



## Establishing Warm-season Forages

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Rocky Lemus  
Extension Forage Specialist

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Warm season grasses can greatly compliment cool-season grass pastures in a rotation and are highly palatable forage for livestock. There are approximately 1.73 million acres of warm-season forage production in Mississippi. These system include bermudagrass (769,599 acres), bahiagrass (903,157 acres) and summer annuals (59,312). These grasses initiate growth in late April or early May, and produce 65 to 75 percent of their growth from mid-June to mid-August. These warm-season grasses are highly palatable when harvested timely or graze rotationally. Many warm-season grasses over the years have gotten the reputation that they are not as nutritious as cool-season grasses. In most cases, this reputation has come from a misunderstanding of how to properly manage them to reduce fiber content. One of the drawbacks of warm-season grasses is that the cost of establishment often becomes a concern with high seed prices. If a producer is willing to undertake the obstacles of establishing and managing this type of grasses, the benefits can be tremendous. Many perennial summer grasses can produce an average of 2-3 tons of forage per acre. With intensive management bermudagrass and bahiagrass can produce much more. On the average, one can expect to support one cow per acre during the summer months when using the proper rotational grazing scheme.

**Table 1.** Estimated average cost per acre for establishment of warm-season perennial forage crops\*.

Forage Species	Seeding Rate (lb/ac)	Cost	
		\$/lb	\$/ac
<b>Bahiagrass</b>			
Argentine		4.15	82.93
Pensacola		3.42	68.40
TifQuik	20	6.78	135.53
Tifton 9		4.98	99.50
UF-Riata		5.00	100.00
<b>Bermudagrass, hybrid</b>			
Tifton 44, Tifton 85, Sumrall 007, Alicia	40 bu	-	110.00
<b>Bermudagrass, seeded</b>			
Cheyenne II		11.18	111.77
Common (hulled)		6.75	67.50
Common (unhulled)		5.42	54.17
Cowboy		9.00	90.00
Giant		9.43	94.33
Laredo		8.00	80.00
Mohawk	10	7.57	75.67
Pasto Rico		6.37	63.70
Ranchero Frio		9.28	92.80
Sahara		4.70	47.00
Sungrazer+		8.00	80.00
Texas Tough		9.50	95.00
Wrangler		6.38	63.80
<b>Lespedeza</b>			
AU Grazer		7.20	216.00
Korean (hulled)		5.95	178.50
Korean (unhulled)	30	2.96	88.80
Sericea (hulled)		5.90	177.00
Sericea (unhulled)		4.75	142.50

\*Establishment cost does not include fertilizer, land preparation, herbicides, and labor.

**Note:** The names and trademarks of the cultivars mentioned in this publication are **not endorsed** in any shape or form by the Mississippi State University Forage Extension Program. They are mentioned for educational purposes only. Producers should look at variety trials for their area to determine which variety(s) might best suited for forage production.

Establishing a pasture or hay field is a key step in having a thick, lush, profitable stand. There are several steps to follow:



**Nutrient Management** – A perfect stand begins with good soil preparation. The first step is to obtain an accurate soil sample and improve soil conditions accordingly. This needs to be done 6 months ahead of when planting is to be accomplished. Apply lime and fertilizer according to soil test recommendations. Line lime should be applied 6 months prior to planting while phosphorous and potassium can be applied at planting time. New pastures or hay fields will benefit from early application of nitrogen applied at 3-4 weeks after planting. In the case of sprigged hybrid bermudagrass, nitrogen should not be applied at 40 days after planting to help increase the number of runners and increase canopy cover. Successive applications of fertilizer will prolong the life and improve the performance of the new stand.

**Prepare a good seedbed**

– Most warm-season forages require a well-prepared and firm seedbed because of the poor germination in some cases. Planting depth is also an important component of a successful establishment. Large seed forage crops such as sorghum can be planted deeper than small seeding forages such as common bermudagrass or teffgrass. Using a non-selective herbicide to reduce competition might be necessary if using a no-till establishment. The ideal planting should be done from late April to late June or late August to early September (bahiagrass and bermudagrass only). Hybrid bermudagrass is not recommended to be sprigged past mid-August. Check with your local Extension office for the best seeding times in your area to ensure a successful planting.

**Species selection and seed quality** – Select species that are suitable for

desired yield and persistence based on soil, nutrients, environmental conditions and intended use. After you have determined what forage species to plant then you need to purchase a variety that will meet the needs of the intended use. It is important to buy high quality seed because often times a “bargain or cheap seed” does not mean high quality seed. Pay attention to the percent germination and purity of the seed. A good quality warm-season seed contains more than 70% germination and 90% purity. Certified seed must have this information in the certified label. If buying seed in bulk from your local coop, always request this information. This will ensure a good job the first time on the seeding rate and the success of the establishment. Re-seeding is a double the expense and a lost in yield potential during the establishment year. It is also important to note that most seeds might have a coating applied. This coating could be up to 34% of the seed weight. It is important to account for seed coating during the calculation of the seeding rate. For example, let’s say that teffgrass is recommended to be planted at 8 lbs/ac. The cost of raw/uncoated seed is \$3.84/lb. The seed cost per acre will be \$30.72. If the seed contains 34% coating, then the seeding rate is now 11 lb/ac. The coated seed cost is \$3.77/lb. Now the seed cost per acre is \$41.47.

**Table 2.** Estimated average cost per acre for establishment of warm-season annual forage crops\*.

Forage Species	Seeding Rate (lb/ac)	Cost	
		\$/lb	\$/ac
<b>Crabgrass</b>			
Quick-N-Big	10	11.20	112.00
Red River		11.20	112.00
<b>Millet</b>			
Brown Top	30	1.00	30.00
German Foxtail		1.04	31.20
Japanese		1.08	32.40
Pearl		1.16	34.80
Proso		0.90	26.85
<b>Sudangrass, sorghum/sudangrass</b>			
BMR sorghum sudan	30	1.08	32.40
Milo or grain sorghum		0.44	13.20
Piper sudangrass		1.04	31.20
ProMax BMR Hybrid sudangrass		1.72	51.60
Red Top Forage Sorghum Hybrid		1.12	33.60
Sorghum Sundan Hybrid (Spec. Effort)		0.80	24.00
<b>Teffgrass</b>			
Tiffany Teff (coated)	10	3.77	37.67
Tiffany Teff (uncoated)		3.84	38.40

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**Maintenance** – We often make the mistake of heavily grazing a newly established summer forage under the hot and humid conditions in Mississippi. A newly seeded pasture should not be grazed until the plants reach at least 10 to 12 inches in height and no lower than 3 inches to keep a vegetative stage of growth. They should be grazed only lightly between early July and late August. This newly seeded stand will not have a very well developed root system and will be pulled out of the ground very easily by the livestock. A rotational grazing management approach should be utilized to avoid overgrazing and provide the proper rest to the stand. This keeps all the forage growing back at the same uniform, palatable stage of growth and helps to control many weeds by keeping them from flowering and producing seed. Hay should not be cut until plants have reached 15 inches in height and nitrogen should be provided with each cut of hay.



After establishment, we often forget that pH and fertilizer levels need to be maintained in the stand. It is recommended that a soil test be taken every 2 to 3 years in a pasture and every year in a hay field. The reason for yearly soil testing in a hay field is because large amount of nutrients (especially potassium) are exported with each cut of hay and not replenished adequately. If the pastures do not contain 30 to 40% legumes, a yearly application of nitrogen fertilizer is necessary to maintain and feed the grasses. Apply nitrogen at a rate of 60 to 80 pounds of actual nitrogen per acre per year will be ideal and it is preferred that this nitrogen be applied in split applications of 30 to 40 pounds at green up and the same rate in mid-summer. Hay fields should receive phosphorous and potassium based on soil test recommendation and a rate of 50 lbs of actual nitrogen per acre per cut of hay.

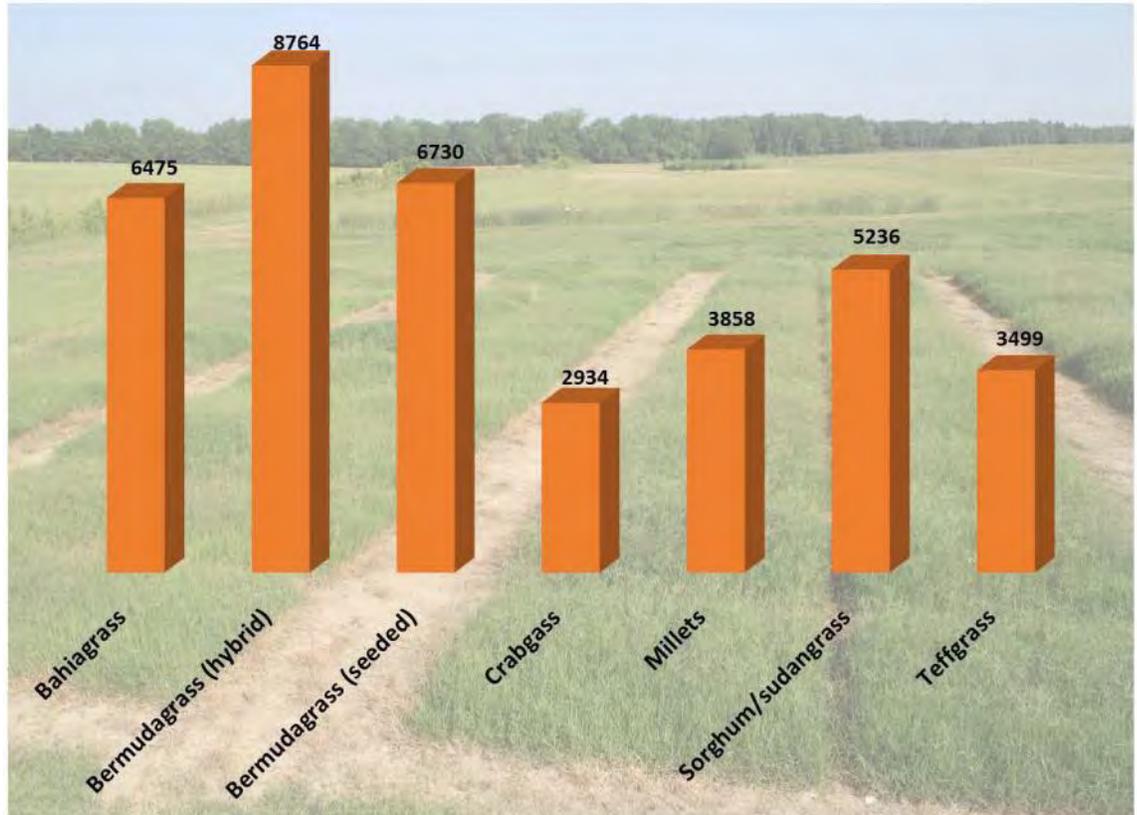


Figure 1. Average production of different warm-season grasses in Mississippi.

Warm-season perennial grasses establish relatively slowly, but once established and properly managed the stand can last many years. An important management procedure is to give them a rest at the end of their grazing period prior to frost. This helps build their root reserves as they go into winter. A prescribed burn, although not a requirement, is suggested every 3-4 years for some species to clean out biomass accumulation and promote new growth. These burns must be timed in the early spring when there is about 1-2 inches of biomass residue.

**Upcoming Forage Events:**

- Mississippi Forage & Grassland Council Membership Meeting, March 10, Cattlemen Bldg., Jackson, MS
- Cool-season Forage Tour, April 10, 2014, Forage Unit, South Farm, Starkville, MS
- North Mississippi Forage Field Day, April 25, Branch Experiment Station, Holly Springs, MS
- <http://forages.pss.msstate.edu/events.html>
- <http://mississippifgc.org/events.html>

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