



Grazing Management

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Definition:

Grazing management is the manipulation of animal grazing to achieve optimum and sustained animal, plant, land, environmental or economic results while ensuring a continuous supply of forages to grazing animals.

Purposes:

- To maintain a healthy and productive pasture that will ensure the full productive potential of grazing land
- To reduce soil and nutrient losses in runoff, thus maintaining the physical and chemical fertility of soil while preventing water quality deterioration
- To efficiently utilize rainfall by increasing infiltration and reducing surface runoff from the soil
- To maintain higher amounts of soil organic matter, thus preserving soil quality that will ensure rapid cycling of soil nutrients

How Does This Practice Work?

Most phosphorus (P) loss from grazing systems occurs through surface runoff,

which carries both dissolved and particulate forms of P to surface waters. As surface water bodies become enriched with P, overall water quality deteriorates. An efficient grazing management system will restrict the transport of soil particles in surface runoff by maintaining good vegetative soil coverage with appropriate grass/legume species that promote physical entrapment of eroded soil particles and particulate-bound nutrients.

These practices will result in less loss of sediment to water bodies. Additionally, increased water infiltration will reduce surface runoff volume, reduce the loss of dissolved P and maintain higher levels of soil moisture for optimum pasture growth. Increased organic matter content due to continuous vegetative coverage of the soil will also help to maintain optimum conditions for soil microflora and good soil structure.

Where This Practice Applies And Its Limitations:

Grazing management is a necessity for native/indigenous vegetation and established pastures. The specific grazing management

practices will: (1) use the right mix of grass or legume species, (2) encourage more uniform use of paddocks, (3) manage stocking rates over time and (4) adjust the timing or season of grazing. The grazing management plan needs to provide drinking water for the animals away from vulnerable water bodies to prevent potential pollution from animal traffic and direct deposit of manure. Land condition, quality and quantity of forages and rainfall are the important factors to consider while establishing a new grazing pasture.

Continuous grazing with higher stocking rates can result in soil compaction, thereby reducing rainfall infiltration and facilitating offsite P transport by surface runoff pathways.

A challenge for grazing management is to maintain stocking rate (animal numbers), adjust timing of grazing or rotational grazing and prevent pasture decline associated with the replacement of productive species by undesirable weeds.

Effectiveness:

Erosion and surface runoff will be greatly reduced by adequate year-round soil

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coverage by grasses and legumes and avoidance of soil compaction. Good pasture will increase infiltration, thus reducing runoff and entrapping the soil particles from being transported from the pasture. Reduced runoff, erosion and increased infiltration are effective at reducing edge of the field P loss to surface water.

Cost of Establishing and Putting the Practice in Place:

Approximately 50 percent of land area in the U.S. is grazed. This includes 5-10 percent of pastureland that may need reseeded after few years of intensive production, depending upon the grass/legume species. The cost of establishing an improved pasture includes seedbed preparation, seed, planting, commercial fertilizers, water supply and fencing. Most grazing lands use native

grasslands, which, together with perennial pastures, may require minimum costs for establishing a new pasture every year. The annual costs connected with killing the vegetation for preparation of succeeding crops are negligible in pastures. There are net gains with grazing lands compared to a confined animal feeding system in terms of reduced housing, reduced forage handling, reduced manure handling and the associated transport costs.

Operation and Maintenance:

Establishment of a new grazing land requires selection of a mix of good grass or legume species. The land needs to be seeded at an adequate density to ensure maximum soil coverage to avoid soil erosion. Efficient weed control is a necessity for both native and established pastures to prevent

invasion of weeds and pests. Good management that adjusts the stocking rates and timing of grazing pasture is extremely important to ensure that the benefits of grazing are reaped while protecting soil and water quality.

References:

Heitschmidt, R. K. and J. W. Stuth, 1991. *Grazing Management: An Ecological Perspective*. Timber Press, Portland, OR.

Vallentine, J. F. 2001. *Grazing Management*. 2nd Edition. Academic Press, London.

For Further Information:

Contact your local conservation district, USDA-NRCS or Cooperative Extension Service office.