

Stockpiling Perennial Grasses Warm-Season Grasses

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Winter feeding programs can contribute heavily to the overall ownership costs of a livestock production system. In Mississippi, annual production cost per cow could range from \$400.00 to \$650.00, with grazing and winter feeding cost per cow representing 50 to 80% of the total annual cost. While the costs of some of the supplemental feed, fuel, and fertilizer are on the rise, stockpiling should be aimed at reducing feed costs. When properly implemented, it could reduce the hay feeding period by two months or more. Stockpiling is defined as the accumulation of forage at one time of the year for grazing at a later time. It works well with cool- and warm-season perennial grasses, but today we are going to focus on stockpiling warm-season perennial grasses.

Perennial warm-season grasses (WSG) such as bermudagrass and bahiagrass could provide grazing from late October to early January. Availability of stockpiled warm-season forages is much shorter than tall fescue (late November or early December to late February) because of faster dry matter deterioration with WSG. Stockpiling works well with bermudagrass or bahiagrass as monocultures or mixed with most legumes. Clovers (white or red) are good choices for stockpiling. This could help to fill the gap until some of the annual cool-season grasses such as annual ryegrass and small grains are available for grazing. A three year study (2003-06) conducted in Arkansas indicated that stockpiling bermudagrass can provide an average savings of \$20.14 per animal unit when compared to feeding hay (Univ. of Arkansas, 2007). Although most perennial warm-season grasses are good for stockpiling, quality will be lower than with cool-season species such as tall fescue.

Stockpiling involves much more than just excluding livestock from the pasture for a few weeks before the winter starts, it requires management. Graze pastures to a 3" stubble height or harvest the final cutting of hay approximately 8 weeks prior to the first estimated frost. Mowing the existing biomass is used as the last resort, but it is not recommended because it places a thatch on top of the grass which delays new growth. Stockpiling warm-season grasses should start mid-August to early September provided that there is adequate moisture and the appropriate fertility program. This will give grasses the opportunity to grow for two months before going dormant in mid- to late October. Nitrogen application should be between 50 and 70 lbs of N per acre when stockpiling pure or mixed warm-season grasses (no legumes present) to produce the required forage quantity and nutritive value. Phosphorous and potassium should be applied based on soil test recommendations.

Table 1. Biomass Production and forage quality of warm-season perennial grasses from November to February.

Biomass Accumulation (Nov. – Feb.)	Yield	Crude Protein	ADF
	----- lb/ac ----	-----%-----	
Bahiagrass	-		
Tifton 9	588.5	13.6	35.8
Pensacola	458.1	13.9	35.0
Bermudagrass			
Coastal	666.2	11.6	33.0
Common	725.1	--	34.1
Cheyenne	761.7	14.0	32.4
Giant	714.4	--	38.2
Tifton 85	1068.9	12.5	37.4
Wrangler	513.5	--	30.7

Source: Evers et al., 2004.

In order for stockpiled bermudagrass and ryegrass contributing to the program, the stocking rate must be in balance with the farm’s ability to produce the forage necessary for the existing cow herd. Make sure that the stocking rate is balanced and that some pastures could be deferred for stockpiling and overseeding annual ryegrass without affecting grazing/feeding patterns. In case of inadequate moisture, to produce the desired forage quantity of stockpiled warm season grasses, make sure that a reserve of good quality hay is available to sustain the herd until ryegrass is available (if other cool season grasses such as tall fescue is not a feasible alternative). With proper fertilization and depending on climatic conditions, 2000 to 3000 lbs of DM per acre could be stockpiled by November. That means that a mature cow (1000 lbs) with a 2.6% of the body weight requirement will need 26lbs of dry matter (DM) per day. If a producer is planning to utilize 65% of the stockpiled forage for 60 days to maintain a 50 cow herd, 80,000 lbs DM are required by the animals. At a 2000 lb DM per acre production, 40 acres are required for stockpiling to graze 50 cows from November through the end of January with minimal hay required (0.8 acres/cow).

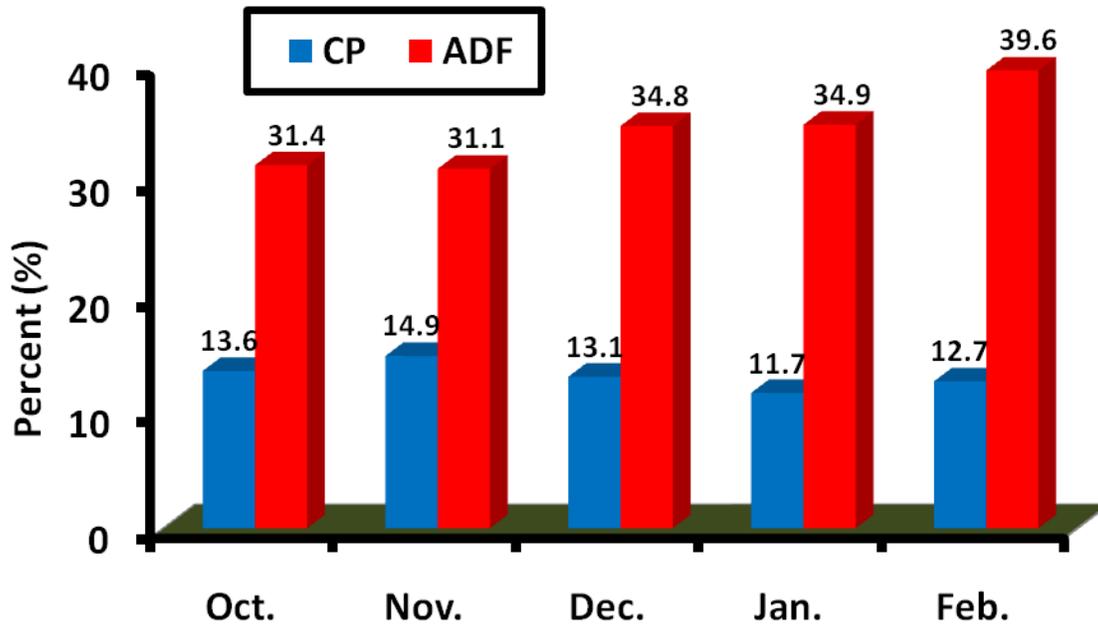


Figure 1. Changes on crude protein (CP) and acid detergent fiber in warm-season perennial grasses (bermudagrass and bahiagrass) from October to February. Source: Evers et al., 2004.

Stockpiling of warm-season perennials in the autumn depends on forage variety (Table 1), precipitation, temperature, nitrogen fertilization, and duration of the stockpiling period. Studies have suggested that forage quality is maintained through late autumn (Evers, et al., 2004; Scarbrough et al., 2001). Crude protein (CP) remains relatively stable while neutral detergent (NDF) and acid detergent fiber (ADF) increase slightly (Table 1). One of the most significant increases is lignin concentration. Most stockpiled warm-season perennial grasses should provide 8 to 14% CP and >50% total digestible nutrients through January (Figure 1). Dry matter digestibility during fall and winter is highly dependent on the stage of maturity when dormancy occurs. Leaves of bermudagrass or bahiagrass are not as tolerant to freezing damage as tall fescue so the amount of leaf material and palatability declines steadily after the onset of freezing weather. There is the possibility that appropriate supplementation will likely be required.

Strip grazing is the recommended method to obtain a better return. If grazing is not controlled, much forage will be wasted because cattle will select the leafy material the first 4 to 6 weeks. The goal is to efficiently harvest the forage by manipulating access so that they will graze down only the top 2/3 of the grass which is primarily leaf. Leave the bottom one-third of the grass, which is mostly low-quality stem, to protect the pasture against winter freeze and help control erosion. Use a single-strand electric fence to partition the available forage in the paddocks and graze for a 2 to 3 day period,

allowing the cows to harvest 65% of the standing forage. Always begin grazing the area close to water to avoid wasting forage due to animal trampling. When properly grazed, stockpiled WSG could provide 45 to 60 days for grazing. It is important that free choice minerals are supplemented during the grazing period and their body condition is closely monitored. Observe the manure consistency in the animals to determine if protein deficiency might be an issue. In this case, resume the traditional hay feeding program, add protein and/or energy supplements if the average body condition starts to decline, or initiate grazing ryegrass if ready to be grazed. Gains will generally be considerably better in November and early December rather than later in the season. The extent of deterioration of the accumulated warm-season grasses growth will also affect animal gains.

Many Mississippi beef producers in the winter make daily hay-feeding runs. Grazing stockpiled forages is not a new concept. Stockpiling helps cut hay consumption and saves labor and time. Some producers usually comment that strip grazing is too labor intensive, but it only takes 30 minutes to move a fence that could provide two or three days of grazing. On the other hand, it takes about three hours to feed hay every day and about 7 hours per acre to produce that hay during the summer. These changes in winter feeding/grazing programs can substantially reduce winter feeding costs.

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