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After the Drought

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United States Forest Service

Out in the West where men are men
It hasn't rained since God knows when.

ANONYMOUS.

IN THE SOUTHWEST, RAINFALL HAS BEEN deficient ever since 1930, and, as a climax, 1934 was as dry as a lost caravan in the Gobi Desert. In southern New Mexico the average annual rainfall is about nine inches, but, in 1934, Jupiter Pluvius failed to function in customary fashion and furnished only a little over half the usual amount. For the first nine months of 1934, rainfall in several southern New Mexico counties was less than 40 per cent of the average, so that forage production on both summer and winter ranges was far below normal. This drought—one of the worst in southwestern annals—caused severe cattle losses, complicated range management, and necessitated emergency supplemental feeding, sacrifice sales, and forced shipments of cattle from the impoverished open range country. Government records show 1934 to be excelled only by the notable drought of 1903-04.

What can be done to prevent the regular repetition of this tragedy of drought? Artificial rain-making has invariably failed. Are there any practical methods of circumventing dry weather and its range-depleting effects? How can southwestern cattlemen fortify their ranges against ultimate deterioration by both drought and overgrazing? What can be done to increase the stability and improve the economy of cattle-grazing in the far-flung Southwest?

Suggestions which may be helpful in planning for the future can be obtained by a careful screening of the results from the Jornada Experimental Range, located near Las Cruces, New Mexico. Here the United States Forest Service, among other things, has studied the minimization of drought losses, the upbuilding of depleted ranges, the determination of grazing capacity, and various systems of grazing as related to range-cattle production.

How to Minimize Live-Stock Losses

The reduction of serious live-stock losses during drought is one of the most perplexing puzzles of range use. Grass simply will not grow on the range without rain, so that severe drought spells disaster to the ranch-owner, unless careful preparation has been made in previous years. During 1916 and 1917 the drought problem was attacked on the Jornada both by supplemental feeding and by making moderate reduction of live-stock numbers. The development of chopped soapweed as a cheap, supplemental feed, when used with a small quantity of cottonseed cake or meal, was of substantial benefit. During that drought, starvation losses on the Jornada range averaged only 1.2 per cent annually, as compared with 17 per cent on the open, uncontrolled range, where overgrazing nearly every year permitted no reserve range feed. During those same years the average annual Jornada calf crop was 60 per cent, showing that the herd was in comparatively good condition; presenting a marked contrast to the average calf crop of 38 per cent on the uncontrolled, open range. Similar results were obtained during the drought years from 1922 to 1924. Again in 1934, with a lower forage produc-

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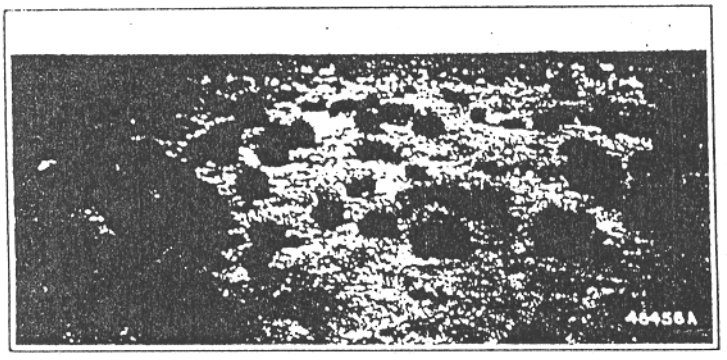
tion than was recorded in any of the previous nineteen years, the Jornada calf crop was 63 per cent.

During these drought periods, intensive study of the growth of black grama-grass—the main forage species on the Jornada—has shown that stockmen on semi-desert ranges in the Southwest can have the



THIS FORMERLY GOOD BLACK GRAMA-GRASS RANGE NOW SUPPORTS LITTLE OTHER THAN SNAKEWEED, OWING TO CONTINUOUS OVERGRAZING

benefit of almost a year's advance notice of increase or decrease in the stand of range forage furnished by that species. For example, with the rainfall below normal in 1934, the grama stand will cover less area in 1935, regardless of the amount of rainfall this year. If the rainfall in 1935 is above normal, the stand of grass will increase in 1936. The rainfall of each summer, however, will determine the height and volume which the existent stand of black grama will attain in that same year.

The practical application of these facts is important. Thus, if the precipitation is below average in one year, the probability of a reduced forage stand the following year should be anticipated by selling all calves as early as possible in the fall and by culling the breeding herd closely. Such reductions in stocking provide for a reserve of feed the succeeding year which will be needed to supplement that year's production in order to protect the breeding herd against undue losses. Even if the unusually good height-growth resulting from liberal rainfall should partially offset the decrease in forage stand, the rate of stocking during 1935 should continue to be conservative, in order to hasten the recuperation of the forage. Overgrazing is certain to result in livestock losses and range depletion, particularly during drought.

Conservative Grazing an Essential Factor

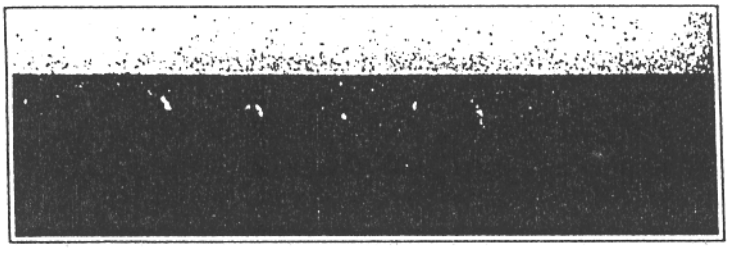
The results obtained on the Jornada range during the past twenty years stress the importance of conservative grazing. Conservative grazing means that no more of the range feed is used each year than will assure the future vigor and growth of the important forage plants, and that sufficient range forage is reserved in the average year to meet the possible feed shortage in all except the most severe drought years.

The studies on the Jornada range indicate that conservative grazing, under which about 75 to 80 per cent of the current annual growth of black grama, on the average, is grazed at the end of each grazing year, will maintain a stand as good as, or better than, that under total protection from grazing.

Since nine-tenths of the year's supply of forage on grama ranges is produced during July, August, and September, and since, under conservative grazing, this growth is not fully utilized until the following June, light grazing prevails during the summer growing season each year.

In above-average years, of course, such a conservative policy would accumulate a considerable reserve of unused feed, but during dry years the forage production, even under protection, may drop 50 to 60 per cent below that of good years. It is far safer to have a 25 per cent reserve as insurance during drought years than to risk range depletion and the resultant losses in live-stock production. Reserve feed prevents serious overstocking in all but the worst drought years and leaves the vegetation in a more vigorous condition at the end of the drought period, so that it can make a rapid recovery. Thus the important forage plants are given the maximum opportunity, permitted under year-long grazing use, to make a vigorous growth and to reproduce.

Conservative grazing allows the more important forage plants to hold their own against most of the poor forage plants. Special studies on the Jornada have shown that where black grama is overgrazed severely it may, in time, be largely supplanted by a shrub called snakeweed, or broomweed, which is worthless for grazing. Injudicious grazing may deplete the palatable grasses to the extent that the shrubs dominate, the soil loses its stability, and graz-



PART OF A PRODUCTIVE HERD ON CONSERVATIVELY GRAZED RANGE (JORNADA EXPERIMENTAL RANGE)

ing values decline so low as to require decades for satisfactory restoration. Drought is highly injurious to both the grama-grass and the snakeweed. During years of average or higher rainfall both plants may increase, but careful range management and conservative grazing will eventually bring about dominance of the grama and assure sustained range-forage production.

Range Feed Should be Saved for Spring

A vital part of conservative grazing is the reservation of range feed for use during the spring period each year. An average of less than 10 per cent of the year's feed supply on the Jornada has been produced in the spring months. Usually spring growth of grass and weeds in southern New Mexico is scant, although browse starts growth in the spring and furnishes a small amount of valuable feed. The climate, however, is so variable that the year's feed supply produced in summer may vary greatly, and the more palatable plants may be closely grazed by spring. Hence the spring is the critical period of the year, and the conservative live-stock owner, as a result, usually reserves a portion of the year's forage, preferably in a separate pasture, for spring use.

The twenty years of generally conservative grazing on the Jornada have made possible an average annual calf crop of 68.6 per cent, with a death loss of only 2 per cent. These figures represent very satisfactory production when compared with uncontrolled outside ranges, which during the same period had average annual calf crops of less than 50 per cent, and with average annual losses of 6 per cent, running as high as 30 per cent in severe drought years. Furthermore, the Jornada results, with better calves selling at higher prices, have shown the special advantages of herd productivity rather than large numbers of live stock. A smaller, more productive herd, with plenty of range feed available, represents less capital investment and smaller risk than a larger herd handicapped by feed shortage practically all the time, less able to withstand the ravages of drought, and subject to sacrifice sales.

All too often the individual stockman is so anxious to "hit" the market at what he considers a profitable point that he is tempted to hold his stock for higher, or even top, prices. Such marketing management, especially during drought, is in reality false economy, because it is accomplished by the sacrifice of the range and its future productivity. Large reductions in live-stock numbers indicate that prices will be better in 1935 than for the past few years. It should be possible for stockmen to capitalize on these better prices and more favorable conditions by maintaining smaller, more productive herds on carefully managed ranges.