COLORADO STATE UNIVERSITY

Development of Dryland Western Turfgrass Cultivars

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Work at Colorado State University to evaluate three western turfgrass species alkaligrass (*Puccinellia spp.*), blue gramma (*Bouteloua gracilis*), and fairway crested wheatgrass (*Agropyron cristatum*) for turf-type traits, as well as turf performance, continues.

Alkaligrass, unfortunately, performs poorly in spaced plant nurseries after seed production, but does well in turf evaluation plantings. The seed production capabilities of this species is being evaluated in the Pacific Northwest by Dr. Virginia Lehman (Great Western Seed, Lebanon, OR). Seed from the four best alkaligrass families was sent for testing. Seed production in Fort Collins will be augmented by establishing a large, spaced plant nursery from greenhouse transplants (i.e., from the 10 best families) in early 1992. The turf trials were overseeded with extra seed in 1991 to fill in open areas. This will provide a more uniform surface on which to conduct mowing height evaluations in 1992 (0.75 and 1.5 inches). High and low fertility regimes will also be imposed on the two current alkaligrass turf trials.

Rust incidence was not as severe in 1991 as in 1990, probably due to the higher nitrogen rates applied to stimulate the growth of existing and newly seeded alkaligrass trials. Interestingly, Dr. Lehman noted that accessions resistant to rust in Colorado were infected in Oregon, while those sensitive in Colorado were free of rust in the Oregon trials. This points to the need for more widespread testing of these cultivars. Seed of four experimental materials was sent to University of Illinois and Iowa State University for evaluation.

Blue gamma continues to provide an attractive turf under limited water conditions in our studies. Efforts were made, through the use of isolated recombination blocks of four subgroups (i.e., "elite", "nice", "plus", and "narrow"), to produce more seed of this species. A small amount of seed was produced by the "elite" nursery with full seed production expected to occur in 1992. This is the most promising advanced population and will enter a cycle of vigorous multiplication for foundation seed. Future efforts with this species will be concentrated on the "elite" group because it displays better seed production characteristics than the other groups, as well as desirable turf characteristics. Seed of these experimental cultivars was sent to University of Arizona and University of Nebraska for planting and evaluation.

The fairway crested wheatgrass "cycle 2" evaluation nursery performed well in 1991, with much better seed than in 1990. The seed harvested from individual plants displaying a rhizomatous growth habit will be bulked for spring 1992 turf evaluation plantings. Plants with characteristics of interest were taken from this nursery, cloned, and replanted into four isolated recombination blocks. Two spring-established blocks contain material that

exhibited good disease resistance and narrow leaves in the nursery. The two fall-established blocks contain plants with more rhizomes and broader leaf blade. Full seed production from all four blocks is expected in 1992. This seed will be used for turf evaluation plots, as well as for the possible start of another selection cycle. The most extensive turf trial for this species was planted in September, and will be examined closely for performance under differential mowing and fertility regimes in 1992. A trial was also started at South Dakota State University.

We continue to evaluate experimental and released buffalograsses from Nebraska and Texas A&M, finding them to be greatly improved over 'Texoka' and 'Sharp's Improved' with respect to density, summer color, and dormant color. Those of southern origin green up slowly in the spring and are slow to establish from plugs, but retain color approximately two weeks longer in the fall than those of northern origin. Winterkill is not a problem with any of the new buffalograsses.

The bermudagrasses from Oklahoma State University displayed excellent establishment characteristics, vigorous summer growth, excellent summer color, and surprisingly good low temperature tolerance. Their spring green-up rate is similar to that of buffalograss