Forage Grazing Quality: Balancing Nutritive Value & Quantity

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Grazing management is the art and science of balancing the quantity of forage offered with the nutritive value desired at grazing time, and doing it in a manner that will allow us to repeat the grazing cycles over time. The compromise between quality and quantity will be determined mainly by the species of forage present, the stage of maturity at grazing, and stubble height management.
Three main factors to be aware when balancing pasture quality and quantity:

Pasture with a forage blend (different grasses and clovers). Good persistence, ready to be grazed in a grass-fed beef operation in NE Wisconsin during early summer.

- **Botanical composition** of the pasture will determine quality potential of the forage offered. The seed market offers a variety of forage mixes from grass-only to those with legume additions fitting specific needs.

  Grass-only mixes are ideal for beef or horse pastures where excellent palatability, fiber quality, and nutritive value can be achieved with grasses (where the additional protein or digestibility alfalfa and clover can provide are not needed). Some of these mixtures may include a few or many different grasses in variable percentages. Typical grasses for the Upper Midwest include Kentucky bluegrass, bromegrass, orchardgrass, tall fescue, meadow fescue, and ryegrasses.

  The addition of legumes into grass mixes has the potential to meet the expectations of farmers who have high-performing animals and require high-nutritive-value feed, containing readily available carbohydrates, higher protein, and digestible fiber. Typical grass-legume mixtures include any combination of alfalfa; red, white, and alsike clovers; plus grasses like annual or perennial ryegrass, orchardgrass, Kentucky bluegrass, timothy, and festuloliums. The choice of legumes and grasses will be dictated mainly, but not exclusively, by the drainage of the soil, soil pH, cold tolerance, and grazing tolerance.

  Do choose your forage to match the nutritional needs of your animals.

  Do not plant forages without considering your soil and environment characteristics.

- **Maturity or stage of growth at which pastures are grazed** is the next factor, after species, impacting forage quality and quantity. As the grasses or legumes mature, the amount or quantity of forage will increase but quality of the forage will gradually decrease. Grazing pastures in a vegetative state, pre-bloom, or at boot stage will be of the highest quality. However, as flowering stems appear, a decline in quality will take place. This drop in nutritive value is associated with an increase in the fiber component in the individual cells of the forage plant, an increase in the number of stems over leaves, and the migration of nutrients toward reproductive structures such as seeds. The rate of quality decline tends to be quicker in warm-season vs. cool-season forages.

Do graze your forage at the right stage of maturity to capture the most quality without affecting the recovery of pasture plants.

Do not graze overly mature grasses or legumes if you need a high-quality diet.

- **Grazing stubble height** is a third factor affecting the balance between quality and quantity. The lower the pasture is grazed the higher the amount of forage being consumed and the higher the stocking rate which can be kept. However, an important consideration when grazing is the grazing tolerance of the species in the pasture mix. A good compromise in stubble height should be used in mixed-species pastures.

  While keeping higher stocking rates, with possibly added gain per acre, the quality of intake per bite decreases. When grazing the same area with a higher number of animals, the opportunity for selection is diminished and the overall intake quality drops.

  Another factor to consider when grazing with higher stocking rates is the increased possibility of overgrazing, compromising the recovery of the forage. For example, forage mixes with legumes such as alfalfa and red clover cannot tolerate frequent, close grazing. They require a well-designed rotational stocking system with a sufficient rest period guaranteeing a conservative residual height and recovery of the forage.

  Do graze to the appropriate stubble height recommended for the specific grass or legume, or compromise on a stubble height for the pasture mix.

  Do not overgraze, as plant reserves may be compromised and can affect the long-term persistence of the pasture.

Many other factors can be discussed, such as pasture fertilization, control of pests, etc. However, these three are the key factors for keeping a balance between forage nutritive value and quantity in the pasture for the highest animal performance (beef, milk, wool, or horse performance) and persistence of the pasture.