

Slender Wheatgrass—A Neglected Resource

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One of the first native western grasses to be cultivated—approximately 1895—and one of the few to have commercial importance, slender wheatgrass (*Agropyron trachycaulum*) is still, in the delimitation of morphological variation and ecological adaptability, an almost unknown species.

Slender wheatgrass has had a turbulent history of nomenclature as evidenced by the list of 32 synonyms cited in Hitchcock and Chase (1950). The highly variable nature of slender wheatgrass has led to the application of new binomials to variations without too much reflection as to whether specific rank was warranted. Overestimation of the taxonomic importance of easily recognized characters such as the presence or absence of pubescence and of the awn on the lemma has contributed greatly to the confusion (Figure 1).

The same conspicuous morphological characters can be used, however, to separate the large number of biotypes of slender wheatgrass into varieties or groups of biotypes. Within the limits of some of the varieties in turn may be found large numbers of biotypes differing from each other only in the relative degree of the conspicuous morphological characters. It is obvious that there is a definite need for the discovery of more deep-seated characters upon which to base varietal separation.

Perhaps as a direct result of the confusion in nomenclature (which effectively pigeonholes much information), the ecological adaptability of the many variations are virtually unknown. Schwendiman and Law (1946) say that "next to crested wheatgrass and smooth brome it is the best available perennial cultivated

grass adapted to semi-humid conservation seedings." Piper in 1925 stated that "slender wheatgrass is very variable, the numerous forms being very different one from another. Perhaps in no other native grass is there better opportunity for selection in order to obtain the best form for each section where it is adapted."

The case history of the development of Primar slender wheat-

strains adapted to summer rainfall areas—Mecca, Fyra and Grazier—have been developed by Canadian workers. R. A. Peterson (1953) has shown that slender wheatgrass is well adapted to high elevation reseeding. The grass is often listed as a promising species for reseeding in ponderosa pine, pinion-juniper and sagebrush associations. Other than these proven uses, however, agronomically important characters of the varieties, as related to intended region of use, are largely unknown. In terms of intensive range management on a long-time basis that information is sorely needed. To make an effective description and classification of the *Agropyron*



FIGURE 1. Variations in slender wheatgrass: Left, *Agropyron trachycaulum* typical, known widely as Primar slender wheatgrass, with distant florets and smooth glumes; Center, *A. trachycaulum* var. *unilaterale*, with awns on the lemmas; Right, *A. trachycaulum* var. *latiglume*, with closely spaced florets, broad glumes and pubescent lemmas.

grass points the way to what can be done. Seed from a collection made near Beebe, Montana, in 1933, was planted in trial rows. The plants appeared promising and their seed was saved to be tested again. In all subsequent tests the original collection of Primar outproduced 103 other commercial and native strains. Final successful performance on farms in eastern Washington dictated releasing Primar, an early-maturing, leafy, disease-resistant, rapid-developing variety of slender wheatgrass, for seed production.

Three leafy, late-maturing

trachycaulum complex, it becomes imperative to make exhaustive field studies and to follow up such studies with experiments on the varieties collected.

How many new Primars remain to be discovered?

LITERATURE CITED

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