED PRODUCT PROTECTION...)

One day during a plant sanitation meeting, a question was raised about how much time the sanitation department was to spend on various pest control duties. Curt Hale, entomologist and former coordinator of sanitation at General Mills in Cedar Rapids, Iowa explained it with this diagram:

The large circle represents the importance of prevention and the total amount of time and effort that should be devoted to this task. Examples include cleaning up spilled product, caulking cracks, replacing screens on doors and openings, re-painting the 18 inch white line on the perimeter of the warehouse to keep product away from the walls, inspecting incoming suspect ingredients and packaging materials, correcting improperly installed lights outdoors, replacing door sweeps that are worn out, inspecting wooden pallets for carpenter ant and other wood destroying organisms (WDO's), sweeping and vacuuming spider webs in the warehouse, to name a few. Prevention takes time and constant diligence, but it pays dividends in a balanced sanitation program.

The second circle represents the percentage of time and effort that should be devoted to monitoring for pests and defects. Examples include pheromone traps (indoor and outdoor), mechanical wind-up traps, sticky board traps (blunder traps), inspection for signs of pest damage, black lighting for rodent urine, and inspection of suspect areas where these devices show defects. Spiders act as an excellent indicator of insect activity. Monitoring can be used to help solve customer complaints by looking for trends in pest activity at the time the product was in that facility. It is imperative to check questionable old code dates because such containers can harbor insects.

Monitoring for old stock that has not been rotated or has been forgotten from the inventory is terribly important. Many pest outbreaks begin from pallets of old code-dated stored product that was not rotated or monitored for years. The vigilance of a fine-tuned monitoring program can offer early warning before a problem evolves into a customer complaint.

The third circle represents the control portion of a complete pest management program. It should be the smallest circle in a balanced pesticide program. Too often the control portion of the program is the largest amount of effort and money expended. It is often a crutch that is used to replace valuable cleaning and monitoring. Treatments should be a supplement to the preventative and monitoring programs. The control program should not be systematic or according to the calendar but justifiable. Outbreaks will occur in any pest management program and pesticides are needed when these outbreaks occur, but the frequency of these outbreaks will be greatly reduced when a true integrated pest management approach has been established. A large menu of control tools is available. The selection of which products should be used is based on the target pest and the history of the problem. The most important thing that needs to be considered when choosing a control product is protecting product integrity. Which is worse, a product infested with insects or a product with excessive illegal pesticide residue?

Take Home Message

These three circles are a simple but effective model of how a true pest management program should be viewed.

The pest management program fails if constant outbreaks of pests occur. A pest management program cannot work if the pest manager is always waiting to put out a fire or implement Band-Aid solutions. Pest management starts with considerable preventative effort and is complemented by a thorough monitoring and inspection program. Finally, the safest control measures should be used not according to the calendar but when necessary.

This simple program has a very important message: Stored product pest management is pro-active instead of reactive.
Alternatives to Methyl Bromide

Soil Fumigation is the largest single use of methyl bromide. Over 80% of all the methyl bromide used in the United States is used for soil sterilization. Methyl bromide is a biocide that eliminates weeds, nematodes, diseases, and insects. This allows the plants to grow in an environment without these stresses. The tomato and strawberry industries use over ten times more methyl bromide than the stored product community with flour mill and food processing facility fumigations.

On a recent assignment to Africa for UNIDO (branch of the United Nations), I found myself being the student rather than the teacher when it comes to alternatives to methyl bromide. After spending a week in Abidjan, Cote d'Ivories (The capital of the Ivory Coast in Western Africa), I stopped looking at alternative ways to fumigate the 800,000 tons of cocoa beans that are shipped from this harbor and turned my attention to why the local plantations didn’t use methyl bromide for soil fumigation. After a trek from the city and into the jungles near Bingerville, I met a Frenchman named Jean Marie who had studied in the States. I asked him if he used methyl bromide and he said no, none. I immediately said why?

The soil in Western Africa is old, maybe 16 million years old and the nematodes that live in the climate located 200 miles from the equator are ravenous to all plant life. The nematodes can suck the life out of a plant. Jean Marie walked to a large pile of brown substrate and said that he had discovered that if he planted his plants and flowers in this material they would grow very healthy without fumigating with methyl bromide. He said that the cost of the methyl bromide treatment, transportation, polyethylene sheeting and labor figured to be 1/2 of the cost to produce the plants and flowers.

Western Africa grows palm trees in fields like Indiana farmers grow corn. Hectare of palm trees are grown to produce palm oil for cooking. Most foods are cooked in palm oil. (If you walk 10 or 15 miles a day, I guess you don’t have worry much about heart disease.) Jean Marie gathers the coconuts after the straw-like bristles are taken for brooms by the locals and grinds them up into a fine artificial substrate. Imagine all those coconuts laying on the ground throughout the world that could be gathered, ground up and used for planting tomatoes, strawberries, greenhouse plants, peppers, and whatever needs to be grown, harvested and sold for consumption. Coconuts could be a new market whose futures could be traded on Wall Street. Well, let’s not go that far.

The plants that Jean Marie showed me that were grown in the Western African soil were stunted and the roots were full of cyst nematode damage. The plants that he showed me that were grown in the coconut artificial substrate where lush and healthy. They were grown above the ground so as not to come in contact with the infested soil. He continued to use insecticides to kill the occasional white fly outbreak.

Now imagine all the idle hands that are available in these developing countries where unemployment may be 50% or more. Imagine all the coconuts that are allowed to rot on the ground. Whole industries can be created in developing nations.

Take Home Message
Alternatives to methyl bromide will most likely not come from our government laboratories or big companies trying to create the next super fumigant. It will come from people like Jean Marie who had a problem and found a solution. Niche alternatives will be numerous but partial. It will be the combination of these partial solutions that will finally be our alternatives.

It will be up to the individual to solve the problem and find alternatives to methyl bromide much like Jean Marie did.
Humans need an enemy to focus on. The hunter instinct allows for us to study, stalk, and kill our prey. If you don’t believe me watch the Superbowl or the World Series. Or a shopper at the local mall the day after Thanksgiving or Christmas.

dollars were spent for weapons in past wars.

So what’s your point, Dave?

Communism was an easy sell for the politicians of the 1950’s-1970’s. We must tax more to defend you against “ism.”

Environmentalism is a harder sell because today most of us are enjoying a good quality of life (even though most of us don’t stop to acknowledge it). The thought of our planet becoming so polluted, over warm, contaminated, and irradiated that its future is in doubt will be the pitch made to the taxpayers of developed countries in future elections. At least until threats are made to launch an atomic missile attack again.

Chief Joseph prophetically said: “We don’t inherit the world from our ancestors, we borrow it from our children.” The quality of this planet that we offer to our children and children’s children in the future is our next ism.

Billions of I vorian boy selling coconuts in Abidjan.
New Product:

Insect Identification Slides

Insect identification slides are actual insects mounted in a cardboard square (2"x 2") that show the real characteristics of these insects. These slides are to be used as educational tools for positive verification of a pest insect. Included are 20 of the most common stored product pests:

- Confused flour beetle
- American spider beetle
- Black larder beetle
- Red flour beetles*
- Angoumois grain moth
- Flat grain beetle
- Indianmeal moth*
- German cockroach
- Rice weevil
- Cigarette beetle*
- Mediterranean flour moth
- Lesser grain borer
- Drugstore beetles
- Yellow mealworm
- Foreign grain beetle
- Sawtoothed grain beetle
- Warehouse beetle

* adults and larvae

You will also receive our detailed postcards on these insects that will help you understand the life histories and locations of the main characteristics. Also included is the USDA's excellent book "Insect and Mite Pests in Food" vols. 1 and 2, sample pheromones of the Cigarette beetle and Indianmeal moth with a No Survivor Trap, newsletters, and other articles written on pheromones and insects.

How much do these insect identification slides cost? The cost of the insect identification kit is $215.00. This kit will help in identifying stored product pests. You may purchase the insect identification slides by contacting:

Joseph Spohn, Entomologist
Insects Limited, Inc.
Phone: 1-800-992-1991
Fax: 1-(317)-846-9799
Email: insectltd@aol.com

EPA vs. OP's...a storm is arising

The day chlordane was removed from the market by the EPA; Dursban and other organophosphate insecticides became the next big target by the EPA. Pesticides that have long term persistence seem to be viewed as potential threats to the general public. If you don't think Dow AgroSciences (formerly DowElanco) is positioning itself for a battle to protect Dursban, just dial up its Web page at www.Dowagro.com

The new Food Quality Protection Act of 1996 (FQPA) was a two edged sword when it came to our industry. The Delaney Clause was partially removed from the books to allow diminus risk to be considered when a product is found to be a possible carcinogen. FQPA also allows the EPA to examine the aggregate use of entire groups or classes of pesticides.

A major announcement is due from the EPA that will challenge the use of all organophosphates in the United States. This will have major repercussions for people using Dursban (chlorpyrophos), Vapona, (dichlorvos), chlorpirophos methyl, pirmiphos methyl. Chlorpyrophos represents over 70% of the market for termite control since chlordane was eliminated in 1985. Dichlorvos was predicted by some to be on a comeback for food plant pest control. The EPA is now accumulating information on the three main areas of use for all OP's. These aggregate uses will be from drinking water, residential exposure, and dietary exposure.

An EPA veteran in the Office of Pesticide Programs (OPP) stated: "We are looking at all OP's. We are now accumulating data on the aggregate exposure for OP's. An important announcement is forthcoming."

Speaking of Vapona

Here is the latest information from EPA on the status of Vapona for stored product protection: The Science Advisor Panel (SAP) is required under FIFRA to meet after a product's registration has been canceled to evaluate the scientific studies accumulated from the manufacturer (AMVAC) of California. This SAP meeting is scheduled for July 28 in Washington, DC. The results of this scientific review will become public information some time in the fall (October-December).

Dennis Utterback, the product manager for DDVP for the EPA recently stated: "DDVP is required by FIFRA to go before the SAP. They will look at new risk assessment and review the current science on this product. Dichlorvos is also an OP and this will complicate matters because all OP's are being reviewed at this time by the EPA."

If you have questions about Vapona, here is Special Review Manager Dennis Utterbach's telephone/fax number at the EPA in Washington, DC: tel: 1-703 308 8026/ fax: 1-703 308-8041. He is pleasant to talk to and very accessible.
Pest Management in Stored Grain

Listed by order of importance.
(Surveyed at the 1997 Minnesota Grain Management Certification Courses)

**Prevention**
1. Clean empty bins
2. Clean grain
3. Reject interior grain
4. Cool grain
5. Aerate
6. Control moisture
7. Sanitization
8. Keep areas around bins clean and neat
9. Keep doors closed
10. Turn grain
11. Master Sanitation Schedule
12. Screen foreign material
13. Core grain
14. Separate old grain

**Monitoring**
1. Temperature cables
2. Grain probe sampling
3. Visual inspection
4. Pull a core sample
5. Use insect traps
6. Check moisture
7. Use mechanical windup rodent traps
8. Use pheromone traps
9. Use heat lamp on cold grain
10. Note rodent urine smell

**Control**
1. Fumigate
2. Aeration
3. Pyrethrin sprays
4. Vapona (DDVP)
5. Acriflavin (pirimiphosmethyl)
6. Reldan (chloropyrophos methyl)
7. Diatomaceous earth
8. Tempo (cyfluthrin)
9. Training

Construction has begun on a new office and warehouse building for Insects Limited, Inc. and Fumigation Service and Supply. The office will be located at 16950 Westfield Park Road in Westfield, Indiana, 46074. Westfield is a northern suburb of Indianapolis located about 7 miles from our present office.

David Mueller, President of FSS and IL, stated: “After 11 years at our office on Jessup Blvd. We have run out of offices and space. We knew that if we were to continue to grow, we needed a new office and warehouse. This new office should allow for at least 10 years growth for our companies.”

The new office will contain six executive offices in a wooden ‘log lodge’ like design. The new warehouse will contain about 10,000 sq. ft., it will contain a pheromone laboratory, offices for the fumigation crews and a special training room for conducting “Fumigants & Pheromones” training and hands-on workshops.

**Ordering Instructions:**

Please send ______ copies of STORED PRODUCT PROTECTION... A Period of Transition.

Cost: $64.00 ea.

Add $3.50 ea. for shipping in the U.S. and US$6.00 ea. for international shipping.

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FTC Investigation

Washington, Feb. 11—U.S. and state officials are investigating whether termite control companies are living up to promises they make to consumers about warranties and effectiveness of treatment programs.

Spokeswomen for America's top two termite-control companies, ServiceMaster's Terminix and Rollin Inc.'s Orkin Pest Control, said their companies are voluntarily complying with Federal Trade Commission (FTC) requests for information about their practices.

Bob Rosenberg, government affairs director for the National Pest Control Association says "about 23 states are conducting similar investigations. These investigations could ultimately force termite-control companies to scale back their product claims if investigations conclude companies are misleading consumers."

The probe comes at a time when termite-control companies are trying to come up with alternatives to chlordane, an especially potent pesticide that was banned for environmental reasons in 1988. Companies have struggled to find equally effective chemicals that don't pose environmental hazards.