

KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • WEED SCIENCE

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ANNOUNCEMENTS

- Continuing education opportunities
- Pesticide License Renewal

TOBACCO

- Root problems decrease tobacco plant's tolerance to drought

LAWN & TURF

- Recent results with fungicides for controlling gray leaf spot of perennial ryegrass

SHADE TREES & ORNAMENTALS

- Mistletoe, a parasite of hardwood trees

HOUSEHOLD

- There's a hole in my sweater!

PESTICIDE NEWS AND VIEWS

- Common pesticide infractions

DIAGNOSTIC LAB-HIGHLIGHTS

ANNOUNCEMENTS

CONTINUING EDUCATION OPPORTUNITIES

December 9 - 10, Executive Inn, Owensboro

Kentuckiana Crop Production Seminar - 6 total credits (4 general, 2 specific) for Categories 1A- Ag Plant Pest Control, 10- Demonstration and Research, and 12 - Pesticide Sales Agent. For details contact Tod Griffin, KFACA, (502) 226-1122 or tgriffin@kyretail.com

December 17 - Winter Crop Pest Seminar - **Christian County Extension Office**, Hopkinsville. 9 am - 2:45 pm. Continuing education credit hours applied for in Categories 1A- Ag Plant Pest Control, 10- Demonstration and Research, and 12 - Pesticide Sales Agent. **No Certification Testing**

PESTICIDE LICENSE RENEWAL

By Ken Franks, Ag Branch Manager
Division of Pesticide Regulation,
Kentucky Department of Agriculture

Once again, license renewal time is coming up. The Kentucky Department of Agriculture's Division of Pesticide Regulation has made changes to the new system, and should be ready to renew licenses in record time.

There are a few things all license holders should know. All renewal forms must be signed and returned to this office with the appropriate fees attached. Any renewal forms not returned by March 1 will be assessed a 25 percent late

penalty. Any form returned later than June 1 will not be renewed. Instead, that person will be required to take the licensing examination again and to start as a new applicant. These requirements are not negotiable.

Last year, some problems were experienced with non-commercial license holders not returning their renewals. These individuals included employees of government, golf courses, public utilities and universities. These licenses are free, but the license holder must still sign and return the form.

My staff will be processing renewals in the order they come into our office. If corrections to your renewal are needed, there is space on the right side of the form to do so. Please be sure to write your information legibly. If you need to talk to someone regarding your renewal, please call (502) 564-7274 and ask for Shelley. Have your company number ready when you call. This will greatly speed up the process.

TOBACCO

ROOT PROBLEMS DECREASE TOBACCO PLANT'S TOLERANCE TO DROUGHT by William Nesmith

" This can't all be black shank and it can't all be drought. What could be going on here?" This is an example of the type of questions I have been receiving this fall.

Now that many growers have much of their tobacco crop ready for market and the yields per planted acre are coming in lower than anticipated, several have begun to call about problems experienced the past season. Questions often

relate to the extremes in field to field variation that drought and disease had on their crops. For example, the above question came from a central Kentucky grower that had adjacent fields, planted the same day with Tn 90 from the same greenhouse, yet one averaged 2580 lbs/acre and the other 1160 lbs/acre (about 20% of this field was lost to black shank). Both fields had received appropriate fertilization based on soil tests but no irrigation, except in the transplant water.

As we address these types of concerns and issues, it is important that we realize the following about drought and soilborne diseases. Although drought was a major factor in the low yields in 2002, limited moisture was NOT the only important factor causing reduced yields. Infectious diseases, particularly root diseases, also contributed significantly, especially in tobacco fields without adequate rotation. On the farm mentioned above, the higher-yield field was in the second year of tobacco following sod, while the lower-yield field was five years of continuous tobacco.

A key factor in 2002 was that root diseases developed early during the wet weather, leaving the plants much less able to tolerate the summer drought. The larger the population of pathogens in the field (high populations usually a result of inadequate rotation) the greater the potential for these root diseases to develop. Black shank was the most dominating disease. However, based on our findings, it was usually operating in a complex with other soilborne diseases and disorders (including Pythium root/stalk rot, Rhizoctonia root rot/Soreshin, black root rot/stem rot, Fusarium wilt/stem rot, blackleg/hollow stalk, root-knot nematodes, flooded soil syndrome, and frenching). Often, black shank was “finishing-off” plants weakened by other diseases - acting much like a “lion” stealing others “kill”.

The root health disorders and diseases often started during transplant production, but in other cases healthy transplants sustained root damage during the cold, wet conditions that developed during and shortly after transplanting. Plants in this hostile root environment with abundant pathogens about were easily colonized by a number of root and stem invaders that left them poorly fit to tolerate the drought, or killed them directly.

In many of the cases we investigated, it appeared that the weaker pathogens such as Pythium, Rhizoctonia, and Fusarium had invaded flood-damaged roots and lower stems associated with the initial root ball. With the improved growing conditions of June, although colonized by these weak pathogens, the plants had begun to outgrow them by forming roots on the stem above the colonized area. In the example case, the grower indicated the higher yielding field experienced better initial growth during the wet weather while the poor field just sat there, then began to grow slowly. Had timely rains continued the losses would have been less, because the plants would have been

able to function with fewer roots with timely moisture.

However, black shank was able to use these old infection centers as invasion site. This is an important point, because most of the black shank resistance is in the roots, while the stems of resistant varieties are highly susceptible to black shank (especially race 1). Moreover, that invasion site was at the base of the stem rather than on a lateral root, so the pathogen had established a “strangle hold”.

Managing tobacco to reduce root diseases is an important step in tobacco production, that becomes even more critical in drought years.

LAWN & TURF

RECENT RESULTS WITH FUNGICIDES FOR CONTROLLING GRAY LEAF SPOT OF PERENNIAL RYEGRASS

by Paul Vincelli

Because of the high susceptibility of current cultivars of perennial ryegrass, fungicides are required for maintaining this turfgrass during conditions favorable for gray leaf spot. We tested fungicides as solo products and as tank-mixes on two sites in Lexington during the 2002 season, the Griffin Gate Golf Resort and The UK Turf Research Center. The former was one of the first sites in the U.S. with strains of *Pyricularia grisea* resistant to Q_oI (=strobilurin) fungicides like Heritage and Compass. Q_oI-resistant strains are now present at the latter site, as well.

Selected results from those tests are presented below and in Table 1.

1. Thiophanate methyl (Cleary's 3336 50WP at 6 oz) continued to provide excellent control under rather high disease pressure.

2. Heritage 50WG failed to provide disease control, consistent with the confirmation (thanks to Yun-Sik Kim and Mark Farman, both of UK) of Q_oI-resistant strains at this site.

3. The combination of mancozeb plus chlorothalonil (Fore Rainshield NT 80WP at 4-8 oz plus Daconil Ultrex 82.5WDG at 3.2 oz) worked well to control the Q_oI-resistant strains. This combination needs more testing, but an advantage of it is that there is no significant risk of resistance to either of these fungicides. I am concerned that *P. grisea* strains resistant to thiophanate methyl will develop soon, too, and then the arsenal of choices will become significantly limited for golf courses with strains resistant to both the Q_oI fungicides and thiophanate-methyl. This work is being done in anticipation of that unfortunate possibility.

4. Tank-mixes of propiconazole plus chlorothalonil from different manufacturers did not perform equally. Compare the combination of Banner MAXX plus Daconil Ultrex to PropiMax plus Echo 720. Both active ingredients were at equivalent rates in both treatments, so the significant difference in disease control apparently is due to formulation differences. Although many times formulations among manufacturers behave similarly, this is a case where they did not. We did not include treatments that would allow us to determine whether the loss of disease control was due to the PropiMax component or the Echo

component.

5. Polyoxin D (Endorse 2.5WP) provided no meaningful control of gray leaf spot. This is the second year in a row where we have obtained this result. Although Endorse is an excellent brown patch material, I would not recommend its use against gray leaf spot.

Table 1. Selected Results From a Fungicide Trial on Gray Leaf Spot of Perennial Ryegrass During 2002 (UK Turf Center).

Treatment and rate/1000 sq ft	Spray	<u>%plot affected by gray leaf spot¹</u>
	Interval (wk)	
Water.....	1-2	13-Sep 55.7 a
Cleary's 3336 50WP 6 oz.....	2	1.7 ijk
Heritage 50WG 0.4 oz.....	3	41.7 a-d
Fore Rainshield NT 80WP 8 oz.....	2	
+ Daconil Ultrex 82.5WDG 3.2 oz.....	2	3.3 ijk
Fore Rainshield NT 80WP 4 oz.....	2	
+ Daconil Ultrex 82.5WDG 3.2 oz.....	2	4.7 ijk
Fore Rainshield NT 80WP 4 oz.....	2	
+ Daconil Ultrex 82.5WDG 1.7 oz.....	2	14.3 e-g
Banner MAXX 1.24MEC 1 fl oz	2	
+ Daconil Ultrex 82.5WDG 3.2 oz.....	2	1.7 k
PropiMax 41.8%EC 0.36 fl oz.....	3	
+ Echo 720 6F 3.52 fl oz.....	3	26.7 c-g
Endorse 2.5WP 6 oz.....	2	30.0 a-f
Endorse 2.5WP 4 oz.....	2	36.7 a-f

¹ Means within the same column followed by the same letter are not significantly different, Waller-Duncan k-ratio t-test ($k = 100$, $P=0.05$). For data on percent plot affected, arithmetic means are presented with statistical groupings based on arcsine square root transformed statistics.

SHADE TREES & ORNAMENTALS

MISTLETOE, A PARASITE OF HARDWOOD TREES

by John Hartman

Mistletoe plants, the same small leafy plants used during the holidays, grow in the branches of trees and are becoming more visible in many urban and rural Kentucky landscapes. In some areas, mistletoe is becoming a common parasite of several different species of hardwood trees. One species of American mistletoe is called *Phoradendron serotinum*, meaning tree thief, referring to its parasitic nature. There are many legends associated with mistletoe and the plant is commonly used in Christmas decorations. Ancient people were fascinated with the fact that the mistletoe remains green in winter while its deciduous tree hosts lose their leaves.

Where mistletoe is found. The true or leafy mistletoes (*Phoradendron* spp.) are most frequently associated with hardwoods growing in the southern two-thirds of the United States, generally below 40 degrees latitude. Northward extension is probably limited by winter cold temperatures. In Kentucky, we commonly see mistletoe proliferation on ash, cherry, elm, hackberry, hickory, maple, oak, sycamore, tuliptree, walnut, and many other species. The extent of mistletoe parasitism appears to wax and wane over the years. Following a cold winter with sub-normal temperatures, the mistletoe dies back, but whether foliage is killed by cold weather or is harvested, the plant grows back in a few years. With recent mild winters, these parasitic plants are making a comeback.

Effect of mistletoe on host trees. Mistletoe makes much of its own food, but its parasitism causes atrophy of the branch distal to the infections, sometimes inducing galls, swellings or witches brooms at the point of attachment. Mistletoe

seeds are spread by birds which feed on the berries. The seeds germinate on young smooth-barked tree branches where they germinate and penetrate the host. Mistletoe plants will tend to cluster where birds have been roosting. Mistletoe plants grow on twigs and branches of their host, extracting water, mineral elements, and some food from the tree by way of a parasite nutrient-uptake organ. The osmotic pressure of mistletoe is higher than the host tree. Thus, the parasite gets the water first and continues to respire even if the host tree is stressed. Mistletoes are most harmful to the tree during times of stress, and although they may not be too damaging in the wild, they would harm trees growing in the already stressful urban environment. They can be controlled by pruning, if necessary.

HOUSEHOLD

THERE'S A HOLE IN MY SWEATER!

by Mike Potter

This is the time of year when clients begin calling about 'bugs' infesting clothing and other fabrics unpacked from storage. These are probably clothes moths or carpet beetles. Besides damaging fabric, these insects will feed on any item composed of animal fibers, e.g., wool, fur, silk, feathers, felt or leather. Items commonly infested include wool sweaters, coats, blankets, carpets, down pillows and comforters, upholstered furniture, toys and animal trophies. Cotton and synthetic fabrics, such as polyester and rayon, are rarely attacked unless blended with wool, or if they are heavily soiled with food stains or body oils. Serious infestations of clothes moths and carpet beetles can develop undetected inside a home, often causing irreparable damage to clothing, bedding, rugs, and other articles.

THE CULPRITS

Carpet beetles - Carpet beetles are quite common in buildings, and can infest many items in addition to fabrics. Larvae are about 1/8 to 1/4-inch long, tan to brownish in color, and *densely covered with hairs or bristles*. This is the life stage likely to be encountered now, since only the larvae feed on fabrics and cause damage. Oftentimes, only the shed (molted) skins of the larvae are present on the damaged item. Adult carpet beetles feed primarily on flowers and are usually discovered indoors during the springtime. The adult beetles are small (1/16 to 1/8-inch) and oval-shaped, ranging in color from black- to various patterns of white, brown, yellow and orange. Large numbers may be spotted around light fixtures and windows, indicating that an infestation is present somewhere within the home.

Clothes moths- Clothes moths are small, 1/2-inch, buff-colored moths with narrow wings fringed with hairs. Like carpet beetles, they damage fabric only in the larval stage. Adult clothes moths are seldom seen because they

avoid light, preferring to hide in dark places such as the backs of closets. *Clients who report seeing tiny moths in the kitchen and other well-lighted areas are probably seeing grain moths originating from stored foods, e.g., cereal, dried fruit, nuts, or pet food.* Clothes moth larvae spin silken feeding tubes or patches of webbing as they move about on the surface of fabrics. They also deposit tiny fecal pellets similar in color to the fabric.

THE SOLUTION

Current infestations- *Controlling an existing fabric pest problem requires diligence and a thorough inspection to locate all infested items and areas of infestation.* The source may be an old woolen scarf at the back of a closet, a fur or felt hat in a box, an unused remnant of wool carpeting, or an abandoned bird or squirrel nest up in the attic. Larvae prefer to feed in dark, undisturbed areas where susceptible items are stored for long periods. Larvae also may be found living beneath the edges of carpeting (use needle-nose pliers to lift the outer edge of the carpet from the tack strip along baseboards), underneath and within upholstered furniture, or inside heat ducts and floor vents where they often feed on accumulations of lint, pet hair and other organic debris. Occasionally, infestations may originate from bird or animal nests or carcasses present in an attic, chimney, or wall void. Carpet beetles, in particular, will also feed on pet food, bird seed, and grain/cereal products associated with the kitchen, basement or garage.

Infested items should be laundered, dry-cleaned or thrown out. Laundering (hot cycle) or dry-cleaning kills any eggs or larvae that may be present. Vacuuming floors, carpets, and inside heating vents effectively removes larvae as well as hair and lint which could support future infestations. Be sure to vacuum along and beneath edges of carpets, along baseboards, underneath furniture and stored items, and inside closets and 'quiet' areas where carpet beetles and clothes moths prefer to feed.

Insecticides applied to infested areas may be helpful as a supplement to good housekeeping. Products containing active ingredients labeled for flea control (e.g., permethrin), or with fabric pests listed on the label are effective. Sprays may be applied to carpets, especially along and beneath edges adjacent to baseboards, underneath furniture, and other likely areas of infestation where prolonged contact with humans is unlikely. **Clothing and bedding should not be sprayed with household insecticides and should be removed before treatment.**

Avoiding future problems- The best way to avoid future problems with fabric pests is through prevention. Woolens and other susceptible fabrics should be dry-cleaned or laundered before being stored for long periods. Cleaning

kills any eggs or larvae that may be present and also removes perspiration odors that tend to attract pests. Articles to be stored should then be packed in tight-fitting containers. Customers choosing to use moth balls or flakes should be encouraged to read and follow label directions. The vapors from these materials are only effective if maintained at sufficient concentrations. Effective concentrations can best be achieved by sealing susceptible items (with the manufacturers' recommended dosage of moth crystals) in large plastic bags, and then storing the bagged articles in tight-fitting trunks, boxes or chests. Contrary to popular belief, cedar closets or chests are seldom effective by themselves because the seal is insufficient to maintain lethal or repellent concentrations of the volatile oil of cedar.

Conventional household insecticides should not be used to treat clothing; however, mothproofing solutions may be applied to susceptible clothing by professional dry cleaners. Valuable garments such as furs can be protected from these pests by storing them in cold vaults — a service offered by some furriers and department stores.

Additional tips on fabric pest prevention, control, and repair of damaged items can be found in the publication IP-50, *Fabric Insect Pests*. Elimination of widespread, persistent infestations of carpet beetles and clothes moths in a home or business may require the services of a professional pest control firm.

PESTICIDE NEWS AND VIEWS

COMMON PESTICIDE INFRACTIONS

By Lee Townsend

Listed below are common infractions of pesticide laws as found by inspectors in one EPA region. I suspect that many of these could be on a list from Kentucky, as well. The list provides some good points to consider because it serves as a reminder of some of the simple things that can be overlooked. The points are valid for both private and commercial applicators.

Invalid business or applicator license. In Kentucky, all commercial certifications expire on December 31 of the final year. Commercial applicators need to earn 12 hours of continuing education credit (9 general hrs + 3 category specific hrs) during the 3-year certification period. Lists of approved training meetings are published in this newsletter or are available on the Pesticide Safety Education web site which may be reached through a link on the KPN page - see top of page 1) Private applicator certification is also good for 3 years and is renewed by attending a training session at the county extension office to become certified again. Do you know where your card is? If so, check the expiration date. If not, well ...

Label violations. Use a product on plants [or sites] no longer supported by the label or not following label instructions. Labels for many established pesticides have changed drastically over the past few years as a result of the EPA's reregistration program. Consequently, many uses for products, such as diazinon and malathion, have been eliminated. Some applicators may continue to buy and use products on plants [sites] that are no longer on the label. Reading the label before purchase and use is imperative.

Impropermixing. Read compatibility statements and other directions carefully. Problems here can be due to prohibited tank mixes that cause interactions. Now, there can be plant reactions from combinations of certain classes of pesticides that are applied days, or even weeks, apart.

Failure to survey the site before applying a pesticide. This can range from overlooking or forgetting a sinkhole in a field to accidental spraying of the pet's water bowl or children's toys by a lawn care applicator.

Poor preparation for spills or other emergencies. How many application rigs carry some soap, water, disposable towels, and an eyewash kit? Worker Protection Standards now are very specific about providing decontamination materials. Applicators should be familiar with how to handle spills of the pesticides they are transporting or applying.

Drift complaints. Particle and/or vapor drift can result in off-target movement of a pesticide. Knowledge of product characteristics and attention to environmental conditions such as wind speeds or inversions will reduce the potential for problems. Be aware of sensitive nearby crops or plants.

Incomplete or missing records. Private and commercial applicators must keep appropriate records of pesticide applications.

Spray tank not properly cleaned; applicator not familiar with tank's history. This can lead to crop damage or illegal residues. Purchase of used spray equipment should include determining the types of products that had been applied by the previous owner. Solvents in some EC formulations can serve as "tank cleaners". This can result in inadvertent crop injury by the new owner.

Applicator makes erroneous product safety claims. While there could be cases of "overselling" a product, lack of familiarity with the label may be a major reason for unrealistic claims. Read beyond just the crop and rate information. Look critically for cautions or warnings, such as crop or variety sensitivity or effects of specific weather conditions on applications or product efficacy.

Failure to use required personal protective equipment.

Requirements are spelled out now and may even require specific types of gloves or spray suits. Use quality equipment and keep it clean and functional. Replace it as needed.

Attaining familiarity with product labels, technical bulletins, state and federal laws, and Material Safety Data Sheets, along with attention to details are keys to avoiding common pitfalls associated with pesticide applications.

DIAGNOSTIC LAB HIGHLIGHTS

by Julie Beale and Paul Bachi

The majority of samples submitted to the Diagnostic Lab recently have been woody ornamentals from landscapes. Symptoms of stress from the summer's drought have been appearing on many deciduous and evergreen trees and shrubs. In addition, we have received greenhouse samples, including poinsettia with Pythium root rot and bacterial stem rot (*Erwinia*) and pansy with Pythium root rot, Botrytis blight and *Cercospora* leaf spot. We continue to see a few samples of tobacco with mold on the curing leaf and soybean with charcoal rot in stems and purple seed stain (*Cercospora*) in seeds.

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.