



KENTUCKY PEST NEWS

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ANNOUNCEMENT

- **Problem trees and tree problems - how to improve your diagnostic skills**

ALFALFA

- **Beetles in hay**
- **Potato leafhopper season**

WHEAT

- **Take-all disease more active than usual**
- **Preparing to store wheat**

CORN

- **Black bugs and red and black bugs**

FRUIT

- **Codling moth activity continues**

VEGETABLES

- **Squash vine borer moths active**
- **Earwigs**

LAWN & TURF

- **Slime molds: return of *The Blob***
- **Bayleton 50 receives label for gray leaf spot**

SHADE TREES & ORNAMENTALS

- **Scab has nearly defoliated susceptible crabapples**
- **Dogwood diseases are appearing**

INSECT TRAP COUNTS

ANNOUNCEMENT

PROBLEM TREES AND TREE PROBLEMS - HOW TO IMPROVE YOUR DIAGNOSTIC SKILLS

by John Hartman

Arborists, landscape managers, County Extension Agents, and others working in the Kentucky landscape industry can improve their skills in dealing with problem plants and plant problems in the landscape. On Friday June 9, landscape industry professionals and Cooperative Extension Agents will have an opportunity to attend one of two workshops that will address tree problems or problem trees.

Hazard Tree Workshop in Bowling Green June 9, 8:00 a.m. to 4:30 p.m CDT.

Why a hazard tree workshop? Landscape professionals can sometimes be held liable for failing to recognize or take action on hazard trees in the landscape of their clients. The purpose of this workshop is to aid professional arborists and landscape managers in predicting which trees have an increased risk of falling and causing damage to property and life. The workshop, which includes field exercises covers such topics as diagnostic tools,

tree, target, and site characteristics, disease defects, hazard ratings, legal ramifications, wood strength loss, and mitigating hazards. This hands-on short course is designed for both beginning and experienced professionals.

Additional information/questions. Contact Dr. Bill Fountain, U.K. Department of Horticulture by telephone (859) 257-3320, by fax (859) 257-2859, or by e-mail wfountain@ca.uky.edu. A registration fee which covers lunch and workshop supplies will be charged and enrollment is limited, so contact Dr. Fountain immediately. The workshop is jointly sponsored by the Kentucky Cooperative Extension Service, International Society of Arboriculture, and Kentucky Arborists Association and will be held at Basil-Griffin Park in Bowling Green.

Plant Diagnostic Workshop in Boone County June 9, 10:00 a.m. to 4:00 p.m.

Diagnose disease and insect problems of woody plants. This is a chance for landscape professionals and Extension personnel to brush up on their plant problem diagnostic skills. The 32nd Plant Diagnostic Workshop will involve landscape professionals and Cooperative Extension Agents from Kentucky, Ohio, and Indiana. The workshop begins at the Boone

County Extension Office and will feature sessions on disease and insect-caused galls of landscape plants and plant disease and insect updates followed by field observations at the Boone County Arboretum.

Additional information/questions. There will be a registration fee of \$10 to cover lunch and supplies. For more information and directions to the workshop, contact Mike Klahr, Boone County Extension Agent for Horticulture by telephone (859) 586-6101, fax (859) 586-6107, or by e-mail mklahr@ca.uky.edu.

ALFALFA

BEETLES IN HAY **By Lee Townsend**

The presence of beetles in hay usually triggers an alarm over the potential for blister beetle problems. This was the case when a large number of live beetles was found in recently-purchased hay. In this case, the elongate, dark brown to black insects were mealworm beetles. The wireworm-like larvae of these insects are commonly sold as fish bait. The adults are harmless and non-toxic. There is no practical way to get them out of hay and no reason to make an attempt.

Mealworm adults and larvae feed on fines and broken seeds. They can build up in large numbers when mixed hay is stored for long periods of time or may enter hay from nearby breeding sites in feed storage areas. There is no health threat if they are eaten with the hay.

See ENTFACT 102 for information on blister beetles in alfalfa. These insects are active from mid-July through August.

POTATO LEAFHOPPER SEASON **By Lee Townsend**

In Kentucky, potato leafhopper populations increase rapidly between mid-June and early July. The next 2 to 3 weeks will be the time to concentrate on leafhopper populations. Generally, they drop to very low levels and do not recover after the July cutting.

Because of their small size, sampling fields with a 15" diameter sweep net is the only way to reliably assess leafhopper numbers. After the fact need for treatment will be apparent if "hopperburn" shows up but by that time the quality loss has occurred. More information is available in Entfact 115.

WHEAT

TAKE-ALL DISEASE MORE ACTIVE THAN USUAL **by Don Hershman**

Based upon my observations, as well as the comments of farmers, consultants and agricultural extension agents, take-all disease has been more extensive than usual this spring.

Take all disease, caused by the soil-borne fungus *Gaeumannomyces graminis* var *tritici*, is a root, and crown rot disease which results in premature plant death and total grain loss in most cases. When infection occurs early in the fall, plants may look unthrifty as early as crop green-up in March and die prior to head emergence in late April or early May. In cases where plants are infected during the period late fall through early spring, plants will look normal throughout most of the spring, but once the heads begin to emerge, plants will begin to die. Often a "white head" symptom is the only initial indication that plants have a problem. As the season progresses, however, plants begin to die prematurely. Any grain formed at all in "white heads" will be extremely shriveled and will blow out the back of the combine during harvest. Diseased plants can be easily pulled out of the ground. Also, diseased plants usually have a characteristic shiny, black discoloration at and just above the soil line. This symptom is a key diagnostic feature for take-all.

Take-all occurs in groups of plants and is evident as circular patches of dead plants of varying sizes. However, the incidence of the disease may range from a single plant to an entire field, depending on the levels of the pathogen in soil and on soil conditions. All varieties of wheat are susceptible to take-all disease.

The extended period of mild conditions this past fall and winter is probably the main reason for greater than normal take-all this spring. Dry summer conditions in 1999 also allowed large amounts of wheat and barley residue to remain intact in many fields. This situation may have provided for more successful pathogen overwintering, and subsequently higher levels of the fungus in the fall when wheat crops were being established. The large crop of volunteer wheat in many soybean and some corn fields last summer, due to the drought of 1999, may have also contributed to take-all problems this spring. The take-all fungus does not survive well apart from a host crop and its residue. And

populations of the fungus drop rapidly once infested crop residues deteriorate sufficiently. In fact, a single year away from wheat or other grass crops (e.g., barley, rye, etc) coupled with good grassy weed control, is usually sufficient to manage a moderate to light take-all problem. Two years may be required in some situations. Corn is reported to maintain populations of the take-all pathogen, but it cannot be a very good host or we have be wiped out with take-all annually. I say this because most of the wheat grown in this state is produced after corn and take-all is not usually a serious problem. Although several cultural practices do have an effect on take-all incidence and severity, the bottom line as far as take all management is concerned is crop rotation and grassy weed control.

As a footnote, the take-all fungus is not seed-transmitted. Thus, any grain harvested from fields with some take-all will not be responsible for spreading the causal fungus into new fields.

PREPARING TO STORE WHEAT **by Doug Johnson**

Thorough sanitation is the foundation upon which a sound stored grain insect management program must be built. In many cases, severe infestations in grain bins develop from small numbers of pests that are able to exist in grain handling equipment or in and around the storage facilities. A thorough preharvest sanitation program can reduce or eliminate these sources. The consequences of not cleaning up these infestations may not be seen until later in the storage cycle after the insect population increases. The economic effects of poor prebinning sanitation may include kernel destruction, commodity contamination, moisture and temperature problems resulting from the insect's metabolic processes, or structural damage to the bin due to heat and moisture buildup.

Insect harborage sites may be classified as internal and external with reference to the bin facilities. Internal harborage sites include grain residues on the bin floor, accumulations of grain clinging to bin walls, and the fines and kernels which build up beneath the bin floor and in the duct work of the drying system. The obvious, visible accumulations in the bin should be cleaned thoroughly when the bin is emptied. Accumulations beneath perforated floors must not be overlooked. Often, floor construction makes thorough cleaning difficult and the use of vacuum hoses is helpful. Treatment of the floor void area with a fumigant may have to substitute for cleaning in

some situations. Use of long handled brooms and shovels may be sufficient to clean out the bin area itself. Very thorough cleaning is necessary to reduce the likelihood of infestation. Properly dispose of grain and debris collected in the cleaning process.

External harborage sites include anywhere around the bin that can contain small numbers of stored grain insect pests. Spillage near the auger, grain residues in harvesting equipment and structures used to store animal feed are potential pest sources. Auger pits are particularly important sources of infestation. These areas must be watched carefully and kept clean. A comparatively small amount of spilled grain can provide enough insects to produce a serious infestation in stored grain.

Once the bins and handling equipment are as clean as possible, you may want to consider spraying the inside surfaces of the bins with an approved insecticide. Although this may help, it will NOT cover for a poorly cleaned bin. Additionally, insecticide protectants are available for coating the grain as it is put into the bins. However, because of the time of year that wheat is harvested these protectants are of limited use. The heat inside a bin during the summer will cause these protectants to break down very rapidly. Information on these insecticides may be found in *Insecticide Recommendations for Small Grains* - ENT-47. You can get a copy at your county extension office or on the web at:

http://www.uky.edu/Agriculture/PAT/2000rec/rec_home.htm

The best storage strategy is to store clean, sound grain of about 12.5% moisture in clean dry bins.

CORN - SOYBEANS

BLACK AND RED AND BLACK BUGS **By Lee Townsend**

Burrower bugs are 1/8 to 1/4 inch long insects with sucking mouthparts. The adults are black with a thin gray line around the edge of the body. The smaller nymphs, or immatures, are red and black. Both stages can be seen crawling over and under the soil and surface residue or accumulating in cracks in the soil surface. Burrower bugs can be abundant in and around no-till soybean and corn fields, as well as gardens and lawns. The species uses its sucking mouthparts to feed on sap from the roots of a wide variety of plants.

There is no indication that burrowing bugs cause any injury to crops but densities of several dozen of these bright insects per square foot have raised the concern of farmers, dealers, and commercial applicators. In some cases, migrating burrowing bugs have covered the sides of buildings. There is no need for an insecticide application.

FRUIT

CODLING MOTH ACTIVITY CONTINUES by Ric Bessin

Apple producers need to maintain codling moth pheromone trapping as codling moth activity continues. While it is early for second generation in some parts of the state, second generation has begun to emerge in other parts of the state. I recommend that producers change the pheromone lures in their traps monthly. It is convenient to change the lure at the first of every month. When trap catches exceed five moths per trap per week, then growers need to accumulate degree days until the 250 DD total is reached. At that point an insecticide can be applied for codling moth control.

VEGETABLES

SQUASH VINE BORER MOTHS ACTIVE by Ric Bessin

Squash vine borer moths are active in squash and producers will need to protect plantings of winter squash, gourds, and pumpkins. The damage symptom is the sudden wilting of long runners or an entire plant. Infested vines usually die beyond the point of attack. Sawdust-like frass near the base of the plant is the best evidence of squash vine borer activity. Careful examination will uncover yellow-brown excrement pushed out through holes in the side of the stem at the point of wilting. If the stem is split open, one to several borers are usually present. The caterpillars reach a length of 1 inch and has a brown head and a cream-colored body. Winter squash, particularly 'Hubbard', are most susceptible to damage while 'Butternut' is somewhat resistant.

The key to squash vine borer management is controlling the borers before they enter the stem. Once inside the vine, insecticidal control is ineffective. Poor timing of sprays is the usual cause of inadequate control. Monitor plants weekly through August for initial signs of the borer's frass at entrance holes in the stems. Very early signs of larval feeding

indicate that other eggs will be hatching soon. Use two to three insecticide applications, 7 days apart, to control newly hatching larvae and continue to monitor for additional activity. Sprays need to penetrate the canopy to cover the vines to be effective.

Home gardeners may have some success with deworming the vines. At the first signs of the sawdust-like frass, vines are slit lengthwise near where the damage is found and the borers removed. The stems should be immediately covered with earth. Sanitation is also important. After harvest is complete, vines should be removed from the garden and composted to prevent the remaining borers from completing larval development. Burying a few nodes along each vine will encourage rooting at these nodes. This will lessen the impact if squash vine borers girdle the base of the vine.

EARWIGS By Lee Townsend

Earwigs are distinctive insects that are easy to identify by the pincer-like tails on the end of their bodies. They have an intimidating appearance and can produce a foul odor but are mostly just an annoyance to homeowners and gardeners. Earwigs can pinch slightly with their forceps but cannot harm people or animals. In some cases, they can become accidental invaders in homes and buildings.

Earwigs thrive in narrow crevices in shady, moist places such as foundation plantings, mulched areas, compost piles, and accumulations of trash, boards or wood. They usually congregate under objects on the ground or stacked against walls during the day and are active at night. Earwigs are attracted to lights and will enter buildings where they feed on sweet, oily or greasy foods or houseplants. They can run very fast but migrate only short distances. Large numbers of them can be attracted to lights at night.

Earwigs will eat most anything, including plants, small insects, and decaying organic matter. They can seriously damage flowers, vegetables, fruits and other plants, as they chew small, irregular holes in the leaves.

The first step in control involves eliminating as many outdoor hiding spots and breeding sites as possible. Eliminate damp, moist conditions in crawlspaces, around outdoor faucets, and air-conditioning units. Be sure that downspouts carry water away from the foundation. Use caulking compound, putty and weather stripping around doors, windows, pipes and

other entry sites, especially at the ground level. Create a clean, dry border immediately around the foundation wall.

Accumulations of earwigs can be killed by direct application of Insecticidal Soap but there is no residual activity from this product. Barrier applications of insecticides (3' to 10' wide around foundations) with insecticides such as diazinon, Dursban (chlorpyrifos), Sevin, or Tempo can be used to treat infested areas. Treat during late spring and summer to control young earwigs. This will slow the population buildup.

Earwigs can be trapped outdoors in cardboard boxes baited with oatmeal or bran with pencil hole size entry sites punched in the sides near the bottom. Place boards, newspapers or other cover in mulch, shrubbery and similar habitats to collect individuals the following day. These can be physically destroyed.

Where earwigs are regular household invaders, use any of the insecticides labeled for indoor application against cockroaches to reduce their numbers until outdoor control has been accomplished.

LAWN & TURF

SLIME MOLDS: RETURN OF *THE BLOB*

by Paul Vincelli

Slime molds have been common in the last few weeks in the lawn and landscape as well as other settings. Slime molds are fungal-like organisms that live in thatch, mulch, and the upper layer of soil. Their body (called a "plasmodium") is an "amoeboid" mass of protoplasm that creeps along unseen most of the time, much like *The Blob* of science fiction movies but on a smaller scale. The plasmodium feeds on bits of decaying organic matter and on microorganisms present in their environment. Thus, slime molds are not parasites of plants.

When the plasmodium is triggered to sporulate, it creeps into some position where it is exposed to light and air movement--such as on the surface of mulch, on tips of grass leaf blades, or on branches in contact with the soil. There, the plasmodium turns itself entirely into crusty structures of spore-bearing bodies, many of which can be best appreciated with a hand lense. The fruiting structures are commonly cream-colored, yellow, or gray, but they may be variously colored, depending on the species of slime mold present. The microscopic spores are spread by wind and rain to new locations, where they can form

a new plasmodium.

The fruiting structures of slime molds may be easily removed from plant surfaces. Rubbing, lightly sweeping, or spraying with a hose are easy ways to remove them. As mentioned above, slime molds are not parasitic. No control is necessary for slime molds.

BAYLETON 50 RECEIVES LABEL FOR GRAY LEAF SPOT

by Paul Vincelli

Bayleton 50 (active ingredient *triadimefon*) recently received a supplemental label for turfgrass disease management which includes the addition of gray leaf spot. The label indicates that the product is to be used preventively only, at rates of 0.5 to 1.0 oz/1000 sq ft on a 14-day schedule. The label also indicates that Bayleton 50 should be tank-mixed with a registered contact fungicide at label rate if using the 0.5 oz rate or under conditions favoring moderate to heavy disease pressure.

In general, the DMI fungicides have provided only moderate control of gray leaf spot when used by themselves under high disease pressure. They are best used in a tank-mix with another product. Chlorothalonil (the active ingredient in Daconil Ultrex and related compounds) is a common mixing partner. The efficacy of Bayleton against gray leaf spot has been tested numerous times in recent years, although relatively few tests have conducted with Bayleton 50 applied according to the now-labeled usage.

Based on my review of the data available to me at this time, I would consider the tank-mix of Bayleton 50 at 1 oz plus chlorothalonil to be about equivalent to the tank-mix of Banner MAXX at 1 fl oz plus chlorothalonil (at the same rate of chlorothalonil, of course). Neither tank-mix would be in the "top tier" for high disease pressure (see table). For us in Kentucky, the period of greatest disease risk is from early August through at least Labor Day. However, either tank-mix is probably a very good choice for use in mid- to late-July to protect against early disease activity, and possibly again in September or later, as disease pressure winds down on established swards.

More information on spray programs for gray leaf spot control can be found in the 1 May 00 issue of *Kentucky Pest News*. Readers located in regions where perennial ryegrass is used in residential lawns should be aware that chlorothalonil is no longer labeled for use in those sites.

GRAY LEAF SPOT ON PERENNIAL RYEGRASS, 1999¹

Treatment and rate per 100 sq. ft water	Interval (wk)	% plot affected by GLS ²			# reps w/ 3% dead 24-Aug ³
		20 Aug	24-Aug	2 Sep	
Water	1	37 a-d	42 a	38 ab	3
Daconil Ultrex 82.5WDG 3.67 oz.	1	17 f-k	21 c-h	14 f-i	3
Bayleton 50WP 0.5 oz + Daconil Ultrex 82.5WDG 3.67 oz.	2	25 b-g	23 b-h	14.3 f-i	3
Bayleton 50WP 1 oz + Daconil Ultrex 82.5WDG 3.67 oz.	2	11 h-n	15 g-j	6 i-p	2
Banner MAXX 1.24 MEC 1 fl. oz. + Daconil Ultrex 82.5WDG 3.67 oz.	2	12 h-l	16 f-j	7 i-n	2
Spectro 90WDG 8 oz.	2	4 mno	4 l	0 r	0

¹Abstracted from a report in Volume 55 of *Fungicide and Nematicide Tests*.

²Means for a given assessment date followed by the same letter are not significantly different, Waller-Duncan K-ratio t-test (k=100, p=0.05).

³Represents the number of replicates (of three replicate plots) with at least 3% of plot surface with dead tillers.

SHADE TREES & ORNAMENTALS

SCAB HAS NEARLY DEFOLIATED SUSCEPTIBLE CRABAPPLES

by John Hartman

Scab symptoms. This common fungal disease is a serious problem in Kentucky on many flowering crabapple varieties, causing spotting of the leaves, premature defoliation, and unsightly corky spots on the fruit. Spots on the new leaves appear olive-colored and velvety. Later, the infections appear as olive-green or brown circular spots, with raised or puckered leaf tissue underneath. Scab spots may appear on leaves anywhere on the tree. Typical fruit lesions are distinct, almost circular, rough-surfaced, olive-green spots, which later turn brown to black. When severe infections take place, the leaves yellow and the tree may lose almost all its leaves by midsummer. This year, because of lengthy leaf wetness periods this spring, defoliation is occurring even earlier than usual.

Scab life cycle. The apple scab fungus, *Venturia inaequalis*, overwinters in old, infected, fallen leaves. In spring, the fungus produces spores which land on crabapple foliage or fruit and infect the plant if the tissue surface is wet for several hours. The fungal infection results in leaf lesions, where more spores are produced to begin additional cycles of infection throughout the growing season. Secondary infection

may also occur from spores produced on scab lesions found on the twig growth of extremely susceptible crabapples such as *Malus* 'Almey,' *M.* 'Hopa,' and *M. x purpurea* 'Eleyi.'

Control. Use scab-resistant varieties in new plantings. Cultivars such as 'Harvest Gold,' 'Louisa,' 'Mary Potter,' and 'Prairiefire' are good choices. Scab infection on established trees may be prevented by three to five applications of fungicides at 10 to 14 day intervals starting as soon as bud growth appears and continuing until mid June. Scab is most severe during wet growing seasons, so fungicide applications can be adjusted to weather conditions.

DOGWOOD DISEASES ARE APPEARING
by John Hartman

Dogwood anthracnose. The fungus *Discula destructiva*, cause of dogwood anthracnose has been active in some eastern Kentucky dogwood plantings this spring. Specimens with dead shoot tips, dead leaves hanging from infected twigs, dead twigs, and dead leaf blotches have been observed in the Plant Disease Diagnostic Laboratory this week and also on recent field trips. Dogwood anthracnose is most likely to occur in moist, heavily shaded landscapes.

Powdery mildew. Powdery mildew symptoms and signs are beginning to appear on landscape dogwoods in central Kentucky. The powdery mildew fungus

(*Microspheera* spp. and/or *Phyllactinia* spp.) is active all summer and the foliage of infected dogwood trees will gradually deteriorate. Humid weather favors powdery mildew. Because humidity levels were low much of last summer due to the drought, less dogwood powdery mildew was observed last year. If valuable specimens are to be protected with fungicides, applications must begin now. Use Immunox, Banner Maxx, Eagle, Cleary's 3336, Heritage, Cygnus, or Compass for best results.

INSECT TRAP COUNTS

UKREC, Princeton, KY --May 26-June 2, 2000

Black cutworm	1
True armyworm	23
European corn borer	2
Southwestern corn borer	48
Corn earworm	21

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.