COOPERATIVE EXTENSION SERVICE
MSU AG FACTS
NO. 3

Home Vegetable Garden Disease, Insect Control

MAY 1975 EXTENSION BULLETIN E-760(b)

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Disease Control

In general, diseases in the home garden are less serious than insects. However, diseases can be very serious when weather and other conditions favor the development of diseases. Plant diseases can rarely be cured, but must be controlled by prevention.

The following measures will help reduce losses by disease:

1. Use fertile, well-drained soil and plant crops or varieties that are suited to the soil and climate. (Order seeds from local seed companies or those located in the Midwest or Northeast.)
2. Control weeds and grass which provide protection for insects and may be alternate hosts for diseases.
3. Control insects since many transmit diseases.
4. Purchase disease-free seed; avoid seeds which are moldy or spotted.
5. *Chemical treatment of seed* — Buy fungicide treated seed to protect against decay and damping-off organisms. Do not treat seed that is already treated, and do not use treated seed for food. Treatment may be done by the gardener as follows: place a pinch (less than 1/4 teaspoon per half pound of seed) of *Thiram* or *Captan* 75 percent seed protectant in the package of seeds and shake, coating all the seeds with the dust. Sift the excess dust from the seed through a fine mesh screen.
6. Purchase disease-free plants; make sure they do not have swellings on the roots, cankers on the stems, or spots on the leaves.
7. Grow disease resitant varieties such as those listed in Extension Bulletin E-760(a) "Variety Suggestions for the Home Vegetable Garden." Some of those varieties are highly resistant; others give partial protection.
8. Since most bacteria, fungi, and some home garden insects live in the soil from one growing season to the next, much of their damage can be avoided by relocating the garden or rotating the crops within the garden.
9. Closely related crops, such as melons and cucumbers or tomatoes, potatoes, peppers and eggplant should not succeed each other, because they are usually damaged by the same pests.
10. Destroy or compost plants of each annual crop as soon as the harvest is completed.
11. To rid soil of disease organisms it is often desirable to fumigate. Apply *Vapam* (VPM) in water to the soil surface two to three weeks before planting using a watering can or a simple proportioner attached to a garden hose. Read label for correct dosages and specific application procedures.
12. Stay out of the garden when plants are wet to avoid spreading diseases. Water during the day and not at night.
13. At the first sign of disease, use a good fungicide to control the disease. The following fungicides are commonly recommended for home garden use: Captan (Captan 50-W, Orthocide 50 (wettable), Maneb (Manzate, Dithane M-22), Bravo (Daconil 2787) and Fixed Copper (Tri-Basic Copper Sulfate, Copper A, Basicop, Ortho Copper, Kocide 101 and Copper Oxide.) Read the label on the pesticide container to determine which crop disease it will control, how much to use, how and when to apply. Contact your County Extension Office if you do not know what disease is causing your problems or consult U.S. Department of Agriculture Home and Garden Bulletin No. 46, "Insects and Diseases of Vegetables in the Home Garden," available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Insect Control

Insects compete very strongly among themselves as well as with humans for their food. In the home garden (as well as in commercial agriculture), insects attack both the underground and aboveground plant parts. In order to limit insect damage, it is necessary to place the insecticide where the insects do the damage.

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8, and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Gordon E. Guyer, Director, Cooperative Extension Service, Michigan State University, East Lansing, Michigan 48824.

1P-1R-5:75-25M-UP

Since some insects have three or more generations per year, others have one generation per year and still others require three to six years to complete one generation, it is often necessary to make repeated applications of the insecticide. To achieve the highest degree of insect control, gardeners are always encouraged to:

1. properly identify the insect causing the damage;
2. obtain an insecticide which has that specific insect named on the label;
3. apply the recommended amount of chemical where the insects are actually feeding.

ALWAYS READ AND FOLLOW ALL LABEL DIRECTIONS WHEN USING A PESTICIDE

Abbreviations:

WP = Wettable Powder
EC = Emulsifiable Concentrate
Tbsp = Tablespoon
Tsp = Teaspoon
Sq ft = Square Feet

Liquid Measures:

3 tsp = 1 tbsp
2 tbsp = 1 fluid ounce
8 fluid ounces = 1 cup
2 cups = 1 pint
2 pints = 1 quart
4 quarts = 1 gallon

UNDERGROUND ROOT-FEEDING INSECTS

INSECT	INSECTICIDE	REMARKS
Maggots Onion Cabbage Seed-Corn  1/3-inch long and creamy white colored.	Diazinon, 2 tsp 50%/ gal water/20 ft of row or Chlordane, 3 tbsp 5% dust/25 ft of row or Transplants: Chlordane, 2 tbsp, 40% wettable powder/gal water. SEE REMARKS.	Apply insecticide in seed furrow and cover lightly with soil. If cabbage or cauliflower are being transplanted, dip the roots in a chlordane solution at transplanting. Or 1/3 cup of the diazinon solution can be poured around the stems of the transplants.
White Grubs "C" shaped 1 to 1 1/2 in. long, white and purple colored.  **Wireworms** 1 1/2 to 1 3/4 in. long. Dark brown in color. 	Chlordane, 5 oz 40% wettable powder or Diazinon, 3 oz 50% wettable powder or Diazinon, 10 oz 14% granules per 1000 sq. ft of soil surface.	These insects are most serious in soil where sod (grass) has been growing. They will remain in the soil for 3 to 6 years if not properly controlled. Sprays should be applied in sufficient water to allow thorough coverage (1 to 2 gal). Granules should be applied as bought. Immediately after application, thoroughly mix the chemical into the top 4 to 5 inches of soil. READ THE LABEL.
Cutworms  1 1/4 to 1 1/2 in. long. Brown to black and mottled with yellow, brown or white.	Sevin, 2 tbsp, 50% WP; or Malathion, 2 tsp, 50% EC/gal water.	Apply to soil around the base of the plants. READ THE LABEL.

ABOVEGROUND FOLIAGE-FEEDING INSECTS

CROP	PEST	INSECTICIDE	FORMULATION TO BUY	AMOUNT FORMULATION/GALLON WATER	DAYS FROM LAST APPLICATION TO HARVEST *	WHEN TO TREAT
Asparagus	Asparagus beetles	Sevin	50% WP	2 tbsp	1	When beetles are first seen on spears and fern. READ LABEL.
			25% EC	3 tbsp	1	
		or				
		Malathion	50% EC	2-1/2 tsp	1	
			57% EC	2 tsp	1	
Beans	Aphids	Malathion	50% EC	2tsp	1	Begin treatment when aphids are first seen. READ LABEL.
			57% EC	1-1/2 tsp	1	
		or				
		Diazinon	25% EC	2 tsp	7	
	Mexican bean beetles & leaf-hoppers	Sevin	50% WP	3 tbsp	0	Begin treatment when insects are first seen. Repeat as necessary. READ LABEL.
			25% EC	2 tbsp	0	
		or				
		Malathion	50% EC	2 tsp	1	
			57% EC	1-1/2 tsp	1	
		or				
		Methoxychlor	50% EC	2 tbsp	3	
			25% EC	3 tbsp	3	

*Minimum number of days that should be allowed from last application of insecticide to harvest.

CROP	PEST	INSECTICIDE	FORMULATION TO BUY	AMOUNT FORMULATION/GALLON WATER	DAYS FROM LAST APPLICATION TO HARVEST	WHEN TO TREAT
Cabbage Cauliflower Broccoli Brussel sprouts	Aphids	Malathion	50% EC	2 tsp	7 (broccoli, 3)	Begin treating when aphids are first seen before leaves cup. Repeat as needed. READ LABEL.
			57% EC	1-1/2 tsp		
		or				
		Diazinon	50% WP	1 tbsp	7-Cabbage & Brussel sprouts; 5-Cauliflower & Broccoli	
			25% EC	2 tsp		
	Cabbage worms	Thuricide or Dipel disease spores (Follow the label)				Apply treatment when worms are very small and continue every 7 to 10 days until harvest. READ LABEL.
		or				
		Sevin	50% WP	4 tbsp	Same as for aphids above	
			25% EC	2-1/2 tbsp		
		or				
		Diazinon	50% WP	1 tbsp		
			25% EC	1 tbsp		
		or				
		Malathion	50% EC	2 tsp		
			57% EC	1-1/2 tsp		
Cucumbers Melons Squash Pumpkins	Cucumber beetles	Methoxychlor	50% WP	1-3/4 tbsp	1	Begin treatment when plants first break through soil Repeat at 5-day intervals. Do not use Sevin when blossoms are present. READ LABEL.
			25% EC	2-1/3 tbsp	1	
		or				
		Malathion	50% EC	3-1/2 tsp	1	
			57% EC	2-1/2 tsp	1	
		or				
		Sevin	50% WP	2 tbsp	0	
			25% EC	1-1/4 tbsp	0	
	Aphids	Malathion	50% EC	2 tsp	1 (pumpkin-3).	Apply treatment when aphids first appear and before leaves curl. Repeat weekly.
			57% EC	1-1/2 tsp		
		or				
		Diazinon (Do not use on squash and pumpkins)	25% EC	1 tbsp	7 (melons, 3).	
	Squash Bug (Squash pumpkins only)	Sevin	50% WP	2 tbsp	0	Begin treatment when black bugs are first seen. Repeat as needed.
			25% EC	1-1/4 tbsp	0	
Peas	Aphids	Malathion	50% EC	2 tsp	3	Begin treating when aphids first appear and repeat weekly or as needed. READ LABEL.
			57% EC	1-1/2 tsp	3	
		or				
		Diazinon	50% WP	1 tbsp	0	
			25% EC	1 tsp	0	
Peppers	Aphids	Malathion	50% EC	2 tsp	3	Begin treating undersides of leaves for aphids in mid-June and continue every 5 to 7 days until frost. Add Sevin to either malathion **or** Diazinon in early Aug. and continue 5 to 7 day treatment until frost.
			57% EC	1-1/2 tsp	3	
	Aphids & Corn Borer	Diazinon	25% EC	1 tsp	5	
		plus	50% WP	1/2 tbsp	5	
		Sevin	50% WP	2 tbsp	0	
Potatoes	Aphids	Diazinon	25% EC	2 tsp	35	
			50% WP	1 tbsp	35	
		or				

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CROP	PEST	INSECTICIDE	FORMULATION TO BUY	AMOUNT FORMULATION/GALLON WATER	DAYS FROM LAST APPLICATION TO HARVEST	WHEN TO TREAT
Potatoes, cont.	Aphids, cont.	Malathion	50% EC	2 tsp	0	Begin treatment to undersides of leaves in mid-June and continue every 5 to 7 days until harvest. READ LABEL.
			57% EC	1-1/2 tsp	0	
		or				
		Thiodan	3% Dust	3/4 lb/1000 sq. ft.	0	
	Flea beetles, Leafhoppers, Colorado potato beetles	Sevin	50% WP	2 tbsp	0	Begin when insects first appear and continue as needed. READ LABEL.
		or	25% EC	1 tbsp	35	
		Diazinon				
		or				
		Thiodan	3% Dust	3/4 lb/1000 sq. ft.	0	
Radishes Turnips	Aphids	Malathion	50% EC	2 tbsp	7 (turnip, 3)	Apply treatments when aphids first appear and repeat as needed. READ LABEL.
			57% EC	1-1/2 tsp		
		or				
		Diazinon	50% WP	1 tbsp	10	
			25% EC	2 tsp	10	
	Flea beetles	Sevin	50% WP	2 tbsp	3 (14 days if tops are eaten	Begin treatments when **small** round holes first appear in leaves. Repeat as needed.
			25% EC	1-1/4 tbsp		
		or				
		Diazinon	25% EC	1 tbsp	10	
Sweet Corn	Corn borer & aphids	Sevin	50% WP	3 tbsp	0	Begin treatments in mid-June and particularly from early August throughout harvest.
		plus				
		Diazinon	25% EC	1 tbsp	1	
	Corn earworm	Sevin	50% WP	4 tbsp	0	Begin treatments to silks when silks first appear. Continue treatments every 2 to 3 days until silks dry up and turn brown.
			25% EC	2-1/2 tbsp	0	
		or				
		Diazinon	25% EC	1 tbsp	1	
	Flea beetles	Sevin	50% WP	3 tbsp	0	Apply treatment when plants emerge. Repeat 2 to 3 times at 5-day intervals.
			25% EC	2 tbsp	0	
		or				
		Diazinon	25% EC	1 tbsp	1	
Tomatoes	Cutworms	Sevin	50% WP	4 tbsp	0	Apply to soil surface when plants are set out and repeat weekly for 2 or more weeks.
			25% EC	2-1/2 tbsp	0	
		or				
		Thiodan	3% Dust	3/4 lb/1000 sq. ft.	1	
	Aphids	Malathion	50% EC	2 tsp	1	Begin treatments to undersides of leaves when aphids are first seen. Repeat as needed.
			57% EC	1-1/2 tsp	1	
		or				
		Diazinon	50% WP	1 tbsp	1	
			25% EC	2 tbsp	1	
		or				
		Thiodan	3% Dust	3/4 lb/1000 sq. ft.	1	
	Hornworms	Thuricide or Dipel disease spores (Follow the label)				Worms can be hand picked off when damage first appears. Otherwise, apply insecticide as needed.
	Hornworms, Fruitworms	Sevin	50% WP	3 tbsp	0	
			25% EC	2 tbsp	0	