

KENTUCKY PEST NEWS

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Number 999

August 18, 2003

TOBACCO

LAWN & TURF

- Current blue mold status

- Velvet ants - not so velvet touch

ALFALFA

- Stinging caterpillars

- Pests of fall seedlings

HOUSEHOLD

FRUIT CROPS

- Cedar rusts active on apples this year

- Fruit flies

DIAGNOSTIC LAB HIGHLIGHTS

INSECT TRAP COUNTS

TOBACCO

CURRENT BLUE MOLD STATUS - August 18, 2003 by William Nesmith

General Status: Blue mold activity continues to increase within the state and region's burley belt, and is now threatening nearby dark tobacco, too. Moreover, all tobacco production areas of the USA and Canada need to appreciate that our central Burley Region is producing a massive spore load that is not only a threat within this region but could be windborne to other areas. The potential for strong activity remains throughout much of the Ohio River Valley, until a much drier weather pattern develops.

Activity is widespread, but at highly variable levels within the communities- from very damaging levels in many fields, to hot spots, in fields, to scattered lesions. Leaf flecking (often extensive) is occurring in the top foliage of many crops that have significant blue mold in the lower canopy. Angular leaf spot and bacterial soft rot are often moving into such flecks to cause even greater damage than blue mold alone will do. Systemic activity associated with major leaf veins and mid ribs is causing significant leaf distortion in many areas, too. Full systemic blue mold (associated with colonization of the vascular system of the stem) is being reported only from very late set crops, usually July settings.

Where the cooler temperatures and rapid leaf expansion have been occurring, the blue mold pathogen has gone systemic in the veins, resulting in damage to leaf panels rather than limited to spotting of the leaf. Also, there is considerable leaf vein infection (limited systemic activity) accompanied by considerable leaf yellowing in the lower portion of infected plants. In contrast, as the temperatures

rise (at least longer periods of higher temperature), especially the night temperature, the infected area dies more quickly, so infections occurring within three or four days of the change to higher temperatures should produce more necrotic spotting - which looks worse than it is. Under higher temperatures the dead spot slows, or stops, expanding, which slows new spore production from most of the lesion area.

Weather events and production methods have been such this year that many crops are remaining juvenile much longer after topping than is normal, so blue mold is remaining active longer in those crops. Consequently, some growers are "panic harvesting" these immature crops with blue mold. Such actions are likely to result in serious leaf loss from houseburn, because such leaves are full of water and higher in simple sugars that serve as easy food for the rotting organisms compared to mature leaves. In addition, leaf quality will likely be poor and there could be increased pesticide residue issues.

Economically damaging, first-strike capability still exists as the spore-load remains high. A larger percentage of growers than normal have attempted no controls, which greatly increases the potential spore load. Growers that have already harvested can assist neighbors by promptly destroying the root systems to prevent sucker regrowth, which will prevent the blue mold such regrowth can support. This is especially important on farms/communities with a wide range of crop stages.

Controls Update: Application guidelines for the fungicides labeled for blue mold control in the field in Kentucky can be found in Kentucky Pest News, issue number 983, April 28, 2003 or at the web address - http://www.uky.edu/Agriculture/kpn/kpn_03/pi0304_28.htm. The only means of preventing losses from strong

blue mold activity is to have a blue mold control in place when the spore load (inoculum) arrives. Wait-and-see and scouting programs that were valuable tools early in the season are useless with the levels of blue mold operating now. The rapidly growing tobacco from layby to topping is at greatest risk. Weekly sprays of Acrobat MZ, when properly applied, are the best blue mold control available, based on our research studies, but few growers are equipped to make proper applications of this or other preventive fungicides. Where infections have already occurred prior to topping, expect new infections and their development to continue for at least 10 days after topping, or longer if the crop is lush. Other chemical controls should include reducing the plant's susceptibility to blue mold by using Actigard 50W if the plants are large enough.

In fields at the topping stage, Actigard may help improve resistance, too, but topping and including MH-type materials in the sucker control program are even more important, but doing both can give advantages under the current disease pressure. Because the plants are remaining juvenile longer and inoculum load is so strong, the plants are remaining susceptible longer after topping than in a more typical season.

I urge the industry to recognize that our studies have repeatedly demonstrated that Actigard provides only about two weeks of control, after which the plant can be seriously damaged by blue mold. Also, overly lush crops respond more slowly to this treatment than do crops developing normally, so where a high level of control is desired, couple Actigard and Acrobat MZ, using Acrobat MZ until induction is effective, and coming back with Acrobat MZ later when the Actigard effects are declining. Therefore, in younger tobacco, it is important that the second application of Actigard be made, especially considering the favorable weather and spore load present. We have encountered 20 to 30% loss of leaf in the top portion of the plant from late season blue mold in crops receiving only a single application of Actigard, with this late season activity occurring at about topping time. Also, appreciate that it takes at least 5 days before any significant benefit is present from applying this inducer, so those infections that have already occurred and those that occurred within a few days after treatment will develop. Yes, it gets worse before it gets better.

Topping and Harvest Management: Topping and harvesting decisions of tobacco with blue mold are a very important aspect of blue mold management. Blue mold is a disease of young tissues, so anything done to age the plant can help slow blue mold. Likewise, premature harvesting of crops can greatly add to the loss from blue mold, because so much of the profitable yield in tobacco develops after topping. Also, early harvested crops are very

susceptible to houseburn or soft rots developing during the curing period.

It is very important that the crops be topped and sucker controls applied in a timely manner to help slow blue mold development. As the leaves mature, their tolerance to blue mold increases unless the crops are over-fertilized with nitrogen late in the season. If blue mold becomes active after topping and early harvesting appears necessary, it is important not to panic and harvest prematurely. If early harvesting is elected, limited it only to the hot spots to reduce inoculum production in the field. Remember, that a healthy tobacco crop increases its yield potential more than 200 lbs/A for each week it remains in the field, for the first three weeks after topping. Cutting the plants stops this potential yield, so early harvesting is costly and should be a last resort, with the decision weighed carefully. Sometimes it does become necessary to early harvest tobacco with blue mold, but that is usually when secondary invaders are moving in and trashing the plant. When that becomes necessary, it is critical to wilt the crop well before housing, to place it carefully on the rails (at least 10 to 12 inches apart with the plants well spaced and avoid overlapping tips of one plant with flyings of another), and to ventilate well, including supplemental fans. Blue mold infections that have already occurred before housing do continue in the barn for a few days, but new infections seldom occur.

However, bacterial soft rots will continue in the barn causing even greater losses than if the crop had been left in the field. Bottom line, if the crop is still susceptible to blue mold in the field, it will also be susceptible to soft rots. Getting such tobacco housed under poor curing conditions can increase losses by 20 to 50%. In contrast, our studies during past blue mold epidemics have shown that even tobacco with considerable blue mold (up to 60% of the leaf surface spotted) will gain another 400 to 800 pounds/acre between topping and harvest unless trashed by other diseases or allowed to rot in the barns. If frog-eye leaf spot is present, watch the crop carefully after topping, as this disease can move up the stalk quickly in humid weather, trashing the crop, especially about 20 days, post topping.

Where bacterial diseases are operating with blue mold, streptomycin sprays (1 lbs/100 gallons) may be very helpful in reducing the bacterial activity.

To prevent build up in sucker regrowth after harvest, immediately disk deeply to up-root the plant's root system to aid in more rapid death. Otherwise, sucker regrowth can generate massive inoculum load for the nearby fields.

For the latest status by region, see the Kentucky Blue Mold Warning System's web site at:
<http://www.uky.edu/Agriculture/kpn/kyblue/kyblue.htm>.

ALFALFA

PESTS OF FALL SEEDINGS

by Lee Townsend

Several insects feed on fall-seeded alfalfa, and if numerous and unnoticed, may produce significant stand loss. The most common culprits are fall armyworms, grasshoppers and crickets. Occasionally, Mexican bean beetles and spotted cucumber beetles (southern corn rootworm beetles). Regular inspection of new seedings will allow early detection of pest problems, assessment of damage, and treatment if necessary.

Fall armyworm infestations will tend to be clumped and intense because each female can lay 100 or more eggs in a mass. The small larvae will move out from this focus as they grow and consume all of the nearby plants. Look for roughly circular areas of missing plants. Examine the soil surface for the striped larvae. If needed, spot treatments can be used to deal with the problem.

Grasshoppers and crickets can graze off small seedlings. Damage should appear at the edges of the field and progress across it. These insects will move readily so feeding should be more diffuse over an area. Mexican bean beetles and spotted cucumber beetles also may move in and feed. Their activity should be spread over the field as well.

Evaluate injury carefully. Low rates and spot treatments may be all that is needed to deal with pest activity. See Insect Recommendations for control recommendations.

FRUIT CROPS

CEDAR RUSTS ACTIVE ON APPLES THIS YEAR

by John Hartman

Apple growers may notice the appearance of brightly colored yellow-orange spots on many of their apple leaves this month, particularly on apples that did not receive fungicide treatments for apple scab. Cedar-apple rust, caused by the fungus *Gymnosporangium juniperi-virginianae*, is appearing in abundance on leaves of susceptible apples this year. This fungus also occasionally infects apple fruits, causing symptoms on the blossom end similar to those found on leaves. Cedar-apple rust fruit lesions are relatively shallow. On both leaves and fruit, the fungus produces spores which are infective to cedar and juniper trees growing nearby. The wet weather this spring was

favorable for the infections of both the leaves and fruits.

The following list shows reactions of apple cultivars to cedar-apple rust disease:

Very Resistant. No chemical control is needed for these varieties. Baldwin, Delicious, Enterprise, Freedom, Gravenstein Holly, Jersey mac, Liberty, McIntosh, Milton, Mollies Delicious, Redfree, Tydeman's Red.

Resistant. Chemical control is only needed under high disease pressure. Arkansas Black, Barry, Britemac, Carroll, Dayton, Early McIntosh, Empire, Granny Smith, Grimes Golden, Jonamac, Macoun, Maiden Blush, Niagara, Paulared, Priscilla, Puritan, Scotia, Spartan, Starkspur Earliblaze, Viking, Wellington, Williams Red, Winesap, Yellow Transparent.

Susceptible. Chemical control is usually needed where the disease is prevalent. Beacon, Ben Davis, Burgundy, Cortland, Gloster, Honeycrisp, Idared, Jamba, Jonafree, Jonagold, Julyred, Macfree, Monroe, Mutsu, Northern Spy, Northwestern Greening, Pristine, Quinte, Raritan, Rhode Island Greening, Smoothee, Spijon, Stark Bounty, Stark Splendor, Stayman, Wayne, Williams Pride.

Highly Susceptible. Where the disease is prevalent, chemical control is always needed and blocks of these apples should receive first priority when conditions favor infection. Arlet, Braeburn, Cameo, Fuji, Gala, Ginger Gold, Golden Delicious, Goldrush, Jonathan, Lodi, Prima, Rome Beauty, Sir Prize, Spigold, Summerred, Twenty Ounce, Wealthy, Winter Banana, York Imperial.

Cedar-quince rust (*Gymnosporangium clavipes*) also affects apple fruits, but only rarely the leaves. On fruits, cedar quince rust infections are deep and damaging to the fruit. The fruit tissue beneath these infections is brown and spongy, and necrosis can extend to the core. Cedar-hawthorn rust (*Gymnosporangium globosum*) is less common, but it can also cause symptoms on apple leaves, but not the fruit. Fruits of different apple varieties vary in susceptibility to cedar-quince rust, but their reaction may or may not be similar to that for cedar-apple rust. The following lists apple variety reactions to cedar-quince rust.

Resistant. Baldwin, Ben Davis, Empire, Grimes Golden, Idared, Jonathan, Lodi, Macoun, McIntosh, Milton, Mutsu, Northern Spy, Paulared, Quinte, Redfree, Rhode Island Greening, Sparta, Wealthy, Yellow Transparent, York Imperial.

Susceptible. Cortland, Golden Delicious, Jonagold, Jonamac, Puritan, Spigold, Spijon, Stayman, Winesap.

Highly Susceptible. Arkansas Black, Delicious, Rome Beauty.

Reactions of apple varieties to cedar-apple and cedar-quince rusts are based on field observations made in the eastern and midwestern US. For more information on apple diseases and their management consult U.K. Cooperative Extension Publications ID-92, *2003 Commercial Tree Fruit Spray Guide*, and ID-93, *Midwest Tree Fruit Pest Management Handbook*, available at Kentucky County Extension offices.

LAWN & TURF

VELVET ANTS - NOT SO VELVET TOUCH

by Lee Townsend

Velvet ants, also known as "cowkillers" are large and furry like a bumble bee, but are marked with red and black or orange and black. Actually they are a type of wasp with a very long stinger and potent venom. The "cowkiller" name refers to the pain of a sting.

Velvet ants can be seen running around in the yard during late summer. They are parasites of bees and wasps that nest in the ground. Velvet ants prefer bare areas in sandy soil where their prey are most likely to be found. There is no effective control measure for them. If they are particularly abundant in an area, it may be helpful in the long run to overseed to get a better grass cover. This would discourage the ground nesting bees and wasps on which velvet ants feed.

STINGING CATERPILLARS

by Ric Bessin

Most people know that bees, wasps, hornets and some ants can sting to defend themselves or their nests. Only a few people realize, usually from first hand experience, that handling or brushing against some caterpillars can produce some painful results, also. Recognizing the few stinging caterpillar species may prevent unpleasant encounters. Common stinging caterpillars in the early fall include the saddleback caterpillar and the stinging rose caterpillar.

Saddleback caterpillar is brown in front and rear, green in the middle with a purple spot in the center of the green saddle. There are prominent horns on the front and rear. Stings by this insect can cause severe irritation. Saddlebacks are typically found on deciduous trees such as basswood, chestnut, cherry, oak, and plum, but occasionally they can be found on corn.

The stinging rose caterpillar is a yellow to red spiny caterpillar with black and blue stripes down the middle of its back and less distinct red, blue and black stripes along the side of the body. There are prominent spiny yellow

horns on the front, rear and center of the body. They can be found feeding on bushes and low tree branches of redbud, oak, hickory, bayberry, wild cherry and sycamore.

Most encounters with stinging caterpillars result from accidentally brushing against leaves on which they are feeding. The chances of running into these insects are relatively low, but occasionally one species may be very abundant. Also the more time spent in wooded areas, the greater the opportunity for contact. Most of these caterpillars are distinctly marked or brightly colored. This allows you to see and avoid them. If you find one on yourself, don't brush it off or slap it with a bare hand. Use a stick or other object to remove it carefully. Hollow spines may break off in clothing or gloves.

For more information on stinging caterpillar, see ENTFACT-003, *Stinging Caterpillars*.

HOUSEHOLD

FRUIT FLIES

by Mike Potter

Fruit flies can be a problem year round, but are especially common this time of year because they are attracted to ripened or fermenting fruits and vegetables. Tomatoes, melons, squash, grapes and other perishable items brought in from the garden are often the cause of an infestation developing indoors. Fruit flies are also attracted to rotting bananas, potatoes, onions, and other unrefrigerated produce purchased at the grocery store. This column will explain how infestations originate and how they can be prevented in your clients' homes and businesses. Description and Habits-Fruit flies are common in homes, restaurants, supermarkets and wherever else food is allowed to rot and ferment. Adults are about 1/8 inch long and usually have red eyes. The front portion of the body is tan and the rear portion is black. Fruit flies lay their eggs near the surface of fermenting foods or other moist, organic materials. Upon emerging, the tiny larvae continue to feed near the surface of the fermenting mass. The surface feeding behavior of larvae is significant in that damaged or over-ripened portions of fruits and vegetables can be cut away without having to discard the remainder for fear of retaining any developing larvae.

The reproductive potential of fruit flies is enormous; given the opportunity, they will lay about 500 eggs. The entire life cycle (egg to adult) can be completed in about a week.

Fruit flies are especially attracted to ripened fruits and vegetables in the kitchen. They also will breed in drains,

garbage disposals, empty bottles and cans, trash containers, mops and cleaning rags. All that is needed for development is a moist film of fermenting material. Infestations can originate from over-ripened fruits or vegetables that were previously infested and brought into the home. The adults can also fly in from outside through inadequately screened windows and doors.

Fruit flies are primarily nuisance pests. However, they also have the potential to contaminate food with bacteria and other disease-producing organisms.
 Prevention- The best way to avoid problems with fruit flies is to eliminate sources of attraction. Produce that has ripened should be eaten, discarded or refrigerated. Cracked or damaged portions of fruits and vegetables should be cut away and discarded in the event that eggs or larvae are present in the wounded area. A single rotting potato or onion forgotten at the back of a closet, or fruit juice spillage under a refrigerator can breed thousands of fruit flies. So can a recycling bin in the basement that is never emptied or cleaned.

People who process their own fruits and vegetables, or make wine, cider or beer should ensure that the containers are well sealed; otherwise, fruit flies will lay their eggs under the lid and the tiny larvae will enter the container upon hatching. Windows and doors should be equipped with tight-fitting (16 mesh) screens to help prevent adult fruit flies from entering from outdoors.
 Eradication- Once a structure is infested with fruit flies, all potential breeding areas must be located and eliminated. Unless the breeding sites are removed or cleaned, the problem will continue no matter how often insecticides are applied to control the adults. Finding the source(s) of attraction and breeding can be very challenging, and will require persistence on the part of the client -- guided by your suggestions as to where these areas might be. Potential breeding sites that are inaccessible (e.g., garbage disposals and drains) can be inspected by taping a clear plastic food storage bag over the opening overnight. If flies are breeding in these areas, the adults will emerge and be caught in the bag.

After the source of attraction/breeding is eliminated, a pyre thrum-based, aerosol insecticide may be used to kill any remaining adult flies in the area. A better approach, though, is to construct a trap by placing a paper funnel (rolled from a sheet of notebook paper) into a jar which is then baited with a few ounces of cider vinegar or a slice of banana. This simple but effective trap will soon catch any remaining adults. Faster results can be achieved by installing additional traps. Since more fruit flies will be caught in traps closest to the breeding source, the technique can also help pinpoint the source of the problem. Adult fruit flies caught in traps can be killed or released outdoors.

DIAGNOSTIC LAB HIGHLIGHTS

by Julie Beale and Paul Bachi

Thanks to the Extension Agents for their patience during our absence last week for our national plant pathology meeting. Although diagnostic activities were limited last week, we did diagnose several cases of potash deficiency in soybean, as well as soybean cyst nematode, sudden death syndrome and Rhizoctonia root rot. On tobacco, we saw blue mold, frogeye leaf spot, black shank, target spot, and weather fleck.

Other samples diagnosed included Ganoderma root and trunk rot on Kentucky coffeetree; gummy stem blight on cantaloupe; blossom end rot on pepper; and early blight on tomato.

INSECT TRAP COUNTS

UKREC, Princeton KY

August 8-15, 2003

Black Cutworm	4
True Armyworm	23
Fall armyworm	1
European corn borer	4
Southwestern corn borer	41
Corn earworm	67

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.