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Agronomy Notes

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Bahiagrass Planting—what are the options?

Spring has arrived and many ranchers have decided to renovate their pastures or establish new ones with bahiagrass because of soil conditions, desired management, etc., but the question remaining is: which bahiagrass variety to plant?

In Florida, bahiagrass has a century-long history as a common grass. It was first introduced in Florida in the early 1900s, and since then several cultivars have been adopted. The most popular ones are Pensacola, Tifton 9, and Argentine, and more recently two new bahiagrasses are available, UF Riata bahiagrass, and TifQuik. Following is a description of each variety:

Bahiagrass Seedhead. Photo: Forages of Florida website.

Pensacola: Has narrow leaves, good seed production. This selection is very persistent under intensive grazing. It is among the most cold tolerant bahiagrass types. Approximately 60% of the bahiagrass acreage in Florida is estimated to be Pensacola. Despite the wide spread, forage production is lower compared to Tifton 9, Argentine, and the new releases UFRiata and TifQuik.

Tifton 9: This bahiagrass is an improvement from the existing Pensacola. This cultivar was developed after nine cycles of selection (therefore its name, Tifton 9). Compared to Pensacola, it has more vigorous seedlings, and longer leaves. The plants are more upright than Pensacola making it a great type for haying but less tolerant of close grazing. In general, it produces 25% more forage than Pensacola, but as much as 40% has been reported in replicated studies. Leaf digestibility is similar to Pensacola but live-weight gain per acre is higher for Tifton 9. Seed characteristics are similar to Pensacola; with a rate of germination of the seed that is the same for both.

Argentine: This bahiagrass is an ecotype from Argentina that is drought and disease tolerant. It is less frost and cold tolerant than Pensacola. Argentine is ideal if planning to overseed with cool-season forages because it will quit production earlier than other types; it will provide less competition to the cool-season grasses or legumes that will be sodseeded. Argentine has excellent spreading, and lower seedhead production.

UF Riata: The more recent release by University of Florida. This cultivar was selected from Pensacola to improve late fall and early spring production. Total season yield of UF-Riata is similar to Tifton 9. Like Tifton 9 it does not tolerate close grazing. If grazing UF-Riata care must be taken to allow for regrowth to a 6-inch height between grazing events

TifQuik: This bahiagrass was registered in 2011, and was developed for fast germination from Tifton 9. Previous bahiagrass cultivars described have a considerable amount of hard seed and therefore require between 2 to 3 weeks for the seed to germinate. This period of time is critical and it is usually when weeds infest the pasture and moisture in the soil is limited. TifQuik has a higher rate of germination (if the label indicate 85% germination, close to 100% of that germination percentage will occur within one week). Faster establishment with this type should be useful for decreasing weed competition and increasing profitability by providing earlier grazing or an additional hay harvest in the establishment year. Developers of this grass show that profits from hay would increase significantly with yields of a ton or better two months after planting.

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Bahiagrass Planting—(continued…)

Planting

Bahiagrass seeds are small. Planting depth should be less than ¼ of an inch to avoid entombing the seed. Placing the seed too deep is one of the most common mistakes associated with failed plantings. In addition, seeds are of the hard type (except for TifQuik), which means that they have a hard or waxy seed coat that prevents them from germinating immediately requiring either time or scarification to allow for moisture penetration. Because of these conditions higher seeding rates are recommended (around 30 lb/acre, see Table 1 below); lower seeding rates can be used but additional investment in weed control will be required.

Seedlings are also small and slow to grow. There are no selective herbicides, therefore, a well prepared seedbed is critical and weeds during this early stage need to be controlled by mowing or grazing.

Plant certified seed for Tifton 9, UF Riata, and TifQuik. This is your only guarantee to keep you from acquiring regular Pensacola at the price of improved varieties.

Table 1	**Seeding Rates (lb/acre)**
Pensacola	20–30
Argentine	20–30
Tifton 9	15–20
UF-Riata	15–20
TifQuik	15-20
Adapted from data from Newman et al. 2008, University of Florida	

Use sufficient seed. The higher the seeding rate, the quicker the stand will close, and the opportunity for weeds to fill in the open areas will be minimized. After seeding, pack the soil with a roller to seal the moisture in the soil.

For additional information on bahiagrass production, please check the following:

Bahiagrass (*Paspalum notatum*): Overview and Management available online at http://edis.ifas.ufl.edu/ag342

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Legume Inoculation, Why is Important and How to do it.

Legumes have the exclusive ability to fix nitrogen from the air. This unique feature makes legumes a source of Nitrogen for plant growth. To achieve this process, legumes rely in a mutually beneficial relationship with soil bacteria known as Rhizobium. What does the plant receive? The legume plant receives nitrogen and the bacteria receive carbohydrates and other nutrients from the plant. It is interesting to note that in their free-living form, rhizobia do not fix nitrogen because conditions without the presence of oxygen (anaerobic) are required for nitrogenase to function; nitrogenase is the fixing enzyme synthesized by bacteroids that as mentioned is inactivated by oxygen.

Rhizobia are free-living soil bacteria that are attracted to roots of legumes by chemical signals, but infection (or inoculation) occurs only when there is a proper match between a rhizobia species and the corresponding legume species. It is important to note that low to moderate amounts of N fertilizer (no more than 20 lb N/acre) at planting will not interfere with nodulation. The inoculation process takes up to one month, and so the young seedlings depend on seed reserves and soil nitrogen. However, if legumes are N fertilized in great amounts, the legume plant will take it up readily via roots, and the N fixation in the root nodules will decrease proportionally.

Bag of legume inoculatant (rhizobia) added to 50 pounds of legume seed.
Photo credits: Evers; Texas AgriLife Research

How to inoculate the seed?

1. Place the legume seed in a tub or similar clean open container.

2. Wet the seed with a commercial sticker solution, or with a syrup-water mixture, making sure to stir the seed thoroughly to guarantee that all seed is wet. Using only water will not be adequate because the inoculum will not stay attached to the seed once the seed dries. Add the recommended amount of sticker, and not too much, otherwise the seed will clump.

3. Add the inoculum and stir carefully and completely. You can add finely ground agricultural lime (not picking lime) if the seed are too sticky to flow through planting equipment.

4. Plant the seed as soon as possible after inoculation. Make sure the inoculated seed is protected from the sun and heat and if it cannot be planted on the same day it was inoculated, it is prudent to inoculate again.

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The How and Why of Herbicide Incorporation

Preemergence herbicides are a powerful way to prevent weed infestations before they start. In our current climate of glyphosate and ALS-resistant weeds, a good preemergence program is more valuable than ever. However, method and timing of application dramatically impact the efficacy of many preemergence herbicides. To improve their reliability, preemergence herbicides should be incorporated – this is particularly important for the yellow herbicides such as Prowl, Sonalan, and Treflan. So here are a few items that should be considered prior to making the application.

Why does incorporation improve herbicide performance? For a preemergence herbicide to work, the weed seed must germinate in the presence of the herbicide. Since most weeds do not germinate on the soil surface, the herbicide must be mixed into the soil so the emerging weeds can absorb the herbicide immediately upon germination. If the herbicide is applied to soil surface, the weed seed may germinate below the herbicide zone and emerge without harm. Additionally, many soil applied herbicides will degrade quickly in the presence of sunlight. Mixing with soil will protect the herbicide and greatly increase persistence and duration of weed control.

Is incorporation essential? Yes. A herbicide must be incorporated (or activated) for weed control to occur. This can be done using tillage equipment, irrigation, or rainfall. In a dryland system, if at least 0.5 inch of rain is not predicted within 5 to 10 days of application, mechanical incorporation will be essential to achieve weed control.

How should a herbicide be incorporated? As stated previously, the purpose of incorporation is to concentrate the herbicide in the zone where weeds germinate. We have already stated that most weed seed don't germinate on the soil surface, but neither do they germinate from several inches deep. Therefore, deep incorporation dilutes the herbicide in the soil profile instead of concentrating it in the germination zone. The best way to incorporate a herbicide is with minimal disturbance from a field cultivator or roto-tiller.

Can I incorporate with a disc? A disc can be used, but careful attention to depth of the implement is essential. A heavy disc can cover ground quickly, but have the tendency to cut the herbicide several inches into the soil – moving much of the herbicide away from the germinating seedlings. Additionally, a single pass with a disc can also incorporate the herbicide in streaks directly below the turning blades, rather than distributing it evenly. If a disc is used, two passes (each angled across the other) will help distribute the herbicide more evenly. Beware to not incorporate too deeply.

Should all preemergence herbicides be incorporated? No. Valor herbicide performs best when applied directly to the soil surface. It too requires rainfall or irrigation for activation, but should not be incorporated with tillage.

Allowing the crop to emerge in a weed-free setting is essential to obtaining top yields. The yellow herbicides, in particular, benefit from light incorporation immediately after application. Though the yellow herbicides will not provide season-long weed control, proper incorporation can allow them to perform at an optimum level. For more information, we suggest reading the Treflan label. Though not for use in peanut grown in the Southeast, this label provides an excellent narrative on proper herbicide incorporation, particularly for the yellow herbicides (http://www.cdms.net/LDat/ld0AQ006.pdf).

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Broadleaf Weed control in Sugarcane with 2,4-D

2,4-D is one of the most widely used herbicides worldwide. It is a growth regulator herbicide (phenoxy-carboxylic acid) used for control of many broadleaf weeds including spiny amaranth, common ragweed, common lambsquarters, and morningglory in sugarcane. The label use rate of 2,4-D in sugarcane is 3 to 4 pints per acre after cane emergence through layby. The higher rate should be used for large or difficult to control weeds such as alligatorweed. 2,4-D can be tank mixed with other herbicides labeled for use in sugarcane to broaden the spectrum of weed control. In addition, it can also be used at 3 pints per acre before sugarcane emergence. Once absorbed by foliage 2,4-D is readily translocated to the growing points of the root and shoot. Good spray coverage and conditions that favor absorption are essential for improved efficacy of 2,4-D.

2,4-D can cause injury to susceptible broadleaf crops (lettuce, snap beans, radish, celery, parsley) as a result of drift from nearby sugarcane fields or spray tank contamination and result in growth abnormalities especially in new growth. Characteristic symptoms of 2,4-D drift in susceptible crops will include leaf cupping and strapping. Larger quantities of 2,4-D will result in leaf and stem twisting (epinasty) in susceptible broadleaf crops. Additionally, 2,4-D has the ability to volatize and drift off site and result in injury in susceptible crops. Vapor drift of 2,4-D will increase as temperature increases especially under dry conditions and may occur for extended periods. Typically, ester formulations of 2,4-D tend to volatilize more than amines because of their high vapor pressure. As a result, it is important to use only amine formulations in sugarcane where volatilization around sensitive crops is a concern. Amines formulations are relatively nonvolatile and therefore less susceptible to vapor drift, but they are still susceptible to physical spray drift. Thus, care must be taken when using 2,4-D amine in sugarcane to prevent drift to susceptible broadleaf crops grown nearby.

Growers who use 2,4-D amine in sugarcane are required to consult the Florida Organo-Auxin Herbicide Rule (University of Florida Cooperative Extension Fact SheetUniversity of Florida Cooperative Extension Fact Sheet University of Florida Cooperative Extension Fact Sheet SS-AGR-12, prior to application. available at:

http://edis.ifas.ufl.edu/wg051)

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Arysta LifeScience Suspends MIDAS

Arysta LifeScience Corporation recently announced the immediate suspension product sales for all formulations of the soil fumigant MIDAS in the United States. The active ingredient in the product is methyl iodide, also known as iodomethane. The announcement is limited to MIDAS and applies to no other product the company markets. The decision was made as part of an internal review of the fumigant and based on its economic viability in the U.S. marketplace. Arysta LifeScience will continue to support the use of iodomethane outside of the U.S. where it remains economically viable.

Iodomethane has been controversial in California. Two groups, Earthjustice and California Rural Legal Assistance, challenged the state's approval of the fumigant in a lawsuit that went to a one-day trial in Oakland in January. The judge is expected to rule in the near future.

Use exemptions on the soil fumigant, methyl bromide, long linked to ozone depletion, run out in 2014. Other pesticide soil fumigants in use include metam sodium, chloropicrin, and 1,3-dichlorpropene.

Calendar of Events

To follow the link, press "Ctrl" and put cursor over link, and "click."

Apr. 11 **FL Certified Crop Advisor (CCA) workshop**. Lake Alfred, FL
http://www.crec.ifas.ufl.edu/crec_websites/cca/program.shtml

May 2-4 **61st Annual Florida Beef Cattle Short Course**, Gainesville, FL
http://animal.ifas.ufl.edu/extension/beef/BCSC/BCSC2012/short.shtml

May 7-10 **Aquatic Weed Control Short Course,** Fort Lauderdale, FL
http://www.biomasssupplychain.com/

May 10 **5th Annual Biomass Supply Chain & Logistics Conference**, Tone Mountain, GA
http://www.biomasssupplychain.com/

May 16 **Cool Season Workshop—by Cool-season grass initiative**, Rogers, AR
http://www.afgc.org/docs/2012TentativeAgenda.pdf

Mayo 20-26 **Caribbean Food Crop Society meeting**, Mexico
http://cfcs.eea.uprm.edu/

June 3-8 **9th Intecol International Wetlands Conference**, Orlando, FL
http://www.conference.ifas.ufl.edu/intecol/

June 18-22 **FL Cattlemen Association Annual Convention and Allied Trade Show**, Marco Island, FL— http://www.floridacattlemen.org/events.html