



UGA Extension Forage Team

Northwest District

Norman Edwards
nedwards@uga.edu
706-638-2548

Steve Morgan
smorgan@uga.edu
706-628-4824

Wes Smith
swsmith@uga.edu
706-647-8989

Northeast District

Lucy Ray
lray@uga.edu
706-342-2214

Sam Ingram
singram@uga.edu
706-367-6344

Bobby Smith
rcsmith@uga.edu
706-542-3503

Southwest District

Jeremy Kichler
jkichler@uga.edu
478-472-7588

Brock Ward
ward1@uga.edu
229-732-2311

Southeast District

Carole Knight
ckh@uga.edu
912-871-6130

Ray Hicks
rhicks@uga.edu
912-564-2064

Will Lovett
welovett@uga.edu
912-462-5724

Summer Annual Forages

By Jeremy Kichler
Colquitt County CEC

This time of year, I often get questions about what type of summer annual forages to plant. Warm season annual grasses are established from seed and are productive during spring and summer. Plantings of warm season annual grasses can be made in the spring as soon as the soil temperature (at a two inch depth) warms to 65° F and can be planted as late as July without a yield penalty. Seed can be broadcast or drilled in narrow (more than 15 inches) or wide (up to 36 inches) rows. Seed should be planted at a soil depth of 1/2 to one inch. Ideally, summer annual grasses should be established on well-drained, fertile soils with good water-holding capacity. Higher seeding rates may help to decrease stem size, but it is unlikely that this will be valuable enough to compensate for the expense of the higher seeding rate. Below is a table that shows planting dates and seeding rates for summer annual grasses.



New varieties of warm-season annual grasses are released periodically, so it is important to examine the yield comparison trials in UGA's Statewide Variety Testing Program (<http://www.caes.uga.edu/commodities/swvt/>).

Pearl millet can be grazed or harvested as hay or silage. Growers can begin to graze pearl millet when plants reach 20 to 24 inches, but regrowth rate and animal performance is best if a nine to 12 inches stubble height is maintained. Pearl millet can make good quality hay if cut when plants reach two to three feet tall. This prevents the forage from maturing beyond the boot stage and therefore being too mature to provide high quality. The drying rate of millet hay can be sped up by the use of a roller/crimper-style conditioner.

If harvested prior to advanced maturity stages, the range of total digestible nutrients (TDN) can be expected to be 52 to 58 percent, while crude protein (CP) will range from eight to 11 percent. There is some evidence to suggest that seeding rates at the high end of the recommended ranges will promote a higher leaf:stem ratio. This may improve forage quality, but these gains may not compensate for the expense of the higher seeding rate.

Since pearl millet does not produce prussic acid, this species has a distinct advantage over sorghum, sudangrass, and sorghum x sudangrass hybrids. This allows pearl millets to be grazed or harvested at any growth stage and during droughts without the risks associated with prussic acid poisoning. However, pearl millets can have high nitrate levels.

Hybrids of forage sorghum and sudangrass are commonly grown as a warm season annual crop in Georgia. These hybrids have the highest yield potential of any of the summer annuals, if adequate rainfall is received or irrigation is provided. However, sorghum x sudan yields are more severely affected by drought than pearl millet, and are less tolerant of poor soil conditions and soil pH values less than 5.8. Sorghum x sudans can be used for grazing or silage, but like other annual sorghums, their forage is difficult to dry to moistures suitable for hay production.

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Table 3. Planting dates and seeding rates for selected warm season annual grasses.

Species	Planting Dates [*]	Seeding Rate	
		Drilled	Broadcast
		— lbs. of PLS/acre —	
Pearl Millet	LV: May 1 – July 1	10–15	25–30
	P: April 15 – July 15		
	C: April 1 – August 1		
Sorghum x Sudan Hybrids	LV: May 1 – July 15	15–20	20–25
	P: April 15 – August 1		
	C: April 1 – August 15		
Sudangrass	LV: May 1 – July 1	20–25	30–40
	P: April 15 – July 15		
	C: April 1 – August 1		
Forage Sorghum	LV: April 25 – May 15	15–20	20–25
	P: April 15 – May 15		
	C: April 15 – June 1		

* LV = Limestone Valley/Mountains Region; P = Piedmont Region; C = Coastal Plain Region.

Summer Annual Forages (cont.)

Sorghum x sudan hybrids should be rotationally grazed, allowing the forage to reach 24 inches before grazing (i.e., managed like sudangrass). At this stage, sorghum x sudans will generally have TDN values in excess of 53 to 60 percent and CP concentrations of nine to 15 percent. Brown midrib (BMR) varieties are usually preferred varieties for grazing since they have less lignin and higher digestibility than other varieties.

Photoperiod-sensitive sorghum x sudan and forage sorghum cultivars are available. These varieties are capable of sustaining more consistent growth over a longer growing season because they remain in a vegetative stage late into September (until daylength is less than about 12 hours and 20 minutes). This trait may negate or lessen the need for staggered plantings.

Upcoming Events

Corn Silage and Conserved Forage Field Day
May 24, 2014 | Citra, FL

American Forage and Grassland Council's Annual Field Tour
June 25-27, 2014 | Entriiken, PA

Sunbelt Ag Expo Field Day
July 10, 2014 | Moultrie, GA

Georgia Grazing School
Sept. 17-18, 2014 | Tifton, GA

Southeastern Hay Contest (in conjunction with the Sunbelt Ag Expo)
October 14, 2014 | Deadline for Entry is Sept. 22, 2014 | Moultrie, GA

Weed Control Strategies for Pastures and Hayfields

By Steve Morgan

Harris and Talbot Counties CEC

Weeds can reduce the quantity and the stand life of desirable forage plants in pastures and hayfields. First of all, a weed is defined as any plant growing where you don't want it. So we aren't just talking about what we commonly think of as weeds. A weed can also be bahiagrass growing in a Bermudagrass field. These unwanted plants are often more aggressive than existing or desired forage species and compete for light, water, and nutrients. Weeds can also diminish the quality and palatability of the forage available for livestock grazing, and certain weed species are potentially poisonous to grazing animals. The aesthetic value of a pasture is also impacted by weeds. Therefore, it may be desirable to initiate weed management strategies that reduce the impact of weeds on forage production. However, not all weedy plants are detrimental to pastures or hayfields. In fact, some weedy plants provide nutritional value to grazing animals; thus, prudent management decisions are often required to determine when or if weed control should be initiated in a pasture or hayfield.

Everyone recognizes the need for weed control. Not only does it make for better quality hay but it also eliminates competition from the weeds, which allows the grass to fully utilize available moisture and nutrients and reach maximum yield potential. Here are some things to keep in mind when trying to control weeds.

There are many products on the market that will do a fine job of controlling broadleaf weeds. Probably the most well know product is 2,4-D. It gives excellent control of bitter sneeze weed, plantains, buttercup, and ragweed but relatively poor control of horsenettle and most woody weeds. One note here on 2,4-D. When applied at lower rates, it will not harm white clover. Cimmaron is widely used. This product is excellent on bahiagrass, curly dock, buttercup, wild garlic, and spiny amaranth.

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Weed Control cont.

However, it only injures ryegrass and is poor on horsenettle. Weedmaster provides excellent control of broadleaf weeds and is the preferred product in hay operations. Try to choose a product that will control as many of the weeds that you have as possible. This will keep costs down and avoid multiple trips through the field. If more than one product must be used, try to choose products that can be mixed in the same tank and applied in one pass. Some products, like Weedmaster, can be mixed with liquid fertilizer as the carrier. Using this method, a producer could perform two functions with one pass. Also note the surrounding crops. Many of these herbicides are lethal to cotton, tobacco, and soybeans.



Producers should choose a product that won't harm surrounding crops if exposed to drift. If this is not possible, try to choose a formulation that is less prone to volatilization. The more volatile a product is, the more likely you will experience product drift. Drift will also vary with boom height, nozzle type, pressure, and wind. Remedy, Crossbow, and Redeem R&P are all labeled for hay and pasture but must be used cautiously due to drift dangers. Grazon P&D is probably the best and most dangerous product available. The product has seen drift up to 2000 feet.

Producers should know and adhere to any grazing or haying restrictions. Some products have restrictions on grazing and haying. Others have restrictions just on haying. These restrictions can be anywhere from seven days to one year, so make sure you know what you are dealing with prior to application of the product. An interesting note here is that most products that have no grazing restrictions for beef cattle will have grazing restrictions for dairy cattle. Most will also have a withdrawal period before slaughter.

Controlling grass weeds in pastures and hay fields is much more challenging. Most products on the market give minimal control on most grasses. Cimmaron will control bahiagrass along with certain broadleaf weeds. The ester formulation of 2,4-D will control crabgrass in newly sprigged bermudagrass for approximately three weeks. Roundup Ultra can be used to control crabgrass and sandbur if used immediately after the first cutting. Gramoxone Extra can be used to kill winter annuals in dormant bermudagrass and is safer on greening-up bermudagrass than Roundup. For control during the summer growing season, the best option is Pastora.

Pastora is being widely used in this area. Pastora is labeled for bermudagrass pastures and hay fields and has no grazing or haying restrictions. Moreover, it will not cause severe stunting of bermudagrass like Journey or Panoramic except when liquid nitrogen is used as the carrier. Pastora will control twenty-five different grass weeds and over 100 different broadleaf weeds. In field trials, it has been excellent in controlling crabgrass, vaserygrass, and johnsongrass. It will also control sand spurs. One issue that should be addressed here is the use of MSMA, monosodium methanearsenate, on pastures and hay fields. This product will give post emergent control of crabgrass, dallisgrass, goosegrass, bahiagrass, netsedge, and sandbur. However, it is NOT labeled for use in forages. The "A" in MSMA stands for arsenate, which is a derivative of arsenic. The use of this product causes a buildup of arsenicals in the plants, which can lead to poisoning of livestock that graze the forage or are fed the hay from treated fields. Horses are most sensitive followed by cattle, sheep, and goats. There are documented cases of cattle deaths due to arsenic based herbicide applications. This product should not be considered an option in weed control for forages. Alternative chemicals and/or application methods should be used.

Herbicides can be a useful tool for weed management in pastures and hayfields. They should be used where appropriate and when cost effective. A program that integrates several different control strategies is generally more successful than relying on only one method. Weeds present at the time of herbicide application may be controlled, but if the forage stand is not vigorous and actively growing, new weed seedlings will soon emerge and occupy the bare areas that remain. Thus, without proper use of mechanical control methods and good cultural practices, herbicide use will not be beneficial. For a complete list of forage herbicides and recommendation refer to the [UGA Pest Management Handbook](#).

Stop the Insanity!

Putting Forage Quality First

By Carole Knight

Bulloch County Ag Agent

Here we are once again at the beginning of another hay season. Hay producers anxiously sit at the starting line glued to their smartphone weather app or favorite tv weather-man waiting for that golden window to get their grass mowed, dried, baled and put up before a rain. Last year this process was not so easy. Many producers struggled with timing their hay cuttings to get up their grass without getting rained on and/or after being too mature. Because of this we had a lot of hay fed this winter that was too low in energy and digestibility and we paid the price. So let's take a bit of advice from Albert Einstein who said, "Insanity is doing the same thing over and over again, but expecting different results." Let's look at how we can put forage quality first.

So what defines a high quality forage? Forage that is highly digestible (i.e. high TDN) and that large amounts can be consumed (i.e. high DMI) is universally considered to be of high quality. There are numerous factors that contribute to forage quality. These factors are listed in the table below with their corresponding importance.

Importance	Factor	Recommendations
High	Forage Maturity	Cut the forage in the late vegetative or early reproductive stages of growth. Abide by the harvest for individual species.
High	Forage Species	Use a high-quality forage species that persists and can be produced economically in your environment. Species resistant to drought and temperature extremes should be used.
Moderate	Forage Utilization	Grazed forage is generally higher quality than conserved forage (i.e., hay, silage, etc.) because of animal selectivity and because fresh forage is generally higher in digestible nutrients. However, selectivity may reduce overall forage utilization compared to mechanically harvested systems.
Moderate	Variety	Use varieties that have proven to provide a good balance of high quality and high yields. Select disease- and insect-resistant varieties.
Moderate	Storage	Protect hay bales from rainfall and weathering during storage (e.g., barn, tarp, etc.). Properly pack and exclude oxygen from forage that is being ensiled.
Moderate	Rain Damage	Avoid cutting if significant rainfall (> 0.50 inches) is predicted during curing, but take care to avoid allowing forage to become overly mature.
Moderate	Heat Damage	Dry forage to the appropriate moisture for making hay (Round: 15%; Square: 18%) and store in a manner that allows adequate ventilation. Maintain integrity of oxygen barrier in silage storage.
Low	Fertilization	Fertilize based on soil test recommendations and at recommended times to sustain CP/mineral concentrations in the forage and to maximize vegetative mass in the standing forage.

Notice that forage maturity is of the most important factor affecting forage quality. Last year we sacrificed forage maturity because of frequent rainfall. Cuttings were put off for weeks and grasses were overly mature when cut. Young, leafy vegetative growth has a higher level of digestible nutrients and protein, which declines as the plants progress toward maturity. Older forage has fewer leaves, more stems, and a higher fiber content. More lignin is deposited as the plant matures. Lignin causes the plant to be more indigestible. Therefore, it is critical to harvest the crop whenever the forage reaches the recommended stage for harvest. Delaying a harvest beyond the recommended maturity stage will result in forage that is less digestible and much less capable of being consumed at a high rate of intake.

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Forage Quality cont.

Other factors that contribute to forage quality include forage species. It is generally known that different forage species exhibit differences in digestibility and nutritive value. In general, grasses have much higher fiber content than legumes. As a result, legumes are generally more digestible than grasses. Similarly, cool season grasses are typically lower in fiber content and more digestible than warm season grasses. Forage quality potential can also differ between varieties of the same species. For example Tifton-85 bermuda grass results in a higher quality forage than Coastal.

Many management factors contribute to the production of high quality forage. Successfully harvesting hay is a highly detailed process that takes planning and attention to make sure that the forage collected is of the highest quality possible. However, the only way to actually know what the quality is to conduct a forage test. So, let's stop the insanity, learn from the past, and plan for a profitable and productive hay season that focuses on putting up the highest quality forage possible. For more information on forage quality, refer to the UGA publication, "[Understanding and Improving Forage Quality.](#)"