

Pasture Management for Late Summer & Early Fall

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Drought conditions for most areas last year left many pastures and hayfields in rough shape going into this spring. Perennial vegetation was severely affected. In many grassland areas, we are seeing vegetation species (forbs, grass-like, brush species) crop up in large quantities. Many regular non-grass species have come on strong this spring. Although most areas have had a great season so far, perennial grass was so severely compromised last year, its ability to compete with non-grass species has been weakened. Pasture management in late summer and early fall will be critical in maintaining grass resources. Overuse in the latter part of the growing season is a major concern for farmers as perennial grass species are still recovering from drought. Overuse of pastures is generally a result of over-stocking, poor growing conditions or both. Oftentimes, cattle are left on pasture too long, often to avoid feeding cows early in the year due to cost and feed supply issues. It may also be impractical to bring cows home in August/September due to time constraints, space restrictions, etc. It may be difficult to discern when pastures are used up. The cow is generally a poor indicator of grass conditions. The lag time between poor grass conditions and thin cows can be a month or more, resulting in light weaning weights on calves, thin cows going into winter, and beaten up pastures. Attempts to stretch failing grass supplies into the fall, done intentionally or otherwise, can have deleterious impacts on grass productivity in subsequent years.

Figure 1. Simple 4x4' enclosure. Photo: Noble Foundation.



Grass utilization. Create a system of monitoring grass conditions over the summer to determine quality and quantity at specific points during the grazing season. This helps manage forage shortfalls toward the end of the grazing season. Monitoring efforts should focus on determining actual utilization of key forage species throughout the grazing season – those the cattle focus on the most. In a pasture, there are usually many different species of grasses and forbs making up the forage base. Cows, however, can be very selective in what they eat. Generally, forage species, maturity, and/or quality determines what she eats. It is important to monitor what cows are actually eating and how much. The most accurate method of determining grazing utilization of key forage species is through the use of grazing enclosures (Figure 1). Place them prior to grazing. They must be sturdy so cattle can't wreck them or get access to the grass. They provide the opportunity to compare grass growth inside the enclosure (ungrazed) to grass residual outside (grazed) by measuring grass height to determine actual utilization. Grass utilization equation:

$$\frac{(\text{height inside cage}) - (\text{height outside cage})}{\text{height inside cage}}$$

Grass utilization should be maintained at ~70% for optimum harvest by cattle, leaving enough so forage species can recover to survive the winter and begin regrowth next spring. Utilization >70% can lead to extensive winterkill in many of the key forage species; most notably orchardgrass and timothy.

Stubble height of key forage species. Remaining stubble height following fall grazing is a key indicator. When average height reaches a critical stubble height, cattle should be removed for plant regrowth; allowing forage species to store nutrients to survive winter and begin growth the following spring.

Frequently assess stubble heights of key forage species in areas noticeably preferred by cattle and periodically measure to determine when optimum heights have been reached. Generally, taking 20-30 measurements (Figure 2) and calculating the average height will provide an accurate representation of overall grass stubble height. An average stubble height of 4-6" (~70% utilization) should remain in the fall.

Figure 2. Measuring grass stubble height following grazing. Photo: Troy Bishopp.



Residual cover. Biologically, residual cover is a critical component of long-term pasture productivity. It is simply the remaining leaf and stem material of grass and forb species either standing or lying on the ground as litter covering the soil. Residual

cover serves several critical functions for the grassland ecosystem whether in natural grasslands or agronomic pastures. Most notably, it regulates soil surface temperature. In July/August, bare soil can be as much as 50°F warmer than those covered with some level of plant residual.

Residual cover captures rainfall at the soil surface, preventing runoff. Research has demonstrated 90% residual cover on a silty clay loam soil will increase precipitation available to plant roots by as much as 70%, compared to 50% residual cover.

Monitoring residual cover throughout the grazing season is important to maintain critical biological functions of the grass system. Figure 3 demonstrates the process of visually measuring residual cover using a one-half meter square quadrat. The objective is to determine the percentage of the quadrat that is bare soil and the percentage covered by some form of residual plant material. Visually estimating 20-30 random locations in a pasture using a quadrat and taking an average will give a reasonably accurate estimate of residual cover. Strive to maintain 75% residual cover or more ($\leq 25\%$ bare soil) to optimize grass utilization by grazing livestock and maintain critical ecosystem function. Figure 3 is ~65% residual cover and 35% bare soil.

Figure 3. Using a quadrat to determine visual cover estimates. Photo: Robert Fears.



Weed management. The typical response to visual weed encroachment is to spray herbicides. You should evaluate the seriousness of the weed infestation before determining the course of action. While some herbicide control may be necessary, in many cases proper grazing management can do more to fix these issues than herbicides. Avoiding overuse of pastures this fall will create grasses better at competing for resources, naturally crowding out unwanted species, or reducing their presence to manageable levels. Areas overtaken by unwanted species can then be spot-sprayed, allowing perennial grasses back into those spaces to naturally keep the unwanted species in check.

Pasture management in late summer and early fall of the year remains a critical component of maintaining grass resources for longevity and productivity. Managing grass utilization, stubble heights at the end of the grazing season, and residual cover will give key forage species the optimum conditions to store energy and nutrients for winter survival and early green-up next spring.