

# Range Lands as a National Resource<sup>1</sup>

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On accepting this assignment I had in mind several things, but principally two considerations: (1) that I was one of the members who founded our Society of Range Management a few years ago, and (2) that my interest in the subject of range lands goes back to the early twenties when I emigrated to Western Canada and later to Montana where I was instrumental in getting a series of courses in Range Management established at the College of Agriculture and served as the first Head of the Department of Range Management.

Apparently the Committee had in mind that I should discuss range lands from the livestock producer's standpoint. At various times in my experience I have been responsible for sizable herds and flocks of livestock using public lands, particularly national forest lands, and, therefore, appreciate some of the problems involved.

## The Area—Its Importance and Problems

My remarks will be confined for the most part to the area comprising the eleven western states. Harold Guilbert and George Hart of the University of California, in estimating the importance of range, pasture and roughages, stated that in California in the early 1940's at least 90 percent of the total beef tonnage was produced from these three sources of feed nutrients, with less than 10 percent being derived from concentrated feeds. For the United States, from 10 to 15 per-

cent of the beef tonnage was estimated by these two Californians as being derived from concentrates.

More recent unpublished U. S. Department of Agriculture data, estimated and compiled by R. D. Jennings for the Western Region, show that 62.88 percent of the feed units utilized by the four roughage-consuming classes of livestock—beef cattle, dairy cattle, sheep and horses—came from pastures, 27.11 percent from harvested roughages and only 10.01 percent from concentrates.

A break-down of the feed units from pastures shows that 24.29 percent came from cropland pastures, 38.69 percent from open permanent pastures, 26.78 percent from grazing not on farms, 7.21 percent from aftermath and 3.03 percent from woodland.

From these and other estimates that could be cited you can readily visualize our great dependence on grasses and roughages. So far as the future is concerned, the primary problem is feed supply that we can expect to obtain from natural vegetation, pastures and harvested roughages.

One noted authority holds to the view that in the future our range-land resources will become relatively and absolutely, less important nationally in our production of grazing animals, and that the cultural development of grasslands has much more to offer with respect to economic potentialities.

Unfortunately, when we study subjects of this nature we soon realize the inadequacies of present systems of recording data. For example, Howard B. Sprague believes that no really adequate data

are being gathered by the Census Bureau or other government agencies on production of forage on pastures.

Walt Dutton has estimated that over half our total land area, or over 950 million acres, can be classified as range land and that these lands furnish forage for one-half of our cattle and three-fourths of our sheep while at the same time providing forage for wildlife.

The principal native grazing lands are in the West and South. Actually, the largest and most significant pasture area in our nation is in the Western and Great Plains regions. In the West it comprises 590 million acres, much of it of low carrying capacity. It has been estimated that if we were to expand cropland in the West to the fullest we would still have 500 million acres of grazing land left.

The inventory of roughage-consuming livestock which has been made on the lands of the Western Region indicates that total animal units of all livestock have changed very little. Numbers have varied between 15 and 18 million head. At the beginning of the century beef cattle made up approximately 60 percent of the total animal unit population. This figure is now 90 percent. It appears, therefore, that recommendations with respect to management of the grazing resource should apply to beef cattle use.

## Looking Ahead

As to the future, let us look at our meat production situation since the whole national welfare is so dependent upon meat.

In connection with another study I have projected our beef needs twenty years from now in 1975, and offer the following estimates:

Assume 200,000,000 people  $\times$  88.2 lbs. beef and veal consumption per capita (our 1954 estimated consumption, made up of 78 lbs. beef and 10.2 lbs. veal) = 17,640,000,000 lbs. required.

<sup>1</sup> Address given at the Eighth Annual Meeting of the American Society of Range Management at San Jose, California, January 26, 1955.

Assume 380 lbs. average carcass weight per animal (cattle and calves) slaughtered.

Then  $17,640,000,000 \div 380 = 46,421,053$ , the number of carcasses (beef and veal) required.

Actually, during the period 1924-53, we have slaughtered 36.85 percent of our inventory.

$46,421,053 \div 36.85 \times 100 = 125,973,006$ , the projected inventory by 1975

Compared with an inventory on January 1, 1954 of 94,677,000, the projected 1975 inventory would represent an increase of 31,296,006 or 33.06 percent.

The preceding estimate is based on the *highest consumption rate* on record. If we revise the estimate and base it on the *lowest consumption rate* recorded during the past ten years, then the following figures would apply:

Assume  $200,000,000 \text{ people} \times 61.8 \text{ lbs. beef and veal consumption per capita (our 1951 consumption—lowest since 1943—made up of 55.2 lbs. beef and 6.6 lbs. veal)} = 12,360,000,000 \text{ lbs. required.}$

Then  $12,360,000,000 \div 380 = 32,526,315$ , the number of carcasses (beef and veal) required.

$32,526,315 \div 36.85 \times 100 = 88,266,798$ , the projected inventory by 1975

Compared with an inventory on January 1, 1954 of 94,677,000, the projected 1975 inventory, based on the lowest consumption rate of the past 10 years, would represent a decrease of 6,410,202 or 6.77 percent.

If we assume the highest estimate, then we have twenty years in which to reach it. But if the human population goes to 200,000,000 by 1970, as some experts predict, we will have only fifteen years. And remember, this population pressure is going to consist of an increasing proportion of youngsters who consume relatively large amounts of meat.

Can we increase our beef supply by 33 percent? Can we do it in time? And what measures will we have to

take so the forage supplies will become available when we need them? Clearly, some planning will have to take place. In many respects it becomes a challenge to our ingenuity and involves the application of research.

Have we accomplished significant increases in production of beef in recent history? The Western States Experiment Stations (including Texas) in cooperation with the Bureau of Agricultural Economics of the U. S. Department of Agriculture have reported in Utah Bulletin No. 352 an average increase of 17 percent per breeding unit of cattle between the periods 1924-28 and 1946-50.

It should be remembered that much of this increase was the result of improved management largely in two fields—nutrition and disease control, and I am including in nutrition sound range and pasture management.

Most of the permanent improvements that are possible as the result of sound selection practices applied to breeding stock still lie ahead. It is entirely feasible that we can yet accomplish material improvement in production if we are successful in getting current and new animal and plant research applied.

With respect to permanent improvements resulting from the expanded use of improved breeding stock, it is clear that we can increase current meat production by this method. To keep pace with population it will tax our range and forage resources if the consumption rate per capita for beef and veal remains high enough to demand a 33 percent increase in all-cattle inventory.

There is no denying the fact that greater forage supplies will be needed and we need to start on that immediately. But if we started a mass movement for improved meat animals now we might be just one step ahead of the need when it arises for it takes time to shift animal populations.

We have demonstrated that we can get 3-pounds-per-day gaining steers instead of the 2-pounds-per-day variety that we have been content with for too long a period of time. And, if we could quickly overcome the almost ingrained prejudice against breeding for large, rapid gaining animals, we could add very materially to our available meat supplies without taxing our feed resources. It has been and is being done with some classes of animals, but not with beef cattle to anything like the degree that it may reach in the distant future.

And, if we had a sound animal-introduction program, we would reap a rich reward in time for there are many types of animals or breeds that we have never tried to use. In this respect we have been extremely conservative, perhaps entirely unrealistic. We are beginning to appreciate some of the significance of animal adaptation.

Therefore, we should keep clearly in mind these facts:

1. Future increases in meat have to come from increased efficiency in our meat production systems. In this connection, I would refer you to an excellent review article by L. A. Maynard of Cornell that appeared in the July 1954 issue of *SCIENCE* entitled, "Animal Species That Feed Mankind."

2. We have no new lands to which we can move. Therefore, we are dependent upon improved supplies and quality of forages on the same grazing and pasture lands. Some of the experimental work that has been reported in this field is nothing short of spectacular.

3. Adequate supplies of high quality forages are mandatory if we are to obtain maximum benefits from improved and adapted animals. We are keenly interested in plant breeding] work where improved strains] with higher nutritional values are being developed.

4. We will have to produce our own meat supplies. There is little if

any possibility in the immediate future that we can obtain supplies from other sources.

5. There is some evidence and hope that producers are becoming more specialized and that they will develop and manage range and pasture resources in such a manner

that these resources will be passed on to future generations with increased value. And that, in essence, we will "keep the younger generation in view and leave them no tumbled house," and we will recognize that the range resource is renewable but only if is well managed.

The day is at hand when the importance of forage will become so great to us that as a nation we will initiate appropriate steps not only to husband our forage resources but increase them, for the future progress of our nation will be contingent upon such action.