

TIMELY INFORMATION

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OVER-VIEW OF THE 2005 ALABAMA PLANT DISEASES & INSECTS AS SEEN AT THE AUBURN AND BIRMINGHAM PLANT DIAGNOSTIC LABS

Jackie Mullen

Extension Plant Pathology Specialist-Auburn

Jim Jacobi

Extension Plant Pathology Specialist-Birmingham

Charles Ray

Research Fellow IV-Auburn

The Plant Diagnostic Lab at Auburn University receives plant problem/disease samples for diagnosis and soil samples for nematode analysis from all sections of the state. The Plant Diagnostic Lab at Birmingham receives predominantly horticultural samples for disease/problem diagnosis from Jefferson County and the five adjoining counties. Records from both labs are often used to document plant disease occurrences in Alabama. The following summaries were prepared from records of the ACES Plant Diagnostic Labs at Auburn and Birmingham with supplement field and survey information from Extension Plant Pathologists (W. Gazaway, A. Hagan, & E. Sikora).

Copies of the 2005 Annual Reports of the Auburn and Birmingham labs are available upon request. You may request reports by phone, email, or mail. (Contact information for the Auburn Lab: phone 334-844-5508; email jmullen@aces.edu; mailing address - Auburn Plant Diagnostic Lab, ALFA Agricultural Services Bldg., 961 S. Donahue Drive, Auburn University, AL 36849-5624. Contact information for the Birmingham Lab: phone 205-879-6964; email jjacobi@aces.edu; mailing address - C. Beaty Hanna Horticulture and Environmental Center, 2612 Lane Park Road, Birmingham, AL 35223-1802. The www address for the Auburn and Birmingham labs are as follows: Auburn lab - <http://www.aces.edu/dept/plantdiagnosticlab>; Birmingham Lab - <http://www.aces.edu/plantlabbbham/>).

If you wish to submit a plant, soil, or insect sample to the Plant Diagnostic Lab at Auburn, or Birmingham, consult the web sites for information and for downloading the appropriate questionnaire.

Service Charges At The ACES Plant Diagnostic Labs

Soil Nematode Analysis	\$10
Homeowner Plant Disease Diagnosis	\$10 or \$15
Commercial Plant Disease Diagnosis	\$20 or \$25
Samples Requiring Specific Advanced Molecular Analysis	\$30
Routine Insect Identification	\$5
Insect Identification With Microscopic Study of Slide Mounts	\$10
Commercial/Industrial Insect Samples	\$20

SOME NOTEWORTHY DISEASES REPORTED FROM THE AUBURN AND BIRMINGHAM LABS IN 2005

AUBURN LAB

Field Crops. Generally, field crops produced good yields, with the exception of July hurricane/tropical storm damage to corn. Some of the common summer diseases seen at the lab included the following: corn common rust; southern corn leaf blight; suspect corn brown spot; cotton anthracnose and *Cercospora* leaf spot; oat leaf rust; peanut tomato spotted wilt virus; peanut with *Rhizoctonia* aerial blight and root rot; soybean Asian soybean rust; soybean bacterial leaf spots; soybean downy mildew; soybean *Cercospora* leaf spot; soybean stem canker; powdery mildew of wheat.

K. Burch rated the small grains variety trials mid season and documented incidence and severity of the common diseases including powdery mildew, rust diseases and *Septoria* leaf blotch. For more information, see <http://www.ay.auburn.edu/aaes/communications/agronomy/ay261smghvar.04.pdf>.

With corn, growing conditions were generally good and needed moisture was available in May, June, and July. The hurricanes of late June and early July caused major damage to the corn fields in southwestern Alabama. *Physoderma* (brown spot) on corn was present in scattered locations as an unusual leaf spot for Alabama. It was seen in 2004 and 2005. Some other states also reported *Physoderma* leaf spot as being more prevalent than usual.

Cotton yields were generally good in 2005. Reniform nematode damage continued to be a major problem last year with reniform damage estimated to be 35 million dollars. The weather conditions last summer were generally favorable for cotton production so nematode damage was not quite as severe as it could have been if weather caused plants to be stressed. In certain areas, *Ascochyta* leaf spot caused limited damage. Seedling diseases were damaging in certain locations as were boll rots. Root knot nematode damage continued as usual with estimate losses at 2-3 million dollars.

Sclerotium rolfsii was not seen as commonly as it usually is during summer months. We're not completely sure why this typically common summer disease was not seen more often. Weather conditions are suspect as the reason for low disease occurrence. Moisture levels were lower than normal in some areas and above normal in some other areas. Generally, summer temperatures have been lower than normal for Alabama.

Peanut yields were generally good. In certain areas, tomato spotted wilt virus was severe. In most peanut fields, both early and late leaf spots were present. In West Alabama, late leaf spot was primarily the leaf spot present. Certain fields had major problems with nematodes (root knot and lesion). *Cylindrocladium* black rot was observed in scattered areas. Also peanut rust (*Puccinia arachidis*) was noted in southwestern Alabama.

With soybeans, the disease news centered on Asian soybean rust (ASBR) which was first identified in the state in 2005 the end of June (June 29) in a Sentinel Plot in Baldwin County. (There were 35 sentinel plots established in Alabama in 2005 under the direction of Ed Sikora. These small plots were planted earlier than commercial plots for the purpose of disease monitoring and advance awareness of disease occurrences. For more information on sentinel plots, check with Ed Sikora.) In mid July, the disease was found in a commercial field in Baldwin County (Fairhope area). About this same time, ASBR was detected in a field in Athens, GA and at a site in eastern MS, not far from Mobile. ASBR was confirmed on kudzu in Baldwin County in early August and in Conecuh County in late August. The disease did not progress as was expected. By early August, the disease had been noted in 2 fields in Baldwin County and a sentinel plot in Macon and Lee Counties. Bacterial leaf spots, downy mildew, and *Cercospora* leaf spots were commonly seen on soybean. In September, ASBR was observed in 13 more counties. By the end of December, the disease had been observed in 33 of the 67 counties of Alabama. Ed summarized that the disease was found in 10 soybean sentinel plots, 17 commercial soybean fields, and 20 kudzu patches. (Soybean rust was detected in two 'surviving' kudzu patches in Montgomery County (This was a first report for rust in Montgomery County.) in January 2006. For a list of positive ASBR counties in Alabama in 2005, see www.SBRUSA.net.

Another disease seen commonly all over the state in 2005 on soybean was target spot (*Corynespora cassiicola*). The damage was difficult to estimate due to the presence of other diseases. Obvious significant damage from target spot was not present. Target spot will also affect tomato. Symptoms on tomato may be confused with early blight target spots.

Fruits, Nuts, and Vegetables. Our lab records show the usual diseases were received. Also, an unusual rust (*Frommella duchesnea*) was seen on strawberry. Phony disease on peach was confirmed using the ELISA method. Also, with peaches, bacterial leaf spot was noted to be more common than usual in certain locations.

With tomatoes, tomato spotted wilt virus continued to be a problem for home gardens and commercial tomatoes. Also, cucumber mosaic virus was a problem for some commercial tomato producers in the St. Clair-Blount County area. Target spot (*Corynespora cassiicola*) was present in some areas. It could be confused with early blight. Both diseases may cause a target patterned leaf spot type. Tomato leaf curl virus and tomato mottle virus were confirmed in tomato plants purchased by an Alabama grower from a Florida production greenhouse. The viruses were confirmed by a Florida virologist.

Asian Ambrosia Beetle, *Xylosandrus crassiusculus*, was found in both grape and blueberry in 2005. The Black Stem Borer, *Xylosandrus compactus*, is becoming widespread in Alabama and may attack smaller twigs of fruit trees. Both beetles attack a wide variety of apparently healthy woody plants and may attack plum, peach, apple or almost any thin-barked fruit tree.

Ornamentals. In 2005, the Auburn lab tested 280 nursery and homeowner samples for *Phytophthora ramorum* blight (Sudden Oak Death-SOD). The nursery samples were taken as survey samples. Since SOD is a quarantined disease, all samples were collected by Alabama State Department of Agriculture Inspectors and brought to the Auburn lab. Samples were tested using an ELISA method to see if Phytophthora (genus level test) was present. If test results were positive for Phytophthora, sample DNA was sent to Beltsville or the University of Florida lab for traditional PCR testing to determine if *P. ramorum* was present. We found that 51 of our samples contained some type of Phytophthora. All PCR test results were negative for *P. ramorum*. Survey testing of nurseries will continue in 2006. We are following the testing protocol mandated by USDA and APHIS.

Lab records at Auburn showed that we received the usual wide variety of diseases on the 141 plant species submitted for diagnosis. Pythium and Phytophthora root rots are often seen. Tomato spotted wilt virus was an uncommon identification on zinnia. Common problems included anthracnose on camellia, Cercosporidium blight on Leyland cypress, anthracnose leaf spots on maple, oak, and rhododendron.

Exotic ambrosia beetles were detected in a wide variety of woody ornamentals. The Asian Ambrosia Beetle, *Xylosandrus crassiusculus*, was found in a wide variety of hosts statewide. The Black Stem Borer, *Xylosandrus compactus*, was identified as the cause for a large infestation of Hydrangea plants in Tallapoosa County. The Camphor Shoot Beetle, *Xylosandrus mutilatus*, has spread across most of the southern half of the state. Camphor Shoot Beetle is the largest of the three (3.5 – 3.9 mm) and prefers branches or trunks of approximately 0.5 - 2" diameter. Asian Ambrosia Beetle is smaller (2.1 – 2.9mm) and prefers branches or trunks of approximately 1 - 2.5" diameter and Black Stem Borer is smallest (1.4 – 1.9 mm) and seems to prefer twigs and branches of approximately 0.25 - 1" diameter.

Pink Hibiscus Mealybug (PHM), *Maconellicoccus hirsutus*, was detected in two Hibiscus samples collected by Alabama State Department of Agriculture Inspectors and brought to the Auburn lab. Following positive identification, infested plants were destroyed and the facilities housing them were thoroughly fumigated. PHM attacks more than 400 different plants including a wide variety of ornamentals. It injects a toxic saliva that causes malformed leaves and shoots, stunting and plant death.

A recently introduced Asian armored scale, *Duplacionaspis divergens*, (no common name), was detected in two samples of ornamental grasses from southwestern Alabama. This scale resembles False Oleander Scale (*Pseudaulacaspis cockerelli*) but is found only on grasses. It has become extremely common in Florida and can be expected to infest a number of grasses, both ornamental and turf.

Turf Grasses. A variety of problems were detected or suspected on turf grasses submitted. Bermuda and zoysia were the most numerous turf types received at the Auburn lab (80 bermuda samples and 120 zoysia samples). Many of the problems were abiotic. Among disease problems, Rhizoctonia brown patch was the most common. On bermuda, sting nematode was the problem cause in 10 samples.

BIRMINGHAM LAB

Fruit Diseases.

Fire blight (*Erwinia amylovora*) on apple and pear was observed, but was not thought to be as severe as previous years. Black rot (*Guignardia bidwellii*) and Macrophoma rot (*Botryosphaeria dothidea*) were observed on grapes. On peaches, Bacterial leaf spot (*Xanthomonas campestris* pv. *pruni*) favored by wet weather in spring was especially widespread and severe this year. Mummyberry (*Monilinia vaccinii-corymbosis*), Phyllosticta fruit rot and Botryosphaeria canker were observed on blueberry. Root knot nematode (*Meloidogyne* sp.) was found in a large kiwi planting exhibiting a general decline in vigor.

Vegetable Diseases.

Tomatoes. Garden tomatoes were the most common vegetable brought to the Birmingham lab. Timber rot caused by the fungus *Sclerotinia sclerotiorum*, was seen for the first time in 2004. To our knowledge this was the first time this disease was reported in Alabama. Fruit disorders including blossom end rot, catfacing, and growth cracks were more prevalent than in previous years, especially late in the season. Tomato spotted wilt was less prevalent in 2005 (4 samples) compared with 2004 (15 samples). Early blight was the most common foliar disease observed. Bacterial wilt (*Ralstonia solanacearum*), Phytophthora root rot and Buckeye rot (*Phytophthora parasitica*) were also important problems during wet weather in June and early July.

Other Vegetables. Phytophthora crown and fruit rot (*Phytophthora capsici*) was a common problem on peppers and was also observed on summer squash for the first time in our lab. In early June, this disease caused severe damage to a commercial field of summer squash in North Alabama.

Landscape Plant Diseases.

A total of 605 woody and herbaceous ornamental plants (69 % of total samples) were submitted for problem identification. Boxwoods were the most common plant brought to the lab accounting for 7% of our ornamental plant samples.

One new disease report for 2005 was downy mildew on coleus caused by *Peronospora lamii*. This disease was also been found on coleus in the northeastern states in spring of 2005. The same fungus that causes downy mildew on coleus can also cause disease on red and blue salvia.

With the mild temperatures and frequent rains from spring through early summer foliage, stem and root diseases were common problems. Phytophthora root rot was reported on the following plants: arborvitae, aucuba, azalea, camellia, chrysanthemum, Japanese cryptomeria, Leyland cypress, winter daphne, eleagnus, English ivy, juniper, petunia, rhododendron, and St. John's wort. Pythium root rot was observed on ajuga, begonia, boxwood, Leyland cypress, forsythia, spiral ginger, Japanese holly, lusterleaf holly, impatiens, oakleaf hydrangea, English ivy, lantana, pansy, rose, and snapdragon. Armillaria root rot was reported on oak leaf hydrangea, Florida jasmine (first time observed), juniper, sugar maple, spirea and weeping willow. Black root rot (*Thielaviopsis*) was reported on Japanese holly and pansy. Southern blight (*Sclerotium rolfsii*) was observed on begonia and ajuga. Nematode problems of note included root knot nematode on impatiens.

Camellia leaf gall (*Exobasidium camelliae*) was very widespread on sasanqua camellia. On azalea and Rhododendron, Phomopsis and Botryosphaeria canker and dieback were frequently observed. On Leyland cypress, diseases including Botryosphaeria canker and Cercosporidium needle blight were common. Hydrangea foliar disease including leaf spots caused by *Cercospora* and *Corynespora* sp. were frequent problems. Black rot (*Xanthomonas campestris* pv. *campestris*) was observed causing a nearly complete loss of bedding flat production of ornamental cabbage, kale and mustard.

Landscape Plant Insect Pests. We continued to see an increase in damage and associated fungal cankers from the black twig borer (*Xylosandrus compactus*). The black twig borer is an ambrosia beetle from Asia with a reported host range of over 200 plants. In 2005, we found the borer on 10 different plants including: American beech, common boxwood, Leyland cypress, euonymus, bigleaf and oakleaf hydrangea, southern magnolia, Japanese maple, sugar maple, blackjack oak. Boxwood and southern magnolia were the most common plants damaged by the black twig borer. We had not seen damage by the black twig borer on boxwood prior this year; however, we suspect that some of the damage had been occurring prior to last year. White peach scale was observed on forsythia and cherry laurel. On hickory and pecan, damage from Phylloxera was very widespread.

Turfgrass Diseases. A total 106 turf samples (12% of total samples) were received at the Birmingham lab, which was less than was received in previous years. Pythium root rot and anthracnose were by far the most common disease problems reported on bentgrass. Most of the problems with bentgrass were observed starting in late July and continuing into August. On Bermudagrass, algae, bermudagrass decline, dollar spot, and Helminosporium blight were the most common problems. Gray leaf spot, fairy ring, and brown patch were the most common fungal diseases on St. Augustinegrass. Common disease problems on zoysiagrass were brown patch, dollar spot, and leaf rust. Cultural problems (compacted soil, low soil pH, and nutritional problems) were also frequently observed on zoysiagrass. This year we saw a sharp decline in the number of newly established 'Emerald' zoysiagrass lawns that exhibited the delayed green-up that was such a common problem in Birmingham and surrounding areas from 2001-2004. We never were able to find any consistent disease or insect pest to explain the late green-up of these lawns. Recent research conducted at the University of Georgia and Auburn University has shown that the 'late greening' strains labeled as 'Emerald' are genetically different from the 'early green' strains of 'Emerald' zoysiagrass. These genetic differences explain the late-green up of these strains of zoysiagrass, rather than damage by a pest or disease problem. For more information on this research see the spring 2006 issue of the Alabama Turfgrass Association Newsletter, Turf Times. The article entitled, 'Emerald Zoysiagrass: Is it what it appears to be?' provides a description of the research and implications for the turfgrass industry.