

SOUTHWESTERN FOREST AND RANGE EXPERIMENT STATION^{1/}

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VEGETATIONAL DENSITY AND COMPOSITION OF BLACK GRAMA TYPE RANGES
AS INFLUENCED BY SEMI-DEFERRED GRAZING

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It is not at all improbable that the first blades of grass that ever grew were in part grazed by some prehistoric plant-eating animal. All meat is a direct or indirect product of grass; therefore, grazing is not a new influence thrust suddenly into the environment of the plant, but one that has existed throughout the ages. In the natural state, forces of nature operated to maintain a balance between animal life and the vegetation upon which it subsisted. No problems remained too long unsolved; no adjustments were too long delayed. If it had not been so, the ranges as we know them would have been eaten out of existence ages ago. To maintain a balance, the methods that nature employed were direct and often harsh, consisting mainly of drought, reduction in birth rate, the predator, and epidemic disease.

With the accession of the stockmen to the ranges a new influence was introduced which brought swift changes in the environment. Ranges were stocked with domestic animals, numbers of stock and their distribution were artificially regulated, the predator was practically eliminated, and disease was prevented. Drought alone remains uncontrolled and unpredictable. However, its force may be reduced and the impact eased by conservative stocking.

Many ingenious plans and systems of grazing have been originated by the stockmen of the Southwest in their efforts to minimize the ill effects of drought. The more promising of these practices have been incorporated into the designs of experiments conducted on the Mornada Experimental Range^{2/} during the past quarter of a century.

An experiment which turned out particularly well dealt with semi-deferred grazing. This system of grazing provides for yearlong use with relatively light stocking during the summer grazing season and heavier stocking during the fall, winter, and spring months. In effect, yearlong and deferred grazing are combined to eliminate some of the less desirable features of both. Such a use has stood up under the experimental tests and has returned satisfactory results when applied to extensive areas of black-grama range.

^{1/}Maintained At Tucson, Ariz., by the Forest Service, U. S. Department of Agriculture, in cooperation with the University of Arizona, and covering the States of Arizona, New Mexico, and the western third of Texas.

^{2/}A branch of the Southwestern Forest and Range Experiment Station.

Chief reasons supporting the recommendation of semideferred grazing for the black-grama type are based on natural conditions. The vegetation composition of black-grama range is comprised of winter palatable black grama as the principal species and associated with it a mixture of summer palatable sand dropseed grasses and three-awn grasses (needlegrass). On ranges which have been consistently grazed in a proper manner and in protected areas, the ratio of black grama to other perennial grasses is about 5 to 1. However, this ratio will vary in different areas, depending to a great extent on the character of past use. Different rates of stocking based on the amounts of summer and winter forage bring the numbers of stock into harmony with seasonal usability of the plants. Summer palatable grasses are grazed in the summer months. Winter palatable black grama is used during the months which fall between growing seasons.

Facts which have been proven from 21 years of experimentation with semideferred grazing are:

1. Properly regulated summer and winter rates of stocking are essential to the successful application of the semideferred grazing system. Under this system both summer and winter forage plants receive their just proportions of use and neither is given an advantage over the other.
2. The right degree of seasonal use aids in maintaining the natural composition ratio between summer and winter forage species. It is also an effective remedy which may be applied to restore the natural balance in the composition to overused ranges.
3. Semideferred grazing permits use of forage produced by summer palatable species which under complete deferment would be lost.
4. Drought and overstocking produce similar results in the density of vegetation. Both are destructive.
5. Conservative grazing counteracts the ill effects of drought.
6. Both the good and the bad effects of grazing are cumulative and are carried over into subsequent years.
7. Under a system of conservative stocking the trend in density of perennial grasses varies according to the rainfall of the current and previous years.
8. Annual weeds and grasses are the least dependable of all semi-desert grassland vegetation. Plants of this class come with favorable years and go with unfavorable rainfall condition. They are present in force when not needed, but when they can be used or are needed they are generally absent. "Don't figure on this class of feed."