Food from Rangeland

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Subtitle M of the Agriculture and Food Act of 1981 intends to promote the general welfare of those dependent on the Nation's rangelands through improved productivity. Those lands, where the natural vegetation is grassland, open forest, woodlands, or shrublands, comprise more than 60% of the 48 states. Nearly two-thirds of these rangelands are privately owned and all are grazed by domestic and/or wild animals. Rangelands are unsuited for cultivation but produce a great volume of forage that ruminant animals convert into high quality food protein. While this paper is directed toward domestic livestock and food production, let it be abundantly emphasized that rangeland management simultaneously aims for enhanced wildlife populations, covered watersheds, recreational opportunities, aesthetic values, protection of threatened and endangered species, and reduced hazards from erosion and flooding.

Rangelands contribute to the food producing system in intimate association with other agriculture. Livestock harvest some 100 million animal-unit-months (AUM) of rangeland forage each year. An AUM is the amount of forage needed by a mature cow for one month or an equivalent amount for other animals. Western-wide statistics are unavailable but the California example typifies the importance of rangeland grazing. It is estimated that 69% of the state's stocker cattle, 61% of its breeding beef cattle and 51% of its sheep are produced on rangelands. Most beef cattle production in the west seasonally uses rangelands combined with periods on planted forages, crop aftermath, harvested feeds, and agricultural by-products. Many animals are fattened on feed grains before slaughter. Thus, range animal production is closely linked to cropland agriculture.

One frequently hears about the deteriorated condition and low productivity of both public and private rangelands. Private groups and even the land management agencies sometimes state that western rangelands are in poor condition and getting worse. Data from recent studies indicate otherwise. Between 1935 and 1976 the percentage of excellent and good condition range increased from 16 to 31% while fair and poor condition ranges made a corresponding decrease. Condition ratings evaluate the current status of the resource in relation to its productive potential. Much less range is in poor condition now than in 1935. A 1980 inventory found that about 7% of the western rangelands had critical and severe erosion while three-fifths were stable or with slight erosion. Clearly, more, much more, range conservation needs to be accomplished, but just as clearly, improvement is more prevalent than deterioration. Many in the range profession believe that livestock carrying capacity can be doubled from what it is today when the ranges reach full productivity under intensive management. They also believe that range sites and habitats can be improved for all the multiple uses at the same time. Large scale examples of successful range improvement programs exist in the western states. They have taken time, financial support, application of considerable scientific knowledge, and common sense. However, constraints of considerable magnitude continually increase the time and costs for range improvement. Some of these constraints, which limit even more progress, and that need examination in the governmental arena are as follows:

First, increased intensity of rangeland use and management must look ahead to declining inflation, increasing real growth in the national economy, and more competition for available resources. Tight money forces both government and the range grazing industry into application for cost-effective practices. Unfortunately, much remains to be learned and understood in this area. The costs and returns to produce an AUM of grazing can be reasonably determined, but the costs and benefits of a visitor day, the value of one more deer, or an acre-foot of quality water are less readily determined. When these multiple resources are considered in trade-offs with each other, it oftens seems that little gets done to enhance the total value of the resources. Although of unquestionable value, the preparation of environmental impact statements on rangeland use and management has also drained funds away from managing the resources. Governmental support funds have decreased and ranchers are in a situation where production costs increase faster than prices of livestock products. There is no question that people have suffered but so has the land resource improvement program. It is time for action to increase the real productivity of rangelands.

My second point is that expensive energy will encourage more effective grazing management on the nation's rangelands. It is well established that the land used for cultivated pastures is being converted to crop production and the remainder receives less fertilizer and irrigation than formerly, hence a lower grazing capacity than a few years back. High land and production costs, most energy and equipment, simply force cultivatable land to be used for the crops of greatest income. Fossil energy in the beef production system primarily produces feed to be fed mechanically to livestock through the use of farm and feedlot equipment. The production of rangeland forage uses less fossil energy than any other type of animal production and takes place on land unsuitable for crops. Ruminant animals convert low value rangeland forages into high quality human foods. Therefore, an increasing competitive advantage of rangeland grazing versus other forages is predicted. This will require more

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intensive land management and animal husbandry than decades of teaching and preaching have accomplished in the past. If this prediction comes trues, much research and organization of knowledge are needed to attain low energy costs and profitable food production from rangeland.

The third point is the need for mitigation of the impacts on local people when public decisions result in net gain for the public as a whole. This principle, when applied to the shifts in uses of rangeland, states that the gainers can compensate the losers and still be better off. An example of this problem is illustrated by the gains to the public and the losses of livestock when control of predators was restricted. Another recent example is the controversy over jackrabbit control to reduce damage to crops and range vetetation. Almost everyone accepts the principle of equity but few agree who should pay how much to whom and often disagreements occur over who has the rights in the first place. This issue should be decided based on comparative valuation on forage for livestock, water used off site, wildlife, and recreational experiences. Such a mixture of values cannot as yet be precisely determined or fairly compared. These complex pricing problems require the best of research from the biological and social scientist, a spirit of compromise from the users, and full exposure in political discussion. The nation's political bodies have a high stake in these controversies through passage of laws and regulations, and support of management and research dealing with complex mixes of land ownership.

Lastly, I want further to **emphasize the needs for rangeland research.** Since 1976, 15 different documents that recommend research priorities for rangeland problems have come to my attention. One has only to examine an environmental impact statement to realize that our knowledge is inadequate to prepare for the kinds of problems currently faced by rangeland managers. People demanding use of rangeland resources have increased in numbers, but the bulge in rangeland research following Sputnik has tapered off. For example, the number of scientist years devoted to forestry, range, wildlife, and water research in California was 143 in 1958, 205 in 1968 and 155 in 1977. It is still less today. The cost per scientist year has doubled since 1958. There is less land, less water, less energy, and less food on this earth for each of us than just a year ago. The current federal budget further reduces our ability to produce food at some later date by restricting research support now.

The environmental syndrome, above all, has increased the unknown part of our knowledge storehouse because it asks for information we don't have. Oversimplified, it is as fundamental as changing the emphasis from research making the cow more productive to research also finding how the cow can be used to make the whole rangeland more productive. Much remains to be done to make rangeland produce the food that it can and the amenities that it also can provide.

Editors Note: "Food from Rangelands" was one of eight papers requested as background material for consideration by the Western Governors' Conference in their 1982 program "Food in the West."

BRANDAIDS Needed?

Copies of BRANDAIDS, the booklet developed by the Society for Range Management to help ranchers weather the difficult financial climate, are available from the Society headquarters, 2760 West 5th Avenue, Denver, CO 80204. A single copy per individual for a single instance is available free of charge. Two to 100 copies may be purchased @75¢ each, postpaid; more than 100 are 50¢ each. Please allow 2 weeks delivery after receipt of your order.