

Five Steps for Southern Pasture

Stay on top of fertility, pest control, variety selection, rotation and nutrition



■ Production Management

A healthy, vigorous pasture can improve livestock gains and reduce feed costs. But growing pasture in the South and Southeast brings special challenges because growers must consider forage grass varieties, soil type, soil pH, fertility, weed control and water availability.

“Creating a management scenario that fits your operation can seem like a daunting task, but it’s manageable if taken one step at a time,” says Dr. Ann Blount, forage specialist at the University of Florida.

“You need a plan based on the forage needs of your operation and what your land is capable of producing.”

Land’s potential can be identified in broad terms by region. Moving east into the Coastal Plains, the soils become lighter, sandier, higher in acid, and lower in fertility. Into South Florida, conditions become more tropical. “You have to be sure you are using forage cultivars that are adapted to your region,” says Blount. “As you get into the more temperate regions of Alabama and Georgia, Louisiana and Mississippi, you can look at adding alfalfas and clovers, but these don’t work well on the lighter, sandier soils of Florida and the Coastal Plains.”

Blount says it's wise to drill down to the specifics of each plot of land with soil testing to determine any nutrient deficiencies, and consult with your university extension agent or weed specialist to determine what weeds will need to be controlled before planting a forage crop.

Step 1: Soil fertility and pH

Have the soil tested to determine the need for lime. Ground that was in a pine forest for 30 years will usually have acidic soils that require lime for optimum pasture growth.

“Rather than liming the ground right away, you may be better off controlling weeds first, then incorporating the lime throughout the soil profile. Lime sitting on top of the ground won't help your grass seedlings much,” says Blount.



If lime is needed to neutralize soil acidity, **Blount advises applying it prior to the first tillage and, if possible, several months before planting forages.** Lime should be incorporated into the soil whenever possible since lime reacts only with the soil that it contacts. Either calcitic or dolomitic limestone may be used. If lime is recommended and the soil test shows magnesium to be medium or low, then dolomitic limestone should be used.

Most university extension services offer soil testing services. The University of Florida Extension Soil Testing Laboratory (ESTL), for example, tests for phosphorus (P), potassium (K), magnesium (Mg), and calcium (Ca) and bases fertilization recommendations for those nutrients on the test results. Nitrogen (N) fertilization recommendations are not based on soil tests but rather on crop needs as documented in research literature.

Time fertilizer application for efficient uptake and minimal losses. When establishing annual grasses, fertilizer should usually be applied just prior to or at planting. For perennial grasses and especially on sandy soils, it is recommended that producers wait until the new shoots emerge and have developed some roots before applying the fertilizer. Since much of the planting is done in the summer rainy season and on sandy soils, nutrients can readily leach out of the root zone. Therefore, it is desirable to have some roots in place and ready to take up nutrients when the fertilizer is applied. The type, amount and timing of fertilizer application during establishment can be obtained from the EDIS publication SL-129 UF/IFAS Standardized Fertilization Recommendations for Agronomic Crops.

Step 2: Control weeds and pests

Assessing the landscape and potential weed problems is a crucial step in establishing new pasture. For example, Blount advises that if you have Bermudagrass or prickly pear cactus in the pasture ground, you should control those weeds with herbicide first; otherwise tilling could just spread the problem. Blackberry brambles, cogongrass and



Prickly pear cactus



Toxic plants
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other weeds that spread by rhizomes can be especially problematic if cut up live while tilling. It's best to control as many weeds as possible before putting any seed in the ground.

Toxic plants

In Florida alone, more than 15 different pasture weed species are toxic to cattle. Chronic toxicity may slow gains, and acute toxicity can kill animals. Young stock and cattle on overgrazed pasture are especially vulnerable. Pasture coming out of woodland will tend to have more toxic plants.

A list of Florida plants poisonous to beef cattle includes weeds like bracken fern, sicklepod, lilies, iris, pigweed, black nightshade, castor bean, cherry trees and other weeds many growers might not realize are toxic.

Wildlife damage

People often don't realize it until after they have invested a lot of money on land preparation and planting, but nuisance animals like wild hogs can be very destructive. Forage peanuts can be especially vulnerable to hogs. You might spend \$1,000 an acre to establish a pasture and then lose it to wild hogs. It's best to eliminate as many nuisance animals as possible before planting a new pasture. Hogs may be shot or trapped, but you may require a nuisance animal permit to do so.



Factors to consider when selecting a forage



Location



Climate



Soil Condition



Moisture

Step 3: Forage variety selection

Select suitable varieties for your location, climate, soils and moisture. Different varieties of Bermudagrass and bahiagrass have characteristics that make them desirable. Universities do variety testing to help you select the varieties that can work best for you. Blount advises considering different systems to extend the forage growing season. **“Start with a perennial grass variety adapted to your area, then look at overseeding perennials, or maintaining some open land where you can plant winter forages.** Or you can rotate livestock onto annual grasses and forages while the perennial grass pastures are recovering or becoming established. Rotation can give your bahiagrass and Bermudagrass time to regrow.”

With sufficient moisture or irrigation, you can use cultivated or overseeding systems to stack different kinds of forages and provide year-round pasture. Cultivated land can be excellent for winter annual forages like oats, ryegrass, millet, claypea, brown midrib sorghum and sorghum sudangrass until perennials like forage peanuts, bahiagrass and Bermudagrass come out of dormancy. You can then move the animals to summer annual pasture.

Blount developed UF Riata bahiagrass, a cool-season spring and fall perennial grass which is the highest yielding and most disease-resistant bahiagrass currently on the market for Florida and the Coastal Plains. UF Riata produces nearly twice as much forage as Pensacola bahiagrass, from which it was derived. But just like other bahiagrass varieties such as Tifton 9 and Tifquik, UF Riata does not like to be overgrazed. So proper management with rotational grazing is important. Lists of forage varieties and characteristics are available from the University of Florida and University of Georgia.



Irrigation extends the grazing season

Step 4: Irrigate and rotate

Adequate water extends the grazing season. During hot weather, forage plants can require 0.25 to 0.30 inches of water per day. Without water, plants go dormant and grazing must be replaced by feeding stored or purchased hay. Rainfall is so unpredictable; you might be able to justify an irrigation system on at least part of the operation.

What is adequate moisture?



Making pasture irrigation a viable option requires an adequate water source. To cover one acre with one inch of water takes 27,158 gallons. You'll have to determine water source availability and pumping costs to determine if irrigation is the right solution for you. Irrigation can help extend your grazing season through the hotter, dryer months. You'll need to determine if there is a nearby affordable source of water, the cost of a system to move that water, and if you need a permit to pump from your state and the U.S. Army Corps of Engineers. Permits can take up to 12 months to be approved, so plan ahead. Irrigation systems are a long-term investment that pay for themselves in increased forage production, but a competitive return on investment may take hundreds of hours of pumping over a period of years. System efficiency is a factor. Newer pivot irrigation systems may be 85 percent efficient, but older systems might be less than 60 percent efficient, requiring more energy and labor to bring sufficient water to the pasture. Irrigation will increase forage production, which usually brings a need for additional fertility. Soil salination and hoof compaction on wet soils can also be a concern.

Grazing rotation

A typical grazing paddock rotation is one to four days of grazing followed by a recovery period of 20 to 35 days. Stock density is also a factor. If you do intensive grazing, you'll typically want to rotate paddocks after one day. A yearling will typically eat 3 percent of its bodyweight per day, so 83 animals can take 1,900 pounds of forage per acre in 24 hours. If they eat all the forage, they'll be hungry and start looking to escape to greener pastures.

For further reading on pasture irrigation and grazing rotations, the Grazing Lands Conservation Initiative publication "Extending Your Grazing Season and Reducing Stored Feed Needs" by forage crops professor Don Ball, Auburn University, is an excellent resource.

A yearling

EATS 3%

of its bodyweight daily

Step 5: Evaluate Animal Nutrition

The primary purpose of raising quality pasture is to sustain healthy, growing or lactating animals. Generally, an analysis will determine protein and energy content. Proteins plus energy are the most important nutrients for livestock. These nutrients support rumen microbes that consequently digest forage. True proteins contain 60 to 80 percent of the total plant nitrogen (N), with soluble protein and a small portion of fiber-bound N carrying the remainder. Values of forage protein concentrations vary considerably depending upon species, soil fertility and plant maturity.

Some examples of protein concentrations are as follows:



6-14%



4-18%



18-25%

As an indicator of concentration of available energy, TDN (total digestible nutrition) is calculated as the sum of digestible protein, digestible crude fiber, digestible nitrogen-free extract, and 2.25 times the digestible fat. TDN has been in use for many years and remains an easily understood and acceptable measure of nutritive value.

Total digestible nutrition



Forage nutrients vary with maturity and plant variety; the older the forage, the lower the TDN value. Values of TDN also vary with forage species: alfalfa (60–70 percent) > cool season grasses/clovers (55–68 percent) > warm season grasses (45–65 percent). Some examples of TDN for different forages are bahiagrass, 55–60 percent (at 28–30 days old), bahiagrass, 40–45 percent (for mature, low-quality forage); Bermudagrass, 55–65 percent (at 28–30 days old); Bermudagrass, 40–45 percent (for mature, low-quality forage); and pearl millet, 70 percent.

More details on forage variety nutrition can be found from your university extension or resources such as the University of Florida and University of Georgia.

Plan and Budget for Success

Establishing a new pasture requires significant investment in land preparation, fertility, weed control and forage seed. **Doing it right the first time can save money and start producing forage as soon as possible.** Forage budgets for weed control, fertility and forage seed are available from the University of Florida and farm input retailers such as Ragan & Massey.

