

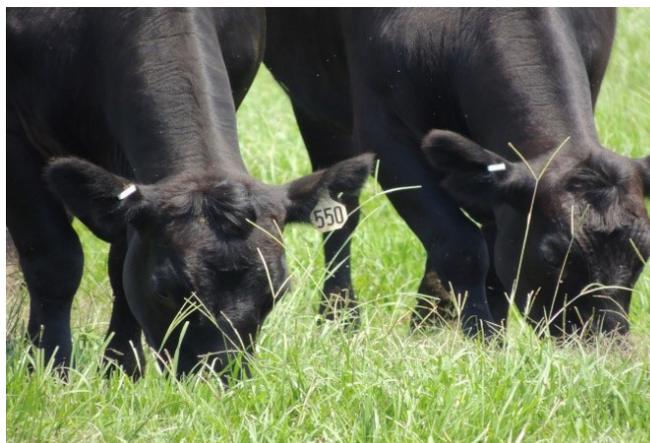
# Grazing Management Concepts and Strategies

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Grazing management plays a crucial role in determining forage production, forage quality, and animal performance in forage-based livestock production systems. Producers must plan according to enterprise-specific goals, including choice and requirements of forage species and animal class. Other important considerations are management level, budget, and expected return on investment. In Alabama, livestock production is based on forage systems because of the favorable climatic conditions for growing forages and access to local resources such as poultry litter. Pasture forage is usually the most cost-effective feed source for livestock because it minimizes the need to harvest, store, transport, and distribute feed. Observation of farms and ranches around the state demonstrates that there is not a one-size-fits-all forage program. However, to effectively implement a grazing management plan in a system, several concepts and strategies must be considered.

## Planning a Forage System

Planning a forage system is crucial to the success of an enterprise and requires knowing forage demand and resources available throughout the year. The first step is to choose forage species adapted to the soil and climate in the area. The species chosen must be compatible with the goals for the enterprise, management requirements, associated costs, and desired level of animal performance. A single forage will not supply the demand for feed throughout the entire year (figure 1), so it is important to know forage options in the region and the requirements of various forage species. Options include both perennial and annual forage species. A **perennial forage** can persist for 2 or more years and will display a period of dormancy, during which there is little or no forage growth during any given calendar year. An **annual forage** will grow during the season that it was established, but individual plants will live less than 1 year, although some annuals can reseed with proper



management. Selected forage grasses or groups suited for the three main forage production regions of Alabama are as follows:

- **North and central Alabama:** tall fescue, bermudagrass, bahiagrass, summer annuals, cool-season annuals
- **South Alabama:** bermudagrass, bahiagrass, summer annuals, cool-season annuals
- **Blackbelt region:** tall fescue, dallisgrass, some bahiagrass and bermudagrass varieties, summer annuals, johnsongrass

While grasses typically constitute the forage base on farms in Alabama, growing legumes with grasses can improve forage quality, provide nitrogen, and provide better distribution of forage growth than grass alone. Depending on legume species and management, they generally can fix between 40 and 200 pounds of nitrogen per acre per year. An important consideration, however, is that legumes are more susceptible to many commonly used pasture herbicides and are generally less tolerant to close grazing than are most grasses. For more information on how to choose the appropriate forage species for your operation, visit the ACES forages web page or contact your local Extension agent.

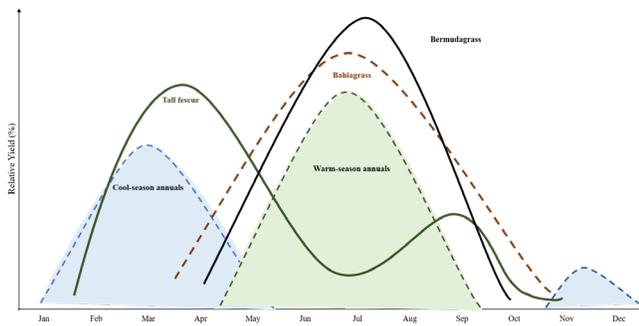


Figure 1. Forage production distribution in the southeast United States.

## Growing and Managing Forages

Once a forage base plan is defined, it is important to understand how forages grow. After a grazing event, the main factors affecting forage growth are maintaining adequate leaf area, growing points, carbohydrate reserves, and tiller/shoot population. Providing proper soil fertility is also important. Balancing these factors helps achieve high forage production and stand longevity. Every forage species has specific target stubble heights and regrowth period requirements post-grazing to optimize stand longevity and forage production. Good pasture management requires a balance between frequency and intensity (stubble height) of forage removal that avoids overgrazing or undergrazing. **Overgrazing** results from excessive forage removal due to a higher than ideal number of animals per unit area and leads to pasture decline. **Undergrazing** results in forage losses associated with excessive shading that affects tiller development as leaves become older and senesce, thus becoming less efficient.

## Stocking Considerations

**Stocking rate** (SR) is the number of animals grazing within a unit of land over a specified period of time. The optimum SR depends on many factors, including forage accumulation and forage quality. Incorrect SR can lead to issues such as overgrazing, which compromises stand longevity, or underuse of pasture forage, which leads to mature forage mass accumulation that in turn leads to forage that has low nutritive value. **Stocking density** (SD) is the number of animals having access to a specific pasture area at a particular time. **Carrying capacity** (CC) is the maximum number of animals or animal units (AUs) that a pasture can support over a period of time without compromising stand health.

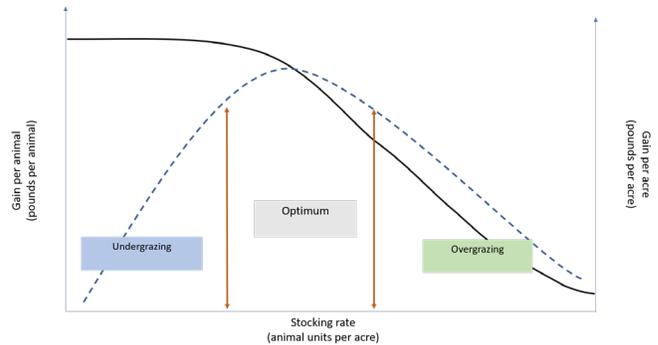


Figure 2. Stocking rate affects gain per animal (—) and gain per acre (---) in forage systems. Adapted from Mott (1960).

Additional information on appropriate stocking strategies for cow-calf operations in Alabama, see Extension publication ANR-2554, Stocking Rates for Cow-Calf Operations in Alabama. For more information, consult your local Extension agent.

## Determining Stocking Rate

SR is crucial in determining animal performance and directly affects stand persistence long-term. Under low SR, forage availability and animal gains tend to be higher, but output per acre is low. As SR increases, less forage is available and animal gains are reduced, but output per acre is higher (figure 2). The optimal SR for a forage system must be based on the forage mass available and animal responses desired. It is important to keep good records regarding forage mass to identify seasonal deficiencies and surpluses in forage availability.

## Grazing Methods

Continuous and rotational stocking of pastures is the most commonly used grazing methods. Under **continuous stocking**, animals have unrestricted access to a specific unit of land during the grazing season. Under **rotational stocking**, the pasture system is subdivided into paddocks that alternate between grazing and rest for plant regrowth during the grazing season. Generally, rotational stocking requires a higher level of management and more labor but can provide more even distribution of recycled nutrients and improved forage utilization efficiency. The regrowth period is defined through management strategies and can allow for proper carbohydrate (energy) storage replenishment, forage accumulation, and timely harvest. This can enhance forage utilization, which can potentially improve animal performance.

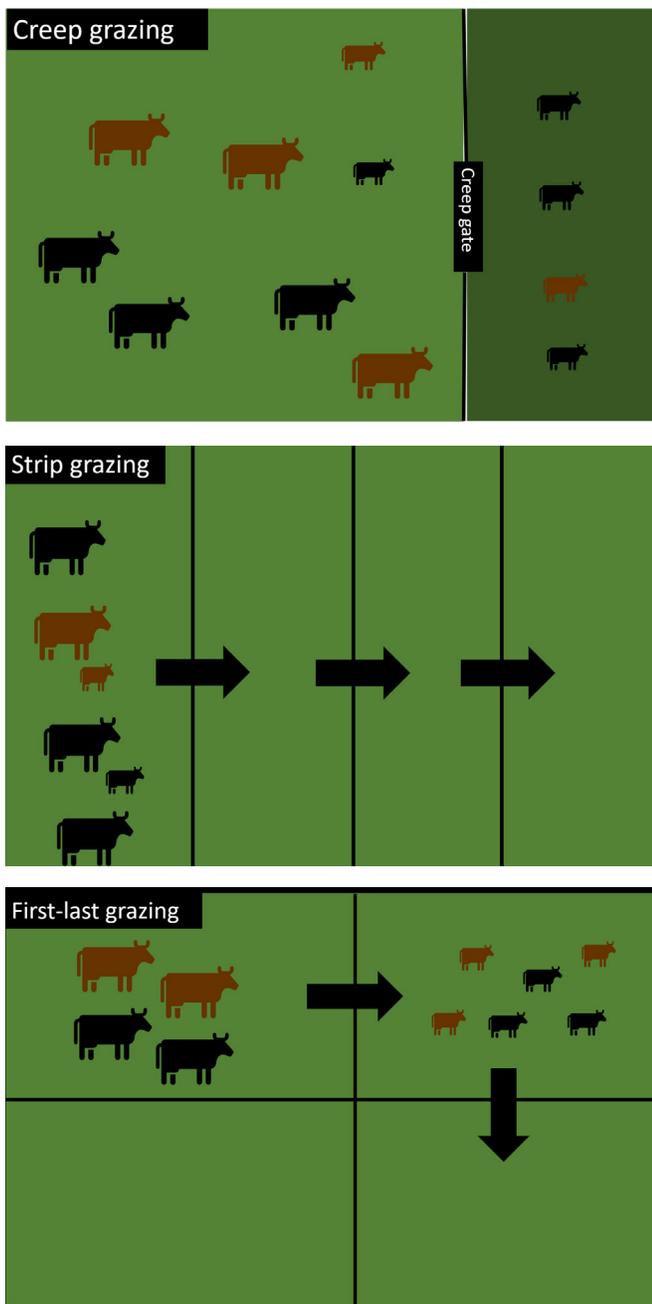


Figure 3. Grazing methods

## Management Practices to Match Animal Requirements

Grazing management practices can be adapted to adequately supply nutritional requirements. In cow-calf systems, **creep grazing** can be used to allow calves to have access to higher nutritive-value forage adjacent to the area where the mothers are grazing. This can be accomplished by installing openings between higher- and lower-quality pastures that are only large enough for calves to pass through. Another method is **strip grazing**, which consists of using temporary fencing to have animals graze an area for a short time and periodically providing access to another strip ahead as needed. This practice is commonly used with stockpiled forages (such as tall fescue or bermudagrass) but can also be used to supplement animal diets with higher-quality forage such as winter annuals. Some forage systems might adopt **first-last grazers**, which consists of allowing animals with higher nutritional requirements to graze a given pasture area first to remove the higher-quality forage and continuing forward in a rotation ahead of the second group. Animals with lower nutrient needs follow to complete the removal of forage mass. This method can be used for different animal categories based on nutritional requirements (stocker calves versus mature cows) or different animal species associated to optimize grazing (cows and goats).

## Summary

Grazing management strategies should be based on specific goals of a farm or ranch. It is essential to understand plant and animal requirements in order to plan a grazing program. Developing an efficient forage plan and grazing system should involve determining forage available, which will allow for proper determination of stocking rate and fine-tuning of practices to optimize forage utilization, stand persistence, and nutrient cycling. Specific management practices can be used to properly fulfill nutrient requirements of animal categories throughout the growing season.

## Resources

Ball, D.M.; Hoveland, C.S.; Lacefield, G.D. 2015. Southern Forages: Modern concepts for forage crop management, 5th edition. International Plant Nutrition Institute. Peachtree Corners, GA.

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