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T J. Tozer
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Spraying for Grasshopper Control

By T. J. TOZER, Supervising Vermin Control Officer

A BIG increase in cereal growing in the “hopper” belt has brought a general improvement in the grasshopper situation over the past few years. This highlights the emphasis entomologists have placed on cultivation as the best known way of controlling grasshoppers.

Unfavourable seasonal conditions for grasshoppers have also helped to lessen the problem.

There are other control methods of secondary importance. Of these spraying with an insecticide such as dieldrin is the most useful. Insecticides can be applied by ground units or from aircraft; this article deals only with ground unit spraying.

Throughout the affected areas a compulsory grasshopper spraying drive is normally gazetted under the Vermin Act for the expected period of greatest hopper activity. The drive starts on August 1 and all farmers must spray hoppers where necessary from that date.

SPRAYING REQUIREMENTS

It is often hard to decide where and when spraying is needed. No hard and fast rules can be applied and experience of the pests’ behaviour and control is the best guide. Where there is any doubt the advice of the local vermin control officer should be sought; he can be contacted through the local shire council or the district office of the Department of Agriculture.

In general, spraying to control grasshoppers should be done when:

1. a crop is menaced;
2. there is a large scale movement into clean areas;
3. the spread of a relatively isolated, fairly heavy infestation must be arrested;
4. the overall grasshopper situation calls for concerted action to control the pest.

The small plague grasshopper
Spraying Methods

Methods of spray application differ according to the requirements. For example, where a crop is to be protected from grasshoppers the procedure will differ from spraying for normal control.

In crop protection a protective strip must be sprayed around the crop. The width of this strip will vary with the number of hoppers threatening the crop, the density of available feed, the strength of the wind and the weather conditions; a strip from 7 to 10 chains wide should give fair protection. A vermin control officer should be consulted if possible whenever a crop appears to be menaced.

For normal control, spraying can be "dense"—when the whole of the infested area is sprayed—or "strip sprayed"—when only half of the area is treated, alternate strips being left unsprayed.

Strip spraying is usually adequate and saves both insecticide and labour. In strip spraying the area to be sprayed should first be surrounded by a protective strip of dense spraying 2 to 4 chains wide and the rest covered with alternately sprayed and unsprayed strips. Strip spraying is most effective when feed is light and hoppers are active.

Dense spraying, on the other hand, is useful in heavy feed and when hoppers are fairly static.

Spraying should not be done in wet or windy weather or when there is a heavy dew. Fine sunny days are best. All stock should be removed from paddocks for at least a week after spraying.

When to Spray

Spraying should be done when most of the hoppers are just beginning to form wings. Although active at this stage they are not active enough to move out of the sprayed country, and are most susceptible to properly applied insecticides.

Spraying too early does not give good results. The late hatchers may not be affected at all and the effectiveness of the spray against hoppers moving into the sprayed area later may be reduced. Spraying after laying has started is not effective.

Recommended Insecticides

The recommended insecticide and that most generally used is dieldrin. A limited quantity of it is available free to farmers through local shire councils by the Agriculture Protection Board. This dieldrin is issued for grasshopper control only and farmers must sign a declaration to this effect. Supplies of commercial dieldrin are also available through retailers normally supplying farmers' requirements.

Rates of Application

The recommended rate for efficient grasshopper control is 2 oz. of pure dieldrin per acre; this should not be exceeded.

The spray material issued free by the Agriculture Protection Board is an emulsion easily mixed with water and contains 25 per cent. dieldrin. Therefore, to obtain a coverage of 2 oz. of pure dieldrin per acre, 8 oz. of dieldrin emulsion per acre must be applied.

All dieldrin supplies normally available are emulsions containing a stated percentage of pure dieldrin. It is important to know this percentage so that the correct amount of insecticide can be applied.

The quantity of water applied depends on the type of spray unit used, the speed of the vehicle or tractor and the operating pressures. In any case, the quantity of water should be known and the amount of dieldrin varied accordingly. For example if the spraying equipment puts out five gallons of water per acre then each five gallons must contain 8 oz. of dieldrin emulsion.

One gallon contains 160 oz. so one gallon of dieldrin emulsion as issued by the Agriculture Protection Board will cover 20 acres by dense spraying (or more if strip spraying).

Results

If dieldrin is applied at the correct rate under reasonable conditions and at the right stage in the development of the hoppers an 80 to 100 per cent. kill can be expected.

If the results are not good a vermin control officer should be called in as soon as possible to find the cause of the failure.