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EC1507 Revised 1947 New Insecticides for the Control of Grasshoppers

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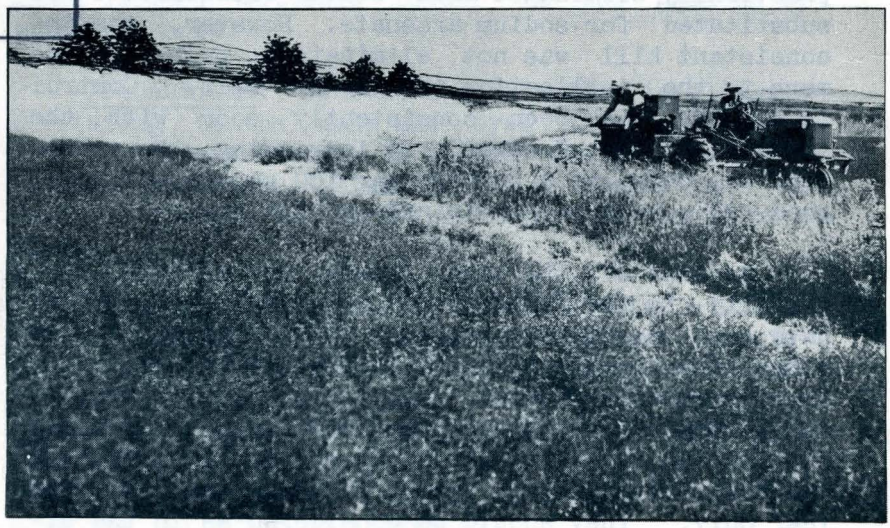
New Insecticides For The Control Of Grasshoppers



Cooperative Extension Work in Agriculture and Home Economics
University of Nebraska College of Agriculture, and the United States
Department of Agriculture cooperating, W. H. Brokaw, Director, Lincoln.

NEW INSECTICIDES FOR THE CONTROL OF GRASSHOPPERS

Ephriam Hixson, Chairman
Department of Entomology

Bran-sawdust bait is the most widely used and the most economical material for controlling grasshoppers. The general objection to bait is the danger of poisoning livestock, its slow action, in many cases its low kill, and the necessity of repeated applications. The danger to livestock was practically eliminated when sodium fluosilicate was substituted for sodium arsenate. However, the inconsistant kill was not eliminated, probably due more to the application than to the bait. Control in alfalfa has been consistently poor with the standard bait. However, by increasing the poison from 4 pounds to 6 pounds per 100 pounds of bait, good kills have been obtained in alfalfa.

Because of the high losses in alfalfa, especially to the seed crop, many new insecticides have been tested for control of grasshoppers and other insects affecting alfalfa seed production. Of the insecticides tested, only benzene hexachloride and Chlordane (1068) can be recommended for trial on limited areas at this time. These insecticides are new and have been tested in small areas for one year only. They should be considered as in the experimental stage, both as to their composition and application. The suggestions and precautions given below are based on the best information available at present (April 1947) and should be considered as a guide and not as a recommendation.

BENZENE HEXACHLORIDE (also called 666 and hexachlorocyclohexane) is a crystalline water insoluble chemical with a musty, persistent odor. The gamma isomer is the most toxic to insects; therefore, formulations are based on the gamma content. The

crude chemical contains from 10 to 12 per cent of the gamma isomer. Benzene hexachloride can be used as a dust or spray for direct application. For good grasshopper kills 0.3 pound of the gamma isomer should be used per acre.

Dust - A one per cent gamma isomer dust at 30 pounds per acre will give the required dosage. A two or five per cent dust can be used, but is more likely to injure foliage.

Spray - Use 20 pounds of 50 per cent (5% to 6% gamma isomer) wettable powder in 100 gallons of water per acre.

Precautions: Benzene hexachloride is slightly irritating to the nose and eyes and has a penetrating, musty odor. It should not be used with alkaline materials, like lime. It should not be used on forage or feed for livestock as it is a poison.

CHLORDANE (introduced as 1068) is a brown viscous liquid, with a slight chlorine odor, insoluble in water. It is prepared as solutions, emulsions, wettable powders and dusts. Good kills of grasshoppers have been obtained with emulsions and dusts when used at the rate of one pound of actual Chlordane per acre. To obtain the proper dosage per acre the following is suggested.

Spray - One quart of a 42 per cent Chlordane emulsion in 100 gallons of water applied to one acre. If fewer gallons per acre are desired, use one quart of emulsion on an acre in the amount of water selected.

Dust - For dust applications use 20 pounds of a five per cent Chlordane dust per acre. A two per cent dust can be used at the rate of 50 pounds per acre. However, early experience shows a lower kill of grasshoppers with the two per cent material.

Precautions: Chlordane is a poison and should not be applied to forage or feed intended for man or livestock.

General Instructions and Precautions

In making applications of these insecticides, whether sprays or dusts, it is necessary to completely cover both the plants and the insects to obtain good control. The control will be in direct relation to the coverage.

Use the proper amount of the insecticide per acre, no more and no less.

Grasshoppers can be controlled with the least effort and least cost, while they are still young and congregated in large groups on small areas, by all methods, including baiting.

Dusts and sprays are most effectively applied when there is little or no wind. Spraying is affected less by wind than is dust.

Alfalfa for seed should be treated in the prebloom or bud stage. Treatment while in bloom will kill pollinating insects present, and may seriously affect the seed crop. Forage or straw from treated fields should not be fed to livestock.

Benzene hexachloride and Chlordane have about the same toxicity to warm-blooded animals as DDT.

A dust mask will protect the operator from the insecticide.

Both benzene hexachloride and Chlordane have been tested in bait as a possible substitute for sodium fluosilicate. The percentage kill with these materials was about the same as with the standard bait.