

‘Nezpar’ Indian Ricegrass: Description, Justification for Release, and Recommendations for Use

D. Terrance Booth, Charles G. Howard, and Charles E. Mowry

Indian ricegrass (*Oryzopsis hymenoides*), one of the West's most distinctive and beautiful perennial bunchgrasses, is widely distributed throughout the western United States, southern Canada, and Mexico. It is found on high mountains up to about 10,000 ft. (3,048 m) on dry, open southerly exposures and on desert floors in association with shadscale (*Atriplex confertifolia*) and winterfat (*Ceratoides lanata*). It occurs on sand dunes, sandy plains, canyons, hillsides, foothills, exposed ridges, and dry sandy, rocky, or shale mountain sites. It provides forage in the Nebraska sandhills and west to the east slopes of the Cascade and Sierra Nevada ranges.

Indian ricegrass is particularly adapted for winter forage. The plant does best when harvested in fall and winter, is highly palatable to all wildlife and all classes of livestock, and cures exceptionally well, providing nutritious winter feed. Stands deteriorate under spring grazing.

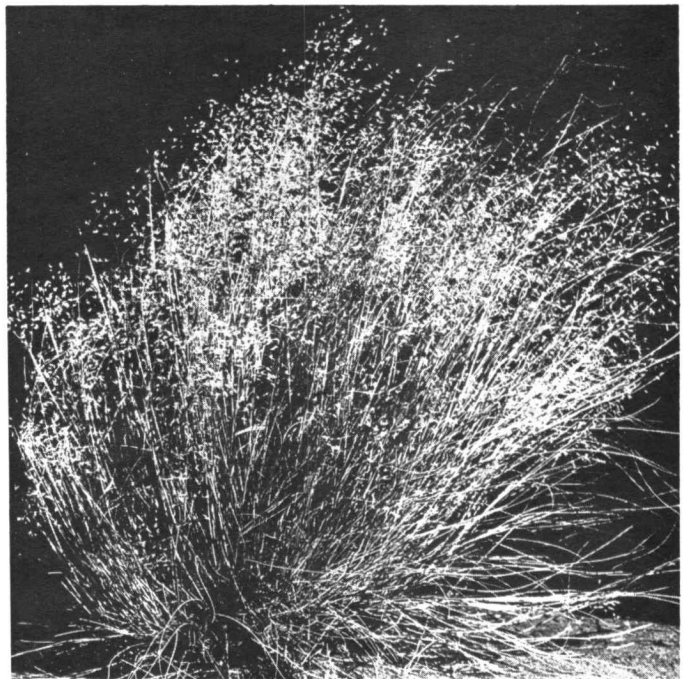
Seeds of the grass mature in early summer, more or less indeterminately, are plump, black or brown, round to oblong, and high in energy, providing a sustaining diet for upland game birds and rodents.

The wide distribution of Indian ricegrass appears to be due to unnumbered ecotypic populations which are site specific, a characteristic which has inhibited its widespread use in revegetation projects.

Growing on its native site, Indian ricegrass is extremely drought tolerant. Robertson (1976) observed that maturity is reached the third or fourth year and that plant vigor declines thereafter.

In addition to the above mentioned site specificity, a major factor preventing successful use of Indian ricegrass has been a high percentage of dormant seed. Two types of dormancy have been identified: (a) morphological dormancy associated with lemma and palea, and (b) embryo dormancy. Storage of seed for four to six years followed by a fall planting, will greatly improve germination.

In recent years, Indian ricegrass has been in demand for use in the revegetation of lands disturbed by surface mining. This grass appears particularly adapted to the sterile, coarse materials that serve as seedbed for much mine reclamation—



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its use has proved "encouraging."

Nezpar was first collected in 1935 from the native vegetation at Whitebird, north central Idaho, and tested under the number P-2575. It was originally selected from among 125 accessions at the Pullman, Washington, Plant Materials Center because of its good vegetative characteristics. Current data show hard seed ranges between 80 and 100 percent; however, Nezpar has had consistently good establishment when compared with other accessions of Indian ricegrass.

P-2575 was included in the first project planted in conjunction with the establishment of the Aberdeen (southeastern Idaho) Plant Materials Center in 1939 and has undergone repeated testing since that time.

Over 70 accessions of *Oryzopsis hymenoides* from 10 western states have been compared to P-2575 with regard to germination and establishment. None were found to be better. Twelve accessions, including 'Paloma', (Paloma, the only other released cultivar, was released in 1974 by the New Mexico Plant Materials Center), were found inferior to P-2575 in yield and years of stand survival in Idaho plantings.

Authors are range research scientist, College of Forestry, Wildlife and Range Sciences, University of Idaho stationed at Aberdeen, Idaho; plant materials manager, Soil Conservation Service, Aberdeen, Idaho; and plant materials specialist, Soil Conservation Service, Boise, Idaho. D.T. Booth is currently Range Scientist, USDA, SEA-AR, High Plains Grasslands Research Station, Rt. 1 Box 698, Cheyenne, WY 82001.

'Nezpar' Indian ricegrass was released for use in range and wildlife plantings and in the revegetation of surface-mined lands on June 19, 1978, by the Soil Conservation Service, Aberdeen Plant Materials Center, and the Idaho Agricultural Experiment Station.

Average yield (over all years and all sites) was 1,829 lb/acre (2,048.5 kg/ha). Estimates of forage yield under irrigation at Aberdeen average 2,786 lb/acre (2,100.7 kg/ha).

Seed harvest under irrigated field conditions (as opposed to test plots) indicates an average cleaned seed yield of 376 lb/acre (421.1 kg/ha) on fine sandy loam soil. Yields on irrigated seed fields have ranged from a high in 1958 of 736 lb/acre (824.3 kg/ha) to a low (1962) of 200 lb/acre (224 kg/ha). Yields taken from a field of silt loam soil, 1970-1972, ranged from 89 lb/acre (99.7 kg/ha) to 21 lb/acre (23.5 kg/ha).

Optimum soils for seed production are loamy sands, sandy loam, and fine sandy loam.

Nezpar has proven dependable in numerous plantings and has shown a capacity to establish and endure, as a stand, when properly planted and managed. It is adapted to coarse soils in areas having at least 9 inches (22.86 cm) annual precipitation. At elevations of 6,000 ft (1,828.8 m) and above, where the average annual temperature is 40° F (4.5° C) or less, plantings should be restricted to south and west slopes or other "hot" situations.

In sandy soils at the lower end of its precipitation range, seed should be planted three to four inches (7.62 to 10.2 cm) deep. Two years should be allowed for adequate stand establishment. In less droughty situations, shallower seeding depths may be preferable, depending on conditions such as soil, and age of seed. (Older seed does not have the same capacity to emerge from a deep planting that young

seed has). When included in a seed mixture that will be planted 1 inch (1.27 cm) deep, seed 5 to 10 years old is recommended. Shallow seedlings must be made late in the fall to reduce bird and rodent depredation.

Management of a dryland stand of Nezpar must take into consideration that the grass is not on its native site and may not be as long-lived or as drought or grazing tolerant as local ecotypes. Proper management will restrict use to late summer, fall or winter, thereby allowing seed production to maintain the stand. Experience indicates that the third and fourth years are especially critical, and maintenance or loss of the stand will depend on regeneration from the second and third year seed crops. The planting of a mixture of newly harvested seed, plus aged seed may help mitigate this critical period. By the eighth and ninth years, it appears that natural selection within the stand and/or crossing with native ecotypes produces a stand that is more adapted to the site than were the plants of the original seeding.

Nezpar Indian ricegrass is one of nature's most beautiful grasses, particularly adapted to sandy or rocky situations, a valuable plant for revegetation of disturbed areas, and among the best of grasses in nutritional quality as standing winter feed for livestock and wildlife.

Literature Cited

Robertson, Joseph H. 1976. The Autecology of *Oryzopsis hymenoides*. *Mentzellia* 2:18-21 and 25-27.



Sainfoin Shows Promise in New Mexico

Charles R. Glover

Sainfoin (*Onobrychis vicaefolia*), a nonbloating forage legume, is a relatively new crop in New Mexico. In recent years it has also been used successfully in Montana and Canada as a hay and pasture crop.

Sainfoin has shown promise in New Mexico as a pasture crop in pure stands and in mixtures with cool-season grasses. More extensive research is needed to determine the production potential and the cultural practices necessary to successfully grow this crop in the state. It is not a new crop, having been grown in Russia over 1,000 years ago and in Europe as early as the 14th century. It was grown for forage in both Russia and Europe on dry, calcareous soils where other forage legumes did not thrive.

It was introduced to the United States in the early 1900's but failed to gain acceptance. This was because it was tested on unadapted soils. Researchers also overlooked its non-bloating characteristics and thought cattle would not like it because of its poor leafiness and coarse stems.

A few years ago New Mexico State University initiated work on sainfoin as a possible alternate crop, not a replace-

ment, for alfalfa. Researchers were interested because it was nonbloating, drought tolerant, winter-hardy and resistant to the alfalfa weevil. The variety, Renumex, was released in 1978 as a hay and pasture crop.

The seeds are fairly large and have good vigor which makes establishment relatively easy. The growth characteristics are similar to those of alfalfa. It is well adapted to sandy or cobbly soils which are well drained. It begins growth approximately 10 days earlier in the spring than alfalfa.

Irrigated pastures are often used in conjunction with ranching operations. They are used as holding sites or calving pastures as well as a supplement to rangeland grazing. Excess pasture can be cut and put up as hay. Sainfoin lends itself very well to this type situation with its nonbloating characteristic and the excellent forage quality.

The feeding value of sainfoin is equal to alfalfa and is one of the most palatable forage crops in New Mexico. It is higher in sugar and carbohydrates than alfalfa, resulting in increased consumption and conversion. The forage makes excellent hay and may be cubed or processed for silage or haylage.