Pasture Management for Late Summer & Fall

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Although most areas have had a tremendous grass-growing season, pasture management in late summer and early fall remains a critical component of maintaining grass resources. Over-use late in the season is generally a result of over-stocking and/or poor growing conditions. Often producers leave cattle on pasture too long, wanting to avoid feeding early in the year due to cost and feed supply issues. Additionally, it may be impractical to bring cows home in August or September due to time constraints, space restrictions, or other challenges. It may be difficult to discern when pastures are used up. The cow has been used as the indicator of grass production, but this can be problematic and lead to a myriad of problems. Lag-time between poor grass conditions and thin cows can be a month or more, with results being calf light weaning weights, thin cows going into winter, and beat up pastures. Attempts to stretch failing grass supplies into the fall can have deleterious impacts on grass productivity in subsequent years.

Grass Utilization

Photo 1. Grazing exclosure. *Photo credit: Noble Foundation.*

A good manager will create a system of monitoring summer grass conditions to determine quality and quantity at specific points during the grazing season and can be proactive in managing any forage short-falls occuring toward the end of the season. Grass monitoring efforts generally focus on determining utilization of key forage species throughout the season. Key species are those that cattle tend to focus on most in a grazing unit. In a pasture, there are usually many different grass species and forbs making up the available forage base. Cows can be very selective in what they eat; species, maturity, and/or quality determine what they eat. Therefore, it is important to monitor what cows actually eat. The most accurate method of determining utilization of key species is through the use of grazing exclosures. Photo 1 shows a simple exclosure made from a cut-up wire panel fashioned into a 4´x4´ square placed in a pasture prior to grazing. It must be sturdy enough that cattle cannot wreck it or get access to the grass inside. A grazing exclosure provides the opportunity to compare grass growth inside (ungrazed) to grass residual outside (grazed) by measuring grass height to determine actual utilization. The equation to calculate utilization is as follows:

$$\text{Grass utilization} = \frac{(\text{grass height inside cage}) - (\text{grass height outside cage})}{\text{Grass height inside cage}}$$

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

Stubble Height of Key Forage Species

Remaining stubble height following grazing in the fall is a key indicator of the plant's ability to store nutrients, survive winter, and green up next spring. When the average height reaches a critical stubble height, cattle should be removed so plants have an opportunity to produce regrowth, allowing forage species to store nutrients to survive winter, and begin growth the following spring.

Cows do not graze with the evenness of a lawn mower. Left to their own devices, they are very selective in what they eat, leaving some areas grubbed to the ground and other areas mostly untouched. The grazing manager wants to avoid this. The repeated grubbing to the ground will eventually kill out the desirable species, leaving only undesirable species, often resulting in declining pasture production over time.

The grazing manager should frequently assess stubble heights of key species in areas noticeably preferred by cattle and periodically measure height to determine when optimum stubble heights have been reached. In most situations, taking 20-30 grass-height measurements of the key forage species in a pasture, as demonstrated in Photo 2, and calculating the average height will give an accurate representation of stubble height. An average stubble height of 4-6˝ should remain in the fall for key forage species in our region, corresponding to ~70% utilization.

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

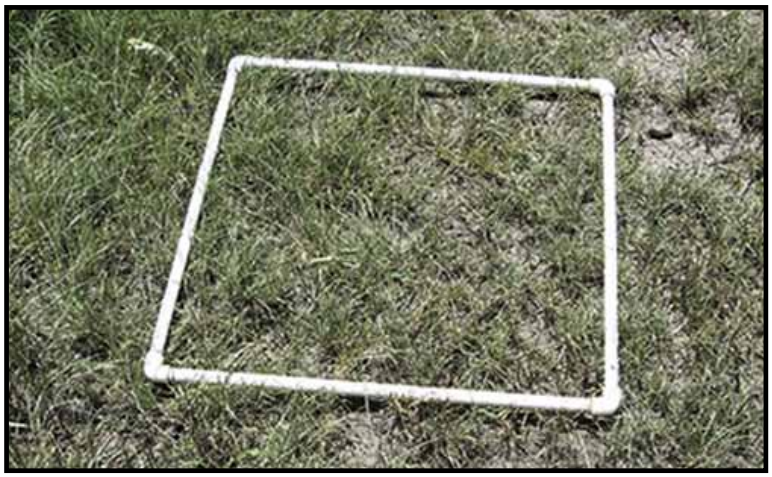
Residual Cover

Biologically, residual cover is a critical component of long-term pasture productivity. Residual cover is 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, residual cover regulates temperature at the soil surface. On a warm sunny day in July and August, bare soil can be as much as 50° warmer than a soil surface covered with some level of plant residual.

Furthermore, residual cover captures rainfall at the soil surface, keeping it from running off. Research has shown that 90% residual cover on a silty clay loam soil increases precipitation actually 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. Photo 3 demonstrates the process of visually measuring residual cover using a one-half meter square quadrat. The objective is to determine the percentage of bare soil and soil covered by some form of residual plant material. Visually estimating 20-30 random locations using a quadrat and taking an average will give a reasonably accurate estimate of residual cover. Grazing managers should maintain 75% residual cover or more (25% bare soil or less) to optimize grass utilization by livestock and maintain critical ecosystem function.

Photo 3. Use a quadrat to determine visual cover estimates. 65% residual cover and 35% bare soil shown here. *Photo credit: Robert Fears.*



Pasture management in late summer and early fall 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.