



Tall Fescue Persistence in Mississippi

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Tall fescue is a cool-season perennial grass that occupies 175,000 acres in north and central (no more than 50 miles south of Starkville) Mississippi. Its long-term benefits are related to ease of establishment, drought tolerance, excellent grazing persistence and the ability to extend the grazing season into late fall. Tall fescue is best adapted to loam or clay soil. It can tolerate moderate soil acidity (pH >5.5), poor drainage and close grazing.

The majority of the acres in Mississippi have been Kentucky-31 (K-31) tall fescue established for over 30 years. Kentucky-31 is also known as infected tall fescue because it contains a fungus (endophyte) that lives inside the plant and is transmitted through the seed and not from plant to plant as is often thought. Although the endophyte protects the plant by providing drought tolerance, vigor and longevity, it can also produce toxic alkaloids and impact animal performance such as decreased animal gains and reduced reproductive performance.

In the last decade, public and private forage breeders have put considerable efforts into developing new varieties that can reduce the impact of the endophyte on animal performance and while still maintaining vigor and persistence. These varieties have been developed with endophyte strains that do not produce the toxic alkaloids and are known as “novel or friendly endophyte” tall fescue. Novel endophyte varieties may have similar persistence to that of endophyte infected varieties. Some of the most common commercially available varieties include Jesup MaxQ, Texoma MaxQII, BarOptima Plus E34, Duramax Gold, and Estancia with ArkShield. Breeders have also developed varieties that contain

no endophyte and are usually known as “endophyte-free” tall fescue. Endophyte-free varieties have been reputed as having lower persistence, especially in the southern US. Currently, there is a large number of varieties in the market that include Bronson, Cowgirl, K-32, Enhance, Rustler, and Teton II.

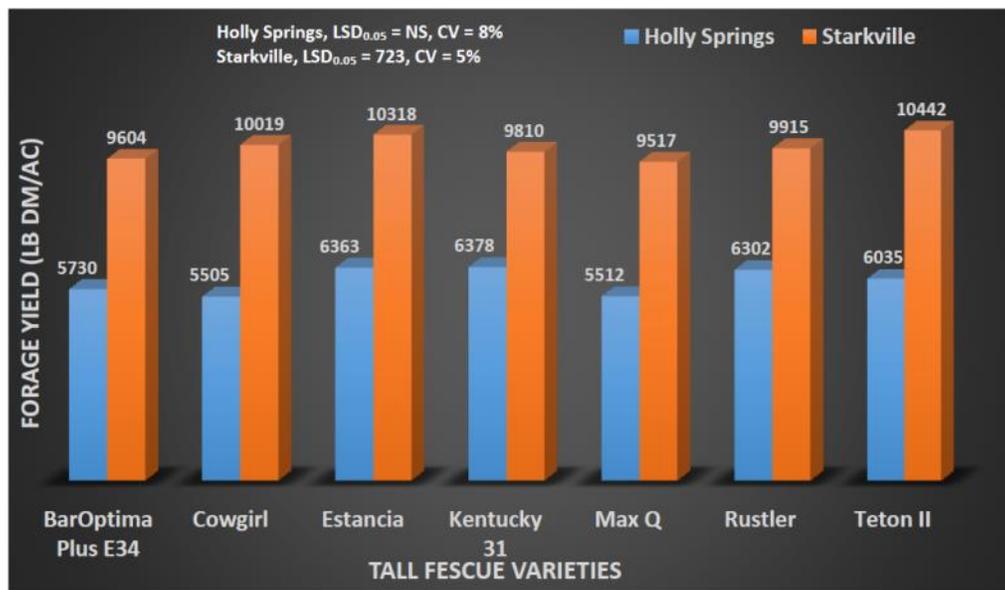


Figure 1. Three-year (2012-2014) average forage production of tall fescue varieties in Holly Springs and Starkville, MS. Source: White et al., 2015.

In Mississippi, producers have tried to adapt pasture and hay acres to new varieties with very little success. On-farm observations in the last four years along with reports from producers indicates that both novel and endophyte-free varieties have a short persistence (< 3 years) under Mississippi’s environmental conditions. For the last three years, these novel and endophyte-free tall fescue varieties has been tested at two locations in Mississippi (Holly Springs and Starkville) to assess their performance. A three-year average forage production indicated no differences among varieties or endophyte types at Holly Springs, MS (Figs. 1 and 2). At Starkville, MS, no differences were observed among K-31, MaxQ and BarOptima. Novel and endophyte-free types provided a slight yield in forage production compared to K-31. Stand persistence after three years, is very uniform across all the varieties at each location.

Utilization of novel and endophyte-free varieties can be incorporated into new pastures without providing negative performance effects. Although, the initial establishment cost of these varieties is significantly higher than K-31, incorporating improved tall fescue varieties can have a long-term economic impact by improving animal performance. Management during the first 12 months after establishment is particularly important to ensure a satisfactory plant population, vigor and persistence of the stand. Data collected in Mississippi indicate



that fertilization plays a major role. Lime application, phosphorus and potassium application based on soil test recommendations, along with fertilization rates of 50 to 100 lbs/ ac of nitrogen are necessary to maintain tall fescue stands. Using proper grazing management, especially the first year, is a key factor in the stand surviving the first summer. It is recommended to apply light grazing pressure in late spring of the establish-

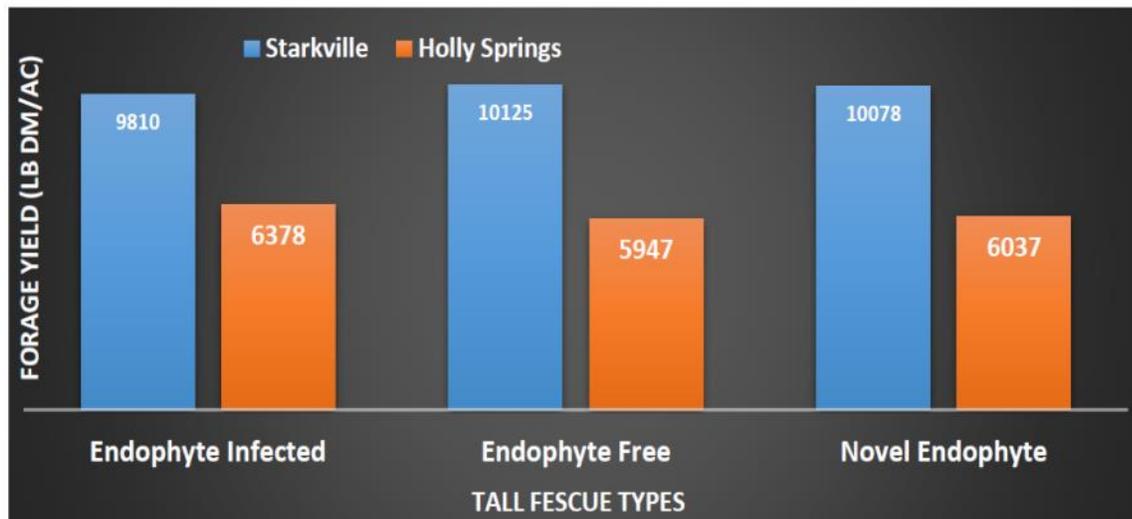


Figure 2. Three-year (2012-2014) average forage production of tall fescue types in Holly Springs and Starkville, MS. Source: White et al., 2015.

ment year and terminate grazing or haying by mid- to late June leaving a 4-6-inch minimum stubble height. Grazing too early in the spring will deplete root nutrients and impact stand survival. Using a rotational grazing approach will also provide rest periods for growth and recovery. Investing in new varieties can be expensive, as well as making sure that all endophyte infected K-31 has been eradicated to prevent contamination of the new field.

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For upcoming forage related events visit:
<http://forages.pss.msstate.edu/events.html>

- February 17, 2015 — Central Mississippi Producer Advisory Meeting, Raymond, MS
- February 19, 2015 — North Mississippi Producer Advisory Meeting, Verona, MS
- February 24, 2015 — Coastal Mississippi Producer Advisory Meeting, Biloxi, MS
- April 7, 2015 — Cool-season Forage Tour, Starkville, MS
- May 15, 2015 — Alfalfa Field Day, Starkville, MS
- June 19, 2015 — Warm-season Forage Tour, Starkville, MS

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