

# Researchers Looking At Biological Pest Controls

Under present Environmental Protection Agency (EPA) rulings, farm use of DDT was banned as of December 31, 1972. Other organochlorine insecticides are also coming under close EPA scrutiny. In this group

are aldrin and toxaphene, which along with DDT constituted the "big three" in farm insecticide use when the last study was made in 1966.

As a skeptical eye is cast on insecticides which the farmer has

long taken for granted, the need to provide safe, economic substitutes is growing.

The long residual life associated with organochlorines - the chief insecticides in 1966 - has resulted in a build-up of these materials in the environment. The organophosphates and carbamates developed more recently degrade rather quickly and do not pose a long-term residue problem. However, many are toxic to humans and other warm-blooded animals and have caused some poisonings of those directly in contact with them.

Waiting in the wings - or, rather, in the test tubes of pesticide researchers - is a series of experimental and innovative approaches to insect control.

They range from conventional to far-out, and they have a common goal: managing insect pest populations without harming or damaging the environment.

Few of these are in widespread use yet, but they are promising alternatives to the increasing numbers of insecticides being banned or restricted.

Following the lead of drug researchers, insecticide research and development is now experimenting with biodynamics.

This method relates pesticides to the physiological processes of insects, piecing together a clear picture of how and why they work.

The researcher can then design pesticides to do specific tasks, using the insect's own chemistry as the basis for control and delivering the pesticide directly to the insect part where it can function most effectively.

Researchers say this method may well score its first triumph in the development of agents that interfere with a pest's metabolism. They may, for example, reduce an insect's impulse to feed, causing starvation. Agents may also be used to advance or delay pupation, making the pupae more vulnerable to predators and disease organisms.

Disruption of an insect's hormone balance is also being explored. Insects require two hormones - the so-called juvenile hormone and ecdyson - to pass from the larval stage to full maturity as a butterfly, fly, or beetle. Application of the hormones at the right time could produce premature pupation or prevent metamorphosis.

Both hormones have been synthesized, but the ecdyson structure is complicated and may never be commercially producible.

More conventional research is focusing on the microbial and viral pathogen approach.

Availability of materials to work with is the limiting actor in using pathogens in control programs. There are also problems of registration of labels and quality.

The success of insect sterilization in controlling the screwworm is prompting use of this approach on other insects, including the pink cotton bollworm in Nevada and the codling moth in Washington.

Meanwhile, the USDA has been looking into the possibility that farmers may be using more

insecticides than they need to. A nationwide pest management program has been developed for integrating all known methods of pest control. Initially, the focus has been on using pesticides only when estimated damage from pest populations exceeds the cost of control.

Fewer, and more effective, applications are being stressed for crops like cotton, sweet peppers, Irish potatoes, alfalfa, sweet corn, apples, lettuce, and tobacco.

As research develops safer, less toxic products and as experimental methods come into wider use the impact of restricted insecticide use on the farmer will be lessened.

## Senior Citizens Tour Washington

More than 80 'senior citizens' have seen their federal government in action through the new Senior Intern Program initiated by Sen. Lowell Weicker, Jr. (R-Conn.).

The program included discussions with members of the House and Senate, briefings on department and committee activities, seminars with White House, Justice and Congressional officials and direct observation of the Congress from the House and Senate galleries.

The week's visit was underwritten by the Xerox Corporation, General Telephone and Electronics, the Southern New England Telephone Company, the United Auto Workers-Region 9-A, the Ripps Realty, Inc., and the Greater Hartford Chamber of Commerce.



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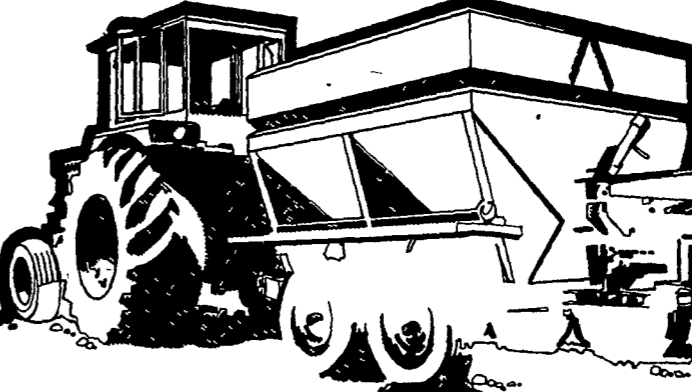
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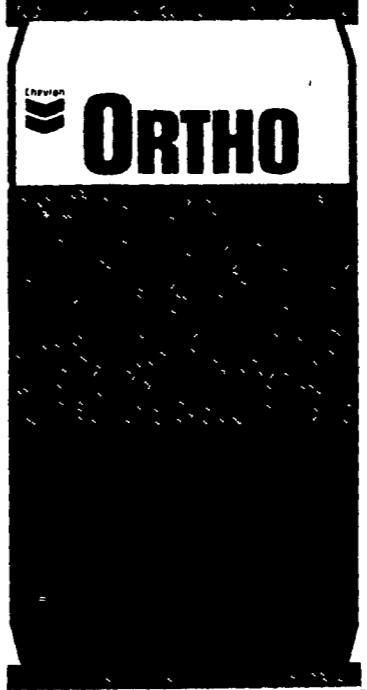
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