

Colorado GLCI

Technical Note 2

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Colorado Grazing Lands Conservation Initiative

Prescribed Grazing

What is Prescribed Grazing?

Prescribed grazing is managed grazing that fosters recovery opportunity of the key forage plants following each grazing event and that incorporates appropriate stocking rates and duration of use.

Grazing Management Principle 1—A healthy root system is essential to the growth and survival of forage grasses

Root systems firmly anchor the plant and build organic matter in the soil helping to prevent erosion. Roots will grow deeper into the soil following infiltrated water as it percolates through the soil. This rooting allows for the greatest availability and use of water. When the plants are grazed, especially when grazed heavily, the rooting depth recedes rapidly and occupies a small volume of the soil. This limits the moisture availability for plant growth. Approximately, 30-50% of the root system of grass plant dies and must be replaced each year. The energy used to rebuild the root system must come from photosynthesis occurring in the leaves.

The leaves produce the carbohydrates used by the plant to support maintenance and growth. Because leaves can be easily monitored, their condition and appearance can be used to guide grazing management practices.

Grazing Management Principle 2—Proper grazing use means take half and leave half by weight of the key forage plants in each pasture.

To be effective, all grazing management must be based on the needs and growth patterns of plants. Because of this, understanding the process and pattern of grass growth is necessary. Knowing this will pay big dividends in terms of maintaining your forage resource and improving animal performance.

Grazing impacts individual plants in three ways: intensity, frequency, and opportunity for recovery.

Grazing Management Principle 3—Repeated severe defoliation of the grass plants in a pasture can be managed by reducing the duration of grazing or animal numbers

Intensity: To avoid grazing damage to plants during the active growth period, managers must exercise control over grazing intensity. Intensity refers to the amount of leaves removed versus those remaining. The chance of removing grass growth points is greater as grazing intensity increases, because more leaf tissue is used. The greater the intensity, the greater is the impact on the plant's capability to produce and store energy, as well as, to recover from the defoliation. When a grass plant is grazed, its root growth slows or ceases for a time while the plant's leaves regrow. The net result is much reduced energy storage and plants that are much less capable of dealing with stress from external factors, like drought.

Frequency: The duration of grazing use in a pasture regulates the number of times or frequency that a preferred plant is grazed. As the frequency of grazing increases the impact on the plant increases. When plants are grazed three or more times during a growing season there is a quite negative effect on the plants causing them to be less vigorous and to store less energy. When the plant suffers several grazing events back-to-back, root growth does not resume and carbohydrate reserves are used to restore lost leaves. The combination of reduced carbohydrate productions and lack of root growth will eventually weaken the plant to the point that it is no longer competitive with its neighbors. This allows for lower quality forage plants and noxious weeds to increase or invade. The basis of good grazing management on rangelands is a planned grazing system.

Grazing Management Principle 4—Prescribed grazing avoids repeated, severe defoliation of a grass plant and allows for planned recovery periods.

The purpose of prescribed grazing is to allow plants to recover between grazing events. The best grazing management is tailored to the individual ranch. Several grazing methods can be applied to rangelands. The key is to put the stock in one pasture, making animal management easier and rotating among as many pastures as possible.

Livestock should be moved with as little stress as possible so that individual animal performance is not jeopardized. Facilitative practices may be necessary to be able to adopt

prescribed grazing management. These practices include fencing and various methods of developing livestock water.

The greater number of pastures included in the rotation, the shorter the grazing periods while still providing the optimal recovery time for the grazed plants.

Grazing Management Principle 5—Season of grazing should be varied each year so that periodic defoliation of key forage grasses does not occur at the same time each year.

Opportunity for Recovery: Grazing season refers to the period during the year when a plant is grazed. The plan for regrowth and recovery is assuring the plant that adequate growing conditions are available to it after the grazing has been removed. This means there must be adequate moisture and temperatures within the range for growth of the plant. This is determined by the timing of grazing use. When plants are in the vegetative growth period (before flowering is initiated) they normally have adequate moisture to recover from defoliation. Therefore planning the grazing periods so that pastures grazed during this period receives appropriate time to recover is

important. Pastures deferred until after this seed set are not affected by regrow because they have stored their nutrients (energy reserves) before the grazing occurred. The greatest potential for damaging plants by grazing occurs during the critical growth period from floral initiation to seed set. During the critical growth period, grass plants are most vulnerable to grazing because the growing points are elevated and the plant's energy reserves are being laid down during this period. Grazing that removes an excessive amount of leaves reduces the plant's ability to capture sunlight and convert it to energy for storage. Severe grazing at this growth stage not only reduces energy storage but can remove growing points, resulting in that complete stoppage of plant growth.

Prescribed grazing will improve forage harvest efficiency. Animals will graze a wider variety of plants throughout the pasture. This may require splitting large pastures into smaller units. These units are rotated to vary the season of use. Rotation methods should be designed so that each pasture receives deferment during the critical growth period of the key grass plants as illustrated in the charts below.

