

Improved Pasture for Spring and Summer, Range for Fall and Winter

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INCREASED forage production on the range, and improved pasture have enabled us to wean heavier calves and lambs, run more head of livestock and reduce the costs of operation. Improved pasture has increased carrying capacity and weight gains; winter ranging has reduced the cost of wintering.

Our steep and broken range lies above 5000 feet in South Central Montana. Much of the twenty to thirty inches of precipitation falls as snow. During storm periods, snow will accumulate to a depth of two or three feet on the level, but the strong winds and warm chinooks provide open grazing during most of the winter. The grass association resembles the Pacific bunch grass type of bluebunch wheatgrass (*Agropyron spicatum*) and Idaho fescue (*Festuca idahoensis*).

Most of the increase in livestock production has resulted either directly or indirectly from improved pasture. The carrying capacity of improved pasture is twice as great as good native range. Better August gains are made on improved pasture. The elimination of spring use and the deferred summer use afforded by improved pasture, have increased range forage production.

Crested wheatgrass pastures, sown on the lower south slope benches after two crops of barley, were the first to be established. The original purpose of the crested wheatgrass pastures was to reduce the losses from tall larkspur (*Delphinium* spp.). During the first three years of running cattle, 15 head out of a herd of 50 died of larkspur. Since crested wheatgrass has kept the cattle off the range

during the larkspur season (May and June), we have had no larkspur losses the past seven years, even though we've increased the herd to 200 head.

Calving is started in February, instead of March in order to escape the difficulty of engorged teats that result when calving on crested wheatgrass. The calves born in February and March are able to take the full flow of milk when they are turned to crested wheatgrass the first of May.

New and practical management suggestions from a young Montana rancher based on experience. An article full of useful information and stimulating suggestions for the rancher and technician alike.

Nursing cows on improved pasture become fat. Because of their good condition, the calves are kept on them longer in the fall. Cows in good condition winter easily on the range and less supplement is required.

Not only does improved pasture increase carrying capacity, but greater gains are possible. Yearlings summered on improved pasture weigh 900 lb. compared to those summered on Idaho fescue grassland weighing 750 lb. Considering the investment in cattle, the cost of wintering and the ease of looking after cattle on pasture, it is a question if it pays to turn out on range in summer.

For summer grazing we are establishing orchard grass (*Dactylis glomerata*) and alfalfa (*Medicago*

sativa) on favorable moisture sites of the range, and on crop land no longer needed for hay production. The deep-rooted alfalfa and orchard grass furnish succulent pasturage during the dry August, drawing on winter-accumulated moisture. Orchard grass-alfalfa pastures produce 5 animal unit months per acre, of grazing a year, and crested wheatgrass 3 animal months.

Winter Ranging

The range no longer needed for summer grazing is used to carry the cattle and sheep through the dormant season of production, fall and winter. The sheep used to go on full hay ration the middle of December. We now keep them on the range until the first of April. The cattle range out through February. Supplements are fed after the first of January, and the cattle and sheep winter well on the range.

We ran out of grass the first few years of winter grazing. We had grass left, but it was scattered throughout the inaccessible parts of the range. Since a grazing plan has been adopted to reserve the closer, snow-free sites for winter use, we have had an abundance of winter grass.

Cattle winter better on areas with little brush. They tend to congregate in the brush and consume little feed during stormy weather. On brush-free areas, they find protection in the swales and are always on good feed.

Relatively little difference has been found between north and south slopes in maintaining the stock. The amount of area the snow will blow off determines the amount of grass available.

The animals are fed supplements on areas of the range that have an abundance of grass as a means of obtaining distribution (Fig. 1, l.). Four-wheel-drive trucks with winches have made all areas of the range accessible. Afternoon feeding of the supplements seems to en-

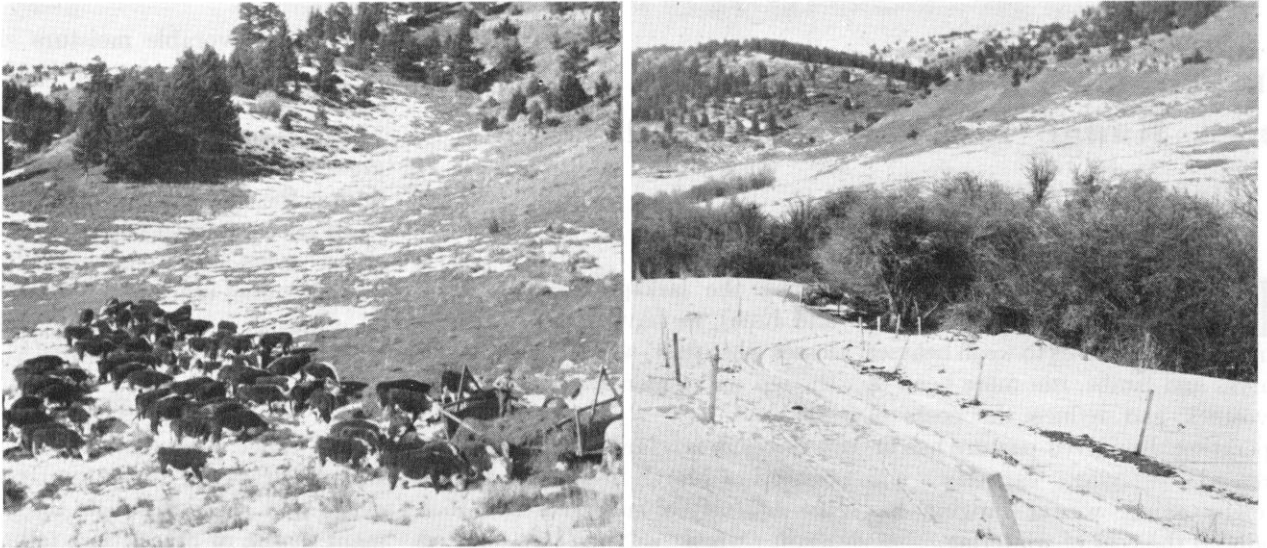


FIGURE 1. *Left.* Cows are supplemented on south-facing slopes in February. *Right.* Cattle use this electric-fence lane to water grazing the 500-acre north-facing slope in winter. Because of the limited area around water, cattle return to grass areas to manure.

courage the animals to consume more grass.

The cattle range out farther from water in winter than they do in summer. Our water is spring fed and stays open during the day. (Fig. 1, *rt.*) The sheep do well without water when there is snow, even when supplemented with hay.

Good quality alfalfa hay is used as a supplement, supplying digestible protein for one-third less cost than pelleted concentrates. Much less range grass is consumed when alfalfa is fed as a supplement. Sheep do well in the early winter (January) with $\frac{1}{3}$ pound of oats or barley. The ability of sheep to select the portions of forage plants with higher protein and their appetite for the high-protein browse plants allow them to balance their diet better than cattle. The cattle satisfactorily utilize coarse grass that sheep leave, when fed a protein supplement.

Sheep are considered better rustlers than cattle because they paw away the snow and their wool affords them protection from the icy winds. Cattle will rustle if turned into areas of tall grass after heavy snows. It is necessary to accustom

the animals to the method of handling desired. Animals that are used to being fed all winter need to be trained to rustle.

Wintering on the range is less expensive than feeding straight hay, even though some additional expense is incurred hauling the hay to the range. We feed one half as much hay by wintering on the range.

In severe winters such as 1948–1949 we stretch our hay supply by feeding our reserve of oats and barley. Oats and barley will replace 2 pounds of hay per pound fed, and make a better reserve than large amounts of hay carried from one year to the next.

Range Type Cow

Better distribution over the range can be obtained with cows that have the ability and desire to range out. Heavy cows with large feet find it difficult to move over our steep and rocky range. Cows that range out utilize distant areas. Greater forage production with increased carrying capacity results from the even grazing of range type cows.

Cows are judged for ease of

wintering and size of calf they produce. Cows that cannot maintain their condition in winter are culled. We are breeding toward a cow that has a capacity and appetite to consume large amounts of coarse grass in summer and bulky matured grass, coarse hays and straw in winter, and has a long lactation period that corresponds to our season of green grass.

Wild and nervous cows, although they range out, generally stay thin and produce light weight calves. We prefer cows that take their calves with them to graze, as opposed to those that hide their calves and run back to them frequently during the day.

We select bulls from cows that produce growthy calves under our conditions. Replacement heifers are selected after they have raised two or three calves. Poor milkers and poor keepers are culled.

Sagebrush

Sagebrush (*Artemisia tridentata*) and other noxious plants are increasing on the range (Fig. 2, *l.*). The sagebrush grows in areas of snow accumulation that are heavily grazed. The grass in the snow areas



FIGURE 2. *Left.* Grazing results in a change of cover from grass to sagebrush and then to forest. *Center.* Sagebrush holds snow and delays spring melt. Palatable feed is available on snow-drift areas while snow-free areas have mature coarse grass. *Right.* Cattle tend to tramp out sagebrush. Hay was fed on sagebrush plants in this area during the previous winter.

is six weeks later than on the adjacent snow-free areas (Fig. 2 *cen.*). The stock will not touch the unpalatable mature grasses until the snow-accumulation areas are grazed bare.

Our method of dealing with sagebrush is twofold: (1) the level sites of snow accumulation are plowed and sown to summer grass, and (2) the season of grazing is changed on other areas from spring and summer to fall and winter (Fig. 2, *rt.*). In the fall, the grasses are all at the same stage of maturity. In the winter, the heavy snow cover prohibits the grazing of the snow-accumulation areas.

We believe the cheapest method of controlling sagebrush is to maintain forage competition. Improved pasture or properly grazed range maintains a competitive cover that sagebrush and other weeds are not able to invade. Since the natural mortality of sagebrush is high, and, since it is easily killed by burning or spraying, the problem is one of establishing and maintaining adequate competitive cover.

Range Fertility

Nitrate fertilization, as supplied by manures and legume residues, has shown marked response on our range. It appears that nitrates alone could double forage production. Fertility may be as important

as intensity of grazing in maintaining a good grass cover. We look to better utilization of animal manures and more legumes as low cost methods of supplying nitrates and phosphates.

Much of the cow manure is wasted in areas of deciduous brush. As a solution to the problem, we have: (1) fenced the cattle out of the brush in some areas, and (2) removed considerable brush along with the development of improved pastures.

Cattle do as well in brushless pastures, seek the high ground when the flies are bad and do not form the habit of camping in the brush. Fall and winter grazing affords better manure distribution since the cows camp on snow-free flats.

We have introduced sweet clover (*Melilotus officinalis*) into many of the range areas. Sweet clover has perpetuated itself on some parts of the range for over 20 years. Allowing for production of seed and managing for seedling establishment are factors in maintaining sweet clover. Sweet clover maintains itself best under light spring and heavy winter use.

Considerable possibilities are seen in other legumes. Montana common alfalfa (*Medicago sativa*) has been established in heavily-disked sagebrush. Alfalfa reseeds itself under spring and winter grazing on the

range. Alsike clover (*Trifolium hybridum*) maintains a fair stand on once-cultivated north slopes that have been under sheep grazing for 25 years. Some of the native legumes, such as lupines (*Lupinus* spp.), grow in dense stands, but their ability to fix nitrates is not known.

At the present time little response has been obtained from applications of phosphate to range areas that have partial stands of legumes. It is thought that phosphates may help to maintain the balance of legumes and grasses.

As the fertility elements of the original organic matter are utilized in plant growth, just as happens under cultivation, the supply of accumulated phosphates and nitrates is depleted. In order to increase organic matter, it seems that a supply of phosphates as well as nitrates would be necessary.

Deep rooted plants may supply phosphate with less cost than purchased fertilizer. Sweet clover has been shown to be valuable in this respect. Its roots penetrate deeply (ten feet) into the soil and absorb potash and phosphate that is unavailable to the roots of other plants.

Summary

On a high foothills Montana ranch, improved pasture has elimi-

nated larkspur losses and increased carrying capacity. Crested wheat grass is utilized for spring pasture, the deep-rooted orchard grass and alfalfa for summer forage. The cattle and sheep winter on the range no longer needed for summer grazing.

They consume one half as much hay wintered on the range as when wintered on hay alone.

A cow that will range out is recognized as desirable. Cows are being bred that will raise sizable calves and winter on available feeds.

Sagebrush is being controlled by the development of improved pasture and by maintaining the range in good condition. Phosphates and nitrates are recognized as constituents of organic matter, and it is believed that they can be supplied cheaply by deep-rooted legumes.