

Leafhoppers one cause of tomato plant disease

Curly top and aster yellow are two plant virus diseases that have a lot in common. Both diseases are carried by leafhoppers, both can cause serious damage to tomato plants and both are difficult to control.

Stunted growth is the first indication that curly top or aster yellows is present. Virus-infected plants will be noticeably shorter than healthy plants.

Leaves infected with the aster yellows virus turn upright, as if they were standing on end, and eventually curl up. Curly top causes plant leaves to curl upward and develop a leathery, stiff condition. Then the entire plant turns a dull yellow.

Both diseases cause the veins in infected leaves to eventually turn purple. They can also prevent further growth and development of fruit.

The occurrence of the diseases is unpredictable. They might destroy the en-

tire tomato planting in one garden and affect only one or two plants in the next.

Controlling the leafhoppers, and the disease, can be difficult. The diseases can be harbored in surrounding weeds, other vegetable plants or even in some flowers.

Good sanitation is the best way to stop curly top and aster yellows. Remove and burn infected plants, and keep weed growth out of the garden. Spray any weedy area near the garden with malathion or rotenone.

Insecticides may not provide completely satisfactory control because they don't kill the leafhoppers before they transmit the virus. This might be especially true if the pesticide is sprayed directly on the plant.

Shading tomato plants may help prevent curly top infections because leafhoppers are less likely to feed on shaded plants.



Puffy Cheese and Artichoke Pie is a simple taste treat.

Cheese, artichokes in pie

Puffy Cheese and Artichoke Pie is a vegetarian entree that has both family appeal and gourmet styling.

Marinated artichoke hearts add a touch of elegance to this cheesy pie. For added convenience, frozen patty shells are rolled to fit a standard 9-inch pie plate and bake to form the flaky top and bottom crusts.

Puffy Cheese and Artichoke Pie

- 1 pint small curd creamed cottage cheese
- 1 package (3 ounce) cream cheese, softened
- 1 egg
- 3 tablespoons flour
- 1/4 cup grated Parmesan cheese
- Three-fourths teaspoon tarragon, crumbled
- 1/2 teaspoon salt
- 1/4 teaspoon pepper
- 3 tablespoons minced parsley
- 1 jar (6 ounce) marinated artichoke hearts
- 1 package (10 ounce) frozen patty shells, thawed
- 1 egg, beaten with 1 table-

spoon water

Beat cottage cheese with cream cheese, egg, flour, Parmesan, tarragon, salt, pepper and parsley. Drain artichoke hearts and cut up slightly.

Gently mix into cheese mixture. Stack three patty shells. Roll out on very lightly flour-dusted surface to 13-inch round. Fit into 9-inch pie plate. Turn filling into

shell. Stack remaining patty shells and roll out to 12-inch round. Place on pie. Fold under edges, sealing top and bottom pastry together. Flute edges, hooking edge on plate to prevent slipping.

Brush top with egg-water mixture. Bake on bottom rack of oven at 425 degrees for 30 minutes or until golden and puffed. Makes 6 to 8 servings.

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Proper watering vital in maintaining garden

Because many commonly grown garden vegetables consist of nearly 90 percent water, watering the garden properly is a very important chore.

How much water the garden needs depends on the weather, use of mulches and the type of soil in the garden.

Most established gardens should be watered thoroughly every five to seven days with at least one inch of water.

In most cases, watering with a garden sprinkler is better than watering by hand or with a spray nozzle on the end of a hose. Watering by hand rarely does more than wet the leaves and surface of the soil.

When watering with a garden sprinkler, be sure to leave the sprinkler on long enough. Most sprinklers deliver about one-fourth inch of water each hour. Getting the proper amount of water on the garden takes time.

By placing empty cans around the garden, you can measure the amount of water a sprinkler delivers. When an inch of water collects, turn the water off.

Another way to find out if enough water is being applied to the garden is to wait a day or so after watering, then dig a hole to see how deeply the water penetrated into the soil. The moisture zone should be six to eight inches deep. If it isn't that deep, more watering is needed.

Watering thoroughly over a period of five to seven days is better than frequent light watering because light watering causes vegetable plant roots to grow near the soil surface. Shallow roots are more susceptible to damage during hot, dry days or when weeding.

The best way to determine when another thorough watering is needed is to examine the soil near the plants. Scrape the soil back to get a look below the sur-

face. If the moisture level is within an inch or so of the surface, more water is not necessary.

If water starts to puddle during irrigation, the sprinkler is putting out water faster than the garden soil can take it in. If crusted soil is preventing proper penetration, break the soil up with shallow cultivation. The use of an organic mulch such as straw or grass clippings will conserve garden moisture by slowing evaporation. (Don't use grass clippings from lawns treated with weed-and-feed combinations.)

Watering can be done anytime during the day, but avoid leaving plant foliage wet after sundown. Wet foliage combined with nighttime temperatures encourages various fungus diseases.

A good time to irrigate the garden is in the early morning. With less wind and lower temperatures, evaporation is kept to a minimum. An early watering lets the foliage dry out before night.

The use of soaker hoses and trickle or drip irrigation systems are two alternatives to sprinkler irrigation.

Soaker hoses are flat perforated hoses that can be left in the garden and turned on whenever needed. One drawback of soaker hoses is that they may cause flooding in the row.

There are many types of trickle irrigation systems but the basic principle is the same. The system is left in the garden and can be used whenever needed. The water is delivered in small quantities to the plants and so slowly that it moves through the soil by capillary action.

Trickle irrigation eliminates the possibility of flooding in the garden which, in turn, improves the availability of oxygen to plant roots because the air passages through the soil remain open.

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