

PASTURE MANAGEMENT

Making Stocking Rates Work for You

Gene Krause

University of Minnesota Beef Team

One of the keys to a successful livestock operation is the proper use of pasture, either native rangeland or tame forages. To properly manage the land, a producer must be familiar with the amount of dry matter forage the pasture can produce and the amount of forage required over the grazing season by each animal and the herd as a whole.

With this knowledge, the proper combination of land, time and number of animals may be chosen to ensure the sustained, long-term productivity of the pasture. The optimum number of animals on the pasture makes efficient use of the forage without waste, but still leaves enough forage to allow quick and complete recovery.

There has often been confusion among producers when discussing carrying capacity and stocking rates. In order to benefit from your pasture management practices an understanding of the terms and the factors that influence them should be reviewed.

Carrying capacity is considered to be the measurement for the average number of animals that a particular pasture or range can sustain over a grazing season. Carrying capacity is primarily determined by four factors: 1) annual forage production, 2) seasonal utilization rate, 3) average daily intake, and 4) length of the grazing season.

Carrying capacity does not fluctuate yearly in response to forage production. Stocking rates, however, do fluctuate with weather conditions. Stocking rates are often expressed as the number of animal unit months (AUM) supplied by one acre of land. Keep in mind that stocking rate and average daily gain (ADG) are negatively related therefore we need to find the balance and manage accordingly.

Determining the appropriate stocking rate for a particular grazing unit is a key decision affecting the profitability and viability of any grazing operation. Livestock intake and subsequent performance is very dependent upon forage availability to the animal on a daily basis. One cannot stress enough the importance of monitoring and management of the three variables of intake; amount, quality and composition. These three factors will determine the profitability of your pastures. Setting the stocking rate too low will result in wasted forage and lost profit potential. Setting the stocking rate too high will result in lowered intake and animal output and often times, diminished profits. If a producer has been fairly successful in a traditional grazing system then an understanding of an appropriate stocking rate is already available. While in the long term carrying capacity will be increased with improved grazing management. However, do not expect to increase stocking rate substantially

in the first year of a more intensive managed grazing system (eg. rotational).

There are several factors that can influence the stocking rate, but I wanted to briefly cover some of them including grazing management, plant vigor, livestock distribution, and forage intake.

GRAZING MANAGEMENT

Continuous, season long grazing can be an inefficient way to harvest plant growth. Losses due to trampling, plant maturation and leaf death, wastage, consumption by insects, diseases, and other herbivores, and improper season and degree of use are all higher with continuous grazing than with rotational grazing. In addition, rotational grazing provides times when plants are not being grazed in each area. Thus, plant vigor and growth remain the same or increase compared to continuous grazing, even when a greater proportion of the forage is consumed by livestock.

A simple rotation involves two or more separate pastures that are grazed only once during the growing season. Such systems can provide 20 percent higher grazing capacity than a continuous grazing system. More intensive short duration or time-controlled grazing systems that involve numerous areas that are grazed several times each season may allow up to 30-50 percent higher stocking rates than a continuous grazing system. However, these are usually not recommended on native pastures or rangeland. These rotational grazing systems improve livestock distribution, reduce waste, allow longer periods of no grazing, and maintain plants in a more nutritious vegetative growth stage for longer periods of time. However, as grazing intensity increases, so does the risk of weakening the forage stand. High stocking rates require higher levels of management skill and

frequent monitoring to maintain plant vigor. One should keep in mind the availability and flexibility to use alternative feedstuffs to adjust stocking rates whenever forage availability and forage demand are not balanced.

WEATHER

Suggested initial stocking rate assumes “normal” weather, good plant vigor, uniform grazing patterns, and level consumption. These assumptions are often incorrect so stocking rate must be changed to fit each situation. Weather variation most frequently dictates stocking rate adjustments. Drought, floods, late spring or early fall frost, hail, or very cool or very hot temperatures may lower forage production or delay growth. Rapid forage growth and high yields are often encouraged by abundant soil moisture from rains, warm springs, and moderate summer temperatures.

PLANT VIGOR

Prior over grazing or adverse weather conditions may reduce desirable plant vigor. Indicators of good plant vigor are abundant new tillers or rhizomes, rapid re-growth, and an appropriate amount of plant material remaining unused at the end of the season. When vigor is low, reduced stocking rate can encourage renewal of plant health.

LIVESTOCK DISTRIBUTION

Uniform grazing should be encouraged throughout the grazing area. When this is not possible, stocking rates should be reduced proportionately to the areas avoided or inaccessible to the livestock.

FORAGE INTAKE

Forage intake changes very little for a group of livestock during a grazing season (except when large weight changes occur) so stocking rate adjustments are not needed. However, environmental stress, forage quality, and previous nutrition of the animal may influence level of forage consumption by livestock.

Insects, rodents, game animals, and other herbivores also consume forage and may alter the amount available to livestock at certain times of the season.

Overstocking and overgrazing leads to a reduction in palatable plant species and an increase in less desirable plants. Overuse also means that livestock must forage for longer periods of time to meet their needs.

Increasing grazing time by two hours per day will lead to significant reductions in cattle gain. Therefore plan and monitor your pasture routinely.