

# FACT SHEET

## IMPROVING GULF CORDGRASS RANGE

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Gulf cordgrass (saltgrass, sacahuista) is a highly-productive, warm season, perennial bunchgrass. It grows actively during most of the year if stimulated by removing top portions of the plant. Mature leaves and stems are very coarse, low in palatability and low in nutritive value for livestock.

Cordgrass usually occurs in dense stands that may cover several thousand acres (figure 1). It is most commonly found on the middle and lower Coastal Prairie, on saline soils and along waterways of South Texas. These areas are characterized by lack of quality

winter forage and periodic droughts. Winter weather and periodic drought cause deteriorating livestock conditions unless ranchers have a sound supplemental feeding program. Use of gulf cordgrass as an alternate source of green forage during these stress periods offers the potential of maintaining livestock in good condition at minimum cost.

Burning "sacawista" has long been used in South Texas to provide feed during stress periods. Recent research on prescribed burning for management of gulf cordgrass on the Coastal Prairie has provided additional information on optimizing grazing of this productive grass. Information in this publication was adapted from that research.

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Figure 1. Gulf cordgrass forms dense stands that may cover a large area.



*Figure 2. When topgrowth is removed by fire, the abundant, succulent, nutritious regrowth is relished by livestock.*

### **Management Objectives**

Several characteristics of gulf cordgrass allow improvement for livestock production with management treatments. These include year-long growth, dense stands and positive response to treatments. Removing top growth allows greater production of tender, highly palatable regrowth (figure 2). This may be accomplished by burning cordgrass or mechanically shredding the mature growth. Where practical, burning is usually more economical than shredding.

Treating gulf cordgrass ranges involves two basic objectives. First, cattle will not voluntarily eat enough coarse, unpalatable mature plant material to satisfy their requirements. Cattle will usually eat other plants if given a choice. One of the management objectives, therefore, is to increase use of this grass by livestock, particularly during winter when other grasses mature and nutritional qualities decline. Levels of digestible energy, crude protein and essential minerals contained in grasses during the winter months generally fall below that required by livestock for maintenance and production. Treating cordgrass ranges promotes regrowth that is higher in these nutrients. Increased utilization, higher quality and greater forage production result in higher animal production.

### **Improvement Techniques**

Grasslands developed under the influence of fire. Periodically, natural and manmade fires have burned

over many acres of grasslands, resulting in suppression of brush plants and encouragement of fire-tolerant grasses and forbs. Used properly, fire is a useful technique in managing rangelands.

Successful cordgrass burning requires an evenly distributed, abundant fuel supply and a combination of weather factors conducive to a rapid, cool fire. Gulf cordgrass stands may provide more than 7 tons of fine fuel per acre (standing and ground mulch). In a typical stand of gulf cordgrass, one-fourth of the fuel may be green plants. The dead cordgrass fuel must have a low moisture content to insure a successful burn.

Weather conditions are important for a successful burn. Moderate temperatures and low relative humidities of early fall are desirable. Light winds (10 to 12 miles per hour) will assist in carrying the fire. Once the fire is ignited, the cordgrass burns readily.

Standard precautions include properly constructed fire lanes (about 50 feet wide) around the pasture to be burned. Use a backfire installed on the downwind side to widen the fire guard and to prevent the fire from spreading into adjoining pastures. Allow the backfire to burn in for 50 to 100 feet. The pasture is burned with a hot, rapid headfire after all adjacent areas are secure.

Make plans for a burn well in advance. The fire plan should reflect objectives and conditions under which the fire is to be initiated, safety precautions and followup procedures. Give each member of the fire crew a specific assignment. Give one member of the

crew the responsibility of "fire boss," and this person directs all operations. When detailed plans are followed and all personnel know their duties, a safe, prescribed burn operation is possible.

Burning for salt marsh grass management is regulated by the Texas Air Control Board in several coastal counties. Verbal or written notification of the Air Control Board is required before installing the burn. Always check these regulations before proceeding with a burn.

Top removal by shredding is another method of improving gulf cordgrass pastures. Set the shredder 6 to 7 inches above the ground to avoid damage to cordgrass crowns. The shredded material may act as a mulch that reduces moisture evaporation. Heavy-duty equipment is necessary because of the mass of coarse mature stems and leaves and the uneven stand.

Rainfall after treatment is important to obtain the full regrowth potential of the cordgrass stand. Therefore, time burning or shredding just before periods of expected rainfall.

### **Production and Utilization**

The standing crop of untreated sacahuista is relatively stable. However, new forage production may double within a year after burning or shredding. Substantial increases in production occur in the early spring. Soil characteristics and rainfall play an important role in production following treatments.

Heavy clay soils retain greater amounts of water longer than sandy or sandy loam soils. If dry weather follows treatment, the cordgrass on clay soils will out-produce cordgrass on sandier soils. Since the mulch deposited after shredding cordgrass areas reduces moisture loss from the soil, higher cordgrass production can be expected on shredded areas than on burned areas under droughty conditions.

Livestock usually avoid grazing mature gulf cordgrass; however, after burning or shredding, the regrowth is eaten readily. Cattle concentrate on treated areas. Proper grazing maintains regrowth in a tender, young state throughout the winter. Utilization will decrease once alternate feed sources become available. As the age of regrowth increases, there is a general decrease in use. To take advantage of availability and preference treat gulf cordgrass when alternate forage shortages are anticipated.

Since cordgrass has an extra long growing season, it may be possible to provide yearlong grazing by treating portions of pastures at different times. Once regrowth begins to mature, burn or shred another part of the pasture. A rotational, naturally deferred grazing system, controlled by burning is feasible.

Increased utilization may also alter short-term carrying capacities. Under good rainfall, most burned cordgrass ranges can support a cow on every 10 or fewer acres for 6 months following burning. This compares to a stocking rate of one cow to 16 to 20 acres on untreated ranges. Improved gulf cordgrass ranges increase livestock production potential because mature plants are lower in nutritional value than regrowth.

### **Nutritional Qualities**

Grazing animals have certain minimum requirements of energy, protein, phosphorus, calcium and other nutritional components of forage. These requirements vary according to age, sex and physiological state of each animal. Burning or shredding increases the nutritional value of gulf cordgrass so these minimum requirements may be met. Dormant bunchgrasses in the Coastal Prairie and Rio Grande Plains generally lack energy. Digestible energy of gulf cordgrass forage has been increased from 1700 to 2800 kilocalories per kilogram by shredding or burning. Crude protein may double for 30 to 90 days after treatment. Minimum requirements for crude protein are 6 percent for a dry cow and 9 percent for nursing cows. After burning, crude protein values of gulf cordgrass exceed these minimum requirements.

Phosphorus levels in South Texas forages generally are below maintenance levels for cattle and not usually affected by burning. Mineral supplements are needed to provide required levels for livestock.

### **Summary**

The coarse nature of mature gulf cordgrass, its development of dense stands and its growth characteristics allow vegetative manipulation that can improve the grass stands for livestock grazing. Considerations for improving and using gulf cordgrass ranges should include:

- Range sites that maintain adequate soil moisture for regrowth can be shredded or burned. Burning is generally more economical and easier than shredding.
- Burning in the fall is desirable to provide palatable, nutritious winter forage. A systematic burning plan on a deferred rotation grazing system could provide quality forage on an annual basis.

Integration of cordgrass management into a ranching operation has the potential of lowering costs and using forages that ordinarily would not be used.

### Additional Reading

- McAtee, J. W., C. J. Scifres and D. L. Drawe. 1979. Improvement of gulf cordgrass range with burning or shredding. *Journal of Range Management* 32(5): 372-375.
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