

Food Plots for Beef Calves: Effectively Using Creep Grazing

John Andrae

Department of Crop and Soil Sciences

The University of Georgia

Small food plots are commonly used for managing wildlife and are often planted with high quality forages like ryegrass, clovers, chicory, or even alfalfa. These plots supplement wildlife nutritional needs during times when forage and browse is short or has poor quality. For example, alfalfa, lab lab, or millet food plots can provide high quality forage during summer months when whitetail does are lactating and bucks are developing antlers. This food plot concept can be easily applied to beef cattle operations in the form of creep grazing. This article will discuss which animals can benefit, which forages are suitable, and how creep pastures should be grazed.

Which animals will benefit?

Animals with high nutrient requirements that are grazing low quality forages will normally respond to supplementation. A high plane of energy is required for deposition of muscle and fat so growing calves have excellent potential for responding to supplemental forage plots. It can be difficult to meet these high nutrient requirements with perennial grass pastures like bermudagrass or bahiagrass, especially in late summer.

Figure 1 outlines nutrient requirements of cattle with different physiological stages. Note that lactating cows and growing calves have high requirements and fully meeting these requirements with perennial warm season grass pastures is difficult or impossible. While this figure shows that requirements of these animals can be met with cool season perennials (i.e. tall fescue), the toxicity of tall fescue also decreases calf weaning weights by over 50 pounds per head. Note that high quality pastures with legumes or annual grasses can meet requirements of animals with the highest nutrient demands. Of equal importance to note is that requirements of non-lactating mature cows can normally be met with bermudagrass or bahiagrass pastures. Supplementing dry mature cows that are in good condition may result in little return on investment.

Another factor to consider if small areas are established for grazing is the intake of grazing animals. High intakes of mature lactating cows likely prohibit the use of small areas for grazing. A relatively large area would be needed to support 1200 pound beef cows, even when limit grazing techniques are utilized. The lower intake of calves make small areas attractive for creep grazing forage plots.

What forages will provide the needed nutrients?

The largest animal response to creep grazing will normal result from the addition of highly digestible forages (i.e. high TDN). These forages provide calories to form muscle and fat tissue. However, bermudagrass and bahiagrass base pastures can also have low crude protein content. Bermudagrass pastures often

range from 5 to 15% crude protein depending upon grazing management and fertilization. If crude protein content of the base forage is low, animal performance may be limited due to poor ruminal environment or inadequate amino acids to build muscle. In this case high protein forages like alfalfa may be useful to serve both as a crude protein and energy supplement for stimulation of both intake and growth.

Alfalfa is a forage that has excellent potential for creep grazing. Grazing tolerant varieties are persistent and excellent progress has been made over the past several years in disease resistance. Grazing alfalfa also eliminates the need to spray for alfalfa weevils in spring months. Alfalfa's long grazing season also makes it attractive for creep pastures. Alfalfa should be established on fertile well drained soil with favorable pH.

Summer annual grasses like pearl millet or sorghum-sudan are highly digestible and are easily established in early summer months. Pearl millet is tolerant of acid soils and drought conditions while sorghum-sudan will perform better on heavy soils with good pH. Both forages can be established in clean tilled areas either by drilling or by broadcasting and lightly discing seed.

Cool season annuals like rye, oat, wheat or ryegrass can serve as effective creep pastures for fall calving cow herds. These species can be planted in early autumn and will provide grazing for growing calves in late winter and early spring. Vegetative winter annuals often have crude protein and digestibility of over 20% and 75% respectively.

Chicory is a forage crop that has received increased attention in recent years. This perennial herb has broad leaves and looks a lot like a giant dandelion. A deep tap root, tolerance of soil acidity, good response to nitrogen fertilization, and high forage quality make it an attractive creep forage. It has consistently yielded over 3 ½ tons of high quality dry forage per acre near Athens. Chicory's potential as a creep forage is currently under evaluation in a bermudagrass grazing trial near Calhoun. Studies are also underway to evaluate overseeded chicory in bermudagrass and tall fescue. Chicory is traditionally fall planted, but it may be possible to spring plant chicory in north Georgia.

In extreme South Georgia some warm season annual legumes have potential for creep grazing. Studies conducted in Gainesville FL indicate that either *Aeschynomene* (joint vetch) or hairy indigo can be utilized to increase suckling calf gains in addition to pearl millet. Hairy indigo is an annual warm season legume that is tolerant of dry, sandy, infertile soils. *Aeschynomene* performs better on moist fertile soils, and is tolerant of poorly drained soil after it is well established.

How should these forages be grazed?

Some beef producers creep feed calves with grain during summer months to improve weaning weights. Likewise, high quality forages can be creep grazed. Establishing smaller areas for creep grazing by calves will be cheaper than establishing annual pastures for the entire herd and will also allow more flexibility in site selection. Creep areas can be easily incorporated into forage systems with some temporary fencing and careful management. Simply insert a creep gate (Figure 2) into the fence which surrounds the supplemental pasture. This gate allows calves to enter and exit the plot but prohibits mature cows access. A single strand of electric fence stretched at a height to allow calves to pass but which will prevent cow access may also serve as an effective and economical creep gate (Figure 3).

Some species will persist longer in creep grazing systems if rotational grazing is practiced. Simply cross fence creep pastures into three or four separate areas with polywire electric fencing and temporary step or T posts. Gates to each area can be closed or wire can be lowered intermittently to prevent calf access and allow forages to rest. Alfalfa, chicory and summer annuals will benefit from rotational grazing.

How much animal gain improvement can be expected?

It is difficult to predict how much animals will respond to creep pastures. Response is highly dependent upon base pasture quality. For example, if bermudagrass pastures contain a large proportion of high quality crabgrass then a lower response to creep pastures would be expected. A low response to creep grazing would also be expected if tall fescue base pastures contain a large proportion of legumes. In contrast, animals stocked on closely grazed bermudagrass or toxic tall fescue monocultures would likely show large responses to creep pastures. Calves creep grazing winter annuals in spring months prior to bermudagrass greenup should also benefit from creep grazing.

Table 1 shows results of a creep grazing study conducted in north Alabama. In this study, one half of calves were allowed access to pearl millet during the summer months while mother cows grazed only tall fescue. Calves with access to pearl millet gained 75 pounds more during summer months than calves that grazed tall fescue only. Mother cows of the calves that creep grazed also performed better than control cows.

Creep grazing is quite effective when used in combination with warm season perennial pastures. Table 2 outlines a summer creep grazing study conducted in Florida. In this study, calves that had access to either Aeschynomene, hairy indigo, pearl millet or a commercial grain-based creep ration performed better than calves receiving no creep pasture or supplement. Note that forage-based creep feeds yielded performance equal to that of grain-based supplements.

Summary

Why should an effective practice like food plots be used only for wildlife? Adapt this supplementation practice to fit your farm and capitalize on a method that should improve calf weaning weights. All it takes is some forward planning, a few acres for a creep pasture, a modest investment in temporary gates and fencing, and a little bit of management. Don't forget to soil sample creep areas, fertilize, and plant seed at the appropriate times for good results.

Table 1. Effect of allowing calves to creep graze pearl millet from June to September (104 days) in North Alabama on tall fescue-based pasture systems. (Data from Thomas, Eason, Ball and Ruffin; AL Agric. Exp. Stn. Highlights Vol 30 No 2)

	Control (no creep)	Creep-grazed calves
Calf gain, lb/hd	144	219
Calf average daily gain, lbs	1.38	2.10
Cow weight change, lbs	-60	+27

Table 2. Effect of creep grazing treatments on average daily gain of calves with mother cows grazing bahiagrass pastures. Pine Acres Research Unit, Gainesville FL. Data by Bill Ocumpaugh. IFAS Circular S-318, 1985.

Creep Treatment	Average Daily Gain of Calves, lbs
Aeschynomene	1.98
Tifleaf 1 millet	1.80
Hairy indigo	1.80
Alyceclover	1.70
Commercial creep ration	1.86
Control (no creep)	1.50

Figure 1. Forage digestibility ranges and their suitability for different classes of livestock. From Ball et al. 2001. Originally adapted from Lippke and Riewe, 1976.

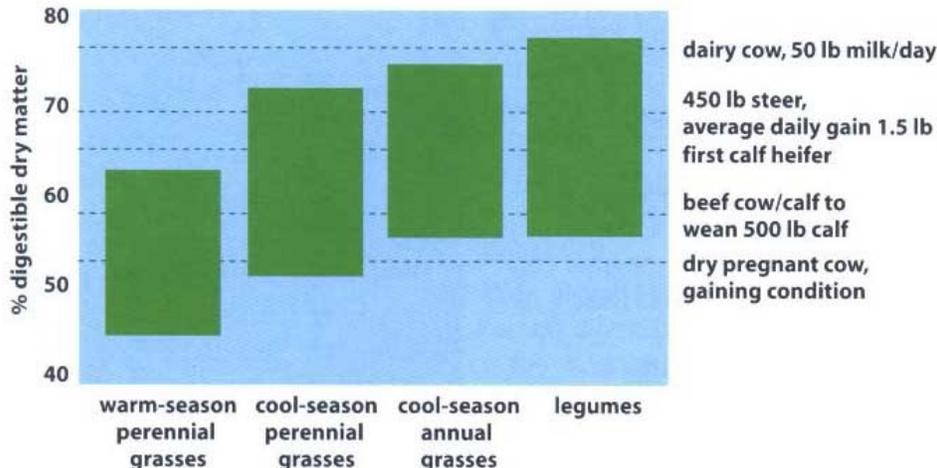


Figure 2. A creep gate design which allows up to 700 pound calves access to high quality pastures. The top horizontal boards restrict mother cows. From Ball et al. 2002.

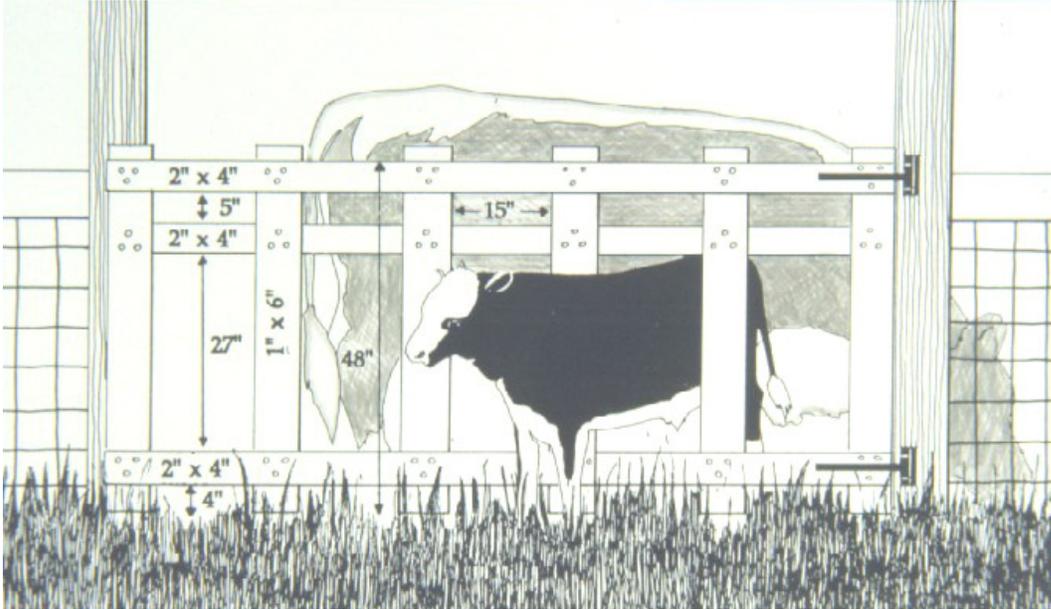


Figure 3. A creep gate that uses a single strand of electrified wire elevated at approximately 50" (note wire and insulator on top of post in foreground). Calves on this farm creep grazed oats while cows refused to travel under the wire and were maintained on bermudagrass hay. Courtesy of Scott Sell, County Extension Agent in Screven County, GA.

