

although formal instructional programs would aid trainees in mastering the handbook material. Consequently, pilot instructional programs, using *Florida Nurseryman's Retail Sales Handbook*, were implemented at Pinellas Vocational-Technical Institute and Broward Community College. These were successful and courses have been implemented at other institutions.

Certification examinations, costing \$30.00, are administered twice a year—the first two weeks in January and the first two weeks in July. Specific dates, times, and locations in the state are announced to applicants by mail. Certification is valid for four years and is renewable every four years by means of re-examination at a cost of \$10.00. An applicant must be sponsored by an industry employer or enrolled in or a graduate of a recognizable horticultural program leading to full-time activity in the horticulture field.

Programs developed by the Florida Horticultural Industries Certification Board have progressed from initial pilot stages to full realization, and there are now 44 certified nurserymen and 9 certified landscape installers in Florida.

Three textbooks are available for college and/or home study purposes: *Florida Nurseryman's Retail Sales Handbook* (222 pages), *Florida Landscape Installation Handbook* (125 pages), and *Florida Landscape Maintenance Handbook* (187 pages).

FHICB courses are being taught in 9 counties at community colleges and vocational-technical institutes. Other institutions have expressed interest in the program and nearly 500 textbooks have been sold, with the demand from industry and educational institutions increasing.

FHICB was officially incorporated under Florida law as a non-profit organization in December 1974. Since then several new board representatives from Florida Irrigation Society, Professional Grounds Maintenance Association, and Florida Turfgrass Association have met with FHICB to discuss the establishment of certification programs in their respective fields. Membership on the board has been limited to governmental agencies and horticultural industry associations. Such membership limitations ensure that FHICB remains an industry-oriented and industry dominated entity.

## THE PRESENT STATUS OF CHLORDANE AND HEPTACHLOR

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**Abstract.** Chlordane and Heptachlor have been used safely and effectively for the last 25 years in Florida and around the world. Recent studies show that they are not bioaccumulated in the environment, exist in insignificant levels in nature, and do not represent a carcinogenic hazard to man.

The Environmental Protection Agency has mislead the public with half-truths and cancer scare tactics, and is presently trying to suspend the manufacture and sale of Chlordane and Heptachlor.

There are no alternative insecticides for many of the uses of Chlordane and Heptachlor in Florida. Where there are alternatives, they are often less effective, more costly, more toxic to humans, unavailable in sufficient quantities, or disruptive to established pest management programs.

Chlordane and Heptachlor are chlorinated hydrocarbon insecticides with relatively short residual activity which are inexpensive and have been used safely and effectively for the last 25 years in Florida and around the world. They are widely used in and around the home and in up to 60 agricultural crops and represent one-twentieth of the insecticides used in the United States. Each has been subjected to intensive and continual scrutiny since the mid-1940s. We know more about the benefits and risks of Chlordane and Heptachlor than almost any insecticide used in this country.

In Florida, 1,124,193 pounds of technical Chlordane was used in 1973 and 260,367 pounds of Heptachlor. In the USA last year a total of 21 million pounds of Chlordane and Heptachlor was used.

*Regulatory action.* Under pressure from the Environmental Defense Fund, an environmentalist lobby group with an annual budget of \$27 million a year, the Environmental Protection Agency cancelled the use of Aldrin and Dieldrin last fall.

Chlordane and Heptachlor were suggested by EPA as acceptable alternative insecticides. Within four weeks, EPA issued an intent to cancel Chlordane and Heptachlor. Velsicol Chemical Corp. welcomed a thorough review of all the scientific data on these two products as they had been reviewed by the World Health Organization and the Food and Drug Administration and been found free of any risk to man or the environment under the conditions they were used. Full approval was given to Heptachlor by the World Health Organization following reviews in 1966 and 1970. Chlordane was reviewed in 1950 and 1963 by FDA and again in 1967 and 1970 by a joint committee of pesticide experts from the Food and Agriculture Organization of the United Nations World Health Organization. Chlordane was given a clean bill of health.

Unfortunately, a systematic and complete hearing was denied when Russell Train, Administrator for EPA, went on national television to announce that he had stopped the manufacture and sale of Chlordane and Heptachlor as of July 29, 1975. Since Mr. Train had no authority to suspend the products without a hearing, Velsicol was forced to sue EPA in Federal Court in Memphis. Mr. Train issued a "clarification" to the effect that Velsicol could continue to make and sell Chlordane and Heptachlor until after 40 days of suspension hearings, after which he would suspend the products. Velsicol found out about the proposed suspension of Chlordane and Heptachlor in the newspapers the day before Mr. Train's announcement as a result of a leak by the Environmental Defense Fund.

The suspension hearing will conclude about November 20, but Velsicol is in a no-win situation since Mr. Train has already stated that he will suspend Chlordane and Heptachlor. Besides, a human cancer risk can be any swelling in the liver of rats or mice according to EPA.

*Cancer.* Is there a real human cancer risk with the continued use of Chlordane and Heptachlor? Under cross examination, expert witnesses called by EPA admitted that:

1. There were more malignant tumors in control animals than in treated animals.
2. The strain of mice used had a genetic susceptibility to cancer and 30% of the untreated group had cancer.
3. The 1972 Cabral Study concluded that Heptachlor was not carcinogenic.
4. Test animals fed Heptachlor actually had fewer carcinomas.

5. Dr. Sam Epstein's conclusions that Heptachlor causes cancer was based on nonsignificant statistics.

6. EPA witnesses disagreed with EPA's definition of a human cancer risk.

7. Mice in an untreated control group in one test actually had eight times more carcinomas than treated animals.

8. There was no evidence supporting Mr. Train's allegations that either product caused cancer in humans.

*Environmental hazard.* After 25 years of use around the world, these chemicals have not been implicated in causing harm to the environment when used according to the label. The biological half-life of Heptachlor in the soil is 0.8 of a year and one year for Chlordane. For termite control, Chlordane is still killing 100% of the termites after 21 years under a slab. Persistence is one of the better qualities of these two products, not a reason to cancel the use of them. As soil insecticides primarily, Chlordane and Heptachlor are broad-spectrum insecticides that do not upset existing pest management programs unlike repeated foliar applications of more toxic organophosphate chemicals.

*Alternative insecticides.* There are no alternative insecticides to many of the uses of Chlordane and Heptachlor in Florida and the United States. In Florida, only Chlordane or Heptachlor are recommended for:

1. Citrus root weevil complex in citrus.
2. Termites and ants in citrus.
3. White grubs, ants and chiggers in turf.
4. Fire ants and white fringed beetles in potting soil.
5. Sugar cane beetle in corn, wheat and tobacco.
6. White fringed beetle in many of the agronomic crops.

There are no viable alternatives to most of the other uses of Chlordane and Heptachlor since the cancellation of Aldrin and Dieldrin. Most of the alternative insecticides are either less effective, more costly, more toxic to humans, less persistent, unavailable in sufficient quantities, cause outbreaks of other pest species or upset existing pest management programs for which Florida is famous. Having only one registered insecticide for a particular pest is inviting resistance.

In Florida citrus, 26 insecticides have been tested for control of larvae of citrus root weevils with no success. This weevil seriously infests some 30,000 acres of citrus in Florida. EPA calculated

that without suitable alternatives to Chlordane and Heptachlor, citrus would cease to be grown in the Indian River area of Florida. When foliar sprays have been used in attempts to control adult weevils, the results have been disastrous. Pollinating bees and parasitic wasps have been killed upsetting pest management attempts to control snow scales, and with no lasting control of the weevils. There are 10,000 acres of newly planted citrus in the state of Florida each year which receive Chlordane for termite control. There is no alternative insecticide. Fire ants infest 150,000 acres in the south and their stings can be fatal to livestock and humans. Chlordane, Heptachlor and Mirex give excellent control of fire ants.

Almost all state entomologists and state department of agriculture officials in the country have complained to their senators and congressmen about EPA's dangerous and unnecessary actions against Chlordane and Heptachlor. Complaints by both Senator Richard Stone and Congressman Richard Kelly to Mr. Train have gone unanswered. The Florida Farm Bureau stated that EPA actions could spell disaster for Florida's \$500,000,000 citrus industry and that Mr. Train's actions are not based on facts or valid studies. The Florida Department of Agriculture reported that banning Chlordane and Heptachlor would damage Florida's \$40,000,000 nursery industry and leave Florida citrus growers defenseless. USDA officials stated that corn production in the

United States would be hurt at a cost of \$90,000,000 in one year. Wheat yields would suffer costing farmers \$22,000,000 in one year and cost Americans more than any wheat deal with the Russians so far according to Dr. L. S. Pope at Texas A and M University.

*Conclusions.* The latest data on Chlordane and Heptachlor prove that they are among the safest, most economical and most effective insecticides used in the United States and Florida, and are not a human cancer threat. They have been used in Florida lawns, homes, citrus, vegetables and field crops for the last 25 years without a single incident and do not represent an "imminent hazard."

Velsicol Chemical Corp. requests the following actions:

1. Rescind the suspension action and resume the cancellation hearings.

2. Amend FIFRA to provide for an impartial committee appointed by the National Academy of Science to review all data on Chlordane and Heptachlor and make recommendations to EPA.

3. Amend FIFRA to require EPA to get the approval of the Secretary of Agriculture before suspending or cancelling any registered pesticide.

We should all be concerned when a federal agency uses half-truths and misleading statements with cancer scare tactics for headlines to ban safe and effective insecticides at the whims of an environmentalist group.

## A YUCCA BORER, SCYPHOPHORUS ACUPUNCTATUS, IN FLORIDA

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*Abstract.* Whereas the weevil, *Scyphophorus acupunctatus*, has been of infrequent occurrence and non-economic importance, it is now becoming a serious pest of *Yucca* and *Agave*. Symptoms of infestation include yellowing and browning of leaves, collapse of the basal trunk portion of the plant, and toppling of the plant following desicca-

tion. The suggested control measure is a mixture of 1 pint of Cygon and 1 1/2 pints of 74% Chlordane plus a spreader-sticker per 100 gallons of water, applied as a drench to the plant and soil at 2-week intervals until weevil control is accomplished.

The weevil has become a serious pest in the central area of Volusia County. It is native to the southwestern United States and Baja California, Mexico, and Central America (1). The pest has been found on *Agave americana* L., *Agave mexicana* Lam., *Furcraea cubensis* Vent., and many species of various *Yucca* (2).

Materu and Hopkinson (1969:78) (2) report-

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