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WATCH FOR:
The FIRST TERMITE SWARMERS of the season came in today from ROWAN county, nice sunny days following the predicted rain bring out more, there are a good set of termite entfacts to give to homeowners; two samples of VARIED CARPET BEETLES have arrived, they were abundant last spring, as well, see the article below.

TOBACCO

SCLEROTINIA COLLAR ROT, SORESHIN, DAMPING-OFF, AND TARGET SPOT: MANAGEMENT IN THE FLOAT SYSTEM
by Kenny Seebold

The past week's cold snap makes it hard to believe that it's really springtime. Soon enough, though, the temperatures will climb and diseases will begin to appear in tobacco float beds around Kentucky. As always, we want to remind our growers to monitor transplant systems closely and to maintain good production practices to reduce the likelihood of losses to disease. As a follow up to previous articles, we will discuss identification and management of the most common foliar/stem diseases that occur on tobacco transplants.

Sclerotinia Collar Rot

Collar rot (caused by *Sclerotinia sclerotiorum*) was relatively uncommon in the pre-float-system era, but has become a serious problem in float-bed transplants. Collar rot first appears as small, dark green, water-soaked lesions at the base of stems. Clusters of infected transplants will be apparent and will have a yellow, wilted, unthrifty appearance. The size of the cluster, or "focus", is usually grapefruit-sized (4-16" in diameter). Signs of the fungus, found mainly at the base of plants or on debris in float trays, include a white, cottony mycelium (fungal mass), present if humidity is high, and irregularly shaped, black sclerotia. Sclerotia are small black structures that can resemble seeds or rodent droppings; these are a source of inoculum for outbreaks in subsequent years.

Collar rot is favored by cool, wet weather (overcast days) and is most likely to develop on rapidly growing plants (5-7 weeks after germination). The disease often develops after the canopy closes in float beds, approximately 10 days after the first clipping. High humidity and long periods (>16 hours) of leaf wetness play a major role in the development of disease. *Sclerotinia sclerotiorum* is an efficient colonizer of dead plant matter and weakened plants, using these types of tissues as a bridge to infect healthy plants.

Typically, collar rot becomes established in float beds when sclerotia on old plant debris germinate in spring and produce cup-shaped fruiting bodies called apothecia. Apothecia then produce spores (ascospores) that are wind-dispersed. When ascospores land on susceptible tissue, they germinate in water films on leaf surfaces. Germinated ascospores produce hyphae (fungal "threads") that penetrate tissue and begin the disease process.

There are no fungicides labeled for control of Sclerotinia collar rot on tobacco transplants, making this disease one of the most difficult to manage in float beds. Given the lack of chemical controls, extra emphasis should be placed on prevention. Growers should focus on making the environment in transplant systems less favorable to

Sclerotinia. Because moisture is so critical to the establishment of infection, measures directed at minimizing periods of leaf wetness will go a long way in keeping collar rot in check. Ways to improve airflow in float systems include the following: proper use of fans and side vents, planting reduced plant populations, and maintaining an adequate level of water in float bays. The latter reduces leaf moisture by making sure that the tops of trays ride above the side boards of float bays, keeping air from pooling above the trays. Adequate ventilation, along with proper heating and cooling, will also minimize injury to developing seedlings. Fertility should be kept at recommended levels; excessive fertilization (particularly nitrogen) can lead to a lush, dense canopy that will take longer to dry and will be more susceptible to collar rot. Plant debris should not be allowed to remain in contact with transplants. Clip seedlings with a well-sharpened, high-vacuum mower to ensure complete removal of leaf pieces in least injurious way possible. More frequent clippings will reduce the amount of tissue that must be removed by the mower at clipping time and will result in less plant injury and less leaf material left on the transplants. Clippings and diseased plants should be discarded a minimum of 100 yards from the transplant facility, or buried. Home gardens should not be planted near transplant facilities, and keep a weed-free zone around float beds. Over 300 species of plants, including many weeds, are hosts to *S. sclerotiorum*.

Soreshin and Damping-off

The float system creates near-ideal conditions for *Rhizoctonia solani* to grow and infect tobacco seedlings. Damping-off, or soreshin, usually occurs early in the development of the tobacco seedling and first appears as a water-soaked lesion at the base of the plant. Later, the lesion will take on a sunken, brown appearance and will eventually girdle the plant. Girdled seedlings will fall over and eventually die. Seedlings with mild infections of *R. solani* that are later transplanted may contribute to large-scale outbreaks of soreshin in the field, and may also be more susceptible to black shank and Fusarium wilt.

High humidity and temperatures above 70 °F are optimal for growth of *R. solani*. A common inhabitant of agricultural soils, *R. solani* can survive on organic matter and will colonize growth media used in tobacco transplant production. Primary infections occur when actively growing hyphae, or fungal threads, come in contact with roots or stems. Hyphae then form infection cushions that produce enzymes that will degrade plant tissues. Infections can spread from plant to plant, and organic matter (plant debris) can serve as a bridge between infected and healthy seedlings, as we observed with Sclerotinia collar rot. Survival structures called sclerotia are formed after the food source has been exhausted.

Infested soil or Styrofoam trays are the most commons inoculum sources of *R. solani*. As with *Pythium* spp., tobacco roots embedded in Styrofoam float trays will serve a source of inoculum of *R. solani* (in the form of sclerotia or dormant hyphae) if trays are re-used.

Good sanitation is the best way to manage soreshin in the float system. The first step is to limit the amount of fungal inoculum in the transplant system. New trays will all but eliminate the risk of carrying over inoculum from previous transplant cycles, but this option is expensive and creates issues with disposal of used trays. Used trays should be steam-heated to 165-170 °F for 30 minutes (after the heating chamber reaches operating temperature). Dipping used trays in bleach or other disinfectants will not eliminate *R. solani* from old trays because the chemicals cannot penetrate and reach pathogen-infested roots that have grown into the tray. Practices discussed in the previous section on the prevention of Sclerotinia collar rot will also help minimize losses to soreshin. Complete control of soreshin with fungicides is not possible; however, some suppression can be achieved with Dithane DF. Dithane DF can be applied at a rate of 0.5 lb/100 gallons of water once plants have reached the size of a dime. Begin applications before symptoms appear and continue on a 5-day schedule.

Target Spot

Target spot is caused by a different strain of *R. solani*, AG (anastomosis group)-3, than the one that causes soreshin. Target spot begins in localized areas, or foci, and commonly occurs after the plant canopy has fully formed. Small, water-soaked lesions appear on leaves and will expand rapidly under conditions of warm temperatures (> 75 °F) and high humidity. Lesions normally have a transparent-light green appearance and may be surrounded by a chlorotic (yellow) halo. Dead leaves will turn brown and adhere to the float tray. Web-like strands (mycelia) of fungal growth may be present on leaves and stems when humidity is high. In severe cases, seedlings may also damp-off. Seedlings with target spot that are transplanted can contribute to epidemics in the field later in the season.

Inoculum carried over on *R. solani*-infested trays is the most common way for the pathogen to enter the float system, although inoculum may move in on air from sources outside the transplant facility. Basidospores, generated by the sexually reproducing phase of this fungus (*Thanatephorus cucumeris*), are released under favorable conditions and contribute to spread of the disease within the float house.

As with soreshin, sanitation and good growing practices are the best defense against target spot. Research suggests that plants that are nitrogen-deficient show increased susceptibility to target spot; maintaining nitrogen within recommended levels will help suppress this disease. Some controlof target spot can be obtained with Dithane DF.

WHEAT

TRUE ARMYWORM FLIGHT: WHAT'S GOING ON?
by Doug Johnson

True armyworm trap captures for the two traps at the UK-REC, Princeton, KY, started out with a bang. The counts for the week of March 10-17 were quite high (94 and 83 moths per trap). However, no moths were captured during the week ending 24 March.

So what is going on? There is little doubt about why the traps counts dropped to zero. It has just been too cold for moths to fly. As a general rule, it needs to be 50° F or above for moth flight muscles to function. Does that mean that they are gone? That's not so easy to answer.

First, was the early, high flight out of the ordinary? The answer to that is "yes". The first capture was at least a month before the "normal" first generation peak which usually occurs in mid- to late April. Additionally, the 2006 captures are far larger than any capture we have seen over the last several years. In 2004 a peak capture of 36 moths in a single trap occurred on 23 April. In 2005 peak of 14 per trap were caught on 22 April. At no time during the past two trapping seasons have we caught as many moths per trap week as have already been caught in 2006. One has to look back to 2003 to find numbers in this year's range. On Apr 18, 2003 we captured 87 and 295 moths. respectively.

Does this mean it will be a big armyworm year for wheat and corn? I cannot answer that with the data at hand. What I can say is that it is worth watching the trap counts over the next several weeks. If the moths emerged too early and were hurt by the current cold snap, the populations might be lower than usual. However, in many cases the temperatures over the last week were enough to keep the moths grounded but perhaps not cold enough to kill them. So, we need to keep our eyes open. The peak flight in the large outbreak of 2001 was near 400 moths in a single trap week. We are not there yet but this insect still bears watching.

GARDENS

SLUGS
by Lee Townsend

There is no sure-fire solution to slug problems in landscape plantings and gardens during early spring. Slugs are favored by cool, wet weather and can remain active until hot, dry conditions force them into protected sites. Slugs feed on a wide variety of plants, shredding the leaves with their rasping mouthparts. They can be especially damaging to newly-set transplants and bedding plants.

In general, insecticides have little effect on slugs and chemical control is limited to applications of baits containing metaldehyde or metaldehyde + carbaryl (Sevin) as the active ingredient(s). The bait needs to be scattered evenly over the ground so that slugs encounter the pellets as they slide along in search of food. Baits disintegrate following rain or heavy dew so additional applications may be necessary. Also, metaldehyde is broken down by sunlight so it is relatively short-lived. Spreading the bait late in the day, rather than early in the morning, will help to get in front of the slugs with minimal loss.

Slugs will move under shelter during bright sunny days or when the humidity is low. Removing hiding places, such as boards, rocks, etc. will force them to find other shelter and perhaps relocate and do less feeding in the area. Also, hiding places can be used against them. Pieces of moist cardboard, rolled-up newspaper, boards, or upturned flower pots can be left on the ground in a few spots. Slugs will tend to accumulate under the shelter and can be scooped up and discarded. It is good to have these items propped about 1" above the ground so that the slugs can get under them easily. Keep the shelters in place during "slug season". This approach is most successful when there are not many other hiding spots and weather conditions cause the slugs to seek shelter.

Beer traps will collect many slugs because they are attracted to fermentation odors and drown in the liquid. Adjusting the trap so the rim is about one-half inch above the soil line will reduce the number of ground beetles and other non-target creatures from being caught. Fill the container about half-full and replace the contents every few days. Sugar water with some yeast can be used in place of beer.
Barriers can provide some relief if the slugs are moving in from outside the area that is being protected. Wood ash or fine lime can be used but both lose their effectiveness when wet and too much wood ash is not good for the soil. Slugs do not like to cross copper. A copper barrier tape

(about 1" wide) can be used along borders or around the legs of greenhouse tables to deter slugs. There are wider copper barriers that can be set in the soil as fences but the expense makes this most suitable for small areas

SHADE TREES & ORNAMENTALS

OAK LEAF BLISTER
by John Hartman

Oak leaf blister, caused by the fungus *Taphrina caerulescens*, affects many different species of oaks in Kentucky. Infections occur as buds swell and open in spring and symptoms appear within several weeks. The disease is favored by mild, moist conditions during the early phases of leaf growth; fully expanded leaves are not susceptible.

Symptoms. Leaf blisters appear in late spring as 1/4-1/2 inch circular light green bulges or blisters on the top surface of leaves. From the underside, the affected areas are sunken or depressed. These distortions may cause leaf bending or curling of narrow-leaves species such as willow oak. These blisters may resemble leaf galls caused by insects, however insect galls typically do not show a depression on the lower leaf surface. As the blisters age, they become dry, brown spots; severely diseased leaves may drop prematurely.

This disease does not seriously harm healthy trees and control with fungicides is not usually recommended. On particularly sensitive trees, however, fungicides containing chlorothalonil or maneb, or combination products such as Manhandle, Spectro, or Stature may be used. Apply fungicides at bud swell in early spring and repeat as needed. Ziram can be used for a dormant spray application.

MANAGE WATER TO MINIMIZE DISEASES OF ORNAMENTALS IN THE GREENHOUSE
John Hartman

Water is often the basis for disease problems occurring on greenhouse ornamental bedding plants. Many root-infecting fungi are favored by high soil moisture levels and fungal foliar pathogens are favored by leaf wetness and high humidity. Bacterial pathogens on wet leaves enter the plant via stomata and also enter via leaf hydathodes through guttation droplets generated by high soil moisture. Some ornamentals are prone to oedema, a physiological disease that occurs during cloudy periods when plants are supplied with more water than they can give up through their stomata.

Appropriate greenhouse moisture management can help reduce ornamental diseases.

- Use a growing medium with a balance between good aeration and moisture retention properties. Use a watering schedule that allows the soil to dry out between irrigations.
- Reduce humidity in the greenhouse through good air movement and plant spacing.
- Avoid prolonged or excessive overhead irrigation to keep leaves dry and to avoid splashing pathogens to nearby plants.

HOUSEHOLD

VARIED CARPET BEETLES ACTIVE
by Lee Townsend

The varied carpet beetle is about a 1/10-inch long oval beetle that can be seen around windows. These small beetles and their hairy, brown larvae are scavengers. The larvae can feed on a wide variety natural products including woolens, carpets, furs, hides, feathers, horns, bones, hair, silk, fish meal, rye or corn meal, red pepper, and cereals. They also feed on accumulations of dead insects in wall voids and attics and may be associated with buildings that have had problems with infestations of cluster flies or boxelder bugs.

The adults can fly and may accumulate at windows in the spring as they are attacted by sunlight. The adults feed on pollen and nectar of garden flowers but lay their eggs on accumulationa of materials listed above. Occasionally the larvae may be found in carpets or along baseboards. A vacuum cleaner is the best weapon to use against them. Careful cleaning will remove larvae, some adults and some of the debris on which they feed. Rooms where beetles are found should be cleaned often enough to prevent the accumulation of hair, lint and other carpet beetle fodder. This is especially important in households that have pets indoors.

Close attention should be given to carpets (especially under furniture), rugs, draperies, upholstered furniture, closets (especially where woolens and furs are stored), heat radiators and registers and associated duct work, corners, cracks, baseboards and moldings, and other hard-to-reach areas. Open containers of dried foodstuff and pet food should be regularly inspected for signs of carpet beetles and discarded if contaminated.

The distinctive adult is about 1/10 inch long and black with an irregular pattern of white, brown, and dark yellow scales on its wing covers. In older adults the scales that form this pattern wear off so the beetles appear solid

brown or black. Development from egg to adult can take almost a year.

Springtails are tiny wingless insects that can flip into the air, giving them the appearance of tiny fleas. They would go completely unnoticed except that hundreds of them can accumulate on surfaces like a small, dusty gray carpet that moves.

Most springtails live in rich soil or leaf litter, under bark or decaying wood, or associated with fungi. Many are scavengers, feeding on decaying plants, fungi, molds, or algae. Springtails become abundant among wet leaves, soil, and plant material along a house foundations or sidewalks where they can be a temporary annoyance. They also can occur around floor drains, in damp basements, and crawl spaces. Masses of these insects can be swept up and discarded.

Most common springtails do not survive in dry conditions. Any steps to improve ventilation and promote drying are the best long term solutions. Removal of accumulations of wet leaves or other organic matter will eliminate breeding sites. Aerosol household insecticides can be used to treat infestations but will provide only temporary relief if the favorable conditions are not corrected.

Midges and gnats are common names for a large number of small, non-biting flies. Many species look like mosquitoes and may form annoying swarms or clouds in the air but they do not bite. The immature stages develop in water in pools, containers, ponds, clogged rain gutters, or in some cases, wet soil or seepage areas. Most feed on living or decaying plant matter and are an important part of aquatic food chains. Many species can survive in very stagnant or polluted water.

There are no good alternatives for control of the adults. They usually do not feed and die in a few days. If necessary, resting accumulations can be treated with an aerosol spray containing pyrethrins. These are impractical for treating anything other than small areas. These products only kill insects that are directly hit by spray particles; there is no lasting or residual effect.

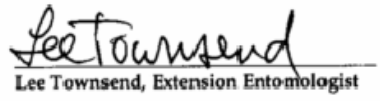
INSECT TRAP COUNTS
UKREC, Princeton KY

March 17-24, 2006

Black cutworm 0
True Armyworm 0

View Princeton trap counts for the entire 2006 season at – http://www.uky.edu/Ag/IPMPrinceton/Counts/2005trapsfp.htm

Fulton County trap counts are available at -http://ces.ca.uky.edu/fulton/anr/Insect%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.



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UNIVERSITY OF KENTUCKY
College of Agriculture

Cooperative Extension Service

University of Kentucky
Entomology
S-225 Ag. Science Center North
Lexington KY 40546-0091