

DUSTING-OFF THE LEGUME PLAYBOOK

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Mark Twain reportedly said that "History doesn't repeat itself, but it does rhyme." The modern era is certainly not a repeat of the days when there was no such thing as nitrogen fertilizer. Yet, for some, the economic situation we find ourselves in these days has a similar feel.

So how did our forefathers deal with this problem? In the early 1900s, Extension Specialists and local Extension Agents began a campaign throughout the South that promoted the use of winter annual and pasture legumes. By all accounts (see the 1938 Yearbook of Agriculture), the programs greatly improved soil fertility and resulted in widespread adoption of these profit-boosting production systems. As nitrogen fertilizer became more widely available and affordable during the middle of the 20th century, the niche that legumes filled became ever smaller.

Only recently have the economic times renewed the interest in legumes. Like a good football coach will sometimes do, I think it is time we dust-off an old playbook and look for some new tricks. Recently, the UGA Forage Team (several local Extension Agents from across the state) and I have "dusted-off" what is known about legume management and placed it in a modern context. In this month's article, I provide some tables that are excerpted from these new publications on legume management.

Though there are over 30 legumes species that can be grown for forage in Georgia, for this article I have chosen to focus on those that are of interest to us right now (i.e., for establishment this fall). More specifically, I have pulled together information on just the five legume species that I feel are most worthy of consideration by beef cattle producers in Georgia.¹ These include arrowleaf, berseem, crimson, red, and white clover. In Table 1, a summary of basic information about these species is presented. Table 2 presents information about where and how these species can be best used in Georgia. Finally, Table 3 presents the seeding rates that would be appropriate under various production scenarios.

Table 1. Basic profile of five major cool season legumes in Georgia.

Clover Species	Life Cycle	Life Span	Yield Potential	Year-to-Year Yield Variation	Maturity	Reseeding Potential
White (Ladino)	Perennial	2-3+ yrs.	low	medium	medium	medium
Crimson	Annual	6-8 mo.	medium	low	early	low
Red	Perennial [†]	1-2 yrs	high	low	late	medium
Arrowleaf	Annual	6-10 mo.	medium	medium	late	high
Berseem	Annual	6-9 mo.	high	high	medium	low

[†] Red clover is a perennial clover species, however it is often used as a late maturing cool season annual legume in the Coastal Plain. As an annual, it has a low potential for reseeding.

Table 2. Basic management considerations for five major cool season legumes in Georgia.

¹ Certainly, other cool season legume species are worthy of consideration. However, the species presented here have a fairly broad applicability to several forage production systems on beef cattle operations in Georgia.

Soil Considerations					
Clover Species	Min. pH[†]	Texture	Drainage	Typical Uses	Comments
Arrowleaf	6.0	sand, loam	good	living mulch, grazing	Reseeds well, but provides limited grazing. Most productive in late spring.
Berseem	6.5	loam, clay	poor	living mulch, grazing	Very productive in wet years. Not very cold hardy. Use only in S. Georgia on heavier soils.
Crimson	6.0	sand, loam	good	living mulch, grazing	Provides early grazing. Does well in Piedmont and Coastal Plain.
Red	6.5	loam, clay	good	grazing, living mulch, hay (minor in GA)	Drought tolerant. Requires rotational grazing. Most productive in late spring.
White (Ladino)	6.0	sandy loam, loam, clay	fair	grazing, living mulch	Best when mixed w/ grasses. Handles continuous grazing well.

[†] Minimum soil pH value for acceptable yields.

Table 3. Seeding rates for selected cool season legumes used alone or in combination with other legumes in a mixture.[†]

Species	Single Clover in Mixture[‡]	Multiple Clovers in Mixture[§]
	(lbs of pure live seed (PLS)/acre)	
Arrowleaf	6-8	5-6
Berseem	15-20	10-15
Crimson	15-20	10-12
Red	8-12	6-8
White (Ladino)	2-3	1-2

[†] Use lower seeding rates when planting into a prepared seedbed or no-tilled into existing sod (overseeding). Use higher seeding rates when seed is broadcast. Regardless of seeding method, ensure that the legume seeds are not planted more than ¼ - ½ inches deep.

[‡] Winter annual clovers are typically grown with one or more winter annual grasses.

[§] Often two or more clover species will be grown with the grass. The seeding rate of an individual clover species can be reduced if multiple clovers are included in the mix.

More Information

There are many ways to integrate and use legumes in forage systems in Georgia. In fact, there are niches for nearly all of the 30 or more legume species that can be grown for forage in Georgia. Updated information on recommended legume species, establishment, and management practices is now available on the University of Georgia's Forage Team website (www.georgiaforages.com). Furthermore, I recently completed a four-part video lecture series on "Legume Management in Georgia" that can be found on the "Lectures on Video" section of the website. These web-based videos present detailed information on legume management and the yield and animal production response that can be expected. For more information about legume management, check out our website at www.georgiaforages.com or contact your local University of Georgia Cooperative Extension office at 1-800-ASK-UGA1.