



Stockpiling for Fall and Winter Pasture

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Many cattlemen can take advantage of the late summer-fall growing conditions to obtain high quality pasture for fall and early winter grazing. This practice is called stockpiling. Several questions need to be answered relative to stockpiling such as: Which grass species is best for stockpiling? When should stockpiling begin? When, what kind, and how much fertilizer should be applied? When should the stockpiled material be used? What classes of cattle should be given access to stockpiled pastures? And finally, what grazing system should be used for most efficient use?

Grasses to Stockpile

The best grass for stockpiling is a cool-season grass which will retain its green color and forage quality later into winter. In addition, the grass should be somewhat resistant to low temperatures and have the capabilities of forming a good sod. Kentucky has two adapted grasses which have these characteristics; tall fescue and Kentucky bluegrass. Tall fescue produces more fall and winter growth than bluegrass (Table 1).

Time to Begin Stockpiling

Late July-early August is the time to begin stockpiling for fall and winter use. Remove cattle in late July or early August, apply necessary fertilizer, and allow the grass to accumulate growth until November or December.

During the stockpiling period, August 1 to November 1, other available forages such as sorghum-sudan hybrids, sudangrass, bermudagrass, grass-lespedeza, and grass-clover should be utilized. After frost, alfalfa

Table 1. Yield and crude protein content of Kentucky bluegrass and tall fescue produced from August 15 to December 1 under different levels of N fertilization at Lexington. Average of 3 years.

Nitrogen applied lbs/A	Bluegrass		Fescue	
	Yield lbs/acre	% Protein	Yield lbs/acre	% Protein
0	700	12.8	1700	11.1
45	1600	15.5	2800	11.8
90	2100	19.1	3900	14.8

SOURCE: Taylor, T.H., and Templeton Jr., W.C., 1976. *Agron. Jr. Vol. 68, Mar-Apr.*

grass and clover-grass growth should be grazed first before moving to grass fields.

Fertilizer Needed

A soil test should be taken to determine the phosphorus, potassium, and lime necessary. Nitrogen should be topdressed at the rate of 40 to 60 pounds of actual N per acre on bluegrass, and 40 to 100 on tall fescue. Kentucky researchers have shown that bluegrass fertilized with 45 lbs of nitrogen per acre had a yield increase of 20 pounds of dry matter for each pound of nitrogen applied when nitrogen was applied August 15 and yields taken December 1. In the same study, tall fescue showed an even greater nitrogen use efficiency with 24.4 pounds of dry matter for each pound of nitrogen applied. Additional studies have shown the greatest response for early application of nitrogen (Table 2). Nitrogen applications before August 1 may encourage the growth of summer grasses such as crabgrass and subsequently reduce the production of bluegrass and tall fescue. Source of nitrogen will influence efficiency (Table 3). These studies show that urea was approximately 85% as ef-

Table 2. Effect of time of nitrogen application on production efficiency of KY 31 tall fescue.

Date N Applied	Nitrogen Efficiency lb DM/lb N added
August 1	27.2
August 15	25.8
September 1	19.2
October 1	10.8

SOURCE: Murdock, Lloyd W., 1982. *Agronomy Notes. Vol. 15, No. 2, April, 1982.*

Table 3. Pounds of tall fescue 10 weeks after N application.

Application Date	None	Nitrate	Urea	U/N
Early August	786	1683	1406	84
Mid August	741	1438	1287	89
September	372	1076	852	79

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fective as ammonium nitrate on an equivalent nitrogen basis.

These studies have shown that with wise use and timing of fertilizer, high production can be obtained during fall and early winter. However, what is the quality of tall fescue in fall? The crude protein and digestibility of tall fescue is better during fall-early winter than any other time of the year. This increased quality in fall has been shown in many studies which agree with the data in Table 4 from the University of Kentucky.

Utilization of Stockpiled Forages

After frost, be sure to graze the grass-legume fields quickly before the plants deteriorate. After these fields are grazed, the stockpiled grass field or fields should be grazed. Light stocking will cause a lot of waste as

Table 4. Seasonal percentage changes in chemical composition and digestibility of tall fescue.

	Spring	Summer	Fall
Sugars	9.5	8.5	19
Protein	22	18	19
D.D.M.*	69	66	74

*Digestibility Dry Matter
 SOURCE: Buckner, R.C., 1975. Univ. of Ky. Coop. Ext. AGR-44.

a result of trampling. To make most efficient use of the high quality feed in stockpiled fields, install a temporary electric fence across the field dividing it so the area to be grazed first has a source of water and minerals. Once the animals have grazed this area off, move the fence back, opening up a new strip. Repeat this system until the entire field is grazed.

What Classes of Cattle Benefit the Most From Stockpiled Grasses?

Stockpiled grass is an excellent choice for fall-calving cows. It can be used after calving and during the breeding season when their nutritional needs are greatest.

Spring-calving cows may benefit most from grazing stockpiled grasses if they are in thin body condition in the fall. They can regain condition while grazing and be in better shape going into the winter. Spring-calvers in mid-gestation which are in good body condition may not need as high quality feed and could use lower quality feed then. Over-conditioning cows in late gestation may increase birthweight of their calves.

Growing, weaned cattle can also be grazed on stockpiled fescue. Backgrounders can lower the feed costs of their operations by utilizing stockpiled grasses.

Animal Performance on Stockpiled Tall Fescue

The high quality of fall stockpiled tall fescue produces good gains on both weaned stock and mature cows. These gains are a response to the high crude protein and digestibility of the fall growth of tall fescue. In particular, the sugar content rises to

Table 5. The effect of the endophyte on calf ADG when grazing fall accumulated tall fescue.

Endophyte Level	ADG, lbs	
	Kentucky, 1986	Oklahoma, 1986
E+	1.49	1.85
E-	2.17	2.47
E+ and Clover	—	2.02

very high levels in response to lower temperatures and shortening day length. This nutritional change does not take place overnight due to the first frost, but is spread over time.

Calf Gains

Several factors affect gain of calves grazing fall accumulated tall fescue, including the endophyte status of the fescue and the length of the grazing period. The presence of the fescue endophyte will decrease gain (Table 5) even with the cooler temperatures of fall. Calves grazing endophyte infected fall accumulated fescue gained 1.49 pounds daily in a Kentucky trial and 1.85 pounds in the Oklahoma trial. Calves on the endophyte free tall fescue gained 2.17 in the Kentucky trial and 2.47 in the Oklahoma trial. While performance of cattle in the Oklahoma trial was greater than those in the Kentucky trial, the magnitude of difference was almost identical (0.68 lb for KY, 0.62 lb for OK). A third treatment, the addition of clover was included in the OK trial. Clover increased gain by 0.17 pounds over infected tall fescue, but was 0.45 pounds less than non-infected tall fescue.

The extent of deterioration of the fall accumulated tall fescue will also affect gain. In studies where calves were grazed from early November to mid-December, gains were 2 to 2.13 lb per day (Table 6). However, extending the period of grazing to early January in other trials produced gains of 1.27 to 1.47 lb per day. Gains can be kept high if grazing ceases before grass quality declines. If cattle are forced to clean up lower quality grass by continuing to January, gains will decrease.

Table 6. Gain of calves grazing fall accumulated tall fescue.

Trial	Grazing Days	ADG, lbs
KY, 1982	59	1.27
KY, 1985	57	1.15
KY, 1986	56	2.00
OK, 1986	42	2.13
KY, 1990	63	0.97
ILL, 1992	56	1.76

Cow Gains

Another area where fall accumulated tall fescue is helpful to the live-stock producer is by extending the grazing season for the cow herd, thereby decreasing the need for stored feed. Studies have also shown that grazing stockpiled tall fescue can reduce labor requirements to 25% of that for conventional hay feeding of the beef herd. In a summary of using stockpiled tall fescue for dry, mature Angus beef cows for fall and winter pasture, University of Kentucky researchers found tall fescue produced 66 days of grazing and allowed the cows to gain 1.24 pounds per day while keeping the hay fed to an average of 564 pounds per cow during the same period (Table 7).

Table 7. Performance of dry, pregnant cows* grazing stockpiled tall fescue (4-year average).

Grazing Dates	11/6 to 2/10
ADG	1.24 pounds
Stocking Rate	1.33 cows per acre
Gain per Cow	119 pounds
Hay Fed per Cow (11/6 to 2/10)	564

*Mature Angus cows bred to calve in March.

SOURCE: Bradley, Neil, et al., 1984 Beef Cattle Research Report, UK College of Agriculture Progress Report 282, pages 11-12.

In summary, stockpiling of adapted cool-season grasses such as tall fescue and bluegrass extends the grazing season, provides a good return of high quality forage for each pound of nitrogen fertilizer applied (providing other elements aren't lacking and the nitrogen is applied early), and provides the beef cow herd an ideal place for wintering and calving.