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Strawberry Information

Strawberry Disease Management Considerations: Spring 2000

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Strawberry Disease Management Considerations: Spring 2000
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Diseases of concern this year are Botrytis fruit rot (gray mold), anthracnose fruit rot (ripe rot) and Phytophthora crown rot. This article highlights these diseases and provides background information so growers can develop their disease management strategy for the season, according to their production system and customer preferences.

Gray Mold: The low winter temperatures have resulted in substantial dead and dying leaf tissue at the base of strawberry plants on plastic. This leaf tissue provides a good food source for the Botrytis fungus to colonize and produce spores. The spores are released and enter the flower during bloom. Once the pathogen has a foothold in the flower, it will continue to grow into the fruit and initiate gray mold symptoms as the berry matures, and during favorable environmental conditions. Most growers adopt an integrated disease management program for gray mold that includes the use of cultural practices and fungicides. Cultural practices include proper plant spacing (clearly a decision that was made last fall), optimum fertility (excess nitrogen aggravates gray mold with no yield increase), and removal of senescent tissue. The removal of senescent tissue is a practice growers may conduct while going through the field to pull plants from under the plastic and to hand remove weeds. It is a costly process and the economic benefit has not been documented through research. In field trials, hand-pruned plants generated the highest yields (numerically, not statistically) but lack of gray mold incidence did not provide the capability to perform a cost analysis. Based on the biology of the pathogen, removal of senescent tissue immediately before first bloom that will fruit would be a good practice especially during years such as this when a lot of senescent tissue is present.

Cultural practices can be complemented with use of fungicides. Currently registered fungicides for gray mold control include Captan, Rovral, Benlate, Topsin-M, Thiram, and Elevate (recently registered). Captan is a good broad spectrum product and has historically been the key fungicide used in strawberry production. It provides protection against a wide range of diseases including gray mold, anthracnose fruit rot and some foliar diseases. The label for Rovral has recently changed. Growers have used Rovral during bloom and during harvest time. It is now illegal to use "after first fruiting flower" and can be used for one application per season. Therefore, Rovral is effectively not available for fruit rot management but could be used for a fall or early spring spray where Botrytis crown rot may be a problem. Benlate cannot be used once a commercial operation has been turned into a "U-Pick" or "Pick-Your-Own" operation (this appears to be due to a skin rash that may develop for some customers). Topsin-M is a sister product of Benlate and has the

same effective ingredient. Based on research we have conducted, a significant proportion of the Botrytis population is resistant to Benlate/Topsin-M, However, in field trials with Topsin-M, there was benefit using this product for a maximum of 2 applications during the season. Thiram is similar to Captan, a broad-spectrum protective fungicide. Elevate was recently registered and is very good for gray mold management but will not control any other disease problem.

Key principles to keep in mind when developing a fungicide spray program are: Captan is broad spectrum but not highly efficacious; Benlate or Topsin-M should always be tank-mixed with e.g. Captan and are likely to be of economic benefit for a maximum of 2 applications per season; Rovral is illegal to use during bloom and harvest; Elevate is good for gray mold control but cannot be used more than 2x in a row and no more than 6 lbs product per acre per season and an alternative product needs to be used for 2 applications before Elevate is used again.

Some growers seek specific recommendations. A highly conservative approach is as follows: Initiate a first spray during early bloom (10%) using Captan + Topsin-M or Captan + Benlate. For the second and possibly third application at weekly intervals, use Elevate. During a "full-bloom" situation (possibly the third or fourth application), apply the Captan + Topsin-M or Captan + Benlate tank mix. For subsequent applications, alternate Captan 2x and Elevate 2x. Modifications of this approach would be to reduce the frequency of applications during warm-dry weather and tighten up the frequency during cooler-wet periods and according to the key principles outlined above.

Anthracnose fruit rot: To date we have not confirmed any anthracnose problems associated with plant source. Most growers do not experience anthracnose fruit rot problems but this disease can cause substantial losses if it occurs. Therefore, it is difficult to know whether or not an anthracnose fungicide program is needed. Based on our experience and research, the following practices have proven helpful to limit anthracnose losses if the disease occurs. Many times, the disease is first noticed on a few plants. Good success has been achieved by immediately removing all infected plants and surrounding plants up to 15-20 feet around the area. Bury or burn these plants. Where fungicides are needed, Quadris is still under emergency registration until April 12, 2000. Keep posted for future details about possible extended registrations for NC. Alternatively, Captan offers some control when applied on a weekly schedule. During wet and warm conditions, anthracnose is difficult to manage.

Phytophthora crown rot: Numerous growers have and problems with this relatively new but important disease problem. This disease is very different from red stele but is caused by a cousin pathogen. In fields where Phytophthora has been diagnosed, an application of Ridomil Gold according to label instructions has proven useful. In fields where the problem persists or has been recently diagnosed, Ridomil Gold applied during the initial spring growth phase should be helpful. At this stage of the production cycle, there are no alternative cultural or IPM-based disease management strategies.

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