

## VEGETABLE GARDEN PEST MANAGEMENT

### CHEMICAL PESTICIDES

All pesticides should be handled with extreme caution. Care should be taken in storage, mixing, and application procedures. Since these chemicals can be expensive and harmful if ingested, it is very important to 1. choose the right pesticide 2. use the proper amount 3. Read the label carefully and completely.

### BAITS

Baits are food pellets attractive to pests laced with a poison. They are commonly used to control rats, mice, ants, and roaches. They are useful for household problems where a spray would be undesirable. Place them out of reach of children and pets. The most common garden bait is for slugs.

### NON-CHEMICAL CONTROLS

Beneficial insects and other predators prey upon the many insect pests which would otherwise attack the vegetable plants. Insects and animals such as the praying mantis, lady bug, green lacewing, syrphid fly, wasps, spiders, frogs, turtles, wrens, warblers, and swallows all help in the defense of your crop!

Microorganisms such as bacteria have been formulated for agricultural use in the control of insect pests. *Bacillus thuringiensis* controls most caterpillars and can be found in liquid or powder form. Milky Spore dust is a bacterial spore suspension that controls Japanese beetle larvae.

### COMMON PESTS IN THE VEGETABLE GARDEN

**Corn Earworm:** This caterpillar feeds on corn, beans, lettuce, potatoes, tomatoes, and many other garden plants. These caterpillars are 2" long when full grown with light and dark stripes going lengthwise along a greenish-brown body. They feed for about 4 weeks, then fall to the ground and burrow about 4" into the soil to rest

for 2 weeks. They emerge as greenish-brown moths about 1.5" wide. Control involves preventing attack by using a spray such as Sevin or Diazinon (Ortho) on a regular basis.

**Slugs:** Slugs only survive where there is moisture and typically only feed at night. They attack many different types of plants and devour young shoots and chew round holes in larger leaves and some fruits (tomatoes and squash). A non-chemical way to a slug infestation is to leave a shallow pan of beer in the garden so that the top edge of the pan is level with the garden soil. The slugs will be attracted to the smell and once they enter they will drown. Metal stripping of fly screening will also protect plants from slugs. Traps as well as slug killer can also be used to treat this pest.

**Maggots:** Maggots can be very destructive to many crops such as carrots, cabbage, and onions. Control involves preventing attack by creating a chemical barrier – usually with Diazinon that prevents the insect from getting to the plant.

**Aphids:** Aphids are small pear-shaped insects and can be found in shades of brown, black, green, or yellow. If the aphid population is severe, the plant will usually collapse and a sticky substance will be evident on the leaves. Ladybugs are natural predators of aphids. Control involves encouraging predators to keep the population low, and the use of chemical sprays when numbers get out of control.

**Cutworms:** cutworms feed on many vegetables but they prefer beans, cabbage, corn, and tomatoes. They chew through plant stems at the soil surface or feed on buds, leaves, or fruit. Cutworms are larvae of moths and are approximately 1.5" long when full-grown, brownish in color, and have a smooth body. They feed on plant material for several weeks and then burrow into the soil to pupate. Barriers or chemical methods provide sufficient control.

**Whiteflies:** If you shake your plants and a white cloud of insects scatter about, you definitely have a whitefly problem. Whiteflies are 1/30<sup>th</sup> of an inch long with two pairs of white wings. They are commonly found on the underside of leaves of tomato, bean, and peppers, although they sometimes attack other crops. Whiteflies will suck juices from the plant and leave behind a sticky secretion. The damage is similar to that caused by aphids

and may cause fruit or vegetables to be of small size and have poor color. Leaves also become yellow and die. Check plants carefully and often. If the population is large, a chemical pesticide may be needed and several applications will be required 7 days apart.

**Leafhoppers:** Leafhoppers frequently attack beans, beets, celery, eggplant, lettuce, pepper, potatoes,

and tomatoes. They are green, yellow, or brown, wedge-shaped insects less than 1/2" long. Leafhoppers cause plant leaves to become spotted, turn white, and then yellow. They suck the sap from the plants and also spread viral diseases from plant to plant. If leafhoppers are a problem in your area, you should use a permanent preventative spray program to preserve your crop.

## DISEASE CONTROL

Plant disease causes a loss of vigor and an overall condition of poor health. Diseases are usually caused by microorganisms such as bacteria, fungi, viruses, and nematodes. Healthy, vigorous plants are less susceptible to disease; so maintain proper moisture and fertilizer levels. Other practices help too:

### CONTROL OF WEEDS

Weeds harbor insects and disease organisms and steal water and nutrients from the soil in which your plants are growing. This causes unnecessary stress, which weakens the plants. Stressed plants are more susceptible to insect and disease problems than healthy plants. Removal and control of weeds will prevent a build up of disease and increase your yield.

### CROP ROTATION

If possible, you should plant different crops every 2-3 years or move the garden to a different area of the yard. This is to prevent the build up of disease organisms in the soil.

### WATERING

Disease can also spread by water from splashing rain or from the sprinkler system. To avoid this problem, water your garden in the morning so that the leaves have a chance to dry before evening. If water droplets remain

on the leaves overnight or for extended periods during cloudy weather, the chance of disease is increased. Drop irrigation is a better choice than overhead sprinklers because the water goes directly into the soil where it is needed and little is wasted or lost to evaporation.

### AIR CIRCULATION

Do not crowd your plants. They need space to grow and breathe! Remove weak plants to make room for the stronger, healthy ones. Good air circulation is important for disease prevention.

### DISPOSE OF CROP REFUSE

Dead leaves, stems, roots, and flowers should be removed as soon as possible. The accumulation of dead plant parts encourages a build up of disease organisms. Fungi and bacteria reproduce on this refuse and then spread to nearby plants.

### CHEMICAL CONTROL

Chemical control of certain vegetable diseases is possible if the correct timing, frequency of application, and fungicide is selected. Captan, Daconil, Sulfur dust, and Zineb are examples of fungicides registered for use on vegetable crops in the home garden. Diseases which can be controlled by these fungicides include downy mildew, powdery mildew, leaf spot, blight, and fruit rot. Be sure to read fungicide labels carefully and only use on crops specified.