

**Texas guide for
controlling insects
on vegetable crops**

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TEXAS AGRICULTURAL EXTENSION SERVICE

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TEXAS GUIDE FOR CONTROLLING INSECTS ON VEGETABLE CROPS

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With few exceptions, vegetable insect control is a preventive program. Control measures should begin before insects appear in damaging numbers. Dusts and sprays, in most instances, are equally effective.

METHODS OF APPLICATION

Dusts—Insecticides and fungicides generally are compatible and may be applied simultaneously. Apply dusts at the rate of 15 to 20 pounds per acre with ground equipment and 20 to 25 pounds per acre by airplane. Use higher poundages on rank vegetation, such as large tomato and potato plants. Tractor dusters should have adequate fan capacity to give good coverage. Airplanes using a swath width no wider than the wingspread of the plane may be used to distribute dusts when the air is calm. Use flagmen to mark the swath width. *Thorough coverage is necessary to control pests such as aphids and spider mites on low-growing leafy crops.* Airplane dusting has failed in the control of aphids on radishes, turnips and other crops of this type. Hand dusters, especially the rotary type, are best adapted for treating home gardens and small fields. For the best results, do not apply dusts when the wind exceeds 6 miles per hour.

Sprays for Insect Control—Low-volume sprays have been successful in controlling insects. Unless otherwise specified the emulsifiable concentrate should be used at the recommended rate of 5 to 15 gallons of water per acre. Tractor sprayers should have two or three nozzles per row and should be operated at approximately 60 pounds pressure. Airplane sprays may be used with good results on most vegetables, but when a plane is used the insecticide dosage should be increased 50 percent over the recommendations in this guide.

Garden Sprayers for Insects—The conventional 3 or 5-gallon knapsack sprayer with agitator and constant pressure is useful in garden insect control. Spray the plant thoroughly so that both leaf surfaces will be covered. Table 1 may be used to convert the amounts in the table to quantities suitable for home garden use. It is based on an application rate of 100 gallons per acre. Either emulsions or wettable powders may be used. *Phosphorus compounds, (Parathion, Phos-*

drin, Demeton Diazinon or TEPP) are not recommended for use in hand sprayers.

Table 1. Dilution Chart for Hand Sprayers*

Insecticide	Percent emulsion concentrate	Tbsp. per gal. of water	Percent wettable powder	Tbsp. per gal. of water
Aldrin	25	1/2	25	2
Chlordane	75	1/2	40	4
DDT	25	2	50	2
Dieldrin	18.6	1/2	50	1
Heptachlor	25	1	25	2
Lindane	25	1	25	1
Malathion	50	1/2	25	2
Methoxychlor	25	2	50	2
TDE	25	2	50	2
Toxaphene	60	2	40	4

*Based on 100 gallons per acre of formulation.

PRECAUTIONS

All insecticides are poisonous and should be handled according to instructions on labels. *Special precautions should be practiced in handling, TEPP, parathion, Phosdrin, Diazinon and demeton.* Do not breathe dust or mist or enter drift; wear Bureau of Mines approved respirators; have shirt sleeves rolled down; change clothes and bathe immediately after finishing work.

Vegetables having excessive residues of insecticides can be confiscated by the Pure Food and Drug Administration under regulations of the "Miller Bill." Growers should study and follow carefully recommendations in the table which gives the number of days which should elapse between last application and harvest. Current changes in insecticide tolerances and uses will be distributed to county extension agents in the *Entomology Notes*.

HOME GARDEN MIXTURES

General-purpose dusts or sprays containing several insecticides which will control both chewing and sucking insects are available for the home garden.

CORN EARWORM CONTROL IN SWEET CORN

The corn earworm limits the production of quality sweet corn. Severe infestation may reduce

sweet corn yields to 15 or 20 bags per acre. The homemaker's demand for a worm-free corn has made earworm control profitable.

The corn earworm moth often lays its eggs on the corn before the silks appear. Later the eggs are deposited on the silks. The eggs hatch within 2 or 3 days and the worms migrate to the silk channels and eat their way down to the immature ear. Control measures must be started before the worms have eaten their way to the ear tips. The following methods have given satisfactory control:

Individual ear method—An emulsion is made by mixing 3 quarts of 25 percent DDT emulsifiable concentrate with 2.0 gallons of white mineral oil of 65 to 90 seconds Saybolt viscosity and then dilute to 25 gallons with water. This emulsion should be mixed thoroughly before it is poured in the sprayer. This emulsion should be sprayed directly on the silks three times at the rate of 1 teaspoonful per silk spike at 2-day intervals. Treatment should be started when the first ears start silking.

This DDT-oil emulsion can be applied with a compressed garden sprayer equipped with a pressure gauge to maintain a pressure between 35 to 60 pounds during the spraying operation. The sprayer also should be equipped with a low-pressure nozzle having an orifice of 0.042 inches.

To cover large acreages rapidly, a small 30-gallon orchard sprayer may be mounted on two

Table 2. Spray recommendations are based on the formulations below. Examine the labels on all containers and if the formulation differs from these, consult your county agent or the extension entomologist for amount to be used.

	Pounds per Gallon
Aldrin	2
Dieldrin	1.5
Toxaphene	6
Toxaphene-DDT	4 of toxaphene and 2 of DDT
DDT	2
TDE	2
Heptachlor	2
Endrin	1.6
Diazinon	2
Demeton	2
Parathion	2
Malathion	5
Phosdrin	2
Perthane	2

automobile wheels and pulled through the field by a mule. A boom with eight outlets is mounted on this sprayer above the height of the corn. Twenty-foot hoses with nozzles having rapid cut-off valves are attached to these outlets. Men spray the silks as this sprayer is drawn through the field. Eight men are able to spray 30 to 40 acres in a day with the use of such a machine.

Sponge method—This is a simple method for controlling the corn earworm. A synthetic rubber sponge is cut the length of a man's finger and about three times its size in thickness. The sponge is dipped in a solution of DDT and oil, made by dissolving 1 pound of technical DDT in 25 gallons of white mineral oil of 65 to 95 seconds Saybolt viscosity. Press the sponge on the top of the ear silk until approximately $\frac{1}{4}$ teaspoonful runs in the silk. The silks should be treated only once in this manner, and they should be treated after a majority are bending down and before they have started to dry up on the terminals. Oil injury to ears results from applying excessive oil or from applying the DDT-oil treatments too early.

Brush method—Make four applications at 1-day intervals, by pressing a 1-inch stipple brush, dipped in a 5 or 10 percent DDT dust, into the silks. Begin treatment when the first ears start silking.

Fixed-boom sprayer—A high-clearance sprayer shows promise for applying sprays for earworm control. The boom should be made so that four nozzles will be directed at the ears in each row. The sprayer should be operated at 100 to 150 pounds pressure and equipped with a cone nozzle that will apply the spray at the rate of 35 gallons per acre.

The spray formulation is made by mixing: 5 gallons white mineral oil with a second Saybolt viscosity ranging from 65 to 90; 3 gallons of 25 percent emulsifiable DDT; and enough water added to make 100 gallons. Keep this emulsion well agitated during the spray application.

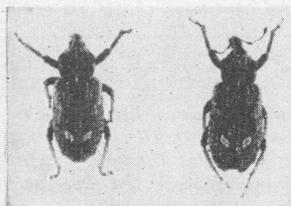
This emulsion should be applied to the corn three times at 2-day intervals, beginning when 10 percent of the ears show silks. Excellent earworm control has been obtained when the sprays were applied at the proper time and with the

proper number of applications. This treatment will fail if applications begin after most of the ears have silked or when the interval between applications is longer than 2 days.

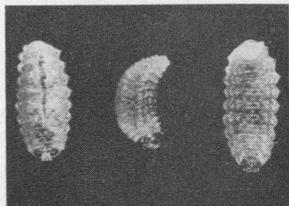
CONTROL OF INSECT PESTS IN PLANTING SEED

Peas and other seed to be stored and used for planting may be treated immediately after threshing with lindane, methoxychlor or DDT to protect them from stored grain pests. Do not consume or feed any seed treated with these materials. One ounce of 3 percent DDT, methoxychlor or ½ ounce of 1 percent lindane per bushel of seed is effective. No damage to seed viability has been observed as a result of treatment with either compound at recommended dosages. (See Extension Service publication L-217 *Stored Grain Insects*.)

VEGETABLE WEEVILS



ADULTS



LARVAE

The vegetable weevil is a snout-beetle, about ⅓ inch long, and is a dull gray-brown, usually with a pale gray V-shaped mark on the wing covers.

The larvae are creamy white when first hatched, but soon turn pale green. They have no jointed legs, but their lower body surface is segmented so that they can crawl on foliage.

Hosts

Turnips, carrots, mustard, cabbage, tomatoes, potatoes and other vegetable and wild plants.

Habits

Adults and larvae feed on all portions of the plants growing above ground. Frequently root crops such as turnips and carrots are attacked below the groundline. Most of the feeding takes place during the night. The adults and larvae feed during the cool seasons. Adults become inactive during the summer. They seek shelter from the sun and wait for winter. Pupation takes place

in earthen cells in the soil, about 1 to 2 inches deep.

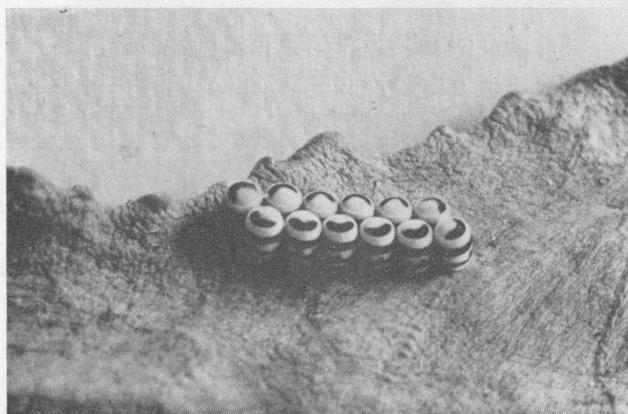
For control of the vegetable weevil, see the recommendation listed under the heading, "general feeders."

CABBAGE APHIDS



Two species of plant lice which attack vegetables are cabbage and turnip aphids. These aphids are similar in appearance, and attack crops such as cabbage, cauliflower, turnips, mustard greens and others of this family. Heavy infestations of aphids on cabbage, turnips and similar crops are difficult to control with low-volume sprays.

HARLEQUIN CABBAGE BUGS



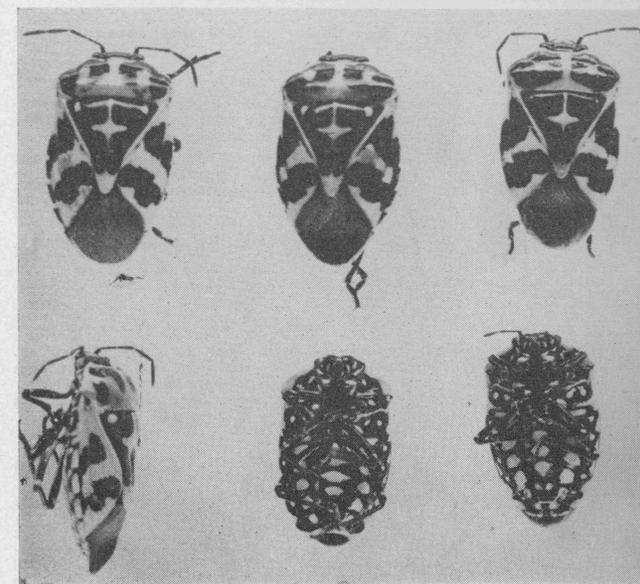
EGGS OF HARLEQUIN CABBAGE BUG

The adults are brilliant red and black bugs with piercing-sucking mouthparts.

The eggs are barrel-shaped with two black bands, one near the top and the other near the bottom. The eggs are laid on end in two-row clusters of about 12 each.

Hosts and Habits

This insect is primarily a pest of cabbage, mustard, turnips, collards and other crucifers. It overwinters as an adult in brush, grass and other crop residues.



ADULTS

The recommendations in this leaflet are based upon results of experiments conducted by the Texas Agricultural Experiment Station, Texas A. & M. College System and other research agencies.

For additional information contact your county agent or write the extension entomologist, College Station, Texas.

Dust or Spray Program for

BEANS (Snap or Lima)

INSECT	DUST	SPRAY AMOUNT PER ACRE	TOLERANCE (PPM**)	No. days between last application and harvest	REMARKS
Aphid	1% parathion	1 pt. parathion	1.0	15	Apply insecticides at 5-7 day intervals until control is obtained.
	5% malathion	1½ pt. malathion	8.0	1	
	2% phosdrin	1-2 pt. phosdrin	0.25	1	
		½ pt. demeton	0.3	21	
Flea beetle	5% DDT	2 qt. DDT	7.0	7	Flea beetles may cause severe damage to seedling plants. Toxaphene dust may be used within 7 days of harvest if beans are washed.
	20% toxaphene	1½ qt. toxaphene	7.0	*	
	5% heptachlor	1 qt. heptachlor	0.1	*	
Leafhopper	1% parathion	1 pt. parathion	1.0	15	May attack seedlings or older plants. Repeat treatment as needed. Toxaphene dust may be used within 7 days of harvest if beans are washed.
	5% DDT	2 qt. DDT	7.0	7	
	20% toxaphene	1½ qt. toxaphene	7.0	*	
	5% malathion	1 qt. malathion	8.0	1	
Thrips	5% malathion	1 qt. malathion	8.0	1	May cause serious damage to seedling plants.
	20% toxaphene + 1% parathion	1½ qt. toxaphene + 1 pt. parathion	7.0+	*	
	5% heptachlor	1 qt. heptachlor	0.1	*	
Corn earworm	5% DDT	2 qt. DDT	7.0	7	Attacks blossoms.
Cabbage looper	20% toxaphene + 3% malathion	1½ qt. toxaphene + 1 pt. malathion	7.0+	*	Begin treatment with first ragging of leaves. Toxaphene-malathion dust can be used within 7 days of harvest if beans are washed. Toxaphene-parathion dust may be used within 15 days of harvest if beans are washed.
	20% toxaphene + 2% parathion	1½ qt. toxaphene + 1 pt. parathion	7.0+	*	
	0.9% piperonyl butoxide + 0.06% pyrethrins	2 qt. (2-1) toxaphene-DDT	Exempt	1	
	20% toxaphene		7.0+	*	
			7.0	*	
Lesser corn-stalk borer					Plant on fallow land. No practical chemical control known.

BEETS

Beet webworm					Do not apply DDT after seedling stage if tops are to be used for food or feed. Apply insecticides at weekly intervals for beet leafhopper control.
Leaf beetle	5% DDT	2 qt. DDT	7.0		
Beet leafhopper					

CABBAGE, BROCCOLI AND CAULIFLOWER

Aphid	4% diazinon	1 pt. diazinon	0.75	7	Treatment should begin when populations are low and continue at weekly intervals.
	5% malathion	1 qt. malathion	8.0	7	
	2% parathion	1 pt. parathion	1.0	21	
	2% phosdrin	1 pt.-1 qt. phosdrin	1.0	4	
Flea beetle	5% DDT	2 qt. DDT	7.0	*	Primarily a problem on seedling plants where a few beetles can ruin a stand. Toxaphene may be used on cabbage within 7 days of harvest.
	20% toxaphene	1 qt. toxaphene	7.0	*	
	5% heptachlor	1 qt. heptachlor	0.1	*	
Cabbage webworm	5% DDT	2 qt. DDT	7.0	*	
Harlequin cabbage bug	20% toxaphene	2 qt. toxaphene	7.0	*	Toxaphene may be used on cabbage within 7 days of harvest.
	2% parathion	1 qt. parathion	1.0	21	
	20% sabadilla		Exempt	1	
Cabbage worms (looper, imported, etc.)	20% toxaphene + 2% parathion	1½ qt. toxaphene + 1 pt. parathion	7.0+	*	Toxaphene plus parathion can be used on cabbage within 21 days. Toxaphene plus malathion can be used on cabbage within 7 days of harvest.
	10% perthane + 3% malathion	2 qt. perthane + 1 pt. malathion	15.0+	7	
	20% toxaphene + 3% malathion	1½ qt. toxaphene + 1 pt. malathion	7.0+	*	
	0.9% piperonyl butoxide + 0.06% pyrethrins		Exempt	1	
Thrips	5% malathion	1 qt. malathion	8.0	7	Heptachlor is approved for use on broccoli only before the florets begin to grow.
	20% toxaphene + 2% parathion	1½ qt. toxaphene + 1 pt. parathion	7.0+	21	
	5% heptachlor	1 qt. heptachlor	0.1	*	

MUSTARD AND TURNIPS

Aphid	5% malathion	1 qt. malathion	8.0	7	Low-volume sprays not recommended.
	2% phosdrin	1-2 pt. phosdrin	1.0	3	
	1% parathion	1 pt. parathion	1.0	21	
Flea beetle	5% DDT	2 qt. DDT	7.0	*	Toxaphene approved for use on mustard only. DDT can be applied within 21 days of harvest on mustard greens intended for processing.
	20% toxaphene	1½ qt. toxaphene	N.R.***	*	
Cabbage looper	5% malathion	1 qt. malathion	8.0	7	Apply insecticides when worms are small.
	0.9% piperonyl butoxide + 0.06% pyrethrins		Exempt	1	
False chinch bug	5% malathion	1 qt. malathion	8.0	7	Apply when needed.
	0.9% piperonyl butoxide + 0.06% pyrethrins		Exempt	1	

CANTALOUPE, CUCUMBERS, WATERMELONS AND OTHER CUCURBITS

Darkling beetle	1½% dieldrin	1½ pt. dieldrin	0.25	14	Tolerance on melons is 0. Do not apply to melons after blossoming. Do not apply insecticides when plants are wet since burning may result.
Cutworm					
Thrips	1% parathion	1 pt. parathion	1.0	15	Usually occur on seedling plants. Do not apply insecticide when plants are wet since burning may result. Remove excess lindane residue from cucumbers.
	5% malathion	1 qt. malathion	8.0	1	
	1% lindane	1 pt. lindane	10.0	0	
Aphid	1% lindane	1 pt. lindane	10.0	0	Remove excess lindane residues from cucumber. Do not apply insecticide when plants are wet since burning may result.
	5% malathion	1½ pt. malathion	8.0	1	
	1% parathion	1 pt. parathion	1.0	15	
Melonworm	5% methoxychlor		14.0	7	Apply when insects first appear.
	2% parathion	1 qt. parathion	1.0	15	
	1% rotenone		Exempt	1	
Leaf miner	2% parathion	1 pt. parathion	1.0	15	Do not apply insecticide when plants are wet since burning may result. Do not apply more than 15 lbs. dust per acre. Treat at 4-day intervals until insects are controlled.
Spider mite	2% parathion	1 pt. parathion	1.0	15	Feed on undersurface of leaves. Thorough application necessary to obtain control.
	5% malathion	1 qt. malathion	8.0	1	
Cucumber beetle	1% rotenone		Exempt	1	Tolerance of dieldrin on melons is 0, and it should not be applied after blossoming. Endrin is approved for use on cucumbers only. Do not apply insecticide when plants are wet since burning may result.
	5% methoxychlor		14.0	7	
	1½% dieldrin	1½ pt. dieldrin	0.25	14	
	1½% endrin	1 qt. endrin	0	14	
Leafhopper	1% parathion	1 pt. parathion	1.0	15	
	5% malathion	1½ pt. malathion	8.0	1	

CARROTS

Flea beetle					Do not use DDT treated tops for food or feed. Less than one flea beetle per plant can ruin stand of seedlings.
Cutworm	20% toxaphene	1 qt. toxaphene	7.0	0	
Leafhopper	5% DDT	1 qt. DDT	7.0	0	
Webworm					

EGGPLANTS

Flea beetle					Apply when insects first appear.
Cucumber beetle	5% DDT	2 qt. DDT	7.0	5	
Colorado potato beetle	20% toxaphene	1 1/2 qt. toxaphene	7.0	5	
	1 1/2% endrin	1 qt. endrin	0.0	14	
Spider mite	2% parathion	1 pt. parathion	1.0	15	Apply when needed.
	5% malathion	1 qt. malathion	8.0	3	

LETTUCE

Aphid	5% malathion	1 qt. malathion	8.0	10	The red lettuce aphid must be controlled before the heads begin to form.
	2% parathion	1 pt. parathion	1.0	21	
	2% phosdrin	1-2 pt. phosdrin	N.R.***	7	
		1 pt. demeton	0.75	21	
Cucumber beetle Cutworm	20% toxaphene	1-1 1/2 pt. toxaphene	7.0		Do not apply after seedling stage for leaf lettuce. Seven days for head lettuce if outer leaves are stripped at harvest.
	5% DDT	2 qt. DDT	7.0		
		1-1 1/2 qt. toxaphene + DDT (2-1 mixture)	7.0+ 7.0		
Cabbage looper	20% toxaphene +	1 1/2 qt. toxaphene +	7.0+	21	Do not apply toxaphene after seedling stage for leaf lettuce. Seven days for head lettuce if outer leaves are stripped at harvest.
	2% parathion	1 pt. parathion	1.0	10	
	20% toxaphene +	1 1/2 qt. toxaphene +	7.0+		
	3% malathion	1 pt. malathion	8.0	10	
	10% perthane +	2 qt. perthane +	15.0+		
3% malathion	1 pt. malathion	8.0			
Corn earworm	10% DDT	2 qt. DDT	7.0		Do not apply after seedling stage for leaf lettuce. Seven days for head lettuce if outer leaves are stripped at harvest.
	20% toxaphene	2 qt. toxaphene-DDT (2-1 mixture)	7.0+ 7.0		
False chinch bug	5% malathion	1 qt. malathion	8.0	10	
	1 1/2% dieldrin	1 1/2 pt. dieldrin	0.25	30	
		1/2 pt. demeton	0.75	21	
Leafhopper	5% DDT	2 qt. DDT	7.0	10	Do not apply DDT after seedling stage for leaf lettuce. Seven days for head lettuce if outer leaves are stripped at harvest. Apply at weekly intervals starting when plants are young and continue until within 10 days of harvest for aster yellows control.
	5% malathion	1 1/2 pt. malathion	8.0		

OKRA

Aphid Spider mite	2% parathion	1 pt. parathion	1.0	21	Lindane is not effective for spider mite control.
	3% lindane	1 qt. lindane	10.0	14	
Corn earworm	5% DDT	2 qt. DDT	7.0	7	Apply when needed.
	20% toxaphene	2 qt. toxaphene-DDT (2-1 mixture)	7.0+ 7.0	*	

ONIONS

Thrips	2 1/2% heptachlor+	1 qt. heptachlor+	0.1+	15	Do not apply toxaphene or dieldrin to green or spring onions. Heptachlor can be used within 5 days of harvest on green onions.
	1% parathion	1 pt. parathion	1.0	15	
	20% toxaphene +	1 qt. toxaphene +	7.0+		
	1% parathion	1 pt. parathion	1.0	15	
	2 1/2% dieldrin +	1 qt. dieldrin +	0.1+		
	1% parathion	1 pt. parathion	1.0	3	
	5% malathion	1 qt. malathion	8.0		

*Do not use after edible portions begin to form **Parts per million ***No residue when used as directed

Controlling Vegetable Insects

PEAS (Blackeye or Cowpeas)

INSECT	DUST	SPRAY AMOUNT PER ACRE	TOLERANCE (PPM**)	No. days between last application and harvest	REMARKS
Aphid	5% malathion 2% parathion 2% phosdrin	1 qt. malathion	8.0	3	Apply at weekly intervals until control is obtained.
		1 pt. parathion	1.0	15	
		1 pt. phosdrin	1.0	1	
Curculio	20% toxaphene	1½ qt. toxaphene	7.0	10	The adult weevil must be killed before egg laying begins. Treat when first pods are ½ inch long and repeat after 7 days. Single applications are not effective. Toxaphene dust may be used within 10 days of harvest if peas are washed.
Cabbage looper	20% toxaphene + 2% parathion 20% toxaphene + 3% malathion	1½ qt. toxaphene + 1 pt. parathion	7.0 + 1.0	15	Begin treatment when young worms first rag leaves. Dust mixtures only can be used after pods begin to form. Toxaphene plus malathion dust can be used within 10 days if peas are washed.
		1½ qt. toxaphene + 1 pt. malathion	7.0 + 8.0	10	
Corn earworm	20% toxaphene 5% DDT	2 qt. DDT	7.0	10	Severe damage may occur to blossoms and pods. Begin treatment when worms are small. Toxaphene dust may be used within 10 days of harvest if peas are washed.
		2 qt. toxaphene-DDT (2-1 mixture)	7.0 + 7.0	*	
Leaf miner	2% parathion	1 pt. parathion	1.0	21	Control not necessary on seedling plants. Older plants require two applications at 4-day intervals.

PEAS (English)

Aphid	5% malathion 2% parathion 2% phosdrin	1 qt. malathion	8.0	3	Apply when needed.
		1 pt. parathion	1.0	10	
		1 pt. phosdrin	1.0	1	
Thrips	20% toxaphene 5% heptachlor	2 qt. toxaphene 1 qt. heptachlor	7.0 N.R.***	* *	Generally a pest on peas when plants are small.

PEPPERS

Cutworm	20% toxaphene 10% DDT	2 qt. toxaphene	7.0	5	Begin treatment when damage first appears.
		3 qt. DDT	7.0	5	
		2 qt. toxaphene-DDT (2-1 mixture)	7.0 + 7.0	5	
Flea beetle	20% toxaphene 5% DDT 1½% dieldrin	1½ qt. toxaphene	7.0	5	Begin treatment when damage first appears.
		2 qt. DDT	7.0	5	
		1 pt. dieldrin	0.1	7	
Darkling beetle	1½% dieldrin 2½% aldrin	1 pt. dieldrin	0.1	7	Only seedlings are damaged.
		1 qt. aldrin	0.1	7	
Leaf miner	2% parathion	1 pt. parathion	1.0	15	Apply at 4-day intervals until control is obtained.
Weevil Fruitworm	20% toxaphene 1½% dieldrin + 5% DDT	2 qt. toxaphene	7.0	5	Apply first treatment when fruit begins to set. At least three treatments at weekly intervals should be used.
		1 qt. dieldrin + 2 qt. DDT	0.1 + 7.0	7	
		2 qt. toxaphene-DDT (2-1 mixture)	7.0 + 7.0	5	
Leafhopper	5% DDT 20% toxaphene	2 qt. DDT	7.0	5	Apply at weekly intervals when adults are noticed on young plants or when young leafhoppers are observed on older plants.
		1½ qt. toxaphene	7.0	5	

POTATOES (Irish)

Aphid	1% parathion 5% malathion 2% phosdrin	1 pt. parathion	N.R.***	5	Apply as needed and cover plants thoroughly.
		1 qt. malathion	8.0	0	
		1 pt. phosdrin	0.25	1	
Colorado potato beetle	10% DDT	2 qt. DDT	N.R.***	0	Increase dosage for blister beetle control.
Flea beetle	20% toxaphene	2 qt. toxaphene	N.R.***	0	
Leafhopper					Begin treatment when insects first appear. Three or four treatments at 2-week intervals may be needed.
Blister beetle					
Potato psyllid	5% DDT	2-3 qt. DDT	N.R.***	0	

POTATOES (Sweet)

Sweet potato weevil	See Extension Publication L-202				
Tortoise beetle, Flea beetle	5% DDT	2 qt. DDT	N.R.	0	

RADISHES

Aphid	2% parathion 3% nicotene	1 pt. parathion	1.0	15	
		1 pt. nicotene sulfate (40% nicotene)	2.0	3	
Flea beetle	5% DDT 1½% dieldrin	2 qt. DDT	7.0	0	
		1 pt. dieldrin	0.1	21	

SPINACH

Flea beetle	5% DDT 1½% dieldrin	2 qt. DDT	7.0	*	Do not apply DDT after seedling stage except 21 days of harvest on greens to be processed. Burning may occur if a poor formulation is used.
		1 pt. dieldrin	0.25	21	
Beet leafhopper	5% DDT + 1% parathion 5% malathion	2 qt. DDT +	7.0 +	*	DDT + parathion can be used within 21 days of harvest on greens to be processed. On other greens use DDT in seedling stage only. Apply insecticides at weekly intervals.
		1 pt. parathion	1.0		
		1 qt. malathion	8.0	7	
Cabbage looper	10% perthane + 3% malathion 0.9% piperonyl butoxide + 0.06% pyrethrin		15.0 + 8.0	7	Apply when worms are small.
			Exempt	1	
Corn earworm	5% DDT	2 qt. DDT	7.0	*	Do not apply DDT after seedling stage except 21 days of harvest on greens for processing.
Aphid	1% parathion 5% malathion 2% phosdrin	1 pt. parathion	1.0	21	
		1 qt. malathion	8.0	7	
		1 pt. phosdrin	1.0	4	

SWEET CORN

Budworm	Dusts are not effective	2-3 qt. DDT	7.0		No restrictions on use of corn kernels for human food. Do not ensile treated corn. Do not feed stover from sweet corn receiving late applications. Do not feed treated forage to dairy animals.
Corn earworm	5% DDT (See Text)	2-3 qt. DDT	7.0		See text.
Flea beetle	5% DDT	2 qt. DDT	7.0		Do not feed treated forage to dairy animals or animals being finished for slaughter.

TOMATOES—(Do not use TEPP or BHC on tomatoes)

Cutworm	5% DDT	2 qt. DDT	7.0	5	Watch for cutworm damage at time of transplanting. Apply when worms first appear.
	20% toxaphene	2 qt. toxaphene	7.0	5	
		2 qt. toxaphene-DDT (2-1 mixture)	7.0	5	
Flea beetle Colorado potato beetle	10% DDT	2-3 qt. DDT	7.0	5	Apply when insects first appear.
	20% toxaphene	2 qt. toxaphene	7.0	5	
Stink bug		2 qt. toxaphene-DDT (2-1 mixture)	7.0	5	
Blister beetle					
Vegetable weevil					
Fruitworm	10% DDT	2 qt. DDT	7.0	5	May require three applications at 7-day intervals beginning at fruit setting. Examine for worms and eggs and continue treatment if necessary.
	10% TDE	2 qt. TDE	7.0	1	
Hornworm	10% TDE	2 qt. TDE	7.0	1	Apply when worms are small.
	10% DDT	2 qt. DDT	7.0	5	
	20% toxaphene	2 qt. toxaphene	7.0	5	
		2 qt. toxaphene-DDT (2-1 mixture)	7.0	5	
Leafhopper	10% DDT	2 qt. DDT	7.0	5	In areas where beet leafhoppers appear, begin control when plants are small and continue at 7-day intervals until approximately 2 weeks before harvest.
Russet mite	5% malathion	1 qt. malathion	8.0	3	Mites cause bronzing of leaves, stems and fruit. Repeat applications at 5 to 7-day intervals.
	2% parathion	1 qt. parathion	1.0	10	
	5% DDT+75% sulfur		7.0	5	
Darkling beetle	1½% dieldrin	1 qt. dieldrin	0.1	7	Apply when insects first appear.
	5% heptachlor	1 qt. heptachlor	0	*	
Suckfly	5% DDT+40% sulfur		7.0	5	Apply when insects first appear.
	2½% aldrin+40% sulfur		0.1	7	

GENERAL FEEDERS

For information on number of days that should elapse between last application and harvest consult the recommendations listed for each specific crop.

INSECT	DUST	SPRAY	REMARKS
Ant	5% chlordane 2% dieldrin 2½% heptachlor	Refer to dilution chart for mixing small amounts of spray or read manufacturer's label	Apply to nests on surface of soil as needed. See Extension publication L-238 for control of leaf-cutting ant.
Armyworm, Cutworm Vegetable weevil	5 or 10% DDT 20% toxaphene	2-3 qt. DDT 3 qt. toxaphene 2 qt. toxaphene-DDT (2-1 mixture)	Apply when damage first appears. Use 5% methoxychlor dust on cucurbits.
Grasshopper Cricket	20% toxaphene 2½% aldrin 2% dieldrin 2½% heptachlor	2-3 qt. toxaphene 1 pt. aldrin 1 pt. dieldrin 1 pt. heptachlor	Apply when grasshoppers and crickets are young.
Snail, slug	Poison baits	Follow directions on label for applying baits.	
Pillbug & sowbug	Dusts of 10% chlordane, 2%	lindane, 2½% dieldrin or poison baits.	
White grub, wireworm Southern corn rootworm Seed corn maggot	10% chlordane 2% dieldrin 5% heptachlor 3% lindane 2½% aldrin	Not recommended	Apply chlordane, aldrin, dieldrin or heptachlor at the rate of 2 to 3 pounds of technical material and lindane at 1 pound of technical material per acre. Commercial seed treatment compounds may be used according to manufacturer's directions.