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recently reported to us that no oospores were found in any of the samples that were sent in for analysis. This is good news, given the troubles that we had with blue mold this growing season, and should help facilitate the sale of tobacco from the 2006 crop to China.

ANNOUNCEMENT

BASKETBALL GOES TO INDIANA

Thank you to everyone that took time to participate in the Pest Management Survey during the months of July and August. We had 160 surveys returned. With his permission, we would like to announce that the UK autographed basketball has been delivered to Wesley Shupe of Owensville, Indiana. Thanks again to everyone for your participation.

TOBACCO

RESULTS OF THE 2006 OOSPORE SURVEY by Kenny Seebold

The trade agreement that permits the importation of U.S.-grown tobacco into China stipulates that this tobacco must be free of oospores of the blue mold pathogen, 

Peronospora tabacina. Blue mold is not endemic to China, therefore the Chinese government requires certain measures to minimize the risk of importing tobacco contaminated with viable 

P. tabacina. Direct inspection of the exported leaf is undertaken prior to export from the U.S., and we are required to survey tobacco from locations known to have had blue mold during a given growing season for viable oospores. We recently submitted leaf samples from 41 counties in Kentucky, where blue mold had been reported in 2006, to the Plant Pathogen Identification Laboratory (PPIL) at NC State University to be assayed for oospores. Dr. Gloria Abad, director of the PPIL,

FRUIT CROPS

APPLES ARE SUSCEPTIBLE TO POST-HARVEST DECAYS by John Hartman

Kentucky apple growers often store fruits for some weeks or months after harvest in order to extend the apple sales season. Growers know to be careful to avoid placing bruised or injured fruits into storage. Growers are also aware that even with good storing varieties, the longer apples are stored, the more likely decay is to occur. Fungicides applied to the trees before harvest also help to extend storage life. For fruits already in storage, growers will want to carefully monitor the condition of the apples.

In storage, one of the main pathogens encountered is the fungus 

Alternaria, which commonly invades the apple core of cultivars having open calyces such as Delicious and Fuji. The main symptom is mold growth in the seed cavity or core. Other fungi can also infect these open calyces. On rare occasions, 

Alternaria can also cause a superficial rot, in addition to moldy core. Symptoms of 

Alternaria rot include round, dark brown to black, shallow lesions around skin breaks. In the beginning, these lesions are dry and firm, but become spongy.

Blue mold, caused by various species of 

Penicillium, is also referred to as soft rot or wet rot. Characteristics of this decay include a color change to light tan that eventu-
ally results in completely mushy tissue. This tissue becomes covered in blue-green spores that serve as an infection source for other fruit. In addition to wounds, lenticels can become infected in over-mature fruit. Infection by the fungus *Penicillium expansum* can result in the production of patulin, a known carcinogen. Fuji, Akane, and Jonagold have been reported to be more susceptible to infection whereas Royal Gala was reported to be more resistant.

A mold of a different color is gray mold, caused by members of the genus *Botrytis*. Infection usually occurs through bruises and breaks in the skin, but can invade through the cut stem on rare occasion. As the fungus infects, the fruit turns spongy, and eventually has the odor of cider. Prolific gray spores develop on the surface of infected fruit, and serve to spread it to adjacent apples, creating pockets of rot during storage. This fungal decay can be confused with another fungal decay called Mucor rot. *Botrytis* produces flat black fungal flakes called sclerotia that can persist in storage bins for years.

To reduce or minimize post-harvest rots:

• Harvest fruit at maturity, avoiding over-mature fruit
• Minimize fruit bruising and wounding; monitor packing and storing procedures.
• Move harvested fruit into cold storage quickly.
• Disinfect contaminated bins and storage walls before reuse using steam, or a solution of 10% bleach and 1% detergent, or commercial disinfectant (like Zerotol). The addition of detergent is necessary for the bleach to actually kill these thick walled overwintering fungal structures.
• Fungicides such as Fludioxonil (Scholar) and pyrimethanil (Penbotec) are both labeled for apple post-harvest rots, and can be used as dips, drenches, or line.
• Biological control agent BioSave 110 (*Pseudomonas syringae*) used with either above fungicide helps control blue mold from infection of wounds.
• Post-harvest calcium treatments can aid in helping the fruit become more resistant to decay.
• Ultimately, like every other complicated problem, the solution to post-harvest decay involves an integrated approach, that combines proper harvest times, careful handling of fruit, and strict sanitation in the orchard, storage and packing house to minimize these post-harvest problems.

(Adapted from an article written by Dr. J. Beckerman for the Purdue University “Facts for Fancy Fruits” newsletter, October, 2006.)

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**TREES**

**FALL FLOATERS** by Lee Townsend

Floating ropes of a white waxy material can fill the air in the fall. Woolly aphids and spiders are commonly attached to these long, floating fibers.

The wooly alder aphid is common on silver maple and alder. These sap feeders produce large amounts of honeydew. This clear sticky substance soon covers the foliage and branches, as well as cars and buildings underneath or adjacent to the infested tree. Often foliage becomes black from the sooty mold that grows on the honeydew. Heavy infestations may result in the ground being littered with the white, waxy threads under silver maple.

Throughout early summer, look for white, wool-like waxy filaments on branches and stems of host trees along with conspicuous curled leaves. The presence of honeydew, ants feeding on honeydew, or development of sooty mold are commonly associated with aphid infestations.

The insect overwinters on maple bark in the egg stage or on alder in tightly-clustered, wool-covered aphid colonies. Newly-emerged aphids settle on the midvein of new maple leaves. These aphids reproduce asexually, producing very large colonies. The winged generation that develops flies to alder in July. Several generations may develop on alder, accompanied by production of large amounts of white waxy material. Some of the migrants fly back to the trunk and branches of maples, where they mate and produce eggs, one per aphid. Others remain on the alder in the adult stage.

The insect is usually of little significance, although the amount of white waxy material that accumulates may be troublesome and some of the infested leaves drop prematurely. The associated honeydew and sooty mold may also be annoying.

Ballooning of arthropods also can produce "floaters" in the air. "Ballooning" is a means of aerial dispersal that can be used by several spider species. These floating silk strands (often 2 feet or greater in length), sometimes called "gossamers" are an ethereal sight on a sunny fall afternoon but they can cause concern at a time when anything out of the ordinary is seen in the air.

Ballooning spiders will move to the tops of vegetation or other high spots, stand on their "tiptoes", and release silk from the spinnerets at the end of their abdomen. When long enough, the silk will be captured by a breeze and the spider will be lifted into the air for a flight that can
reach several hundred feet in the air and carry the 8-legged aeronaut several miles. Large numbers of spiders can be afloat at the same time, filling the air with silken strands that waft and twist gently in the breeze. They can catch on tree limbs, fences, or any other objects.

Ballooning activity occurs on warm days following cold nights. This sudden rise in temperature creates updrafts that provide ideal conditions for liftoff. This pattern has occurred over the Commonwealth and floating strands can be seen most anywhere.

Several families of spiders that are common in Kentucky are known to use silk to disperse. Some of the more common groups are wolf spiders, line weaving spiders, dwarf spiders, jumping spiders, and crab spiders. This mode of transport can be used by young spiderlings or adult males and females. It may be possible to find the spider on the silk.

HEMLOCK WOOLLY ADELGID CRAWLERS ACTIVE
by Lee Townsend

The fall generation of the hemlock woolly adelgid is underway. The dark-bodied crawlers with a distinctive fringed white edge can be seen on twigs and branches of infested trees. In a few weeks, the wooly white egg sacks will be visible in infested trees. This insect has been found only in Harlan and Bell counties. Suspected infestations, along with distribution information on eastern hemlocks is vital to managing this invasive insect. Information on the adelgid in Kentucky is available in Entfact 452 at www.uky.edu/Ag/Entomology/entfacts/trees/ef452.htm. A survey form for reporting is available on line at www.kyforesthealth.org/HWAsurvey.doc.

HOUSEHOLD

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, retail 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 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 (dabs of peanut butter, a piece of chocolate, or a cotton ball sweetened with cherry or strawberry flavoring extract are excellent baits for snap traps). Cotton balls are also good ‘lures’ for pregnant female mice foraging for nesting materials. Mice are “nibblers” and may make 20 to 30 visits to different food sites each night.

KPN—October 9, 2006
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 building 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 known as rodenticides. Traps are generally preferred to rodenticides when you suspect only a small number of mice are present. Traps tend to be less hazardous to use around children and pets, and 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. Other new ‘quick set’ designs are also available that allow for much easier setting and disposal of mice which have been captured. Snap traps should be oriented perpendicular to the wall, with the trigger end against the vertical surface.

Another effective trap against heavy infestations of mice is the automatic, multiple-catch trap, available at many 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 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 require about 6-12 traps; moderate-to-heavy infestations often require dozens. Traps and glue boards should be checked daily, and dead mice disposed 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 of 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 seemingly inaccessible to humans. For optimal results and safer use, mouse bait should ideally be confined in an enclosed plastic bait box or station, preferably one which is tamper resistant. These are often carried by hardware and farm supply stores. Difficult or persistent mouse infestations are often best left to professionals, since nesting sites often are located in attics, crawlspace and other hard-to-access locations.

**DIAGNOSTIC LAB-HIGHLIGHTS**

by Julie Beale and Paul Bachi

Recent agronomic samples in the PDDL have included black shank, bacterial stalk rot, frogeye leaf spot, and storage mold tobacco; downy mildew on soybean; and Gibberella stalk rot on corn.
On fruit and vegetable samples, we diagnosed bitter rot, bitter pit and cork spot on apple; Coccomyces leaf spot on cherry; Fusarium fruit rot on pumpkin; and oedema on tomato.

On ornamental and turf samples, we have seen Pythium root rot, Macrophoma leaf spot and Fusarium wilt on chrysanthemum; Volutella canker on boxwood; Phytophthora root rot on cherry laurel; Cercospora leaf spot on hydrangea; Marsonina leaf spot on maple; Mycosphaerella brown spot on pine; Phytophthora collar rot on blue spruce; Pestalotiopsis twig blight on arborvitae; and summer patch on turf.

INSECT TRAP COUNTS
UKREC, Princeton KY

September 22–29, 2006
Black cutworm ................................................................. 0
True Armyworm ............................................................. 1
European Corn Borer ...................................................... 0
Southwestern Corn Borer ................................................ 1
Corn Earworm ................................................................. 25
Fall Armyworm ............................................................... 113

View UKREC trap counts for the entire 2006 season at - http://www.uky.edu/Ag/IPMPrinceton/Counts/2006trapsfp.htm

View trap counts for Fulton County, Kentucky at - http://ces.ca.uky.edu/fulton/anr/Insect%20Trap%20Counts.htm

For information on trap counts in southern Illinois visit the Hines Report at -http://www.ipm.uiuc.edu/pubs/hines_report/comments.html

The Hines Report is posted weekly by Ron Hines, Senior Research Specialist, at the University of Illinois Dixon Springs Agricultural Center.

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.