COOL-SEASON PERENNIAL FORAGE GRASSES FOR COW-CALF AND STOCKER PRODUCTION IN EAST TEXAS

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Background. Cow-calf producers in East Texas face considerable challenges regarding winter feeding programs. Traditional grazing programs primarily use conserved warm-season grasses for grazing and/or as hay along with various energy–protein supplements. During years of favorable precipitation, many producers have found it more cost effective to use cool-season annual forage grasses and/or legumes. To date, only small grains, ryegrass, and clovers have shown reliable adaptation to regional environmental conditions.

Identification of an adapted cool-season perennial forage grass could further reduce winter feeding costs of cows and calves. The traditional grass filling this niche on specific sites in East Texas has been 'Kentucky 31' tall fescue. Infection of Kentucky 31 by the endophyte *Neotyphodium coenophialum*, however, reduces animal performance. Tall fescue varieties in this study are both endophyte-infected (E+) and endophyte-free (E-). In addition, there are tall fescue varieties containing "beneficial" or "novel" endophytes. These E+™ tall fescues should show similar persistence to the E+ varieties, but allow for animal performance similar to E- varieties.

On 12 Nov 1999, 590 lbs/ac of 0-18-18 was applied for incorporation into the seedbed. Additionally, 25 lbs Mg, 47 lbs S, and 19 lbs B were applied. Following planting, 150 lbs/ac of 34-0-0 was applied as a topdress on 11 Jan 2000 and again on 22 Feb 2000. On 17 Nov 1999, 22 cool-season perennial forage grasses were planted on a well-drained bottomland at the Texas A&M University Agricultural Research and Extension Center, Overton. The experimental area was fenced with access to water so cattle could graze all plots on an 'as warranted' basis. Four replications (exceptions noted in Table 1) were planted on both an unlimed and a limed area (3.5 tons/ac of 100 ECCE lime on 13 Sep 1999). Varieties and seeding rate/depth are shown in Table 1. The primary objective was to evaluate several species/varieties of cool-season perennial forage grasses for persistence under grazing and the growing conditions of East Texas. Thus, cattle will be rotated on and off the site before the most palatable species are grazed too closely.

In spite of an uncharacteristically dry Oct and Nov, seed germination and establishment were excellent due to advance seedbed preparation. Annual ryegrass infestation at the planting site was heavy in March 2000. Thus, to minimize the effect of the ryegrass and to begin evaluation of persistence under grazing, cows and calves were allowed to graze the experimental area until stubble heights were approximately four to six inches.

Research Findings. To date, only visual observations have been made regarding stand establishment and apparent vigor of the grass seedlings. In late March, all varieties, with the exception of the native Virginia wildrye, were well established and had made excellent growth. Continued visual observations will be made until summer and dry matter yield estimates will be obtained in June. Limited grazing will be continued next fall and the apparent persistence of each entry will be evaluated over the next two to three years. These grasses will be deferred from grazing during the summer.

Application. Although the East Texas area is on the fringe of best adapted site for cool-season perennial grasses, interest in identifying a species with the persistence to survive in this area is high. The potential for savings on winter feeding programs for cow-calf production systems could be significant. It is, however, too early in the evaluation process and additional information is required before making recommendations regarding which cool-season perennial forage grass would be best for East Texas.

Table 1. Cool-season perennial forage grasses established at Overton on 11-17-99.

Variety	Endophyte Status[1]	Type	Seeding Rate (lbs/ac)	Seeding Depth (inches)	Reps
Jesup	E-	Tall Fescue	20	¼ – ½	1 - 4
Jesup 584	E+™	Tall Fescue	20	¼ – ½	1 - 4
Georgia 5-542	E+™	Tall Fescue	20	¼ – ½	1 – 4
Georgia 5	E+	Tall Fescue	20	¼ – ½	1 – 4
Kentucky 31	E+	Tall Fescue	20	¼ – ½	1 – 4
Kentucky 31	E-	Tall Fescue	20	¼ – ½	1 – 4
Jesup	E+	Tall Fescue	20	¼ – ½	1 – 4
Jesup 542	E+™	Tall Fescue	20	¼ – ½	1 – 4
Georgia 5	E-	Tall Fescue	20	¼ – ½	1 – 4
AGR BS 101	E+™	Tall Fescue	30	¼ – ½	1 – 4
Matua	N/A	Prairie bromegrass	30	¼ – ½	1 – 4
AGR FA 102	E+™	Tall Fescue	20	¼ – ½	1 – 4
AU Triumph	E-	Tall Fescue	20	¼ – ½	1 – 4
Gala	N/A	Grazing bromegrass	30	¼ – ½	1 – 4
Luna	N/A	Pubescent wheatgrass	20	¼ – ½	1 – 4
Bromar	N/A	Mountain bromegrass	30	¼ – ½	1 – 4
Regar	N/A	Meadow bromegrass	20	¼ – ½	1 – 4
Virginia wildrye	N/A	Wildrye	20	¼ – ½	1, 3
Newhy	N/A	Hybrid wheatgrass	20	¼ – ½	2, 4
Hycrest	N/A	Crested wheatgrass	20	¼ – ½	2, 4
José	N/A	Tall wheatgrass	20	¼ – ½	2, 4
Lincoln	N/A	Smooth bromegrass	15	¼ – ½	2, 4

[1] E+ indicates the presence of the fungal endophyte; E- indicates the lack of the fungal endophyte; E+™ indicates the presence of the fungal endophyte without harmful properties.