

Management of Reseeded Ranges

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MUCH progress has been made during the last 15 years in seeding perennial grasses and legumes on submarginal and abandoned croplands and adapted areas of run-down range in the Pacific Coast region of the Soil Conservation Service. It has made this phase of the range improvement program in soil conservation districts quite popular. Unfortunately, however, grazing before the seedlings are established, as well as the tendency to graze them too early, too close and for too long, are causing the early loss of some good to excellent stands. These losses occur frequently enough, in spite of warnings and instructions to prevent them, to cause some ranchers to seriously doubt the wisdom of range reseeding. They frequently remark, "We like the result of range reseeding and we're willing to go to the expense necessary to get good stands of grass. But how can we graze them so as to keep them in high production?"

Experience is a good teacher. It has taught us *first* that it pays to carefully protect new seedlings from all grazing until the young plants have developed good roots to anchor themselves and effectively resist the pulling effects of grazing. Usually this will be from one to two years after seeding. Details on the development of a large number of promising species are recorded by Stark, et al (1946). *Second*, the seeded grasses are just about as delicate as the important native perennial bunchgrasses. Neither will hold up very long under excessive use. This is true especially if grazing begins early and continues throughout the spring and early summer growing seasons. The regrowth

of the more palatable grasses closely grazed in early spring will be repeatedly grazed throughout the growing season. This continuous grazing prevents the storage of needed food reserves in the roots, exhausts the stored food and results in early starvation and death.

Crested wheatgrass (*Agropyron cristatum*) is the most widely seeded bunchgrass on spring-fall range in the Northwest (Fig. 1). Harding grass (*Phalaris tuberosa* var. *stenoptera*) is the favorite species for reseeding in central California. Fortunately, both of these are relatively resistant to close grazing if protected until they are firmly anchored in the soil. However, these two "wonder" grasses will respond to conservative grazing with increased growth.

Management practices which apply equally well to seeded and native perennial bunchgrass ranges and which together make up the range improvement or conservation program in soil conservation districts naturally fall into three groups.

1. Grass or Forage Management Practices
2. Facilitating or Enabling Practices
3. Special Forage Improvement Practices

GRASS OR FORAGE MANAGEMENT PRACTICES

These practices must be used on both seeded and on native perennial grass ranges if we expect to maintain yields.

Rotation and Deferred Grazing—This is regarded as the most important management practice. Properly applied it will—

- (a) Allow the livestock to harvest each

year's forage crop with the least interference with normal plant growth.

- (b) Make it possible for the plants to store up needed food reserves in their roots each year for survival during the dormant season, and

unstable soils. Conservative use assures sufficient residue to give surface protection to the soil to control runoff and erosion. Water conservation and erosion prevention make definite contributions to increased forage production. These have an accumulative effect.



FIG. 1. Cattle grazing on three-year-old seeded stand of crested wheatgrass, under 20 inches annual precipitation, Umatilla County, Oregon.

make good growth the following winter or spring.

- (c) Make it possible for the important grasses to produce seed for reproduction.

Rotation and deferred grazing on range, grazed during the spring and fall, or during the spring, summer and fall, work most effectively on 3, 4, 5 or six pastures of equal forage production. Two pasture systems work quite effectively on summer range. The principle of rotation and deferred grazing is illustrated in the three-pasture system shown in Figure 2.

Proper Utilization of Seeded and Native Perennial Forage Grasses—Conservative use of both seeded and native forage plants is needed to safeguard their vigor, assure maximum production, and meet the hazards imposed by steep slopes and

Fire Prevention and Protection—Fire can very easily undo all the gains made from reseeding, rotation and deferred grazing, and proper utilization.

FACILITATING OR ENABLING PRACTICES

To apply the above management practices, these facilities must be installed or provided.

Stock Water Developments (springs, ponds, and wells)—An ample, clean and dependable supply of stock water is of major importance in grass management. The water should be well located in each seeded and native pasture and be ample to daily water the herd during each of the rotation and deferred grazing periods. A poor water supply in any one pasture usually complicates or prevents the use of an effective rotation-deferred system of grazing.

Fences—Planned fencing, especially on cattle ranches, is the key to the control of livestock numbers, and the periods and degree of grazing in each of the rotation and deferred pastures.

New seedings must be protected from grazing until they are well established. On cattle ranches, protection usually requires the construction of either temporary or permanent fences. Permanent fences are expensive, therefore should be built on pasture boundaries that are designed to fit into the desired rotation and

placing salt away from water in the underutilized parts of the range should be applied to new seedings.

Feed Reserves—Building up and using enough winter feed reserves to keep the stock off the range for about 25 additional days in early spring is making it possible to delay grazing of the reseeded areas each year until they reach range readiness. Extra feed to use in the fall for about 20 days also makes it possible to remove the stock from seedings in the event early

PASTURES	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
	DRY FEED			GREEN FORAGE			DRY FORAGE			MIXED GREEN & DRY FORAGE		
	FIRST YEAR											
1				45 HERD DAYS								45 HERD DAYS
2					90 HERD DAYS							
3								90 HERD DAYS				
FEEDLOT	90 HERD DAYS											
	SECOND YEAR											
1					90 HERD DAYS							
2								90 HERD DAYS				
3				45 HERD DAYS								45 HERD DAYS
FEEDLOT	90 HERD DAYS											
	THIRD YEAR											
1								90 HERD DAYS				
2				45 HERD DAYS								45 HERD DAYS
3					90 HERD DAYS							
FEEDLOT	90 HERD DAYS											

FIG. 2. Schematic rotated-deferred system of grazing in spring, summer, and fall on three pastures of equal forage production.

deferred grazing system. New seedings may then be protected by temporary fences whenever they cover only a part of a pasture.

On sheep ranches new seedings can be protected by herding flocks of sheep away from seeded areas. A very effective rotation and deferred system of grazing without fences can frequently be carried out on sheep ranches. This is especially true on range that is subdivided into natural grazing units by such topographic barriers as streams and prominent ridgetops.

Salting—The well-known practice of

rains make the ground too unstable for grazing without trampling.

SPECIAL FORAGE IMPROVEMENT PRACTICES

Brush eradication and control, range fertilization, and reseeded are three special forage improvement practices which are increasing in importance in the Pacific Coast region.

Brush Control in Established Seedings—One of the major problems with brush has been to keep it from invading established seedings. Both bigsage and rabbit

brush invade these seedings, even under light use. Thus far mechanical means of control have not proven practical.

Range Fertilization—The Soil Conservation Service has carried on a number of field tests at its Pleasanton, California nursery in fertilizing annual grasses. The tests show that forage growth on well-fertilized annual ranges is at least four times greater than that on unfertilized areas. Field trials also show that fertilized annual grasses and herbs reach range readi-

native perennial grasses is as yet a relatively new field. It promises to become more important as the years go by.

Reseeding of Range, Submarginal and Abandoned Croplands—Good production management of seedings begins before they are made. The best sites should be selected for the first seedings. One may select either an existing pasture that has deep fertile soils and is in a run-down condition, or a site which can be developed into a new and practical pasture. Aban-

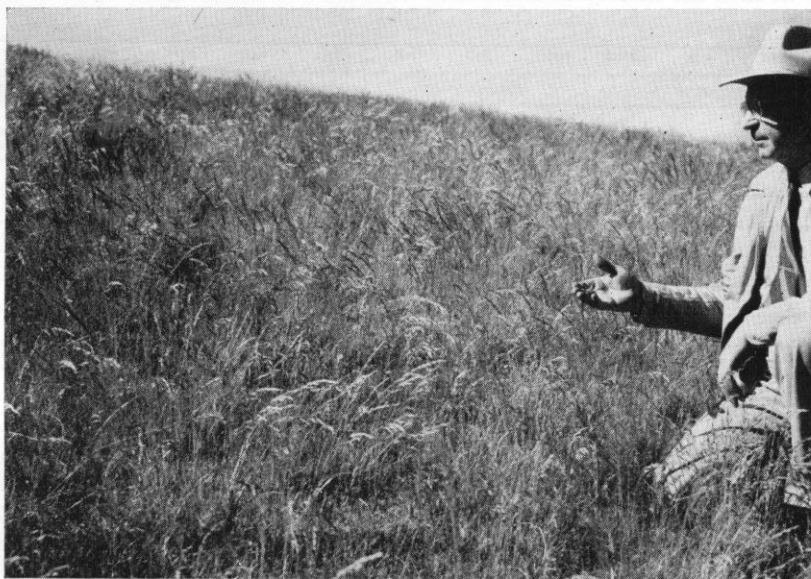


FIG. 3. Three-year-old stand of bulbous bluegrass under 20 inches precipitation annually, Gem County, Idaho. Grazing on this pasture is deferred every third year until seed heads are formed.

ness at least three weeks earlier in the winter. They also continue growth during the cool, moist winter months. More complete results of these tests were reported by Dickey et al (1948).

Successful stands of perennial grass and legumes in central and southern California have been accomplished because good cultural techniques were used and nitrogenous and phosphate fertilizers were applied after the year of establishment. The effect of fertilizers on increased yields of

donated croplands have proven a good choice for the first seedings. The soils are deeper than the average range soils and the chances for success are good. Seedings should be large enough to justify establishing the facilities necessary for proper grass management.

Where new seedings are mixed with native grass range, they should also be extensive enough to induce the rancher to favor them in his grazing management.

One of the biggest problems in protect-

ing seedings from grazing until they are properly established arises when we fail to impress ranchers with the necessity of waiting until their seedings can be safely grazed. It occasionally takes the severe damage or loss of one or more seedings before they are willing to hold their stock off the reseeded areas until grazing is safe. As soon as a large seeding is well-established it should become one of the rotated and deferred grazing units of the ranch (Fig. 3).

The degree of grazing use of seeded and native forage species varies from 30 to 70 percent. The safe degree of use depends on the important (key) grass species, stability of the soils, slopes, periods of grazing and other factors affecting the safe use of forage.

On the Land Utilization project in Southern Idaho are approximately 30 thousand acres of crested wheatgrass seedings. Some of the pastures are made up entirely of seedings. Others are made up of intermingled seedings and native bunchgrass range, varying in condition from poor to excellent. These fenced pastures are grouped into rotation and deferred grazing units. One 5-unit system and one system involving eight pastures are in use. One of the groups is grazed during the spring and fall and the other is grazed during a 7-month spring-summer-fall season. The improvement in forage production on these two systems is readily observed. Furthermore, locally overgrazed areas around watering places and corrals have recovered so that full forage production is obtained over the entire unit.

CONCLUSIONS

1. It is very difficult, under the winter rainfall conditions existing in the range-lands of the western states, to prevent range forage deterioration through season-long grazing, even when carefully regulated. This is especially true in the areas near water.

2. In the Pacific Coast region, properly applied rotation-deferred systems of grazing, conservative utilization of key grasses and fire prevention have proven to be the easier way to use the range, prevent deterioration, and enable the forage to improve.

3. Livestock water developments, when properly located and used, assist in securing good grazing management.

4. Well-planned fences that assist the rancher in controlling his livestock and excluding trespass are always justified.

5. The eradication of brush, range fertilization and reseedling are practices that will speed up the rate of range forage improvement.

6. Permanence of gains in range forage improvement and sustained high forage yields through reseedling and brush control are dependent upon the continued application of forage management and enabling practices.

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