Grazing Programs Utilizing Florida Forages

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Introduction

Forage is the cheapest source of nutrients for livestock systems in Florida. Good grazing management allows cow-calf operations to get the greatest economic value from their forages.

It would be convenient if there was a standard recipe for grazing management that applied all of the time. Unfortunately, there is no single group of actions that always constitute good grazing management because it is situation dependent.

What factors affect choice of grazing management? Type of forage, class of animal, economics of the production system, and the grower's level of interest and expertise in management all play a role.

Over the years at the Beef Cattle Short Course, much has been written and discussed regarding grazing management. There is no need to revisit all of that information. In this paper, we will talk briefly about the role that the type of forage plays in grazing management decisions and then discuss results of some recent grazing management and supplementation of grazing animal research conducted in Florida.

Plant Type and Grazing Management

In this section, the phrase "plant type" refers to grass versus legume or to different growth habits within grasses or within legumes. Most warm-season grasses used in Florida are from Africa where they were grazed by wildlife for very long periods of history. In contrast, most summer legumes used in Florida originated in South America where cattle were introduced relatively recently. This gives grasses a "leg up" on the legumes, and grasses often are more tolerant of grazing. It should be noted, however, that some legumes like rhizoma peanut and carpon desmodium tolerate grazing well. The general rule regarding grazing of grasses and legumes is that grasses often tolerate closer grazing than legumes, largely because they have a much longer history of being grazed and developing strategies to cope with grazing.

Within the legumes or grasses, the way in which a plant grows plays a major role in how it responds to grazing. If we take the grasses as an example, some have stems that extend well above the soil (for example, limpograss or stargrass), while others protect their stems by keeping them at or below the soil surface (for example, bahiagrass). Those with protected stems are much more tolerant of grazing. With legumes, a plant like rhizoma peanut that has stems (called rhizomes) below the soil surface tolerates grazing better than stylo which does not. The take-home lesson for grasses or legumes is that plants that elevate stems well above soil level will require more careful grazing management than those that protect their growing points and stored reserves by locating stems close to the soil surface.

Continuous and Rotational Grazing

Plant type affects whether forages will do well under continuous grazing. Plants that protect bud sites, like bahiagrass and rhizoma peanut, can survive for many years while being grazed continuously, although the stocking rate must be kept at a moderate level. Upright-growing plants often have a difficult time surviving continuous grazing, particularly if the stocking rate is high.

There are reasons other than survival that may

encourage the use of rotational grazing. These include the reported advantages of being able to increase stocking rate of rotationally grazed pastures due to greater forage production and achieving greater uniformity of animal excreta distribution when pastures are grazed rotationally than continuously.

We were interested in these reported advantages, so we did some research on bahiagrass pastures to see whether they were true under Florida conditions. During three years, bahiagrass pastures were either grazed continuously or grazed rotationally with 1, 7, or 21 days of grazing followed by a rest period of 21 days. The rotationally grazed pastures grew at an average rate of 63 lb of forage dry matter/acre/day, while for continuous pastures the rate was 37 lb. Our data support the conclusion that rotationally stocked pastures grow at a faster average rate than continuously stocked pastures.

In the same study we looked at the effects of these treatments on the uniformity of dung and urine deposits in the pastures. Under continuous grazing, cattle spent more time in the part of the pasture closest to shade and water points and this resulted in a disproportionate amount of dung and urine being deposited in these areas. The result was that soil phosphorus and potassium increased in the so-called "Zone 1," closest to shade and water. In contrast, if cattle were rotated to new paddocks every one or seven days, cattle spent a proportionally similar amount of time in the various pasture zones, dung and urine were distributed more equally across the pasture, and there was no accumulation of soil nutrients in Zone 1 of rotationally grazed pastures. Nutrient accumulation in soil is a concern because losses to the environment are more likely from these areas.

Our studies with bahiagrass suggest that greater forage yield and more uniform distribution of animal wastes are two reasons to consider rotational grazing, even for a grass like bahiagrass that does not require rotational grazing for long-term survival.

Raising Early Weaned Calves on Pasture

Another management issue that we wanted to explore in our research is whether we can effectively raise early weaned calves on pasture-based systems. Calves weaned at approximately 90 days of age and 220 lb of weight were grazed on annual ryegrass-rye pastures and received a concentrate supplement (75% total digestible nutrients and 16% crude protein) at a rate of 1, 1.5, and 2% of calf body weight. Pastures were grazed rotationally with a 7-day grazing period and a 21-day rest period. During one year we also included an unsupplemented treatment. Average daily gain for animals receiving no supplement was 0.66 lb/day compared to gains between 1.6 and 2.0 lb/day for those receiving supplement (Table 1). As the amount of supplement being fed increased, the amount of time the calves spent grazing and their forage intake decreased, but stocking rate increased (Table 1). As a result, feeding supplement at greater than 1% of body weight is not recommended during the cool season when grazing annual ryegrass-rye pastures.

In late spring, these calves were moved to Tifton 85 pastures immediately after being removed from the cool-season pastures. Pastures were grazed rotationally with a 7-day grazing period and a 14-day rest period between grazings. Calves continued to receive the same supplement treatment as in the cool season. During summer, unsupplemented calves gained 0.73 lb/day, while gains for supplemented animals exceeded 1.15 lb/day (Table 2). Similar to the cool-season response, calves grazed for less time and consumed less forage when receiving high rates of supplement. Thus, more calves could be carried per acre of pasture. Gains during summer were 1.43 lb/day for the 1.5% of body weight treatment, but there was no additional response to the 2% level.

These studies showed that pasture-based systems composed of high quality forages can be used for early weaned calves. During winter, a supplement rate of 1% of body weight was optimal, while in summer when forage was lower in quality a rate of 1.5% was required. Managing the pastures using rotational stocking allowed greater efficiency of forage utilization and control of nutritive value.

Summary

Good grazing management allows cow-calf

operations to get the greatest economic value from their forages. What constitutes "good" grazing management varies from situation to situation. One important factor that determines what is "good" is the specific type of plant that you are using. Legumes often require more care than grasses, and upright-growing grasses are more difficult to manage than types that protect their stems by keeping them close to or below the soil surface.

Bahiagrass can tolerate a wide range of management practices, but Florida studies have shown that growth rates are greater with rotational than with continuous stocking. An additional advantage of rotational stocking is that animal wastes are more uniformly distributed over the pasture and soil nutrient concentration remained more similar from one area to the other.

Good grazing practices also provide the basis for raising early weaned calves on pasture. Annual ryegrass, alone or in combination with small grain rye, can be used effectively during the cool season. Tifton 85 bermudagrass provides a suitable forage for calves during the summer. Supplement is needed during both seasons; approximately 1% of body weight is most economical during winter while 1.5% is recommended when forage quality is lower during summer.

Table 1. Early weaned calf daily gain, forage intake, grazing time, and average stocking rate when calves grazing annual ryegrass-rye pastures were supplemented at three rates of concentrate during two years at the Beef Research Unit near Gainesville, FL.

Supplement rate (% of body weight)	Average daily gain (lb)	Forage intake (% body weight)	Minutes grazing/day	Average stocking rate (400 lb calves/acre)
1	1.63	1.8	284	6.1
1.5	1.79	1.3	230	6.6
2	1.96	1.1	234	7.3

Table 2. Early weaned calf daily gain, forage intake, grazing time, and average stocking rate when calves grazing Tifton 85 bermudagrass pastures were supplemented at three rates of concentrate during two years at the Beef Research Unit near Gainesville, FL.

Supplement rate (% of body weight)	Average daily gain (lb)	Forage intake (% body weight)	Minutes grazing/day	Average stocking rate (400 lb calves/acre)
1	1.15	2.3	193	12.4
1.5	1.43	1.6	181	12.5
2	1.43	1.2	147	15.3

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