

Flexible Grazing and Livestock Management Systems for Good and Bad Times

Professor Michael A. Smith and Associate Professor James W. Waggoner Jr.
Rangeland management extension specialists
Department of Renewable Resources • University of Wyoming

The dilemma facing most livestock producers is how to maintain as much stability in their operation as possible in the face of yearly fluctuations in the amount of forage produced and prices received for livestock. Most operators need a production system with the flexibility to respond to fluctuations in forage amounts and quality while maintaining the stability inherent in a base-breeding herd. This might require that a portion of their animal herd be acquired or retained to take advantage of times when forage supplies are ample.

Many typical producers select the least flexible, most stable herd system – a cow herd marketing weanling calves. In addition, mid- to late-winter calving seasons have been the norm for many years although a tendency toward calving in early spring is emerging. Avoiding the risk of frequent destocking in below average years of forage production requires typical producers to stock at a conservative level.

A rangeland forage resource should be used with a sustainable grazing strategy that optimizes nutrient yields while minimizing any adverse impacts of grazing to plant and range health in both good and drought years. A central feature of this strategy is to balance the nutrient needs of a cow herd with the seasonal cycle of nutrients available in forages. Rangeland health and optimal nutrient harvest can be simultaneously maintained or enhanced by the intense control of residual forage amounts during the spring season when forage quality is highest but potential for damage to grasses by overuse is greatest.

Meanwhile, more grazing can be encouraged during other seasons including winter because there is less potential for plant damage and lower animal nutrient requirements during these periods. Repeated use of the same area year-to-year should be avoided.

Physiologically sensitive periods for grazing grasses occur during their seed stalk elongation in spring. Maintaining adequate residual plant material and avoiding repeated seasonal grazing during this period prevents negative impacts to the vegetation community. Grazing during other seasons primarily impacts plant residues needed to protect the soil surface from erosion, to provide forage for other grazers, and to continue to supply adequate forage for livestock. Using residual forage height or amount as a target to determine when to move livestock will assure adequate residue for plant health, prevent erosion, and provide forage for other grazers and livestock.

The most effective control of residual forage amounts is through grazing the highest density of livestock allowed by the water available and a manager's livestock-handling skills in the shortest amount of time for an area. High stock density encourages more uniform use over a grazed area, offers a heightened awareness of the amount of residual forage, and reveals the need to move livestock to other areas to minimize the time before target residual amounts are





reached. Moving or regulating available water can be an effective method of relocating livestock as can using low stress livestock-handling techniques in areas where open waters are readily available.

Grazing as long as possible during the year and minimizing hay feeding effectively lowers the impact of grazing on rangeland systems by increasing dormant-season grazing. More grazing, less hay production, and less supplemental feed minimize the operating costs of a ranch and the risks associated with adverse markets. The greatest cost minimization can be obtained by matching the seasonal nutritional needs of a livestock herd with the quality of forages available in each season. To add flexibility in responding to drought, producers should maintain part of their herds in easily sold components such as stockers. This combination can optimize the use of green forages by growing animals.

The seasonal nutritional needs of breeding livestock rise sharply in late pregnancy, are maintained at a high level for about six weeks, and decline slowly through the remainder of the year to a minimum in the middle three months of pregnancy. Since available nutrients on the plains and foothills in Wyoming peak between mid-May and mid-June, the synchronization of cow nutrient needs with forage nutrients suggests starting the calving season in mid-May to June depending on elevation. This timing provides green feed before calving to improve the condition of cows and maximize nutrient availability after calving to meet the nutritional demands of lactation before forage quality begins to decline. Grazing irrigated pastures can extend the availability of higher quality forage. The reduced length of time before conventional weaning dates and the declining forage quality base over this period normally result in lighter-weight calves. However, producers who retain calves through to yearling age will find that compensatory growth normally results in early or late-born calves weighing nearly the same by the end of the second growing season.

Producers who retain ownership of weanlings through yearling age maintain an option to sell earlier in response to market conditions or drought periods when forage supplies are low. Additional tools that can assist an operator in mitigating or accommodating bad times such as drought without compromising the integrity of

the base herd include developing plans for hauling or piping water where needed, identifying target dates for decisions on expected forage range production, weaning calves early, culling earlier and more deeply, not keeping replacements, and finding alternative economical forage supplies. Ranch systems based on pasture cattle or gaming the cull cow market also provide options for flexible stocking depending on forage supplies.

Scenarios that illustrate grazing and livestock production systems with many of the above characteristics follow:

1. Eastern Wyoming – A year-round rangeland grazing, cow/calf operation is rotated through about 12 pastures. The major limitation to range use is a reliance on precipitation-filled ponds and distribution of water supplies. While pipelines are being developed, hauling water and adequate mid-summer rain are very helpful in filling small reservoirs that are usually dry. When started in April, the calving season is a little too early to avoid occasional spring storms, but calving does occur on the range.
Supplemental protein/energy is provided in lick tubs during winter. These tubs are moved before refilling, thus encouraging good grazing distribution in winter pastures and reducing the impact to riparian areas without additional herding. Conservative stocking levels and additional water provide resilience in the face of drought.
2. Bighorn Basin – A cow/calf operation with calving generally in May and the calving season and winter grazing taking place on a salt desert shrub rangeland allotment. Animals are moved through the allotment primarily by regulating water availability. Hauled water, wells, and tanks on pipelines are used. Repeated seasonal spring grazing on the same area is avoided. Cattle are grazed on irrigated pasture after calving through summer. Reliable water supplies and conservative stocking levels lessen the impact of drought on the base herd stocking level.
3. West-central Wyoming – An otherwise conventionally managed cow/calf/yearling operation that estimates future forage availability in the spring and retains yearlings through their second summer if predicted forage growth is good. However, yearlings are sold prior to the growing season if summer forages are anticipated to be in short supply.