**TOBACCO**

**CURRENT BLUE MOLD STATUS REPORT**
by William C. Nesmith

Blue mold has not been reported from Kentucky or adjacent states, but is active in the prevailing wind routes to the regions - on cultivated tobacco in the southeastern USA and on wild tobacco in the southwestern USA and Mexico. Plant Pathologists in Florida and Georgia report that blue mold is active in plant beds in northern Florida and southern Georgia. Plants from some of these diseased beds are being transplanted. Blue mold probably has been present at low levels for about a month and may have exposed crops from northern Florida to the Carolinas. Moreover, some seedling plants may have been moving into Kentucky from, or travel through, this region of the USA during the past few weeks and other movements may be planned for the future.

We have reviewed the weather events of the past month and see no events that would have likely moved viable spores from this region to the Ohio River Valley. Moreover, our diagnostic labs and county offices report that very few calls have been received concerning tobacco transplant diseases. In part, this may be due to the high number of cool days with bright sunlight experienced, requiring more heating. Disease potential under those conditions are minimal due to dry foliage and natural chemicals in the tobacco leaves. However, a few days of warm, cloudy weather with increasing plant canopy could rapidly shift the situation from low disease potential to high! Thus, take steps to reduce leaf moisture through careful management of ventilation and keep in place a regular fungicide spray program. See issue 943 of Kentucky Pest News (March 18, 2002) for more specifics on chemical options for disease control in tobacco transplant production.

**FORAGE CROPS**

**RECENT WEATHER FAVORABLE FOR SCLEROTINIA ON FORAGE LEGUMES**
by Paul Vincelli

Extended periods of cool, wet weather last month were ideal for development of Sclerotinia crown and stem rot, a disease that can cause serious stand loss in both alfalfa and red clover. In alfalfa, typically one only finds damaging outbreaks in crops seeded the previous autumn. In red clover, research in Ohio suggests that the crop is susceptible throughout its life. Infections from Sclerotinia begun last year, during the period from mid-October through mid-December. Stand loss can occur at that time, if infections progress to the crowns of infected plants. Sometimes, however, serious
stand loss does not occur until weather conditions develop like we had during all the wet weather last month. In these cases, the plants were already infected last year, but they remained alive and may have even looked relatively healthy. With the onset of extended cool, wet weather, infections progressed to the point where plants were killed. Furthermore, the wet weather was favorable for the spread of infection from plant to plant, since fungal mycelium (cottony infectious threads) could develop and grow from one plant to the next. Affected shoots would show wilting and quickly progress from green to yellow to a tan color associated with tissue death. During the wet weather, a careful observer might see the white cottony mycelium at the crown of diseased plants. More commonly, one simply sees the sclerotia on dead plants or on the soil very near the dead crowns. Sclerotia are the survival bodies of Sclerotinia trifoliorum produced on or near dead plants. They are black, oval to irregular in shape, and measure about 1/16" to 3/16" in size. If the plants are rotted away, the sclerotia may be on the soil surface, or they may be buried to a depth of up to 3/8". Sclerotia are sometimes produced to a depth of 3/8", but they also can become buried by beating rain once they are dislodged from a rotting plant. Be sure to cut open the sclerotia and look for a gray to white color. Manganese concretions can be somewhat similar to sclerotia in overall appearance, but these are brown to black inside and are quite hard.

Alfalfa plants that were small going into dormancy last fall may be rotted away by now, and there may be no evidence whatsoever that there were young alfalfa plants there last fall. Furthermore, small plants sometimes produce very small sclerotia (1/16"). It can be difficult to find these very small sclerotia somewhere in the top 3/8" of soil in these situations.

If the disease has been active recently, there is no rescue treatment available to producers. If essentially all of the seeding has been completely killed by the disease, it is often safe to reseed. Once the fungus has produced sclerotia, it is going into dormancy for the summer, so a new seeding is not usually at risk.

If plants were wilting and dying as recently as the last couple of weeks, and other live plants remain in the field, it is risky to reseed a forage legume at this time, because the fungus will resume activity and attack the seedlings when weather permits. In these cases, one can wait to reseed a forage legume until May 15, after which weather is typically too warm for the fungus. However, there is an increasing risk of drought damage to seedlings made that late. Usually the best approach for fields where the disease still may resume activity is to seed with a non-legume forage crop. For seeding made before April 15-20, cool-season grasses are an option; seedlings past May 1 should be sown to summer annuals.

**TIME FOR ALFALFA WEEVIL**

*By Lee Townsend*

Late last week alfalfa weevil larvae in 4 Fayette county fields ranged from 1/8 to 1/4 inch long. They were deep within the foliage tips and it took careful examination to find them or to see the small feeding holes. As the larvae get larger and feed more, moderately to heavily infested fields can take on a gray or frosted appearance. This can be seen now in some south central counties.

The best management decisions are based upon stem sampling (See ENT 17 Insecticide Recommendations for Alfalfa, Clover, and Pastures). If this information is not available, then control is recommended when 25% to 50% of the tips show feeding injury and there are 3 or more larvae per stem.

Pea aphids will be building up on alfalfa tips during the next few weeks. They are favored by cool weather and will disappear as conditions get hotter and drier. These aphids are rarely abundant enough to cause any type of yield or quality loss and control should be considered only if there is significant wilt due to sap removal.

**FRUIT CROPS**

**GRAPE FLEA BEETLE**

*by Ric Bessin*

As grape buds begin to swell, grape flea beetle is one insect that grape producers need to be on the lookout for. Adults eat buds and unfolding leaves, causing leaves to be ragged and tattered. It is this early feeding on small buds that can cause loss in yields. Later in the spring, larvae feed on flower clusters and skeletonize leaves, but that damage is less injurious to yield. Adults are dark metallic greenish-blue, jumping beetles about 1/5 inch long; larvae are brownish and marked with black spots; eggs are pale yellow, and fairly conspicuous on upper leaf surface or under loose cane bark. Adults overwinter in protected areas around vineyards, and start feeding on the interior of primary buds and opening grape leaves in early spring. Damage is often restricted to vineyard borders, particularly near wooded areas. Damaged buds are often hollowed out and may not develop into primary canes which can reduce yields. Once the buds are 1/2 inch long, only slight injury is caused. Scheduled sprays for grape
berry moth and leafhoppers provide effective control. Where flea beetles have been a problem, a spray timed at bud swell can provide control.

SAN JOSE SCALE
by Ric Bessin

San Jose scale has become more of a problem in Kentucky due to the loss of several products that had effectively keep this insect under control in the past. New EPA restrictions on the use of Pennycap-M and Lorsban have forced apple and peach producers to find other methods to keep this orchard-threatening insect from damaging apple, pear, and peach trees. It is a sucking insect that injects a toxin into the plant as it feeds causing localized discolorations. The presence of reddish blemishes on fruit at harvest indicates potentially damaging numbers on the trees. Left uncontrolled, San Jose scale can kill the entire tree in a few years. If such damage is noted, inspect trees for scale, especially one-year-old wood. Purplish-red halos on young bark are indications of scale infestation.

On apples, a new insect growth regulator, Esteem, is available to control San Jose scale. It can be used to control the nymphs when applied during the late dormant to pink stage, or it can be used to target the crawlers in late May. On peaches, growers in the south have had good control with multiple oil applications. In these areas, growers using two oil sprays during dormant and delayed dormant periods reduced their problems with San Jose scale. When using oils for control, producers need to understand and follow label precautions carefully.

SPRAY ADJUVANTS AND FOLIAR FUNGICIDES
by John Hartman

Spray adjuvants are normally thought of as chemical additives, which are not pesticides, that are designed for pesticide applications primarily to enhance pest management, spray operations or environmental safety. Adjuvants include surfactants, supplements, detergents, wetting agents, penetrants, oils, crop oils, petroleum oils, vegetable oils, phytoblands, stickers, film foamers, extenders, spreaders, spreader-stickers, deposit builders, binders, thickening agents, film makers, foams, emulsifiers, dispersants, anti-flocculants, stabilizing agents, synergists, sequesterents, safeners, coupling agents, co-solvents, compatibility agents, buffering agents, humectants, antifoam agents, modifiers, and all-purpose spray adjuvants. Many of these terms are used interchangeably. For example, wetting agents and spreaders reduce surface tension of the spray on the target surface while stickers, binders and extenders are adjuvants that allow spray residue to resist wash-off.

It is important to realize that commercial fungicide formulations often contain additives along with the active ingredient to aid in fungicide spread and retention. Some pesticides might serve as adjuvants themselves because, when tank-mixed with a fungicide, they may modify the performance of the spray. For example, when maneb or mancozeb fungicides are added to copper sprays, bacterial spot control from copper is enhanced on tomato and pepper. However, maneb or mancozeb are not considered to be adjuvants commercially because they are used primarily as fungicides.

Not all adjuvants are alike. Growers need to consult the fungicide label and the adjuvant label to determine if their fruit disease management program will be enhanced with an adjuvant. Fruit growers are increasingly using dilute horticultural oils not only late in the dormant season but also during the summer to enhance insect management efforts. Some of these oils can affect the performance of fungicides; indeed some oils are mildly fungitoxic.

Enhancement of protectant fungicides is attained primarily by utilizing those adjuvants that possess spreading (wetting) and sticking properties. The spreader helps to evenly cover as much of the leaf surface as possible with the spray and the sticker helps to maintain the spray residue on the leaf surface for periods of time. There is some uncertainty on whether or not adjuvants enhance systemic fungicide performance. Growers need to be aware that an adjuvant that increases solubility or penetration of fungicides into the plant might cause phytotoxicity. Thus, only use adjuvants recommended on the fungicide label.

Considerations for adjuvant use.

- Many if not most chemicals should perform well by themselves when applied under normal to ideal conditions. Spray adjuvants offer a degree of performance insurance when environmental conditions or application practices are less than ideal. No adjuvant will completely compensate for poor coverage or timing.
- Determine what type of adjuvant, if any, is needed by reading the relevant labels.
- For many wettable powder fungicides, spray adjuvants possessing spreading and sticking agents will enhance effectiveness to some degree when used at the prescribed rate.
- Use of adjuvants with spreading or sticking agents in conjunction with flowable fungicide formulations does not appear to be as essential as with the
wettable powder formulations. In fact, some flowable fungicide labels clearly discourage use of adjuvants while others make general statements about adjuvants such as "Add a spreader-sticker spray adjuvant if needed" (usually with glossy-leaved crops).

- Be aware of differences in leaf texture (hairy vs smooth or old vs young) and their effect on adjuvants.
- Avoid using detergents for spreading agents. Most adjuvants sold on the market are non-ionic whereas detergents are ionic and are likely to cause or enhance burns on the leaves or fruit. Also, non-ionic adjuvants are less likely to combine with minerals in hard water.
- With low-volume sprays, spreaders can enhance initial spray coverage. Sticking agents can enhance redistribution of the fungicide on plant tissue. Where small spray droplets are formed by a mist blower, spreader adjuvants may reduce "bounce", thereby allowing a greater amount of the fungicide to remain on the plant surface.
- Silicon-containing adjuvants should not be added to spray mixes on crops where bacterial diseases are likely to be present because they enhance ingress of bacterial cells into leaves.
- Growers should not expect adjuvants to perform miraculous functions.

Some examples of adjuvants (not an inclusive list).

- **R-11 Spreader Activator.** Can be used, for example, with Abound, Benlate, Copper, Mancozeb, Rally, Rovral (also has good sticking properties by itself), Sulfur, Topsin-M, and Vangard.
- **R-56 Spreader Sticker.** Can be used, for example with Abound, Benlate, Captan (avoid excessive wetting or injury may result), Mancozeb, Rally, Rovral (also has good sticking properties by itself), Topsin-M, and Ziram.
- **Nufilm P or 17 Pinolene Sticker.** Tenacious stickers (i.e., Nufilm) usually are not the adjuvant of choice for systemic products. Milder stickers with good spreading properties (R-56) or spreader activators (R-11) would be more appropriate choices. Can be used, for example, with Copper, Mancozeb, and Ziram.
- **Sylgard 309 Organosilicone Spreader.** Organosilicones are extremely effective spreading agents. At low rates they are very effective spreaders while at higher rates they also act as penetrants. Low volume applications may benefit from the use of organosilicones by improving coverage. Can be used, for example, with Abound, Benlate, Captan (avoid excessive wetting or injury may result), Copper, Mancozeb, Rally, Rovral (also has good sticking properties by itself), Sulfur, and Topsin-M.
- **Hasten Esterified Vegetable Oil.**
- **Trifol Buffer Spray and Acidification Agent.**
- **IN-PLACE Deposition and Retention Agent.**
- Adjuvants are not recommended with fungicides such as Bravo Weather Stick or Sulfur.

### HOUSEHOLD

#### PROTECT YOUR HOME FROM TERMITES

by Mike Potter

In a recent survey of 674 Kentucky households, 93 percent expressed concern over finding termites in their homes. The entomology department receives many calls from people wanting to know what can be done to protect their largest investment – or if a certain practice or condition is likely to cause termite problems. Homeowners can reduce the risk of termite attack by following these suggestions.

1. **Eliminate wood contact with the ground.** Many termite infestations result from structural wood being in direct contact with the soil. Earth-to-wood contact provides termites with easy access to food, moisture, and shelter, as well as direct, hidden entry into the structure. Wood siding, porch steps, latticework, door or window frames and similar wood items should be at least six inches above ground level. Eliminating wood-to-ground contact may require regrading or pulling soil or mulch back from the foundation, cutting the bottom off of siding, or supporting steps or posts on a concrete base. Posts or stairs embedded in concrete are also vulnerable to termites since they usually extend all the way through the concrete to the soil. Wood that has been pressure treated is not immune to termite attack; termites will enter pressure-treated wood through cut ends and cracks, and will also build tunnels over the surface.

2. **Don’t let moisture accumulate near the foundation.** Termites are attracted to moisture and are more likely to “zero in” on a structure if the soil next to the foundation is consistently moist. Water should be diverted away from the foundation with properly functioning gutters, down spouts and splash blocks. Leaking faucets, water pipes and air conditioning units should be repaired, and the ground next to the foundation should be graded (sloped) so that surface water drains away from the building. Homes with poor drainage may need to have tiles or drains installed. Lawn sprinklers and irrigation systems should be adjusted to minimize puddling near the foundation.

3. **Reduce humidity in crawl spaces.** Most building
codes call for 1 square foot of vent opening per 150 square feet of crawl space area. For crawlspace equipped with a polyethylene vapor barrier (see below), the total vent area often can be reduced to 1 square foot per 300 to 500 square feet of crawl space area. One vent should be within 3 feet of each exterior corner of the building. Shrubs, vines and other vegetation should not be allowed to grow over the vents since this will inhibit cross-ventilation. Moisture and humidity in crawl spaces can further be reduced by installing 4-6 ml polyethylene sheeting over about 75 percent of the soil surface.

4. Never store wood or paper against the foundation or inside the crawl space. Firewood, lumber, cardboard boxes, newspapers, and other cellulose materials attract termites and provide a convenient source of food. When stacked against the foundation they offer a hidden path of entry into the structure and allow termites to bypass any termiticide soil barrier that is present. Vines, ivy, and other dense plant material touching the house should also be avoided. Where practical, dead stumps and tree roots around and beneath the building should be removed, along with old form boards and grade stakes left in place after the building was constructed.

5. Use mulch sparingly, especially if you already have termites or other conducive conditions. Any cellulose-containing material, including mulch, can attract termites. Termites are especially attracted to mulch because of its moisture-retaining properties. Where mulch is used, it should be applied sparingly (2-3 inches is usually adequate), and should never be allowed to contact wood siding or framing of doors or windows. Since the moisture associated with mulch is probably as much or more of a termite attractant than the wood itself, it makes little difference what type of mulch is used, e.g., cypress, pine bark, etc. Crushed stone or pea gravel improves drainage and has no nutritional value to termites, and therefore may be somewhat less attractive – although cosmetically unappealing to most homeowners. Such materials also reduce problems with such pests as millipedes, pillbugs, earwigs and crickets. Preventively treating a home for termites is a reasonable investment, especially if the structure has no prior history of treatment. If the building was previously treated by a pest control firm, it’s a good idea to maintain the service agreement by paying the annual renewal fee. Should termites re-infest the building (which can happen even if the initial treatment was performed correctly), the company will return and retreat the affected area at no additional charge.

Whether or not a person chooses to have their home treated, they should know the signs of termite infestation:

- Pencil-wide mud foraging tubes on foundation walls, piers, sills, joists, etc.
- Winged “swarmer” termites, or their shed wings, in window sills and along edges of floors.
- Damaged wood hollowed out along the grain, lined with bits of mud or soil.

Detecting hidden infestations requires a trained eye. Most pest control firms perform termite inspections free of charge and will alert the homeowner to any conditions they uncover that are conducive to termite attack.

**SHADE TREES & ORNAMENTALS**

**TIPS ON EASTERN TENT CATERPILLAR CONTROL**

By Lee Townsend

Most all eastern tent caterpillar (ETC) egg masses have hatched. The small larvae are constructing silken platforms at major branches and soon will be expanding them into recognizable tents as foliage develops and their feeding increases. While any insecticide applications made should be
directed at small larvae, there is plenty of time to assess infestations and identify sites that need to be treated. Dipel or Bt-based insecticides work as stomach poisons so residues on plant foliage must be ingested. This means there should be plenty of open foliage on trees to capture the spray droplets. These products have no contact activity through direct application to caterpillars or as a result of them crawling on treated surfaces.

ETC larvae tend to leave their tents and feed at relatively predictable times during the day—about 6 am and 8 pm. Nearly 80% of their feeding is done during the darkness near dawn and dusk. There is a mid-afternoon spurt of activity but morning and evening activity periods tend to be about twice as long. These feeding times are very synchronized when the caterpillars are small and begin to become less organized as they get older.

This behavior provides 2 advantages to them: 1) they are active when the risk of being eaten by birds is reduced and 2) they can digest their food and empty their gut in their tents during the warmer part of the day and leave it with an empty stomach when it is time to feed again.

This behavior can be used to advantage in timing an insecticide application immediately before ETC begin a major feeding spurt. An afternoon application, weather permitting, should be an effective strategy for 2 reasons. 1) ETC larvae spend a lot of time feeding at dusk and around dawn, so the insecticide residue will be "fresh". 2) Bt insecticides (DiPel, etc.) are broken down rapidly by sunlight. This application time reduces the exposure of the residue to UV light prior to feeding periods.

The active ingredient, acetamiprid, is in the neonicotinyl class of insecticides. Some refer to this class as the chloronicotinyls. Other commercial products in this class include imidacloprid (Provado, Admire) and thiamethoxan (Actara, Platinum). The differences between acetamiprid and these other products is that it controls caterpillars, such as codling moth, it is used only as a foliar spray, and it does not move through the plant systemically as with Admire and Platinum.

Assail 70WP is formulated as a 70% wettable powder and bears the signal word “CAUTION,” has a 12 hour restricted entry interval, and is a general use pesticide. On the crops listed above, Assail cannot be applied not less than 7 days before harvest.

**DIAGNOSTIC LAB HIGHLIGHTS**
by Julie Beale and Paul Bachi

Diseases and other plant problems diagnosed last week included Pythium root rot on coleus, snapdragon and tomato in greenhouses; Botrytis blight on vinca and pepper transplants; black root rot on pansy; dollar spot on bentgrass; Volutella canker on boxwood; Entomosporium leaf spot on photinia; cold injury on barley; and magnesium deficiency and leaf burn (from high evapo-transpiration) on tomato.

**INSECT TRAP COUNTS**

UKREC, Princeton, KY - March 29 - April 5

Black Cutworm ................................. 0

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.

**PESTICIDE NEWS & VIEWS**

**ASSAIL 70 WP RECEIVES EPA APPROVAL**
by Ric Bessin

There has been a lot of new chemistry that has been clearing the EPA, and the latest insecticide is a product called Assail. This product, manufactured by Aventis, has received an approved label for use on the leafy vegetables (i.e. lettuce, spinach), cole crops (cabbage, broccoli, cauliflower), fruiting vegetables (eggplant, pepper, tomato), and pome fruits (apple, pear) crop groupings. This product, used as a foliar spray, is labeled to control a wide variety of pests including aphids, whiteflies, plant bugs, Colorado potato beetle, codling moth, leafhoppers, and psylla.