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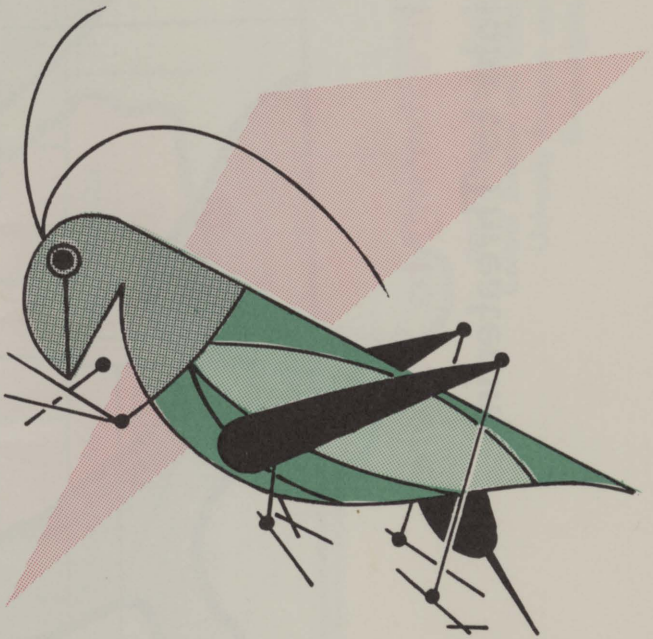
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# GRASSHOPPER CONTROL

## South Dakota 1967



Cooperative Extension Service  
South Dakota State University  
U. S. Department of Agriculture

# Grasshopper Control in South Dakota—1967

B. H. KANTACK, Extension Entomologist, and WAYNE L. BERNDT, Extension Pesticides Specialist

## GRASSHOPPER PROBLEMS

Grasshoppers are usually prevalent in some areas of South Dakota each year. Heavy outbreaks also are likely to occur periodically where extensive acreages are infested over a wide area.

Severe infestations occur during seasons where hot and dry weather conditions prevail. Farmers and ranchers should watch for grasshoppers early in the season and initiate control measures immediately where problems exist.

## APPLY CONTROL MEASURES EARLY

Two general groups of injurious grasshoppers are of economic importance in South Dakota. Species of economic importance are usually grouped into cropland and rangeland grasshoppers.

The best time to control grasshoppers is when they are small and before they migrate into cropland areas. Apply insecticides shortly after the main egg hatch is completed. There are a number of advantages in this early treatment: (1) fewer acres will have to be treated and less insecticide is necessary to obtain control; (2) injurious grasshopper species are killed before they have had the opportunity to injure the crops; (3) early treatments before the grasshoppers have reached maturity prevent egg deposition which helps reduce the potential grasshopper threat for the following crop year.

## TREATING GRASSHOPPER INFESTATIONS IN DIFFERENT SITUATIONS

**Cropland (Small Grains, etc.).** Fall and spring tillage of the soil helps reduce grasshopper populations. Inspect all grain fields periodically and treat only areas where grasshoppers are found. Field margins and headlands are areas where young grasshoppers are usually present. In South Dakota, winter wheat fields are often severely damaged each fall; border spraying of these fields can prevent considerable damage.

**Legume Fields.** Usually the entire field is infested and must be sprayed to obtain adequate control. Since some grasshopper species hatch later, the main hatch will not be completed until after the first crop of hay has been harvested. Delay spraying until the second crop is about 3 inches tall in legume fields. Sometimes growers leave a small trap strip from the first cutting to attract grasshoppers from the remainder of the field. This strip is then sprayed with a suitable insecticide.

**Conservation Reserve (Soilbank).** In fields where forage crop cover is lacking and weeds are prevalent, the entire field will often be infested with grasshoppers. In fields where grass growth is good, the grasshoppers will usually be concentrated along the margins and borders of the field. Under dry conditions considerable migration from these soilbank areas into adjacent crops usually occurs.

**Roadside Spraying.** Fence rows and roadsides are favorite oviposition sites for grasshoppers. Often, a properly timed spray in these areas after the main grasshopper hatch will eliminate the need for a costly spray on adjacent cropland. Spray these areas before the grasshoppers begin migrating into adjacent cropland.

**Pastureland.** Grasshopper problems often arise in pastures that have been overgrazed or mismanaged. Heavy infestations in pastures result in considerable loss of grass and grazing capacity. Grasshoppers from pasture areas often invade adjacent field crops later in the season.

Proper pasture management and improvement methods will discourage grasshopper populations. When insecticides are needed for control of grasshoppers in pastures, it is very important that the proper insecticide is selected so that grazing is permitted either immediately or soon after application.

**Rangeland.** In rangeland areas, grasshopper problems frequently arise. A severe rangeland infestation can reduce the grass growth so that the carrying capacity of livestock is greatly lowered. For lands under federal domain, the responsible agency treats the infested areas when the situation warrants control measures. In areas of privately owned rangeland, cooperative programs with the USDA Plant Pest Control Division are available.

The U. S. Department of Agriculture will help finance, organize, and supervise a grasshopper control program on rangeland under certain conditions:

1. A request for such a program must be made by the ranchers early enough to allow time to set up the program.
2. The infestation must be of sufficient size and intensity to warrant setting up a control program (over 10,000 acres), and it must be rangeland.
3. The entire infested block of land must be signed up by a rancher committee before any control work is done.

The U. S. Department of Agriculture will pay one-third of the cost on privately owned land and state land, the rancher must pay the remaining two-thirds. The U. S. Department of Agriculture will pay the full cost of control on government land on short term lease or leased on a permit basis, provided the privately owned land intermingled or adjacent to the government land is signed up. Government land that is under direct management and control of a governmental agency is included in this category.

Government land in long-term lease is handled the same as private land, that is, the Department of Agriculture will pay one-third and the rancher leasing the land must pay two-thirds.

The material used is a liquid spray, applied by aircraft. No spraying is done until all the grasshoppers have hatched (late June or early July) and the spraying must be completed before the grasshoppers start laying their eggs (the last few days of July or the first week of August).

*See pages 5-6 for Insecticide Recommendations*

#### **PRECAUTIONS**

Select the insecticide to fit the situation. Always follow the label and use recommended rates. Pay particular attention to the waiting periods required between the time of application and harvest or grazing of the treated areas. Never apply an unlabeled insecticide or allow an unlabeled insecticide to be applied on your crop. Always read and understand the label.

#### **SPECIAL NOTE**

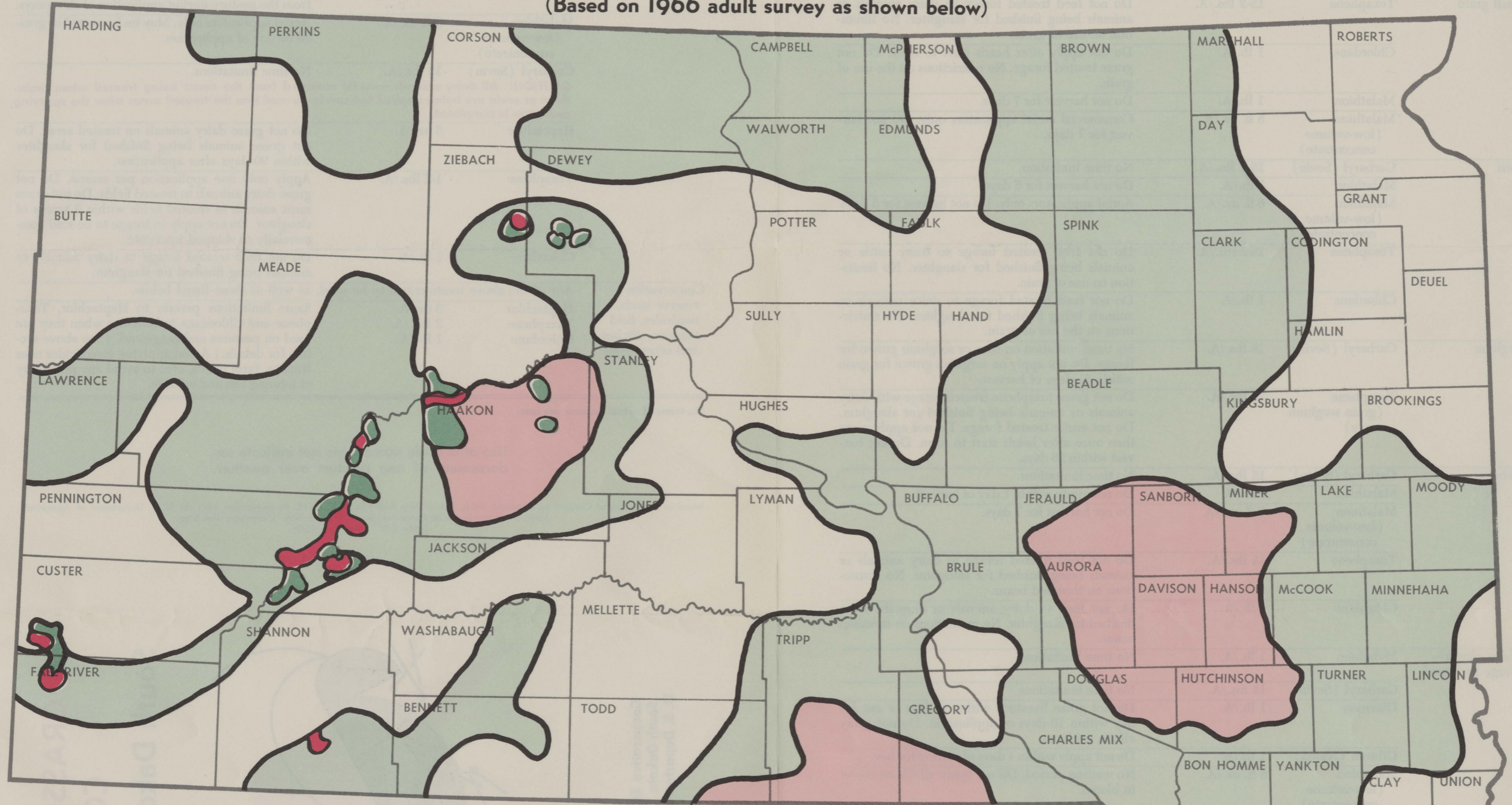
Aldrin and dieldrin cannot be used for grasshopper control on field crops, forage or pasture lands, as the USDA label approval has been withdrawn.

Should ACCIDENTAL POISONING occur, direct contact can be made with:

South Dakota Poison Information Center  
Vermillion, South Dakota  
Telephone (605)624-3432

# Grasshopper Outlook for South Dakota 1967

(Based on 1966 adult survey as shown below)



**Threatening to Severe**  
**Light to Threatening**

**Solid Colors--Rangeland Infestation**  
**Lighter Colors--Cropland Infestation**

PREPARED BY: USDA Plant Pest Control Division and South Dakota State University Research and Extension Entomologists.

**INSECTICIDES RECOMMENDED AND PRECAUTIONS FOR PROPER USE  
FOR GRASSHOPPER CONTROL ON VARIOUS CROPS**

<b>CROP</b>	<b>INSECTICIDE</b>	<b>DOSAGE*</b>	<b>REMARKS, PRECAUTIONS</b>
Small grain	Toxaphene	1½-2 lbs./A.	Do not feed treated forage to dairy animals or animals being finished for slaughter. No limitation on use of grain.
	Chlordane	1 lb./A.	Do not apply after heads start to form. Do not graze treated forage. No restrictions on the use of grain.
	Malathion	1 lb./A.	Do not harvest for 7 days.
	Malathion (low-volume concentrate)	8 fl. oz./A.	Commercial aerial applicators only. Do not harvest for 7 days.
Corn	Carbaryl (Sevin)	1½-2 lbs./A.	No time limitation.
	Malathion	1 lb./A.	Do not harvest for 5 days.
	Malathion (low-volume concentrate)	8 fl. oz./A.	Aerial applicators only. Do not harvest for 5 days.
	Toxaphene	1½-2 lbs./A.	Do not feed treated forage to dairy cattle or animals being finished for slaughter. No limitation on use of grain.
	Chlordane	1 lb./A.	Do not feed treated forage to dairy animals or animals being finished for slaughter. No restrictions on the use of grain.
Sorghum	Carbaryl (Sevin)	1½ lbs./A.	No time limitation on corn or sorghum grown for forage. Do not apply on sorghum grown for grain within 21 days of harvest.
	Toxaphene (grain sorghum only)	1½ lbs./A.	Do not graze toxaphene treated forage with dairy animals or animals being finished for slaughter. Do not ensile treated forage. Do not apply more than once after heads start to form. Do not harvest within 28 days.
Soybeans	Carbaryl (Sevin)	1½ lbs./A.	No time limitations.
	Malathion	1 lb./A.	Do not apply within 1 day of harvest.
	Malathion (low-volume concentrate)	8 fl. oz./A.	Do not harvest for 7 days.
	Toxaphene	1½ lbs./A.	Do not feed treated forage to dairy animals or animals being finished for slaughter. No restrictions on threshed beans.
	Chlordane	1 lb./A.	Do not feed to dairy animals or animals being finished for slaughter. No restrictions on threshed beans.
Alfalfa, clover— forage and seed	Malathion	1 lb./A.	No time limitations.
	Carbaryl (Sevin)	1½ lbs./A.	No time limitations.
	Diazinon	1 lb./A.	Do not graze livestock within 2 days or cut for hay within 10 days of application. Do not spray alfalfa in bloom.
	Dibrom (Naled)	1 lb./A.	Do not apply within 4 days of cutting for hay.
	Malathion (low-volume concentrate)	8 fl. oz./A.	No waiting period. Do not spray alfalfa or clover in bloom.

**NOTE: Malathion low-volume concentrate is not recommended for grasshopper control after alfalfa is over 8 inches tall or where very dense foliage is present.**

**To protect bee population, spray before 7:00 a.m. or after 7:00 p.m. Avoid spraying alfalfa in bloom. Notify local beekeepers before spraying.**

**SPECIAL NOTE: Never spray aldrin, dieldrin, and heptachlor on alfalfa or clover. The registration for dieldrin and heptachlor was cancelled on alfalfa and clover in 1964. Foliar applications of aldrin and dieldrin were cancelled on a number of other field crops early in 1966.**

CROP	INSECTICIDE	DOSAGE*	REMARKS, PRECAUTIONS
Pasture and ranges	Malathion	1 lb./A.	No time limitation. Dairy cattle must be removed from the pasture during application of the sprays.
	Malathion (low-volume concentrate)	8 fl. oz./A.	Aerial applicators only. May be harvested or grazed on day of application.
	Carbaryl (Sevin)	1½ lbs./A.	No time limitations. <b>CAUTION: All dairy animals must be removed from the areas being treated when malathion or sevin are being applied but can be turned into the treated areas after the spraying operation is completed.</b>
	Heptachlor	3 oz./A.	Do not graze dairy animals on treated areas. Do not graze animals being finished for slaughter within 90 days after application.
	Toxaphene	1-2 lbs./A.	Apply only one application per season. Do not graze dairy animals in treated fields. Do not graze meat animals in treated fields within 6 weeks of slaughter. Do not apply to forage to be sold commercially or shipped interstate.
	Chlordane	1 lb./A.	Do not feed treated forage to dairy animals or animals being finished for slaughter.
Conservation reserve lands, roadsides, field margins, ditches and other lands	Any of the above treatments may be used, as well as those listed below.		
	Heptachlor	3 oz./A.	Same limitations pertain to Heptachlor, Toxaphene and Chlordane insecticides when they are used on pastures and rangeland. (See above section for details.) Avoid applying insecticides near streams, farm ponds, etc., to avoid any possibility of injuring fish and wildlife.
	Toxaphene	2 lbs./A.	
	Chlordane	1 lb./A.	

\*In terms of actual toxicant per acre.

**Use of a trade name does not indicate endorsement of one product over another.**

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