Value of Indian Ricegrass in Range Reseeding

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Indian ricegrass (Oryzopsis hymenoides) is a perennial bunchgrass with widely spreading seed heads which grows from Canada to New Mexico and all states west of Montana, Nebraska and Texas. It thrives best on foothills and plains, especially where the soil is well aerated as rocky or sandy areas, but in some cases occurs on sandy loams near anthills where the competition is not great. Indian ricegrass has been found in deserts where the average annual rainfall is six inches and from sea level to sunny exposed mountain slopes at 10,000 feet elevation.

As a climax species, this grass thrives throughout most of the dry lands west of the Great Plains. It is ecologically sound that Indian ricegrass be given consideration in many revegetation programs. Its importance for reseeding lies in its drought resistance, palatability, alkali tolerance and sand dune stabilization, as well as its ability to grow and spread by natural reseeding where practically no other species can be established.

Stands that have been reseeded naturally and been given light grazing use will increase rapidly. Seeding at a rate of 10 to 15 pounds per acre will give a very satisfactory stand within five year period. When seeded in mixtures Indian ricegrass grows well with blue grama, galleta, needlegrass, wheatgrasses and dropseeds, or with three-awn grasses. Also, it maintains its rank when growing in competition with sagebrush.

Indian ricegrass continues active growth later in the fall than the bluestems and their relatives. The lower portions of the stems may remain somewhat green during most of the winter which induces livestock to utilize the plant closely. The only protection against excessively close utilization is the old stubble from previous growth.

Palatability ratings of Indian ricegrass are high for all classes of livestock. Chemical analyses show that Indian ricegrass, although low in phosphorus, carotene and digestible protein, is, nevertheless, a relatively good source of energy. Its energy value accounts for its being grazed extensively and being relished by livestock especially in early spring and winter.

The only strain of Indian ricegrass commercially produced at the present time goes by the name of P-2575. This strain is from White Bird, Idaho. The seeds vary in size with the different strains and has been classified by L. A. Stoddart and K. J. Wilkinson of Utah State Agricultural College into five general sizes: (1) very large, over \( \frac{1}{12} \) inch in diameter; (2) large, under \( \frac{1}{12} \) inch in diameter but over \( \frac{1}{14} \) inch in diameter; (3) medium, under \( \frac{1}{14} \) inch but over \( \frac{1}{15} \) inch in diameter; (4) small, under \( \frac{1}{15} \) inch but over \( \frac{1}{18} \) inch in diameter; and (5) very small, under \( \frac{1}{18} \) inch in diameter.

When fresh Indian ricegrass seed is used in planting the caryopses should be scarified with sulfuric acid to insure germination. Older seed will germinate readily without such treatment. It grows well on dry sites on mountain brushlands, but it is not shade tolerant. Because of wide variation in adaptability between the many geographical variations, the most reliable seed is that from places similar to the site being seeded. Indian ricegrass should be seeded at rates of six pounds to ten pounds per acre depending on the amount of rainfall. In general, the higher the rainfall, the higher the seeding rate should be used.

The seedbed should be firm and even. The implements that can be used are the single-disc surface drill and double-disc deep-furrow type drill. The deep-furrow drill throws up a ridge and plants the seed into firmer and moister ground. This is best on weedy ground without prior tillage, as it eliminates more weed competition than the surface drill. Indian ricegrass seeded in early September and early April will give superior stands. However, on clean-tilled ground the grass stands from fall seedings may result in failure because of wind action. Consequently, clean-tilled land should be seeded in early April to obtain the best results with least risk of failure. This grass can be planted at a depth of three-quarters of an inch to one inch depending on the type of soil. Generally, the heavier the soil, the shallower the seed should be planted. If a high amount of cover and fast thickening of the stand is desired along with a high hay yield, the plantings should be drilled. However, the wide row spacing may prove more productive in extremely dry years.

Adaptations in planting methods should be considered in desert and plains reseeding. When reseeding plains areas, the seedbed should be prepared as previously discussed with the added stipulation that the seeding be done later in the spring. In the desert region, Indian ricegrass can be reseeded by broadcast seeding with no further treatment than trampling by sheep as they graze over the area during the following fall and winter. If sheep are not used, the area should be disced after the seed is broadcast. This will also eliminate brush and reduce competition. If the soil is very sandy, wind action will cover the seed after broadcasting. Seeding on this type of area should be done in the fall.

This book brings together practically everything of importance that is known about the vast mid-continent prairie between Saskatchewan and the Rio Grande and is one that grassland technicians and ranchers alike will want to own. Much of the information is the result of the lifetime work of the authors, although the studies of many other authorities have been credited and interwoven into the text to provide a comprehensive account of the Great Plains vegetation.

The first chapter traces the origin of the Great Plains from the Mesozoic Era and the development of the mixed prairie during the last 25 million years, concluding with a description of its present soils and climate. This is followed by a thorough account of the vegetation as a whole in which the authors point out the significance of many of the plant-soil-climate relationships, including the long misunderstood one of the short grass plains to the mixed prairie.

Two chapters are devoted to the individual plants that dominate the landscape of the mixed prairie, with a vast fund of detailed information about their distribution, growth habits, forage value, time of best use, and other interesting and useful information about them.

The subject of drought and its effects on the Great Plains vegetation is treated at length and the authors draw on their own exhaustive research over many years to describe the dramatic changes that take place in the grassland during extended dry periods. Why certain grasses are most affected by drought is explained and the reader is told which ones are the first to recover, and the effect of dust storms and too heavy use. Here, the range or ranch manager will find innumerable practical hints that will enable him to help protect the land against the ravages of drought and to speed its recovery with the return of wetter years.

In the discussion of “Plains Plants Underground”, the authors aptly point out that, due to the mere fact that the root systems of plants are hidden, these parts of the plant are the least known, the least understood and the least appreciated. Their description of the characteristics of the root systems of many of the more important plants of the Plains and their analysis of the significance of the factors that enable certain ones to compete more successfully, to recover from drought, or to resist close grazing, provide valuable clues to the solution of many problems of the grassland and should do much to correct the above observation.

For most of us, the Great Plains is too vast an area to comprehend as a whole, and the authors have wisely included separate chapters on the grasslands of most of the Plains States, as well as one on the mixed prairie in Canada. Two of these, the account of the mixed prairie in Texas and New Mexico, were contributed by B. W. Allred and Arnold Heerwagen respectively, both former students of the senior author.

No mere recital of the contents of this book could do justice to the wealth of valuable information it contains. Both present and future generations of technicians and land owners will be indebted to Drs. Weaver and Albertson for this important contribution to range literature.—*F. G. Rensier,* Soil Conservation Service, Washinton, D.C.


Dr. Dana, Dean Emeritus, School of Natural Resources of the University of Michigan, has made a notable contribution to the American Forestry Series of the McGraw-Hill Book Company in the recent publication of the book *Forest and Range Policy, Its Development in the United States.* The author states in the preface that the book is designed as a text and reference for students and others in the field of resource management. It will no doubt prove more valuable as a reference because of the design and content of the subject matter. The reader will find that the subtitle more nearly reveals the nature of the text's content than does the main title.