



Easy Gardening

DISEASE CONTROL • DISEASE CONTROL • DISEASE C

Joseph Masabni, Assistant Professor and Extension Horticulturist, The Texas A&M University System

A good home gardener recognizes the symptoms of plant diseases quickly and takes steps to prevent or control them.

Diseased plants will not grow normally. They may have one or more of the following symptoms: stunted or wilted spots on leaves, stems, or fruits; decayed fruit, decayed areas on the stems, distorted leaves, rapid death of leaves, and discoloration of the leaves and fruit.

If the disease is caused by a bacterium or fungus, the foliage symptoms will normally develop first on the older leaves. If the cause is a virus, the symptoms will develop on the younger leaves.

Causes of plant diseases

Organisms that cause plant diseases are divided into four groups: viruses, bacteria, fungi, and nematodes.

Viruses are very simple forms of life. They are often spread to healthy plants by

insects or on a person's hands during normal gardening practices.

Bacterial cells are much larger than virus particles, but they are still too small to see with the naked eye. Bacterial cells move in the water film on a leaf surface or in the water surrounding plant roots or soil particles. They are spread most often by splashing water.

Fungal spores are larger than bacterial cells but are not visible without a microscope. Fungi are like small plants.

Most plant diseases caused by fungi are most severe when temperatures are moderate and when water is retained on the leaves or fruit for an extended period. Many fungi are spread by wind, splashing rain, and equipment.

Nematodes are small, wormlike animals that live in the soil. They feed on plant roots and cause stunted plants.

The most damaging nematode in the home garden is root knot. It causes galls or knots on susceptible plants such as toma-

toes, cucumbers, squash, beans, and many other vegetables.

Signs of plant diseases

Plant diseases show themselves in many ways. They attack all parts of the plant (Fig. 1) and can develop from the time the seed is placed in the soil until the vegetable is eaten. Identify disease symptoms quickly so you can implement control practices to prevent unnecessary loss.

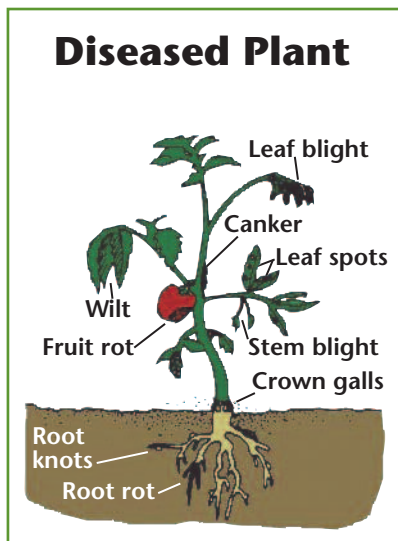


Figure 1. Possible disease symptoms on plants.

When do diseases occur?

Plant diseases are worst when light rain showers or heavy dews have fallen and when temperatures are mild. During these times, watch the garden closely for signs of disease.

Disease prevention in the garden

To keep plants strong, fertilize and water them properly. Healthy plants do not get diseases as easily as do weak ones.

It is best to irrigate the garden by running water between the rows or by trickle irrigation. Do not sprinkle water on the leaves; this only encourages more disease problems. If you must sprinkle the plants, do so before 10 a.m.

Avoid planting vegetable varieties in

areas where the same vegetable or vegetables from the same plant family have been planted in the past 24 months. Plants of the same family include:

- Tomatoes, eggplant, and potatoes
- Squash, cucumber, pumpkin, and melons
- Cabbage, broccoli, cauliflower, mustard, turnips, and collards

It is best to plant on a raised bed. This allows excess water to move out of the root area and prevent many root diseases and fruit rots.

When possible, train the vegetables to grow upright on cages or trellises. This keeps the fruit from contacting the ground and reduces fruit rots.

Plant disease-resistant varieties when they are available. Resistant varieties may reduce or eliminate the need for crop care products.

Viruses, bacteria, and fungi control

In some cases, crop care products may be required to control plant diseases. Use these products with caution and only when needed. Read and follow the product label carefully.

Some copper-containing products and sulfur are considered to be organic based. However, they are not always the most effective.

Before using any crop care product, make sure the vegetables that you are spraying are listed on the label.

Nematode control

Nematodes in the soil are best controlled using a combination of practices to reduce the nematode population to num-

bers that do not damage the plants significantly. Gardeners using one or more of these practices can reduce the number of nematodes in the soil:

- Plant nematode-resistant varieties of vegetables.
- Rotate susceptible varieties with plants that are not nematode hosts.
- During the summer after the plants have been removed, till the soil to remove soil moisture.
- Cover the soil with clear plastic and leave it in place for 6 to 8 weeks during June, July, August, or September.
- Plant Elbon rye during the fall and early winter.

You can almost never completely eliminate nematodes. This means that each year you will need to take steps to control this pest.

No crop care chemicals are recommended to control nematodes in the home garden.

Acknowledgments

This publication was revised from earlier versions written by Jerral D. Johnson, former Extension Horticulturist.

Produced by AgriLife Communications, The Texas A&M System

Extension publications can be found on the Web at <http://AgriLifebookstore.org>.

Visit Texas AgriLife Extension Service at <http://AgriLifeExtension.tamu.edu>.

Educational programs of the Texas AgriLife Extension Service are open to all people without regard to socioeconomic level, race, color, sex, disability, religion, age, or national origin.

Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Edward G. Smith, Director, Texas AgriLife Extension Service, The Texas A&M University System.

Revision