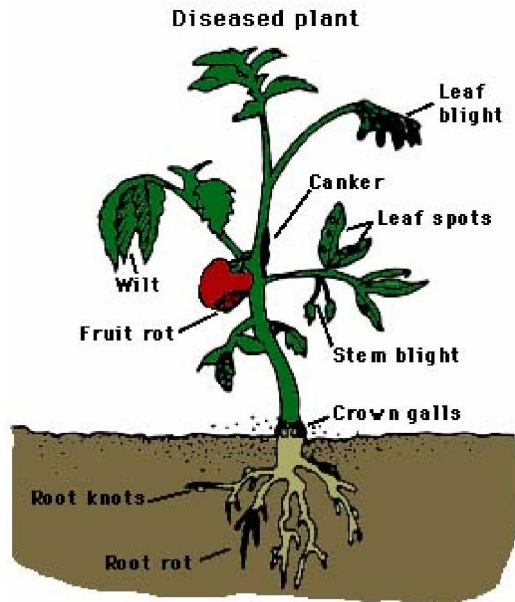


## Disease Control



**Fig. 1. Possible disease symptoms on plants.**

Many diseases plague garden plants. Plant health can be threatened by diseases, insects, weed competition, animals, changes in the environment or poor care.

Diseases and insects often attack plants despite good growing conditions and care. They cause similar damage but in different ways. Both may cause leaves or fruits to be distorted, spotted and decayed. Both may result in the loss of leaves or leaf discoloration. By closely observing damaged plants, it is usually possible to distinguish disease from insect damage.

Diseases that attack vegetable plants are caused mostly by fungi, bacteria, viruses and nematodes. These organisms are spread by the

wind, rain-splash, insects, infected seed or transplants, and by the movement of infested soil.

Many bacterial and fungal diseases cause discoloration of the leaves. An area in the leaf may turn yellow, gray, brown or black. Infection may remain as a small, discolored spot or expand into a large, irregularly shaped dead area. These infections often have a yellow to light green, brown or black margin or "halo" around the original diseased area.

### Damping-off

Damping-off is a disease caused by soil fungi that attack germinating seed and seedlings. A seedling collapses and dies when it is attacked at soil level. Damping-off can be avoided partly by planting seeds in warm, well-drained soil in a sunny spot and by proper culture (correct planting depth, spacing, watering and fertilization).

Most commercially purchased vegetable seed has already been treated against seed decay and damping-off. Drenching the seedlings as they emerge from the soil with a fungicide is often beneficial.

### Fungus Diseases of Older Plants

There are many different types of leaf and stem spots and blights. Fungicides will prevent common leaf and stem blight diseases of carrots, cucumbers, Irish potatoes, melons, pumpkins, squash, peppers, tomatoes, and eggplants.

To control these diseases, select a recommended fungicide and cover all plant surfaces. Some diseases, such as Fusarium and Verticillium wilts, are best controlled by planting resistant varieties.

## **Virus Diseases**

Viruses may cause plants to be stunted with the leaves mottled and deformed. Viruses are spread from weeds and diseased plants to healthy plants by the feeding of insects (mainly aphids, leaf hoppers, thrips, and a few beetles). A few viruses can be spread by cultivation, pruning and harvesting. Virus-infected plants should be removed from the garden when first found. Virus diseases can not be cured. Once the plant is infected, it should be destroyed to prevent the spread of the virus. Some virus can be spread by the use and handling of tobacco products.

## **Nematode Diseases**

Nematodes are small, transparent, worm-like animals that live in the soil. They feed on plant roots, often causing the plant to lack vigor and be stunted and yellow. Root-knot nematodes burrow into the roots of plants causing small, knot-like galls in the roots.

Do not confuse these galls with the larger, beneficial bacterial nodules which are attached loosely to the roots of peas and beans.

Root galling causes plants to grow slowly or to wilt on hot, dry days. If root-knot nematodes are found, change the location of the garden or fumigate the area with a soil fumigant. Carefully follow the directions on the container.

## **Controlling Diseases**

Taking proper care of plants will help to keep them strong and more resistant to disease. Follow good fertilizing and watering practices. Control weeds and insects.

Mulches help to control fruit rots and blossom-end rot of tomato and pepper (dark, sunken area on bottom of fruits).

Run the water between the rows as sprinkling the leaves encourages disease problems. If you must get the plants wet, water in the morning before 10 a.m.

Do not work in the garden when plants are wet. Cultivating, pruning or harvesting under these conditions spreads bacteria and fungi from infected to healthy plants.

When disease is seen on leaves, stems and fruits, carefully remove the diseased part, place in a paper sack and put it in the trash can. Check the garden every few days.

Fungicides can be used as dusts or sprays. They are most effective when used before a leaf spot or blight appears. Follow the directions on the container.

Grow varieties that are disease resistant and use seeds or other planting materials (bulbs, tubers, sets) that are disease-free and have been treated with a fungicide. Do not save your own seed for planting.

Rotate vegetables by planting them in different locations in the garden each year. Avoid planting any of the vegetables in each of the following families in the same location more than once every three years.

For example, cabbage and turnips should not be grown in the same location for two succeeding years. This is true for the entire cabbage family: broccoli, brussels sprouts, cabbage, cauliflower, Chinese cabbage, mustard greens, radish, kohlrabi, rutabaga and turnip.

Cucumber family: cucumber, gourd, muskmelon, pumpkin, summer and winter squash, and watermelon.

Tomato and potato family: eggplant, Irish potato, pepper and tomato.

Onion family: chives, garlic, leeks, onions, and shallots.