Range Conservation and Season-long Grazing

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Conservation of range land is basically a matter of grazing management but the rancher is also concerned with other practices such as fencing, water development, salting, and weed eradication. Though many factors are involved, the most important are correct numbers of livestock, including good distribution, and grazing during the proper season. These are two of the most difficult and important problems due to the fact that (a) various range units involve many forage species, many having different values and different growth habits, (b) quantitative analysis of the forage cover on various range units is difficult, (c) the effect of various intensities and seasons of use upon the physiological well-being of forage plants is little understood, and (d) fluctuations in weather, especially precipitation, occur from season to season and from year to year, accompanied by a confusing complexity of variations in forage yields and developmental behavior. Despite those difficulties, accurate determinations of the grazing capacity must be made if the range is to be handled properly.

Continued failure to evaluate correctly the capacity of range land is certain to result in failure of the livestock enterprise and in impaired land values. Grazing land values generally are proportionate to the expected annual returns in the form of livestock products. When continuous overutilization is allowed to take place, the forage cover is reduced and livestock production declines, thus reducing the capital value of the land.

Both quantity and quality of range vegetation are reduced as range condition (or state of health) goes from excellent to poor. This is indicated in Table I from the work of Allred (1950) in Texas.

A further look at what has happened in Texas will illustrate the folly of continued overgrazing. Texas has 116 million acres of native grazing land. There are about seven million cattle, seven million sheep, 2.4 million goats, and three million horses and mules. Also, each year about 13 million pounds of dressed meat comes from deer, small game animals, and game birds, most of which live all or part of the year on grasslands. Yet, Allred (1950) estimated that this produces only 1/2 to 1/3 of what it could be if the range had not been continuously overgrazed. Range land in Texas is being occupied by waste trees and brush faster than it can be cleared. There now are 80 to 90 million acres of range land so occupied.

Overgrazing on a range is not dependent, alone, upon the number of animals, hence all the results attendant to overstocking can be realized locally, even under proper stocking rates, if stock are not distributed properly. Animals naturally congregate at certain points.

The most accessible areas such as valley bottoms, low saddles between drainages, areas around water holes, and level mesas, are the first to be utilized. Steep areas and those far from water usually are utilized less and may even remain unutilized, hence only part of the range is correctly grazed. The consequences of poor distribution are (a) excessive use of most accessible areas or (b) a reduction in the number of stock that can be grazed on the range unit as a whole. The adoption of one or more of the following practices may help alleviate these local conditions: salting, fencing, herding, trail building, water developing, and changing the kind of livestock (Stoddart and Smith, 1943).

Forage Production and Climate

There is a close relationship between forage production and climate, particularly precipitation. Precipitation in the West is usually low and dependable. Periods of low precipitation often are protracted. Subnormal rainfall is

<table>
<thead>
<tr>
<th>Condition Class</th>
<th>Percent of Climax Vegetation</th>
<th>Yields (lbs./A) of Climax and Other Species</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Valley site Other</td>
<td>Upland site Climax Other</td>
</tr>
<tr>
<td>Excellent</td>
<td>100</td>
<td>5,000</td>
</tr>
<tr>
<td>Good</td>
<td>75</td>
<td>3,900</td>
</tr>
<tr>
<td>Fair</td>
<td>50</td>
<td>2,700</td>
</tr>
<tr>
<td>Poor</td>
<td>25</td>
<td>1,600</td>
</tr>
</tbody>
</table>

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usually accompanied by a decrease in forage production. Savage (1937) reported that, on the Great Plains, the drought of 1933-34 caused a decline of 65 percent in the basal area of major grass species on ungrazed plots. Upson and McGinnies (1939) have shown that in southern New Mexico, forage production in the best years was four times that in the poorest. On the Snake River plains of southern Idaho, Pechanec et al. (1937) found that between 1932 and 1935, total vegetation on ungrazed areas decreased to 84 percent of the 1932 ground cover, grasses alone decreasing to only 48 percent of the 1932 cover. This marked reduction in forage yield resulting from poor growing conditions alone makes it evident that no plans for grazing should be made without allowing for variation in production attributable to weather conditions.

Grazing Management Systems

Proper range management is not merely a matter of grazing the correct number of animals and of grazing during the correct season. It also involves various livestock management programs necessary to realize the greatest forage yield consistent with maintenance of the range. Under ordinary range usage, animals are placed on the range and allowed to remain yearlong. On seasonal ranges, they are put on at the time of range readiness and allowed to remain until the grazing season is closed, this being known as continuous or season-long grazing. By this method, animals have free access to all parts of the range, and range use follows the same plan each year. Contrasted to continuous grazing are the specialized systems, deferred grazing, rotation grazing, and deferred-rotation grazing. Experiments under continuous grazing usually are designed to study the effects of rate of grazing on forage composition and yield and on livestock produced.

McIlvain et al. (1954) reported on a ten-year study at Woodward, Oklahoma, in which three rates of grazing were compared. The steer gains per head per season were 400 pounds for the lightly grazed pasture, 384 pounds for the moderately grazed pasture, and 361 pounds for the heavily grazed pasture. There was a slight depletion in the quality of forage on the heavily grazed pasture over the ten years, but not as yet very serious.

Kessler et al. (1951) reported on investigations started at the Fort Hays branch of the Kansas Agricultural Experiment Station in the spring of 1946 to determine the effects of different grazing intensities on beef production. The average gain per head for a season (180 days) was 122 pounds in the overgrazed pasture, 172 pounds in the moderately grazed pasture, and 192 pounds in the undergrazed pasture. It should be noted that the overgrazed pasture was beginning to show some effects of over use, such as some erosion which took place following a heavy rain. No erosion took place in the moderately or lightly grazed pastures.

McConnell (1945) showed on depleted range in Texas, that reduction of the stocking rate by one-half increased total beef production substantially. The increased grass production raised the average weight of the breeding herd, increased the percentage of the calf crop, increased the market weight of the calves, and stopped cow and calf losses from malnutrition. At the same time, range condition was improved with a resultant decrease in soil erosion. It is evident that depletion (reduction in range condition) is bound to occur eventually on overstocked pastures. Often the depletion is so severe that the total yield of animal products is reduced even though large numbers of animals are carried. Brush encroachment and increasing soil erosion may accompany depletion. When this occurs, secondary succession of native vegetation often must be assisted by costly brush eradication, pasture reseeding, and soil conservation measures.

LITERATURE CITED


