



# KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • AGRONOMY

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## ANNOUNCEMENTS

### YEAR-END COMMERCIAL PESTICIDE TRAINING OPPORTUNITIES

The meetings below are convenient opportunities to receive continuing education credit before December 31, 1998. *Note: All meeting schedules are listed in local time.*

Commercial applicators need to attend 2 approved training meetings in 5 years to remain certified. Any questions about the number of meetings needed by an individual should be directed to the Division of Pesticides (502) 564-7274.

**November 4** - Fayette County Extension Office, Lexington. Initial and continuing certification- Categories 1 (ag), 4 (seed treatment), 10 (demo and research), and 12 (pesticide dealer) 8:30 am - noon. Testing for initial certification by Division of Pesticides personnel at 1 pm

and

Categories 2a (forest), 3 (ornamental and turf), 10 (demo and research), and 12 (dealer). 10 am - 2:10 pm. Testing for initial certification by Division of Pesticides personnel at 2:15 pm

**November 9 - 11**-Lexington Convention Center, Kentucky Turf Conference and Trade Show. Category 3. Recertification and testing Contact

Mark Wilson (502) 245-1714.

**November 19** Holiday Inn North- Lexington, Pesticide Recertification Training Course- categories 3 (ornamental and turf), 6 (right- of- way), 10 (demo and research). 1 pm - 4:15 pm. Certification testing at 4:30. Contact Jim Mathews (502) 627-3206.

**November 24** - UK Research and Education Center, Princeton. Same agenda and times as November 4 meeting.

**December 3-** 1998 Professional Horticulture Seminar (Category 3 and 10), IU Southeast Campus, New Albany, IN 9 am - 4 pm. (Approval pending). Contact- Roy Ballard, Floyd Co (IN) CES (812) 948-5470. No certification testing available.

**December 15 and 16-** Kentuckiana Fertilizer and Ag Chemical Meeting, Radisson Hotel, Evansville, IN Categories 1, 10, and 12,

## FORAGES- Alfalfa

### FALL ARMYWORMS STILL A THREAT TO FALL-SEEDED STANDS

**By Lee Townsend**

Fall armyworm larvae of all sizes were abundant on very late planted corn on October. While the first killing frost will take most of them out, they can

damage emerging stands of grasses and alfalfa. Moths lay masses of a few hundred eggs so you will see "patchy" damage in the field. Check brown areas for the larvae, which should be evident on the soil surface. Spot treatments with low rates of insecticide can be applied if necessary. See ENT-17 for recommendations.

## CORN

### GRAIN PRICES MAY AFFECT PEST MANAGEMENT DECISIONS

By Ric Bessin

Low grain prices this fall should be a warning to corn producers that they need to watch their inputs and other costs carefully next year. When the price of grain is low, it requires a greater increase in grain production to offset the costs of inputs than when grain prices are higher. While we need insecticides and other controls to manage insects and to prevent losses, many producers in the past have used these inputs unnecessarily. If there ever was a year to begin using IPM, this next year could be the one!

Basically, there are three primary insect pests against which some producers routinely use preventive controls. They are cutworms, corn rootworms, and the European corn borer. However, for each of these pest there are also scouting methods and economic thresholds available to assist with management decisions. With cutworms and European corn borer, highly effective rescue treatments are available, also.

With corn rootworms, producers who are continuously raising corn on the same field year after year should base their insecticide decisions on adult rootworm beetle counts. These counts are made weekly during the mid summer. If you see beetles frequently as you walk through the field, select 20 plants from several random locations in the center of the field. Make counts on every third or fourth plant until 20 plants are examined. Rootworm beetles fly readily when disturbed so approach plants carefully. If the counts approach or reach an average of 20 beetles per 20 plants (1 per plant) then an insecticide application is advised for rootworm control if the same field is to be planted in corn next year. Keep in mind that the best management option for controlling corn rootworms is crop rotation.

The primary cutworm strategy recommended by UK for most fields is to scout and use rescue treatments. Fields need to be scouted at least twice a week in early spring. Currently, we are using 3% cut plants and 2 or more live cutworms 1 inch or smaller as a guideline for treatment. This is a conservative threshold, undoubtedly many fields can tolerate cutting as high as 5 to 6% without yield loss. Some other states to our north use thresholds as high as 5 to 6%. High or low stand counts can be used to adjust this economic threshold. More cutworm damage can be sustained without economic loss when plant counts are close to 28,000/ac than when counts are less 22,000/ac, as long as there are no long skips in rows.

Many producers use a preventive cutworm treatment based on field history and the presence of factors that can predispose a field to cutworm losses. This strategy is the most conservative and anticipates the potential for cutworm stand loss by using an insecticide before, during or after planting. It reduces risk and saves labor because it does not require the return visits to monitor and the time and expense of having to come back with a rescue treatment.

With corn borers, many producers are using or considering to use Bt-corn hybrids to control both European and southwestern corn borers. Some of these hybrids are very effective, particularly the full season Bt hybrids that contain YieldGard or StarLink. When corn borer populations are high, there is little question that these hybrids pay for themselves. But when grain prices are low and the corn borer populations are low, are producers coming out ahead using this strategy? Probably not.

To monitor for European corn borer, randomly select and examine 20 consecutive plants in each location in the field. Look carefully into whorls and count and record the number of plants showing fresh "shot hole" (window pane) damage in the whorl. Small areas of fresh surface feeding may be seen before "shot holes" appear. Pull out the whorls of two damaged plants from each location and carefully unroll the whorl looking for small whitish borers with distinct (black) heads. Generally, if 50% or more of the plants are infested with live larvae  $\frac{1}{2}$  in smaller in the whorl, then an insecticide application is warranted. For a more precise economic threshold, see ENT-49, *European Corn Borers in Corn*.

# TOBACCO

## GENERAL STRATEGIES FOR BLUE MOLD CONTROL

By William Nesmith

As County Extension Agents complete their reports on blue mold during the past season, it is becoming obvious that blue mold caused significant crop damage in some areas of the state again this year. Loss estimates are not yet available, but agents report that the major problems involved purchase of diseased transplants, blue mold in transplant production systems, systemic blue mold, and foliar blue mold.

I urge the tobacco production community to plan educational programs to help growers better understand this disease and the tools available to control it. The following points should be taught:

- \* Realize that the biology of the blue mold disease requires action by a cooperative community rather than only actions by some individuals in the community.
- \* Incorporate respect for blue mold into short-term and long-term crop management decisions. Manage all steps in production to make the environment and tobacco plant less favorable for the blue mold fungus to survive and infect individual crops and to minimize the crop's exposure and damage to blue mold.
- \* Accept the risk that certain cultural practices will increase the potential for blue mold, and modify practices to reduce the potential for blue mold and its impact where feasible in plant beds, greenhouses, and fields.
- \* Concentrate controls on preventing overwintering of the blue mold pathogen in Kentucky and its introduction into the state, as well as preventing and delaying secondary buildup of the parasite once it is present.
- \* Accept that blue mold is a transplant-borne disease and keep the fungus out of Kentucky and your community for as long as possible by producing your own transplants or obtaining them from well-managed local sources.
- \* Recognize that blue mold is also a wind-borne disease, and respond to Blue Mold Advisories from

the Kentucky Blue Mold Warning System by cooperating fully in efforts to prevent the disease and to slow its development once present.

- \* Keep County Extension Offices informed of the status of blue mold in your community and County Extension Offices need to keep the Plant Pathology Department, University of Kentucky informed of the current blue mold status in their county.
- \* Use more than one control method (options include fungicides, cultural practices, and varieties), to reduce fungicide use and improve the effectiveness of fungicides.
- \* Become prepared to spray foliar fungicides preventively for blue mold control in transplant and field production.
- \* Recognize the value and risk associated with blue mold-tolerant varieties.
- \* Protect tobacco plants when they are most vulnerable, rather than trying to rescue them.
- \* Don't forget about other diseases and other production objectives while considering blue mold management plans.

## SHADE TREES AND ORNAMENTALS

### MUSHROOMS IN THE LANDSCAPE

By John Hartman

Mushrooms grow and fruit in the landscape almost any time of year, but fall is an especially good time to see a diverse number of these common, often ephemeral life forms. Mushrooms, also sometimes seen as toadstools, brackets or conks, are the fruiting bodies of fungi, a diverse group of organisms that grow mostly as saprophytes, but sometimes as parasites or as symbionts. As saprophytes, fungi are sometimes regarded as the vultures of the plant world, scavenging on already dead plant material and breaking the complex plant structures into humus, thus recycling dead plants into the soil for future use. For most of their lives, mushroom fungi grow as fine threads of hyphae throughout the decaying vegetable matter, wood, or sometimes the live tree that is their home.

Mulch, especially wood chips, used as a landscape ground cover or to protect trees is a good substrate for a variety of mushrooms. But mushrooms can

emerge out of the lawn or even the driveway in the absence of visible decaying vegetable matter. In such cases, the fungi are growing on decaying wood or dead tree roots buried in the ground. Some mushrooms such as mycorrhizal fungi growing in the lawn are symbiotic with live roots, the symbiosis benefitting both the fungus and the tree. Still others growing from the roots, the base of the tree trunk, or even up on the trunk and limbs may be parasites in the process of killing their host.

There are many mushrooms that inhabit wood chip mulch. The most endearing, perhaps, are the bird's-nest fungi. The fungus resembles a tiny cup, or nest, about the size of a dime, and nestled in the bottom of the cup are tiny egg-like structures which contain the spores of the fungus. The bird's nest fungus is often found attached to small sticks wood chips in the mulch. Sometimes earth-stars are also in the mulch. Starting out as small puffball-like bodies, the walls of the earth-star fungus peel back in sections while remaining attached at the base and give the mushroom the appearance of a star when viewed from above. Beginning from an egg-like structure partially buried in the mulch, stinkhorns rapidly elongate to a pinkish stalk several inches in height. Also known as the phallus fungus, stinkhorns produce a slimy foul-smelling substance that gives them their name.

Mushrooms with typical stalks and caps are often found growing in the lawn, sometimes in circles called fairy rings. Also referred sometimes as toadstools, these fungi also grow from buried organic material such as a decaying root. Other mushrooms, such as the shoestring root rot fungus, infect the base of trees, causing root and butt rot. Another fungus, called the dead man's fingers, grows as hard, black projections resembling a mummified hand from the roots of live trees in the lawn. The dead man's fingers fungus also causes root rot disease. And yes, some toadstools are so tough they push their fruiting bodies right up through an asphalt driveway. Growing on wood or organic material buried beneath the drive, in their struggle for survival they can damage property.

In the meadow, giant puffballs are among the most spectacular of mushrooms. These white spheres, often baseball-sized, may grow to the size of a basketball. Mature puffballs will emit a cloud of powdery brown spores through an opening in the top when prodded. If this mushroom is harvested early, when the flesh is still white, it is edible.

Thus, mushrooms are an important part of the awe and wonder of nature that is present even in our own yards. They are mostly helpful in the natural scheme of things, keeping dead plant material from accumulating to intolerable levels. Mushrooms can also be enjoyed just for being fungi - for their uniqueness, variety, and unusual life habits.

If mushrooms are to be eaten, mushroom hunters must know for sure what species they are preparing because both poisonous and nonpoisonous species can closely resemble one another. Consult with experts who have experience in identifying edible mushrooms. One can learn from experts who organize mushroom forays such as that held at Natural Bridge State Park each September. There are also numerous books on mushroom identification such as:

*Mushrooms of North America* by Orson K. Miller, Jr., *Mushrooms and Other Fungi of Land Between the Lakes* by W. J. Sundberg and J. A. Richardson, *Introduction to Mushroom Hunting* by V. K. Charles, *Audubon Society Field guide to North American Mushrooms* by G. H. Lincoff, and *Common Fleshy Fungi* by C. M. Christensen.

## **SOME PINE SAWFLIES STILL ACTIVE**

**By Lee Townsend**

Introduced pine sawflies are still feeding. A group of 3/4" long larvae were found late last week in Jessamine and Russell counties. The blackheaded larvae have distinctive black and yellow markings. They occur in groups and can be shaken from the tree or removed physically if the clusters are easily accessible. These sawflies generally begin to feed at the top of the tree and work their way downward as they devour all of the needles in an area. More information on sawflies is available in Entfact 410.

## **HOUSEHOLD**

### **CAMEL CRICKETS**

**By Lee Townsend**

Very long antennae and a sensational, if somewhat ungainly leaping ability, make these unusual creatures an unsettling sight in basements, garages, and crawl spaces. These crickets are active when it is dark and can start bounding for cover when a basement or garage light is turned on.

Their natural hangouts are in caves, hollow trees, or under stones and logs and other cool, dark, moist places. These insects, also called humpbacked crickets or cave crickets, usually enter at ground level but can be found through houses.

Control begins with reducing or eliminating outdoor breeding sites along or near the foundation. This includes removing woodpiles or debris that create the conditions which the crickets prefer. Next look at reducing humidity through installation of vapor barriers, vents, or dehumidifiers. Finally, make sure as much as possible is done to exclude them from structures through door sweeps, caulking, and screening. These are long term strategies and the keys to ultimate solutions.

Properly used sticky boards, total release aerosols, or residual ant and roach killers can knock back populations but will not end the problem as long as the conditions that these insects like continue to exist.

## **A MOUSE IN THE HOUSE** **by Mike Potter**

For householders, cold weather offers a reprieve from most insect pests. Not so in the case of mice. The house mouse is remarkably well-adapted for living year round in homes, food establishments and other structures. Homeowners are especially likely to notice mice during fall and winter, following their migration indoors in search of warmth, food and shelter. Once mice become established indoors, they can be extremely difficult to control.

### **Reasons To Control Mice**

Although most people consider mice less objectionable than rats, mice are more common and cause significantly more damage. Mice are prolific breeders, producing 6 to 10 litters continuously throughout the year, with 4 to 7 young per litter. The greatest economic loss is not from how much these rodents eat, but what must be thrown out because of damage or contamination. Food, clothing, furniture, books, and many other items are contaminated by their droppings and urine or damaged by their gnawing. House mice gnaw through electrical wiring, causing fires, power outages, and equipment failures. Entire communication systems of corporations have been shut down as a result of their gnawing. Mice can

also transmit diseases, most notably salmonellosis (bacterial food poisoning), when food is contaminated by infected rodent feces. Hantavirus, although rare in the Midwest, is an often fatal disease acquired through the urine, dropping, and nesting materials of field mice.

Mice often store large quantities of seeds, nuts, pet food, etc., behind walls, between floors, and in other concealed locations. This can lead to serious and difficult to control infestations of stored product insects.

### **Behavior Pertinent To Control**

Mice are nocturnal creatures and may not be seen by the homeowner. The most obvious indicators of their presence are droppings (1/8- to 1/4 inch long, dark, and pointed at one or both ends), sounds of them running, gnawing or squeaking, or damage to stored food or materials used for nesting.

Compared to rats, mice forage only short distances from their nest, usually not more than 10-25 feet. When food and shelter are adequate, their foraging range may be only a few feet. *For this reason, traps and other control devices must be placed in areas where mouse activity is most apparent.* Mice prefer to travel adjacent to walls and edges, and are particularly fond of corners (another important point to remember when positioning control devices). Mice are very inquisitive and will investigate each new object placed in their foraging territory. Therefore, if control devices are not initially successful, try moving them to a different location.

Mice feed on a wide variety of foods but prefer seeds and cereal grains. They are also fond of nuts and sweets (a dab of peanut butter or piece of chocolate are excellent baits for snap traps). Dental floss or any soft, stringy material are also good baits for pregnant female mice foraging for nesting materials. Mice are "nibblers" and may make 20 to 30 visits to different food sites each night.

### **Control Tactics**

To control mice, you must "think like a mouse," keeping in mind the behavioral traits noted above. The best way to avoid rodent problems in buildings is to prevent their entry. Mice are able to squeeze through extremely small openings no wider than the diameter of a pencil (1/4-inch). Cracks and openings under entry and garage doors, around windows, vents, and where utility lines enter the

structure should all be sealed (See Entfact 641- *How to Pest-Proof Your Home*).

Good sanitation and food storage practices are helpful in reducing problems with mice. Bird seed and pet food bags stored in the garage or basement are especially prone to infestation. Since weed seeds are a favored food and also serve as rodent harborage, weeds and unnecessary vegetation next to the foundation should be eliminated. However, because mice are able to occupy such small nesting areas and survive on minute amounts of food, sanitation alone will not normally eliminate an existing infestation.

Other than calling a professional pest control firm, householders have two basic options available for ridding their premises of mice: 1) traps, or 2) toxic baits (rodenticides). Traps are generally preferred over rodenticides when you suspect only a small number of mice are present. Traps are less hazardous to use around children and pets. In addition, because mice are captured by the trap, they are not as likely to die in walls or other inaccessible areas and create odors. *Snap* traps are widely available and easy to use. Trapping efficiency can be enhanced by baiting the trigger with such foods as peanut butter, chocolate or raisins. *Snap* traps with an expanded, plastic trigger catch significantly more mice than non-expanded trigger designs. *Snap* traps should be oriented perpendicular to the wall, with the trigger end against the vertical surface.

Another very effective trap against heavy infestations of mice is the *automatic, multiple-catch trap*, available at most hardware and farm-supply stores. Mice enter these traps out of curiosity for new objects placed in their territory. One type of multiple-catch trap requires winding and flips mice into a holding chamber. Another model operates using the principle of a trap door. Both devices can capture and hold several mice before needing to be emptied. Multiple-catch traps can be oriented with the entrance hole either perpendicular or parallel to the wall.

*Glue traps* offer yet another trap option, but tend to be less effective than *snap* traps or toxic baits. Some mice, particularly the adults, tend to avoid gluey surfaces placed in their pathway. Moreover, mice caught at the edge of the board sometimes escape. Compared to *snap* traps, death is usually more prolonged (and inhumane), with the mouse dying of suffocation or trauma. Should the glue from a

glue board contact the fur of a pet or the skin of a child, it can be removed with mineral or cooking oil.

Regardless of which type of trap is used, placements should be installed up against walls, behind objects and appliances, and in secluded areas where droppings, damage, and other signs of mice are evident. Since mice forage only short distances from their nests, optimum results are achieved with multiple placements as close to the mouse harborage as possible. The biggest mistake people make is using too few traps. Minor infestations in a garage or basement typically call for about 6-12 traps; moderate infestations often require dozens. Traps and glue boards should be checked daily, and dead mice disposed of in plastic bags. Gloves should be worn when handling rodent carcasses to prevent any chance of disease spread.

Toxic baits, known as rodenticides, are also available for mouse control. Several formulations are available, containing seeds or grain as the attractant. They come packaged for use either in individual, sealed cellophane or paper packets, as loose bait, or molded into extruded blocks. Most rodenticides sold over the counter are anticoagulants containing brodifacoum, bromadiolone, chlorophacinone, diphacinone or warfarin as active ingredients. They kill by interfering with normal clotting of the rodents' blood, causing the rodent to die from internal bleeding.

Recommendations for effective bait placement are similar to those for traps. *In addition, extreme care must be taken to position baits in areas inaccessible to children, pets, and wildlife. Dogs, in particular, will seek out and find baits placed in areas that are accessible.* For optimal results and safer use, mouse bait should ideally be confined in an enclosed bait box, preferably one which is tamper resistant.

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**Lee Townsend, Extension Entomologist**



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