

Grazing Systems: Terms and Definitions¹

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Highlight

Differences in definition of terms, results obtained from grazing systems, and in viewpoints continue to exist on the usefulness of grazing systems. Reasons for confusion include: 1) Many range management practices are grouped under the term "grazing system." 2) It is used to describe the day to day provisions of livestock feed from a wide variety of sources as well as seasonal patterns of grazing. 3) Designs of grazing systems have been extended to areas where they do not apply. 4) Practice and research have given different results. Several definitions are proposed for clarification.

Since Jared Smith suggested rotation of grazing to improve range conditions in the southern Great Plains in 1895 and Sampson, Jardine, and Anderson gave substance to this practice between 1913 and 1919, some sort of grazing system has been a major recommendation for range improvement in most planning reports. After more than 50 long-term experiments, uncounted practical tests, and much discussion there still exists differences in definition of terms, in results obtained with grazing systems, and in viewpoints on the usefulness of grazing systems. Published papers and lively discussions at both symposia on grazing systems held at annual meetings (1950 and 1969) of the American Society of Range Management indicate a number of confusions in the use of terms.

The term used to label a system seldom defines the design of that system. One operating with as few as two pastures may have the same name as another with twenty pastures. The dates of moving animals are seldom the same from one system to another and from one year to the next. Even kinds of animals are variables in some systems. Wide varieties of growing seasons, grazing seasons, and environments prevent formulation of a single magic system, even without local restrictions imposed by custom, animal husbandry, and business management. Therefore, a writer or a speaker cannot be fully understood unless he describes his system in more detail than simply naming it.

One point of confusion exists in the inclusion of many range management practices under the

term "grazing system." It is true that establishment of, say, a deferred-rotation system on a ranch usually requires new fencing, new water, new routes of moving animals, different stocking rates or grazing pressures, and the system often gives incentive and opportunity for vegetational manipulations with brush control, seeding, pitting, etc. All these are well-established range improvement practices. They result in improved range condition and improved livestock production. Confusion occurs when results are ascribed to the deferred-rotation system when in fact they are due to the whole range management program of which deferral of grazing is but one of the practices. Unfortunately, results of the whole range management program have been attributed to "specialized" grazing systems. I believe that we in range management would do well to tighten our terminology by using the terms deferred, rest, rotation, and continuous to refer only to manipulations of grazing periods.

A second source of confusion is that the term "grazing system" is used to describe the day to day provision of livestock feed from a wide variety of sources such as the alternate use of pastures, conserved hays, crop aftermath, and range. Often repeated seasonal grazing of seeded stands, crested wheatgrass being one, is an indispensable part of the rancher's feeding program. Yearly feeding programs should not be confused with the range grazing systems although they may include seasonal grazing systems and make them practical.

A third source of confusion lies in the fact that designs of grazing systems have been extended to areas where they do not apply. Systems for year-long grazing formulated in the southern United States have more applicability to tallgrass areas in the subtropics than they do to mountainous summer range. A system for Mediterranean-type annual grassland probably has little application in bunchgrass types and vice versa. While proper use of terms will not prevent inappropriate application of grazing system designs, sloppy terminology can magnify or perpetuate the mistakes.

A fourth source of confusion about grazing systems, but not one tied closely with terminology, is related to differences between practical and research results. Apparently, specialized seasonally oriented range grazing systems have been more successful in practical management than in research. No proof either way is available but reasons for differing results can be speculated. Practical management is flexible management while experiments tend to fix dates and livestock numbers. A range grazing system is usually a part of an extensive improvement program while experimental pastures tend to fix all variables except one or two. Management of land, labor and capital for

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maximum biological returns in a research program is quite different than management for maximum economic returns. All of these and others could result in practical successes but research failures.

The present terminology does not always make clear whether non-grazing of pastures or animals is rotated. Two contrasting systems that have been called deferred-rotation will illustrate. In the first, all the animals are in one herd which is moved on schedule around four range pastures. This is rotation of the animals. Frequently, grazing on only one of the four pastures satisfies the definition of "deferred" and the three others are simply ungrazed at other times. By contrast, three herds of animals in four pastures with one herd moved to the ungrazed pasture every four months result in rotation of the ungrazed pasture. Any pasture of the four may be a deferred pasture in one year and just an ungrazed pasture for 4 months in other years. This system, then, is one of continuous yearlong grazing with interspersed ungrazed periods.

The importance of distinguishing between rotating the animals and rotating the ungrazed pasture is illustrated in a recent review by Driscoll (1967). Of 50 reports, 29 gave livestock responses of which only eight described greater livestock gains with the special systems than with continuous grazing. Of the same 50 studies, 39 reported vegetational responses of which 31 found that range condition declined under continuous grazing. Apparently, animals and vegetation do not always respond alike to manipulation of seasonal grazing. That conclusion is only tentative as range condition has not always been evaluated at the beginning and end of grazing system experiments. The ideal system for using an excellent range may not be the same as one for improving a range from poor to excellent condition.

The following terms are defined with reference to range livestock management, excluding properties of vegetation, land-animal relationships (carrying capacity) and evaluations (proper use). Each term is restricted to a single concept so that combined terms have specific meaning. The definitions are designed for broad rather than local or regional application. For these reasons the definitions are somewhat different from those of the Range Term Glossary Committee (1964), Booysen (1967), and Bureau of Land Management (1968).

Grazing season is that portion of the year during which grazing is feasible. It may be the whole year or a very short time span and is normally a function of uncontrolled environment such as climate. In this context the vegetative growing season is only a part of the grazing season.

Grazing period is that portion of the grazing sea-

son during which grazing takes place. The beginning and end of the grazing period on each land unit are stipulated by the grazing system.

Continuous is defined as unrestricted livestock access to any part of the range throughout a grazing period which encompasses the whole of the grazing season. It may be yearlong or shorter depending upon environmental or other restrictions of the range area to grazing by livestock. Continuous grazing is principally distinguished from other types on the basis that grazing occurs throughout the period when forage plants are growing.

Ungrazed signifies a brief period of non-use that is not scheduled specifically to allow seed maturation or seedling establishment. This term permits specific definitions and elimination of double meanings for deferred and rest.

Deferred specifies that the vegetation is not grazed until seed maturity is nearly complete or assured and that it is grazed after seed maturity. Deferral in the second year permits establishment of seedlings. For various reasons many ranchers in effect defer some of their range each year, often the same piece of their holdings.

Rest as a term in range grazing systems has come or is coming to mean that a pasture is not grazed at all in a given year. Even the mature forage is not harvested.

Rotation means that animals are moved from one pasture to another on a scheduled basis. When the rotation is short a pasture may be alternately grazed and ungrazed several times during a grazing season. If the rotation is long, it may be on a basis of rotating the deferred pasture or the rested pasture among years.

Continuous, deferred-rotation, and rest-rotation grazing are the most commonly used combinations in range research and practice. Such other terms as rotational deferral, rotational resting, rotational grazing and resting, rotated-deferred, rotation-deferred, deferred and rotation, and rotation of deferred grazing have been used. Strictly rotational grazing is not commonly used in range management. A system using as many as 16 pastures and called "short duration grazing" or "non-selective grazing" is gaining in popularity in South Africa and Rhodesia (Roberts, 1967). On the other hand rotational grazing in different forms and under different names is widely used for grazing intensively managed pastures.

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