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Wheat Disease Update-April 2008

Alfredo Martinez-Extension Plant Pathologist

Weather conditions experienced during the past weeks have encouraged diseases to appear in several parts of the state.

Tan Spot

Tan Spot caused by *Pyrenophora tritici-repentis* (Drechslera) has been identified in several wheat samples submitted to the Plant Disease Clinic. Tan spot occurs primarily on leaves and sheaths but all above ground plant tissue can be infected. Lesions begin as small tan to brown spots that expand into tan-colored elliptical lesions. Usually, in Georgia the disease is not aggressive and will not cause considerable damage, however isolated cases can become a problem especially if the disease (spots) progress quite rapidly to upper parts of the plant. Check for nutrient imbalances in the soil. Excess or lack of nutrients can trigger the disease, especially Potash. Cultural practices such as crop rotation and removal or destruction of infested residue can help managing the disease.

Powdery Mildew -

We have diagnosed several cases of powdery mildew (*Blumeria graminis* -Syn *Erysiphe graminis*) in South and Central Georgia.

Powdery mildew produces white to gray cottony fungal growth on the upper leaf surface and is common on the lower leaves and sheaths when plants begin to joint. It is usually the first leaf disease to appear in spring because it is favored by temperatures between 50 and 70F. The disease usually declines after flowering, but it can cause blighting of the upper leaves and heads of susceptible cultivars.

The white powdery fungal growth on the upper leaf surface produces the asexual spores which are easily windblown and disseminate the fungus long distances. These spores are single-celled, oval, and colorless. The sexual spores (ascospores) form in the dark round cleistothecia which develop in the fungal mass on the leaf surface as they the pustules get older. Ascospores serve as over-summering spores and often do not mature until the fall. Therefore cleistothecia may be empty if examined when wheat is mature. Examine with a 10X hand lens or dissecting microscope. Dark circular cleistothecia can be seen easily as lesions get older. To prepare a microscope slide, cut a short section of leaf with pustules and mount in water, place a cover slip over the specimen and examine.

Resistant cultivars (see annual CAES Small Grains Performance Tests Research Report or the annual Wheat Production Guide) are available but resistance may be lost when new strains of the fungus develop. Foliar fungicides (see [GA Pest Control Handbook](#)) are effective but should only be applied if the cultivar is susceptible. Pustules may develop on lower leaves early in the season on resistant cultivars but not on upper leaves later in the season. Avoid applying fungicides too early to be effective during the grain-filling period.



Powdery Mildew

Wheat Soil-borne Mosaic Virus (WSBMV)

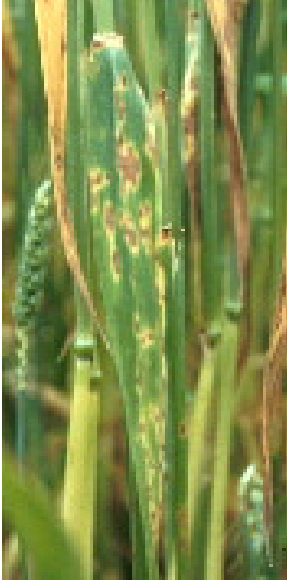
Wheat Soil-borne Mosaic Virus has been diagnosed from submitted samples from central Georgia. Additionally, wheat research plots located in Plains GA have been affected with WSBMV. Extended cool soil temperatures during late fall and winter contribute to the infection by Polymyxa. Crop rotation will help to ameliorate the disease. Use tolerant varieties. Research in other states point out that delaying fall planting might help to decrease disease incidence. Avoid compaction and low areas which can collect



Wheat Soil-Borne Mosaic Virus

Leaf blotch

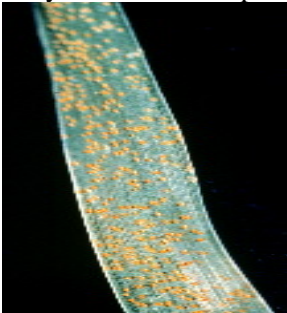
A couple of cases of leaf blotch caused by *Stagonospora nodorum* (formerly known as Septoria) have been identified. Stagonospora can be a serious and problematic disease if proper environmental conditions for disease development persist (temperatures on the cool side and moist). Infections usually diminish some as temperatures warm up or if dry periods occur. Be vigilant that the disease does not advance rapidly to upper leaves. Proper timing of fungicide application is crucial to protect the flag leaf and head.



Leaf Blotch

Leaf Rust *Puccinia recondita f.sp. tritici*

Nascent leaf rust symptoms have been observed at our wheat research plots located in Plains. We have a confirmed case of leaf rust in the south part of the state. While infections have been minimal to this point (April 1), favorable environmental conditions for leaf rust development are yet to come. Remain vigilant; early detection is important for control of the disease.



Leaf Rust



Small pustules about one-sixteenth inch in diameter with flaky red spores develop rapidly on leaves. Pustules may be found early in the growing season on lower leaves, but they usually appear in large numbers on the upper leaves after flowering. Pustules with red, flaky spores break the leaf surface. The urediospores are round to slightly oval, slightly rough, and easily dislodged. Leaf rust is favored by temperatures from 60 to 80F. Because infection occurs quickly, brief showers or overnight dew are sufficient for infection to begin. Leaf rust is best controlled by planting resistant cultivars. Because the disease develops quickly and new races

can develop frequently, it is important to know the susceptibility of a cultivar (see annual CAES Small Grains Performance Tests Research Report or the Wheat Production Guide). Plant several resistant cultivars to reduce the risk of severe disease. Control volunteer wheat which can become infected in late summer and serve as a local source of spores. Avoid early planting to reduce fall infection. Foliar-applied fungicides are very effective for use on susceptible cultivars (see [GA Pest Control Handbook](#)). Apply fungicide when the uppermost leaf has emerged for best control

Wheat foliar disease surveillance and fungicide application

Protection of the flag leaf from disease is essential for an appropriate filling of grain. The decision about whether or not use a fungicide has to be made carefully based on the variety planted, yield potential and environmental conditions at the site.

If environmental conditions favor disease development by GS 50-58 (Feekes 10.1- 10.5) but before Anthesis (Feekes 10.51), or if the disease is present on lower leaves and progressing rapidly, or the site warrants fungicide in order to maintain the high yield potential and test weight, then apply the proper fungicide. Options include: Azoxystrobin (Quadris®); Propiconazole + Azoxystrobin (Quilt®); Pyraclostrobin (Headline®); Propiconazole + trifloxystrobin (Stratego®); Propiconazole (Tilt®, Propimax®, Bumper®). Fungicides should be applied with enough water to get good coverage: 5-7 gal/acre for aerial and 20-30 gal/acre for ground application. **Always follow product label for recommendations, handling and restrictions.**

To find out more about disease management strategies and spray decisions guidelines visit: <http://www.caes.uga.edu/commodities/fieldcrops/gagrains/WheatProductionGuide.html> R.D. Lee et al) or/and <http://pubs.caes.uga.edu/caespubs/pubcd/B1135.htm> (R. D. Lee et al).

For an excellent pictorial guide for disease symptoms ID and disease description visit: <http://plantpath.caes.uga.edu/extension/DiseaseLibrary.html#field>, scroll down to “wheat”.

For disease identification, small grains (wheat, oats etc) physical samples should be sent to the Athens Plant Disease Clinic with attn to Holly Thornton UGA - Plant Pathology 2106 Miller Plant Sciences Bldg. Athens, GA 30602-7274 Phone: (706) 542-8987, hthornto@uga.edu; Fax (706) 542-4102.

For small grains disease inquires, DDDI submissions, questions, comments and/or disease/fungicide recommendations contact Alfredo Martinez, 770-228-7375; amartine@uga.edu

Check Wheat Fields for Aphids at Heading

David Buntin

April 2008

We are past the most critical time for aphid transmission of barley yellow dwarf (BYD) virus. Aphids especially English grain aphid can still transmit BYD during jointing and head emergence. However, this late infection usually does not cause stunting and significant grain yield loss. Nevertheless this late infect can turn flag leaves yellow which alarms most growers.

Aphids during jointing and grain filling also can cause direct feeding injury. They should be controlled if populations exceed these levels:

Jointing: 2 aphids per stem,

Boot stage: 5 aphids per flag leaf,

Heading/anthesis: 10 aphids per head+flag leaf.

Do not treat aphids after the soft dough stage.

Heavy rains can rapidly reduce aphid infestations on grain heads. Lady beetles can reduce aphid infestations if they are abundant. So if aphid numbers are near the threshold and lady beetles are abundant, consider waiting and resampling in 4-6 days to see if the lady beetles reduce aphid numbers.

Products for aphid control include Karate 1SC / Warrior 1SC (at 2.6 fl. oz/acre) and similar products, Mustang MAX and similar products, and Baythroid XL. These insecticides also can be tank mixed and applied with foliar fungicides. Check product labels and the Georgia Pest Control Handbook (commercial edition) for specific product use information and precautions.

At-Planting Insect Control for Twin-Row Corn

David Buntin

April 2008

A number of people have begun to plant corn using twin-row planters. Usually this plants two rows about 7-8 inches apart on 36 inch row centers. The insecticide seed treatments, Poncho 250 and Cruiser 250, are the simplest way to provide good insect control at planting. Since each seed is treated a standard rate per seed (0.25 mg ai/kernel) this allows for a twin row spacing and varied seeding rates. Two weaknesses in these seed treatments are lack of effect cutworm control and neither seed treatment is labeled for lesser cornstalk borer control. Labeled use rates of granular at-planting and liquid in-furrow and band insecticides for corn are not designed for twin row plantings. Here are some comments and options for twin rows.

Minimize risk of damage: Supplemental insecticides may not be needed if the risk of cutworm damage can be minimized by using conventional tillage, no cover crops or winter weeds, and planting during or shortly after the recommended planting time for your location. For lesser cornstalk borer, avoid late planting with conventional tillage and under hot, dry condition or following burnt wheat stubble which favor lesser infestations.

Preplant: Lorsban 4E can be broadcast applied and incorporated before planting for 4 pt per acre for cutworms or 6 pt per acre for lesser cornstalk borer. Other products such as Mustang MAX also may be applied pre-plant for cutworm control.

At-planting: Granular and most liquid at-planting insecticides for corn, Counter 15G, Lorsban 15G, Force 3G, Lorsban 4E and Furadan 4F, only provide rates for 30 to 40 inch row spacings. By applying the recommended rate to each twin row, this usually exceeds the maximum amount allowed per acre.

The following products are not recommended for twin row corn because the adjusted rates per 1000 ft of based on the maximum use rate per acre are too low for effective cutworm control: Counter 15G, Force 3G, Furadan 4F, and Regent 4SC. The adjusted rate for Force 3G on twin-row corn would be 3 oz per 1000 ft of row. This is the

lowest labeled rate for cutworm control on single row corn so may be acceptable for moderate cutworm infestations.

The following products should provide acceptable control options:

Lorsban 15G: The maximum per acre rate at planting is 13 lbs per acre. For twin rows this would equal 7.16 oz per 1000 ft of row which is a bit lower than the label rate of 8 oz per 1000 ft of row for cutworms.

Lorsban 4E: Liquid applied in-furrow or as a T-band. Label rate for single rows is 2.4 fl. oz. per 1000 ft of row. In twin rows (36 inch centers) would equal 4.375 pt per acre, which is within the maximum use rate per acre.

Capture/Brigade/Bifenthrin 2EC: Can be used at planting in a T-band at 0.15 to 0.30 fl. oz. per 1000 ft of row. This range for each twin row is within the maximum use rate per acre. The 0.15 – 0.20 fl. oz rates should provide adequate cutworm control.

Pyrethroids in a band over the row: Such as Asana XL, Mustang MAX, Capture 2EC and other similar products can be used by applying the half the maximum use rate for single rows over each twin rate. For example, Asana XL at 9.6 fl. oz per acre (0.66 oz/1000 ft of row) would equal 4.8 fl. oz. per acre (0.33 fl oz. per 1000 ft of row) for each twin row. This is within the label rate range of 3.2-9.6 fl. oz. per acre. However, this half rate option is not feasible for Karate/Warrior or similar products.

The 2008 Georgia Pest Control Handbook (commercial edition) provides recommendations and precautions for single-row corn but does not specifically list product use information for twin row corn. Carefully check the label for use on twin-row corn.

Late Planted Bt Corn

David Buntin

April 2008

Studies in Georgia over the last five years have shown that Bt hybrids for caterpillar control effectively reduce the risk of severe whorl damage by fall armyworms and corn earworms in late-planted corn. Generally the later the planting date after the recommended planting time, the greater the benefit. In these trials Bt corn did not provide an average positive cost benefit until about 4-6 weeks after the recommended planting time. Recent studies also have found that Herculex I type Bt provides better protection against whorl feeding armyworms especially under serve pressure. YieldGard – corn borer also will suppress whorl damage by armyworms but noticeable damage may still occur under serve pressure. Hybrids with single traits for Herculex or YieldGard –corn borer are available. Also Herculex XTRA contains Herculex I for caterpillars and proteins for mid-season rootworms. YieldGard VT Triple stack also contains Bt proteins for both corn borer and mid-season rootworms.

Bt corn has the following refuge requirement:

- On each farm, plant up to 50% Bt corn and the remainder as non-Bt corn refuge.
 - Refuge block must be within 1/4-1/2 mile of the Bt-corn field (ideally the refuge should be in the same field).
 - Herculex I Bt corn has the same refuge requirements as YieldGard – corn borer. Also YieldGard corn cannot serve as a refuge for Herculex Bt corn and visa versa.
 - See seed dealers for additional refuge requirements.
- I suggest planting the refuge in a solid block so that it can be sprayed for fall armyworm if needed without over spraying the Bt corn.

When selecting a hybrid for late planting, pick one that is adapted to your area with a short maturity (110-115 days) and has good disease resistance due to the greater incidence of disease in later planting. Hybrids with Herculex or Herculex XTRA are designated HX and HXX, respectively. Hybrids with YieldGard – corn borer have a variety of designations such as YG, CB, YC, YGCB and sometimes just Bt.

The following is a partial list in alphabetical order of hybrids containing either YieldGard – Corn Borer (YG) or Herculex 1 (HX):

AgraTech: 760(RRBt) (YG) for grain, 999A(RRBt) (YG) for silage.

Croplan Genetics: 8950 (RR2/Bt).

Dekalb (all YG): DKC61-73 (short-season), DKC63-46, DKC66-23, DKC67-87, DKC69-71.

Garst: 8247YG1

Golden Harvest: 2989RRB (check with dealer)

Pioneer brand: 31N28 (YG), 31N30 (HX), 33M57 (HX), 31G70 (HX), 31G71 (HX), 33V16 (YG).

Southern States: (Check with dealer).

Syngenta NK: N73N-GT/CB/LL, (Check with dealer).

Vigoro Seeds: V52Y61 (YG), V52YR62 (YG), V5273VT3 (YG), V53H71 (HX), V5373VT3 (YG).