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Managing Vegetable Diseases

A healthy vegetable garden – one with few or no diseases – begins with these general practices:

Choose Resistant or Tolerant Varieties

An important way to manage plant diseases is to choose resistant or tolerant varieties. Letter abbreviations used to describe the resistance of a variety are listed in seed catalogs (for example, VF = Verticillium and Fusarium wilt resistant; PM = powdery mildew resistant or tolerant). Resistant varieties may not be fully immune to a particular disease, but resist infection and generally do not show any obvious symptoms. Tolerant varieties may show symptoms but still yield the same as resistant varieties or susceptible ones protected with pesticides. When available, choose varieties that are resistant or tolerant to diseases that have been a problem in your area. Contact Cooperative Extension for information on local diseases common to specific vegetables.

Purchase Disease-free Seed, Transplants, Propagation Materials

Begin with healthy plants. Plant materials that are unhealthy at the start will never yield as much as healthy ones. Some seeds are treated with hot water or pesticides to remove or suppress infectious agents. Some are tested to reduce the risk of seed-borne viruses. When shopping for transplants or other propagating material, take time to thoroughly examine the plant to make sure it is healthy and vigorous (and free of insect pests as well).

Select a Sunny, Well-Drained Location

A sunny area with well-drained soil is an ideal site for vigorous growth of garden vegetables. Shaded, poorly drained areas promote weak and spindly plants that are easy targets for disease organisms. Even if such plants remain alive and free of infectious disease, they will not yield as much as strong plants.

Improve the Soil Environment

When there is no other choice for a garden site but a heavy, wet soil, plant in raised beds or ridged rows so the soil around the plants' roots will be drier. Heavy, wet soils discourage healthy root growth and encourage root rots. Soils that are dry and sandy may be mulched with a variety of materials to help retain moisture Shredded leaves or newspaper, clean straw and grass clippings that have not been treated with weed killers work well. A soil environment that is favorable to healthy root development will support the growth of healthy plants.

Plant at the Correct Temperature

Seeds will rot if planted in soil that is too cold. Cool weather crops, such as peas, radishes and onions are tolerant of cool soils and should be planted as soon as the soil is workable in spring. Warm weather crops, such as beans, corn and some squash, require warm soil. Plant them after the frost-free date (May 15-20 in Rockland County). Warm season transplants such as cucumber, melon, tomato, pepper and eggplant may also be easily damaged by cold; these are best planted around Memorial Day.

Water and Monitor Fertility

Plants require one inch of rainfall per week to grow normally – if this is not supplied by nature, water the garden to help maintain healthy, growing plants. Water plants in the morning so they will dry off quickly; do not wet the leaves or stems above ground. This reduces the chance of disease development or spread. Trickle irrigation is best because it puts water directly on the root zone, does not wet the plants, and doesn't encourage soil splashing.

Garden plants that have adequate fertility at planting time and are given side dressings of fertilizer as necessary will grow better. Incorporate well-rotted manure or rich compost into the soil, but avoid fertilizer applications unless a soil test indicates that it is necessary or plants show signs of nutrient deficiency. Excess fertilization may burn the plants, cause weak growth that is more susceptible to disease, and is likely to pollute water sources.

Space Plants to Allow Air Circulation

High humidity and moisture favor the development of plant diseases. Allow enough room for plants to grow with space for air to circulate around them when they are mature. This reduces humidity and promotes rapid drying of plant surfaces, which helps to reduce disease.

Practice Cleanliness in the Garden

Work in the garden when plants are dry because moisture moved from plant to plant aids the spread of infectious diseases. Always remove plant parts that show signs of disease and discard them. Home composting, under typical New York climate conditions, will not effectively eliminate disease organisms. For this reason it is unwise to compost any diseased plant material, especially for diseases that have the potential to cause widespread damage, such as Late Blight of tomato and potato: these should be placed in the trash. If you must compost diseased material, bury and compost it in an area that will not be disturbed for a number of years. The finished compost should be used on plants that are not susceptible to the disease agent.

At the end of the growing season clean up all crop debris, as disease agents may overwinter and infect new plants the following season.

Plant a Fall Cover Crop

After cleaning up the garden, you may sow a fast growing grass, such as annual rye, that will begin to grow that fall. Even though it will die off in extreme cold, this cover crop will protect the soil from erosion during the winter months. The following spring, till the grass into the soil. This practice of adding “green manure” enriches the soil and helps to reduce populations of certain soil-borne disease agents. Other, non-infectious agents flourish on the green manure in the soil and tend to inhibit the infectious ones.

Rotate Crops

Successive planting of one crop family in the same area over many seasons promotes the build up of disease agents in the soil. Thus, disease becomes more severe over time. Rotate plants to different areas of the garden. Do not return to the original spot for at least three to four years.

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