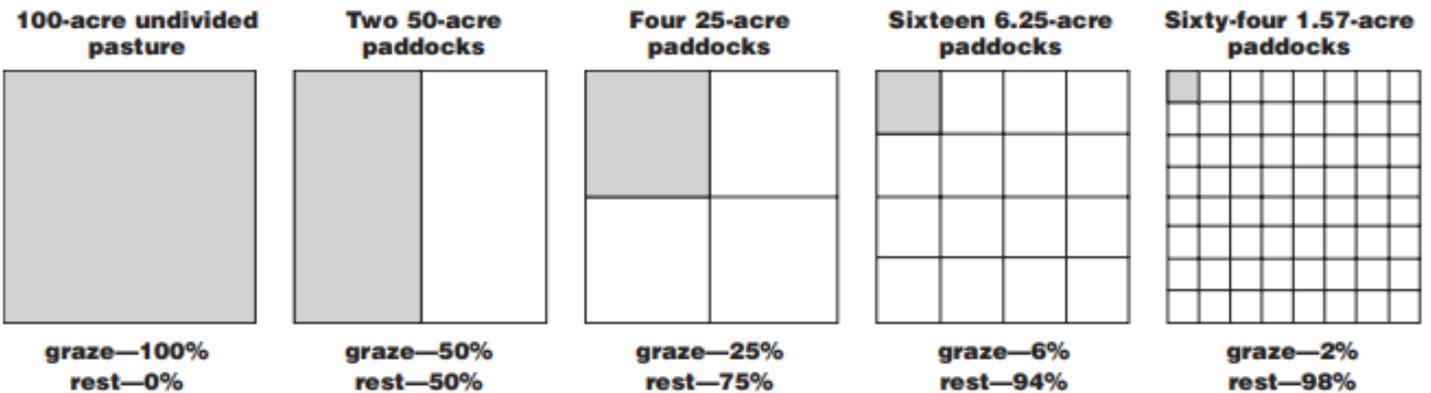


Rotational Grazing

More than one quarter of the Midwest's agricultural land is in some form of pasture. Rotational grazing is where one part of the pasture is grazed at a time, while the remainder pastures "rest". Resting grazed paddocks allows forage plants to renew energy reserves, rebuild vigor, deepen their roots system, and give long-term maximum production. Below is the relationship between number of paddock and rest period per acre.



For optimum production, pastures should be grazed about a week before the grass heads out (goes to seed) or when the legume is in the early or mid-bud stage. The rest period is closely related to seasonal forage growth:

- Legumes such as alfalfa, birdsfoot trefoil, and clover need rest periods of about 3 to 4 weeks throughout the season.
- Cool-season grasses such as Kentucky bluegrass, ryegrass, orchardgrass, or timothy needs as little as 2 weeks of rest during cool weather and 5 to 7 weeks during hot weather.
- Grass-legume mixes should be grazed when the grass reaches the ideal height.
- Warm-season grasses, such as sorghum/sudan or big bluestem, need to rest for 5 to 6 weeks during cool weather and about 3 weeks during hot weather.

The elements of grazing to control are timing and intensity of grazing. This means controlling the numbers of animals and how long they are in a pasture. Higher stocking densities for short periods helps to build soil organic matter and develops high productive, dense, resilient pastures.



Forage quality and nutrition

Ruminants, such as cattle, sheep, and goats, are “natural grazers” that have the ability to digest and metabolize cellulose, or plant fiber, and ferment it to form the volatile fatty acids and microbial proteins that the animal can then digest and use. Because of their efficient digestive system, ruminants can usually obtain most of the nutrients and energy needed for plant growth and production from good quality pasture alone. Forage quality of the pasture can be accurately determined by the following factors:

- forage intake (determined by palatability, temperature, dietary energy and fiber content, etc.).
- forage diversity (mix of grasses and legume).
- forage quantity, availability, and density.
- appropriate supplementation (energy or protein), when necessary.
- clean, fresh water offered at all times.

Nutrition content of forages varies with plant maturity. As the plant matures, it shunts sugars and proteins to the reproductive centers of the plant, namely the seed (in the case of annuals) and the roots (in the case of perennials).

Plant maturity results in more fibrous, and less digestible, leaves and stems. Various factors contribute to plant maturity and forage quality:

- length of growing season (plants mature faster in shorter growing seasons).
- moisture availability (moisture stress reduces photosynthetic activity and initiates dormancy).
- pasture plant species composition (some species remain vegetative longer than others).
- the grazing system.

Controlled defoliation from grazing and adequate rest are crucial for plants to remain vegetative, and therefore more nutritious, during the growing season. Having great management and forage quality has many benefits to the animal, environment, and people. Products from grass-finished livestock are higher in omega-3 fatty acids and conjugated linoleic acid than conventionally raised counterparts. Additionally, these products may reduce cholesterol. Grazing animals is a very efficient way of converting otherwise non-digestible energy into forms available for human use: milk, meat, wool, hide, and other fibers.

Seven Principles of Ruminant Nutrition

1. Ruminants are adapted to use forage because of microbes in their rumen.
2. To maintain ruminant health and productivity, feed the rumen microbes, which in turn will feed the ruminant.
3. Ruminant nutritional needs change depending on age, stage of production, and weather.
4. Adequate quantities of green forage can supply most – if not all- the energy and protein a ruminant need.
5. Forage nutritional composition changes depending on plant maturity, species, season, moisture, and grazing system.
6. Supplementation may be necessary when grass is short, too mature, dormant, or if animal needs require it (i.e., high-producing dairy animals).
7. Excessive supplementation may reduce the ability of the rumen microbes to use forage.