

INSECT CONTROL



*in
the
Home
Garden*

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Insect Control in the Home Garden

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GOOD INSECT CONTROL means healthier, more productive home gardens. Insecticides ordinarily recommended for use by commercial growers have been omitted from this publication. Only those considered readily available and having widest use in home gardens are included. Identification and life history of garden insect pests is discussed in B-1019, *Insects Attacking Vegetable Crops*. This publication, as well as more detailed information on specific pests and control measures, is available from your county Extension agents.

Garden insect pests normally fall within three groups: sucking insects, chewing insects and soil insects.

INSECT GROUPINGS

Sucking insects insert their mouthparts into plant tissue and remove plant fluids. Heavily infested plants become yellowed, stunted, wilted or deformed and may eventually die. Some sucking insects inject toxic materials, some transmit plant virus diseases and others excrete honeydew upon which sooty mold fungus grows. Examples of sucking insect pests are aphids, leafhoppers, stinkbugs, harlequin bugs, mealybugs, squash bugs, thrips, psyllids and garden fleahoppers. Related sucking pests are spider mites or red spiders.

Recommended insecticides for sucking pests are listed in Table 1.

Chewing insects produce much more noticeable damage than smaller sucking pests. They eat holes in leaves, stems and fruit and sometimes bore into the plant. Chewing insects found in the home garden are grasshoppers, potato beetles, flea beetles, cucumber beetles, blister beetles, vegetable weevils, caterpillars, leaf miners and leaf rollers.

Table 1. Insecticide recommendations for the home garden

	Carbaryl	DDT	Diazinon	Kelthane	Malathion	Methoxychlor	Rotenone	Sulfur
Sucking insects	▨	□	▨	□	▨	□	▨	□
Chewing insects	▨	▨	▨	□	▨	▨	▨	□
Spider mites	□	□	▨	▨	▨	□	□	▨



Recommended



Not recommended



Will not control all species

Recommended insecticides for chewing insects are listed in Table 1.

Soil insects such as wireworms, cutworms, white grubs, ants, mole crickets, cabbage maggots, onion maggots and seed-corn maggots often cause extensive damage to seeds and young plants. Most of these insects can be controlled by treating the soil with chlordane about 4 weeks before planting. Use the following amounts to treat 1,000 square feet of surface area:

- (1) 2 pounds of a 10 percent dust
- (2) $\frac{3}{4}$ cup of 40 percent wettable powder in 2 $\frac{1}{2}$ gallons of water
- (3) $\frac{1}{4}$ cup of 74 percent emulsion concentrate in 2 $\frac{1}{2}$ gallons of water

Work the soil to planting tilth before applying the insecticide. Then apply the chlordane to the surface and thoroughly mix into the soil before watering to a depth of 4 to 6 inches.

If soil insects become a problem in the seedling stage, treat soil at the plant base. Examination of roots and soil usually will reveal the presence of soil insects. However, if damage persists and no soil insects are found, nematodes or soil-borne diseases may be involved. Submit a plant sample including roots and surrounding soil to the Plant Disease Diagnostic Laboratory, Texas A&M University, for examination.

CORN EARWORM CONTROL IN SWEET CORN

The corn earworm or tomato fruitworm often seriously damages sweet corn. The "brush method" of treatment is recommended for home gardens. Make four applications at 1-day intervals by pressing a 1-inch brush dipped in a 10 percent DDT or carbaryl (Sevin) dust into the silks. Begin treatment when the first ears start silking.

INSECTICIDES

Some insecticides recommended for home gardens are carbaryl (Sevin), DDT, diazinon, dicofol (Kelthane), malathion, methoxychlor, rotenone and sulfur. These are available as dusts, wettable powders and emulsifiable concentrates. Dusts generally are marketed in ready-to-use form, whereas wettable powders and emulsifiable concentrates must be mixed with water. Percentages of active ingredients vary in each formulation; follow carefully the directions on the label to insure correct dosage.

Systemic Insecticides

Apply a 2 percent granular systemic insecticide, disulfoton (Syston or Scope) to the soil at planting time, as a sidedressing or in the transplant hole. Disulfoton is absorbed by the roots and is distributed throughout the plant parts. It controls sucking pests for 4 to 6 weeks, depending on the plant species and environment. Use disulfoton only on beans, broccoli, Brussels sprouts, cabbage, cauliflower, lettuce, potatoes, spinach and tomatoes. Read the label on the container and observe precautions.

Dusts

Dusts usually are preferable for the home garden. Some dust containers can be used as applicators. However, containers with perforated tops often yield unsatisfactory results. Several hand-type dusters are on the market. The best duster is one with a tube and nozzle. It permits dusts to be applied to the leaves' underside. Several brands of dusts contain two or more insecticides and can be used to control both chewing and sucking insects. Apply an even, light coating at the rate of 1½ ounces per 50 feet of row. Force dust through the foliage so it reaches both sides of the leaves. Apply dusts

when wind is calm. Plants need not be wet for dust to stick.

If sulfur is to be used, a dusting sulfur of 325 mesh or less is recommended.

Sprays

Prepare sprays by mixing emulsifiable concentrates or wettable powders with water. The usual hand application equipment includes compressed air sprayers, trombone or slide sprayers or garden hose attachments. Sprayers connected to a garden hose are used successfully where 25 pounds or more water pressure is available. If wettable powders are used, agitate the solution while spraying to mix the insecticide. Under most conditions, sprays from emulsifiable concentrates are easier to apply with hand sprayers than those from wettable powders. Apply about 1 quart finished spray per 50 feet of row.

Sprays containing pyrethrins are available in aerosol cans for quick, convenient application.

Table 2. Dilution chart for hand sprayer*

Insecticide	Percent emulsion concentrate	Tsp. per gal. water	Percent wettable powder	Tsp. per gal. water
Carbaryl (Sevin) (Purchased as wettable powder)			80	4
DDT	25	6	50	6
Diazinon	25	2		
Dicofol (Kelthane)	18.5	2	18.5	2
Malathion	50	3	25	6
Methoxychlor (Purchased as wettable powder)			50	6
Rotenone (Purchased as wettable powder)			5	12
Sulfur (Purchased as wettable powder)			100	9

*If percentages on the label differ from those in the table, follow manufacturer's directions.

Equivalents for teaspoonful, tablespoonful and cup

$$\left. \begin{array}{l} 3 \text{ teaspoonsful} \\ \frac{1}{2} \text{ fluid ounce} \end{array} \right\} = 1 \text{ tablespoon}$$

$$\left. \begin{array}{l} 16 \text{ tablespoonsful} \\ 8 \text{ fluid ounces} \\ \frac{1}{2} \text{ pint} \end{array} \right\} = 1 \text{ cup}$$

Pyrethrins eliminate pests rapidly but residual control lasts only 1 day. Aerosol sprays are not practical if many plants need treatment because the amount of material needed would be too costly. Not all aerosol sprays can be applied to all plants because different solvents are used. *Be sure to read the label before using.*

For proper dilution of emulsifiable concentrates and wettable powder formulations, see Table 2.

Combination Insecticides

Chemical companies now package combinations of insecticides for controlling numerous insects, including sucking and chewing types. Some combinations also include fungicides for plant diseases. The home gardener should compare the combinations and carefully read the label.

INSECTICIDE USE RESTRICTIONS

Table 3 gives the restrictions on use of insecticides on vegetables. The figures in the column under a given insecticide and across the line from a given vegetable crop are the number of days to wait from last application to harvest. The letters in the column refer to restrictions explained below the chart. If an X is shown in the column under an insecticide and across the line from a vegetable crop, do NOT use that particular insecticide on that crop.

Example 1: Carbaryl applied to collards; wait 14 days from last application to harvest. Example 2: Malathion applied to okra. Refer to "C" below the chart. Do not apply after edible parts start to form.

Table 3. Insecticide use restrictions in the home garden

	Carbaryl (Sevin)	DDT	Diazinon	Dicofol (Kelthane)	Malathion	Methoxy- chlor	Rotenone	Sulfur*
Beans	0	7	7	7	1	3	1	0
Beets (roots)	3	0	14	X	7	14	1	0
Beets (tops)	14	A	14	X	7	14	1	0
Blackeyed peas	X	B	X	X	3	3	1	0
Broccoli	3	C	5	X	3	14	1	0

	Carbaryl (Sevin)	DDT	Diazinon	Dicofol (Kelthane)	Malathion	Methoxy- chlor	Rotenone	Sulfur*
Brussels sprouts	3	C	X	X	7	14	1	0
Cabbage	3	E	7	X	7	3	1	0
Carrots	0	0	10	X	7	14	1	0
Cauliflower	3	C	5	X	7	7	1	0
Collards	14	D	10	X	7	14	1	0
Corn (sweet)	0	0	0	X	5	14	1	0
Cucumbers	0	5	7	2	1	7	1	0
Eggplant	0	5	X	2	3	7	1	0
Lettuce (head)	3	E	10	X	7	14	1	0
Lettuce (leaf)	14	D	10	X	14	14	1	0
Lima beans	X	7	7	7	X	3	X	0
Melons	0	5	3	2	1	7	1	0
Mustard greens	14	D	X	X	X	X	X	0
Okra	0	7	X	X	C	X	1	0
Onions	X	X	10	X	3	7	1	0
Peas	0	F	0	X	3	7	1	0
Peppers	0	5	5	2	3	7	1	0
Potatoes (Irish)	0	0	14	0	0	0	1	0
Pumpkins	0	5	X	2	3	7	1	0
Radishes	3	0	10	X	7	7	1	0
Spinach	14	D	10	X	7	14	1	0
Squash (winter)	0	5	3	2	1	7	1	0
Squash (summer)	0	5	7	2	1	7	1	0
Tomatoes	0	5	1-3	2	5	7	1	0
Turnips (roots)	3	0	10	X	3	14	1	0
Turnips (tops)	14	A	10	X	3	14	1	0

A. Do not use treated tops for food.

B. Wait 7 days if pods are to be eaten. No limitation on shelled or dry peas.

C. Do not apply after edible parts start to form.

D. Do not apply after seedling stage.

E. Do not apply after heads start to form.

F. Do not apply to varieties with edible pods after pods start to form.

X. Do not use on this crop.

*Do not use wettable sulfur on cucurbits.

SUGGESTED PRACTICES

1. Check plants frequently and apply controls as needed.
2. The percentage of active ingredients may vary among different brands or formulations. *Carefully read the label* for proper mixing directions.
3. Use one of the insecticides listed in the chart. Observe restrictions.
4. Use proper safety precautions.
5. Before combining insecticidal sprays with fungicides, fertilizers or other insecticides, study the label for information concerning compatibility of these chemicals.

SAFETY PRECAUTIONS

1. Keep insecticides in a safe place, away from children.
2. If any insecticide is spilled on the skin, wash with soapy water immediately. Wash all exposed skin after dusting or spraying. Remove all clothing immediately if insecticide is spilled on it.
3. Wash all food from garden before eating.
4. Do not smoke while spraying or dusting.
5. *Follow directions on the label.*

The Food and Drug Administration has set restrictions on the use of insecticides. Observance of these restrictions protect the consumer from harmful residues.