

## What can rotational grazing do for my farm?

John Andrae

Extension Forage Agronomist  
Crop and Soil Sciences Department  
The University of Georgia

Rotational grazing is a topic frequently discussed among forage producers. Many testimonials have been made regarding the benefits of rotational grazing. Some claim that simply implementing a rotational grazing system will allow doubling or even tripling stocking rates and total elimination of fertilizer inputs. These claims are far from true; however, rotational grazing does offer substantial benefits to cattle producers. Benefits include improved animal productivity, increased plant persistence, conservation of environmental resources, and improved animal temperament. This article will serve as a general overview of rotational grazing and is taken in part from Southern Forages 3<sup>rd</sup> Edition and a large grazing study conducted by Drs. Carl Hoveland, Mark McCann, and Nick Hill at the University of Georgia.

An intensive two-day grazing school will be held for producers in Athens on October 20<sup>th</sup> and 21<sup>st</sup> to provide more information on this topic. This grazing school will examine forage and animal management using “hands-on” and classroom activities. More information can be obtained at your local county extension office, NRCS office or online at (<http://www.georgiaforages.com>). Space is strictly limited to 35 participants so preregistration is required. As of September 10<sup>th</sup>, there were approximately 10 spaces still available.

### What is rotational grazing?

Rotational grazing is defined as “a grazing method that utilizes repeating periods of grazing and rest among two or more paddocks or pastures”. There are many other terms used by producers and scientists for rotational grazing. A few of these include *intensive grazing*, *controlled grazing*, *MiG or management intensive grazing*, and *rotational stocking*.

Controlled or rotational grazing is normally used as a general term. Several forms of controlled grazing include *rotational stocking*, *buffer grazing*, *strip grazing*, *creep grazing*, *deferred grazing*, *limit grazing*, *first-last grazing*, *mixed species grazing*, *sequence grazing* and *frontal grazing*. Each of these methods are best applied under different situations. For example, limit grazing is an excellent practice for improving utilization of winter annual forages by mature beef cows, rotational stocking is beneficial when stocker cattle graze winter annuals or paddocks containing clovers, and creep grazing can be used to improve calf weaning weights on bermudagrass pastures.

Some grazing methods can be combined for further flexibility. Deferred grazing allows the stockpiling of tall fescue and this stockpiled forage can be efficiently grazed later in the season using either frontal or strip grazing systems. For simplicity, further discussion in this article will be limited to general rotational stocking which is probably the method most often considered by cattlemen. These principles can be applied to various other

systems depending upon animal requirements, plant needs and environmental conditions (drought, muddy soils, stream protection etc.).

### **Why should I implement rotational stocking?**

Forages are often inefficiently utilized when pastures are continuously stocked. Many times cattle will only utilize 40-60% of the forage in a pasture with the rest refused or wasted. There are many reasons for this waste. Cattle, like people, are typically lazy and will heavily graze areas close to shade or water and ignore more distant areas. Animals also prefer young, tender, and leafy portions of forages and refuse stemmy mature material when allowed a choice. When there is an excessive amount of forage present, cattle frequently return to grazed areas to utilize fresh regrowth and refuse a large amount of previously ungrazed forage because it is too “tough”.

### **Effects on animal performance**

Many times the benefits of implementing rotational grazing are exaggerated. Claims of doubling or even tripling stocking rate are sometimes made. Don't believe these claims! It is certainly possible to increase stocking rate and decrease hay and fertilizer inputs using rotational stocking. Stocking rate increases of 35-60% have been reported in the scientific literature (Table 1). However, as a general rule, stocking rates can be increased by 10-25% over several years as your pastures and forage management skills improve. In the meantime, excess forage production can be harvested as hay.

**Table 1. Increase in gain per acre in rotational compared to continuous grazing.**

<b>State</b>	<b>% Increase</b>
Arkansas	44
Georgia	38
Oklahoma	35
Virginia	61

There are situations where rotational stocking is not particularly helpful from an animal performance perspective. Forcing cattle to eat forage to a predetermined height eliminates their ability to select high quality leaves and often reduces *individual* animal performance (daily gain per head). This is particularly true when animals with high nutrient requirements like stocker cattle or replacement heifers are rotationally grazed on bermudagrass or bahiagrass.

Remember that although individual animal performance is reduced, it is possible to increase stocking rate resulting 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 2).

**Table 2. Effects of rotational stocking on performance of beef cattle grazing bermudagrass and endophyte-free tall fescue in central Georgia. (From Hoveland, McCann and Hill; 1997).**

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

### Effects on plant persistence

While increased animal production is often what sells rotational stocking to producers, plant performance is also improved. Many plants respond well to short grazing and long rest periods. Rest periods allow plants to produce new leaves which collect energy, transform it into sugars, and store these sugars so that more leaves can be produced following the next grazing cycle. Not only is regrowth potential improved, but root depth and stand life are improved as well.

Practicing controlled grazing also decreases the amount of trampling and pugging of plants and soils (particularly on wet prepared fields). This can improve productivity and persistence of forages.

Under rotational in the central Georgia study conducted by Hoveland and others, endophyte-free tall fescue productivity and persistence was greatly improved. This resulted in less hay feeding in the rotational stocked system (Table 3). In fact, over the three year grazing study, cattle in the rotationally stocked system required 31% less hay per head. If this hay were priced at \$55 per ton, an annual average savings of \$20.65 per cow would be realized for *each* of the three years. Supplement costs and labor for feeding hay would add to the rotational stocking advantage.

**Table 3. Pounds of winter hay fed per cow as affected by grazing method during three year study. Cows grazed bermudagrass/endophyte-free tall fescue mixture. (From Hoveland, McCann and Hill, 1997).**

	1988-1989	1989-1990	1990-1991	3 year average
Rotational	1310	1480	2240	1680
Continuous	1750	1900	3650	2430
% decrease	-25%	-22%	-39%	-31%

Rotational stocking can also improve legume establishment and persistence. Clover can be broadcast seeded and trampled in by cattle grazing small paddocks in late winter. Rotational stocking also allows flash grazing of paddocks to prevent small legume seedlings from grass shading. After clovers are established, the improved grazing control allows producers to favor clover regrowth.

### **Intangible effects**

There are many benefits of practicing rotational stocking that are difficult to quantify. Notice scope of this article “What can rotational grazing do for my *farm*?” is much larger than cattle performance. Two of the most important benefits rotational grazing offers your farm are (1) improved control and (2) improved flexibility.

#### *Control:*

Cross fencing and water developments in large pastures effectively transfer the grazing decisions from the cow to the farm manager. Before a pasture is cross fenced, the cows determine (1) where they want to eat, (2) what they want to eat (or more importantly what they will refuse to eat), (3) how long they will eat, and (4) how often they will return to eat. Once cross fences are erected the farm manager controls how many cattle graze a set amount of acres for a set amount of time. Once available forage has been efficiently utilized, cattle are allowed to move to another paddock and cannot return until forage is ready for another grazing.

#### *Flexibility:*

Adopting rotational grazing systems and controlling cattle movement adds flexibility to your operation. Paddocks can be removed from the rotation for overseeding or complete stand renovation. Areas can be skipped during times of rapid growth and stockpiled for later grazing or hay harvest. Producers soon realize that there is no “set” schedule for rotating pastures and that the length of rest and grazing periods will change with weather and forage growth rate.

Animal handling is usually improved with rotational stocking. Frequent movement and exposure to people usually improves cattle temperament. This frequent exposure also allows the farm manager to detect diseases or other problems quicker so that they can be treated in a timely manner.

There are multiple other reasons for implementing grazing systems including improved nutrient distribution and environmental stewardship. Recent fencing and watering equipment developments have also made grazing systems easier and cheaper to implement. I hope you can join us for the grazing school later this month. Your local county agent or NRCS conservationist will know if space is available and can help you register. Happy grazing.