



## Frequently Asked Questions: Incorporating Alfalfa into Bermudagrass Systems

Alfalfa (*Medicago sativa* L.) is a perennial forage legume suited for hay, silage, or grazing management systems. The “Queen of Forages” is high yielding and produces excellent quality forage with high energy and protein. Alfalfa was once a dominant species utilized in the Southeast US. However, the harsh environment and elevated insect pressure soon eliminated many productive stands, resulting in a decline in alfalfa acreage. In recent years, breeding efforts have resulted in development of new varieties with improved adaptation to growing conditions in the Southeast, making alfalfa once again a desirable legume for this region. The purpose of this information sheet is to highlight frequent questions associated with establishment and management of alfalfa when planted into warm-season perennial grass stands.

### **Can alfalfa be grown in Southeast US?**

Yes! This is a common question and misconception that alfalfa does not grow in the Southeast. Historically, alfalfa was grown throughout the region, and recently, development of improved varieties has resulted in greater potential for an alfalfa market. Alfalfa may be established in a pure stand, or interseeded into warm-season perennial grasses, such as bermudagrass. Interseeding into these systems provides complementary growth by alfalfa in the spring and fall months, extending the growing season length compared to warm-season perennials alone.

### **What are important soil considerations when planting alfalfa?**

The site must be well-drained with high soil fertility to allow deep rooting and adequate establishment. Prior to planting, soil pH should range from 6.5 to 7 for topsoil and be greater than 6 for subsoil. Annual soil tests are essential, and lime should be applied to maintain a pH range between 6.5 and 7.0. This is usually one of the more limiting factors in site selection for alfalfa monocultures or mixed alfalfa-grass stands.

### **Why might I consider planting alfalfa into bermudagrass?**

Integrating alfalfa can add nitrogen to the system, increase yield by extending the growing season, and improving forage quality relative to warm-season perennial grasses alone. Alfalfa is an excellent companion crop for bermudagrass. Both alfalfa and bermudagrass prefer well-drained soils for success and have similar seasonal fertility requirements with the exception of nitrogen, which is not necessary when alfalfa is in the mix. Alfalfa may last 3 to 5 years in mixed stands with bermudagrass, with many stands persisting for longer periods of time. Growing alfalfa with warm-season perennials has some built-in risk management: when alfalfa plays out, the warm-season perennial will reclaim its dominance. A summary of expected yield and quality characteristics of alfalfa-bermudagrass mixtures is provided in **Table 1**.

**Can I interseed alfalfa into bahiagrass sods?** Alfalfa can be grown in a mixture with bahiagrass provided that appropriate soil conditions as described above are met for establishment. Based on recent research in the Southeast, length of mixed stand viability may be less than alfalfa-bermudagrass systems.

**Table 1.** Forage yield and nutritive value of alfalfa-bermudagrass mixtures.

Item	Seasonal Average Production Values <sup>1</sup>
Estimated Yield Range (Tons/Acre) <sup>2</sup>	4 to 7
Total Digestible Nutrients (%)	67
Crude Protein (%)	16

<sup>1</sup>Means from 'Bulldog 805' alfalfa and 'Tifton 85' bermudagrass mixtures harvested every 4 weeks to a 4-inch stubble in Tifton, GA and Shorter, AL.

<sup>2</sup>Yield range is dependent on fertility inputs, relative contribution of alfalfa and bermudagrass in stands, weed pressure, and weather conditions that impact growing season length.

### **What fertility management is required for alfalfa planted into bermudagrass?**

Once established, nitrogen fertilization is not needed if there is at least a 30% alfalfa in the stand mixture. It is recommended to conduct soil testing annually and apply P and K according to recommendations for stand persistence. Phosphorus is important for root development, and potassium is *especially critical* for stand persistence. Recent research with alfalfa-bermudagrass mixtures in Georgia have reported yield improvements with K fertilization rates of 300 lb/acre during the growing season. Split application of K, especially in sandy soils, is important to encourage efficient nutrient use and plant uptake. Many stand losses in alfalfa can be attributed to potassium deficiencies. Micronutrients such as boron and molybdenum are also important for alfalfa production and persistence in mixed grass systems, as well as to guarantee proper N fixation. Boron should be applied annually at a rate of 2 to 3 lb/acre. This can be foliar applied or in granular form blended with other fertilizers. Molybdenum should be applied every two years in the late winter or early spring at a rate of 3 ounces per acre (8 ounces of sodium molybdate in 25 gallons of water per acre).

### **What is the recommended seeding rate and planting date for alfalfa overseeded into bermudagrass?**

Planting alfalfa in the fall when warm-season grasses have slowed growth reduces plant competition, and still provides enough moderate temperatures and daylength to promote alfalfa establishment success. Alfalfa seedlings need 6 to 8 weeks of good growing conditions before the first hard freeze occurs. The recommended planting window in the piedmont region is October 1 through mid-November, while for the Coastal Plains and Blackbelt region is November 1 through December 1. Mow or graze warm-season grasses to a short stubble height (~ 2 inches) before planting. Then, spray glyphosate at a rate of 9 ounces per acre of 5.5 lb. ai to induce grass dormancy and control weeds in the area. Plant with a no-till drill no deeper than 1/2 inch. The general recommended seeding rate is 12 to 15 pounds per acre of pure live seed on a 14-inch row spacing for mixed alfalfa-grass stands.

**Do I have to apply glyphosate to my bermudagrass stands?** Yes. Glyphosate helps to induce dormancy on bermudagrass stand slowing its growth down, especially in warm winters. This practice does not hurt the bermudagrass sod and it is efficient on improving establishment conditions for alfalfa once it is very susceptible to weed pressure and competition as seedling.

**How long should I wait before cutting or grazing alfalfa-bermudagrass mixtures for the first time?** During the year after planting, wait to harvest alfalfa for the first time until it has reached mid-bloom stage (25% bloom). This will decrease forage quality compared to harvesting at the early bloom stage but allows the alfalfa root system to more completely establish and build energy reserves. Long-term, this may help with plant persistence.

**When should I cut my mixed alfalfa-bermudagrass stands?** Defoliation events should occur when the stand is at 10% bloom or generally every 28 to 35 days. Recommended stubble height is 4 inches. As mentioned before, timing for first harvest of the season is critical to guarantee proper growth conditions for both species in the mixture.

**What is the “ideal” moisture to bale?** Proper moisture for baling, for hay is  $\leq 20\%$  and 40 to 60% for baleage. When baling high moisture feed (baleage/haylage/silage), you should consider applying a forage inoculant to help with fermentation and conserve the nutritive value while avoiding spoilage.

**Do I need to scout for insects?** Yes! Alfalfa should be scouted often, from spring through late fall, to address any pest problems in a timely manner. Alfalfa weevils may cause problems early, and caterpillars, 3-cornered alfalfa leaf hoppers, and blister beetles come later in the season.

**What are grazing recommendations for alfalfa interseeded into bermudagrass?** Grazing-tolerant varieties can be rotationally grazed to 4 inches stubble height every 28 to 35 days. When grown with bermudagrass, timing of the first harvest is critical early in the season, so that warm-season perennials are not suppressed by alfalfa shade for an extended period of time, but also alfalfa needs to be allowed to grow and accumulate reserves prior to intensive defoliation management starts.

**Are there concerns with bloat?** When hungry cattle graze vegetative or dew-covered paddocks of alfalfa, bloat can become an issue, especially in early season. Limited grazing of fresh alfalfa in these situations, especially in pure stands, is important to transition cattle onto pastures. Ensure that cattle have access to dry hay before grazing alfalfa and provide a supplement containing a bloat reducer (such as monensin or poloxalene) to help avoid issues.

**What is the expected nutritive value of alfalfa-bermudagrass mixtures?** Adding alfalfa into mixture with warm-season grasses can improve forage nutritional value by increasing crude protein and total digestible nutrients by 5 percentage points or greater.

**Additional resources on alfalfa in the South:**

- [Alfalfa in Bermudagrass Checklist](#)
- [Alfalfa Integrated Pest Management Guide](#)
- [Growing Alfalfa in the South](#)
- [2020 Alfalfa in the South Online series](#)

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