REGISTRATION OF GERMPLASMS

Five-gram seed samples will be supplied upon request and agreement to acknowledge its source when it contributes to the development of a new cultivar, hybrid or breeding line.

BILLY MELTON, DON MILLER, LARRY TEUBER, AND MARK WALTON

References and Notes

1. Professor, graduate student, and former graduate student, respectively, Dep. of Crop and Soil Sciences, New Mexico State Univ., Las Cruces, NM 88003. Registration by Crop Sci. of Am. Contribution from the New Mexico Agric. Exp. Stn. Journal Article No. 987. Accepted 22 Mar. 1983.

AZ-GERM SALT-I NONDORMANT ALFALFA GERMPLASM

AZ-GERM SALT-I alfalfa (Medicago sativa L.) (Reg. No. GP132) germplasm was released by the Arizona Agricultural Experiment Station at the University of Arizona in February, 1983. This germplasm represents the fifth cycle of recurrent selection for alfalfa genotypes that germinate at high levels of sodium chloride.

AZ-GERM SALT-I was derived from 'Mesa-Sirs'. Seeds were germinated at 26°C with a salt concentration of 1.35 MPa. Seeds that germinated and produced radicle growth of 1 cm or more in length were transplanted into pots and grown in the greenhouse. After establishment, seedlings were transplanted into an isolated field crossing block at the Marana Agricultural Experiment Station, where intercrossing was facilitated with honeybees (Apis mellifera L.). Seed was harvested and returned to the laboratory for the next cycle of screening at 1.50 MPa which eliminated 99% of the population. After completing five cycles of selection, seed of the original population (Mesa-Sirs) and the Syn1 generation of each cycle were germinated at 26°C in a saline solution of 1.35 MPa sodium chloride to determine the progress made in selection for salt tolerance during the germination stage. Respective germination percentages beginning with Mesa-Sirs and ending with Cycle4 Syn1 seed were 18.7, 19.4, 63.8, 77.0, 88.1, and 95.7%. Mesa-Sirs and Cycle5 Syn1 AZ-GERM SALT-I were germinated at 1.40 and 2.45 MPa sodium chloride, respectively, to eliminate 99% of the population. This germplasm displays the ability to germinate at higher salinity levels but has not been tested under field conditions where salinity is a problem. Preliminary data indicates different genetic mechanisms are involved in germination salt tolerance compared to seedling salt tolerance.

In 1981 and 1982, AZ-GERM SALT-I alfalfa was tested with 11 other experimental germplasm sources and Mesa-Sirs for forage production at Mesa, Arizona. The Cycle4 and Syn1 salt tolerant germplasm averaged 7.5% more forage than Mesa-Sirs over the 2-year period.

Seed stocks of AZ-GERM SALT-I will be maintained by the Dep. of Plant Sciences, Arizona Agric. Exp. Stn., Tucson, AZ, and by the ARS, Beltsville, Md. Seed is being deposited in the national germplasm storage at Fort Collins, Colo.

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BELTSVILLE 16-1 TURF-TYPE TALL FESCUE GERMPLASM

BELTSVILLE 16-1 tall fescue (Festuca arundinacea L. No. GP24) was developed at the Beltsville Agricultural Research Center (BARC), Beltsville, Md. Beltsville 16-1 was from 46 Plant Introductions (PI) from 21 countries selected from an old BARC nursery and from turf fields in Virginia, and North Carolina. It was first regional testing in 1978 under the name Bel TF 16-1. Beltsville 16-1 was released by the Agricultural Research Service in May 1982.

Development of Beltsville 16-1 was initiated from plants from each of the 46 PI lines and from each polycross line of the 53 local clones were established in a spaced plant nursery and evaluated for growth habit, date of flowering, seed production, genetic color, leaf texture, color retention, and disease reaction. Resultant open pollinated (OP) progenies from each 1972 nursery were subsequently evaluated in 1974 spaced plant nursery (20 OP progeny from each clone). Open pollinated progenies from 194 clones selected from the 1974 nursery were evaluated in turf trials for persistence, leaf texture, density, disease resistance, drought tolerance, growth habit, turfgrass quality. Based on progeny performance, 86 of the above clones were selected from the 1974 nursery, intercrossed to form Beltsville 16-1 Syn1. The Syn1 generation was produced by intercrossing in a field nursery 2000 plants randomly selected from the Syn1. The Syn2 generation is currently being developed.

Beltsville 16-1 has a semi prostrate growth habit, good texture, a moderate vertical growth rate, and moderate disease resistance. It has good resistance to crown rust caused by Puccinia coronata Cda. and moderate resistance to leaf spot caused by Drechslera dictyoides (Drechs.) Shoem., and brown patch caused by Rhizoctonia solani Kuehn. Beltsville 16-1 has good drought and heat tolerance and very good color retention. In scattered turfgrass evaluation trials, it has provided turf with improved density, texture, and color under moderate-to-low maintenance levels. In selected locations, it consistently performs better than commercially available cultivars.

Small amounts (10g) of seed will be provided upon written request and agreement to make acknowledgment of its source as a matter of open record when it contributes to the development of a new cultivar.