

CONTROL OF INSECTS



*in
the
Home
Garden*

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Control of Insects in The Home Garden

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GOOD INSECT CONTROL means healthier, more productive home gardens. Certain insecticides ordinarily recommended for use by experienced growers of commercial crops have been omitted in this publication. For some purposes, insecticides other than those mentioned may be recommended. With few exceptions, however, only those insecticides considered likely to be readily available and to have the widest use in home gardens are included. More detailed information on specific insect pests and control measures is available from your county agricultural agent.

Normally, garden insect pests can be placed in three groups; sucking insects, chewing insects and soil insects.

INSECT GROUPINGS

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

Recommended insecticides for sucking insects are malathion, sulfur (spider mites only), rotenone and carbaryl (Sevin). See safety precautions, pages 6 and 7.

Chewing insects produce much more noticeable damage than smaller sucking insects. They eat holes in leaves, stems and fruit and, in some cases, bore into the plant attacked. Chewing insects commonly found in the home garden are grasshoppers, potato beetles, flea beetles, cucumber beetles and blister beetles. Vegetable

weevils, caterpillars, leaf miners and leaf rollers are other chewing insects that often infest home gardens.

Insecticides that may be used for these pests are methoxychlor, chlordane, DDT, malathion or carbaryl (Sevin). See safety precautions, pages 6 and 7.

Soil insects such as wireworms, cutworms, white grubs, ants, mole crickets, cabbage maggots, onion maggots and seed corn maggots often may cause extensive damage to seeds and young plants. Most soil insects can be controlled by properly treating the soil with chlordane about 4 weeks before planting. The following amounts of chlordane may be used 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.

It is important that the insecticides be mixed thoroughly with the soil. Work the soil to planting tilth before applying the insecticide. Then apply the chlordane to the surface and spade under or water to a depth of 4 to 6 inches.

If any of these insects become a problem after the plants germinate; treat the soil at the base of the plants. Examination of the roots and adjacent soil will usually reveal most of the soil insects mentioned above. However, if damage persists and no soil insects are found, nematodes or other soil-borne diseases could be involved. A sample of the plant to include the roots and surrounding soil may be submitted 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 causes serious damage to sweet corn. The "brush method" of treatment is recommended for home gardens. Make four applications at 1-day intervals by pressing into the silks a 1-inch brush dipped in a 10 percent DDT or carbaryl (Sevin) dust. Begin treatment when the first ears start silking.

INSECTICIDES

Some common insecticides recommended for home gardens are malathion, DDT, chlordane,

methoxychlor, rotenone, sulfur and carbaryl (Sevin). These materials are available as dusts, wettable powders and emulsifiable concentrates. Dusts generally are purchased in ready-to-use form whereas wettable powders and emulsifiable concentrates must be mixed with water. Percentages of active ingredients vary in each formulation and the directions on the label should be followed carefully to insure correct dosage.

Dusts

Dusts usually are preferable for the home garden. They are packaged ready-to-use and can be applied with inexpensive equipment. Some dusts can be purchased in a container that can be used to apply the material. However, containers with perforated tops have often yielded unsatisfactory results. Several hand-type dusters are on the market. In most cases, it is best to have a duster equipped with a tube and nozzle attachment which permits the dust to be directed to the underside of the leaves. Several brands of combination dusts containing two or more insecticides can be purchased to control both chewing and sucking insects. Apply an even light coating of dust at the rate of 1½ ounces per 50 feet of row. Force dust through the foliage so that it reaches both sides of the leaves. Dusts should be applied when the wind is calm. The plants need not be wet for the dust to stick.

Sprays

Sprays are prepared by mixing emulsifiable concentrates or wettable powders with water. The usual hand equipment for applying sprays includes compressed air sprayers, trombone or slide sprayer or garden hose attachment sprayers. Sprayers that attach to garden hoses can be used successfully where 25 pounds or more of water pressure is available. If wettable powders are used, the solution must be agitated during the spray operation to keep the insecticide well mixed. Under most conditions, sprays prepared from emulsifiable concentrates are easier to apply with hand sprayers than those prepared from wettable powders. Apply about 1 quart of spray per 50 feet of row.

Combination Insecticides

Many chemical companies are now packaging combinations of insecticides for controlling numerous insects including sucking and chewing types. Some combinations also include

fungicides to aid in controlling plant diseases. Numerous combinations are available. The home gardener should compare them and carefully read the labels and directions.

All vegetables that have been treated with insecticides should be washed before they are eaten.

SUGGESTED PRACTICES

1. Check plants frequently and apply controls as needed.

2. The percentage of active ingredients may vary among the different brands or formulations. Carefully read the label on the package for directions concerning the proper mixing to obtain the correct dosage.

3. Use one of the insecticides listed on page 3 as a dust or spray. Products containing two or more insecticides mixed together may be purchased in a ready-to-use form.

4. If sprays are used, see Table 1 for mixing the emulsion concentrate or wettable powders with water, or follow mixing directions on the manufacturer's label.

5. Use proper safety precautions in handling insecticides.

6. Prior to combining insecticidal sprays with fungicides, fertilizers or other insecticides, refer to the label for information concerning the compatibility of these chemicals.

Table 1. Dilution chart for hand sprayers*

Insecticide	Percent emulsion concentrate	Tbsp. per gal. water	Percent wettable powder	Tbsp. per gal. water
Malathion	50	1	25	2
Methoxychlor (Purchased as wettable powder)			50	2
DDT	25	2	50	2
Chlordane	74	1	40	1½
Sevin (Purchased as wettable powder)			50	2
Sulfur (Purchased as wettable powder)			100	3
Rotenone (Purchased as wettable powder)			5	4

*If percentages shown on the label differ from those listed in the table, adjust mixtures accordingly or follow manufacturer's directions.

SAFETY PRECAUTIONS

1. Keep insecticides in a safe place, especially away from children.
2. If you spill any of the insecticide on your body, wash with soapy water immediately. Wash all exposed skin after dusting or spraying.
3. Wash all food before eating.
4. **Follow Directions on the Label.**

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

DAYS FROM LAST INSECTICIDE APPLICATION TO HARVESTING VEGETABLES

Chlordane

Beans—Do not apply to green or snap beans after pods begin to form.

Beets—Do not apply after seedling stage if tops are to be used for food.

Broccoli, cantaloupes, cabbage, cauliflower, cucumbers, eggplant, lettuce, watermelon, okra, peppers, radishes, squash (summer or winter), turnips—Do not apply after edible parts start to form.

Peas—Allow 15 days before harvest.

Onions—Do not apply to green or spring onions.

Tomatoes—Do not apply after fruit begins to form.

Mustard and spinach—Do not apply.

DDT

Beans and okra—Allow 7 days before harvest.

Eggplant, peppers and tomatoes—Allow 5 days before harvest.

Carrots and potatoes—no time limitations.

Beets, lettuce, mustard, radishes, spinach and turnips—Do not apply after seedling stage.

Broccoli, cabbage and cauliflower—Do not apply after edible parts start to form.

Peas—Do not apply to varieties with edible pods after blossoms appear.

Do not apply to cantaloupes, cucumbers, green or spring onions, squash and watermelons.

Malathion

Beans, cantaloupes, cucumbers, squash, tomatoes and watermelons—Allow 1 day before harvest.

Broccoli, eggplant, onions, peas and peppers—Allow 3 days before harvest.

Beets, cabbage, carrots, cauliflower, mustard, radishes and turnips—Allow 7 days before harvest.

Lettuce—Allow 7 days before harvest on head lettuce; Allow 14 days on leaf lettuce.

Okra—Do not apply after pods form.

Methoxychlor

Peppers—Allow 1 day before harvest.

Beans and cabbage—Allow 3 days before harvest.

Beets, cantaloupes, carrots, cauliflower, cucumbers, eggplant, mustard, onions, peas, radishes, squash, tomatoes, turnips and watermelons—Allow 7 days before harvest.

Beets, carrot and turnip tops, broccoli, lettuce and spinach—Allow 7 days before harvest.

Potatoes—no time limitations.

Rotenone

All crops—Allow 1 day before harvest.

Sevin

Beans, cantaloupes, carrots, cucumbers, eggplant, okra, peas, peppers, potatoes (foliage only), squash, tomatoes and watermelons—No time limitations.

Beets, broccoli, cabbage, cauliflower, head lettuce, radishes and turnips—Allow 3 days before harvest.

Beet and turnip tops, leaf lettuce, mustard and spinach—Allow 14 days before harvest.

Sulfur

All crops—Allow 1 day before harvest.

Equivalents for Teaspoonful, Tablespoonful and Cup

3 teaspoonful }
½ fluid ounce } = 1 tablespoonful

16 tablespoonsful }
8 fluid ounces } = 1 cup
½ pint }



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are your COUNTY EXTENSION AGENTS. They represent both the U. S. Department of Agriculture and Texas A&M University in your county. These agents have ideas and materials that are helpful to everyone, regardless of whether you live on the farm or ranch or in a town or city.

Extension agents have information on a wide variety of subjects. For example, you can learn from them how to farm and ranch efficiently achieve more satisfying family living discover how much we *all* depend on agriculture.

This publication is one of many prepared by the Texas Agricultural Extension Service of Texas A&M University to present up-to-date, authoritative information, based on the results of research. Such publications are available from your local agents whose offices usually are in the county courthouse or agricultural building.

Give your agents a try. They welcome your visits, calls or letters.

