Management of Reseeded Range and its Place in Ranch Operation

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DURING the past decade or so, range seeding has become a matter of popular interest among ranchers, farmers, range workers, and some segments of the general public. Many glowing accounts of amazing benefits from seeding have been related.

In addition to the many direct returns from seeding such as increased grazing capacity, increased lamb and calf weights and so on, there may often be many indirect benefits. For example, the seeding of a depleted spring range may result in improvement to adjacent summer range because the increased forage provided by the seeding permits the operator to keep his livestock on the lower ranges until the summer range forage is ready for grazing. Seeded ranges are usually ready for grazing earlier than native ranges, a fact which is especially important during the critical spring grazing period in many parts of the intermountain range country. Seeding of key areas often makes it possible for the rancher to stabilize his livestock operations and may make it possible for him to adopt better grazing management practices on the balance of his lands.

Seeding does not take the place of proper management and, in fact, the seeding itself may actually complicate the management problem.

As an example of the part seeding plays in range improvement, let us examine a case history of one range area in Utah. While this example may be somewhat unique in that it consists of a group of individuals working together, it brings out some of the important points to be considered in the use and management of range seeding.

The East Hoytsville Range Company operates approximately 7,200 acres of privately-owned range land near the small community of Hoytsville in the mountainous part of northeastern Utah. The land consists of three contiguous units. Approximately 2,000 acres are high summer range, mostly aspen; 1,800 acres are intermediate elevation ridges and benchlands; and the remaining 3,400 acres are foothills, canyon sides, and low benches.

Elevations range from 5,800 feet to nearly 9,000 feet. Annual precipitation varies from 14 inches on the lower range to over 25 inches at the higher elevations. Except for the benchlands, much of the range is steep and rough.

The Company was organized in 1934 by nine farmer-ranchers whose grazing lands had formerly been included in a large cattle grazing association. Under the previous management, these grazing lands had been badly depleted. The members of the new company changed from cattle to sheep shortly after organization because sheep could more easily be handled both on the range and on the farms.

Each company member operates his farm individually. He feeds his own sheep on the farm during the winter and

shed lambs in mid-April. The sheep of all individual owners are thrown together into the company herd at the beginning of the grazing season. Lambs are sold directly from the summer range. Each man's lambs are sold as a separate lot although they are all sold at the same time and usually to the same buyer. At the end of the grazing season the sheep are brought in from the range and are separated by ownership so that each company member can take his sheep back to his farm. Breeding takes place on the farm so each owner can use the breed and quality of rams that he wishes.

Assessments to cover company operating costs (herding, taxes, range improvements, etc.) are made on the basis of the number of shares each owner has in the company. The number of shares determines the number of sheep each owner is permitted to graze with the company herd. Except for occasional hire of heavy earth-moving equipment, all labor and equipment is supplied by the company members. The members take turns at camp moving and other chores, but they all pitch in together on the larger jobs and when handling the sheep at shearing, dipping, and lamb selling time. The herder is the only salaried employee of the company.

From the beginning, a determined effort was made to improve the company range. The number of sheep was kept as low as economic conditions permitted. The sheep were kept on the farm as late as June 1, before being turned onto the range. Lambs were sold early and the grazing season was shortened. But still the shortage of spring and early summer range feed made it necessary to move onto the high range too early. Little, if any, forage improvement was noted. Besides this, the sheep were on the farms too late in the spring and too early in the fall, crop yields were decreasing, general farming work was delayed, and winterfeed costs were much too high.

The company then rented 2,400 acres of spring range in a nearby canyon to take the pressure off their own range. The lighter and later use brought about marked improvement of the higher range where rainfall and soil conditions were most favorable but very little recovery was noted on the foothill and intermediate elevation ranges.

In 1935, the company bought two sacks of the then new crested wheatgrass (*Agropyron cristatum*) seed. This seed was broadcast over several small areas with no seedbed preparation. Although some grass became established, the number of plants did not justify the high cost of the seed and seeding was discarded as a means of range improvement.

In 1944, company members discussed methods of range improvement, including seeding, with technicians of the Soil Conservation Service and the Forest Service as well as with the County Agent. They also talked with Tom Moore of Coalville, then chairman of the board of supervisors of the Summit County Soil Conservation District, who had done some successful seeding on his own range. As a result of these talks and of further investigations, the company decided to try seeding again. The Soil Conservation District was requested to assist in preparing a range conservation plan. The plan was primarily concerned with proper grazing use of the native vegetation, but included provisions for seeding approximately 400 acres of a 900 acre pasture in the lower part of the ranch. (This plan has since been amended to add a considerably greater acreage of seeding.)

Reseeding Method

In the early fall of 1944, the first area was cleared and drill seeded to a mixture of crested wheatgrass, smooth brome

(*Bromus inermis*) and fall rye (*Secale cereale*). A good stand of grass was evident in the spring of 1945, and the entire area was protected from grazing for a full year. After the grass had gotten off to a good start in 1946, the area was grazed by the company herd for 45 days without apparent damage to the grass. This same pasture, before seeding, furnished only three to five herd-days feed each year.

Encouraged by these and subsequent results, the company has now seeded nearly 3,000 acres of their foothill and intermediate range. Seed mixtures have changed as additional information and experience indicated. The species seeded of materially lengthening the grazing period provided by the seeded range.

Seeding was done by drilling wherever possible and it is surprising to note the very steep and rough slopes that have been seeded. Slopes up to 40 percent have been drilled successfully by horse-drawn drills. The company members all helped with the drilling; they have had as many as seven drills operating at one time.

Most of the seeded land was formerly covered by medium to heavy stands of sagebrush (*Artemisia tridentata*) (Fig. 1, left). Controlled burning, usually during the last week of August, removes the sagebrush and permits unobstructed drill-

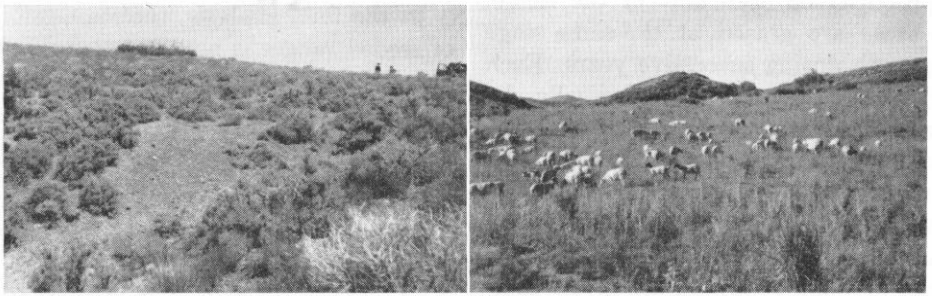

FIGURE 1. HOYTSVILLE RANGE. *Left*—Typical sagebrush-infested range before clearing and seeding. *Right*—Seeded range near end of grazing period. This spring range will not be grazed again this year.

were carefully selected and the exact mixture was determined only after considering soil types, elevation, precipitation, exposure, and the grazing period during which additional feed was needed.

Yellow sweet clover (*Melilotus officinalis*) was added to all mixtures. The amount of smooth brome was increased and crested wheatgrass reduced on areas of higher elevation and rainfall. Orchard grass (*Dactylis glomerata*) was added to the mixture on north and east exposures. Limited amounts of intermediate wheatgrass (*Agropyron intermedium*) and pubescent wheatgrass (*A. trichophorum*) were used as seed became available. The adjustment in seed mixtures had the effect ing. Because of the slope and the stoniness of much of the land, burning is the most practical means of seedbed preparation. Company members abide by the regulations of the Utah State Board of Forestry and Fire Control in conducting their burning. Drilling is always done during the fall of the same year each area is burned.

Average cost of all seeding, including seed, clearing, labor, and equipment is about $4.00 per acre. A part of this cost was offset by conservation payments provided by the Production and Marketing Administration.

Other improvement work such as additional water developments, fencing, and

the building of roads and trails has kept pace with the seeding program.

Management of Reseeded Range

Since the first seeded area was grazed, management has been based upon the condition and requirements of the grass itself. The company has thrown the calendar away and the herd is moved in accordance with the degree of use of the grass rather than by the date. Regardless of the date, grazing does not begin in the spring until the grasses have made substantial growth and the soil has become firm.

A rotation-deferred system of grazing is practiced on each unit of the range. No areas are grazed at the same stage of growth during successive years. Each portion of the range is periodically deferred until after seed maturity. Areas grazed heavily in the spring are not used at all in the fall, thus, each area is permitted to make some regrowth after grazing each year. Several areas of native range in poor condition are given complete protection from grazing. Sheep are bedded down wherever night overtakes the herd. Trailing is held to a bare minimum.

In answer to the question of "How do you determine when an area has been grazed sufficiently?", Heber Sargent, company president, replied: "We move the sheep while there is still plenty of grass stubble left to cover the ground and enough foliage left to support the plants for the rest of the year. We pay more attention to the amount of the plant that is left and to our soil condition than to the amount of feed we should take. We usually figure about when an area will be properly grazed and then move the sheep a couple or three days sooner. We know that this seeded grass can be killed out just as easily as the native feed was killed so we just don't take any chances." (Fig. 1, right).

Observations during the past several years indicate that the grazing use of the seeded grasses is between 50 and 60 percent of the current year's production.

On areas which are partly seeded and partly of native feed, grazing is based on the seeded range. Sheep will normally take the introduced grasses and clover more readily than the native grasses. This practice often requires the sacrifice of part of the native feed, but is necessary if the seeded stand is to be maintained. For the most part, however, seeded and native areas are in separate blocks so that each can be managed separately.

In the final analysis, the management of seeded ranges is not essentially different from that of native ranges. Proper management of both should be based upon proper use of the forage plants.

At Hoytsville, the recovery of the summer range has been brought about by improved management which was made possible by the seeding and wise use of the lower ranges. It is difficult to believe that this high country, now considered by many ranchers as some of the best summer range in Utah, was at one time almost barren of livestock feed.

Since the seeding program was undertaken, range feed production has increased until there is more feed than the company herd can fully utilize. As Mr. Sargent puts it: "This is just the way we like it because management isn't much of a problem when you have more feed than you need."

Instead of keeping their sheep on the farm until the first of June, the Hoytsville owners are now able to turn onto the range in late April. Also, the sheep don't have to leave the range until breeding time in the late fall.

The increased plant cover has resulted in a very definite reduction in active

erosion. There are still a few sore spots but even these are gradually being covered with vegetation. Company members report that wet-weather springs and seeps are holding up better than ever before.

Benefits of Reseeding

A poll of the members of the company on their evaluation of their range improvement program brought about the following list of direct and indirect benefits:

1. Grazing capacity has increased. Prior to 1946, the company used 1.47 acres per sheep month of grazing (including the rented land). In 1951, only .85 acre per sheep month was required and then some areas were underutilized. (The company herd has increased by 100 head.)

2. The grazing season has been lengthened from four and one-half to more than six months.

3. There are more and heavier lambs. In 1942, for example, the lamb crop of 1253 lambs averaged 79 pounds. In 1951, 1465 lambs averaged 90 pounds. At the 1951 selling price of $31.50 per cwt., the additional 11 pounds per lamb would amount to $5,076.23.

4. The ewes are on good feed and, consequently, are in better condition for breeding and produce a higher percent lamb crop.

5. Death losses are lower.

6. Farm production has increased materially since the grazing season has been lengthened. (This was reported as a major item by all company members.)

7. The winter feeding period has been shortened. This, along with the fact that the ewes come into the feedlot in top condition, has reduced the amount of feed required to winter the herd.

8. The productive life of the average ewe has been increased.

9. It is no longer necessary to rent outside range.

10. The per-unit cost of production is much lower and the per-unit margin of profit is higher.

11. Erosion and flood damage hazards are much lower.

Mr. Sargent believes that the seeding and improvement program has put each of the company members on a sound financial footing and has kept several of them in the business who otherwise would have lost out. He hastens to point out, too, that the benefits to date have more than repaid all costs of improvements, and they still have the grass.