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OVER-VIEW OF THE 2008 ALABAMA PLANT DISEASES AND INSECTS AS SEEN AT THE AUBURN & BIRMINGHAM PLANT DIAGNOSTIC LABS

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The Plant Diagnostic Lab at Auburn University receives plant problem/disease samples and insect specimens 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, the five adjoining counties, and some other near-by 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 some supplement field and survey information from Extension Plant Pathologists (W. Gazaway, A. Hagan, & E. Sikora).

Copies of the 2008 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
Commercial/Industrial Insect Samples	\$20

THE AUBURN PLANT DIAGNOSTIC LAB AND SOME NOTEWORTHY DISEASES REPORTED IN 2008

During 2008, the Plant Diagnostic Lab processed a total of 6517 samples. 1409 plant samples, 506 survey Asian soybean rust soybean/kudzu leaf samples (Sikora, D. Delaney, M. Delaney, and ppt-crops agents), and 4814 soil samples for nematode analysis were received. The large number of soil samples (approximately twice the normal number) was due to a large increase in research samples.

2008 was our third year of drought. Fortunately, conditions of high temperatures and drought were not as severe as in 2006-2007. Rainfall was normal or close to normal in western and southwestern sections of the state. Field crops in most areas produced normal or near-normal yields except for most fields of corn, which were mostly damaged by drought. Due to the somewhat dry conditions, fungal and bacterial diseases (which require ample rainfall), were reduced as compared to years prior to 2006.

Field Crops: Dry conditions existed in many locations in spring and summer. Field crop yields were good in some areas while yield was reduced in those areas with drought. In most areas, disease was not a significant problem.

In March, April, and May with wheat, leaf rust, loose smut, powdery mildew, and Septoria blotch were present in some areas, but disease was not a serious problem. The cool, dry spring conditions resulted in low levels of disease. Black chaff bacterial leaf spot was present on wheat in Baldwin and Escambia Counties in March. Cold damage was seen on some wheat in March and April. Some no-till or minimum-till areas of wheat developed take-all and/or had problems with Hessian fly in May. Take-all was noted in some North Alabama fields. In some early planted no-till or minimum till wheat, resistance to Hessian fly was reduced. K. Burch rated the small grains trials mid season. Disease evidence and damage was generally low. For more information on diseases of small grains in 2008, see Performance of Small Grain Varieties for Grain in Alabama, 2007-08, (p. 21-27), Agronomy and Soils Department Series No. 294, <http://www.ag.auburn.edu/aaes/communications/agronomy/ay294smgrvar08.pdf/>. (A. Hagan)

Peanuts developed early and late leaf spot problems in many areas. Leaf spot diseases were the main disease problems. Tomato spotted wilt virus damage and incidence was low in 2008. White mold and Cylindrocladium black rot disease incidence and damage was very low. (A. Hagan)

Asian soybean rust was found to be alive on kudzu in January in some areas in the southern half of the state, but cold weather later during winter months killed the fungus. Asian soybean rust was found to be active on soybeans from the end of July to November. In mid-September, E. Sikora advised growers in Baldwin and Mobile Counties that risk from rust was extremely high and that fungicide application was advised. He advised some growers (depending on bean maturity) in central and south Alabama to consider the use of protective fungicide application. Asian soybean rust was observed in 56 counties in 2008. (E. Sikora)

Other diseases seen on soybean included anthracnose, pod and stem blight, bacterial pustule, bacterial leaf spot, and suspect stem canker.

Due to the dry conditions in many areas, corn and cotton fields did not develop significant disease problems. (A. Hagan, W. Gazaway)

Fruits, Nuts, Vegetables: Disease incidence and severities were reduced due to dry situations. We did see a blueberry sample from Houston County in late July with symptoms of bacterial scorch caused by *Xylella fastidiosa*. ELISA testing produced positive results for the bacteria. This disease was reported for the first time on blueberry in Georgia in 2007. It was also observed in 2008 with positive ELISA test results in Louisiana. For more information on this disease on blueberry, see 'Bacterial Leaf Scorch of Blueberry', C922, the University of Georgia Cooperative Extension publication, <http://pubs.caes.uga.edu/caespubs/pubs/pdf/c922.pdf>.

In mid-January, we saw suspect ethylene damage on greenhouse tomatoes in 2 locations after cold weather. Ethylene leaks from gas heaters were suspected to have caused the damage which consisted of severe leaf curl, leaf twisting, some leaf mottle, and some stem fasciation (abnormal stem flattening) with adventitious leaves growing out of stem. Plants tested negative for 15 different viruses. It is known that small amounts of ethylene can cause abnormal plant development.

Citrus greening (caused by the bacterium *Candidatus Liberobacter* spp.) is a disease of citrus that is of concern in the citrus-growing areas of the southern sections of Alabama. This is a difficult disease to diagnose. PCR (a DNA detection diagnostic method) is currently the only reliable method available for diagnosis of the disease. The disease (cause by *C. Liberobacter asiaticus*) is present in areas of Florida, but it has not been identified in Alabama as yet. The disease is transmitted by a psyllid (*Diaphorina citri*), which occurs in Florida and also it was recently found in AL, LA, TX, and CA. Prior to November, citrus greening was considered by USDA-APHIS to be a very high risk disease and called a 'Select Agent List' pathogen. This fall, citrus greening was also identified in Louisiana. In mid-November, USDA-APHIS removed citrus greening from the 'Select List'. The disease is still considered a very high risk, very damaging disease of citrus. It is quarantined by USDA-APHIS in Florida. The Alabama State Department of Agriculture & Industries has a quarantine against the transport of citrus plants from nurseries in Florida into Alabama. Debra and I attended a USDA-APHIS sponsored citrus greening PCR diagnostic training in December. Due to the quarantined status of the disease, diagnostic tests for citrus greening may be conducted only by APHIS approved labs. Any

diagnostic positive results obtained by an 'approved' university diagnostic lab must be confirmed by a USDA lab. The Auburn lab must be inspected by USDA and pass a 'test panel' before it can conduct the PCR testing.

A tomato field planting in Henry County in late September was found to have tomato yellow leaf curl virus. The virus was confirmed by Dr. J. Polston at the University of Florida by use of a PCR method. This was the first field report of this virus in Alabama. In 2005, it was found in Alabama on a shipment of tomato transplants coming from Florida. In 2006, Jim Jacobi found it in a greenhouse tomato situation. This virus is spread by white flies. Damaged plants should be destroyed. White fly control is advised. For more information see 'Management of Tomato Yellow Leaf Curl Virus (TYLCV) in Tomato in North Florida', Fact Sheet PP-184, Department of Plant Pathology, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Rev. 2001, http://ufrec.ifas.ufl.edu/files/pdf/publications/tim_momol/managementoftylcv.pdf.

Ornamentals: In 2008, our lab received 402 ornamental samples. Types of samples were diverse. 84 samples were received from the Alabama State Department of Agriculture.

Some of the diseases on herbaceous ornamentals included: anthracnose foliage blight on black-eyed susan, coneflower, daylily, iris, lantana, Liriope, *Vinca minor*; bacterial leaf spot on chrysanthemum and zinnia; Botrytis canker on peony; Cladosporium and Heterosporium leaf spots on bearded garden iris; Fusarium crown & root rot on black-eyed susan, coneflower; Fusarium stem canker on pansy; Fusarium wilt on chrysanthemum; Phytophthora crown & root rot on black-eyed susan, petunia, annual periwinkle; Phytophthora foliage blight on verbena; *Phytophthora nicotiana* foliage blight on annual periwinkle; Puccinia rust on morning glory; Pythium crown and root rot on Dianthus, Asiatic jasmine, petunia, verbena; Rhizoctonia aerial blight on zinnia; Rhizoctonia crown & root rot on ajuga, Asiatic jasmine, and zinnia; southern blight on Hosta and mint; Thielaviopsis black root rot on coral bells; tomato spotted wilt virus on zinnia.

Diseases seen on woody ornamentals included: Alternaria leaf spot on camellia; anthracnose on camellia, Grancy Greybeard, 'Burford' holly, ivy, ligustrum, magnolia, nuttall, shumard & white oak, pieris, rhododendron, viburnum, and yew; Armillaria root rot on rose; bacterial leaf spot on cherry laurel, hydrangea, rose; bacterial leaf scorch (*Xylella*) on pin oak; Bipolaris leaf spot on Chinese fringe-flower; Botryodiplodia leaf blotch and stem decay on aucuba; Botryosphaeria canker (which may follow after drought stress) on Bradford pear, Leyland cypress, Eleagnus, Chinese elm, oak leaf hydrangea, ligustrum, Japanese maple, willow oak, rosemary; Botrytis flower blight & dieback on rose; cedar-quince rust on crabapple; Cercospora leaf spot on kousa dogwood, euonymus, rose, weeping willow; Cercosporidium (formerly Cercospora; recently new name given is *Passalora sequoiae*) blight on Leyland cypress; downy mildew on rose; Entomosporium leaf spot on flowering pear; Exobasidium leaf gall on azalea; fireblight on crabapple; Phytophthora crown rot and root rot on azalea, boxwood, cherry laurel, crape myrtle, cryptomeria, Leyland cypress, ivy, English ivy, juniper, Norfolk Island pine, loblolly pine, rose; Phytophthora leaf spots on camellia, Indian hawthorn, mountain laurel, star magnolia, willow oak, osmanthus, pieris, rhododendron, tea olive, viburnum; Powdery mildew on dogwood, elm, nuttall oak, willow oak, sycamore; Pythium root rot on

seedlings: cleyera, cotoneaster, Virginia pine, rose; rust (fusiform) on water oak (telial stage of small black thread-like structures on lower leaf spot surfaces). Most of the Phytophthora leaf spot diagnoses were made on the 65 plant samples submitted as nursery survey samples by the Alabama State Department of Agriculture. The nursery survey was done on all nursery stock showing symptoms possibly caused by *Phytophthora ramorum* (Sudden Oak Death). This is a USDA quarantined disease. For all 29 samples giving positive ELISA Phytophthora results, DNA was extracted and sent to a USDA-APHIS molecular lab for PCR testing for *P. ramorum*. None of the samples sent for PCR testing at the USDA lab were positive for *P. ramorum*. See http://www.aphis.usda.gov/plant_health/plant_pest_info/pram/index.shtml for more information.

Turf Grasses: Fewer than normal diseases were seen last year, due to the dry conditions, especially present in May, June, and September. With bermuda grass, a few cases of brown patch, Bipolaris crown rot, Drechslera crown rot/blight, and dollar spot were seen. Ring, root knot, and sting nematode damaged samples were seen. With centipede, seven cases of brown patch were seen. St. Augustine diseases included: brown patch, gray leaf spot, take all patch, and one case of ring nematode damage. Zoysia diseases included brown patch, smut, dollar spot, and ring nematode damage.

THE BIRMINGHAM PLANT DIAGNOSTIC LAB AND SOME NOTEWORTHY DISEASES REPORTED IN 2008

The Birmingham Plant Diagnostic Lab was designed to primarily serve the five counties (Blount, Jefferson, St. Clair, Shelby, and Walker) that comprise the Birmingham Metro area. The lab is located in the center of Jefferson County within the C. Beatty Hanna Horticulture and Environmental Center at the Birmingham Botanical Gardens. The Birmingham Plant Diagnostic Lab began operation in February of 2000. In 2008, a total of 867 samples were received, which was a slight increase from the 773 samples received the previous year. Most of the samples were from homeowners (62%), with most of the remaining samples (38%) coming from commercial clientele (lawn and landscape maintenance companies submitted 22% of the samples. Samples were received primarily from Jefferson County (76.2%) followed by Shelby County (7.6%). Samples were also received from 27 other counties in Alabama including Blount, Cullman, Etowah, Limestone, Madison, St. Clair, and Tuscaloosa Counties.

Weather

Overall, the weather during 2008 in the Birmingham area returned to near normal conditions, without the severe drought of 2007. Birmingham rainfall in 2008 totaled 54.57 inches, just above the normal 53.99 inches. The drought of 2007 persisted in 2008 for most of north Alabama, and officially ended in late 2008. The two wettest months were May, with 7.98 inches of rain, and August, with 7.72 inches. Nearly all of that August rain, 7.1 inches, fell in just four days, August 23-36, from the remnants of Tropical Storm Fay. September saw only 0.4 inch of rain, making it the seventh-driest September on record. Metro Birmingham also avoided the extremes of single-digit cold and triple-digit heat in 2008. The low temperature of the year was 13 on January 3. The high temperature for the year was 99 on July 21, according to the Alabama Office of the State Climatologist (Birmingham News, 2009).

Fruit Diseases

We did see an increase in tree and small fruit samples compared to 2007, but we did not observe any new or unusual disease or insect pests.

Vegetable Diseases

Tomato Diseases

Backyard garden tomatoes were the most common vegetable brought to the Birmingham lab. Tomato spotted wilt (TSWV) and two-spotted spider mites were the most common problems. Foliar fungal diseases of tomato, like early blight, were common again after their absence during the hot, dry conditions in 2007. No new or unusual diseases or pests were observed on vegetables in 2008.

Landscapes Plant Diseases

A total of 541 woody and herbaceous ornamental plants were submitted for problem identification. As usual, boxwoods were the most common plant brought to the lab, followed closely by azalea and rose. Foliar diseases were almost nonexistent during 2007, because of the drought. But, in 2008 there were several foliar diseases that were prevalent including oak leaf blister on Southern red and water oak, and *Phyllosticta* leaf spot on Japanese maple. While both are common problems, their incidence last year was much higher than we have seen in several years. One insect problem that appears to be becoming more common is Southern mint moth on rosemary. On annual vinca a severe case of web blight was seen during August. No new diseases were noted last year.

Turfgrass Diseases

A total of 101 samples were received at the Birmingham lab, which was about the same as 2007. Zoysiagrass was the most common turfgrass brought to the lab. Fairy ring was the most common fungal disease observed on the zoysiagrass samples. We saw two samples with high numbers of ground pearls on zoysiagrass, which is somewhat unusual; their most common victim is centipedegrass. No new diseases were observed last year on turfgrasses.

NOTEWORTHY INSECT PROBLEMS AS SEEN AT THE AUBURN PLANT DIAGNOSTIC LAB

In 2008, 128 plant samples were submitted with insect problems and also 292 separate insect samples were submitted for identification.

The following insects were significant identifications:

Cycad Aulacaspis Scale (*Aulacaspis yasumatsui*) was found for the second time in Alabama, in Jefferson County.

Sugarcane Scale (*Aspidiella sacchari*) was found for the second time in Alabama, in Mobile County.

Vegetable Weevil (*Listroderes* sp.) significantly damaged cotton seedlings in Lawrence County.

Amaryllis Weevil (undescribed) found for the first time in Alabama (Baldwin County).

False Chinch Bugs (*Nysius raphanus*) continued to be a problem across Alabama.

Sweet Gum Defoliator (*Paectes abrostoloides*) defoliated sweet gums in Tuscaloosa and Tallapoosa Counties in mid-season. It was anticipated the fall generation might cause more wide-spread defoliation but this did not occur.

There was an unusual occurrence of Chinese Wax Scale (*Ceroplastes ceriferus*). In Marshall County, this insect was successfully infesting Deodar Cedar. Records of this scale infesting conifers are rare.

Chinch Bugs (*Blissus* sp.) were unusually prevalent with some submitted samples yielding more than 150 specimens per square foot.

Woolly Pine Scale (*Pseudophilippia quaintancii*) was exceptionally common with samples from many central Alabama counties.

Paragrass Scale (*Odonaspis saccharicaulis*) was found in three counties, two of the samples being on turfgrass. First record in Alabama.

With development of native plants as minor crops for sale as herbs and natural remedies, we have seen natural herbivores prosper in commercial fields. One example is American Skullcap (*Scutellaria lateriflora*). The American Skullcap Moth (*Prochoreutes inflatella*), Shining Flea Beetle (*Asphaera lustrans*) and a skeletonizing leaf beetle (*Phyllobrotica limbata*) all caused damage in field trials. This apparently is the first record of Shining Flea Beetle in Alabama. Whitefringed Beetle larvae caused significant damage to roots of an Asian species of *Astragalus* being similarly cultivated.

For the second consecutive year, larvae of the Southern Purple Mint Moth (*Pyrausta laticlava*) were found seriously damaging ornamental plantings of rosemary.

Ground Pearls (Family Margarodidae) have previously been considered a coastal plain pest. Ground Pearls were identified in sod samples from Jefferson and Cullman Counties. In the Jefferson County sample, conservative estimates of ground pearl numbers were in excess of 1,000 per square foot of sod.