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NEWS RELEASE

1031 S. Mt. Vernon Avenue • Bakersfield, CA 93307 • 661-868-6200 • <http://cekern.ucdavis.edu>



January 11, 2010

Joe Nunez, Farm Advisor
Vegetable Crops/Plant Pathology
661-868-6222

Bacterial Diseases of Onions

There are three main bacterial diseases that can affect onions grown in California. These are soft rot, sour skin, and slippery skin. However, all three are very similar in the symptoms they cause. A common symptom is the breakdown of the fleshy scales inside the bulb. One or more of the inner scales become soft and watery with the affected tissue turning from a yellow discoloration to brown as the disease progresses. The neck will be soft and mushy. Also, as the disease progresses, the leaves will become yellow, wilt, and lay down. Eventually the entire bulb breaks down into a mushy, foul smelling mass. The problem may not be noticed in the field but appear later as a postharvest problem while the onions are in storage or in transit.

Again, the symptoms of these three diseases are very similar and difficult to distinguish from each other. Each of these are caused by bacteria that are commonly found in soil, particularly the soft rot organism. In addition to being found in the soil, they can be found in water, plant debris, or on other plants. Sour skin and slippery skin bacteria enter the onion plant through wounds located on the leaves. These wounds may be from thrip damage, downy mildew, or any other number of sources. The soft rot organism can enter through wounds on the neck, bulb, or roots caused by disease, insects, mites, or mechanical injury. In all cases, a film of water is required to move bacteria to the wound site and into the plant. Splashing water from sprinkler irrigation or rain are the most common ways that bacteria move from the soil up to the wounded area.

Once inside the leaves, the bacteria works its way down towards the bulb where the scales in the bulb breakdown. Often it is possible to trace the infected inner scales to the leaf that became infected. Soft rot may begin at the bulb if it follows injury caused by nematodes, bulb mites, or Fusarium.

Onions are very resistant to these bacteria before they bulb but once the plants begin to bulb, the plants then become susceptible to infection.

Because of how these diseases develop, there are measures that growers can take to avoid these problems. The simplest is unfortunately not always possible. That is to switch from sprinkler irrigation to furrow irrigation once the plants begin to form bulbs. This eliminates the splashing of water onto the leaves and bulbs. If using sprinkler irrigation, do not use re-circulated water. These bacteria survive in water very well and using tail water only spreads the bacteria onto the plants.

Be aware that if the tops show damage from insects, disease, hail, or other means, that bacterial infection is then possible after the plants bulb. Protecting the tops early is important in avoiding bacterial problems later on. Bulb mites and nematodes need to be avoided by proper field preparation and field site selection before planting.

The onions should be harvested after the tops are fully matured and cured quickly and completely so that the necks are sealed. Rough handling of the bulbs should be avoided to prevent bruising.

Onions are a long season crop and growers do not want to be surprised with problems at the end of the crop season. These bacterial problems are something that can appear late in the season or even after harvest. But again, by being aware of these problems and taking the proper precautions can go a long ways to avoiding these headaches latter in the year.

