July 2006 Floriculture Edition

PhytonNews

Growers rely on Phyton27®

The "Cu" Factor

Phyton-27® is known for its bactericidal and fungicidal benefits, but there is an added nutritional benefit with Phyton-27® applications, the "Cu" Factor. Copper is an essential micronutrient which plays an important role in the biochemistry of plants. Chlorophyll development, carbohydrate metabolism, and cell membrane synthesis are all dependent on copper and are negatively affected when copper is deficient.

Phyton-27® - "Copper Therapy"

Foliar applications of Phyton-27® are systemically absorbed and translocate through the plant to provide an immediate infusion of copper to symptomatic copper deficient crops. Regular Phyton-27® applications will act as a prophylactic on crops prone to copper deficiency, warding off deficiencies before they cause symptoms.

For many years, Exacum growers have relied on Phyton-27® to keep their crops healthy and copper rich. A recent article in Ornamental Outlook Magazine (May 2006) reported the benefits of copper fungicide application to correct "little-leaf" disorder on loropetalum. A nursery grower in Florida is experimenting with Phyton-27® to define what rates and number and intervals of treatments works best to prevent and/or correct this disorder.

Copper Deficiency Symptoms

Copper is not mobile in plant tissue, so deficiency symptoms will first appear on younger tissue. The symptoms of copper deficiency can be quite dramatic. Chlorosis is generally the earliest symptom. Young foliage is often severely stunted as well as chlorotic. Affected foliage is sometimes cupped and deformed. Additional copper deficiency symptoms include reduced growth, lower pollen formation and fertilization, and reduced lignification of cell walls resulting in characteristic distortion on the younger foliage and bending and twisting of stems and twigs. Chronic copper deficiency can result in twig death on woody species followed by stimulation of many lateral buds below the dieback. The resulting proliferation and "witches' broom" are common symptoms of copper deficiency in woody plants.

Crop Specific Copper Deficiency Symptoms

Copper deficiency symptoms do vary somewhat between plant species. Here are some of the reported symptoms on specific ornamental species.

Aglaonema - Terminal leaves are chlorotic and sometimes dwarfed with deformed with serrated edges. Older leaves become lighter green. In severe cases, terminals and lower breaks abort.

In this Issue

Phyton 27® BACTERICIDE & FUNGICIDE

Featured Flower Crop: Poinsettia

Propagation through pinch is a critical time for good disease control measures in the poinsettia crop.

Cuttings

Poinsettia cuttings have the disease deck stacked against them. Open wounds provide an entry point for pathogens. The heat in summer greenhouses stresses the cuttings and makes them more vulnerable to infection. Misting providing plenty of moisture for infection and spread of a variety of pathogens including Botrytis, Erwinia Rhizoctonia and Scab.

Erwinia - Look for a rapid, mushy rot that is often has a "rotten" odor to it. Dip cuttings at sticking or a spray 2 or 3 days after sticking.

Rhizoctonia - Look for a dry, brownish rot at the soil line. Control Rhizoctonia with a Phyton-27® drench. If the cuttings are already infected, remove and destroy all visibly diseased tissue before applying the drench.

Botrytis & Scab - Botrytis causes a brown, mushy rot that is often covered with the characteristic fuzzy, gray mold. Scab shows up a "scabby", raised lesions with tan centers and white, red or purplish margins on the stems and petioles. On leaves, scab causes spots with purple margins. A Phyton-27® foliar spray protects cuttings from Botrytis blight and cutting rot and poinsettia scab.

Pinching

Disease pressure does ease up in the middle of poinsettia production, but pinching the poinsettia crop provides a new wound for Botrytis to take advantage of. Plus, the canopy is starting to fill in, providing a nice humid environment which powdery mildew thrives in.

Botrytis & Powdery Mildew - Phyton-27® applied as a foliar spray protects poinsettias from Botrytis and powdery mildew. Phyton-27® provides contact clean-up around the pinching wound as well as systemic protection that sticks with the plants beyond pinch.

Crop Specific Copper Deficiency Symptoms (Continued)

Azalea - Initial symptoms on azalea are marginal chlorosis on a few leaves at the tips of the main shoots, followed by necrosis.

Chrysanthemum - Elongated leaves and internodes with delayed flowering. Middle leaves become chlorotic near the margins or at the indentations between the lobes.

Dracaena - A tight, hard spear at the growing tip instead of the normal emerging shoot. The hard spears may not open or may break off.

Exacum - Excessive leaf curl or crinkle.

Geranium - Mild chlorosis with reddish tones on middle and younger leaves. Older leaf margins become marked with pinkish-red pigmentation and necrosis starting at the leaf margins and extending inward, with a small green zone near the petiole.

Loropetalum - "Little-Leaf Disorder", darkening of older growth, shortening of internodes, upward cupping of leaves, crinkling of new growth (particularly the distal portion of the leaf) and decreased leaf size.

Palms - Reduced size of new leaves with necrotic margins. Some species may have malformed or downward tipping leaves.

Poinsettia - Loss of color in the foliage with marginal curling (up and inward), progresses to reddish brown color of interveinal areas.

Roses - Distorted young leaves with yellow tips that later become necrotic. Growing points die and short, stunted lateral shoots develop.

Bacterial Leaf Spot on Garden Mums

Bacterial leaf spot on garden mums is caused by the bacterium Pseudomonas cichorii. This pathogen likes leaf moisture, high humidity and high temperatures. Heavy, frequent summer rainfalls can suddenly result in a full blown leaf spot epidemic.

Bacterial Leaf Spot Symptoms

Symptoms of bacterial leaf spot can occur on the leaves, buds or stems. Look for irregular areas of brown-to-black necrotic tissue, sometimes with a water-soaked margins. These lesions often begin at the margins of the leaves but may occur randomly distributed over the leaf surface. Spots are soft when the foliage is wet, and sunken and brittle when the leaves are dry. Leaf spot usually starts on the lower foliage and moves up the plant.

Preventive Program

A preventive program can be based on weather forecasts, past experience or the calendar. If you are a weather watcher, start preventive Phyton-27® applications when the temperature and humidity are high, particularly if rain is in the forecast or you are using overhead irrigation. If you regularly battle bacterial leaf spot year-after-year, you may opt to use your experience and schedule the first preventive application of Phyton-27® a week or two before you have historically detected symptoms. If you don't have time to track the weather or go through past crop records, start a preventive program in early- to mid-July to stay ahead of outbreaks. For preventive programs, apply Phyton-27® at the rate of 1.5 fluid ounces per 10 gallons at 7 to 14 day intervals.

"Save the Crop" Program

If the disease sneaks up on you before you get a preventive program in place, be prepared to act quickly to get it under control with minimal disease damage. Remove severely infected plants and isolate or discard them to reduce plant-to-plant spread of the bacterium. Apply Phyton-27® at the rate of 2.0 fluid ounces per 10 gallons at a 7-day interval. Additional applications may be needed if the weather remains wet and humid. Avoid handling plants when the foliage is wet to minimize spread of the bacteria.

Powdery Mildew

Powdery mildew tends to pop up in mid to late summer. In greenhouses, powdery mildew thrives when temperatures range from 65° to 75° F and moisture condenses on the foliage at the end of the day. In the nursery, powdery mildew flourishes in damp, shady locations when the days are warm and dry and the nights are cool and damp. Wherever plants are grown, high relative humidity, crowded conditions, and poor air circulation are bad for the plants but good for the mildew. The fungal spores do not require free moisture on the leaves to germinate, frequent periods of leaf wetness actually inhibit spore formation and dispersal. This helps explains why crops grown under drip irrigation tend to be more susceptible than crops grown under overhead irrigation.

Symptoms

Powdery mildew is relatively easy to identify with characteristic white-to-gray powdery or dusty appearing fungal growth, but early infections can be hard to detect hiding under the leaf surfaces with a variety of symptoms including greasy looking spots on the underside of begonia leaves, pale yellow spots on poinsettia leaves, red leaf tissue under the mildew colonies on photinia and leucothoe, and slight curling and purpling areas on rose foliage. The mycelium and spores are most commonly found on the young, succulent foliage but can also occur on stems, buds, flower petals and even on mature tissue.

Proven Control

Phyton-27® is an excellent tool to preventive and eradicate powdery mildew. With powdery mildew, prevention is the best line of defense. Maintain a regular preventive spray program using lower rates and carefully scout your crop for early detection and treatment of any powdery mildew outbreaks.

To treat an active powdery mildew infection, remove infected leaves before treatment to reduce inoculum potential. Apply Phyton-27® at labeled rates as a wet spray. Low volume applications are effective in preventive situations but not against active infections. Established infections may require multiple applications, higher dosage rates and shorter treatment intervals. When you encounter a particularly tough strain of powdery mildew, rotate or tank mix Phyton-27® with one of the strobilurin products.

Boost prevention and control with cultural practices to lower relative humidity. Space plants as far apart as possible to allow air movement within the canopy. Use horizontal airflow fans to move air above the canopy.

Featured Foliage: Spathiphyllum

Cylindrocladium root and petiole rot is the most serious disease occurring on spathiphyllum, but Phytophthora can cause a root rot and foliar blight and Botrytis can also cause problems under the right conditions.

Cylindrocladium

Cylindrocladium likes warm weather. Look for yellowing of the lower leaves, sometimes along with slight wilting. Dark brown spots may show up on leaves and petioles and lower portions of the petioles often rot. By the time aboveground symptoms show up, roots are severely rotted and the tops of infected plants can be easily pulled from the pot with few or no roots attached. Remove infected plants from the growing area and treat the remaining crop with a spray application of Phyton-27®.

Phytophthora

Symptoms of Phytophthora root infection are very similar to Cylindrocladium root rot. Roots become dark and mushy and tops may be wilted, yellowed or stunted. Symptoms of a Phytophthora foliar infection includes black, pepper-like lesions. Phyton-27® is effective against root and aerial infections of Phytophthora. Apply as a drench for root rot control and as a foliar spray to control aerial blight.

Botrytis

Botrytis is not a common disease of foliage plants such as spathiphyllum, but under the right conditions, such as cool, wet humid weather, it can be a problem on the foliage and the flowers. Low rates of Phyton-27® will prevent and control outbreaks of Botrytis.

Phyton® 27
BACTERICIDE & FUNGICIDE

2006 Summer Show Schedule

Ohio Short Course Columbus, OH	July 9-11 Booth #2621
FarWest Portland, OR	Aug. 24-26 Booth #8022
CanWest Vancouver, BC	Sept. 20-21 Booth #1300
FNATS Orlando, FL	Sept. 28-30
Canadian GH Conf Toronto, ON	Oct. 4-5 Booth #356
New England GH Conf Worcester, MA	Nov. 1-3

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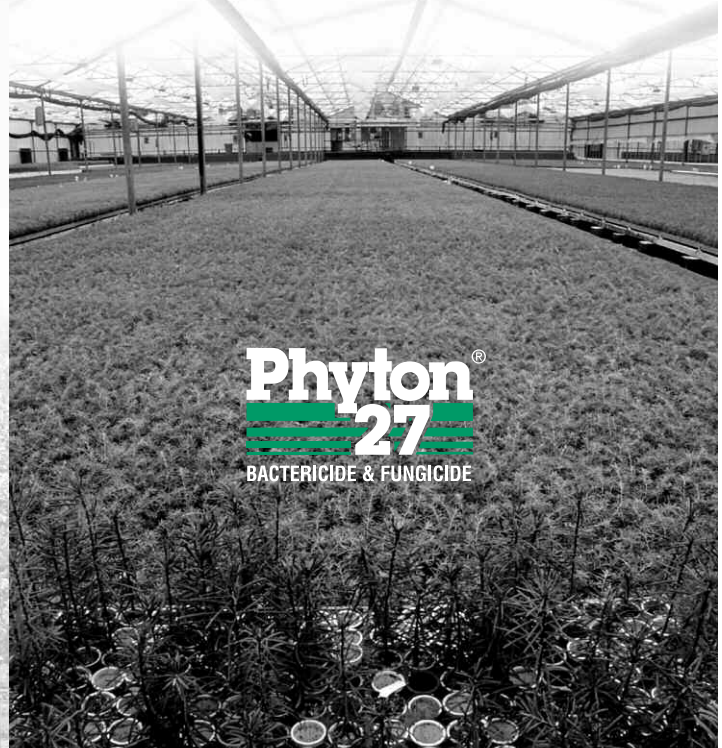
It Works!

Phyton-27® delivers exceptional bacterial and fungal disease control on a wide range of ornamental crops. Preventively and therapeutically, from propagation to post-harvest, it just works!

Savvy growers rely on Phyton-27®!



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