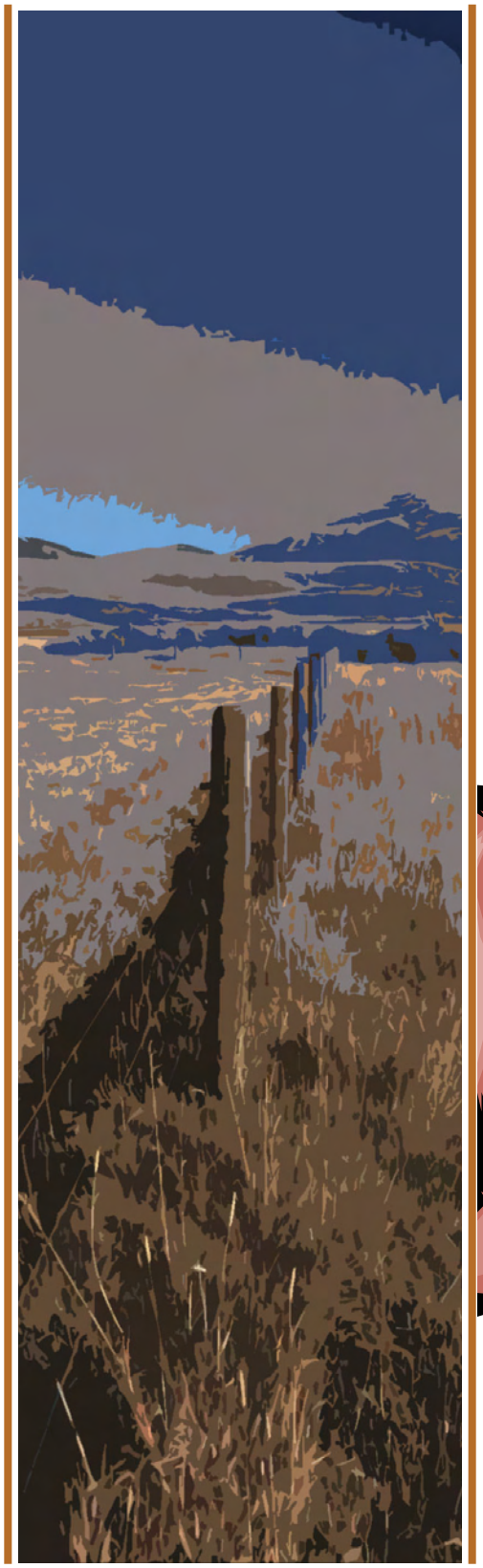

Grazing Management

State-of-the-Art Conservation Techniques

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Grazing Management: State of the Art Conservation Techniques

Ranchers face a fundamental ecological dilemma when they seek to raise livestock, for they cannot both maximize grass production and red meat production because grass is consumed as red meat is created. To produce the most red meat the largest amount of grass must be consumed, and to produce the most grass the least amount must be consumed.

Grazing management on America's rangelands is quite simply those efforts that strive to find the best balance that serve both nature's and the rancher's needs.

Grass

Grass is a plant that is clearly designed to be grazed. Its growth point is located where grazing animals find it difficult to destroy, and thus it is designed to keep growing when grazed. Grass utilizes sunshine, and available soil and water regulate how much leaf area is produced. As leaves and stems mature crude protein and carbohydrate levels decrease and lignin and cellulose levels increase. Lignin and cellulose are difficult for animals to digest, and protein and carbohydrate are important in weight gain in livestock. So while postponing grazing to the end of the growing season maximizes grass production, the greatest meat production would come by grazing soon after green up and continue throughout the growing season. But this strategy negatively impacts grass production and long term sustainability of the rangelands.

Grazing Management: In Search of the Balance

Many of the problems encountered in grazing management arise from attempts to sustain high levels of animal production on a continuous basis.

Overgrazing refers to situations where management decisions (such as elevated stocking rates) reduce potential livestock production in the long term through over-utilization and damage to the sustainability and quality of pasture forage. Undergrazing refers to situations where management decisions limit livestock production to the point where plant species of high nutritive value are not fully utilized – becoming decomposing litter and unavailable as forage.

To maximize livestock production flexible stocking is essential in most grazing systems. In the arid and semi-arid Southwest, there is significant variability in the magnitude and distribution of precipitation from year to year which is a key factor in grass production. In addition, livestock graze plant species selectively so drought may impact the most desirable species because these are the most grazed and therefore most vulnerable. They are also the ones that will convert to the most red meat. Therefore, the appropriate stocking rate needs to consider the variability of precipitation and stewardship of the most desirable plant species.

Stocking rate decisions are difficult to make in a timely manner because the optimal grazing intensity at any given time is dependent upon the occurrence of expected weather conditions. In the long-term, the interaction between weather variations and selective grazing has a pronounced affect on the rate and direction of ecological changes of the rangeland.

Grazing Management: Constraints and Tools

While it may seem complex, grazing management can be realistic and profitable when planned within the context of the ecological system of a given rangeland area. Both the grazing process and efforts to manage it are influenced by a common set of principles. Grazing management seeks to accommodate several constraints on animal and plant production within grazed systems.

The primary constraints limiting production efficiency in grazed systems are summarized as follows:

1. Only one percent of the solar energy that is available is converted to vegetation

2. Depending on range site and ecological state, livestock can physically consume on average only 20 percent of the vegetation that is produced

3. Only 10 percent of the energy livestock consume is converted to red meat

4. Forage plants annually lose 30 percent of their root mass, and use the energy they take in to replace this root mass first - before they put on stems and leaves

5. 10 – 50 percent of the annual above-ground plant production is consumed by insects and small mammals – and the less plant diversity there is, the more the insects and small mammals will compete with livestock.

These constraints are absolute and management strategies must be designed to work within the limits of these constraints, rather than attempt to overcome or circumvent them.

Grazing management involves the manipulation of kinds and classes of livestock, stocking rates, grazing seasons, and grazing intensities – as implemented through grazing systems to optimize livestock production per unit of land area on a sustainable basis.

The following table is a sampling of popular grazing management strategies that can address these considerations.

General Description of Commonly Used Grazing Systems			
Grazing system	Herds	Pastures	Comments
High Intensity - Low Frequency (HILF)	1	4+	Grazing period > 14 days Rest period > 90 days
Short Duration Grazing (SDG)	1	4+	Grazing period <14 days Rest period <90 days
Merrill	3	4	Each pasture grazed 12 months, rested 4 months
SwitchBack	1	2	Graze periods are 3 months (P-1), then 3 months (P-2), then 6 months (P-1), etc.
Rotational	1	3 – 4	Graze periods vary from 4 months (4-pasture) to 6 months (3-pasture)
	2	3	Each pasture grazed 6 months, rested 3 months
Decision Rotation	a/	a/	No set movement
Year-long Continuous	a/	a/	Pasture grazed continuously year-long
Seasonal Continuous	a/	a/	Pasture grazed during specific season each year

a/ = No optimal number of pastures or herds are known.

Any of these grazing systems may be appropriate - it depends on the circumstances in which they are used. One of the ways in which they vary, is the amount of attention required on the part of the rancher. Different systems may require daily, weekly, monthly, or even yearly attention. For example, a high-intensity, short-duration system may require significant attention. Generally speaking, however, the grazing systems that require more attention and maintain a greater diversity of plants, produce more red meat. Auxiliary benefits that come from such systems include healthier watershed, land that will carry more wildlife, and greater aesthetic values.

Those who plan grazing management systematically, apply an appropriate strategy, and follow up properly can achieve both ecologically and economically successful results.

Finding Help

Your NRCS field office staff and the soils and ecological site information (along with grazing management system expertise they can provide) can be an important resource in the quest to achieve appropriate strategies.