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## RANGE MANAGEMENT

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### ***Using the Forage Resource on the Eastern Slopes of the Canadian Rockies***

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My contribution must of necessity be that which stems from my experience as a ranch owner and operator, and not as a professional agriculturist. I have owned and operated a foothills ranch on the Eastern Slopes of the Rockies, for 23 years. This ranch, of some 6,000 acres, is located in the extreme southwestern corner of Alberta, on the Waterton River, just outside of Waterton Lakes National Park. The altitude varies from 4,100 feet to 5,000 feet.

Our rainfall, based on the nearest points for which official figures are available, is about 25 inches, of which some 17.26 inches has been in the form of rainfall or wet snow during the growing season. Average rainfall, however, means little in planning ranch operations; during the period 1942-1952 it has varied from a low of 6.89 inches to a high of 40.28 inches.

#### **Range Forage Composition**

First of all, something about our grass cover, whence, according to the Bible, all flesh comes. Our most abundant native grass is rough fescue, which is a good reliable grass, both for summer and winter grazing. While it may not have the protein value in winter of the blue grama and other short grasses of the more easterly ranges, it will carry a cow herd through the critical season of winter providing they can get down to it through the snow. Since it is a moderately tall grass, it serves our purpose better than would a short grass.

Our second most abundant grass is Parry's oatgrass, which, I am informed, is restricted to a rather small area of the great grass empire of the western plains. This grass is not very palatable to cattle, but when they have to eat it they will and get along. The third most abundant are the wheatgrasses, western and slender. These are good and palatable grasses.

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*R. H. Bennett has owned and operated a foothills ranch on the Eastern Slopes of the Canadian Rockies for 23 years, located near the Waterton Lakes National Park in Alberta. This presentation is based on a talk given for a local section program in 1954 at Claresholm, Alberta.*

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Perhaps next in point of volume is Idaho fescue. Every range in my experience, has its "ice-cream plant," that is, the plant preferred above all others by livestock. There is the winterfat of the more southerly and arid ranges, the bur clover of California, the purple vetch of the north country, and the blue grama of the short grass country of eastern Alberta. Idaho fescue is our ice-cream plant. Spring, summer, autumn, winter, our cattle prefer it, and will camp on it until it is grazed off. It is quite a problem to keep it in our pastures.

Then we have a great variety of other native grasses, some fifteen in all, which are quantitatively important. There are Junegrass, the various bluegrasses, ryegrasses and pinegrass which grows in the

shaded poplar groves. There are the so-called marsh grasses such as species of *Beckmannia* and sedges which seem to become palatable to cattle in the autumn, particularly when there is an early snow. At that time I have noted that the cattle will go into the swamps and eat this kind of grass right down to the roots. They will even leave good green hay to do so. I do not know what special property this kind of grass has at such times.

#### **Maintaining Forage and Livestock Production**

Of course, owing to our location, the number of feeding days in winter is relatively high in spite of the fact that we have the benefit of chinook winds. I never feel safe in going into the winter unless I have a ton and a half of hay per head to be wintered. Our average consumption of hay is about 1.10 tons per head. We feed somewhat more heavily than certain of our neighbors, because this practice pays off, I feel, in marketing weights. We always try to keep in mind in our operations that we are marketing not a certain number of head of cattle each year, but a certain number of pounds of beef. In addition to the hay fed to weaners, we try to give them a small supplement of concentrate—either oat chop (when we can raise this at home) or oil-cake meal, when purchasable at a reasonable price, having reference to the selling price of grass-fat beef.

We like to turn our yearling calves out in the spring with some 25 to 30 pounds of winter gain from weaning weights. I know that this practice is a controversial one with many good stockmen feeling that it does not pay, but I am giving our experience and belief for what it may be worth. One advan-

tage of the practice is that with the extra winter feed one has a certain proportion of so-called "two-way" long yearlings to market in the fall.

Our marketing practice is to carry all of our surplus heifers to long two's, which are marketable in August and at least one-half of our steers are sold as long two's in November. The other half go as grass-fat long yearlings also marketed in November.

You may be interested in the average weights of animals marketed off grass from our ranch—the steers in late October or early November and the heifers in late August. The weights have been averaged on an arithmetical basis, but owing to the fact that marketings are about on an equal basis from year to year, these averages will approximate a weighted basis.

They are:

Long yearling steers.....	759 lbs.
Long two-year-old steers.....	1004 lbs.
Long two-year open heifers (marketed in late August) .....	935 lbs.

These weights are after shrinkage. Due to our distance from shipping point and the practice of selling through community auction sales where the cattle are weighed after standing in a dry lot overnight, the shrinkage is often severe.

I have no corresponding weights for calves at weaning as we do not sell such cattle. Our ranch weights for steer calves, over our own scales, run about 430 pounds and for heifer calves about 415 pounds.

These foothill ranches, with their succulent long and mid-grasses are perhaps best adapted to a cow-and-calf operation, but this practice I do not like because of its relative inflexibility. One can get caught badly when adverse conditions such as drought force drastic reduction of the herd. Also one cannot so easily take advantage of peaks of cattle prices.

### Forage Reserves

Ranches like mine are dependent for their profitability or even their

survival on a good hay crop. Our emphasis is changing constantly from cutting range grass and volunteer timothy to cutting intensively-cultivated fields in which alfalfa plays a large part.

Our rotation, worked out over the years, is to follow up two years of oats and barley with alfalfa seeded directly into the stubble just as early as the frost goes out. The summer following such seeding we get only a light yield of alfalfa with many weeds. The second summer we are in full production. Incidentally we drill about 50 pounds per acre of the 11-48-0 fertilizer into our alfalfa meadows in the fall when we have the time to do so. The hay so fertilized provides a phosphorus supplement to the cattle. We have not found it profitable to drill fertilizer into our timothy meadows. The field is left in alfalfa for about six years not counting the year of seeding. During that time the ratio of alfalfa to grass is constantly decreasing, whereas in the second year 90 percent of the hay yield may be in alfalfa. When the sixth year comes around the proportions may be reversed. The important thing is that the total yield—both legume and grass—is about the same until at least the sixth year. The association of legume and grass is a happy one in our area. When the hay meadow is finally broken and put into grain the yields, if the rainfall is normal, are good. There seems to be a good quantity of accumulated nitrogen in the soil.

The expense of haying and the human effort involved are heavy in these foothill ranches. Only by the best methods of animal husbandry, and especially by keeping one's eye on marketing a certain poundage of beef rather than a number of animals can the expense and effort be compensated for. The foothill rancher can thus feel equanimity in contemplating the less exacting life of the short-grass country rancher operating largely on leased land.

Losses from stock poisoning are,

I believe, at the minimum point in my locality. We have three types of plants rated as poisonous: poison hemlock, the death camas and two species of arrow grass. Only from the first named have we experienced identifiable loss, to the extent of perhaps a single animal every other year. Certain of our hay meadows have a relatively large number of the flowering stalks of the arrow grass but we cut these meadows for hay with apparent impunity.

Our sources of loss come from the straying of single, or small groups of animals, chiefly yearlings, into the heavily-wooded and remote pockets of their summer range, and from predators, chiefly grizzly bears. The loss from bears is, on certain of these foothill summer ranges, not inconsiderable in spite of all efforts to control the number of bears by trapping and hunting.

### Ecology of the Range

The subject which, viewed in proper perspective, is perhaps most important, and to me the most interesting is the ecology of the foothill ranges under conditions of commercial beef production. The necessities of keeping a ranch going, with all the day-to-day and season-to-season preoccupations that this involves, make it difficult to watch the relationship of the plants to each other. But nothing, in the long view, is as important. I therefore make it a point to pause every now and then and try to visualize the conditions which will confront my sons and grandsons in 20, 40, or even 60 years.

Of course, there is the overall question of whether or not, in the rapidly expanding population of this continent and of the world, we in the foothills will be permitted to go on in our relatively non-intensive use of our land. We have good soil, much of it black loam, and good rainfall. The use of the land to grow native grasses in a range type of animal husbandry may not be allowed to go on. In

European countries such land would be intensively cultivated in crops that go directly into human consumption—not through the medium of animal food. I am told that five times the amount of human energy can be grown on an acre devoted to such crops as can be grown through the intermediary of meat animals. This explains why almost one-half of the world's population seldom or never taste meat.

My ranch of some 6,000 foothill acres now supports my family and the families of two employees. If divided into the rather liberally-sized units by European standards of 60 acres, Shoderee Ranch would give a living to at least 100 families. These foothill areas, with their large proportion of black-loam soil, are truly habitable lands. They offer a haven for the family unit for they possess the three essentials for survival—wood, shelter and water. So far apparently only their rolling nature has protected them from the plow and this is not as good protection as the aridity of the short-grass country.

The subject gives the philosophically-minded foothill rancher much food for thought. I am glad that I shall probably not be around to cope with the pressure of future population, because I happen to like the kind of life we now lead at Shoderee.

### Prospective Changes

But assuming a continuation of some kind of range beef operation what changes will occur in the land under moderate use? On my range moderate use is about 12 acres per animal unit. In recent years of abundant rainfall the figure might well be 10 acres per animal, but I can recall the dry thirties and do not want to get caught in an over-stocked condition if those years return.

The experience of the past is, of course, the best criterion one can apply to the ecology of an area. My first-hand observation goes back some 23 years. I have talked to a number of reliable observers whose

### *The Ranchman's Issue*

In the first issue of the *Journal of Range Management* devoted entirely to articles by ranchmen will be found a wealth of information and sound range and livestock management principles. The contributions reflect the progressive attitudes and the forward thinking of ranchmen and livestock managers in the development of the art of grazing land management throughout the Western range area from Canada to Texas and from California and the Pacific Northwest to Arkansas and Louisiana.

Our thanks and appreciation go to the many contributors who have so willingly shared their rich experiences with us all. The Society welcomes the opportunity to serve as a common meeting ground and medium of expression for all who are interested in grazing land management.

Pass this issue along for an interested neighbor or rancher to enjoy. Additional copies can be obtained from W. T. White, Executive Secretary, 2443 N.E. 10th Avenue, Portland 12, Oregon, at \$1.00 per copy.

observation goes back at least 40 years before that.

### Invasion of Woody Plants

The salient change seems to be the steady spread of the poplar and willow thickets over the foothill country. One old-timer who came in the late eighties told me that he had ridden over a certain part of my ranch—Pine Ridge—when there was not a tree or willow bush on it. It is now at least one-third covered with such growth. In my 23 years the increase in such type of vegetative cover has not been above 10 percent, so there was obviously a greater rate of advance at the start when cattle were first introduced. But the invasion of the pasture land by these types of trees seems to be inexorable. This fact seems to lend encouragement to the view that eventually the land will be intensively farmed after the tree cover has been cleared.

Probably the most effective control of poplar and willow in the foothills was accomplished in the years before the advent of the cattleman by prairie fires, which had a selective effect toward the grass cover. However, in certain thickets of willow, one may find charred stumps of very large willows, with a diameter of fourteen inches or more, indicative of a not-too-remote period when there was a tree cover even heavier than we now have. In certain areas one finds charred stumps of Douglas fir.

### Invasion of Timothy

The invasion of timothy into our native range is appreciable and apparently uncontrollable. The effect is to increase the available plant food to cattle during the summer but to decrease it for the rest of the year since cattle will not graze dry timothy. It enables one to graze his summer pastures more heavily but forces him to grow more feed for the winter and spring season. Then there is the consideration of whether or not to leave cattle on timothy pasture as the marketing season approaches. It is a "soft" feed, and I prefer to take my marketable animals off such pastures in early August and place them on a fescue and oatgrass type of pasture. I might add that the advance of the timothy into native grass is an inducement to the foothills stockman to go into a cow-and-calf type of operation.

Moreover, this invasion tends to decrease the pasture available for early spring grazing since timothy is a late starter. The carry-over of native grass, together with the early culms of the two fescues and the Junegrass, should be relied upon to get one past this critical season. I believe that I shall be forced to break native sod, and seed intermediate wheatgrass to counteract the advance of the timothy. This will add to the expense of the operation. Everything one does to meet either the advance of the trees, or of timothy, or of depletion of the fescues costs money.