

Hay Purchases: Grasses Not Adapted to Texas

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Drought often causes hay shortages which prompt Texas producers to buy hay from other states to support their livestock. These cool-season grasses can offer more nutritive value than warm-season perennial forages such as bermudagrass (*Cynodon dactylon* L.) or bahiagrass (*Paspalum notatum* Flueggé). Feeding success with these forages may tempt us to establish these species for pasture and/or hay production here.

However, some cool-season perennial forages used in other parts of the United States are not well adapted to Texas conditions. Forage species are adapted to specific soil types, rainfall, temperatures, and other environmental conditions. Cool-season perennial grasses are adapted to northern, midwestern, and eastern regions of the United States, which have colder winters and milder summers than Texas.

All forages, whether warm-season or cool-season, decline in nutritive value as they mature through the growing season. Have the forage analyzed to determine the nutritive value of hay you purchase or produce.

If you buy hay from unknown sources or locations, you may introduce weeds onto your property. Scout your pastures early every growing season to determine whether weed infestations warrant herbicide application.

Several cool-season perennial forages that are not well adapted to Texas but are widely used in other regions of the United States include the following:

Kentucky bluegrass (*Poa pratensis* L.) is used primarily for pasture because it is relatively short and much of its production is close to the soil surface. However, it can be harvested for hay. Its crude protein (CP) levels commonly range from 15 and 20 percent.

Kentucky bluegrass does not tolerate drought or high temperatures and prefers mean monthly temperatures below 75°F. The production season is primarily in the spring and fall, when the weather is cool and soil moisture is available.

Orchardgrass (*Dactylis glomerata* L.) is more sensitive to drought and poor drainage than is tall fescue. The production season, in areas suited for this grass, is March to July.

Crude protein levels vary from 6 to 10 percent, depending on when it is harvested. It is commonly part of a forage mixture that contains other cool-season grasses and legumes, such as alfalfa, red clover, lespedeza, and white clover.

Orchardgrass grows in grasslands throughout the adjoining 48 states, except Florida, Louisiana, and Texas. In Alabama, Georgia, North and South Carolina and Virginia, it is present only in mountainous regions. Because temperatures above 80 to 85°F greatly reduce its growth, orchardgrass is not a forage option for Texas.

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Reed canarygrass (*Phalaris arundinacea* L.) is distributed across the northern United States and southern Canada along creek banks, pond margins, drainage ways, and roadside ditches. It can be used for pasture, silage, or hay. Although reed canarygrass has high nutritive value (10 to 20 percent CP) at immature stages; its animal performance can be inconsistent. This inconsistency may be partly because high alkaloid concentrations make the grass bitter and somewhat unpalatable. New low-alkaloid varieties are available. Reed canarygrass is not a forage option for Texas.

Smooth bromegrass (*Bromus inermis* L.) is grown throughout the northern half of the United States and into Canada. Disease problems render it poorly adapted south of 40°N latitude in North America. Smooth bromegrass produces 80 percent of its forage before June, and if harvested before the seed head develops, crude protein levels can exceed 12 percent. It is often used in mixed stands with legumes such as alfalfa or clover. Smooth bromegrass has no alkaloid or other quality problems.

Tall fescue (*Festuca arundinacea* Schreb.) is used for grazing and hay production. The western boundary includes eastern Nebraska, Kansas, and Oklahoma; it grows well all the way to the Atlantic coast. The western and southern limits for this grass are determined principally by availability of moisture.

Prolonged heat, sporadic drought, and soil with low water-holding capacity limit tall fescue persistence. This grass can perform well in the clay soils of the blacklands and bottomlands of East Texas.

Most tall fescue pastures are Kentucky 31 and are infected with the fungus *Neotyphodium coenophialux*. This fungus (endophyte) grows inside the plant, is transmitted in the seed, and produces toxins that

damage the livestock that graze infected pastures or consume hay cut from infected stands.

Cattle that consume infected tall fescue may suffer lower conception rates, decreased weight gain, decreased milk production, constricted blood flow, slightly elevated body temperatures, heat intolerance, excessive nervousness, and failure to shed winter coats in the spring.

The toxins can also affect horses, most prominently in mares which have reproductive problems during the last trimester of pregnancy.

The fungus enables the tall fescue plant to resist pests, tolerate drought, and survive grazing. MaxQ or Texoma MaxQ II are endophyte-free cultivars. These and nontoxic endophyte cultivars are available and are safe for livestock. South of the Missouri River, endophyte-infected cultivars persist better than those that are disease free. Assume that tall fescue it is infected unless you know otherwise.

Timothy (*Phleum pretense* L.) is primarily used for hay production. This grass grows well in the cool, humid regions in the northeastern United States. It is grown from Missouri to the Atlantic coast and into southern Canada.

Kentucky is considered the southern edge of the Timothy production area. Crude protein levels between 7 and 17 percent are common, depending on stage of maturity.

FOR MORE INFORMATION

E-272, *Hay Production in Texas*

E-148, *Sampling Hay Bales and Pastures for Forage Analysis*

Both are available at Texas AgriLife Bookstore at <http://agrilifebookstore.tamu.edu>.