

Insect Control With DDT

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DDT (dichloro-diphenol-trichloroethane) is truly a wonderful addition to the list of chemical materials used in fighting insects. No other insecticide is so effective for so many different kinds of insect pests. And yet DDT has practically no effect on many insects. It is not a spectacular insecticide, for it kills slowly by paralyzing insects through contact. It has no marked repelling action. Unfortunately it has been over-publicized with the result that many persons have come to expect that it will solve all their insect problems. To acquaint Missouri farmers, livestock producers, dairymen, fruit growers, gardeners and homemakers with some of the better known facts about DDT and its use against insects this report has been prepared.

DDT is not a newly discovered chemical compound. It was developed by European chemists almost 100 years ago. However it was not known to be of any particular value to mankind until the principal sources of supply for pyrethrum and rotenone were closed to the United States following Pearl Harbor. At that time it was made available to the government for testing as an insecticide for combating mosquitoes, flies, lice, fleas and other carriers of human diseases. Much credit is due the chemists and entomologists who quickly perfected various formulations of it for use in ridding the camps and battlefields of our major enemies, the disease carrying insects. Its known usefulness as an agricultural insecticide has been determined largely during the last two years, and much still remains to be learned about it. Further time and study are also needed to determine its possible poisonous effects on man, livestock and other animals.

FORMS OF DDT AVAILABLE FOR INSECT CONTROL

Since it was released some months ago for general insecticidal use, the production of DDT has been so greatly increased that an adequate supply in different forms should soon be available to meet most if not all demands.

As a finished insecticide ready to apply, or for mixing with water before applying, most of the DDT will appear on the market in one of the following five forms or formulations.

- (1) A dusting powder containing 3%, 5% or 10% DDT ready to apply dry.
- (2) A wettable powder containing 25% to 50% of DDT ready to be mixed with water and applied as a spray.
- (3) An emulsion containing 20% to 30% of DDT ready to mix with water and apply as a spray.
- (4) An oil, either refined kerosene, ordinary kerosene or fuel-oil containing in most brands 5% of DDT ready to apply to surfaces on which insects rest or travel. This form is to be used as a residual spray but NEVER ON ANIMALS, MAN OR PLANTS.
- (5) DDT alone or combined with pyrethrum or rotenone is so-called Aerosol bombs used mostly for release in closed rooms or other enclosures as space sprays.

Generally speaking DDT has proven most valuable as a control for certain insect pests of livestock, poultry and man, in the home, on some garden crops and for some insects in the orchard and vineyard.

TO CONTROL INSECT PESTS OF LIVESTOCK AND POULTRY

A wettable DDT powder applied as a spray or used as a dip is considered by most workers to be the safest and most effective form to use on animals, though a DDT dusting powder works well for lice and fleas. For applying to interior surfaces of barns, hog houses and other farm buildings as residual sprays either the wettable powder or emulsion, or the DDT-kerosene spray, may be used.

Horn Flies:

Use 4 pounds of a 50% wettable DDT powder to 100 gallons of water, or 3 level tablespoonfuls to a gallon of water. From a quart to a half gallon of this spray applied over the back, head, sides and legs of a cow will give protection for 15 to 30 days from the small blood-sucking flies, but not the horse flies. Three to five applications should be made during the summer. Individual farmers can use bucket, knapsack or barrel spray equipment. Community owned power sprayers, if available, may be used by large herd owners, or custom sprayers may be used at a small charge per head. *Do not use DDT in oil solutions on animals.*

Lice on Cattle, Hogs and Other Animals:

When using a spray for controlling lice more of the mixture must be applied per animal and it must wet down to the hide thoroughly. An additional application should be made in two weeks to kill young lice hatched from eggs not killed by the first application. Use the same spray equipment and concentration of DDT spray as for flies on animals. A 10% DDT dusting powder has also been found quite satisfactory for controlling lice on animals if the dust is worked well into the hair and down to the hide.

Flies on Ceilings and Walls of Farm Buildings:

To rid farm buildings of flies, spray until walls, ceilings, posts, stanchions, door facings and other surfaces where flies are seen to rest are thoroughly wet. Repeat in 30 to 90 days depending on the abundance of flies. The same spray may be used as that for flies on livestock, but for prolonged residual action the dosage should be increased to 5 to 10 pounds of a 50% wettable DDT to 12 gallons of water. The spray mixture must be kept agitated to prevent clogging of equipment. If a 5% DDT-oil or an emulsion type barn spray is used follow directions on the container.

Fleas:

Infestations of fleas usually develop due to the presence of hogs or dogs, and to rid farm buildings of fleas clean out litter and dust freely with 3%, 5% or 10% DDT powder, or thoroughly wet floors and walls of infested buildings with the same DDT spray used on walls of farm buildings for flies. A 10% DDT dusting powder also has proven very effective in ridding dogs of fleas, but applications must be repeated in case of reinfestation. *Do not use DDT on cats.*

TO CONTROL HOUSEHOLD INSECTS**Flies and Mosquitoes:**

Paint or spray the screens, and spray ceilings, door and window



To rid farm buildings of flies, spray until thoroughly wet all walls, ceilings, posts, stanchions, door facings and similar surfaces where flies are seen to rest.

facings and other surfaces on which flies and mosquitoes rest with a 5% DDT refined kerosene mixture and repeat the application once a month where the insects are abundant, but be careful to keep it out of foods. This is much more effective than the Aerosol DDT bomb. The household spray mixture must not be used on plants or animals and it must be kept away from fires. Cover or move out foods, cooking utensils and equipment. Wash the drain boards and hands with soap and water after applying this spray.

Bed Bugs:

Spray mattresses, beds and adjoining baseboards and walls with the 5% DDT-oil household spray and repeat in thirty days if the first treatment does not destroy all bugs.

Cockroaches and Silver Fish:

Spray their harboring places with the 5% DDT-oil household solution, or dust in cracks and other harbors with 10% DDT dusting powder. Use same precautions as mentioned for flies.

Ants:

Treat their runs and harbors with 3% DDT dusting powder and repeat in fifteen days or until all ants disappear.

Clothes Moths and Carpet Beetles:

So far DDT has not proven much more effective than standard insecticides against these pests, but 10% DDT powder or 5% DDT-oil household spray carefully used under rugs, and applied to infested clothing, baseboards and walls of closets will help. Aerosol DDT-bombs are also being used for clothes moths and carpet beetles, but they are less satisfactory than the DDT-oil household spray.

TO CONTROL GARDEN INSECTS

Blister Beetles, Colorado Potato Beetles, Flea Beetles, and Leaf Hoppers on Potatoes:

Dust liberally with 3% DDT powder and repeat if all insects are not destroyed by the first application. Spraying with 3 tablespoonfuls of 50% wettable DDT powder to a gallon of water will also control these insects.

Cabbage Worms:

Dust lightly with 3% DDT powder or spray with wettable powder as for control of potato pests. To avoid residues do not apply within thirty days of harvest.

Pavement or Garden Ants:

Dust along rows of infested crops and on runways and in harbors under walks, boards and other protection with a 3% DDT powder and repeat as needed.

Corn Ear Worms:

A 10% DDT dust applied to the tips of ears after silks begin to dry will help to prevent wormy roasting-ears.

Insects on Garden Flowers:

A 3% DDT dust or a spray containing 3 tablespoonfuls of 50% wettable DDT powder to a gallon of water will control a number of the common insects on flowers.

Do not use DDT on lettuce, greens or other leafy vegetables. If used heavily on cucumbers and squashes it may injure the plants. For the control of aphids and Mexican bean beetles use other standard insecticides as DDT has not proven effective against these pests.

TO CONTROL FRUIT INSECTS**Codling Moth:**

Follow the regular lime-sulfur and lead arsenate spray schedule up until the second cover spray, and then use 2 pounds of a 50% wettable DDT powder in 100 gallons in the last three first-brood cover sprays, and in two properly timed second-brood sprays. If worms should prove serious later use one or more applications of fixed nicotine. Some growers may prefer to use 4 ounces of the 50% wettable DDT powder with 2 pounds of lead arsenate in place of 2 pounds of 50% wettable DDT to 100 gallons beginning with the second cover spray. When DDT is used to control the codling moth the red spider will increase in abundance and may require special sprays for its control.

Leaf Hoppers:

DDT sprays, as suggested for controlling codling moths, properly timed will help control leaf hoppers on apples and grapes. 3% DDT dust also controls grape leaf hoppers.

DDT sprays have not proven satisfactory for controlling San Jose scale, aphids or fruit curculios.

In time DDT is sure to prove effective against various other insect pests and future improvements in its formulation and the development of other perhaps more effective similar contact insecticides are sure to give us still better insect control. However for the present DDT can be safely and effectively used in controlling those insects considered in this report.

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