

2001

The Ten Most Exciting Plant Diseases For 2001

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GARDEN NOTES

THE TEN MOST EXCITING PLANT DISEASES FOR 2001

By Dennis Hinkamp

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It's a little bit too long and technical for the Letterman Show, but each year Sherm Thomson, Utah State University Extension plant pathologist, likes to compile his own top 10 list. The "ten most exciting plant diseases of 2001" is a compendium of fungi, bacteria and viruses that attacked our farms and gardens. Some diseases were much more serious in 2001 than in other years, however the overall incidence of diseases was less than usual because it was too hot and dry for most fungi and bacteria to survive. The list:

10. IRIS YELLOW LEAF SPOT IN ONION

This devastating virus disease was identified for the first time in Utah onions, a crop worth nearly \$10 million and planted on 2,500 acres. The virus disease was found in 100 percent of the onions plants in a few fields but may be responsible for widespread losses in many other fields at a lower level of incidence. A tiny thrips insect that spreads the virus is difficult to control. Infected plants stop growing and outer leaves start to die resulting in small bulbs and poor returns to the grower. Preventing a buildup of thrips is the only known control.

9. FIRE BLIGHT OF PEARS AND APPLES

2001 was not too bad for fire blight but it is still my favorite plant disease. This bacterial disease has the potential to kill a 50-year-old pear tree in a few weeks. Imagine how an infected orchard looks to a long-time grower that has invested heavily in time and money. Almost all of the new cultivars of apple are highly susceptible to fire blight, including Gala, Braeburn, Jonagold and Pacific Rose. Infections take place primarily by attacking the sex organs of fruit trees. Flowers are the primary infection sites and honeybees and other insects are carriers. Growers are challenged now by the limited number of registered compounds to control the disease and in several areas the bacteria are resistant to streptomycin, the best product available.

8. POWDERY MILDEW

The year 2001 could have been called "the year of the mildew." There are more than 200 different species of fungi that produce powdery mildew on many of the plants grown in Utah. The fungi are so well adapted to arid climates that they actually cause more damage in dry

climates than in wet areas. Powdery mildews are common on fruits such as apples and cherries, many flowers, shrubs and some trees. The airborne spores contain sufficient water to germinate without rain and only need relative humidity above 50 percent to start an infection. You can actually control some mildews by sprinkler irrigation that causes the spores to rupture. The best control is to select resistant plants. Fungicides will probably be necessary with susceptible plant varieties.

7. SNOW MOLD

When snow persists for more than 100 days we often have extensive damage on grass and winter wheat. There are several cold-weather fungi out there that actually enjoy the low temperatures. Pink and Gray snow mold grow on grass and wheat under a warm blanket of snow, even at freezing temperatures. By the time they are discovered, after the snow melts in the spring, the damage is already done as evidenced by dead circles in the turf and grass that are slow to green. The snow molds turn grass and wheat plants into green soup under the snow. Golf courses protect their prime real estate with fungicides in the fall before the first snow sticks. Homeowners don't need to spray fungicides, but should remove snow from shaded areas or areas where snow is piled as soon as possible in the spring. A simple and effective technique is to spread a very light layer of dry peat moss on the surface of the snow in the spring. The dark color will absorb the energy of the sun and melt the snow.

6. RUST ON DYER'S WOAD

This is the only beneficial plant disease on the list. Dyer's woad is that noxious weed that covers the foothills and canyons with a blanket of yellow in the spring. It competes with other beneficial plants and is not eaten by much of anything. The rust, *Puccinia thlaspeos*, infects dyer's woad and grows surreptitiously inside the plant for about a year without the plant knowing it. In the spring when the infected dyer's woad plants attempt to flower they are deformed, yellow and do not produce any seed. In some cases as many as 80-90 percent of the plants are infected. The rust is specific to dyer's woad and is an effective biological control of the weed because it reduces the amount of seed produced by the plants.

7. CURLY TOP OF TOMATO

This virus disease of tomato, bean, squash and several other plants was prevalent in 2001. There were some commercial fields of tomatoes in Utah with 75 percent infection and near total loss of production. Homeowners may have experienced a few of their plants with curled and yellow leaves and tiny, insipid fruit. It is a fascinating disease caused by a small piece of errant DNA that is carried only by the sugar beet leafhopper. No other insects or methods spread the virus. The virus "hides" in the weeds along the foothills and then, when they dry out, the leafhoppers head for your garden to taste something better than dry weeds. The leafhopper inserts a stylet into the plants and in the process of sucking out "tomato juice" it inadvertently blows in some virus. Infected plants do not recover and will never produce useful fruit. The only solution for homeowners is to plant at least three plants; one for the bugs, one for the curly top virus and one for yourself.

4. ALFALFA STEM NEMATODE

Many acres of alfalfa in Utah were killed or severely affected by the alfalfa stem nematode in the spring of 2001. This small worm spends most of its life in the buds or stems of alfalfa feeding with a sharp stylet that functions like a syringe. Infected plants are stunted or killed resulting in open spaces in fields that are quickly invaded by weeds. The nematodes can be spread by irrigation water, especially flood irrigation. There are good, resistant alfalfa varieties available. Alfalfa is the most important crop in Utah with more than 2 million tons produced on

over 500,000 acres with a value of \$175 million.

3. COLUMBIA ROOT KNOT NEMATODE OF POTATOES

We have identified several locations in northern Utah where the Columbia Root Knot Nematode has become established in potato production fields. This small worm infests the tubers and causes lumps and bumps on the surface and small internal brown spots in the outer layer of the flesh. The reason for concern is that this quarantined nematode attacks many other crops such as onions, alfalfa, wheat and corn, making crop rotation less effective and control difficult. The nematode is not common yet and is easily recognized so infected tubers will not make it into the food supply.

2. POTATO EARLY DYING

Verticillium or early die of potato is one of the most common diseases in both the home garden and commercial fields. It was much worse in 2001 because of the hot, dry summer that caused plant stress. Verticillium is a soil borne fungus that stays present in most gardens and survives rotations for more than 10 years. Therefore if you grow potatoes you will see Verticillium wilt sooner or later. Plants wilt and die in August or September before the plants and tubers have matured. Yield is reduced and tubers are small. Infections can be reduced by avoiding stresses such as water deficiencies or low nitrogen levels. Side-dress with nitrogen fertilizer (ammonium sulfate) in early July to make plants more resistant and prevent the early dying symptoms.

1. CYTOSPORA CANKER

This insidious fungus attacks many ornamental and fruit trees causing death of branches or the entire tree. Thousands of trees are damaged or killed every year by this disease. Peaches, cherries, willows and poplars are its main diet but it will also attack many other types of trees. It is a slow growing fungus that may take several years to finish off a tree. It usually attacks weak or damaged trees. Cold winters and hot stressful summers pre-dispose trees to infection. There are no chemicals available for control of the disease so maintaining healthy trees and expeditious pruning are the front-line controls. Remove weak or dead branches by proper pruning to prevent the spread of the fungus into the main trunk of the tree.

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