



Cattle Producer's Handbook

Range and Pasture Section

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Designing Your Grazing System

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A grazing system is a particular way of managing the interactions between plants, soils, and grazing animals. If you graze cattle, you already have a grazing system of some kind. As you begin to design or redesign your grazing system, remember that any grazing management problem usually has many possible solutions and very few things you can do are “right” or “wrong.” Most of all, remember that no one grazing system is “best.”

Most grazing management problems can be solved by reducing them to a formula of simple fundamentals or principles. To be successful, you will need to creatively combine these principles into a grazing plan designed specifically for your operation's unique circumstances. **Your** grazing system will be your particular way of managing your plants, soils, and grazing cattle.

Grazing Management Principles

Timing of Grazing: Avoid repeated grazing during critical stages of plant growth. The most critical stages are when plants are initiating new growth. This includes new growth in the spring or fall and midseason regrowth after grazing. New plant growth requires energy from the plant, and the plant needs a chance to replenish the energy used. To produce energy, the plants need ungrazed leaf tissue. Also, avoid grazing when soil moisture is too high and soils are more susceptible to trampling damage.

Frequency of Grazing: Avoid grazing too often during a single growing season. If given an opportunity to regrow and replenish its energy stores, a plant can be grazed several times during one growing season. If grazing is too infrequent, some plants will become “choked” by too much dead material, and subsequent plant growth will be restricted. Too-long ungrazed periods will also cause the forage's nutritional quality to decline.

Severity of Grazing: Avoid removing too much of a plant's leaf area. Leaves are the main sites of energy production for the plant. If too little leaf area remains

after grazing, the plant will be unable to regrow and replenish its energy reserves. Also, leave enough plant material to hold the soil in place and to protect the plant's roots and stem bases from excessive cold or heat.

Season of Grazing: Avoid grazing an area at the same time of year, year after year. Some plants can cope with this better than others (e.g., crested wheatgrass), but varying the season of grazing from year to year is recommended for most kinds of plants. If altering the grazing season is not possible, you may need to reduce the severity or the frequency of grazing. Grazing during winter dormancy may help reduce buildup of dead plant material.

Type of Cattle: Graze the type of cattle best matched with the kind of forage available and its nutritional quality. For example, dormant forage will not meet the high nutrient requirements of growing yearlings. You should also match the type of cattle to your area's topography. Cows with calves, for example, usually will not use steep topography as fully as dry cows or yearlings. Use the type of cattle accustomed to your environment. Cattle raised on flat, open grasslands usually do not adapt well when relocated to steep or timbered grazing lands. An animal's previous grazing experience should also be considered when purchasing new animals. This is because cattle unfamiliar with the kind of plants in a pasture usually will not perform as well as cattle that previously have grazed similar forages.

Number of Cattle: This is probably the most important decision with any grazing system. Too many animals will cause cattle performance to decline, but the soil and vegetation will have deteriorated **before** animal performance begins to suffer. Most grazing systems that include strategically timed ungrazed periods during the growing season will, over time, support more animals than grazing systems where pastures are grazed continuously throughout the growing season.

Cattle Distribution: Prevent large numbers of cattle from congregating, especially on sensitive areas such as along streams. If cattle are causing soil or plant damage, it is often a problem of poor animal distribution rather than too many animals.

Grazing Selectivity: Cattle make choices and select those plant species and plant parts they find the least objectionable. Grazing systems can affect the extent to which cattle are allowed to graze selectively. Maximum individual animal performance will result when cattle are allowed to be the most selective in choosing their forage. Individual animal performance will drop below maximum whenever cattle are forced to graze less selectively. Non-selective grazing is appropriate when the objective is to prevent plants from becoming too coarse or “wolfy.” Care should be used with the non-selective approach because forced grazing of unpalatable plants usually first results in heavy grazing of any palatable plants in the pasture.

Additional Considerations

Number of Pastures: More pastures give you more flexibility and greater opportunity to control the timing, frequency, severity, and season of grazing. The optimal number of pastures will depend upon site conditions and your objectives. Good grazing management can occur under one-pasture management, but your ability to control grazing use is limited. Consequently, one-pasture management usually necessitates fewer animals.

Size of Pastures: Non-selective grazing usually requires small pastures grazed for short time periods with a high number of animals. If maximum selectivity is the goal, larger pastures with fewer animals are needed. Optimal pasture size will vary greatly. Extensively managed rangeland pastures may reach 10,000 acres or more in size, whereas intensively managed improved pastures may encompass 5 acres or less. The larger the pasture, the less control you will have over animal distribution.

Movement of Cattle Between Pastures: If cattle are moved infrequently, their performance will usually suffer when the herd is moved to a new pasture because the cattle will need time to become accustomed to their new surroundings. If cattle are moved more frequently between pastures, they usually become accustomed to the routine and need less time to adjust to new pastures. Movement between pastures can also depress animal gains when calves are separated from their dams. Thus, movements during calving season should be avoided. Whenever they are moved between pastures, animals should be jostled as little as possible.

Tailor System to Objectives: Design your grazing system with a clear set of objectives in mind. Don't copy someone else's system and then try to change your objectives to make them fit the grazing system. Your grazing system should be unique, reflecting your particular set of objectives and your unique set of economic, social, and environmental conditions.

Judge System by Objectives: Even the most well-developed grazing plan will continually require some adjustments. These adjustments should be based on how well your grazing system is meeting your objectives. As your objectives change, you'll need to reevaluate and probably adjust your grazing system.

Summary Observations

1. Intensive rotational grazing systems that use many pastures per herd do not magically eliminate the need to practice all available management skills. In fact, these skills become even more important as your level of grazing management intensifies.
2. Cattle generally perform better under less intensive grazing systems, whereas forage plants are usually healthier under more intensive grazing systems.
3. Intensive grazing systems will usually improve unsatisfactory soil and vegetative conditions, but they usually will not greatly improve soil and vegetation that's already in satisfactory condition.
4. Because the conditions and objectives of your operation are unique, the economic outcome of a new grazing system can't be precisely known until after it is implemented. Therefore, be cautious when considering economic projections of changes to your grazing system.
5. Good grazing systems develop conditions for possible soil and vegetation improvement when favorable weather conditions occur. Several years may pass without improvement, but improvement will not occur unless plants and soil are in good health and capable of responding.
6. Flexibility is critical. Manage your pastures and animals according to the varying plant, animal, and economic conditions that exist, not according to specific calendar dates or pasture rotation schedules.
7. You are the key to success. Take advantage of any assistance offered by neighbors, consultants, or extension personnel, but don't let anyone else design your grazing system. If someone else designs your grazing system, undoubtedly it will fail. Remember that it's **your** grazing system and it's up to **you** to make it work.



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