

## POLK COUNTY URBAN HORTICULTURER NEWSLETTER

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### TURF - Drought Tolerance

**Building drought tolerance-**A drought conditioned lawn can withstand more stress than a lawn that is not conditioned. A properly prepared lawn will have a deep and extensive root system that is better able to seek out water.

**Irrigation** is an important factor in developing a drought tolerant lawn. Ideally, only water your lawn when it starts to show stress. The stress will show up as folded leaves in the late afternoon, you will see spots that turn bluish-gray, and footprints will remain in the grass long after being made. At this time apply 3/4 inch of irrigation water. Three quarters of an inch of water will sufficiently wet the turf root zone. Any more than that will just carry nutrients out of the root zone. You will not need to water again until the symptoms reappear. This watering technique will encourage the turf roots to grow deeper in search of water.

I find very few people who know how much water their irrigation system is putting out per hour. It is really important to check your system to make sure it is operating correctly and use coffee cans or some other type of straight sided can to measure the output. Spread coffee cans over your lawn, run the system for 15 minutes, measure the water in the container and multiply by 4 and that is the flow rate per hour. In addition, check your system when it is running to make sure it is

covering the whole area and not missing spots. Sometimes sprinkler heads are broken and whole areas are being missed because of the loss in pressure.

**In-ground irrigation sensors** - Several companies, Acclima, Irrrometer, Agrilink and Lawn Logic, are now selling in-ground irrigation sensors which measure the amount of moisture in the soil. These sensors are wired to the timer control box and will cause the system to bypass an irrigation event if there is an adequate amount of moisture in the soil. Ideally there should be a sensor in each zone which can be adjusted to compensate for different soil types and plant moisture requirements. UF research data indicate that an in-ground sensor system may reduce water use in the landscape by up to 90%. Manufacturers claim that if the system is allowed to control irrigate events three times per week, less water will be used than the conventional 1/2 to 3/4 inch applications once per week and the turf will do better. The system seems to work in the heavier soil types, but has yet to be tested in the sugar sands of north east Polk County. The cost of the systems range from a few hundred dollars to a thousand or more dollars. Check with the Extension Office for more information.

**Proper mowing height** is also important for building a drought tolerant lawn. Cut the turf at the highest mower setting. This will increase the grass leaf area, allowing for more

photosynthesis. The higher the mowing height the deeper and more extensive the root system will be. More water will be lost from the higher turf, but this is outweighed by the deeper root system. Keep the blades sharp, because a leaf cut by a sharp blade will heal over more quickly than a leaf cut by a dull blade, because the leaf is just torn off.

**Fertilization** practices can also affect drought tolerance. All of the good done by proper irrigation and mowing practices can be negated by over fertilization with nitrogen. Excessive nitrogen fertilization causes an increase in leaf growth and a decrease in root growth. Just enough nitrogen should be applied to obtain a small but continuous amount of growth. We are beginning to find out that potassium is an important nutrient for building strong roots and thick cell walls. University research is beginning to show that it is preferable to use a fertilizer with equal amounts of nitrogen and potassium such as a 15-5-15 (nitrogen-phosphorous-potassium) rather than the conventional 16-4-8. It is best to use a fertilizer which has 30-50% slow release nitrogen. A basic fertility program for St. Augustine would be to apply 6.5 pounds of 15-5-15 per 1000 square feet in March and September and an application of iron in June. The iron will green the lawn and encourage root growth while not promoting excessive leaf growth.

**Soil amendments** - I think it is a must when renovating an old lawn or creating a new lawn that the soil be amended with several inches of organic matter such as peat moss and composted manure. The amendments need to be worked 6-8 inches down into the soil profile. The organic matter will help retain moisture and also provide nutrients for the turf as it decomposes. I don't know of any organic amendments which when added to established lawns reduce irrigation needs. If you have a hot spot which actually repels

water, then a granular laundry detergent can be lightly sprinkled over the area. This will help break the surface tension of the soil particles and allow water to penetrate. I understand that these hot spots can be watered on restricted days with a hand-held hose.

There are several polymer type products on the market, including Lawn Honey, Horta-Sorb, Soil Moist and Hydretain, which the manufacturers claim when incorporated in the soil before laying sod or seeding will help retain water in the root zone and reduce the need for irrigation. The manufacturers of Lawn Honey claim their product can also be applied directly to established lawns. We currently have no evidence that any of these products actually work. UF does have data supporting the claim that Hydretain when combined with potting soil in nursery pots will reduce the need for irrigation. I think adding organic matter like peat moss and composted manure will give the same effect as these polymers and also provide nutrients they break down.

**Drought tolerance varies with turfgrass species** - Bermudagrass, zoysiagrass, bahiagrass, and centipedegrass have the best drought tolerance of the southern turfgrasses, followed by St. Augustinegrass and carpetgrass. Bermudagrass, zoysiagrass and bahiagrass will generally survive drought conditions, because they have rhizomes (below ground stems) which are protected from drying out by the soil. St. Augustinegrass and centipedegrass do not have below ground rhizomes so therefore are much more sensitive to permanent damage from drought conditions.

So what is really the **best grass** to choose for drought tolerance. This is complicated by pest problems on the various turfgrasses. Bermudagrass and zoysiagrass tend to have problems with nematodes. Bahiagrass is

susceptible to mole crickets, but mole crickets are easier to control than nematodes. If a person can accept an open growth habit and not over-manage the turf, then bahiagrass is still the best choice. Bahiagrass is adapted to a wide range of soils and can survive with minimum management. If you want a better looking grass, Empire Zoysiagrass may be a better choice than St. Augustinegrass as it is not susceptible to chinch bugs and has underground rhizomes which make it more drought tolerant than St. Augustinegrass. UF field data also indicate that Zoysiagrass requires less fertilizer than St. Augustine. Research is on-going to develop drought tolerance data among the various warm season turfgrasses.

## **TURF PESTS**

**Turf insects** - We may be in for another year of chinch bug problems on St. Augustinegrass due to the chinch bug resistance to bifenthrin (Talstar/Ortho Max). If bifenthrin doesn't work, then Sevin may be the best choice. Keep in mind that Orthene is not registered on residential turfgrass anymore. Check with the Extension Service for the latest recommended control measures. If you have a history of chinch bugs in your St. Augustinegrass, then you may want to treat with an insecticide in late May and again in July.

Bahiagrass is susceptible to mole crickets. Watch for the raised tunnels and treat with an insecticide - bifenthrin products have worked best in the past. The soap flush (1.5 oz. of dish soap in 2 gals. water) poured in a 4 square foot area of turf will drive both mole crickets and chinch bugs to the surface. Treatments should be made in mid-June.

**Turf weeds** - Control of crabgrass in St. Augustinegrass and Bahiagrass is still a big problem. The options for control are still about the same as they were last year. You

can use what is called a preemergence herbicide such as Halts (pendimethalin) or Hi Yield Crabgrass Killer (trifluralan and balan) also called Team which kills the germinating seed. They are generally applied in mid-February and then again 4-6 weeks later. Some recommendations call for a summer and fall application of the Hi Yield Crab Grass Killer.

There are still no products available which will control crab grass after the seed germination stage. As I have mentioned before, baking soda will kill the leaves of crabgrass, however we don't have any definitive data to prove it actually kills the whole plant. However, the damage to the crabgrass will probably give the turfgrass a period of time to recover. You may experience some damage to the turf, particularly during times of high temperature. Diluting the baking soda by 50% with flour may reduce the potential for turf damage.

Atrazine is still the best choice for control of broadleaf weeds in St. Augustinegrass and 2,4-D for control of broadleaf weeds in Bahiagrass and Zoysiagrass. These products should not be applied when the maximum daily temperatures reach 85 degrees F. which is generally around the end of April.

Control of nutsedge has changed to some extent. The older products, such as Image and Basagran, still control a few different species of nutsedge, and are available to the general public. Neither product controls a broad range of nutsedges, but of the two, Image is probably a better choice. The product Manage, which controls a wide range of nutsedges, including Kyllinga, has been renamed and is now called SedgeHammer. This is the best product for control of nutsedge in St. Augustinegrass, Bahiagrass and Zoysiagrass.

## CITRUS GREENING

Citrus greening, also called Huanglongbing (HLB), is a bacterial disease affecting citrus. It is predominately transmitted by a small insect called the Asian citrus psyllid. This insect was discovered in south Florida in 1998 and began infesting susceptible hosts. The adult insect is about 3 -4 mm long with mottled wings held roof-like over the body. The psyllids are generally found on new growth where they feed and mate. The female psyllid requires young growth to reproduce. The feeding causes the new leaves to twist and curl but is different than aphid feeding. In addition to direct feeding damage, waxy secretions produced by the nymphs, may appear with high nymphal populations.

The citrus psyllid not only feeds on citrus but also on other plants in the citrus family (Rutaceae), such as the common Florida ornamentals - orange jasmine (*Murraya paniculata*) and boxthorn (*Severinia buxifolia*). After it's introduction into Florida in 1998, the Asian citrus psyllid spread all over Florida, at least in part on susceptible nursery stock.

In 2005 the picture totally changed, as the citrus greening bacterial disease organism was discovered in south Florida on citrus trees. The disease in the early stages is very difficult to detect on citrus trees. The first leaf symptoms appear as a blotchy mottle. The infected tree may exhibit yellow foliage in sections of the tree with eventual twig dieback. Molecular testing must be conducted for a positive citrus greening (HLB) identification. The disease eventually ruins fruit quality and debilitates the tree in about six years.

Many of the details of the disease transmission by the Asian citrus psyllid are still unclear. However, previous studies

indicate that the psyllid may acquire the greening disease organism after feeding on an infected citrus tree for 30 minutes. It then takes about 25 days for the disease organism to become mature enough within the psyllid to be transmitted to a citrus host. It is believed that most adults do not live long enough to spread the disease to other trees, however late instar nymphs can acquire the disease organism and do live long enough to spread the disease to other citrus trees. It is believed that several hours of feeding by the infected psyllid are needed for successful transmission of the disease organism to the host plant.

Commercial citrus growers are going to have their hands full dealing with citrus greening disease. The disease has not been officially reported in Polk County, but it is confirmed to be in Hillsborough County and other surrounding counties. To combat the spread of this disease, all citrus nursery stock sold after January 1, 2008 must have been grown in insect proof enclosures. Commercial growers probably will treat all newly planted trees with a systemic insecticide to kill psyllids. As the trees mature, there will have to be an integrated control policy combining available biological, cultural and chemical controls to keep the psyllid under control. Infected trees will need to be immediately removed.

So, where does citrus greening leave the homeowner and his citrus trees. At the moment, the citrus situation does not look good. The homeowner will probably be able to buy disease free nursery stock, but there currently are few registered products for use by homeowners which will control this pest after the tree is planted. We know the pest attacks orange jasmine and boxthorn, so should homeowners remove these plants from their landscapes? We don't know at this point, but this psyllid does feed on these plants and they seem likely to be carriers of the disease. Studies are currently underway to determine

if other Rutaceae like orange jasmine are actually carriers. Should homeowners continue to plant citrus in their landscapes? I think it would be prudent if homeowners wait at least a year or two before planting more citrus trees until more is known about this disease and its carriers. At that time more control options may be available to the homeowner. Call the Extension Office if you have questions.

### **GRASSHOPPERS**

Its beginning to look like another bad year for lubber grasshoppers particularly in northern Polk County. I have already had many calls concerning the hatching of grasshopper eggs. The females mate in late summer and lay their eggs in the ground. The eggs hatch in the spring as small nymphs. They are generally black with a yellowish line down their back and some reddish coloration on their head and legs.

The adults have underdeveloped wings and can only fly for short distances. The general color of adults is dull yellow with varying degrees of black spots and markings. The front pair of wings are yellow with numerous scattered black dots, while the hind wings when exposed reveal a bright red/rose coloration with a black border. There is a second color phase of adult lubber grasshoppers which is nearly black with a few marks of yellowish tawny and resemble the nymph.

The lubber grasshoppers are generally not a big problem, however during the last 2-3 years I have had numerous complaints from homeowners and nurseries in the area between Haines City and Polk City south of I-4. Last year in mid-summer the area around CR 557 south of I-4 was crawling with lubber grasshoppers eating everything in their way. The road was littered with dead

bodies. We really don't know why they are such a problem in that area. I visited a residence close to CR 557a this year and there were at least 25-30 spots with 30-50 hatching nymphs. There were also high numbers of hatching nymphs in surrounding landscapes.

What are the control options? The hatching nymphs can be sprayed with an insecticide like Bifenthrin. The nymphs tend to aggregate together for a while before dispersing so they can be caught by hand and disposed of before doing much damage. If there are just a few adults in th summer, they can be caught by hand and killed. When they reach maturity in the summer, they are next to impossible to kill with insecticide.

When the adults are very numerous like I previously described, I think it is going to take an area-wide program possibly sponsored by the State Department of Agriculture. Polk County BoCC and the Extension Service do not have the resources to deal with a problem like this. If you are experiencing heavy numbers of lubber grasshoppers in your area, please send an e-mail or letter to me and I will forward it to the Department of Plant Industry at the State of Florida Department of Agriculture and Consumer Services.

### **MISC. MAY GARDENING**

**Vegetables to plant** - Calabaza, chayote, cherry tomatoes, dasheen, malanga, okra, Southern pea, sweet potato and tamarillo.

**Flowers to plant** - Angelonia, balsam, begonias, black-eyed Susan, blue daze, browallia, bush daisy, butterfly weed, cat's whiskers, celosia, coleus, coreopsis, crossandra, Dahlberg daisy, gaillardia, gazania, gerbera, goldenrod, gomphrena,

impatiens, lantana, liatris, marigolds, melampodium, moon vine, nicotiana, nierembergia, pentas, periwinkle, porter weed, portulaca, purslane, salvia, sunflowers, torenia, verbena and zinnias.

**Herbs to plant** - Anise, basil, bay laurel, cardamom, chives, coriander, dill, lemon balm, oregano, sage, savory, sweet marjoram, mint, tarragon and thyme.

**Citrus** - It is now time to make the second fertilizer application of the year to trees five years and older. Apply one pound of a citrus fertilizer, such as 6-6-6, per year of age of the tree up to eight pounds per tree per application. Spread the fertilizer evenly under the drip line of the tree. If the fertilizer has a higher analysis, such as a 10-4-10 use a correspondingly lower amount of fertilizer. I noticed recently that Home Depot is selling a 10-4-10 citrus fertilizer with micronutrients - looks pretty good.

**Caladiums** - You can still plant caladiums for color in semi-shady or shady locations. They should be planted in well drained soils with good organic matter content.

**Magnolias** - The leaves turn yellow and many fall to the ground. This happens every spring. The trees will start to look better when new growth resumes.

**Cuttings**-Try starting some azalea and/or camellia cuttings from plants that you have pruned. Some cuttings (dipped in rooting hormone) will establish when placed in pots in a shady place, if you don't have a mist chamber. However, they must be watered regularly. You can make your own little mist chamber with a 2 liter bottle. Cut the top off and put 3-4 inches of potting medium in the bottom. Punch holes in the bottom to allow for drainage, place a cutting in the medium and replace the lid. Keep in a shady location.

Keep in mind, many common plants will produce roots when placed only in water-coleus, impatiens, bridal veil, ivies and many others. If you are not sure, just give it a try or give me a call.

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