Introduction

Tall fescue is well adapted to the soil and weather conditions of most areas in Arkansas. Estimates place the fescue acreage in the state at slightly more than two million acres. Although fescue can be found throughout Arkansas, it is especially well adapted to the northern half of the state. Most of the tall fescue in Arkansas is endophyte-infected. Endophyte-infected tall fescue is often more persistent than other perennial, cool-season grasses because it is tolerant of droughty, acidic and low-fertility soils, which are common in the Ozark Mountain region of northern Arkansas.

Historically, tall fescue has been used primarily in the spring and early summer for grazing and haying. Fescue produces about 60 to 70 percent of its total production by July 1, as illustrated in Figure 1. The remaining production occurs from September through November, depending on location in the state and fall growing conditions.

![Growth Distribution, North Arkansas](image1)

![Growth Distribution, South Arkansas](image2)

**FIGURE 1**
Fescue Growth Distribution for North Arkansas and South Arkansas
Research at the University of Missouri indicated that stockpiled fescue (fall growth) can be expected to yield about 2,500 pounds of dry matter per acre if 40 to 60 pounds of nitrogen per acre is applied in the fall. A stocking rate of one cow per acre should provide the average wintering dry cow with the equivalent of 70 to 90 days of hay.

**Stockpiled Fescue – What Advantage Does It Offer?**

One of the goals of a beef cow-calf operation is to meet as many of the nutritional requirements of the animal as possible by grazing forages. Using stockpiled fescue for grazing in late fall and early winter is one of the most common practices used to extend the grazing season in the southeastern United States. Stockpiling is the practice of allowing forage to accumulate for grazing at a later date. This practice is sometimes referred to as deferred grazing.

Cost of production for cow-calf producers tends to be reduced when livestock spend as much time as possible grazing. Feeding hay tends to increase the cost of production. Research conducted in Arkansas by Drs. A. E. Spooner and M. L. Ray suggests that stockpiled fescue is a very cost-effective management tool for beef producers. A well-managed, stockpiled fescue system can reduce the hay feeding period to only 30 to 60 days in many cow-calf operations, according to observations in Arkansas and Missouri. However, this management practice has been overlooked in many cow-calf operations in Arkansas.

**Why Is Fescue the Choice for Fall Stockpiling?**

While almost any pasture can be stockpiled, tall fescue produces the most desirable fall and winter forage supply. Tall fescue continues to actively grow at lower temperatures than most other cool-season, perennial grasses and accumulates growth later into the fall. The nutritive quality of fall-grown tall fescue is quite high. Fall-grown, stockpiled tall fescue is composed of plant growth accumulated during a 60- to 75-day period starting in early- to mid-September. This plant material typically contains 12 to 16 percent crude protein and 58 to 65 percent TDN. The heavy, waxy layer or cuticle on the leaves makes the plant more resistant to frost damage than most other cool-season grasses, which helps to preserve the quality of the standing stockpile.

Stockpiling tall fescue is also a particularly useful strategy in the management of endophyte-infected fescue. Stockpiling defers use of fescue until a much cooler part of the year (late November to January). Grazing cattle on endophyte-infected fescue during a cooler time of the year, when heat stress is less likely to occur, helps reduce the potential toxic effects of ergot alkaloids in endophyte-infected fescue. Heat stress intensifies the adverse effects of ergot alkaloids in cattle. In a spring-calving cow herd, grazing stockpiled fescue during winter results in exposure to the fescue endophyte during the mid-gestation period, the least critical nutritional stage of the cow’s production cycle.

**Management Practices for Stockpiling Fescue**

**Timing**

Timing of the initiation of the stockpile period greatly influences the quality of forage available for late fall and winter grazing. Tall fescue forage accumulated after a mid-June to early-July hay harvest tends to be much lower in quality than forage accumulated from a period starting in late August to mid-September. If the pasture has not been “grazed down” sufficiently to remove mature forage or seedheads by spring grazing or hay harvest, clip the pasture to a height of 3 to 4 inches in mid- to late-August. The fall growth will then be composed primarily of new leaf tissue. A 75-day growing period before cold weather is needed to produce optimum yields of stockpiled fall fescue. To determine when to begin stockpiling fescue pasture, estimate the last day of active growth in your area and back up 75 days. For example, if November 25 is the end of the fall growing season for fescue, target September 10 to begin stockpiling. Do not allow animals to graze any of the stockpiled acreage during this time.

**Fertilization**

Tall fescue is very responsive to nitrogen fertilization. To produce good yields of high-quality stockpile, fertilize the pasture with 40 to 60 pounds of nitrogen per acre when the fall growing season starts. The impact of rate and timing of nitrogen fertilization on dry matter yield of stockpiled tall fescue in Missouri is illustrated in Figure 2.
The fertilization dates of August 1, 15, and 29 in Missouri probably are comparable to September 1, 15, and 29 in Arkansas. Fertilization in South Missouri and North Arkansas by August 15 has produced very good yields when moisture has not been limiting.

Research in Missouri has shown the following:

- Increased rates of nitrogen fertilization will increase stockpiled fescue yields, but the extent that yield increases will vary from year to year. The difference in yield between years can probably be attributed to variable moisture conditions in the fall of the year.

- Forage quality is less affected by nitrogen fertilization management than is yield.

- Forage quality of stockpiled fescue will generally be of exceptional quality.

- High rates of nitrogen (greater than 40 pounds per acre) would probably be justifiable economically only when September moisture is optimum for tall fescue growth.

**Grazing Management**

Based on research at the University of Missouri Forage Systems Research Center and at Iowa State University, the rate of deterioration of forage quality for stockpiled tall fescue forage during the winter months depends on how the stockpile is used. When cattle have access to the entire stockpiled pasture, quality declines much more rapidly than if the pasture is strip grazed using temporary electric fencing. Cattle trampling the fescue as they graze exposes the stockpile to increased weather damage. This accelerates the deterioration of forage quality and increases dry matter losses.

Work at the University of Missouri Forage Systems Research Center indicates that limiting the stockpile forage allocation to a three-day feed strip compared to a 10- to 14-day strip has yielded 30 to 40 percent more grazing days per acre with comparable dry cow performance. Therefore, this type of strip grazing should further reduce the number of hay feeding days required during the winter.

**Managing Fescue-Legume Mixtures**

Use of legumes in infected tall fescue pastures has been promoted and is becoming a more accepted management practice in Arkansas. This practice helps reduce the effect of endophytes on livestock. Legumes are sometimes difficult to maintain in a fescue sod. This may be even more of a challenge when fescue is stockpiled. Two legumes offer good opportunities for fescue-legume mixtures, even under stockpiled management strategies.

The University of Missouri has successfully used red clover. Red clover, a short-lived perennial that typically lasts two to three years, offers many advantages as a companion legume with fescue. It is easy to establish, produces well in spring and early summer, has moderate resistance to drought and cattle seldom blot on it. In Missouri, it has persisted quite well in fescue pastures receiving as much as 120 pounds of nitrogen per acre in the late fall but no nitrogen in the spring. In the absence of spring nitrogen, it was concluded that red clover produces enough stored carbohydrates in the summer to survive heavy fescue competition in the fall under stockpile management. Stockpiled fescue-red clover quality will deteriorate much quicker than stockpiled fescue alone. Therefore, stockpiled fescue-red clover should be grazed between November and early January, and stockpiled fescue may be grazed later into the winter without experiencing significant deterioration of forage quality.

Another fescue-legume option is common lespedeza. Lespedeza is a summer legume well adapted to Arkansas growing conditions and soils. It provides quality feed during the summer months when fescue production is quite low. Yields of about two tons of lespedeza per acre can be expected. There are two management practices that can encourage lespedeza persistence. First, Marion lespedeza probably produces more seed per acre than any lespedeza variety currently available. This is important because common lespedeza varieties are annuals and stand persistence is dependent on a good seed crop being grown each year. The second management practice that is important for lespedeza stand persistence is to limit nitrogen fertilization to 30 pounds per acre in the fall. This nitrogen recommendation for fescue-lespedeza mixtures would apply to fescue managed for stockpiling or for conventional grazing in the fall of the year.

**Summary**

Stockpiled fescue is an economically sound alternative to winter hay feeding. The keys to success include the following:

- Producing a high-quality stockpile by using only fescue that is accumulated over a 60- to 75-day growth period starting in late August or early September in north Arkansas and early to mid September in south Arkansas.

- Producing good forage yields by timely nitrogen application in the fall.

- Increasing forage utilization efficiency (increasing the number of grazing days available) by using strip grazing techniques.