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How to Control Insects Harmful to Alfalfa Seed Production in South Dakota [Revised]

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How to Control Insects Harmful to Alfalfa Seed Production in South Dakota

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In order that a grower of alfalfa seed may have the best chance of producing a good seed yield, the harmful insects in the alfalfa field must be destroyed, while the beneficial pollinating insects should not be reduced but encouraged. The most harmful insects that affect the seed yield of alfalfa in South Dakota are the following:

Grasshoppers of several species
Crickets of several species
Lygus and other plant bugs
Clover, potato and other leaf hoppers
Flea beetles of several species
Thrips
Alfalfa seed chalcid

Grasshoppers and crickets may be most economically controlled through the use of toxaphene, aldrin or chlordane. DDT does not do a good job of killing either grasshoppers or crickets.

Lygus and other plant bugs, clover, potato and other leaf hoppers, flea beetles and thrips can be readily controlled with DDT. Flea beetles and plant bugs may also be destroyed through the use of toxaphene, aldrin or chlordane, but the leaf hoppers are little affected through toxaphene or chlordane.

DDT, toxaphene, aldrin or chlordane may be applied to alfalfa for pest control in a liquid spray or in dusts. In a liquid spray, these insecticides may be used in an emulsifiable form, in a wettable powder condition, or in solution. Emulsifiable concentrates and wettable powders must be diluted with water before they are applied as sprays. Solutions of these insecticides should be diluted with a solvent, such as kerosene or diesel oil before they are applied as sprays The amount of water that may be used to make a spray of an emulsifiable concentrate or of a wettable powder will depend upon the spraying equipment that is available, upon the availability of water and other factors. It should be borne in mind that there is greater danger of burning foliage through the use of the solution type of spray than with the emulsifiable water or wettable powder-water spray.

When an alfalfa field that is to be used for seed production is found to be infested with grasshoppers or crickets or both, the field plus a strip around the outer edges of the field should be sprayed or dusted with toxaphene, aldrin or chlordane. If a cutting of hay is to be taken from the alfalfa field, and the second growth is to be used for seed production, the cutting of hay should be removed and then the field should be treated as soon as the new growth is six inches high. Or strips of uncut alfalfa may be left in the field, the

grasshopper allowed to concentrate in these strips and then the strips can be sprayed or dusted.

Whatever the formulation or dilution of spray or dust is used, the quantity of technical insecticide that is to be applied per acre should meet the following recommendations:

	Liquid Sprays	Dusts
Toxaphene	1 to 1 1/2 lbs.	1 1/2 to 2 1/2 lbs.
	or	
Aldrin	2 to 3 ounces.	3-4 ounces
	or	
Chlordane	1/2 to 1 lb.	3/4 to 1 1/2 lbs.

Should the grasshoppers and crickets be adults, or the stand of alfalfa thin, the higher concentration in the above table should be used.

DDT may be applied to alfalfa either in a liquid spray or in a dust. For the control of lygus and other plant bugs and for the control of leaf hoppers, the alfalfa should be treated when the field is in the prebloom stage. It is recommended that when spraying with DDT, the following amounts of actual DDT be applied per acre:

	Liquid Spray	Dust
DDT	1 to 1 1/2 lbs.	2 lbs.

An alfalfa field that is in heavy bloom should not be sprayed during the warm daylight hours with any of the insecticides mentioned in this pamphlet. If it becomes absolutely necessary to treat such a field then the alfalfa should be sprayed or dusted at night or early in the morning or late in the afternoon when bees are not flying and visiting and pollinating the flowers.

It should be realized in this connection that chlordane is extremely toxic to bees and that the other insecticides are less so.

Bees are the best pollinators of alfalfa blossoms. Bumble bees and the larger wild bees are the best agents for this purpose, while honey bees are less effective. Unfortunately, bumble bees are usually not abundant. Honey bees do help to increase the seed yield by tripping and cross pollinating some alfalfa flowers. If it is desired to use honey bees to increase the amount of tripping in an alfalfa field, from one to five strong colonies of bees should be used per acre. These colonies can be located within the alfalfa field or they may be set up along one edge of the field.

Anything and everything that can be done to encourage or force bees to visit alfalfa blossoms is advisable. If it is planned to take off a cutting of alfalfa hay, it might be advisable to stagger cutting different portions of the alfalfa field, so that the blossoming period of the second growth in these portions will also be staggered. In this way, the pollinating bees will be forced to concentrate on a limited area and the blossoming period will be extended over a longer period of time. In this connection, the grower should keep in mind the length of time that there is available for maturing the seed before killing frosts are due.

To obtain a good heavy seed yield, a sufficient number of pollinating bees must be available. The practice of avoiding competition for pollinators by not permitting wild flowers and flowers of sweet clover to bloom when the alfalfa is also flowering should be followed. Wild flowers may be mowed and so also may be blooming sweet clover, at times, to avoid this competition.

Alfalfa that has been sprayed with any of the insecticides that have been mentioned in this pamphlet, and that has been cut for hay should not be fed dairy cows. If it is planned to feed such hay to beef animals, at least three weeks should have elapsed between the time that the alfalfa was sprayed and the time when it was cut. During this interval of time, much of the insecticide will have disappeared from the alfalfa. In addition, it would be desirable to stop feeding stock sprayed alfalfa, at least three to four weeks before such stock is to be slaughtered.

For advice on agronomic practices that should be followed in growing alfalfa for seed production, the writer wishes to refer the reader to the Agronomy Department of South Dakota State College, Brookings, South Dakota.