Managing Livestock Grazing Distribution on South Dakota Rangelands

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Improving grazing distribution in pastures and on rangeland in South Dakota can increase utilization of the forage resource and animal performance. Managing proper grazing distribution is just one aspect of an overall grazing management plan.

Factors that affect livestock grazing distribution (Waller et al. 1980)

1. grazing habits of kind and class of livestock
2. placement of water developments
3. salt and mineral placement
4. palatability of forage
5. vegetation type
6. roughness of topography
7. location of shadow
8. fencing patterns
9. pasture size and shape
10. grazing system
11. stocking density
12. prevailing winds

Convenience areas

Livestock generally prefer to expend the least amount of energy possible. That makes them predictable in their grazing behavior. They will choose “convenience areas.”

Convenience areas are areas within a pasture or management unit that, because of their proximity to water, level terrain, and/or high quality forage, are preferred by grazing livestock. Given freedom of choice and/or the lack of sufficient enticement, livestock will overuse these convenience areas.

When stocking rates are applied to a management unit, it is assumed that livestock are evenly distributed across the pasture. In practice, this does not occur and convenience areas become overgrazed and less convenient areas are undergrazed. Poor grazing distribution is intensified by placing salt, mineral, and rubs near the water supply. The result is a pasture made up of both high range condition and low range condition areas.

Results of poor grazing distribution (Schacht et al. 1996)

1. poor forage use efficiency and lower animal production (per acre) because the management unit is underutilized
2. lowered range condition in sacrifice areas
3. erosion problems in heavily used areas

Proper management decisions can improve grazing distribution and increase both forage use efficiency and livestock performance.

Methods to improve livestock distribution (Schacht et al. 1996)

1. Entice grazing animals from areas of high forage use to areas of low forage use.

Manipulating livestock requirements can draw animals away from preferred areas to less convenient areas.

Water

Placement of water is probably the single most important factor affecting grazing distribution. Water requirements
of grazing animals must be considered when planning water developments.

Forage utilization decreases rapidly as the distance to water increases, even in level pastures. Animals will overuse sites near water locations rather than walk greater distances to abundant forage. Where forage production is high, cattle have a tendency to remain closer to water, and forage utilization declines substantially at 800 to 1,000 feet from water. Improved animal performance likely will justify the expense of water development on poorly watered pastures (Horn, 2005).

Topography will affect the spacing of water sources. Travel distance can vary from 3/4 to 1 mile on level terrain to 1/4 to 1/2 mile on rough terrain. A water source should be placed one per section to one per quarter section, depending on terrain. Water developments in closer proximity to each other may be justified for highly productive pastureland in the eastern part of the state.

Sacrifice areas around water sources will undoubtedly occur. The size of the sacrifice area can be kept to a minimum with proper management. Natural water supplies such as lakes, ponds, streams, and springs, and man-made developments such as wells, rural water taps, reservoirs, and dugouts should be fenced to control loafing around water sources.

Quality of the water must not be overlooked. Measures taken to prevent excessive fouling of water sources along with periodic cleaning of tanks should result in increased acceptability and use of water sources.

Periodically changing the accessibility of water locations improves distribution in a large pasture. Using wells or rural water taps in conjunction with temporary watering locations (dugouts) can help distribute livestock (Ohlenbush and Harner 2003).

Salt and mineral
Contrary to popular belief, livestock do not require water following normal consumption of salt and mineral. Therefore, salt and mineral tubs should be placed away from water sources to distribute livestock into seldom used areas.

Salting locations should be more than 1/4 mile from the water, and several scattered locations can be used in one pasture. Salt should be moved periodically when forage plants in the area have been properly utilized. Salt placement is potentially the most economical grazing distribution practice (Waller et al. 1980).

**Supplemental feeding**
When feeding supplemental hay or protein sources in winter or in the summer under drought conditions, rotating feeding areas among seldom used areas can improve forage utilization.

**Rubs and oils**
Rubs and oils may be used to attract livestock to areas that are otherwise avoided. If efficient use of rubs and oils does not occur, forcing livestock to use them at access points to water facilities may be necessary. The primary use of these tools is insect control and their effectiveness should not be compromised by placement in areas of low livestock use (Ohlenbush and Harner, 2003).

2. Improve livestock grazing distribution by adjusting pasture characteristics
Pasture characteristics such as size, shape, and topography, particularly as they relate to fencing, affect distribution of grazing livestock.

**Fencing along natural boundaries**
Poor utilization in pastures because of variability in topography, differences in vegetation, distribution of shelter or shade, and stage of vegetation growth is common. In pastures with rougher topography, livestock will not use areas that are difficult to get to and will over-utilize flat areas that are adjacent to water and generally have lush vegetation. Conversely, they tend to under-utilize upland range that is farther from water and has a variety of different plant communities.

The effects of poor distribution of grazing livestock on pasture utilization and animal performance can be minimized by basing fence placement on such land attributes as range site. Fencing will force livestock to use inconvenient areas and improve livestock distribution and increase harvest efficiency. Management strategies (e.g., timing and length of grazing periods) are much more effective in a pasture dominated by a single range site than in pastures composed of several sites. Pastures that are fenced by range site can be incorporated into a rotational grazing system (Schacht et al. 1996).

**Pasture size**
Pasture size has a direct effect on the distance grazing livestock must travel to water and subsequently on live-
stock grazing distribution. When practical, the size of a pasture should not result in distances from water that are greater than what livestock will readily use. Creating more, smaller pastures can significantly improve livestock grazing distribution (Horn 2005).

Pasture shape
Livestock distribution is generally better in pastures that are roughly square and minimize the travel distance to water sources. Long, narrow pastures with water at one end should be avoided because they are typically grazed much more heavily near the water source and are under-utilized away at the other end. Shape is less critical for smaller pastures where livestock are never more than 1/4 mile from water (Waller et al., 1980).

3. Grazing management strategies that improve livestock grazing distribution
Grazing systems are one of the most effective techniques to improve livestock grazing distribution.

Rotational grazing can affect grazing distribution within a pasture because multiple, smaller paddocks can decrease distance to water and increase stocking density (number of animals per unit area at any point in time) while making pasture size and shape more uniform. Increasing stocking density can improve livestock grazing distribution and forage use efficiency because the amount of forage available to each animal decreases, creating competition between animals for limited forage. With heavy grazing pressure and rapid removal of forage, more forage is consumed by livestock and less is lost to trampling, spoilage by animal wastes, and vegetation maturation. However, as stocking density increases, individual animal performance typically decreases; therefore, livestock performance should be monitored closely (Ohlenbusch and Harner, 2003).

References