

What Is Conservative Grazing?

A Question Every Ranchman Should Be Vitally Interested In

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PERHAPS not in all the history of the western range has the wise use of forage been so vital as it is today. Increased marketings of beef are essential not only for our armed forces and Allies but also to sustain the home front. This requires an assured sustained output of beef. To this end we must use our ranges to the greatest advantage for all. Conservative grazing is the practical answer.

Considerable has been written regarding conservative grazing, particularly the benefits of this practice in terms of increased beef production. We have read about the Jim Black case in southern New Mexico—how his cattle numbers were reduced more than two-thirds, from 18,819 to 6,190 head, and yet with a third as many animals in his herd produced more pounds of beef, the result of stocking more in accordance with the forage supply (*New Mexico Stockman*, April, 1942). We have also read about Al Dick in the Northwest and how, through judicious grazing, he has restored his range to a high state of productivity and has accomplished an outstanding feat in range management, both as regards livestock production and range productivity (*The Cattleman*, December, 1942). Many other examples may be cited.

At the Santa Rita Experimental Range in southern Arizona, a branch of the Southwestern Forest and Range Experiment Station, Fred S. Kimmerling, Henry Proctor, and Mrs. Feliz Ruelas—all coöperators on this experimental range—have obtained calf crops ranging from 87 to 89 per cent and calf weights ranging from 405 to 435 pounds through conservative grazing practices. B. A. (Ace) Christmas, coöperator on the Jornada Experimental Range in southern New Mexico, another branch of the Southwestern Station, as a result of more

conservative stocking has obtained a calf crop averaging 85 per cent since 1937.

The results of these actual range cattle operations indicate without doubt that conservative grazing is good business from every point of view. Not only is more beef per cow produced, but when properly applied, conservative grazing produces more beef per ranch and consequently more beef for the Nation. Moreover, the cost of the operation is lowered because the investment in the breeding herd and the incidental expenses of carrying the reduced herd are lower. This category includes labor, interest, taxes, water, salt, and the risk of death loss and many other expenses which apply in varying degrees to the individual operation. But just what is conservative grazing—how can it be recognized?

Natural Preference Is a Guide

As a general rule, in years of average rainfall an evenly distributed 25 per cent of the flower stalks of the important forage grasses should remain ungrazed at the end of the grazing period. This practice will assure conservative use of the range. Recent observations concerning the grazing preference of cattle and trends in range conditions made at the Santa Rita Experimental Range in southern Arizona bring to light definite earmarks and guides in the application of the principle of conservative grazing on semidesert grassland ranges.

The grazing preference of cattle on the Santa Rita was determined from measurements of a large number of plants including 13 of the principal forage grasses of southern Arizona. Density, composition, and height of grazed stubble of the plants were recorded on 713 one hundred-foot transects distributed throughout 20 pastures and including the entire 50,000-acre experimental range. As would be expected, every conceivable degree of utilization, ranging from overuse to very light use, was represented on individual transects. Measurements were made in June at the end of the grazing

year and before new growth for the succeeding year had started. Thus the entire use for the grazing period was included. The previous growing season was about average, and there was a plentiful supply of each kind of grass, and the range as a whole was grazed moderately under a fairly even distribution of use. Thus, the measurements made under these conditions reflect the average preference of cattle for the different grasses under conditions of free choice and without compulsion from lack of forage.

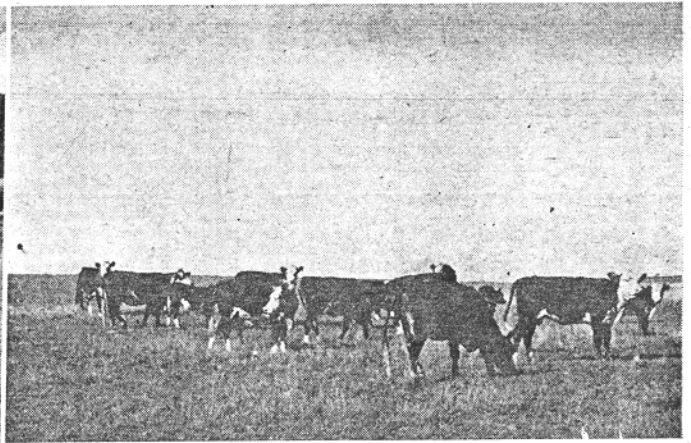
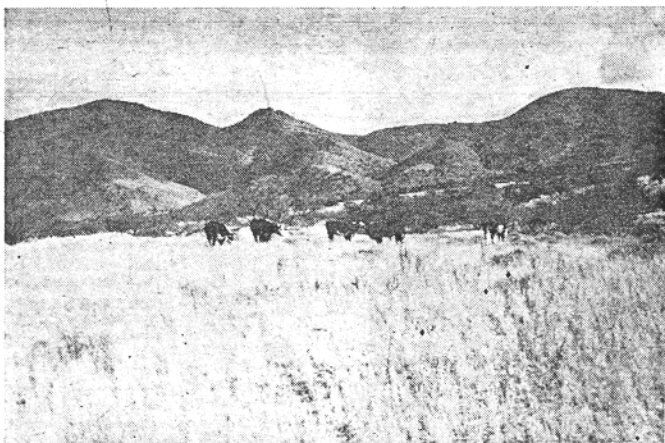
Results showing the scale of preference based on the percentages of each grass grazed at different stubble heights and the ungrazed complement are presented in the accompanying table. The individual percentages are based on the proportion of the tuft area of the individual grass that was grazed at the respective heights. Also, the data presented represent the average condition occurring on the entire range.

The top line in the accompanying table contains the individual composition percentages for the 13 perennial grasses which account for 88 per cent of the total grass cover. The other 12 per cent is comprised of relatively rare grasses which, as individual species, contribute less than 1 per cent each to the total perennial grass cover.

A comparison within the preference scale in the table indicates a few practical guides pertaining to the conservative grazing use of these semidesert range grasses.

As evidenced by the data in the table, there is a clearly defined normal tendency of cattle to graze some plants at heights of 1 inch or less. These are invariably the more palatable grasses such as sprucetop grama, slender grama, hairy grama, black grama, and curly-mesquite. No system of range management has as yet been devised that will entirely prevent this close cropping of individual plants of high palatability, particularly on mixed-grass ranges. Nevertheless, the aim of conservative grazing on such

¹Maintained by the Forest Service, U. S. Department of Agriculture, for Arizona, New Mexico, and West Texas, with headquarters at Tucson, Arizona.



Left: The range in November after the main summer growth season—plenty of grass on the ground to graze the herd until a new forage crop is produced the following year. Right: After more than a year's grazing—sufficient reserve forage is left on the ground to maintain healthy productive cattle and to assure vigorous growth when the summer rains come. This photo taken in August shows an actual instance where reserve forage proved its value during a dry spring and early summer. Photos by U. S. Forest Service.

ranges should be to encourage range-wide distribution of cattle to reduce to a minimum and prevent the concentration of heavy use of the more palatable plants.

Coarse or woody-stemmed grasses, such as sideoats grama, Santa Rita three-awn, tanglehead, bush muhly, and Arizona cottongrass, are normally grazed at taller stubble heights because of lower grazing preference. In years of normal forage production any attempt to fully utilize 75 to 85 per cent of these grasses would doubtless result in the overuse of the preferred associated forage grasses and cause deterioration of the range. Under conservative grazing, therefore, as much as 50 to 75 per cent of these less palatable species in a normal year would remain unused at the close of the grazing period. This degree of non-use of the less preferred grasses should never be regarded as a sacrifice of a substantial portion of the forage crop. It represents only a small part of the forage crop reserved for drouth years. Taken as an average for all highly preferred grasses, a 15- to 25-per cent balance of ungrazed plants at the close of the grazing season is considered to be the best insurance against range deterioration and livestock losses. When the estimate is made on an actual volume basis, this residue of ungrazed grass represents approximately 55 per cent of the total volume left on the ground at the end of the grazing year on June 30.

The 69 per cent of ungrazed Rothrock grama, a relatively poor forage plant, does not represent a true forage reserve. This plant dries quickly, weathers rapidly, and is not highly relished by cattle. However, it provides some feed in the summer and improves and protects the soil by adding a considerable amount of litter during years of above-average rainfall. On the other hand, black grama,

Forage Composition	Per Cent of Total Grasses													
	22.0	9.6	7.5	9.0	0.2	1.6	9.6	2.6	7.5	4.2	2.8	3.9	7.5	
Class No.	Grazed stubble height	Sproutop grama	Sideoats grama	Slender grama	Black grama	Blue grama	Hairy grama	Rothrock grama	Curly mesquite	Poverty three-awn	Santa Rita three-awn	Tanglehead	Bush muhly	Arizona Cottongrass
	Inches	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
1	0" + to ½"	8	2	4	5	0	8	2	2	2	1	0	0	1
2	½" + to 1"	32	14	16	19	17	27	4	40	10	16	3	1	3
3	1" + to 2"	31	14	37	16	42	31	13	40	13	14	6	7	5
4	2" + to 4"	6	10	11	7	0	7	10	10	11	15	7	6	12
5	4" + to 6"	1	4	1	1	0	0	2	1	8	10	2	4	10
6	6" + to 8"	T*	2	0	1	0	0	T	0	2	T	1	2	13
7	8" + to 10"	T	T	T	0	0	0	0	0	2	T	2	1	2
8	10" + & over	0	T	0	0	0	0	0	0	4	0	0	2	9
9	Ungrazed	22	54	31	51	41	27	69	7	48	44	79	77	45

*T indicates a trace representing an amount so small as to be insignificant.

poverty three-awn, tanglehead, and bush muhly are naturally deferred grasses, a portion of which may be counted on to carry over and supplement the forage supply during the years of short forage growth.

The amount of forage ungrazed at the end of the grazing period, class 9 in the table, represents one of the best measures of the relative preference of cattle and is indicative of the degree of grazing use. A practical and useful guide to obtain conservative range grazing, therefore, is to observe currently the use being made of the more palatable plants and adjust the numbers of livestock to the available forage supply. Through this practice with a minimum of labor and at less risk more beef will be obtained from the range. Moreover, in drouth years, which are common in the Southwest, stockmen on a conservative stocking basis will not be in difficulties nor will the Nation's beef supply be materially affected.

Sanders-Whitaker

SUMMARY

C. C. Sanders

8 bulls	\$ 2,950 ave.	\$370
27 females	7,880 ave.	292
35 head	10,830 ave.	310

H. G. Whitaker

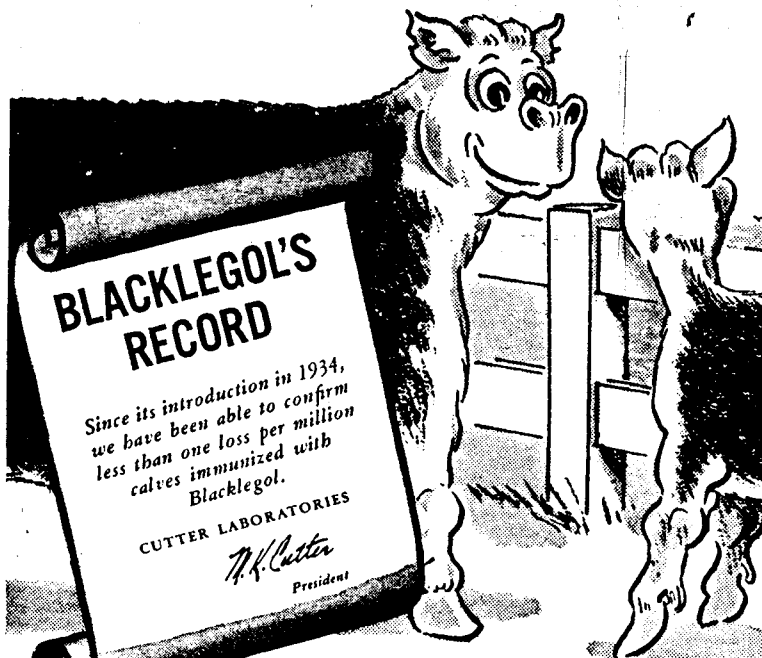
16 bulls	\$ 3,320 ave.	\$207.50
53 females	11,970 ave.	226
69 head	15,290 ave.	222

Sanders-Whitaker

24 bulls	\$ 6,270 ave.	\$261
80 females	19,850 ave.	248
104 head	26,120 ave.	251

THE C. C. Sanders-H. G. Whitaker auction at San Angelo on April 1 was a most satisfactory event for both the buyers and the sellers, with 104 head selling for an average of \$251. The 24 bulls returned \$261 per head and 80

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