

# Improving Grazing Distribution

Strategies offered to encourage sustainable grazing.

by **Troy Smith**, field editor



PHOTO BY SHAUNA ROSE HERMEL

If improving the health and productivity of grazing lands is your goal, you'll want to think about ways to influence grazing distribution. Along with determining appropriate stocking rates, attention to livestock grazing distribution is an important aspect of sustainable grazing management. Overgrazing and subsequent degradation of areas of range or pasture often result from poor grazing distribution. The land suffers long-term, as does producer profitability.

Grazing distribution refers to the propensity of livestock to graze all across the acreage constituting a particular grazing resource — or not. It's a fact that grazing animals, such as cattle, don't necessarily move across the landscape utilizing available forage uniformly. After all, cattle graze selectively, and are apt to concentrate in areas

offering higher-quality or quantity of forage.

Cattle also prefer to go where the going is easiest, avoiding rough, rocky or steep portions of a landscape, and favoring those areas of gentle terrain nearest to watering sites. Distance between watering sites is one of the most prevalent causes of poor grazing distribution, but the availability of shade or protection from wind also may influence cattle grazing patterns.

So, for reasons both physical and biological, cattle will choose to spend more time in some areas of the range or pasture, and less time in others. The preferred areas may be grazed too heavily. Others receive moderate grazing pressure and still other areas may be grazed only lightly, if at all. The ultimate consequence is low harvest efficiency for available forage.

## Physical fixes

According to Mitchell Stephenson, grazing resource managers can apply a variety of strategies for improving grazing distribution. A University of Nebraska range and forage scientist at the Panhandle Research and Extension Center near Scottsbluff, Stephenson says most methods used to influence grazing distribution rely on either changing certain attributes of the grazing resource (the pasture itself) or modification of grazing animal behavior.

Perhaps the most common strategies for changing pasture attributes involve fencing and placement of additional stock watering sites. Fencing can be used to limit cattle access to certain areas, allowing the manager to determine where and when certain areas will be grazed. Strategic fencing can also be used to decrease pasture size, allowing for management utilizing increased stock density.

Stephenson says creation of new stock



► **Right:** “This suggests that the heritability of grazing distribution may be as high as weaning weight heritability in beef cattle,” says Mitchell Stephenson, University of Nebraska range and forage scientist at the Panhandle Research and Extension Center near Scottsbluff.

watering sites often goes hand-in-hand with cross-fencing of large pastures to create smaller pastures or paddocks that can be incorporated in a rotational grazing system. Adding watering sites can also help increase grazing distribution in very large pastures managed under season-long grazing. Strategic placement of watering sites and limiting when water is available in specific areas within a landscape can influence where cattle graze without building additional fence.

### Season of use

Another way to change the attributes of a pasture is to change its season of use. It's simply a matter of changing the time frame during which cattle have access for grazing. Altering the season of use may improve the overall distribution in pastures that include areas with both high and low forage quality and variation in forage quantity.

“For example,” says Stephenson, “changing the season of grazing from late summer to early summer may improve grazing uniformity of pastures with both upland and subirrigated areas.”

Given access late in the growing season, cattle may shun the mature, dry vegetation found in upland areas and concentrate on the still-lush forage growing in subirrigated areas.

“Upland vegetation is still actively growing during early summer, and the disparity of forage quality between uplands and subirrigated areas may be lower, compared to later in the growing season,” adds Stephenson, noting that scheduling grazing of a pasture in late fall or winter, during some years, allows cattle access when forage quality is more uniform across the entire landscape and animals have less opportunity to be selective.

### Behavior modification

Other strategies for manipulating grazing distribution fall into the category of animal behavior modification. One of the most widely used methods is through placement of dietary supplements such that animals are attracted to underutilized areas by the supplement, and ultimately spend more time grazing nearby. Many producers have influenced grazing patterns by strategic placement of salt and mineral feeders.

According to Stephenson, research suggests that low-moisture block protein supplements may be the most effective attractants for manipulating grazing distribution. However, whereas salt and



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mineral typically do not represent an “added” expense, protein blocks probably would. That cost and the value of increased grazing distribution must be taken into account.

Stephenson says strategic placement of protein blocks may be a profitable practice to lengthen the grazing season during late summer or in the fall. Protein blocks can entice cattle to travel to underutilized areas that are farther from water, on steeper slopes or have less palatable vegetation. Cattle spend more time in these areas, grazing forage that otherwise might not be consumed. At the same time grazing pressure on riparian areas

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or other preferred sites is reduced. Protein blocks are less likely to be an enticement during the early part of the growing season, when forage is green and lush.

According to Stephenson, the use of attractants has been known to have long-term effects — actually influencing grazing patterns beyond their period of use. In other words, cattle enticed to graze certain areas because a supplement was present continued to return and graze these areas after the supplement was removed.

### Herding

The oldest tool for modifying grazing animal behavior is herding. In certain situations it still may be necessary to move

cattle, sheep or goats to and from specific sites to promote grazing of underutilized areas and prevent overutilization of sensitive sites, such as riparian areas. However, many producers view herding of cattle to increase grazing distribution too labor-intensive to be cost-effective.

Not all producers see it that way. Stephenson says there is increased interest in application of low-stress herding as advocated by the late Bud Williams and others of similar philosophy and ability in livestock handling. Practitioners use the “low-stress” approach to move a herd of animals to a desired location, settle the herd and have it remain in that vicinity until removed by the herder(s). Used alone or in

combination with salt/mineral supplements or protein blocks, low-stress handling is being used to keep cattle together as a herd grazing a desired location away from riparian areas or previously grazed areas without fences.

Where cattle choose to graze also may be influenced by genetics. Studies suggest that animals representing breeds developed at higher elevations, on steep terrain, are more apt to graze higher, steeper sites than animals representing breeds developed at lower elevations, on less challenging terrain. Even within herds, some cattle will venture farther from water and graze steeper slopes than others.

According to Stephenson, “Identification

of genotypic markers that correlate with phenotypic responses of cattle grazing distribution may provide options for genetic selection of cattle that better distribute themselves across a landscape.”

He cites a New Mexico study that combined genomics with global positioning system (GPS) tracking of grazing behaviors to identify markers of cattle that consistently utilized grazing sites located at higher elevations, on steeper slopes and farther from water than did their herdmates.

“Specific genetic markers accounted for as much as 24% of the phenotypic variation in cattle with greater (grazing) distribution characteristics,” states Stephenson.

He explains that one genetic marker found on certain chromosomes had previously been linked to locomotion, motivation and spatial memory. A combination of markers on five

different chromosomal regions explained 34% to 36% of terrain use.

“This suggests that the heritability of grazing distribution may be as high as weaning weight heritability in beef cattle,” adds Stephenson. “While more research is needed and is currently being conducted to verify results, grazing distribution may be a trait that could be identified and selected for in the future, through creation of a genomic-enhanced expected progeny difference (GE-EPD) value.”

Stephenson says producers should also ask themselves whether uniform grazing of every pasture during every grazing season is always the best option. Heterogeneity — the uneven distribution of vegetation or range condition — does play a role in some landscapes. Some degree of patchiness, or different degrees of forage utilization present

within the same pasture, may have value to wildlife.

“While healthy, sustainable environments are the goal, managing rangelands so that some small areas receive a higher degree of utilization, and as a result reduced range condition, may improve the overall diversity and health of a grassland ecosystem,” says Stephenson.

“With livestock grazing-distribution management methods,” he says, “different areas of a pasture can be targeted for greater or less grazing pressure to create these patches with varying levels of range condition and vegetation structure that are altered over time.”



**Editor's Note:** *Field Editor Troy Smith is a freelance writer and cattlemen from Sargent, Neb.*