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EC75-1509 Insect Control Guide for Corn and Sorghum in Nebraska

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INSECT CONTROL GUIDE FOR CORN AND SORGHUM

NEBRASKA

R. E. Roselle, D. L. Keith, L. L. Peters,
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Insect control suggestions in this guide are based on University of Nebraska research results, U.S.D.A. recommendations, and label registrations. Insect control is not perfect. The suggestions are designed to benefit Nebraska farmers when they need control programs.

In some instances trade names have been used. No endorsement is implied by the Nebraska Cooperative Extension Service and no discrimination is intended.

TOXICITY OF INSECTICIDES

All insecticides are poisonous and must be used with caution. They should always be stored in the original container out of the reach of children, uninformed adults, and livestock. Empty containers and left-over materials must be disposed of by burying at least 18 inches in the soil away from water supplies. It is very important that the labels of every insecticide be studied until they are understood. Safety precautions and use instructions are on all labels. Follow these completely to avoid accidental poisoning or death, and to prevent illegal residues in crops.

The highly toxic insecticides in this publication are ethyl parathion, methyl parathion, Phosdrin, EPN, Di-Syston, Thimet, Counter, Dyfonate, Dasanit, Systox, and Mocap. Skull and crossbones and the word Poison in red appear on the label of highly toxic materials. These chemicals are not recommended for farmer application as sprays. They must be applied only by well-trained, responsible and insured commercial operators. However, with proper precautions, farmers should be able to use granular formulations for soil application to control corn rootworms. Furadan 4F is highly toxic orally--Farmers can use this product if special precautions are taken.

Moderately highly toxic insecticides are Furadan 10G, dieldrin, toxaphene, Ethion, Trithion, aldrin, heptachlor, and lindane. They must be used with special care. Familiarize yourself with all the warnings given on the labels.

Revised December 1974, 5,000

EXTENSION WORK IN "AGRICULTURE, HOME ECONOMICS AND SUBJECTS RELATING THERETO,"
THE COOPERATIVE EXTENSION SERVICE, INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES,
UNIVERSITY OF NEBRASKA-LINCOLN, COOPERATING WITH THE COUNTIES AND THE U. S. DEPARTMENT OF AGRICULTURE
J. L. ADAMS, DIRECTOR

Registrations of some chemicals listed in this publication are subject to review and withdrawal in 1975. Visit with your county agricultural agent before making the final decision of which insecticide to use.

INSECTS BELOW GROUND

CORN ROOTWORM LARVAE

Corn rootworm larval damage is most likely to occur in continuous corn production fields. If one or more beetles per plant were observed the previous August, soil insecticides at planting or post-plant usually are indicated. Corn following other crops may be damaged by rootworm larvae if adult populations in adjacent corn fields were numerous the previous August. Rotation is usually an effective prevention for corn rootworms, and soil insecticides are not necessary in most situations.

Effectiveness of soil insecticides is reduced if soil remains dry after planting, excessive rainfall occurs, or soils are highly alkaline. Applications before May 7 may be less effective than applications after May 7 due to decomposition of the insecticide. Furadan and Counter appear to be more consistant in performance.

It is very important to cover insecticides with soil. Granules or liquids remaining on the surface after application are lost.

Fertilizer in combination with a soil insecticide must be applied in a band on each side of the seed furrow - not in the furrow or below the seed.

Some injury to roots will occur, regardless of material used, when rootworm populations are high or egg hatch is extended.

MATERIAL	AMOUNT FORMULATION PER 1000 LINEAR FEET	RESTRICTIONS
PLANTING TIME GRANULES:		
Counter 15G	8.0 ounces	Follow label restrictions.
Dasanit 15G	8.0 ounces	Field, sweet and popcorn.
Dyfonate 10G	12.0 ounces	Field, sweet and popcorn. One application per season. 45 days from harvest.
Dyfonate 20G	6.0 ounces	Same as 10G.
Furadan 10G (carbofuran)	12.0 ounces	Field corn. Use only one time.

Thimet 15G (phorate)	8.0 ounces	Field and sweet corn. Can be used at planting and/or cultivation time.

PLANTING TIME LIQUID:

Furadan 4F (carbofuran)	2.4 fluid oz.	Split boot in combination with starter fertilizers OR 7 inch band over the row. Use only once per season.

POST EMERGENCE GRANULES: (Before June 10 for best results)

Bux 10G	12.0 ounces	Basal only. Field, sweet, and popcorn.
Dasanit 15G	8.0 ounces	Basal only. Field corn.
Dyfonate 10G	12.0 ounces	Over plants or basal. Field, sweet and popcorn. 45 days. One application per season.
Dyfonate 20G	6.0 ounces	Same as 10G
Di-Syston 15G (disulfoton)	8.0 ounces	Basal only. Registered for field, sweet and popcorn.
Furadan 10G (carbofuran)	12.0 ounces	Over plants or basal. Field corn.
Thimet 15G (phorate)	8.0 ounces	Over plants or basal. Field and sweet corn.
Diazinon 14G	8.5 ounces	Over plants or basal. Field, sweet and popcorn.
Mocap 10G*	12.0 ounces	Basal only. Field corn.

*Mocap is also registered for planting time applications. Under certain conditions in research plots, stand has been reduced when banded over the row at planting time.

POST EMERGENCE - LIQUIDS

Diazinon Ag. 500	2.4 fluid oz.	Apply bands on each side of row and cover with soil immediately at last cultivation or lay-by.

CUTWORMS AND WIREWORMS

Corn following sod or stubble is most likely to be damaged by wireworms and cutworms. Continuous, clean cultivated corn is relatively free of wireworm infestations, and is a deterrent to cutworm infestations except in low-land fields that have a history of cutworm infestations.

MATERIAL	AMOUNT ACTIVE INGREDIENT PER ACRE	RESTRICTIONS
Aldrin*	2 pounds	Broadcast 2 to 3 weeks before planting or before replanting and disk 3 or 4 inches into the soil. DO NOT USE on fields that will be planted to root crops or legumes following corn. DO NOT USE ON DAIRY FARMS.
Heptachlor	2 pounds	
Chlordane	4 pounds	
Aldrin*	1 pound	Row spray over seed furrow at planting. Cover with soil. DO NOT USE on fields that will be planted to root crops or legumes following corn. DO NOT USE ON DAIRY FARMS.
Heptachlor	1 pound	
Chlordane	2 pounds	
Sevin 5% bait (Cutworms)	1 pound	20 pounds 5% bait per acre broadcast or band. Effective only when cutworms are 1/2 inch or less long, and soil surface is moist.

Diazinon	4 pounds	Broadcast and disked in before replanting where stands have been destroyed by cutworms.

SEED INSECTS

Planter box treatment with lindane, aldrin*, dieldrin*, heptachlor or diazinon.	Follow package directions. Never mix treated weed with feed grains.

*Registrations of aldrin and dieldrin have been cancelled by EPA. Supplies on hand can be used during the 1975 season.

INSECTS DAMAGING CORN ABOVE GROUND

CORN ROOTWORM ADULTS

Corn rootworm adults may interfere with pollination - if there are sufficient adults to chew silks to husks during the pollen-shed period. Controls are indicated when severe silk chewing is occurring at 25 to 50 percent pollen shed. Most likely to be a problem in late planted corn.

MATERIAL	AMOUNT ACTIVE INGREDIENT PER ACRE	RESTRICTIONS
Sevin (carbaryl)	1 pound	None
Ethyl or methyl parathion	4 ounces	12 days. Commercial application only.
EPN	4 ounces	14 days. Commercial application only.
Di-Syston (disulfoton)	4 ounces	28 days. Commercial application only. One treatment per season.
Malathion	1 pound	5 days
Malathion ULV	4 ounces	5 days. Commercial application.
Gardona	1 pound	5 days

CHINCH BUGS

Control when migrations are occurring from harvested small grains adjacent to corn or sorghum. Spraying barrier strips around margins of fields is suggested when bugs first begin to damage border rows. Use high gallonage directed at base of plants and on the soil.

MATERIAL	AMOUNT ACTIVE INGREDIENT PER ACRE	RESTRICTIONS
Toxaphene	2 pounds	Do not feed treated foliage.
Sevin (carbaryl)	2 pounds	None
Diazinon	1 pound	None

EUROPEAN CORN BORERS

Apply chemical controls when first brood corn borer larvae are present in 50% of corn plants that are 36 inches or higher in extended leaf height, determined by "shot-hole" feeding signs in leaves. There is no reliable guide to the necessity for control of second brood - consider early harvest if second brood appears to be present in large numbers, to reduce field loss. Second brood borers will be more serious in late maturing corn.

MATERIAL	AMOUNT ACTIVE INGREDIENT PER ACRE	RESTRICTIONS
Diazinon 14G	1 pound	10 days
EPN 4G	0.3 pound	14 days
Thimet 15G	1 pound	30 days. First brood only.
Furadan 10G (carbofuran)	1 pound	First brood only. Do not exceed 2 pounds active ingredient for both soil and foliar treatment.
Thimet 15G or 10G (phorate)	1 pound	First brood only. 30 days. Do not make more than 1 application over plants.
Dyfonate 10G	1 pound	45 days harvest or grazing.

Sevin 80WP (carbaryl)	2 pounds	Use nozzles over whorls for first brood and 4 nozzles per row for second brood so leaf axils and ear zones are thoroughly covered with spray. Harvest limitations same as for granules.
EPN EC (commercial application)	8 ounces	
Diazinon EC	1 pound	

GRASSHOPPERS

Prevent damage to corn by controlling grasshopper nymphs when there are 10 or more nymphs per square yard in field margins.

MATERIALS	AMOUNT ACTIVE INGREDIENT PER ACRE	RESTRICTIONS
Toxaphene EC	2 pounds	Field margins only. Do not feed treated forage.
Parathion EC	8 ounces	Commercial application only. 12 days.
Sevin 80WP	2 pounds	No restrictions.
Malathion EC	1 pound	5 days
Chlordane EC	1 pound	Field margins only. Do not feed treated forage.

WESTERN BEAN CUTWORMS

Use chemical controls when 14% of plants are infested with larvae in tassels and/or eggs on leaves and corn is 95-100 percent tasselled.

MATERIAL	AMOUNT ACTIVE INGREDIENT PER ACRE	RESTRICTIONS
Carbaryl WP (Sevin)	2 pounds	No restrictions.
Dylox (Trichlorfon)	1 pound	28 days

SPIDER MITES

Apply chemical control if 2 to 3 of the large lower leaves are killed by mites and corn has not reached dent stage. Insecticides do not kill eggs, so reinfestation frequently will occur.

MATERIAL	AMOUNT ACTIVE INGREDIENT PER ACRE	RESTRICTIONS
BEFORE AUGUST 1		
Thimet 15G (phorate)	1 pound	30 days. Commercial application.
Di-Syston 15G (disulfoton)	1 pound	40 days. Commercial application.
AFTER AUGUST 1		
Thimet 15G (phorate)	1 pound	30 days. Commercial application.
Di-Syston 15G (disulfoton)	1 pound	40 days. Commercial application.
Parathion EC	12 ounces	12 days. Commercial application.
Cygon EC (dimethoate)	8 ounces	14 days forage, 42 grain. Not more than 3 applications.
Ethion EC	1 pound	50 days. One application. Do not feed treated forage.
Trithion EC (carbophenothion)	1 pound	21 days. One application.
Metasystox-R EC (oxydemetonmethyl)	8 ounces	7 days.
Diazinon EC	8 ounces	None.

ARMYWORMS

Control when migration from adjacent fields is sufficient to damage margin rows.

MATERIAL	AMOUNT ACTIVE INGREDIENT PER ACRE	RESTRICTIONS
Carbaryl (Sevin)	1.6 pounds	No restrictions.
Malathion 57% EC	1.5 pounds	5 days.
Dylox SP	1 pound	21 days. One application.

SORGHUM INSECTS

CORN EARWORMS AND FALL ARMYWORMS

Infestations may occur in whorls, and later in heads. Usually not feasible to control whorl infestations. If two or more larvae per head are present, controls may be profitable.

MATERIAL	AMOUNT ACTIVE INGREDIENT PER ACRE	RESTRICTIONS
Sevin 80WP	1.6 pounds	21 days for grain.
Toxaphene	1 pound	28 days. Do not feed treated forage to animals being finished for slaughter. DO NOT USE ON DAIRY FARMS.

GREENBUGS AND CORN LEAF APHIDS

Corn leaf aphid control is seldom necessary unless infestations are severe at the time the head is in the boot or at early head emergence, or sorghum is under drought stress.

Economic levels of greenbugs will depend upon stage of plant development, the variety grown, and growing conditions. Generally, yield increases can be expected from control if the lower two leaves are destroyed. After heading, predators and parasites may decrease greenbug populations rapidly. If more than 15% of greenbugs are parasitized (mummies), chemical controls should not be used.

Planting time applications of Di-Syston or Thimet granules will prevent infestations from developing on seedling sorghum if root development and moisture are sufficient for plant uptake. Protection should last about 30 days. There is evidence that planting time applications may cause development of resistant greenbugs, complicating chemical control later in the season.

MATERIAL	AMOUNT ACTIVE INGREDIENT PER ACRE	RESTRICTIONS
Dimethoate EC	6 ounces	28 days. Use drop nozzle, so entire plant is covered.
Diazinon EC	8 ounces	7 days. Use drop nozzles.
Malathion 57% EC	1 pound	7 days. Use drop nozzles.
Ethyl parathion EC	8 ounces	12 days. Commercial application.
Di-Syston (disulfoton)	4 ounces	28 days. Commercial application.

Thimet 15G (phorate)	8 ounces	28 days. One application.
Di-Syston 15G (disulfoton)	8 ounces	30 days

SEED INSECTS IN SOIL

Seed treatment in planter box with aldrin, heptachlor, lindane, diazinon, or dieldrin. Follow package directions. NEVER MIX TREATED SEED WITH FEED GRAINS.

CONTAINER DISPOSAL

Proper disposal of insecticide containers is very important. Serious accidents have occurred when "empty" containers have not been disposed of safely. Suggested methods of disposal are:

PAPER BAGS: Be certain that all contents have been emptied into applicators or tanks. Burn paper containers, not to exceed 50 pounds, in open fields where; (1) regard is given to wind direction in relation to people, domestic animals, and water supplies, (2) where such burning is not in violation of Federal, State, or local ordinances, and (3) provisions are made to avoid contamination of surface water.

METAL, GLASS, OR PLASTIC CONTAINERS: Thoroughly rinse containers at least 3 times with water and dump rinse material into tanks to be used with regular applications. Recycle 5 gallon or larger metal drums where possible after complete decontamination. Containers that cannot be recycled should be punctured, crushed, and buried in a landfill, or 24 inches below the soil surface in a location that will not result in contamination of water, crops, man or animals.

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