

MANAGEMENT NOTES

Crested Wheatgrass for Spring Grazing in Northern New Mexico

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Highlight

Seeding crested wheatgrass (*Agropyron desertorum* (Fisch.) Schult.) has been an exciting and noteworthy development in northern New Mexico. Private ranchers and land-managing agencies have enthusiastically adopted the practice, and for good reasons. Crested wheatgrass is productive and relatively easy to establish on northern New Mexico rangelands. It appears to be long-lived, despite being at the southern limits of its range of adaptability. It regrows with summer rains, and reproduces well from seed. Its big selling point, however, is its ability to furnish succulent, nutritious forage well ahead of native ranges in early spring, at the very time it is most needed by cows and ewes to maintain a flow of milk for their young.

More than 100,000 acres of brush-infested range, mostly big sagebrush (*Artemisia tridentata* Nutt.), have been cleared and seeded to crested wheatgrass in northern New Mexico. An additional 225,000 acres are judged suitable for seeding. These acreages of seeded and seedable range have a particular value in providing a balanced ranch operation on many ranges. They help bridge the gap between the winter and summer. Forage often is critically short during May and June, before the advent of the usual summer rains. Characteristically early spring

growth makes crested wheatgrass uniquely suited to furnish green forage during these months.

Seeded stands of crested wheatgrass at elevations of 7,000 to 8,500 ft already furnish a substantial part of the spring and early summer grazing that formerly was obtained from too early use of native ranges at higher elevations. As a result, these native ranges, which are of considerable value for summer grazing, are being given a chance to improve and become more productive.

Crested Wheatgrass for Cattle

To determine how intensively to graze crested wheatgrass range in the spring, cattle were grazed at different intensities for a month-long spring season for 7 years at one site and for 4 years at another site. Cows and calves utilized the grass an average of 41, 55, and 69% at the first site, and yearlings 34, 56, and 77% at the other site.

The advantages of crested wheatgrass for spring cattle grazing are shown by comparing daily weight gains from crested wheatgrass with those from native range. Average daily gains (in pounds) for the test periods were as follows:

	Cows	Calves	Yearlings
Native range	1.21	1.16	1.50
Crested wheatgrass	3.23	2.18	1.98

Of most significance are the extra gains put on the calves, which usually are the marketable product in northern New Mexico. In any year, the daily gain per head for calves was similar at all grazing intensities. Yearlings too made good gains. No real differences in daily gains of yearlings were found between grazing intensities, but the results were considered inconclusive.

Daily gains of cows were inversely related to intensity of grazing. On the average of the 7 years, the cows gained 55% more per day during the spring grazing period under the lightest grazing than under the heaviest. In a cow-calf operation, the condition of the cow is important. However, the least gain on the cows on the most heavily grazed pasture during 7 years of study was an average daily gain of 1.85 lb. This seems adequate for breeding animals.

¹ Forest Service, U.S.D.A., central headquarters maintained at Fort Collins, in cooperation with Colorado State University; research reported here conducted in cooperation with New Mexico State University, Albuquerque.



FIG. 1. Crested wheatgrass, such as this near Tres Piedras, furnishes important spring range in northern New Mexico.



FIG. 2. Weighing lambs in a study to evaluate seeded crested wheatgrass as lambing range.

Gains per acre depended largely on the rate of stocking. Cow and calf gains per acre averaged 34 lb over 6 years of measurement under the heaviest stocking, 28 lb/acre under medium stocking, and 20 lb/acre under the lightest stocking. Yearling gains for the 4 years averaged 31, 30 and 20 lb/acre for the three rates.

Herbage production of the crested wheatgrass varied greatly from year to year, production being governed by differences in precipitation, particularly winter-spring precipitation. The average air-dry herbage production in the best growing year in this test was 8 to 9 times as great as in the driest year on both sites studied. At both locations, production was regained following the 1956 drought when the poorest growth was made. If there were any adverse effects on the wheatgrass production due to any of the grazing intensities they were obscured by the effects of weather.

Evidence from all phases of the cattle grazing studies indicates an average intensity of 65 to 70% utilization of the spring growth by weight during a month-long spring season is optimum under northern New Mexico conditions. Under these conditions, the plants regrow after the cattle are removed. Although not entirely conclusive, the results indicate further that repeated removal of more than 75% of the herbage during the spring season may produce undesirable changes in the seeded stands. These changes include excessive fragmentation and weakened vigor of mature plants, and scarcity of litter and young plants.

Crested Wheatgrass for Lambing

When crested wheatgrass was first planted in northern New Mexico, there was some reluctance to use it as lambing range. Since then, however, lambing on crested wheatgrass has been shown to be a profitable venture, and the practice is increasing each year. Thousands of sheep are grazed on wheatgrass stands every spring.

In a 3-year trial, the level of returns from using crested wheatgrass as lambing range was found to depend on how closely the grass was grazed (Gray and Springfield, 1962). Early each spring, pregnant ewes

were placed in paddocks on crested wheatgrass range, where they lamb and grazed for 36 to 53 days. The paddocks were stocked to achieve four intensities of use, which averaged 39, 53, 72, and 84% utilization of the wheatgrass by weight. Weight gains were kept for lambs grazed in the paddocks, from similar sheep grazed as a band on adjacent unfenced crested wheatgrass range, and on adjacent sagebrush range during the lambing period.

Benefits from lambing on crested wheatgrass were clearly evident—4 to 7% larger lamb crops and 1 to 3% smaller death losses than on the sagebrush range. After all costs were paid, including interest on investment in the sheep enterprise, ewes lambing on crested wheatgrass increased the return to the operator from 19 to 27% over returns when ewes were lambing on the native big sagebrush range. Data from the test indicate the cost of establishing the wheatgrass stands could be repaid in 4 to 7 years, depending on the stocking rate. Grazing between 53 and 72% utilization produced highest profits. Estimated maximum return was at about the 65% utilization level, which corresponded to a stocking rate of 2.4 ewes/acre for a 45-day period.

Though not conclusive because the stands were used for lambing only 3 years, stocking that made 39 and 53% use of the crested wheatgrass was entirely satisfactory for range maintenance and production. Rates that removed 72 and 84% utilization did not impair herbage production during the 3-year period, but lack of young plants, reduction in size of old plants, and thinning ground cover were evidences of stand deterioration.

Stocking Rates

Stocking rates, of course, depend largely on the amount of herbage produced. This varies from site to site and year to year. Crested wheatgrass yields in northern New Mexico varied from 1,975 lb/acre on a good site in a moist year to less than 100 lb/acre on a poor site in an extremely dry year. Year-to-year variation on a given site may be tenfold. To make the most effective use of the crested wheatgrass for spring graz-

ing, considerable flexibility in herd management is necessary. The safest practice appears to be to delay early spring grazing until leaves of the grass are 4 or 5 inches long, then graze for 4 to 6 weeks or until the stand is properly utilized.

For spring grazing by cattle or sheep, the optimum grazing intensity appears to be about 65% utilization by weight of the herbage produced by the end of the spring grazing period. Under this degree of use, the seeded stands are maintained in a productive condition, and livestock gains approach maximum. This percentage herbage removal refers to growth produced by the end of the spring grazing period, not to growth produced during the entire year. In northern New Mexico, where summer rains normally are received, crested wheatgrass usually makes some additional growth in the summer and fall. Regrowth has been observed nearly every year, and it may be appreciable during cool, moist summers. This regrowth undoubtedly is important in maintaining the plants in vigorous condition under relatively heavy spring use.

High nutritive quality of the early growing herbage explains why crested wheatgrass makes excellent spring range. Samples collected in New Mexico in May showed the following chemical analysis (Watkins, 1955):

Crude protein (%)	19.8
Calcium (%)	.41
Phosphorus (%)	.19
Carotene (mg/lb)	96.2

Total digestible nutrients were a high 71%.

Provided stands are not misused, there is every reason to believe crested wheatgrass will continue to play an increasingly important role in the management of northern New Mexico ranges by furnishing much-needed spring forage.

LITERATURE CITED

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