JORNADA EXPERIMENTAL RANGE RESEARCH

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Results of 47 years of study on the Jornada Experimental Range in New Mexico have shown that a 50 percent improvement of black grama rangeland can be obtained by:

1. reducing the stocking during the growing season to half the average number the area will carry for the year.
2. not overstocking during the remainder of the year.
3. better distribution of stock-watering places, in order that cattle will not have to travel over 2½ miles to water, and,
4. Placing salt/or salt-meal mix away from water to draw cattle to areas otherwise lightly grazed or ungrazed.

A flexible stocking program is a necessity in the Southwest, because a fluctuating forage crop is a fact-of-life in this area. To assume that a range unit can be stocked at a constant level based on "average years" is inviting catastrophic destruction of the range resource. If a range unit must be stocked at a constant level, it must be at a low enough level that forage species are not extensively overgrazed during the inevitable drouth periods. This, of course, would result in a waste of forage during average and above-average years. Thus, to make maximum use of the forage resource without inflicting irreparable damage, it becomes necessary to have some form of flexible stocking.

A 47-year study of rainfall on the Jornada Range showed that 22 years had below-average forage production, 12 years produced about average forage, and 13 years had above-average forage production. Thus, 47 per cent of the time, the area was below average in forage production, and in only 25 per cent of the time was it above average in forage production.

In another 15-year study of rainfall and forage production, there were only two years that had above-average rainfall, six years had approximately average rainfall, and seven years had below-average rainfall. Seven of the 15 years had above-average forage production, three years had about average production, and five years had below-average forage production.

This means that if a rancher had a 1000-cow outfit, his stocking rate based on proper utilization of forage would have varied from 278 to 1579 cows each year. We do not expect the drouth conditions of the early 1950's to be repeated frequently, so our recommendations for a flexible stocking plan are to have the herd composed of no more than 55 to 60 percent breeding animals during average years. The remainder of the herd would be composed of yearlings and replacement heifers. Flexible herd management begins with an appraisal of forage production each fall after the growing season. In years of low forage production, adjustments in the size and composition of the herd would be planned for the winter-spring season to bring the herd within the capacity indicated by the forage appraisal. Adjustments would be made by:

1. selling weaner calves,
2. marketing holdover yearlings, and
3. heavier than normal culling of the cow herd.

If necessary, some of the replacement heifers would be sold.

In the years of above-average forage production, additional stock would be added to the herd carried through the winter-spring period. All the natural increase from the breeding herd could be held over until spring and additional weaner calves purchased for winter pasturing. Depending upon the market and forage conditions, these yearling animals would be sold in the spring or following fall when forage production would be appraised again and the herd adjusted to meet the new situation.

Flexible herd management has resulted in more uniform annual sales, a higher percentage calf crop, and lower losses.

The key to flexible herd management is keeping records—records of stocking by pastures, precipitation, forage conditions in the fall, and degree of grazing use actually obtained on the pasture before the next growing season begins. Collection of such information for several years builds up records that may be used for appraisal purposes and for developing future plans. Longtime records let the manager know how the forage plants respond to fluctuating weather conditions and how management can be adjusted to fit the environment in the arid Southwest.

During the last 22 years, a period of greatest beef cattle expansion, we've also seen substantial range and tame pasture improvements and feed grains have been produced in abundance for several years. Greater skills in cropland farming, range and pasture management, plant breeding and in better livestock breeding and herd management have been responsible for improved range, pasture and animal production.

Use Grass for Profit

Proper use of our grass is the number one requirement for profit. Having more feed than you need will permit animals to be taken off a reducing diet and placed on a producing diet. As someone said, "You can feed a profit into an animal but never can you starve a profit from one." This doesn't mean that cows need to be kept fat in winter. An 1,100-pound cow can lose 100 to 150 pounds or more of grass fat over winter without hurting her producing power, provided she gets the essential proteins, minerals, vitamins and energy feed to maintain proper body functions.

The cow is a remarkable quadruped. She is both a harvester and manufacturer. She harvests grass and converts

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OKLAHOMA GRAZING STUDIES

Grazing studies carried on for two years in eastern and north central Oklahoma have shown that on small grains, winter pasture, heavy stocking in the fall reduced grazing in the spring. Pastures that were lightly grazed in the fall and fertilized with 80 pounds of nitrogen per acre increased gains 90 pounds per acre. The gain of 250 to 330 pounds of beef per acre is more than could be expected from most summer pastures on the same soil conditions. The extra cost of land preparation and planting was offset by a harvest of five to eight bushels of grain per acre after grazing ceased.

In eastern Oklahoma common Bermuda grass which received various treatments, including nitrogen application and seeding with Elbon rye, Ladino clover and an annual legume mixture produced good daily gains in all pastures and especially on low-nitrogen-treated pastures. The extra nitrogen produced one pound of beef for each pound of nitrogen applied.

In a comparison of common Bermuda grass overseeded with annual clovers to common Bermuda grass with nitrogen fertilization, the pastures receiving 150 pounds of nitrogen per acre produced higher animal gain than the pastures overseeded with legumes, although production on the legume pastures was higher than the 12-year average. Beef production on the fertilized pastures was 154 pounds above the 10-year average for non-fertilized pastures.

Four years' results in north-central Oklahoma indicate that Midland Bermuda grass hay alone is equal to two pounds of 40 per cent protein supplement and winter Bermuda grass grazing.

Higher rates of nitrogen in single applications are recommended for hay production from common Bermudagrass pastures, while split applications are recommended for grazing purposes. Nitrogen increased the per cent of protein in all treatments.