

NOBLE NEWS & VIEWS

RESEARCH

Tall Fescue for Grazing Livestock: Researchers Look to Improve Nutrition



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Pastures dominated by perennial grass species form the base of animal/forage production systems worldwide and are vital to their economic sustainability. Tall fescue is a persistent cool-season perennial grass widely grown in the southern United States. However, its nutritional value is lower than ideal for many livestock enterprises. This provides us with an opportunity to improve tall fescue as a forage for grazing livestock.

In the U.S., most tall fescue varieties are considered to have a coarse leaf texture, which reduces an animal's desire to graze and ultimately results in lower forage consumption and weight gains. Soft-leaf tall fescue varieties are preferred by cattle and have been associated with increased animal performance, but these varieties cannot withstand harsh weather conditions across the southern U.S.



TALL FESCUE AVAILABLE NOW

Mike Trammell and Carolyn Young, Ph.D., have worked together on tall fescue breeding for 14 years, releasing two successful tall fescue cultivars: Texoma MaxQ II and Chisholm.

Texoma MaxQ II contains a nontoxic novel endophyte and is adapted to areas east of the I-35 corridor in Oklahoma and Texas. Seeds are available through Pennington Seed Company in Madison, Georgia.

Chisholm is adapted to the drier climate west of I-35. Seeds are available through Warner Brothers Seed Company in Lawton, Oklahoma.

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Figure 1. The plant breeding teams at Noble Research Institute are comparing soft, hybrid and coarse leaf (from left to right) tall fescue cultivar leaf traits in order to develop the next generation of forages.

Therefore, we have decided to tackle this problem by first exploring the mechanisms, or traits that determine leaf softness and nutrition in tall fescue varieties.

The specific aims of our project are to:

- Develop protocols to characterize the physical differences and tensile strength of leaves in various types of tall fescue that range in leaf softness.
- Compare the dynamics of leaf structure, yield, crude protein, digestibility and water soluble carbohydrates of tall fescue varieties that differ in leaf softness. We'll be looking at coarse-leaf cultivars and hybrids of coarse- and soft-leaf germplasm (figure 1).
- Use genetic screening to determine if soft-leaf tall fescue represents a unique set of individuals within the tall fescue species.

Identifying the specific traits that determine leaf softness will help Noble's breeding program in the development of next-generation tall fescue varieties with improved forage quality and palatability. The new varieties will contribute to the sustainability and profitability of livestock production systems throughout the southern U.S. and similar agricultural environments throughout the world. It will also allow other plant breeders to efficiently and effectively use the traits in their own breeding programs. 🐄

Figure 2. Preference by cattle of commercial soft leaf tall fescue cultivar over traditional coarse leaf types (the plot between the two soft leaf plots) after 24 hours of grazing in a trial at Ardmore, Oklahoma.

