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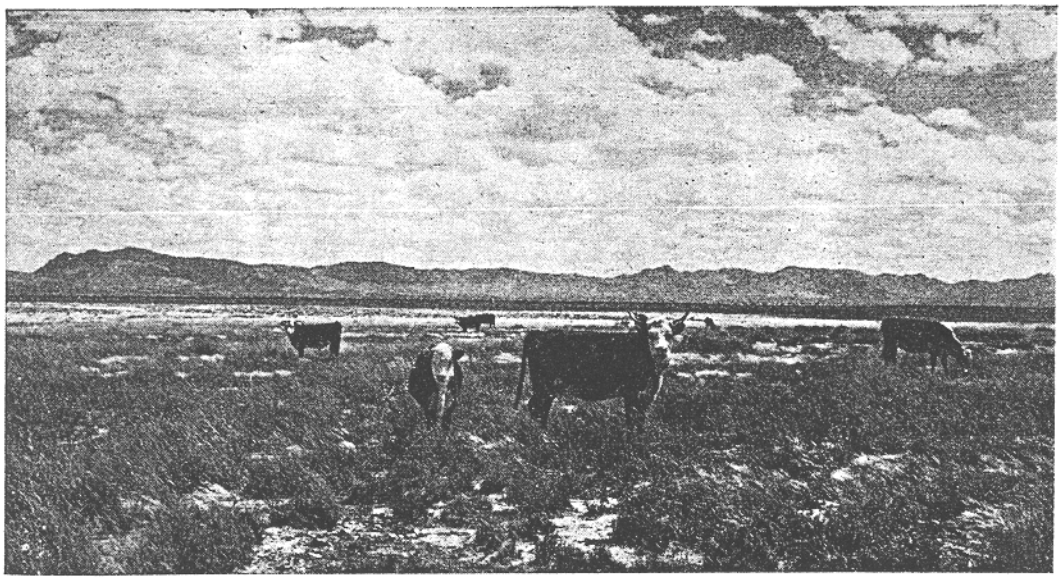

The breeding herd is the mainstay for most semidesert range cattle operators. (Fig. 1.)

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Size and Composition of the Herd

THE SIZE AND MAKEUP OF THE herd is important in obtaining sustained cattle production and maximum returns from southwestern ranges. In this region of severe and recurrent drouth, forage supplies are uncertain and the cattleman must be ever ready to adjust his herd and his operations as the weather dictates. On most ranches breeding cows form the backbone of the herd (Fig. 1). The principal market products are calves sold in the fall and yearlings sold in the spring. These range-raised growing animals are in good demand as stockers and feeders (Fig. 2). Breeding cows are difficult to move and demand for them is likely to be poor, especially during drouth. Furthermore, when, because of inadequate forage, the stockman is forced to reduce his breeding herd he sacrifices the results of years of effort in selection and grade improvement.

Most of the forage on semidesert ranges consists of grasses which make their growth during the summer rainy season. Much of the herbage produced cures well on the stalk and provides year long grazing. Accordingly, the stockman is able to judge the amount of his forage supply in the fall and can plan his year's operation.

Grazing tests at the Jornada Experimental Range provide information on the kind of herd composition and date of stocking which will produce high calf crops, low death losses and consistently good beef production and yearly income. The span of this study can be divided into three periods according to the size and composition of the herd.

Heavy Stocking The Rule In Early Days

The early period is characterized chiefly by heavy grazing. Stocking rates were based on scanty information in 1915, and the Jornada was stocked at more than twice the rate of the two later periods (Fig. 3). Calves were held over to be sold as yearlings or two-year-olds in all but the driest years, and breeding cows made up less than 60 per cent of the total herd. In addition to bulls and replacement heifers, more than 30 per cent of the stocking consisted of yearlings and two-year-old steers.

Calf crops were fairly good and death losses low compared with adjacent ranges that were generally even more heavily stocked at that time. Two unusually favorable rainfall years during the period and heavy supplemental feeding of chopped soapweed (Yucca elata) and protein concentrates during dry years undoubtedly reduced death loss greatly and maintained cows in a fairly productive condition.

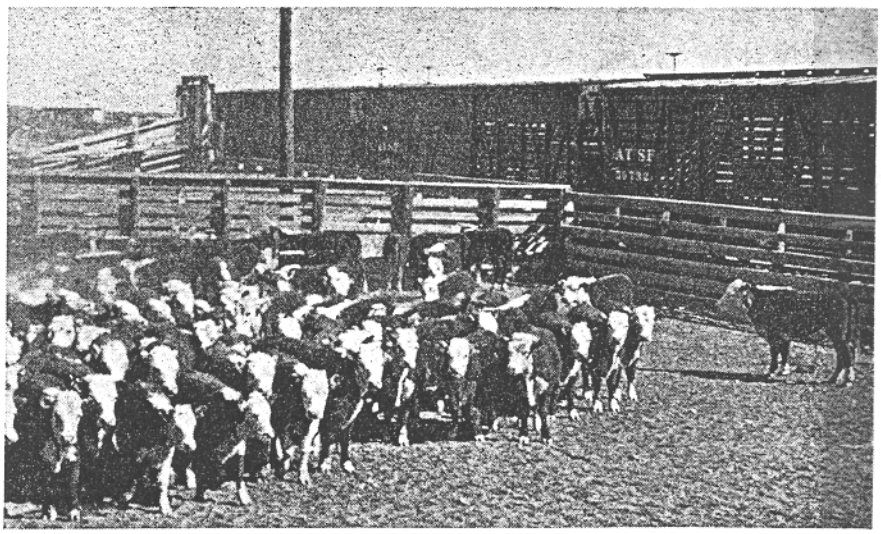
The range was not stocked in 1925 because of a change in the co-operator and owner of the livestock.

Reduced Stocking Yields Better Calf Crops

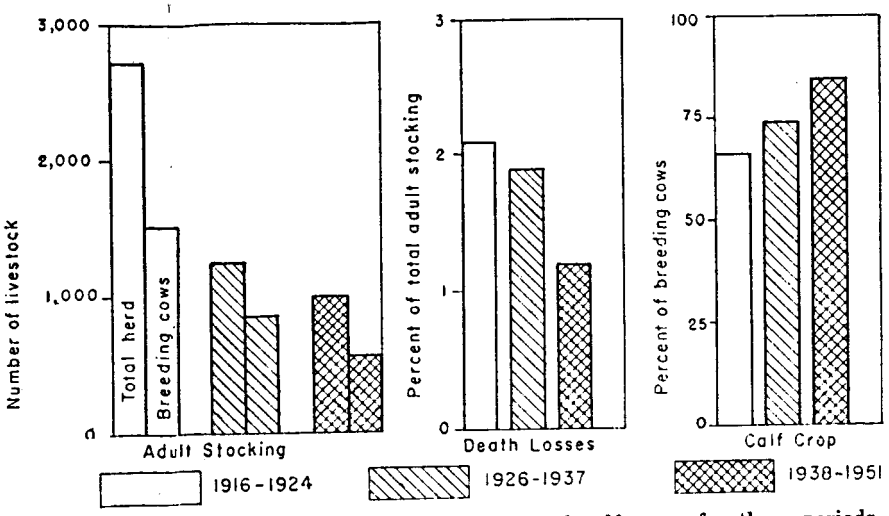
In the second period, a 12-year span, the rate of stocking was reduced by more than 50 per cent but the breeding cow ratio was increased to 70 per cent of the herd. During this period the calf crops were increased nearly 10 per cent and supplemental feeding was eliminated. This improved record was attained in spite of the 1934 drouth and changes in the herd which brought in some poor quality, drouth-stricken breeding stock. Progress in increasing calf crops and reducing death losses was due primarily to refinements in determining the correct grazing capacity and regulating the rate of stocking to provide sufficient range forage at all times.

Low Breeding Cow Ratio Provides Drouth Insurance

During the past 14 years, total adult



Calves and yearlings from semidesert ranges are in good demand for stockers and feeders. (Fig. 2.)



Stocking rate, herd composition, death losses and calf crops for three periods on the Jornada Experimental Range. (Fig. 3.)

stocking averaged 242 animal units less than in the preceding 12 years, and the ratio of breeding cows was reduced to 57 per cent of the total adult stocking. The plan of management for this recent period resulted in the highest average annual calf crop—85 per cent, and the lowest rate of death loss—1.2 per cent. This was accomplished despite ten consecutive dry years in which the amount of annual rainfall averaged only 77 per cent of the long-time normal. Climaxing the long drouth period, 1951, the driest year on the Jornada records, had less than 4 inches of rainfall.

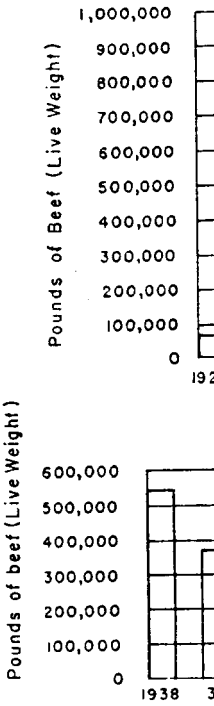
During the past 14 years the principal emphasis was placed on management that would provide adequate drouth insurance. The aim was to eliminate forced removals or sacrifice sales of breeding stock in years of scant rainfall. Conservative stocking and maintaining the breeding cow ratio at an average of 57 per cent of the total stocking helped to accomplish this. Reductions in numbers to adjust the stocking to lowered forage supplies in drouth years was easily accomplished by selling of calves, yearlings and dry or cull cows. In the better years, when it was certain that forage would be available beyond the needs of the breeding herd, it was used by holding calves to be sold the following spring as yearlings, or bringing in calves or yearlings for winter grazing.

In the 14-year period, forage was sufficient to maintain the total stocking at an average of 998 head. In the driest year, 1951, there was enough forage for 705 head. Thus the breeding herd could have been maintained intact even during the last five years of drouth. However, because of favorable market conditions and to provide a continuing cushion against possible continued drouth, the breeding cows were culled closely each year since 1946. This opportunistic selling resulted in keeping the breeding herd at a safe level even in successive drouth years. It also contributed to low death losses and good calf crops.

Beef Production Stabilized At High Level

Livestock sales data are not complete for most of the early period. Sales records by weight from all classes of livestock are available for the last 26 years of the experiment, however. This has provided information on the production of beef for the two periods that varied in the ratio of breeding cows in the herd (Fig. 4). Records show the net live weight beef production; they are composed of the weight of all classes of cattle sold, less the entrance weight of all livestock brought in from the outside.

The average annual production of



Annual net beef periods, with contra

beef for the past 14 years was 361,636 pounds as compared with 388,519 pounds for the previous 12-year period. This loss of 26,883 pounds average production per year reflects the severity of the 10-year drouth since 1941 and the accompanying reduction in total stocking. Until 1949, the eighth year of drouth, the total beef production was maintained at the approximate level of the preceding period.

Beef production per cow was raised from 447.6 pounds to 640.1 during the most recent period. This 30 per cent increase from each breeding unit pays off in net income from the operation. At the average 26-year selling price, the increased beef was worth $18.09 per breeding cow.

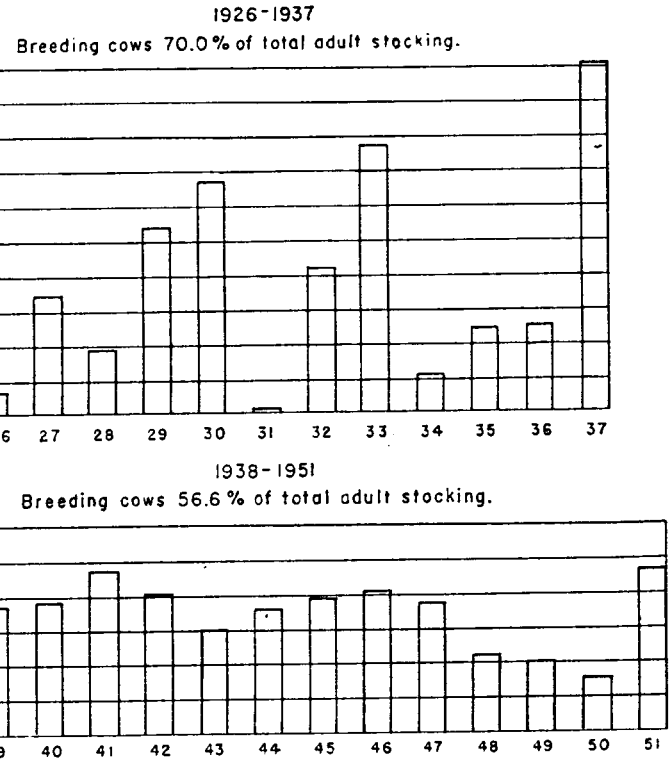
Maintaining a low ratio of breeding cows in the herd helped to provide a more stable basis of operation in that annual sales of beef were less erratic and more sustained. Between 1926 and 1937, with breeding cows making up 70 per cent of the herd, annual sales varied from a low of 16,716 to as much as 1,000,834 pounds. In the more recent period, when the breeding cows were reduced to only 57 per cent of the herd, sales varied only from 155,393 to 469,326 pounds per year. Thus marketing and income were stabilized and the planning of the entire enterprise facilitated.

Summary

Comparison of three periods with different intensities of stocking and methods of herd management on the Jornada Experimental Range show the importance of grazing the range with a number of livestock that is in balance with the range forage supply. This is the first principle of good range management and no amount of good herd management can offset failure to apply proper stocking.

Maintaining a herd that can be quickly and easily adjusted to short forage supplies in time of drouth is a second principle for successful range livestock production in the Southwest. This can be accomplished by keeping the number of breeding cows at only 55 to 60 per cent of the average total adult stocking. The balance of the herd is made up of easily disposable grazing animals. When drouth strikes, needed reductions can be made, without sacrificing the breeding herd, by selling calves and yearlings. When extra forage is available calves can be held over and additional yearlings purchased. This flexible herd makeup, combined with a proper stocking rate, has demonstrated the following advantages as compared with a herd composed primarily of breeding cows:

1. The calf crop was raised by 10 per cent, giving 10 more calves per 100 cows.
2. Death losses were reduced from an average 1.9 per cent to 1.2 per cent per year.
3. The breeding herd was maintained without sacrifice sales of valuable breeding cows during drouth years.
4. Annual live weight beef production per breeding cows was raised from 447.6 to 640.1 pounds, an increase of 30 per cent.
5. Annual sales were less erratic and more sustained, permitting a more stable and orderly operation.



production from the Jornada Experimental Range during two sting ratios of breeding cows in the herd. (Fig. 4.)