IMPROVE GRAZING MANAGEMENT TO INCREASE FORAGE USE EFFICIENCY

September 2009 Georgia Cattleman
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The largest expense for most cattle operations in the Southeast is the cost associated with producing forage. The key to managing these costs is making sure that the operation is using the forage that is produced as efficiently as possible. The single most important factor affecting the cost-effectiveness of the forage enterprise is grazing management. In this month's article, we'll examine some of the ways that good grazing management can dramatically improve efficiency.

Managed Grazing Improves Efficiency

Take a moment to think about how much of the forage that you grow will actually make it into the mouth of the animal. Of the total forage that is produced, what percentage do your animals actually use? This percentage is referred to as forage use efficiency.

The first step in getting more out of your forage is to exercise more control over the animal's grazing behavior. If cattle are allowed to freely graze one or two large pastures (i.e., "continuous stocking"), they will select certain areas, avoid other areas, and ultimately create a scenario where relatively little of the forage is actually consumed (Table 1). The key is to ration out the forage. Rotational stocking requires the cattleman to put animals in and take animals out of a pasture in a relatively short amount of time. Simply splitting large pastures into several smaller pastures (or paddocks) and regularly rotating the animals between them can dramatically increase the efficiency of the forage system. Producers who allot daily strips for their cattle (strip or frontal grazing) can increase their efficiency even more, often rivaling our most efficient mechanical methods of harvesting.

Table 1. The range in forage use efficiency of selected grazing and mechanical harvesting methods.

Method	Efficiency*
Grazing	
Continuous Stocking	30-40%
Slow Rotation (3-4 paddocks)	50-60%
Moderate Rotation (6-8 paddocks)	60-70%
Strip or Frontal Grazing	70-80%
Mechanical	
Hay	30-70%
Silage	60-85%
Green Chop	70-95%

* Efficiency is defined here as the relative amount of forage production (or that could be produced) that will actually be consumed by the animal.

Because of this increase in efficiency, it is possible to increase the stocking rate and carrying capacity of the land. Stocking rate increases of 35-60% have been reported in the scientific literature (Table 2). As a general rule, however, stocking rates should only be increased by 10-25% during the first few years of transitioning from continuous stocking to moderately-intensive grazing management scheme (rotating every 2-4 days). This will allow the pastures and the forage manager's skills to improve. In the meantime, any excess forage production can be harvested as hay or mowed and returned to the soil.

Table 2. Increase in gain per acre in rotational compared to continuous grazing in studies from various southern states.

State	% Increase
Arkansas	44
Georgia	37
Oklahoma	35
Virginia	61

The Trade-Off

It is important to note, however, that intensively-managed grazing is unlikely to improve the performance (i.e., gain, lactation, etc.) of individual animals. Forcing the grazing animal to consume forage to a predetermined height eliminates their ability to selectively graze, sometimes reducing individual animal performance (e.g., average daily gain). This is particularly important when animals with high nutrient requirements like stocker cattle or replacement heifers are rotationally grazed on relatively low-quality forages, such as bermudagrass or bahiagrass. Though individual animal

performance is reduced, remember that it is the increase in stocking rate that results in higher gain per acre. For producers grazing animals with lower nutrient requirements, like mature cows, this can be a great advantage. In a three year study conducted in central Georgia, rotational stocking improved cow-calf stocking rate by about 38% and improved calf production per acre by 37%. Individual cow or calf performance was not affected in this study (Table 3).

Table 3. Effects of rotational stocking on performance of beef cattle grazing bermudagrass and endophyte-free tall fescue in central Georgia.

Item	Continuous	Rotational	Difference*
Cow weight at calving, lbs	1037	1017	NS
Cow weight at weaning, lbs	1090	1071	NS
Stocking rate, cows/acre	0.50	0.69	+38%
Pregnancy rate, %	93	95	NS
Weaning weight, lb	490	486	NS
Calf production, lb/ac	243	334	+37%

* NS = not statistically significant

Designing a Grazing System for Your Farm

Covering all the aspects of setting up and implementing an efficient grazing system is beyond the scope of this article. However, there are a number of resources available to you that can help you design a system that is right for your farm.

The best way to get started in designing a grazing system is to attend a Grazing School. The 2009 Georgia Grazing School is scheduled for September 22-23 and will be held in Athens at the Livestock Instructional Arena. This training is specifically geared toward producers who are interesting in improving the efficiency of their pasture and grazing systems. Participation is capped at 35 participants to ensure that everyone is given individualized service. The training is centered around a classroom environment, but this is complemented by several hands-on demonstrations and farm visits. More information on the Georgia Grazing School is available on the Georgia Forages website (www.georgiaforages.com).

There is also a large number of websites, publications, and books that provide specifics on how to set up more intensively managed grazing systems. The UGA's Management-intensive Grazing website (http://www.caes.uga.edu/topics/sustainag/grazing/index.html) is a good starting point and serves as a clearinghouse for more information on this subject. Of course, your local University of Georgia Cooperative Extension Agent can also provide you with additional information about how to design an efficient grazing system, as well as helping you to register for the Grazing School. If you have questions about these issues, contact your local Extension office by dialing 1-800-ASK-UGA1.