Rapid Rotation Grazing Programs in Texas

Robert E. Steger

Grazing programs have been researched and recommendations applied by Texas ranchers with good results. Recent developments in grazing programs have caused much discussion of merits and possible pitfalls in these programs. These grazing programs are usually grouped into two basic types, which are Deferred Rotation Grazing and Short Duration Grazing. The major differences of these systems are the ratio of area grazed to area rested and the length of graze to rest. Under deferred rotation systems one-half or more of the total land in the system is being grazed at any given time and the time a pasture is grazed equals or exceeds the period of rest. My topic on rapid rotation is within the definition of Short Duration Grazing, where animals are concentrated on less than one-half of the total land area and length of deferment periods exceeds the length of grazing periods. Various other names have been assigned to this form of grazing program, including the High Intensity-Low Frequency System which utilizes longer cycles and the Savory Grazing Method of shorter cycles (*Rangelands,* Vol. 2, No. 6, p. 234).

The major difference in the Short Duration Grazing system and the Savory Grazing Method is the application of grazing principles, with the latter providing daily planning and flexibility to obtain animal performance through three dimensions—time, number, and area. The Savory Grazing Method utilizes grazing periods of 1 to 10 days with 30- to 60-day rest periods, depending on numbers of paddocks, the rate of plant growth, and the productive phase of the grazing animal.

It is implicit in the above definition that the grazing animals must be concentrated into a relatively large herd or herds with Short Duration Grazing. Increased animal stress, higher risks, and more management input should be anticipated. The grazing planning with Savory Grazing Method is designed to avoid this stress.

Why Intensive Grazing?

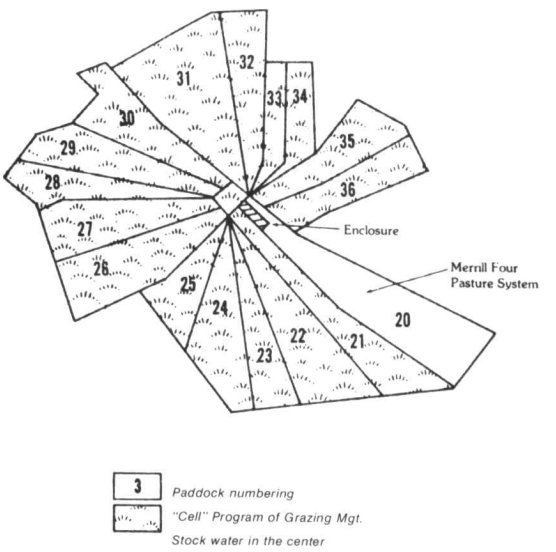
Before we attack the topic of how to get the most out of rapid rotation grazing we should probably first look at why we would want to increase animal stress, risk, and management. Indications are that we usually must increase numbers of animals to a point where net returns are above our fixed and variable costs and into the profit margin area. Therefore, we are seeking a grazing program based on maximizing forage utilization without significantly increasing fixed base costs while maintaining our forage resource.

Short Duration Grazing has been researched in Texas and has consistently shown a favorable vegetation response when compared to any other grazing program. Increased perennial plant growth, better average forage quality, and a greater production of roots were determined by these Texas studies. Improved plant vigor, greater seed production and seedling establishment have been reported. Less range deterioration has been reported when using this program during drought periods.

Unequal sized pastures do not complicate Short Duration Grazing methods. The need to consider season of rest in the grazing planning is eliminated since all seasons are automatically included in the program.

Research has shown that more animals may be run under this Short Duration Grazing than with continuous or Deferred Rotation Grazing. Production per animal, however, is usually lower under Short Duration Grazing. When non-

Angelo State University Cell Program



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Editor's Note: The author and Allan Savory want to stress the importance of terminology used in Savory Grazing Methods. The words *cells* and *paddocks* are unique in Savory and similar grazing systems. Savory says, "The word *pasture* as used in the United States is not definitive enough. The word *paddock* means only a subdivision of land within a cell, whereas *pasture* as used in America, refers to a division of land, a planted grass pasture, and a grass on the range—all of which are totally distinct things."

lactating animals are used, either steers or heifers, animal production per head has been favored under Short Duration Grazing. Also, with heifers, one study has shown a doubling of returns in pounds of beef per acre when stocking was doubled under Short Duration Grazing.

The relatively lower production per head may not be all bad as shown in one Texas Agricultural Experiment Station study. The kind of grazing system affected animal production for some time. Calves from Short Duration Grazing gained better in the feedlot than calves from continuous or deferred rotation systems. The researcher indicated that the higher concentrations of animals under Short Duration Grazing better adapted the animals to the concentration under feedlot conditions. These gains were a result of cattle adaptability to conditions.

Discovery of the Wheel

A more recent innovation used with the Savory Grazing method has been the introduction of the Cell or Wagon Wheel design of pastures. The cell is strictly an administrative tool for livestock manipulation.

The cell design has livestock waterings, self-feeders, and working facilities in the center. The fences radiate out from the center similar to spokes in a wagon wheel. The cell design and short grazing periods does not in itself make the grazing program a Savory Grazing Method. The cell configuration is most often used in this method; however, the Savory Grazing Method may allow for 100% increase in animal numbers over continuous grazing. However, under this latter program a series of periodic checks to determine correct stocking are provided for in the planning and execution of the method. Under Short Duration Grazing the experience of the operator governs the success of the program. Numerous land managers are attempting to use a cell design with Short Duration Grazing practices which may be successful if the experience level of the operator is adequate.

When results from Short Duration Grazing are evaluated, one needs to determine if the cell design was used or if Short Duration Grazing principles were applied to a series of pastures, each containing individual waterings.

The Savory Grazing Method

Little research information is currently available on the Savory Grazing Method in Texas. This program has been studied at Angelo State University since May, 1979, and is the only one being researched in the United States under the supervision of Mr. Allan Savory. This grazing scheme was installed on 1,400 acres. The initial program included 6 pastures that have been subdivided into 16 paddocks. For comparison purposes a 175-acre pasture is treated as a Merrill Four-Pasture System would be treated under deferred rotation grazing, allowing animals to graze the area for 12 months followed by a 4-month deferment. In addition, an ungrazed control of 5 acres is maintained for comparison.

This study started with a stocking rate of one animal unit per 12 acres but has been increased to one animal unit per 9 acres on both grazing programs. Grazing animals include cattle and sheep on a 3:1 animal unit ratio. Predominant wildlife include whitetail deer, turkey, bobwhite, and scaled quail.

Paddocks of various sizes have been designed to allow simulated 8, 16, and 32 paddock programs. Therefore, forage responses under these programs can be studied. Since the same herd of animals will be used for this study, no animal response information will be possible for the three intensities.

With the Savory Grazing Method the periods of grazing are short—from 1 to 10 days. The grazing period is flexible to allow animal performance. The shortest grazing periods are designed for the rapid plant growth period. The period of rest, on the other hand, varies from 30 to 60 days. The longest rest occurs during the plant's nongrowth or slow-growth periods.

Since this method is so new, it may help to give some background information. Research from other countries has shown this grazing method to give good range, livestock and wildlife performance. The method involves a planning process to allow flexibility for animal and forage production. Unequal size of pastures is allowed for in the planning phase of the program. Grazing schedules are formulated and adequate records are maintained to allow the rancher to plan moves between pastures for best animal performance. The animals though may ultimately indicate the need for moves. Animals tend to group at the next unopened gate as vegetation becomes fouled.

Basic biological principles of plant, soil and animal succession, energy flow, nutrient cycling and water cycling are similar to those incorporated into grazing systems for the United States. This method concentrates on the management of the soil and ecosystem as a whole rather than a plant species or physiology. The interpretation of other influences such as fire, length of rest, physiological effects of grazing or browsing, and the physical effects of the animals as a herd make up another difference. This herd effect is of real importance as researchers or ranchers are tempted to start on too small a scale to evaluate its potential merits. The herd effect must be assessed under conditions of adequate numbers to provide adequate trampling, grazing, and other attributes associated with a herd.

The importance of obtaining a maximum density of animals per minimum time is a key to this program. The importance of a maximum number of paddocks is stressed. The more paddocks in the cell the shorter the period that an area is grazed.

The number of paddocks has also shown by research in other countries to affect volume of production. Several things happen as paddock numbers increase that assist in forage production and animal performance. Some of these include:

1) The more paddocks, the higher the stock density per paddock.
2) The period of grazing in each paddock keeps getting shorter while the rests are longer and animal nutrition level increases.
3) The total number of days grazed per paddock per year decreases drastically.
4) Total cow days per acre per year remain the same so forage removal is similar.

The cell arrangement has values that are unique in energy and labor saving. The fact that all of the animals are in one herd most of the time reduces labor and savings on energy in checking animals. More intensive animal management programs are possible and a must. The concentration of livestock working, feeding, and watering facilities reduces the capital investment necessary for developing an area.

The cell design is a way of increasing livestock performance with the Savory Grazing Method. The central watering appears to be a very stabilizing force for the animal. The

grazing pattern is much like that of a free-ranging animal in that they graze into water from one area and then graze back out in another direction with the water being their home base. With the cell, the manager controls their wandering with fences.

One might assume that with more frequent moves between paddocks that animals would travel more. The experience at Angelo State University and another Texas study has shown that animals travel less under the Savory Grazing Method than with continuous grazing.

Recent developments in fencing have allowed economical techniques when one looks at the interior fencing as merely a method of controlling animal distribution. The new electrical systems cause fewer problems with electrical shorts, fires, and other early troubles. The pulsating current allows for relatively higher voltage and amperage which allows effective livestock management.

As few as 2 wires, spaced at 20 to 24 inches above ground, effectively control cattle and sheep. Installed fencing is roughly one-fifth the cost of traditional net wire fences.

In Conclusion

Realistically, a rancher must evaluate his goals, interests, and economic situation to determine his level of grazing management. A person wishing to expand his livestock genetic pool, to increase size of herd on a limited range resource, or to increase production while recognizing he is increasing his risk should consider Short Duration Grazing. Forage response will be high when properly applied. During high rainfall years production increases can be utilized. When droughts come along, which they will, the producer must be flexible enough to reduce stock according to the intensity and duration of the dry period. Total management must be flexible and a high level of management is required at all times. Management is critical and challenging.

There are indications that the Savory Grazing Method will allow for greater animal performance. A much higher degree of forage manipulation is possible where large areas are cut into smaller areas. This grazing regime is one of the first that allows drastically increased forage production and still has favorable rancher appeal. This rancher appeal is evidenced in animal production and an opportunity to incorporate a high degree of livestock management. Distinctions in Short Duration Grazing and the Savory Grazing Method must be realized in management.

When one considers the cost of running animals on a ranch as reported by Robert Kensing, Texas A&M University Agricultural Extension Economist, we find a cost breakdown as follows:

• Land	50%	Includes lease, mineral and protein supplement
• Labor	12%	To physically run the ranch with both owned and hired labor
• Production	18%	Vehicles, gasoline, veterinary, depreciation, taxes, disease and death loss
• Capital	20%	Interest on investment and operating capital

To obtain the maximum utilization of grazing programs we must evaluate the economic balance it may have on our ranch resource. We may be able to reduce land cost by running more animals with less feed cost. The cell design can reduce the labor and production inputs per animal unit. A rancher must evaluate the effects that physical developments may have on the ranch enterprise and the fixed costs or capital requirements for the ranch.

RISC Notice

The Range Inventory Standardization Committee (RISC) has completed review drafts of several working papers concerning criteria and standards for range inventory and monitoring. Topics include (1) range classification and mapping, (2) collection of inventory and monitoring data, (3) interpretation of condition, trend and grazing capacity, and (4) terminology. Copies have been sent for review to members of the Board of Directors, to all Section Presidents, and to selected reviewers in the agencies represented by RISC members. If you do not have access to a copy and would like to contribute comments to RISC, please write or phone and ask for a copy. RISC will meet again in mid-June to consider comments and therefore comments should be returned by June 1. Address inquiries to:

Lamar Smith
Range Resources Division, BSE 325
University of Arizona
Tucson, Arizona 85721
(602) 626-3803

Drought Management

A symposium on crop and plant production and management under drought conditions will be held in Tulsa, Oklahoma on Oct. 4, 5 and 6, 1982 at the Williams Center Plaza. The material will be oriented for users in crop culture and range with consideration for present and future technology for the management of plant and environmental factors of plant production under drought conditions in the Great Plains.

The symposium was organized by the evapotranspiration committee (GPC-1) of the Great Plains Agricultural Council and includes speakers from 4 continents. For information please contact *S.K. Dunn, Oklahoma Water Resources Institute, Oklahoma State University, Stillwater, OK 74078. Ph. 405/624-6995.*

Issues and Technology

A symposium focusing on wildlife management techniques and energy development in the Rocky Mountain West will be held November 15-17, 1982, in Steamboat Springs, Colorado.

Major topic areas of the symposium include: cumulative and secondary impacts to wildlife from development activities; impact mitigation techniques; and sensitive habitat management. Papers should focus on research or management solutions in one of the three topic areas.

Persons wishing to present papers should submit an abstract, no more than 300 words, no later than May 1, 1982, to Mr. Robert Comer, Thorne Ecological Institute 4860 Riverbend Road, Boulder, Colorado 80301 (303) 443-7325.