

New Jersey Reports Results of 2½ Years DDT Use

(From statement of Entomology Dept., New Jersey Agricultural Experiment station.)

VARIOUS FORMS of DDT have been tested against many insects during the past 2½ years by scientists at the New Jersey Agricultural Experiment Station, as well as by investigators in other states and by Federal agencies. DDT has proved a powerful insecticide against many species, but is totally ineffective against others.

Data available so far are based on preliminary, small scale experiments. Most of the large scale tests conducted this year have not been completed and the data summarized.

For these reasons, the New Jersey Agricultural Experiment Station is not at this time recommending DDT as a control for insects.

Although we cannot now recommend DDT insecticides, it is understandable that some persons may like to test them on their own responsibility. In the following paragraphs will be found a summary of experiences and results during 2½ years of experiments.

In general, caution must be used in handling DDT. It is poisonous to warm-blooded animals when considerable amounts are eaten. Tests made by the Pure Food and Drug Administration indicate that on the basis of available data, DDT is somewhat less poisonous than lead arsenate or fluorine, common insecticides.

No effective method of removing DDT residue from vegetables and fruits has been worked out.

When dissolved in vegetable oils and certain petroleum products such as kerosene and gasoline, DDT is poisonous to humans and domestic animals when applied to the skin. In laboratory tests with animals, DDT has been reported to cause a fairly rapid deterioration of the kidneys and liver, and this effect apparently is cumulative.

Valuable Addition to Insecticides

Despite its shortcomings, DDT gives promise of being a valuable addition to our list of old established insecticides, such as lead arsenate, calcium arsenate, oil emulsions, nicotine, pyrethrum and rotenone.

At present, DDT shows great possibilities in the control of insects affecting man

and domestic animals, particularly such disease-carrying insects as flies, mosquitoes, lice and fleas. It appears to be particularly effective against bedbugs, either as a spray or dust. The place of DDT in the control of insects on fruits and vegetables is yet to be found. This is explained by its failure to control certain species, its effect on the plants themselves and its effect in destroying pollinating and other beneficial insects.

Undiluted DDT can not be used as an insecticide until properly prepared. It must be ground and mixed with clays, talcs, sulfur or other substances before it can be put into water for spraying. Or it can be dissolved in petroleum oils, xylene or other solvents to make spray solutions or emulsions. Petroleum products used in this way can become a fire hazard.

The average householder wanting to try DDT is advised to get it from a reliable manufacturer and to follow directions as to dosage and dilutions given on the package or container.

DDT is proving itself a definite enemy of certain insects. An outline of experience in its use against them follows.

House flies are killed by a residue left by sprays containing DDT, as are stable flies and mosquitoes. After the liquid in which DDT is contained has evaporated, the active substance remains, killing insects which light and rest on walls and ceilings, screens, lamp cords, cross beams and other places.

Such deposits have remained effective for several weeks to several months.

A 5 per cent DDT suspension made of wettable DDT powder and water has been used in this manner with success.

A kerosene solution (7 ounces of DDT added to one gallon of kerosene) has also been found effective, but when used at this dosage becomes a fire hazard.

Fleas in buildings to which infected animals have access have been eliminated by a 10 per cent DDT dust (one pound of DDT milled with 9 pounds of pyrophyllite talc or clay).

Dogs can be treated with the 10 per cent dust to rid them of fleas. A quarter teaspoonful over the entire body of an average sized animal is enough.

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Cats should not be treated with the dust because they lick themselves and may swallow enough of the poison to prove harmful. Oil sprays should not be used on cats, dogs or other domestic animals because there is danger that the poison will be absorbed through the skin.

Bedbugs have been controlled satisfactorily in homes and in chicken houses by treating the beds or harboring places with a 10 per cent DDT powder or a 3 to 5 per cent DDT spray. Chicken house roosts should be painted or sprayed with the solution.

A 10 per cent DDT powder has been used successfully as a control for cockroaches and is about as effective as sodium fluoride for this purpose. It is a slow acting poison and may require a week before any noticeable reduction of roaches takes place.

DDT Gets House Ants Species

Certain species of house-infesting ants can be controlled by spraying with a 5 per cent DDT-kerosene spray behind window sills and frames, behind and beneath baseboards, about sinks in the kitchen and in cracks and crevices leading to the outside of the building. Caution should be exercised in using the DDT-kerosene solution to prevent fires.

DDT was made available to the public too late this summer for use on most fruits in New Jersey. Experiments to date indicate that DDT kills codling moth, Japanese beetles, oriental fruit moth, apple leafhoppers, grape berry moth, grape leafhoppers, rose chafer and each tree borers.

In most cases DDT was used in one or more sprays at 1 pound of actual DDT in a wettable powder to 100 gallons of water, or $\frac{1}{2}$ pound of actual DDT in a wettable powder with Summer oil 2 to 3 quarts per 100 gallons of water. DDT appears to be compatible with other insecticides, such as lead arsenate, nicotine and Summer oil; also with fungicides, such as sulfur and bordeaux mixture.

DDT has **not** proved satisfactory as a control for plum curculio on peaches, apples and plums; nor for orchard mites and pear psylla. DDT appears to favor the build-up of mites on apples and peaches and there is some evidence that woolly aphids build up on apples following the use of DDT.

The question of possible injury to fruit and foliage from DDT sprays is not fully answered as yet. Nor has the problem of DDT residue removal at harvest been cleared up. For these reasons it is suggested that those desiring to use DDT on fruit go slowly until more information is available.

DDT sprays and dusts have been tested

against considerable numbers of the more common vegetable pests and on the more common vegetable crops. Our tests indicate that the insecticide is very effective against many of the insects, such as cabbage worms, European corn borer, Colorado potato beetle, flea beetles, cucumber beetles, thrips and leafhoppers.

It has **not** proven effective against Mexican bean beetle, tomato hornworm, cabbage aphid and red spider. There are other insects, such as pea aphid, potato aphid, corn earworm, etc., against which DDT gives only fair control.

From the standpoint of plant injury, DDT has been disappointing since such plants as beans, tomatoes, sweet corn, cucumber crops and peas show varying degrees of injury or a reduction in crop yields when treated with DDT. Potatoes and cabbage appear to be able to tolerate DDT applications without interfering with yields.

As some of the vegetable pests are not controlled by DDT insecticides and because some plants are injured by their use, thus far, there appears no particular advantage of DDT over the standard insecticide. Until concentrations and formulations of DDT which are safe on vegetable crops are found, growers are advised to use the current recommendations for pest control.

Emphasis has been placed on food production during the war years and so insect control on flowers, etc., has not been stressed, but preliminary experiments have been conducted which indicate that DDT may be a useful insecticide on flowers and ornamental plants.

Dusts containing 5 to 10 per cent DDT have proved very effective against the hairy chinch bug in turfs or lawns.

WOMEN'S "TRANS" RENEWED—Women's Trans-Mississippi GA will hold its 16th annual championship at Denver (Col.) CC July 8-13. The event was cancelled during the war. Mrs. Russell C. Mann won the 1941 affair at Houston. Entry applications may be secured from the Women's Trans sec., Mrs. Holbrook T. Ashton, 36 Fair Oaks, St. Louis, Mo.

FEE COURSE PRICES UP—Walter Grego, mgr., Bayside Links, Long Island de luxe fee course designed by late Dr. Alister Mackenzie, increased prices this year, with very little comment from players. Grego says he's meeting nearly \$2400 monthly greater payroll than the course had 15 years ago. He estimates that a course built today on Bayside pattern of design and materials, on low-priced land in middle of Long Island, would have to charge \$6.50 per round to break even.