THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
Colleges of Agricultural and Environmental Sciences & Family and Consumer Sciences

PLANT DISEASE CLINIC REPORT
Home Garden and Landscape
Spring 2015

http://plantpath.caes.uga.edu/extension/HomeownerPDCReports.html

Dr. Elizabeth Little, Home Garden, Landscape and Organic Extension Specialist

2015 has turned out to be an interesting year for plant disease and below are a few highlights of disease issues received in the clinic this spring. The following table is downloaded from the dddi system. Using the dddi system to submit samples to the plant disease clinic allows us to track disease trends over the course of a year and from year to year. For more info on the dddi system go to http://www.dddi.org/uga. For specific info on how to submit plant disease samples to the plant disease clinics go here: http://plantpath.caes.uga.edu/extension/clinic.html

Home Garden and Landscape Samples 1/1/15-6/30/15

Crop	
Field Crops	0
Fruits and Nuts	30
Herbaceous Ornamentals	10
Miscellaneous	1
Trees	28
Turf	67
Vegetables	46
Woody Ornamentals	81
Total	**263**

87% of samples submitted during the spring months of April, May, and June.

Turf Issues:

Warm season grasses had green up issues this spring due to cold temperatures and wet conditions. Centipede lawns suffered the most damage and represented the majority of the samples received (32/67). Damage was often widespread, and when images were supplied there were often definite patterns associated with areas of water accumulation and movement (Figs.1,2). Many of the samples exhibited root rot with darkened stolons and sheaths that was associated with wet soils. While the fungal pathogen Rhizoctonia was often present on stolons, crowns, and roots, the fungus was often considered a secondary opportunist on tissues damaged by environmental conditions. In a few cases there were definitely patterns associated with large patch (more or less circular with browning edges, Fig. 3), but when death was widespread the cause was considered to be environmental and cultural. The CAES publication on centipede decline has good information on keeping centipede lawns healthy. http://extension.uga.edu/publications/detail.cfm?number=C1003

Zoysia lawns also suffered from the environmental conditions this spring and exhibited similar root rot damage and green up issues. (14 samples)

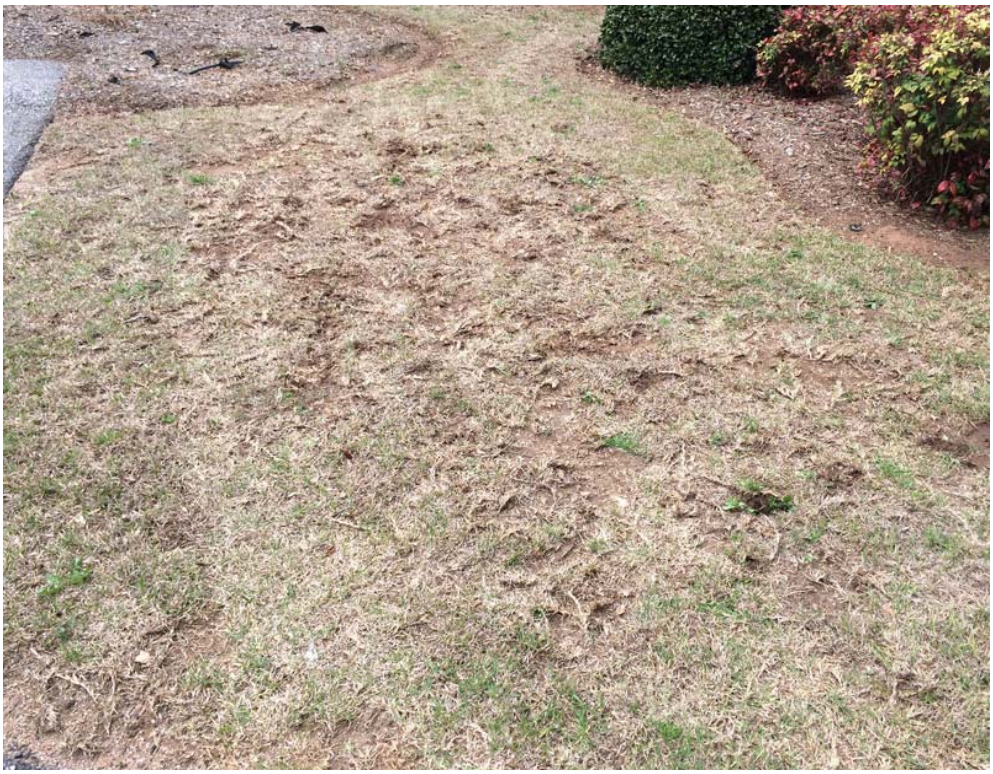

Fig. 1: Centipede lawn damage due to excess water (dddi#39767)

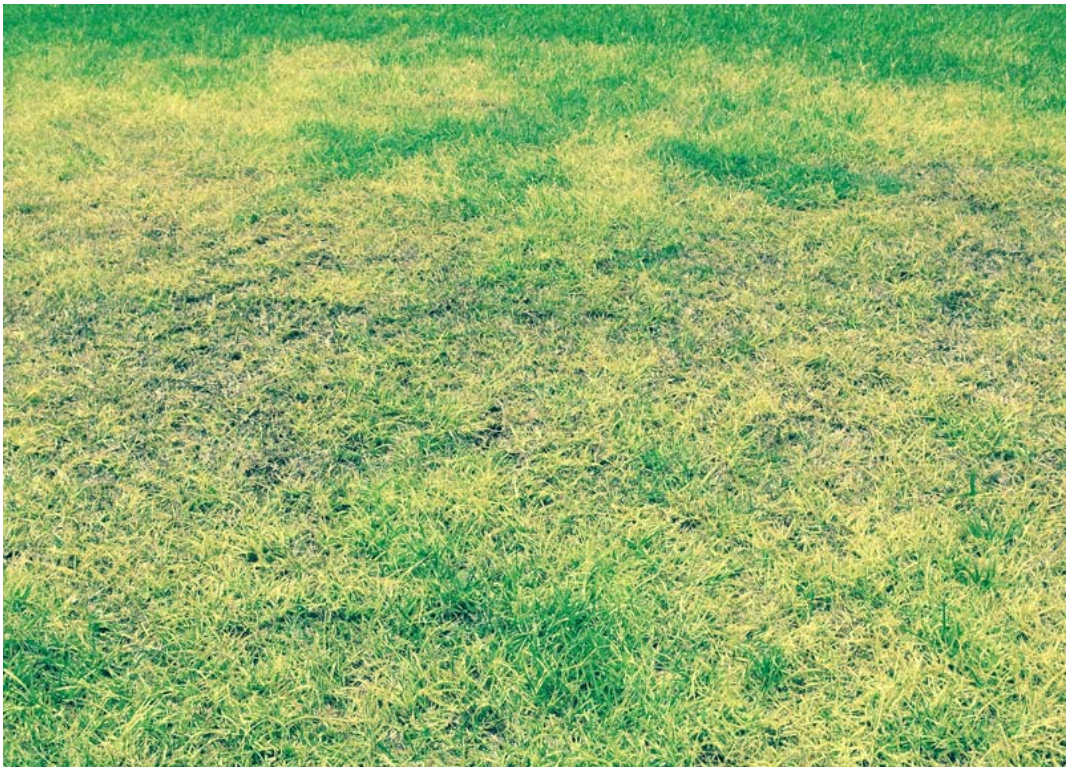

Fig. 2: Yellowing of centipede lawn due to saturated soils and winter damage (dddi#40223).

Fig. 3: Infection pattern for Large Patch with active leading edge of infection (dddi#35228)

Woody Ornamentals:

Leaf Blight Widespread on Callery Pears

Another result of the unusual conditions in April and May was a widespread outbreak of an unusual leaf blight on callery or Bradford pear (*Pyrus calleryana*). Reports came in from all over the state from the mountains to the far south of blighted leaves and defoliation (thank you to all the county personnel who submitted samples). The symptoms were unlike any previously reported disease. The blackening and often v-shaped appearance of the lesions resembled a bacterial infection but there were no blighted shoots associated with fire blight and the fire blight bacterium was not isolated. No fungal sporulation was observed on the leaves although some lesions had growth rings more typical of a fungal infection (Figs. 3 & 4). An anthracnose fungus (*Colletotrichum*) was consistently isolated from fresh lesions. Foliar anthracnose is not considered a common disease on pear and this is the first report of anthracnose on pear in Georgia. This was not a life threatening problem for the pears and defoliated trees readily put out new leaves. The disease was linked to the wet and warm weather this spring and it is likely this disease will not be a concern most years.

Outbreaks of a particular disease in a particular year are closely tied to conducive weather conditions. For instance, there were few reports of fire blight this spring compared to previous years even though conditions were wet this spring. Not only are diseases driven by wetness, but also temperature at critical infection periods, such as bloom for fireblight. Leaf spots were also common due to the wet, although leaf spots on most ornamentals are generally not a concern.


Figs. 3, 4: Leaf blight and pattern of tree defoliation on Callery (Bradford) pear (images E. Little)


Figs. 5 & 6: Phytophthora crown rot on a multi-stemmed camellia. Affected stem has yellowing foliage. Fig. 6 shows dark discoloration under bark at the crown. (images E. Little)

Root and crown rots have been prevalent on many types of plants due to continually wet soils during the winter and spring. In some cases, drainage patterns from houses and pavement led to accumulation of water in certain sites. The root disease pathogens are found on the roots and lower stem, and whole plants with roots are needed to diagnose the problem. The most common cause of root and crown rot and dieback in woody plants is *Phytophthora*. Symptoms include a general yellowing, wilting, dropping of leaves, and dieback of certain stems or the whole plant (Fig. 5). *Phytophthora* attacks the crown and a dark discoloration can be observed under the bark at the soil line (Fig. 6). Some plants are more susceptible to root rot and prefer a well-drained site. The more common woody plants we see in the clinic with root and crown rot include azalea, boxwood, camellia, leyland cypress, cryptomearia, and rose, but others are also susceptible if the soil is wet.

Vegetables:

Pythium Cottony Leak on Summer Squash: In early June, yellow summer squash at several locations reported an unusual blossom end rot. The rot quickly progressed from the blossom up into the fruit causing a soft rot. Some growers confused the problem with physiological blossom end rot. Physiological blossom end rot is more common in tomato, and is typically a dry rot. The symptoms of this disease were also different from the more common *Choanephora* fruit rot disease which also causes a blossom end rot. *Pythium* diseases have a white fungal growth in wet weather while the *Choanephora* pathogen readily produces prolific dark hairy sporulation on flowers and small fruits (Fig. 5). In some cases small scale growers experienced up to 25% fruit losses. The outbreak occurred during a wet period and the disease dried up with clearing weather conditions. The *Pythium* pathogen is a common soil inhabitant and will opportunistically cause disease on low lying fruit and vegetables during wet weather. Providing a barrier such as mulch between the soil and the fruit helps protect the fruit from infection. Good soil drainage and air circulation lessen the wet conditions needed by *Pythium* and other pathogens.

Fig. 5: Pythium cottony leak (left, E. Little) and *Choanephora* fruit rot on squash (rt., Bugwood.org)

***Sclerotinia* on Lettuces and Greens**: In April, numerous *Sclerotinia* infections were observed. The most common affected plant was lettuce (lettuce drop disease) but the disease was also found on a cover crop (winter pea) and crucifer seedlings such as kale and arugula. The pathogen

survives long term in the soil as sclerotia. The sclerotia germinate in mild, wet weather. Fortunately, *Sclerotinia* outbreaks are sporadic in Georgia and occur in warm, wet springs. Management involves appropriate rotations, soil moisture management (the disease is more common in constantly wet soils), and building soils with organic matter to increase microbial antagonists.

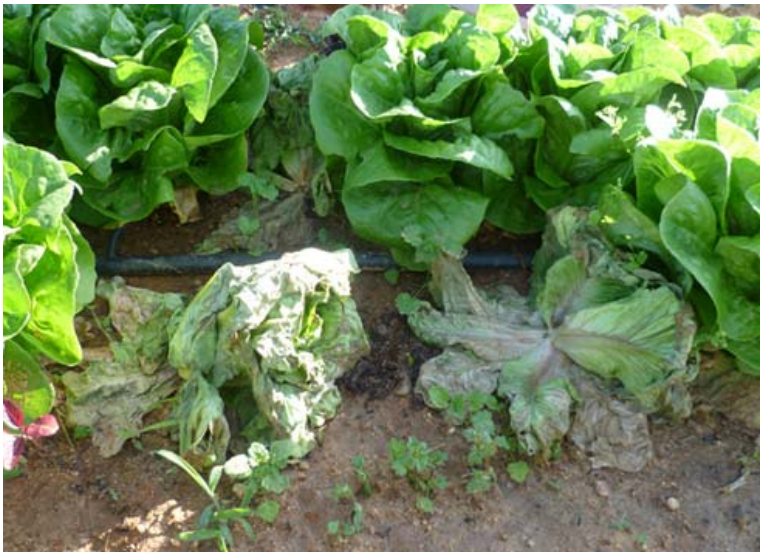

Fig 6: *Sclerotinia* infection on lettuce (left) and kale (right) (images E. Little)

Tomatoes are probably the most popular plant in gardens and at the farmer's market, but tomatoes are not the easiest of plants to grow. Tomato was the most common vegetable received into the clinic (30/46) and summer has only just started.

Tomato Spotted Wilt Virus may be more common this year in the piedmont of Georgia. We have already had several reports. The outbreak may be linked to an apparent proliferation of thrips in June. Thrips are the vector of the virus. The symptoms show up on the fruit and leaves, with ringspots and other interesting color patterns being the most distinctive symptoms (Fig. 7). Browning on new foliage is often the first symptom. The symptoms are often confused with other diseases or disorders, but the ringspots are a distinctive symptom of the disease.

The virus survives in many different types of plants including weeds. Weed control may help reduce the incidence of the virus. Viruses are warm weather diseases and the incidence of TSWV is generally spotty in the piedmont of Georgia but may be devastating on tomato crops in south Georgia. The virus is not curable and infected plants may serve as a source of the disease for other plants, so removal of the plant is the best option. There are some tomato varieties with some TSWV resistance although these are not the varieties typically grown in small scale production. TSWV can be diagnosed in the plant disease clinic using a simple serological test strip.

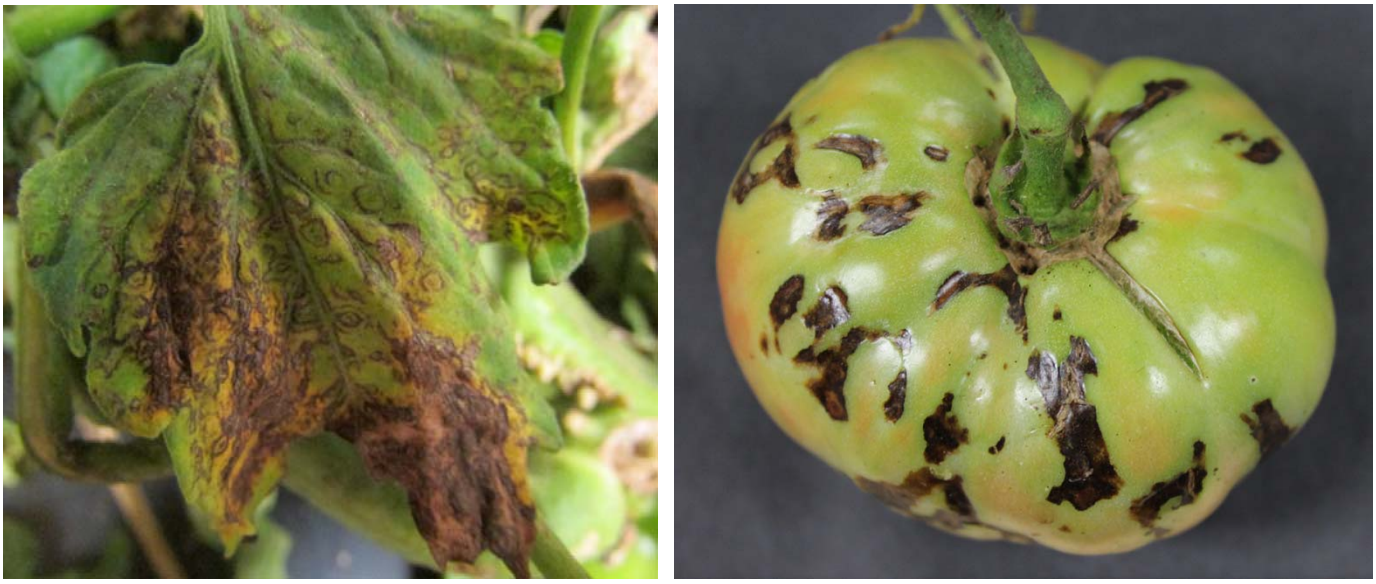

Fig 7: TSWV ringspot symptoms on tomato foliage and fruit (images E. Little)

Tomato leaf spot diseases: Foliage and fruit diseases are the most common problem on tomatoes and are hard to prevent entirely in a wet year. Tomatoes are susceptible to a number of foliar diseases including early blight (*Alternaria solani*), Septoria leaf spot (*Septoria lycopersici*), bacterial leaf spot (*Xanthomonas euvesicatoria*) and leaf mold (*Fulvia fulva*). The most common leaf spot pathogens are *Alternaria*, *Septoria* and *Xanthomonas.* Leaf spots start on the lowest foliage resulting in a gradual progression up the plant of dead brown leaves (Figs. 8,9).

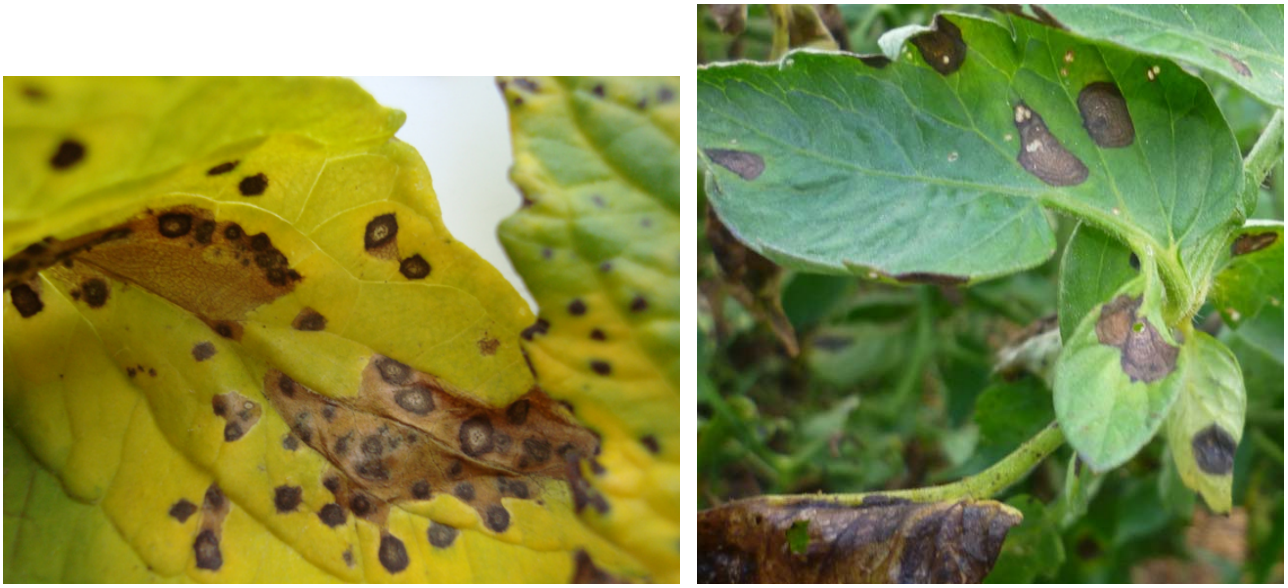

Fig 8: Smaller discrete spots with gray centers of *Septoria* (left) and larger dark brown blotches with concentric growth rings of *Alternaria* (right) leaf spots (images E. Little)

Management strategies for preventing most leaf spot diseases are similar. Most leaf spot diseases survive the winter on the dead infected plant parts on the ground. Crop residues should be removed and destroyed at the end of the season. A three year rotation away from tomatoes and related crops is optimal. Greenhouses and high tunnels should be thoroughly cleaned and rotated away from tomatoes and related crops whenever possible. Healthy plants are better able to resist disease, so good soil preparation is essential with adequate levels of organic matter with a good balance of nutrients and an optimal pH (based on a soil test).

Choose a sunny, open site for tomatoes with good air flow. Low spots or areas surrounded by vegetation or trees will tend to be more humid. Overhead irrigation should not be used on tomatoes. High tunnels should be well-ventilated and fans used as needed to reduce humidity. Adequate spacing of plants, staking, and pruning are all important measures for increasing air circulation. Mulching the soil with organic matter such as leaves or with purchased materials will prevent pathogens from splashing onto the leaves as well as improve soil conditions.

Tomato cultivars will differ in their susceptibility to leaf spot diseases but no cultivars are immune. There are various fungicides and bactericides available, both conventional and organic, although some have limited effectiveness. These products only prevent infections and must be started before a disease outbreak. A good management plan incorporates as many of the management strategies outlined above as possible and chemicals are used as a last resort, if at all. If a disease needs verification, please send a sample to the UGA Plant Disease Clinic.

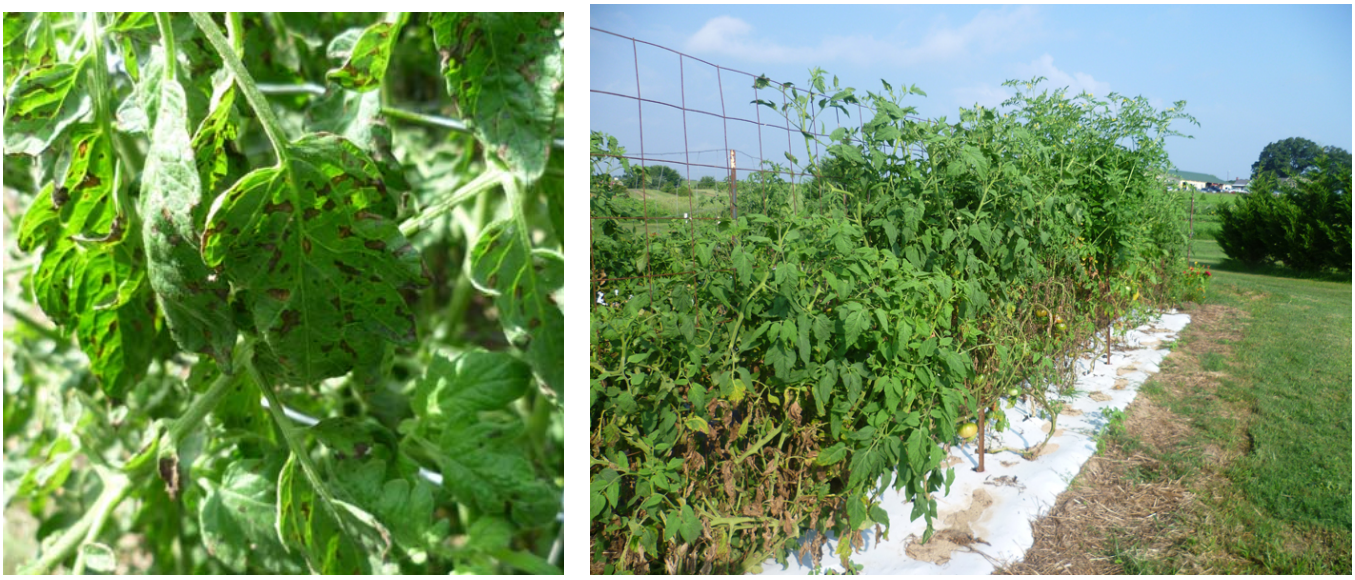

Fig 9: Bacterial spot on tomato (left). Leaf spots start on bottom foliage (right) (images E. Little)

Plant Disease Clinics at the University of Georgia		
Sample Type	**Diagnostician**	**Contact Address**
Commercial ornamentals, forestry, Christmas trees, legume forages, wood rots, commercial fruit, ornamental landscapes, turf, small grains, all homeowner samples, community gardens, organic	Ansuya Jogi Ph 706.542.8987 or 706-542-9157 Fax 706.542.4102 Ansuya@uga.edu	UGA - Plant Pathology Dept. Plant Disease Clinic Rm 2106 Miller Plant Sciences Bldg. Athens, GA 30602-7274
Tobacco, pecan, cotton, soybean, peanut, corn, kenaf, commercial vegetables	Jason Brock Ph 229.386.7495 Fax 229.386.7415 jbrock@uga.edu	UGA - Plant Pathology Dept. Tifton Plant Disease Clinic Room 116, 4604 Research Way Tifton, GA 31793
All samples for nematode analysis (check with nematode lab for instructions and fees)	Ganpati Jagdale Ph 706.542.9144 Fax 706.542.5957 gbjagdal@uga.edu	UGA - Plant Pathology Nematode Laboratory 2350 College Station Road Athens, GA 30602-4356