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Tobacco

Current Blue Mold Status

by William Nesmith

Watch For Southeastern Kentucky: I am issuing a Blue Mold Watch for tobacco growers in southeastern Kentucky. A strong outbreak of blue mold was confirmed this morning (May 27) in a float bed near Greenville, Tennessee. Dr. Darrell Hensley, University of Tennessee Extension Plant Pathologist, reported that all plants were infected and were producing heavy sporulation this morning, and probably had been for several days. With that level of uniform activity, I am assuming that blue mold has been present nearby for a while, so I strongly suspect the disease is more widespread than this one site. Recall that the warning system predicted that conditions were favorable for transport of inoculum from the Florida/Georgia production to eastern Tennessee around May 5. I suspect activity became established from that event, but went undetected. Thus, considering the above and our recent weather, most likely the pathogen has been blowing about the eastern burley region and into Kentucky for several days under highly conducive conditions for survival of inoculum in route and infection after arrival. Thus, we probably already have active blue mold in southeastern Kentucky and the eastern burley region!

To aid in controlling blue mold in the burley belt at-large, I strongly discourage the movement of transplants out of southeastern Kentucky/east Tennessee to other regions. Appreciate that once established within the burley region, growing moving transplants need to seriously consider the risk from plants within the region as well as those from without!

Prompt action by growers in the region could greatly reduce the threat of blue mold locally and to the region at large. Spray programs should be put in place and maintained in southeastern Kentucky for both transplant and field operations. Growers in southeastern Kentucky are also urged to increase scouting/surveillance efforts. Transplants should be scouted daily for blue mold and fields at least twice weekly. Promptly report all blue mold activity to the local county extension office, and extension offices need to keep me updated on the county’s blue mold status. Immediately report the first occurrence in each county to the UK Plant Disease Diagnostic Laboratory. This is required by the USA-China tobacco trade agreement.

Statewide, keep spray programs in place in all transplant operations, including holding sites, until the plants are set. In the field, immediately start weekly fungicide spray programs in southeastern Kentucky. Elsewhere in Kentucky, growers need to remain very alert to any changes in blue mold status and become prepared to initiate field sprays should the situation warrant. Any fields set within the past two weeks with transplants from the southeastern USA, western North Carolina, eastern Tennessee, western Virginia, or southeastern
Kentucky should be put on a weekly, preventive, fungicide spray program using Acrobat MZ. Follow the label carefully for rates according to plant stage.

Application guidelines for the fungicides labeled for blue mold control in transplant production systems and in the field in Kentucky have been presented in recent issues of Kentucky Pest News: Transplant fungicides in the March 24, 2003 issue number 978 at web address: http://www.uky.edu/Agriculture/kpn/kpn_03/pi030324.htm

Field fungicides in the April 28, 2003 issue number 983 at web address - http://www.uky.edu/Agriculture/kpn/kpn_03/pi030428.htm

CORN

SUGARCANE BEETLE FOUND IN KENTUCKY
by Doug Johnson

In southwestern Kentucky we have experienced yet another unusual field crop pest. This time it is the Sugarcane beetle on field corn. Although this insect has been reported from Kentucky before, it is an unusual and uncommon pest for us. Why has it shown up this year? Well, your guess is as good as mine. My colleagues in Tennessee report that they have been having trouble with this beetle for the past two years.

Before you get too carried away, this is a single report from a single field. This is not (as least as far as we know) an out break. However, given that Tennessee has been having significant problems it bears a fair warning. Here is what we know about our find.

CROP: Field Corn - Other corn types may also be attacked.

PEST: Sugarcane beetle, *Euetheola humilis rugiceps* (LeCont), Coleoptera:Scarabaeidae

LOCATION: Christian Co. KY near the Trigg Co. Line. (This producer also farms in TN.)

DAMAGE: Missing and wilted plants. Upon examination you see ragged feeding and some to many plants with “big chunks” eaten out of the side of the stem just below ground level. You will find a black beetle doing the damage. Warning - there are also ground beetles, (predatory beetles) present. These are more elongate and flat beetles. See Entfact-104, *Ground Beetles* at: http://www.uky.edu/Agriculture/Entomology/entfacts/pdfs/entfa104.pdf

DESCRIPTION: The beetle is black, about 1/2” to 5/8” long with ribs along the wing covers. The front legs are strong and adapted for digging. Larva are “white grubs” up to 1 1/4’ long. In this case it is the BEETLE not the grub that is the problem. The beetle will have the general shape of Japanese beetle or green June beetle.

LIKELY SCENARIOS
1.) Wrong diagnosis. - I hope so, but not likely as I have seen the beetles, compared them to a standard provided by Dr. Russ Patrick from UT, as well as photos and drawings. Samples have been sent to the state collection.
2.) Isolated incident. - Maybe. The farmer also farms in TN he could have moved the beast, but before you point any fingers, it could just as easily be our series of warm winters that have allowed northward movement and/or greater winter survival.
3.) Widespread but as yet unnoticed. I hope not but this is why I am trying to get the word out.

We will soon have some information up on our IPM web pages at: http://www.uky.edu/Agriculture/IPM/ipm.htm For now listed below are a couple of fact sheets from TN and NC on the web. With these you can get some idea of the nature of this pest, what it looks like and what type of damage it does from these pages.

University of Tennessee - http://www.utextension.utk.edu/spfiles/SP341-Q.pdf

FORAGE CROPS

WHITE MOLD OF ALFALFA
by Paul Vincelli

A sample of alfalfa severely affected by white mold disease was received in the Plant Diagnostic Lab last week. The sample came from a field in northern Kentucky. If the disease is highly active, the stems and leaves appear mushy and soft and may exhibit white moldy growth. A couple days of dry weather can dry out these symptoms and signs, in which case plants appear to simply be drying rapidly from the lower canopy upwards. If you cut into affected stems, you will find that much of the stem is empty, hollowed out by the fungus. You may also find small survival bodies called sclerotia. Sclerotia are black on the outside and white or gray on the inside. You may also find white moldy
growth inside the stem at the advancing edge of the infection. Crowns of affected plants typically are unaffected.

White mold disease is caused by *Sclerotinia sclerotiorum*. This is related to the fungus that causes *Sclerotinia* crown and stem rot of forage legumes, which is called *Sclerotinia trifoliorum*. However, they are distinct species, and fortunately, the white mold disease does not typically cause significant stand loss. This is the same white mold fungus that attacks tobacco, canola, and vegetables.

White mold is most likely to attack alfalfa that is overgrown, particularly when springtime growing conditions are unusually wet. Prompt cutting and harvest is the only control measure necessary against white mold in alfalfa.

**ERGOT RISK IN TALL FESCUE**

by Paul Vincelli

Recent humid, rainy weather with moderate temperatures during the period of flowering of tall fescue may have been favorable for infection of the flowers by the ergot fungus *Claviceps purpurea*. *C. purpurea* is related to the fungal endophyte of tall fescue, and both are capable of producing potent toxic alkaloids that affect animal health (and human health, if eaten). This is not a trivial issue; I once was subpoenaed to give a deposition in a case in Kentucky with economic losses of over $2 million, in which ergot was implicated as the cause.

The ergot fungus infects only the flower parts of certain grasses, and replaces the seed with “ergots”. Ergots are survival bodies of the fungus that are easily recognized with the naked eye. They look like dark brown to black, curved cigars measuring 1/8 inch to 3/8 inch. They are longer than grass seed, so they stick out beyond the glumes. If you cut them open, you’ll see that they have a gray to whitish interior. These ergots will be evident as the seedheads approach maturity.

**Management**

Preventing livestock from consuming a significant dose of ergot sclerotia is the only reasonable course of action.

- **Pasture**
  If seedheads form, inspect them for ergots. If they are found, mow before turning livestock out into the pasture. Mow the seedheads along the fencerow, as well.

- **Hay**
  If the seedheads are dry before harvesting, the ergot sclerotia will often fall to the ground during cutting/tedding/baling. However, if the seedheads were still somewhat green when cut, the sclerotia can remain attached to the seedhead, and will end up in the bale. In harvested hay, ergot sclerotia constitute a very small fraction of the total forage in the bale. Because of this, the risk from feeding these bales is low. However, repeated feeding of infested hay into a feedbunk can lead to accumulation of the ergot sclerotia at the bottom of the bunk. Livestock may then consume a high dose of sclerotia when they feed on this residue.

  - **Seed Production**
    Where tall fescue is being grown for seed, avoid feeding screenings that may be contaminated with ergot sclerotia. Seed-cleaning operations concentrate the sclerotia and can pose a great hazard if fed to livestock.

Thanks to Dr. John Johns, UK Extension Beef Scientist, for past consultations with me on this topic.

**FRUIT CROPS**

**SPRAYING GRAPES FOR DISEASE MANAGEMENT**

by John Hartman

Kentucky grape growers have been facing several diseases such as black rot, Phomopsis cane and leaf spot and downy mildew associated with excessively moist weather this spring. These diseases are not difficult to manage provided timely fungicide sprays are used. Often times, growers, especially new growers are unaware that repeated fungicide applications are needed to prevent disease epidemics from getting started. These most critical early applications begin at bud break and continue until bloom.

Grapes are blooming now. Assuming that bud break occurred on about the first of April, eight weeks have elapsed since the first fungicide applications should have begun. The recommended spray schedule for applications is every 7-14 days. If growers were at least able to apply fungicides about every 10 days, the sixth and seventh fungicide applications would have been made last week and later this week. If it had been a dry spring, perhaps four fungicide applications would have sufficed, but it was wet.

The diseases of concern during these past eight weeks were black rot, Phomopsis cane and leaf spot, downy mildew, and powdery mildew. All of these diseases impact the health of the vine, so they are needed whether or not the new planting is producing a crop. Suggestions for fungicides to use and their timing are found in U.K. Cooperative Extension publication ID-94, *Midwest Commercial Small Fruit and Grape Spray Guide*, 2003. Choose fungicides that are labeled for use on grapes and are effective against the diseases to be managed. Many
fungicides have a broad spectrum of activity and control several diseases.

Black rot, caused by the fungus *Guignardia bidwellii*. The fungicides Abound, Bayleton, Elite, Ferbam, Flint, Mancozeb, Nova, Sovran, and Ziram provide excellent control. Fungicides such as Procure, Ridomil Gold MZ, and Rubigan also provide moderate control.

Phomopsis cane and leaf spot, caused by the fungus *Phomopsis viticola*. Captan and Mancozeb provide excellent control whereas Benlate, Topsin-M, and Ziram provide moderate control.

Downy mildew, caused by the fungus *Plasmopara viticola*. Fungicides such as Abound, Captan, fixed copper, Mancozeb, Ridomil Gold MZ and Ridomil Gold Copper provide excellent control. Sovran and Ziram provide moderate control.

Powdery Mildew, caused by the fungus *Uncinula nectar*. Excellent control is provided by Abound, Benlate, Elite, Flint, JMS Stylet Oil, Nova, Procure, Rubigan, Sovran, Sulfur, and Topsin-M. Fixed copper and Ridomil Gold Copper provide moderate control.

Growers will want to continue fungicides for black rot, downy mildew, and powdery mildew management from now until veraison. Then, growers will need to begin using fungicides to control Botrytis bunch rot and bitter rot. Spraying frequency will depend on the weather.

VEGETABLES

COMMERCIAL VEGETABLE PRODUCTION NEED MUCH MORE AGGRESSIVE BACTERICIDE/FUNGICIDE SPRAY PROGRAM DURING RAINY SEASONS

by William Nesmith

Most of Kentucky’s experienced commercial vegetable growers have been spraying fungicides/bactericides frequently (at least weekly) during the past month. In contrast, many of Kentucky’s tobacco growers-turned vegetable growers have not been spraying. Why this difference? Many of these new growers have not yet learned that they must be able to spray aggressively in wet weather seasons to control bacterial and fungal diseases. As one experienced Wayne County vegetable grower recently said, “You must be able to control diseases to grow marketable vegetables and you must be able to spray in the mud to control diseases in this weather.”

Based on recent phone calls and email messages, it appears that a number of our commercial vegetable growers have not been maintaining adequate spray schedules during all this rainy weather. Some indicated they had not even started spraying, as they are waiting for it to dry up so the spray material will not be washed off. Folks, that is not the way it works! Most diseases are favored by wet conditions, so the wetter it is the more often you must spray. That means you must be able to get into the fields with spray equipment during wet weather, too. Spraying from drive or sod strips rather than down the rows is often a key factor in wet weather.

The prolonged wet conditions that we have experienced during the past month have been highly conducive for the establishment of most, but not all, diseases. Those pathogens that could also handle the cool temperatures have rapidly expanded in unsprayed plantings. Some are experiencing strong outbreaks of bacterial diseases (cankers, leaf spots/blights, and soft rots. Fungal diseases have a good start, too, with downy mildew active in cole crops and Sclerotinia is more active than normal. Pythium, Phytophthora, and Rhizoctonia are established. Moreover, the summer pathogens have also gained a foot hold during this wet weather, so expect a marked increase in summer disease potential this year. Expect bacterial diseases to quickly get out of hand in a number of crops, if good spray programs have not been maintained. In fact, some growers have probably waited too long to start effective programs.

Commercial vegetable growers need to appreciate that a better disease control spray program is needed in wet seasons than in dry seasons. Bactericides/fungicides need to be applied at much closer intervals during wet weather than in dry weather. For example, one grower had been using a mixture of materials labeled for use on a 5 to 14-day interval. Again this year, he was using it on a 10-14 day intervals, which had been acceptable the previous two seasons. With the wet weather we have had, he should have been on a 5 to 7-day schedule.

See ID-36, Commercial Vegetable Crop Production Guidelines, for the details of disease controls, in general, and for specific diseases by crop.

REDUCED INSECTICIDES RATES MAY NOT DO THE JOB YOU EXPECT

by Ric Bessin

Some growers are using below label rates of Admire 2 F to control cucumber beetles and squash bug feeding on cucurbit crops. Some of these growers are using only 4 to 5 fluid ounces per acre, far less than the minimum rates of 16 fluid ounces. While growers are not permitted to use more than the label specifies, they can use less than the label requires. When growers do this, incomplete control of the pest will be their responsibility, not that of the company that produced the product, as they did not
use it at the listed rate.

In field trials at the UK South Farm, performance of reduced rates of Admire for cucumber beetle demonstrated shorter intervals of control. Our experience has been four to five weeks of control of cucumber beetles when used according to the label. Below label rates may only provide one to three weeks of control. Growers using lower rates will need to monitor fields regularly, and use additional foliar applications of other insecticides when cucumber beetles numbers begin to increase. As cucumber beetles are persistent vectors of bacterial wilt, control of bacterial wilt is dependent on control of cucumber beetles. The beetles must be controlled before they feed heavily on the young plants.

Use of below label rates may cause other problems as well. Low use rates has the potential to favor the development of insect resistance. This is because those pest insects that may be only partially resistant are more likely to receive a small dose that does not kill them. Over time, this can lead to higher levels of resistance in the field. In fact, this is often how researchers develop resistant insect colonies in the laboratory.

Our recommendations for vegetable crops producers is to always follow label directions and use insecticides at the rates listed on the label.

WHEAT

BACTERIAL STREAK: MORE THAN A CURIOSITY?
by Don Hershman

During the past week there has been a significant increase in bacterial streak in many fields throughout west Kentucky. Bacterial streak is caused by the bacterium Xanthomonas campestris pv. translucans. The symptoms we are seeing at this time are irregularly shaped and sized brown streaks, often with yellow margins, on flag and F-1 leaves. Some leaves are completely brown and withered. In most fields, the symptoms appeared over a 7-day period on otherwise healthy leaf tissue. Most times, the symptoms are present in groups of plants in oblong to round patches of 1-3 meters in diameter. Patches may be scattered at various locations in the field. Symptoms are frequently evident in strips along the edges of fields next to farm roads and on hillsides. I have not heard of any situations where large portions of a field are involved.

We are also beginning to see widespread symptom development of the head phase of the disease, called black chaff. Black chaff symptoms are evident as a purple-brown streaking of glume veins, which is often more prominent at the tips of glumes. We commonly see black chaff in Kentucky, so this occurrence is not unusual. In the past I have not considered black chaff to be much of a yield threat, and, in fact, the literature clearly indicates that the foliar phase (bacterial streak) is what causes yield and test weight losses. The most serious impact of bacterial streak is on grain filling. Plants with 10% bacterial streak on the flag leaf by early grain fill will lose about 5% of their yield potential. Plants with 50% disease can be expected to lose about 20% of their yield. Of course, these yield loss estimates are for diseased plants, and what I have seen, thus far, suggests that overall disease incidence is very low in most fields. In other words, I do not expect bacterial streak to cause detectable yield losses in most fields where it is now evident.

Campestris pv. translucans is primarily seed-borne, but the rate of seed transmission relative to the appearance of black chaff symptoms in heads is rather low. The bacterium does not survive well in either soil or crop residue. It is, however, readily maintained, even increased, on various grassy weeds. The seed-borne aspect of this disease explains the appearance of symptoms in patches. Basically, low levels of seed were infested at the time of planting. Bacteria overwintered on individual, or perhaps, groups of plants. Epiphytic populations (populations on the surface of wheat tissue) probably increased as the plants developed. Then about two weeks ago we had some VERY humid and warm weather that was probably ideal for infection. During that weekend, we also had some severe weather with considerable wind and wind-driven rain. Unlike fungi, bacteria are incapable of direct penetration of host tissue, and can only enter through natural leaf openings or when bacteria are “driven” into tissue by the impact of small, wind-blown soil particles. Apparently, this latter means of entry is what has led to the recent explosion in bacterial streak symptoms in most fields. This also explains the rather obvious bacterial streak that is occurring next to farm roads and on sides of hills (i.e., areas subject to high wind pressure and or close to a source of abrasive particles).

Bacterial streak/black chaff, being caused by a bacterium, is totally unaffected by any foliar fungicide application. Thus, do not think your fungicide treatment failed if you see bacterial streak/black chaff. Secondary fungi frequently colonize tissue killed by bacterial streak, but these fungi do not cause damage themselves. Apparently, there are varietal differences in susceptibility to this bacterial disease; however, this information is poorly developed for soft red winter wheat.

In addition to bacterial streak, as predicted, we have also seen increases in key fungal diseases since my last report. Of most note is a rapid increase in Fusarium head blight and Stagonospora leaf and glume blotch. Leaf rust
continues to be at low levels in most fields, although there has been an increase, overall. Nonetheless, we appear to have escaped a serious leaf rust problem this season. Low rust levels are probably due to the marginal leaf rust weather we have had this spring. Of course, the use of rust-effective fungicides and resistant and moderately resistant varieties has also helped greatly.

I will write more on these diseases next week as it is a bit premature to know how extensive they will become.

**SHADE TREES & ORNAMENTALS**

**CALICO SCALE ALERT**

*by Mike Potter*

In recent years, calico scales have become prevalent on several landscape plants, including honeylocust, hawthorn, hackberry, dogwood and flowering crabapple. Infestations are so heavy in some cases that entire twigs and stems are covered by the scales and the trees are in decline.

Mature calico scales, *Eulecanium cerasorum*, are large, black and white globular-looking insects about the size of a pencil eraser. They have a soft, leathery body and when crushed ooze a gummy, wax-like fluid. The immobile, adult female is the life stage observed during the spring, attached to twigs and stems. Some people mistake them for ladybird beetles which are roughly the same size. Like other scale insects, the calico scale feeds by sucking plant juices. Heavy infestations can cause premature leaf drop, branch dieback and, coupled with other stresses, eventual tree death.

The mature females are now dying. Underneath them, though, are thousands of eggs which have begun hatching into crawlers. The crawler stage prefers to suck plant juices from the leaves (further stressing the plant) and also excretes copious amounts of honeydew. The sticky honeydew and resultant sooty mold are cosmetically unappealing and can stain patios and car finishes, and attract wasps and other nuisance pests. Another reason to take action against the crawlers is that they can become wind borne, spreading the infestation to other trees nearby.

Management

It’s too late to impact the mature females, which will be dying off soon anyway. However, the underlying eggs have hatched and the crawlers have begun to crawl about and settle on leaves. The yellowish, newly-hatched crawlers are tiny, but under close inspection their movement will be visible to the naked eye.

Insecticide applications, timed to coincide with emergence of young crawlers, will break the cycle of development and help alleviate further plant stress. Conventional insecticides labeled for crawler control include Dursban, Malathion, Orthene, and especially synthetic pyrethroids such as Talstar, Tempo (= Bayer Advanced Lawn & Garden Multi Insect Killer), and Scimitar (= Spectracide Triazicide). So-so control of crawlers can also be achieved with 2% horticultural oil or insecticidal soaps. Thorough coverage of infested twigs, branches and adjoining leaves is important, and since the hatching period often lasts about a month, a second application probably should be made 2 to 3 weeks after the first.

Calico scales overwinter on the bark as mid-sized nymphs. To further reduce the likelihood of problems occurring next year, it probably would be wise to follow up with a dormant oil application in fall or winter to trees that were heavily infested with calico scales this year.

**BORERS ARE FLYING**

*by Mike Potter*

Four serious pests of landscape trees – dogwood borer, bronze birch borer, flatheaded apple tree borer, and honeylocust borer – are beginning to emerge. The dogwood borer is the most serious pest of ornamental dogwoods, especially stressed trees in full sun. The bronze birch borer is a severe pest of white or paper birch, especially cultivated trees under stress. Flatheaded apple tree borers are major pests of red maples, hawthorns, flowering crabapple, and several other hardwoods, especially those which are newly transplanted or under stress. Honeylocust borers are serious pests of transplanted and established urban trees with limited root zones. Mated females of all four species fly to host trees and lay eggs on the bark.

Management -- Borers rarely injure healthy trees or shrubs growing in their natural environments.

In urban settings, landscape plants are subject to many stresses making them more susceptible. Limb breakage and wounding from the recent ice storm has further affected trees that were previously healthy. When transplanting into landscape settings, every effort should be made to minimize plant stress (drought, soil compaction, sun scald, lawn mower/weed trimmer injuries, etc).

Because all newly planted trees are under considerable stress, preventive borer sprays are advisable during the first 2-3 growing seasons after planting. Timing is crucial in order to have a lethal residue of insecticide on the bark to intercept newly-hatched larvae before they burrow into the tree. *Now is about the time to apply protective sprays for all four borer species.* Lindane or Dursban, the long-time standards for borer control, are no longer being widely produced and will be hard to find in retail stores. Existing supplies, commercial or otherwise however, may
still be used up. Permethrin-containing insecticides such as Astro are effective alternatives. For more information on borers, see ENT-43: *Insect Borers of Trees and Shrubs*.

**LEAF BEETLES HIT SOME WILLOWS HARD**

by Lee Townsend

Imported willow leaf beetles are 1/8 to 1/4 inch-long shiny black to blue-green beetles. Cottonwood leaf beetles are just under 3/8-inch long with yellow and black markings. Samples and feeding injury for both species have been sent in for identification.

Imported willow leaf beetles and cottonwood leaf beetles spend the winter as adults under bark or leaf debris around willow, cottonwood, or poplar trees. They begin to feed on leaves at bud break and lay small batches of yellow eggs. Elongate dark larvae will emerge from the eggs and begin to feed on the foliage, also. Small larvae will feed on the undersides of the leaves first, then can be found on the upper or lower leaf surface. Larvae will feed for about two weeks. Damage will include browning of the leaves where skeletonization has occurred and small holes. There are two or more generations of each species so there will be more damage later in the summer.

Willow leaf beetle feeding damage is primarily cosmetic on large, healthy trees and control measures are not essential. However, several years of heavy leaf loss on older trees or the stress from heavy beetle feeding on small, newly planted trees, or those that are otherwise unhealthy can further reduce tree health or in rare instances contribute to mortality.

Orthene (acephate), Sevin (carbaryl), neem products and insecticidal soap are among the products that can be used for control. Spray coverage must reach the upper and lower leaf surfaces. Results generally are best against small larvae.

**INSECT TRAP COUNTS**

UKREC, Princeton KY

May 16 - 23

Black Cutworm ........................................ 1
True Armyworm .................................. 15
European corn borer ................................. 7
Southwestern corn borer ............................. 1
Corn earworm ...................................... 22

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.