

Development of Dryland Western Turfgrass Cultivars

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Goals:

- Collect and evaluate dryland western grasses suitable for low maintenance situations on golf courses.
- Improve seed production and turfgrass quality of promising dryland western grasses.
- Release promising germplasm for the development of commercial varieties.

Breeder's seed has been produced in 1993 for all three native grasses in our turf program. These include alkaligrass (*Puccinellia* spp.), blue grama (*Bouteloua gracilis*), and fairway crested wheatgrass (*Agropyron cristatum*).

An agreement has been made with International Seeds, Inc. to grant an exclusive license for further widespread testing and seed production trials leading to commercial release for our alkaligrass.

Licenses have not yet been granted for the other two grasses, but a decision is closer on blue grama which is the dominant dryland grass of the Great Plains, and which is in demand for xeriscapes because of its drought tolerance.

The last dryland grass, fairway crested wheatgrass, has reached the final stage of development. Six breeder's seed blocks for experimental strains with rhizomatous tendency and narrow leaf width have been developed and turf tests of these strains show great promise.

The 12-family breeder's seed plot for alkaligrass was rogued for some off-color and undesirable plants, and 3 families were removed entirely. The remaining 9 families were allowed to flower and set seed, which was harvested as a bulk of each family. This seed, as well as previous seed-lots of both European and Western U.S. types were sent to International Seeds Inc. as part of the exclusive license agreement under which they will conduct seed production testing and increase in the Pacific Northwest.

International Seeds Inc. will establish widespread turf tests in this country and with their contacts in Northwest Europe because of keen interest in this salt-tolerant, but not very heat-

tolerant, turfgrass. ISI expects to commercialize one of two cultivars from our germplasm. Some unusual semi-dwarf plants and color variants might also show possibilities.

The blue grama breeding program has been brought to the point at which a germplasm release of the ELITE darker green variety is possible. We are currently negotiating with the seed industry to get a company to multiply, release, promote, and market this new turf-adapted blue grama for use where water is a limiting factor. We could also release some or all of the 25 parental clones as basic stock. Turf plots have shown attractive, dense green growth from May to late September. Blue grama has several advantages over buffalograss due to its rapid germination and lack of unwanted spread. Seed also was harvested from an alternative strain from our nurseries called 'Plus'.

The need to move fairway crested wheatgrass recombinations from the old Agronomy Farm to the new Agricultural Research Development and Education Center (ARDEC) resulted in little seed from the 'Red' and 'Pink' strains. These narrow leaf, somewhat rhizomatous types are now in four 12-replication crossing blocks at ARDEC, with six parental clones in each of the diploid and tetraploid versions. The two 'Gray' strains growing at South Farm did not have to be moved, but were rogued for disease, undesirable glaucous color or seedhead type. We harvested 34 clones of 'Gray' tetraploid and 19 clones of 'Gray' diploid. This crested wheatgrass survives drought well with a quick on-off dormancy mechanism and can be mowed at 3/4 to 3 inches at moderate frequency with attractive results.