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June 26, Crop, Soil, & Pest Management Field School UK Spindletop Farm Lexington, KY 4 General hours Categories 1 (Ag Applicator), 10 (Demo and Research), 12 (Retail Pesticide Sales Agent) Contact: Dr. J. D. Green (859) 257-4898.

TOBACCO

CURRENT BLUE MOLD STATUS
by William Nesmith

Updating ADVISORY : We still have no reports of blue mold activity from Kentucky or adjacent states, but the weather conditions remain highly conducive for development in our region should inoculum be present. We believe the only opportunities for inoculum to have arrived were those described in the May 5 report, plus on any transplant/pugs arriving from the south, unless someone allowed it to overwinter in a greenhouse. Our winter conditions were sufficiently severe that tobacco roots infected with blue mold should not have survived this year. Seedlings have arrived in the state from the deep south, however.

Growers using local transplants are urged to remain alert to changing blue mold conditions. Keep spray programs in place in ALL transplant operations, including holding sites, until the plants are in the field. Fields should be scouted weekly for blue mold, especially in southeastern Kentucky. Spray programs in the field should not be warranted at this time unless the plants are connected to a southern transplant source. However, any crop set to the field with plants having a southern connection should be receiving weekly sprays of Acrobat MZ.

Blue mold has been increasing in northern Florida according to a recent report from Dr. Tom Kucharek, Extension Plant Pathologists with the University of Florida. He reports that blue mold is not yet causing a major problem, but that plant canopies are closing, and increased disease activity is expected if the weather becomes more favorable. The North American Plant Disease Forecast Center at NC State University advised recently that the presence of this blue mold in Florida and a wet weather system which operated in northern Florida and Southern Georgia from Sunday through Tuesday increases the chances of moving blue mold inoculum into the southern Appalachian Mountains, extending as far north as northeast Tennessee and southwest Virginia. Their models predict that the air masses containing the spores will turn eastward prior to reaching Kentucky, however.

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

EXPECT INCREASED EARLY-SEASON FIELD DISEASES DUE TO WET WEATHER
by William Nesmith

The prolonged wet weather will greatly increase the potential for early season diseases in tobacco, especially those of the root and lower stem. Transplanting has been delayed on many farms resulting in holding plants under conditions highly conducive for disease development, so diseased transplants will be set in some cases. Where plants have already been set, the poor growing conditions due to cold, saturated soils increase the chances for infection from field pathogen, especially those of the root and lower stem.

Blackleg/Bacterial Soft Rot- This disease has become very active in some transplant operations in the past week, appearing as a slimy, stinking soft rot of the lower stem, usually running up one side. Transplant survival is highly unlikely when setting plants infected with soft rot to the field under any conditions, plus in wet weather it can be spread more easily to other plants during the transplanting operation. Usually where this disease has occurred in transplants, they have been predisposed to it by over-fertilization and hard clipping. Infected plants should not be set, plus be very careful in selecting other plants coming from the same trays or bays. This pathogen is very easily spread during transplanting and handling operations. Crops being set with some soft rot activity associated with the transplants could benefit significantly from field sprays of Streptomycin at 100 ppm, directed to the foliage, immediately after transplanting (within minutes to a few hours) to kill the microbe before it enters wound sites on the plant. Our experiments have shown that post-transplant applications of streptomycin have almost no positive effect if delayed until the next day or after symptoms start appearing.

Setting Pythium infected transplants- Pythium has been very active in float beds this year. Pythium soft rot of the stem, as well as Pythium root rot, are now occurring in the field, too. Very wet conditions following transplanting are very favorable for Pythium to invade. Considering the amount of soil saturation that has occurred, we were fortunate that soil temperatures are still low, because had this occurred at higher temperatures, a much more serious outbreak of Pythium probably would have developed. If the wet weather continues with significantly higher temperatures, expect Pythium soft rot in the field to become much more aggressive. Two very different events were noticed last week associated with Pythium in the field. Early in the week, plants with Pythium rotted roots could not keep up with the high evapo-transpiration associated with the very windy days. Such plants remained very stunted. As one grower stated, “My plants are going the other way.” Once the rainy periods returned and plants were setting in saturated soils with surface water on the stem, Pythium moved into the stem causing a watery soft rot. In some cases, this stem rot resulted from field sources of Pythium, but in others it was coming from the transplants. Ridomil Gold or Ultra Flourish used in the field immediately prior to transplanting and lightly incorporated into the actual root zone can be very helpful in reducing Pythium soft rot. These chemicals must be in the actual root zone to be effective, however. Applications made prior to heavy rain events could have leached well below the needed zone prior to setting, thus the reason for the application immediately prior to transplanting.

Black shank - The harsh winter help to reduce the level of black shank inoculum in the upper root zone, but the recently wet weather has favored movement of surviving inoculum about the fields. Thus, growers are urged to have fungicide programs in place in fields at risk of black shank. Preplant and cultivation applications are warranted under the conditions we are experiencing. Black shank can also cause a damping off condition of newly set tobacco, just like Pythium. However, if black shank is involved, the dead plant normally has a darkened stem.

Black root rot- Cool, wet soils will provide ideal conditions for increased black root rot where varieties with low to medium resistance have been set into non-rotated fields. Infected plants will appear stunted. This disease has declined in recent years because the majority of burley varieties have very high resistance to black root rot. But, most of the dark tobaccos being used are still highly susceptible. There are no fungicides available to help with this disease.

CORN

CRAZY TOP
by Paul Vincelli

The sustained wet weather of recent weeks may raise concern about the risk of crazy top in corn. This disease is favored by flooding early in crop development.

Infection Process: Flooding of corn between emergence and the 4-5 leaf stage for 24-48 hr allows swimming zoospores of the crazy top fungus to enter the whorl and infect the growing point of corn. If infection occurs, the plant will produce numerous tillers, a leafy tassel (“crazy top”), and...
Occurrence: The fungus that causes crazy top occurs in Kentucky and surrounding states, but it is not a widespread problem. Since the early 1980’s, we have diagnosed only five cases in the state, and only one case was anything approaching an economic level of loss. The fungus also infects wheat, several turfgrasses, and certain wild grasses, but is rarely important on other grass crops. Furthermore, I am aware of no instances of reported flooding of corn fields, although there may be scattered occurrences of these where the disease may show up.

Current Outlook: With the kind of spring we’ve had, I do expect to diagnose a few cases of crazy top this year. Most, if not all, cases are likely to be minor. Serious economic loss from crazy top is uncommon throughout the Midwest. It is important to note that serious loss can happen. Indeed, it may happen somewhere in Kentucky this year. However, many times in the past Kentucky corn producers have experienced serious flooding episodes of corn that would have allowed crazy top infection, yet serious cases are almost non-existent. This suggests that inoculum levels are generally very low.

RISK OF LEAF DISEASE IN LATE-PLANTED CORN
by Paul Vincelli

Rainfall has been 1.5 inches or more above normal for the past 2 two weeks over most of the state. This is likely causing a delay in seeding some of the corn crop. Warm, dry weather in early spring allowed much of the corn crop to be planted. The above-normal rainfall this month is delaying planting of many fields. Thus, we will likely have a “bimodal” distribution of corn crops in many areas: well-developed, early crops very close to young, late-planted crops.

Such a distribution of crops—a mix of older and younger crops near one another—puts the later crops at a higher risk for certain fungal diseases of leaves, especially gray leaf spot, southern leaf blight, and northern leaf blight. Early fields can be a source of spores for late-planted field. Also, late-planted corn can be at an earlier stage of crop development during periods of spore release and leaf blighting. Leaf blighting early in plant development will reduce yields by decreasing photosynthetic capability and will increase susceptibility to stalk rots.

Producers planting corn late this spring should use hybrids with adequate levels of resistance to these diseases. This is especially important if the field is under conservation tillage (30% or more residue cover) and has had corn anytime in the last two years.

FORAGE CROPS

WET SPRING INCREASES RISK OF SEEDLING DISEASES OF ALFALFA
by Paul Vincelli

Above-normal rainfall after seeding can favor two important diseases of spring-seeded alfalfa. Pythium seedling disease is present in essentially all agricultural fields in the state. However, the disease is usually not serious for several reasons: seed of alfalfa are normally treatment with either metalaxyl or mefanoxam fungicide, which provide about 2-3 weeks of protection of the seed and young seedling; normally rainfall is not as abundant in May as it has been so far this month; alfalfa can sustain some loss of scattered loss of plants (which is what Pythium tends to do in Kentucky) in the early weeks without a significant effect on total yield.

The disease I am more concerned about is Aphanomyces root rot. This disease can cause highly damaging stunting of the entire planting if rainfall is above-normal for 4-6 weeks after seeding. The fungus, Aphanomyces euteiches, is found in about two-thirds of our alfalfa-producing soils in Kentucky. This disease doesn’t typically cause outright death of seedlings, though it can under severe conditions. More commonly, it causes the plants to stop growing and become severely stunted, often being overgrown by weeds and eventually dying from the weed competition. In addition to stunting, the “seed leaves” (cotyledons) of affected plants turn yellow or red and the true leaves often have a bluish-green cast instead of a healthy deep green. If the plant survives, it often exhibits a yellowish green color for weeks, which is partly the result of rotted nitrogen-fixing nodules.

If cases of Aphanomyces root rot are suspect, samples can be provided to county Extension agents for diagnosis. Because of the widespread risk of this disease, the UK recommendation is to seed only alfalfa varieties in spring that have a R or HR rating for resistance to Aphanomyces root rot.

FRUIT CROPS

HOME FRUIT GROWERS DISEASE CHECKLIST
by John Hartman

With the excessively rainy weather we have experienced this spring in Kentucky, home fruit growers are sure to be concerned with the extent of disease problems that might affect their fruit crops this season. The following is a checklist of potential problems backyard fruit growers might be observing now and might be looking for in the coming weeks. Hopefully, this information will be helpful
to County Extension Agents working with home garden clientele.

**Apples.** Scab is already widely present on leaves of unsprayed susceptible trees. Look for dark, velvety, diffuse spots on leaves. Spots are often concentrated near the veins. Badly infected leaves will turn yellow and drop from the tree later. The presence or absence of apple scab may be an indicator of just how good the gardener’s spray program has been this spring. Gardeners with susceptible trees may need to continue spraying to stop spread of scab. Frogeye leaf spot is also widespread. Inoculum for this disease generally comes from cankered and dead branches in the tree. Presence of frogeye is an indicator of how effective the gardener’s winter sanitation and pruning program has been. Much of the black rot canker derives from old fire blight strikes from last year when fire blight was severe in many apple trees. This year, fire blight incidence is much reduced. The bright orange-red spots of cedar-apple rust are appearing now on apple leaves. Sprays for cedar-apple rust now are ineffective.

**Stone fruits.** Peach leaf curl with its distorted, reddened leaves is present on peach leaves. This disease will not spread further this season. Perennial canker is also appearing on some twigs and branches and should be pruned out. Peach scab disease, with its freckle-like fruit spots and peach brown rot disease will appear later, but fungicidal controls, if used, need to be used now. On plums, black knots, appearing as black lumpy galls on twigs and branches are visible. These knots should have been pruned out in winter. Watch for new knots to form in late summer and prepare to prune them out this winter.

**Grapes.** Black rot symptoms, brown angular to circular spots on leaves, are visible now. This disease should have been prevented earlier this spring, but the total damage can still be reduced with fungicide applications made now and repeated in the coming weeks. This disease will spread to the fruits and cause them to decay and shrivel up before they become ripe.

**Brambles.** Brambles in the garden are usually pretty much free of devastating diseases. Wet soil in some areas has promoted Phytophthora root rot. Brambles grown on raised beds are less vulnerable to root rot caused by this water mold. Continued rains may promote fruit rot diseases caused by Botrytis and Rhizopus fungi. Careful harvesting will help reduce berry spoilage in the kitchen. In rural home gardens, blackberries and black raspberries may be threatened with orange rust disease because the spores of the fungus causing the disease are often carried to the garden from infected wild blackberries and black raspberries growing in fencerows and at forest and field edges.

**Strawberries.** As strawberry harvest time approaches, expect more fruit rot diseases. Some fruit rots, like Botrytis gray mold, are already in the fruit because initial infections often begin in the flowers. Gray mold causes a soft, brown decay of the fruit, often with gray to tan fungal sporulation on the rotted fruit surface. Wet weather also favors leather rot, caused by a water mold. Rotted fruits are still fairly firm, but when eaten have a bitter flavor. Both diseases are reduced by application of straw mulch around the plants so the berries don’t touch the soil.

**Blueberries.** Individual twigs and branches may weaken and die in late spring. Branch dieback often occurs because of canker diseases that occurred when the plants were growing under stressful conditions. Drought stress last season, soil not acid enough, and mechanical injuries are often the stress needed to initiate invasion by canker-causing fungi. Prune out and destroy dead and dying blueberry branches.

Backyard fruit growers will want to refer to U.K. Cooperative Extension publication I.D. 21, “Insect and Disease Control Program for Home Fruit Plantings Including Organic Alternatives,” available at Kentucky County Extension Offices.

**CONTROL SAN JOSE SCALE NOW**

by Ric Bessin

San Jose scale crawlers were found active in a western Kentucky apple orchard in the purchase area on Monday. San Jose scale control has become one of the most important issues in many orchards since the loss of Penncap-M and Lorsban. One of the prime times to control scale is the emergence of the crawler stage with the first generation. Controls are best when applied before the crawlers settle down and form their protective waxy covering. The most effective control for San Jose scale crawlers in Esteem 35W. This is an insect growth regulator.

San Jose scale has become a serious problem in most commercial orchards with some orchards experiencing very high levels. In some instances, limbs and even whole trees have been killed by this insect. This insect is so damaging as it injects a toxin into the tree that will weaken or even kill mature trees. Both pome and stone fruits are susceptible to San Jose scale.

To determine if the crawlers have begun to emerge in your orchard, electrical tape, wrapped sticky side out around scaffold limbs with scale can be used to trap the minute crawlers. They appear are very minute yellow flecks on the edge of the tape. A hand lens is helpful in seeing these insects. A hand lens can also be used to spot the crawlers moving on the surface of the bark.
WHEAT

WHEAT DISEASE UPDATE
by Don Hershman

Currently, the wheat crop ranges from watery ripe kernel development to heads just emerged in some late planted wheat in the north. Most wheat in the state has flowered.

Overall disease levels continue to be light for this time in the growing season. The top two leaves of plants in most fields, including those not spayed with a foliar fungicide, continue to be more or less disease free. As expected, there is slight to moderate powdery mildew and specked leaf blotch in the lower to mid-canopy in many fields. I have also seen some tan spot and in some fields, Stagonospora leaf blotch is becoming evident. Barley yellow dwarf virus symptoms are all but absent, statewide. Leaf rust levels continue to remain low for now, and I have not seen or heard of any reports of stripe rust occurring in the state. It is too early to know how much damage Fusarium head blight (head scab) will cause this year. Certainly, the weather has not been extremely favorable for head blight development. Nonetheless, there was enough moisture and warm weather while some fields were flowering that some fields will likely be damaged.

Even though wheat disease levels are lower than normal for this time of the year, I want to caution about becoming overly confident. A great deal can change over the next 5-6 weeks; thus, the wheat crop is not out of the woods yet. For example, in the extreme southern part of Kentucky, there is an unusual occurrence of bacterial streak. During humid and warm weather, this disease can cause extensive yellowing and necrosis of upper leaves. Under significant disease pressure, yields can be reduced. We often see the head phase of this disease, black chaff, but we rarely see significant foliar symptoms. Black chaff does not cause yield reductions unless the peduncle (structure bearing the head) or rachis (inner shaft of the head bearing the florets) are affected. I have already seen low levels of black chaff in some September-planted wheat.

The bottom line is this: except for stand and head density issues related to late planting last fall, the wheat crop is in pretty good shape, overall. However, we still have the latter part of May and much of June to go through before harvest. Stayed tuned and keep watching your wheat. If Fusarium head blight is going to be an issue this year, we will know within the next 10 days. The vomitoxin (DON) situation, which can be a problem even if head blight symptoms are lacking, will not be known until right after harvest in late June - early July. The extent of the foliar disease situation will become clear over the next 3 weeks.

MOSQUITO LARVICIDES FOR HOMEOWNERS-
AN UPDATE
by Lee Townsend

Reduction or elimination of breeding sites is the foundation on which mosquito control programs are based. It is impractical or impossible to do a complete job so treatment of some active or potential mosquito production areas is desirable. This is done with products called larvicides. Larvicides are insecticides which are used to control immature mosquitoes, also called wrigglers. Larvicides are applied directly to standing water as pellets, briquets, or surface sprays.

There is basically one larvicide option for the general public. Several companies sell products with names such as Mosquito Dunks or Quick Kill Mosquito Granules. The active ingredient is a toxin produced by the soil bacterium Bacillus thuringiensis israelensis (Bti). Bti, registered as an insecticide in 1983, is specific for mosquito larvae and immature stages of related flies. The larvae ingest small particles of the formulation and the insecticide works at sites that are not present in mammals. Bti is essentially nontoxic to humans and mammals when used according to label instructions. The larvae starve over a period of time so the visual impact of an application is not obvious. As with Bt insecticides used for caterpillar control, Bti works better against small larvae, it does not kill the tumbler (pupal) or adult stages of mosquitoes.

Mosquito Dunks often are sold in packs of 6 for $9 to $12 at hardware and discount stores. One dunk is recommended per 100 square feet of water surface. The dunk breaks down slowly when wet and will release the active ingredient over about a 30 day period. The Mosquito Quick Kill products (about $0.75 per ounce) are a granular formulations that begin to release the Bti toxin more quickly and over a larger area, resulting in faster action. While results come more quickly, the residual life of the treatment is generally not as long as the dunk formulation.

Local, state, and federal agencies can use Bti larvicides and those containing the insect growth regulator methoprene (Altosid). These larvicides are sold through outlets catering to commercial applicators, mosquito control agencies, and pest control companies. These groups also have access to monomolecular films, chemicals that spread a thin layer over the surface of water, which interfere with breathing of mosquito larvae and pupae which are dependent on atmospheric oxygen. These films are applied only to standing water and do not last very long.

In any given year there are many potential breeding sites for mosquitoes and natural events can contribute more. For
example, trees uprooted by storms can leave holes to collect seepage water or some of the abundant rainfall we have had this spring. Hundreds of mosquitoes can develop in these areas in a short period of time. In addition, there is concern about ornamental pools, stock ponds, and many other sites. Identification of these sites can help to target places where physical or insecticidal control methods would be justified and also keep unnecessary applications from being made where mosquito larvae are not present.

With a little careful observation it is fairly easy to see mosquito larvae in clear, shallow water over light colored bottoms. They are harder to see in dark, stagnant water where there is a lot of debris or vegetation. Also, avoid casting a shadow over the water, mosquito larvae and pupae will dive in response to light changes. They also can be captured by quickly plunging a long-handled dipper into the water.

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

Samples in the Diagnostic Laboratory for the past week have included Lepto leaf spot on alfalfa; blackleg, target spot, Pythium root rot, Rhizoctonia damping off, boron deficiency and chemical injury on tobacco; black rot on grape; orange rust, Phytophthora root rot and crown gall on blackberry; cedar-apple rust and fire blight on apple; frost injury on peach and cherry; and blackleg on potato.

On ornamentals and turf, we have seen Pythium root rot on calibrachoa; dollar spot on bentgrass; spring dead spot on bermudagrass; black spot on rose; cedar-quince rust on hawthorn; anthracnose on maple and ash; frost injury on dogwood; bacterial leaf spot on mock orange; Septoria leaf spot on birch; and needle rust on pine.

**INSECT TRAP COUNTS**

**UKREC, Princeton KY**

**May 9 - 16**

- Black Cutworm .................................. 1
- True Armyworm ................................ 13
- European corn borer .............................. 23
- Southwestern corn borer .......................... 0
- Corn earworm .......................... 45

**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.