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LAWN & TURF

TANK-MIX OF CONTACTS APPEARS TO BE EFFECTIVE CONTROL FOR GRAY LEAF SPOT OF PERENNIAL RYEGRASS

by Paul Vincelli

Gray leaf spot can be a very aggressive destructive disease of perennial ryegrass in late summer. We are past the risk of damage this season, and damage was generally modest in most areas of Kentucky due to the cool temperatures that prevailed much of the summer. However, we did have outbreaks of moderate intensity in both of our research locations, enough to obtain some valuable research data.

One of the important findings from this year was the very good performance of the mixture of mancozeb (the active ingredient in Fore Rainshield and other products) and chlorothalonil (the active ingredient in Daconil Ultrex and other products). While each of these materials used alone is very inconsistent in controlling the disease, we have had four trials now (two in 2002 and two in 2003) where this mixture has performed well. Example data are provided below. All of the tank-mixes of these materials performed as well statistically as the best treatment in the test. This includes several of the reduced-rate treatments. The mixture of Fore Rainshield 4 oz + Daconil Ultrex 3.2 oz has performed well in all three tests where used, but the mixture of Fore Rainshield 4 oz + Daconil Ultrex 1.8 oz has not always provided complete disease control. Unfortunately, we did not test the combination of Fore Rainshield 8 oz + Daconil Ultrex 1.8 oz last year, so we only have two tests for this year, in which it provided excellent disease control. This particular tank-mix is important because, given current label restrictions on the total amount of chlorothalonil that can be used, finding effective ways to reduce the rate of chlorothalonil will increase the flexibility golf course superintendents have in using this important fungicide. We will continue to test this tank-mix in the future to confirm the efficacy seen this year. Another important advantage of all these tank-mixes is the fact that there is essentially no risk of resistance to this mixture, since both fungicides are general enzyme inhibitors with no known risk of fungicide resistance. This is very, very good news given the fact that resistance to Q_oI fungicides has been found in several locations East of the Mississippi River, and the high risk for development of resistance to thiophanate-methyl in the foreseeable future.

Surprisingly, we did not see complete control with thiophanate methyl at the rate used in this test. Although this fungicide at this rate has normally performed very well even under high disease pressure, there is one test conducted in Maryland where performance slipped towards the end of the season at this rate. Although the season-long disease pressure this season was not as high as some years, we had a very intense period of sustained high disease pressure for about 8-10 days in early September, which may account for the less-than-complete control seen with thiophanate-methyl. Tank-mixing with a contact fungicide or possibly increasing the rate would probably improve performance under these extreme conditions.

Treatment and rate per 1000 sq ft	Spray (wk)	%plot affected by gray leaf spot 10 Sept
Water	2	46.7 a
Cleary's 3336 50WP 6.0 oz.	2	17.3 cd
Fore Rainshield NT 80WP 8 oz.	2	
+ Daconil Ultrex 82.5WDG 3.2 oz.	2	11.0 de
Fore Rainshield NT 80WP 4 oz.	2	
+ Daconil Ultrex 82.5WDG 3.2 oz.	2	7.0 e
Fore Rainshield NT 80WP 8 oz.	2	
+ Daconil Ultrex 82.5WDG 1.8 oz.	2	6.0 e
Fore Rainshield NT 80WP 4 oz.	2	
+ Daconil Ultrex 82.5WDG 1.8 oz.	2	11.7 de

Means within the same column followed by the same letter are not significantly different, Waller-Duncan k-ratio t-test (k=100, P=0.05). Arithmetic means are presented with statistical groupings based on arcsine square root transformed statistics.

SHADE TREES & ORNAMENTALS

HEALTHY TREES AND AIR QUALITY
by John Hartman

Peak symptoms of bacterial leaf scorch of landscape trees can be seen now in Lexington, Louisville, Bowling Green, Henderson, Owensboro and many other Kentucky locations. Appearance of symptoms this year were delayed by several weeks due to wetter than normal weather this summer and fall. By comparison, most Kentucky summer seasons have periods of drought which increases the effects of bacterial leaf scorch. It has been observed that oak trees that are watered regularly year in and year out show less damage from bacterial leaf scorch. Thus, water seems to be an important ingredient for maintaining the health of and prolonging the life of infected oaks. Research on other hosts backs up this observation (see Kentucky Pest News issue # 955, June 10, 2002).

At the Kentucky Urban and Community Forestry Conference held last week in Lexington the connection between healthy trees and clean air was made by David Nowak of the U.S. Forest Service, Syracuse, New York. During his presentation (Urban Forestry: Facts on Environmental Quality), I wondered if the deterioration of landscape trees by bacterial leaf scorch would have an effect on local air quality. Apparently, there would be significant loss of air quality, though it would take much data collection to quantify the actual amount.

The urban forest affects air pollution levels in several ways. The presence of trees reduces urban air temperatures and this slows the ozone conversion reaction resulting in less ozone pollution. Trees remove pollutants from the air by absorbing polluting gases and by capturing particulate air pollutants. Trees reduce home and automobile energy consumption and resultant air pollution by providing shade in the summer and windbreak in the winter. The amount of these effects vary with tree placement and geographic location. On the negative side, trees do produce volatile organic compounds which adds to air pollution. Some species contribute more than others, however these amounts are less than the air pollution reductions achieved by trees. Trees also reduce on-ground wind speeds which increases local pollution because it is not being blown away (diluted) as quickly. Again, the net effect of trees is to decrease urban air pollution. In addition, trees slow the advance of global warming by reducing greenhouse gases, mainly by carbon sequestration.

There are several actions relating to trees that we can all take to reduce air pollution.

- Increase the number of healthy trees. This gets back to thoughts on the effects of bacterial leaf scorch. Healthy trees absorb and trap more air pollutants and sequester more carbon than do diseased and declining trees.
- Sustain the existing urban tree cover, especially the large, healthy trees, since they are the ones having the greatest pollution mitigation effect.
- Maximize the use of low-volatile organic compound emitting trees. Species such as eucalyptus, black gum, sweet gum, black locust, oak, pine, poplar, sycamore, and willow, for example, are said to emit high levels of these compounds. Where there are choices, using other species should improve the air pollution effects of trees even more. Don't go out and begin cutting down these trees, however, because even the high-volatile organic compound emitting trees are beneficial, just not maximally beneficial.
- Plant long-lived species.
- Use low-maintenance trees. Trees that require frequent pruning or spraying demand energy use which is polluting.
- Plant trees in energy-conserving locations. There is value in planting trees to shade cars as well as homes.
- Plant trees in polluted areas, but for maximal effect, avoid pollution-sensitive species.

- Plant evergreens because they are working to reduce pollution year-round.
- Use wood obtained from prunings or dead trees as fuel for energy production. The rationale here is that when a tree dies and is left to decompose, it will simply return the sequestered carbon back to the atmosphere. Burning the wood will do the same thing. However, using the wood for fuel will reduce the demand for heat from other fossil fuels, thus reducing pollutants and greenhouse gases.
- Provide trees with ample water to maintain their health and longevity. The example of the effects of regular watering on bacterial leaf scorch disease is a good case in point. Even healthy trees, when drought stressed, will close their stomata and be unable to absorb some of the air pollutants that would otherwise be taken up.

Thus, as we contemplate losses of urban trees due to bacterial leaf scorch disease or other causes such as ice storms, it becomes important to restore and maintain a healthy urban forest in any way that we can to reduce air pollution levels and greenhouse gases.

HOUSEHOLD

COMMON FALL INVADERS - IT CAN GET CROWDED INSIDE
By Lee Townsend

Multicolored Asian lady beetles are flying, boxelder bugs are massing, crickets are chirping, velvety black soldier beetle larvae are crawling, and spiders are entering through cracks and crevices. Any one or multiple combinations of these creatures can cause excitement or frustration as the invade homes in the fall.

Pest proofing helps to prepare for this annual movement to winter shelter - see Entfact 641 - on line at www.uky.edu/Agriculture/Entomology/entfacts/pdfs/entfa641.pdf for more information.

A swatter and trash can are effective for the occasional individuals that wander in, this usually runs its course in a few days. If boxelder bugs or lady beetles are starting to accumulate, it is best to try to deal with them outdoors, before they enter the home. Potential products are listed in the pest proofing fact sheet.

PASTURES

FALL ARMYWORM IN PASTURES
By Lee Townsend

Fall armyworms can remain active until they are killed by a hard frost. Since female moths lay masses of eggs on grass stems, initial field infestations can be intense and very localized. Fall-seeded fields can show green early followed by the appearance of small brown areas that could be caused by any of a variety of things, most of which cannot be controlled. If fall armyworms are involved, these roughly circular areas will gradually, then abruptly expand as the caterpillars get larger, eat all of the vegetation around, then move for greener pastures, so to speak.

Catching infestations when there are 2 or more fall armyworm larvae (about 1 /2 to 3/4 inch long) per square foot allows time to treat and greatly slow or stop the damage. Once the larvae are longer than 1-1/4 inches, the prospects for insecticidal control are diminished greatly. Also, most of their feeding may be finished.

Sevin, malathion, and various Bt formulations are labeled for armyworm control in pastures and hay fields. Chances for control are best when the treatment is applied in at least 25 to 30 gallons of water. This will help to achieve good coverage and contact with the target.

DIAGNOSTIC LAB HIGHLIGHTS
by Julie Beale and Paul Bachi

During the past two weeks in the Diagnostic Laboratory, we have diagnosed frogeye leaf spot, Phomopsis seed decay, Rhizoctonia root rot and brown spot (Septoria) on soybean; bacterial soft rot, blue mold, black shank, ragged leaf spot, frogeye leaf spot, tobacco vein banding mosaic virus, and tobacco ringspot virus, on tobacco; anthracnose on bean; and early blight and severe rust mite infestation (in greenhouse) on tomato.

On ornamentals and turf, we have seen Pythium root rot on geranium; low fertility problems on poinsettia; Pythium root rot on bentgrass; crown gall on euonymus; black root rot on holly; rosette on rose; Botryosphaeria canker on red osier dogwood and ash; powdery mildew, bacterial scorch and Actinopelte leaf spot on oak; Cristulariella leaf spot and bacterial scorch on maple; and Cercospora leaf spot on willow.

INSECT TRAP COUNTS
UKREC, Princeton KY

September 19 - 26

Fall armyworm	4
European corn borer	2
Southwestern corn borer	0
Corn earworm	32

September 26 - October 3

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.