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Grazing Management Concepts and Practices[1]

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Introduction

Grazing management can be defined as the manipulation of livestock grazing to accomplish a desired result. The desired result depends upon the enterprise, but for most producers economic goals are of primary importance. Decisions regarding what grazing management to use are based on the characteristics of the forage being grazed, animal requirements, input costs associated with adopting a particular system, and the probability of return on investment.

Grazing management is a powerful tool that strongly influences pasture and animal performance. Choice of grazing management affects pasture yield, nutritive value, and stand longevity. Choice of grazing management also affects weight gain or milk production of an individual animal as well as the amount of milk or meat produced per acre.

In order to implement an effective grazing management program, there are a number of important issues of which we should be aware. These include a) what is required for plants and animals to be productive in a pasture-livestock system, b) what management choices have the greatest impact on success or failure of a grazing system, and c) how can the nutritional requirements of the animal be matched with the ability of the pasture to supply nutrients.

Plant and Animal Requirements

Plants and animals have specific requirements to live and be productive. Plants must maintain growing points to produce regrowth after grazing. They must also maintain an energy source, either leaf area that can produce new energy, or stems and roots that contain stored energy. Animals must have enough forage to eat and it must be nutritious enough to meet their requirements for maintenance and production. In some cases, pasture managers (graziers) must favor the pasture in their management decisions, and in other cases they must favor the animal. For example, if forage is in limited supply, the grazier may choose to end grazing and purchase hay if he thinks that further grazing may seriously weaken the pasture. In a similar situation with a different forage, the grazier may decide that the pasture is capable of tolerating overgrazing and will

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allow grazing to continue and avoid the added cost of purchased feed. Understanding the give and take between pastures and animals and being able to anticipate the results of decisions are important steps in designing effective grazing management programs.

Critical Choices Affecting Success of Grazing Systems

The most important choices to be made in designing a grazing management program are what forages to graze, what animals will do the grazing, and how close and how often will the pasture be grazed. In this discussion of grazing management, it is assumed that the forages and types of animals have already been determined. We will focus on the issues of how close and how often grazing occurs.

How Close

How close to graze is the decision that has the greatest impact on pasture and animal productivity. Some graziers use pasture height as the indicator of when it is time to move cattle from a pasture or provide supplement to the animals. Others have a concept of how many animals they can carry on their pasture over a growing season (stocking rate). They understand that during dry or cool periods the pasture may be somewhat overgrazed but during wet and mild times the pasture may be undergrazed.

Whether decisions about how close to graze are based on pasture height or on stocking rate, closeness of grazing is very important. For the pasture, it determines how much leaf area is remaining after grazing and how many growing points are available to provide regrowth. As a general rule, tall-growing, bunch grasses that elevate their leaves and growing points should be grazed to a taller stubble height than low-growing grasses, like bahiagrass. The low-growing grasses typically have leaves and growing points at or very close to the soil surface to protect them from being overgrazed. For the animal, closer grazing forces them to eat more stem. Stem is less nutritious than leaf, so close grazing will result in lower weight gain or milk production per animal. Undergrazing allows animals to select leaf to eat and does not stress the plant, but it results in poor utilization of the pasture resource. Although meat or milk production per animal may be high when pastures are undergrazed, production per acre will be low.

How Often

Consideration of how often to graze a pasture leads directly to the question of whether it is better to use continuous or rotational stocking. Continuous stocking, also called continuous grazing, is the continuous, unrestricted access to a pasture by livestock throughout a year or grazing season. In this type of system, the livestock decide how frequently and how close a particular plant or area of the pasture will be grazed. Continuous stocking allows the animals to be more selective in their choice of diet, but it does not provide for a regular period of rest for the pasture. If continuous stocking is used with a high stocking rate, plants are defoliated very frequently, depleting their leaf area, reserves, and growing points. Some desirable pasture species can be eliminated over time using this type of grazing management. Advantages of continuous stocking include lower input costs and fewer management decisions.

Rotational stocking, also called rotational grazing, is the grazing of two or more subdivisions of the pasture, called paddocks, in sequence followed by a rest period for the recovery and regrowth of the paddock. The major difference between continuous and rotational stocking is that the grazier, and not the livestock, is controlling the length of the rest period. Either rotationally or continuously stocked pastures can be overstocked or understocked, managed well or mismanaged. So, rotational stocking alone is no guarantee of good pasture management. Advantages of rotational stocking may include improved pasture longevity, more timely utilization of forage, opportunities to conserve surplus forage, increased stocking rate (generally 15-30%), and better animal management. The latter occurs because the grazier visits the pasture more often to move animals and sees animal health problems sooner.

The main decisions that the grazier must make when using rotational stocking are the length of the rest period between grazings and the length of time that the livestock will be on one paddock (called the grazing period). With this information, the

approximate number of paddocks needed can be calculated. For example, if the grazier wants a pasture rest period of approximately 28 days and a grazing period of 7 days, 5 paddocks will be needed. If a rest period of 20 days and a grazing period of 1 day is desirable, then 21 paddocks will be needed. A simple formula to calculate the number of paddocks needed is the sum of length of grazing period and length of rest period divided by the length of the grazing period. Many graziers will vary the length of the rest period with season of the year. During times of slow pasture growth when the weather is dry or cool, the rest period will be longer. When pasture growth rate increases because rainfall is plentiful and temperatures are warm, the rate at which the forage matures also increases. To avoid having stemmy, low quality forage on the pasture, the rest period must be shortened. This can be accomplished by removing some paddocks from the rotation and using them for hay or haylage, or by increasing the stocking rate so that the grazing period can be reduced.

Many of the best managers have a concept of what the pasture height should be when livestock enter a paddock and when they exit a paddock. These heights are different for different forages, and sometimes for the same forage at different times of the year. The nutritional requirements of the animal and the grazing tolerance of the pasture will be the major factors that determine these heights.

Matching Animal Requirements with the Pasture's Ability to Supply Nutrients

Grazing management practices exist that allow the grazier to allocate nutrients to best meet the nutritional needs of the grazing animal. Examples include creep grazing, first-last grazing, and forward creep grazing.

Creep Grazing

Creep grazing is used when the mother is still nursing her offspring. The mothers are grazing a base pasture and adjacent to the base pasture is a creep pasture that has been planted to a forage that is high in nutritive value. Creep gates are present in the fence line between the base pasture and the creep pasture. These gates, or openings, are large enough that the offspring can pass through, but small enough that the mothers cannot. Thus the offspring can gain access to very high quality forage that is better able to meet their high nutrient requirements.

First-Last Grazing

First-last grazing is used in conjunction with rotational stocking. In this system, the animals with high nutrient requirements (for example, replacement heifers) enter the paddock first and remove the leafy, high quality tops of the forage. After they have removed the most nutritious forage, they are moved to the next paddock. Animals with lower nutrient requirements (for example, mature dry cows) then are moved into the paddock that the heifers just left. They graze the stemmy, lower quality material remaining until a desired pasture height is reached. Using this system, a single forage or forage mixture can be used to meet the differing nutritional requirements of two classes of animals.

Forward Creep Grazing

Forward creep grazing is similar to the first-last grazing system. It is used with rotationally stocked pastures, and there are creep gates between all paddocks. Thus, when the mothers are grazing a given paddock, their offspring can move freely into the next paddock to graze high quality forage. Forward creep grazing is different from first-last grazing in that the animals with high nutrient requirements (the offspring in this case) can move back and forth between paddocks in the forward creep grazing system.

Summary

Grazing management is an important tool for utilization of the pasture resource. To manage effectively the grazier must keep plant and animal requirements in mind and maintain balance between them. Appropriate choices of stocking rate or height of grazing (how close) and rotational or continuous stocking (how often) are critical to the success of a grazing system. The best management practices

match the nutritional requirements of the animal with the ability of the pasture to meet these needs. This can be done through choice of species and by choice of grazing management. Knowledge of important relationships in pasture-livestock systems is an important first step toward good grazing management practice. There is no substitute for experience, however, and time spent managing pastures is the best teacher.