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CATEGORIES 3, 10 & 12 PESTICIDE TRAINING

Pesticide training for categories 3, 10 and 12 is scheduled for Tuesday, November 6, 1-5 p.m. in the Bowling Green Convention Center as a part of the Kentucky Turfgrass Council Conference and Show. Testing will follow the training. The program will concentrate on turf and ornamental pest control and will be submitted for continuing education credit. The meeting has not been approved for continuing education at this time.

VEGETABLES

KENTUCKY VEGETABLE GROWERS AND DEALERS NEED TO RESPECT THE RESISTANCE MANAGEMENT GUIDELINES FOR USING THE QOI/STROBILURIN-LIKE FUNGICIDES by William Nesmith

A powerful group of fungicides with reduced environmental risks has been emerging for vegetable growers, called strobilurins, now called QoI-fungicides. I will continue to call them strobilurins here because that is what the labels call them, currently. These include Quadris and Flint, so far, and additional materials should arrive soon. Growers that have used them quickly recognize the high level of disease control that can be achieved and the advantages these chemistries offer. Unfortunately, one weakness of these materials is their vulnerability for fungi to develop resistance to them. Moreover, this weaknesses is not obvious to the farmers and dealers, and is under appreciated. Consequently, other factors are driving the actual use patterns of the strobilurins, including: short-term economic views of growers and dealers, high disease control impact, and ease of use. The idea for many has been to maximize the advantages while ignoring their limitations concerning fungicide resistance. This is a formula for trouble that could lead to rapid loss of these important fungicides in the vegetable disease control toolbox. How long they survive as effective tools in that toolbox will be directly related to how well the agricultural community appreciates and follows the guidelines for use.

Because resistance developing in one of these
products will impact the others, resistance management guidelines were developed under FRAC (Fungicide Resistance Action Committee), and were agreed upon by the companies that manufacture and sell the strobilurins. The labels for these products have clear and specific guidelines to be followed to help delay the development of resistance to the strobilurins. I strongly urge Kentucky’s agricultural industry to follow these guidelines. Let’s all work together to remind farmers that there is a high potential for resistance to develop where these fungicides are used, and that the best options are to follow the guidelines outlined on the label. In addition to the growers, local dealers must also buy into this. Below is a summary of some of the points:

* Use multiple chemical mechanisms in each crop to control the diseases that may be targets of a strobilurin. (This is an area where the average grower and dealer may have difficulty understanding what this means, so let’s all start to work on this issue in grower and dealer meetings. Without understanding here, one is not likely to follow the remainder of these points.)

* Limiting the number of strobilurin applications per crop-field/ season, as per the label.

* Follow the label concerning timing and sequence of strobilurin applications. Some examples from one label are: “Make no more than one application before alternation to an unrelated fungicide that is effective in controlling the causal fungus; make no more than four total applications per season.”

* Do not use them on crops for which they are not labeled or in a stage of crop production for which they are not labeled.

FRUIT CROPS

PIERCE’S DISEASE OF GRAPE FOUND IN KENTUCKY
by John Hartman

Pierce’s disease is a threat to grapes in California and in southern states from Florida to Texas. Disease symptoms vary with species and cultivar, but are typified by marginal browning of leaves and death of vines. Pierce’s disease symptoms are most severe in the European (vinifera) wine grapes. For a more detailed discussion of this disease, see Kentucky Pest News 929, August 13, 2001.

Through the U.K. Plant Disease Diagnostic Laboratory, X. fastidiosa from grapes collected from Hancock County has been confirmed. The disease was first detected in the laboratory a few weeks ago using an ELISA test. We are aware that, sometimes, ELISA tests give false positive reactions so more evidence was needed. Specimens were sent to a laboratory in California which specializes in testing for Pierce’s disease using a rapid-cycle polymerase chain reaction (PCR) test for presence of bacterial DNA. The specimens again were positive.

Thus, Pierce’s disease is present in Kentucky - this is not good news for our grape industry. In other regions, X. fastidiosa is distributed in a wide range of monocot and dicot native plants, infected, but not showing symptoms. We do not know if the bacterium has become established in the wild. Pierce’s disease is carried from infected vegetation to grapes or from diseased grapes to healthy grapes mainly by insect vectors. We know little about which vectors would be involved here in Kentucky. Possibilities include spittle bugs, sharpshooters such as the glassy-winged sharpshooter which is causing problems in California, or treehoppers and other xylem-feeding insects. The disease can also be transmitted by grafting. Where the disease is isolated, removal of infected vines should keep further spread to a minimum.

LAWN & TURF

RESULTS FROM RECENT TESTS TO CONTROL STRAINS OF PYRICULARIA GRISEA RESISTANT TO QoI (STROBILURIN-LIKE) FUNGICIDES
by Paul Vincelli

In June, we reported on the emergence of strains of Pyricularia grisea from perennial ryegrass with resistance to QoI (strobilurin-like) fungicides. See www.uky.edu/Agriculture/kpn/kpn_01/pi010604.htm. The QoI fungicides include the labeled fungicides Heritage and Compass, as well as the as-yet unlabeled product Insignia.

Hypothesis

As part of an effort to investigate control
approaches for these resistant strains, we conducted a field trial to test the hypothesis that tank-mixes of QoI fungicides (Heritage or Insignia) with chlorothalonil (Daconil Ultrex) would provide better disease control of QoI-resistant strains than would chlorothalonil alone. This was based on a postulated synergism between QoI fungicides and chlorothalonil against QoI-resistant strains.

**Methods**
The test was conducted at Marriott Griffin Gate Resort, Lexington KY (thanks to that organization and the Superintendent, Mr. Ken Rue, for their ongoing cooperation in the interest of learning). The turf was maintained at a mowing height of 0.75 in., irrigated as needed, and fertilized with 1.0 lb N/1000 sq ft as urea on 16 Jul. Plots measured 3 ft x 3 ft with 1.5 ft borders, and were arranged in a randomized complete block design with four replicates. Fungicide sprays were applied using a CO2-pressurized hand-held sprayer fitted with Spray Systems 8003E flat fan nozzles delivering 1.5 gal/1000 sq ft. All treatments were applied on 23 Jul, and continued on 2-wk intervals thereafter. The fairway and plots were sprayed as needed with the following materials for pest control: Prostar 70WP for brown patch, Lesco Touche 50EG for dollar spot, Prograss EC for Poa annua, and Manage 75WDG for nutsedge. Visual estimates of percent plot surface affected by gray leaf spot were obtained weekly. All data were analyzed using ANOVA and Waller-Duncan’s k-ratio t-test, (k=100, P=0.05).

**Results**
Unfortunately, data from this trial appear to refute our hypothesis of synergism between QoI fungicides and chlorothalonil in controlling QoI-resistant strains. Daconil Ultrex provided partial control of gray leaf spot, as expected; no improvement in control was observed with the combination of this fungicide with either Heritage or Insignia (see table). In this test, application of Heritage alone appeared to have actually enhanced disease pressure caused by QoI-resistant strains, compared to water alone. This is in contrast to our results last year, when disease development in Heritage-treated plots was no different from that seen in the water-treated plots. Also, we currently have corollary studies suggesting that the QoI-resistant strains overwinter quite well in this region.

<table>
<thead>
<tr>
<th>Treatment and rate per 1000 sq ft</th>
<th>29-Aug</th>
<th>5-Sep</th>
<th>12-Sep</th>
<th>19-Sep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>9.3 a</td>
<td>20.0 b</td>
<td>52.5 b</td>
<td>36.0</td>
</tr>
<tr>
<td>Spectro 90WDG 8 oz</td>
<td>0 b</td>
<td>0 c</td>
<td>1.5 d</td>
<td>0.3 d</td>
</tr>
<tr>
<td>Heritage 50WG 0.2 oz</td>
<td>11.0 a</td>
<td>23.7 a</td>
<td>66.3 a</td>
<td>61.3</td>
</tr>
<tr>
<td>Daconil Ultrex 82.5WDG 3.2 oz</td>
<td>0 b</td>
<td>0 c</td>
<td>8.8 c</td>
<td>2.3 d</td>
</tr>
</tbody>
</table>

**Implications**
The results of this test and other, ongoing tests suggest that, once QoI-resistant strains of P. grisea appear on a site, fungicides in the QoI family will no longer be useful for control of gray leaf spot on that site. This presents a strong argument for using these materials as wisely as possible. Factors that reduce—but do not eliminate—the risk of resistance to QoI fungicides include:

- Minimizing disease pressure through cultural practices to the extent possible.

- Minimizing consecutive applications of QoI fungicides, especially during the period of highest disease pressure. In fact, since 1998 I have been recommending switching to a different mode of action each time you spray for gray leaf spot. This will not prevent the development of resistance, since this was essentially the practice at Griffin Gate Golf Club. However, it does reduce the risk of resistance, and that is all a superintendent can do.

- Tank-mix products having different modes of action during periods of high disease pressure. Chlorothalonil, a multi-site inhibitor, is an especially good mixing partner from the standpoint of resistance management. There is essentially no risk of resistance to a multi-site inhibitor fungicide.

- Switch from the QoI fungicides to other products during periods of low disease pressure, such as at the tail end of the period of gray leaf spot activity.
SHADE TREES & ORNAMENTALS

BLACK ROOT ROT OF PANSIES IS WIDESPREAD
by John Hartman and Julie Beale

During recent weeks, many greenhouse-grown pansy specimens with black root rot have come through the U.K. Plant Disease Diagnostic Lab. Black root rot, caused by the fungus Thielaviopsis basicola, causes stunting and decline of infected plants. Black root rot can get started in the greenhouse: a) from contaminated plug plants obtained from commercial suppliers, or b) from fungal spores left from last year’s pansies or other plants. This year there is circumstantial evidence that, at least in some cases, the disease has come from plant suppliers. In other cases the greenhouse crop was infected last year and the fungus produced highly resistant resting spores that are the source of the problem seen now.

Disease management. Once a greenhouse or nursery becomes contaminated with the black root rot fungus, it is difficult to get rid of it. This fungus has a wide host range which includes dozens of herbaceous and woody plants. Thorough greenhouse sanitation is essential. Avoid buying-in diseased plants for the next crop. For potted or flat-grown plants, fungicide soil drenches such as Terraguard (triflumizole) and Cleary’s 3336 (thiophanate-methyl) are labeled for this disease on greenhouse ornamentals. Some growers may consider using Medallion (fludioxonil) but, although it is used for other soilborne diseases, it is not cleared for black root rot. Furthermore, the label states that it may injure pansy seedlings.

HOUSEHOLD

HOW TO PEST-PROOF YOUR HOME
by Mike Potter

Aaccording to a statewide poll of Kentucky householders, 93% expressed concern over finding insects inside their home. More than half indicated that a single cockroach, cricket, or spider would prompt them to use a can of bug spray or call an exterminator. What many people do not realize, however, is that most pests discovered indoors have flown or crawled in from outdoors.

One of the best ways to limit unwanted intrusions by insects, rodents, birds, squirrels, raccoons and other pests is to deny them entry—a procedure known as pest proofing. Many pests seek refuge in homes and buildings in response to changes in weather, such as extended periods of rain or drought, or the onset of cooler autumn temperatures. Taking steps to block their entry before they end up inside can greatly reduce the chances of future sightings.

Outlined below are six useful tips for pest proofing one’s home or business. Steps 1-3 will also conserve energy and increase the comfort level during winter and summer. Equipment and materials mentioned can be purchased at most hardware or home improvement stores.

1. Install door sweeps or thresholds at the base of all exterior entry doors. While laying on the floor, check for light visible under doors. Gaps of 1/16” or less will permit entry of insects and spiders; 1/4”-wide gaps (the diameter of a pencil) are large enough for entry of mice; ½” gaps are adequate for rats. Pay particular attention to the bottom corners as this is often where rodents and insects enter.

Apply caulk (see #3 below) along bottom outside edge and sides of door thresholds to exclude ants and other small insects. Garage doors should be fitted with a bottom seal constructed of rubber (vinyl weatherstripping seals poorly in cold weather). Gaps under sliding glass doors can be sealed by lining the bottom track with ½ to 3/4 inch-wide foam weatherstripping.
2. Seal utility openings where pipes and wires enter the foundation and siding, such as around outdoor faucets, receptacles, gas meters, clothes dryer vents, and telephone/ cable TV wires. These are common entry points for ants, spiders, yellowjackets, rodents and other pests. Holes can be plugged with caulk, cement, urethane expandable foam, steel wool, copper mesh or other suitable sealant.

3. Caulk cracks around windows, doors, fascia boards, etc. Use a good quality silicone or acrylic latex caulk. Although somewhat less flexible than pure silicone, latex-type caulks clean up easily with water and are paintable. Caulks that dry clear are often easier to use than pigmented caulks since they don’t show mistakes. Buy a good caulking gun. Features to look for include a back-off trigger to halt the flow of caulk when desired, a built-in “slicer” for cutting the tip off of new caulking tubes, and a nail for puncturing the seal within. Hardware stores sell guns with these features for less than $10.00. Prior to sealing, cracks should be cleaned and any peeling caulk removed to aid adhesion. For a professional look, smooth the bead of caulk with a damp rag or a moistened finger after application.

A key area to caulk on the inside of basements is along the top of the foundation wall, where the wooden sill plate is attached to the concrete foundation. Ants, spiders, and other pests often enter through the resulting crack.

4. Repair gaps and tears in window and door screens. Doing so will help reduce entry of flies, gnats, mosquitoes and midges during summer, and cluster flies, lady beetles, and other overwintering pests in autumn. Certain insects such as hackberry psyllids are small enough to fit through standard mesh window screen. The only way to deny entry of these tiny insects is to keep windows closed during periods of adult emergence.

5. Install 1/4-inch wire mesh (hardware cloth) over attic, roof, and crawl space vents in order to prevent entry of birds, bats, squirrels, rodents, and other wildlife. Be sure to wear gloves when cutting and installing hardware cloth, as the wire edges are razor sharp. Backing the wire mesh (from the inside) with screening will further help to prevent insects.

If not already present, invest in a chimney cap to exclude birds, squirrels, raccoons and other nuisance wildlife. Raccoons, in particular, are a serious problem throughout Kentucky. Many chimneys become home to a family of raccoons which, in turn, are often infested with fleas.

6. Consider applying an exterior (barrier) insecticide treatment. While sealing is the more permanent way to exclude pests originating from outdoors, comprehensive pest-proofing is laborious and sometimes impractical. For clients requiring an alternative, pest proofing can be supplemented by an exterior treatment with an insecticide. Homeowners will get the most for their efforts by applying longer-lasting liquid formulations containing synthetic pyrethroids (e.g., Bayer Advanced Home/ Garden™ Multi-Insect Killer, Spectracide Bug Stop™, Ortho Home Defense System™), sold at hardware/ lawn and garden shops.

Apply with a pump up sprayer, hose end sprayer, etc., treating at the base of all exterior doors, garage and crawl space entrances, around foundation vents and utility openings, and up underneath siding. It may also be useful to treat around the outside perimeter of the foundation in a 2 to 6-foot-wide band along the ground, and 2-3 feet up the foundation wall.

Clients who choose not to tackle these activities may want to hire a professional pest control firm. Many firms now offer pest proofing services. For the occasional bug that wanders in from outdoors, a vacuum cleaner or broom is often all that’s needed.

**DIAGNOSTIC LAB HIGHLIGHTS**

by Julie Beale and Paul Bachi

September 16, 2001

We are seeing plenty of soybean samples recently, including cases of charcoal rot, frogeye leaf spot, sudden death syndrome, and Diaporthe pod/stem rot. On tobacco we have seen black shank, soreshin, hollow stalk, blue mold and frogeye.

On fruits and vegetables, we have seen Phylloxera (insect) on grape; Rhizoctonia wirestem on broccoli and cauliflower transplants; anthracnose and Phytophthora blight (P. capsici) on pepper; Microdochium and Phytophthora blights on pumpkin; Septoria leaf spot and walnut wilt on tomato and maize dwarf mosaic virus on sweet corn.
On ornamentals, we have seen powdery mildew on dahlia; black root rot and Cercospora leaf spot on pansy; Rhizoctonia root rot on ivy; and bacterial scorch on oak.

**DIAGNOSTIC LAB HIGHLIGHTS**

October 1, 2001

by Julie Beale and Paul Bachi

Diagnoses from the past two weeks have included several cases of Stenocarpella (formerly Diplodia) stalk rot on corn; Diaporthe pod/stem rot on soybean; and black shank, frogeye, blue mold, target spot and tomato spotted wilt virus on tobacco.

On fruit and vegetable samples, we have seen Pierce’s disease on grape; sooty blotch and flyspeck on apple; corn root worm on sweet corn; Phytophthora blight on pepper and pumpkin; and anthracnose on turnip.

On ornamentals, we have seen several cases of black root rot on pansy (commercial samples); Cercospora leaf spot on hydrangea; Volutella blight on boxwood; peach scale on flowering plum and cherry; Entomosporium leaf spot on crabapple; anthracnose on maple; Septoria leaf spot on dogwood; and bacterial scorch on oak and elm.

**NOTE:** Trade names are used to simplify the information presented in this newsletter. No endorsement by the Cooperative Extension Service is intended, nor is criticism implied of similar products that are not named.