Registration of TEM-SD Lehmann Lovegrass Germplasm

The TEM-SD Lehman lovegrass, Eragrostis lehmanniana Nees, germplasm (Reg. no. GP-63, PI 559907) was developed by the USDA-ARS Forage Improvement Research Unit, Grassland Soil and Water Research Laboratory, in cooperation with the Texas Agricultural Experiment Station and was released in 1991.

Lehmann lovegrass biotypes usually have 40 or more chromosomes and reproduce by diplospory (1), a type of gametophytic apomixis in which the embryo sac develops directly from the megaspore mother cell without meiosis. Because of apomixis, conventional genetic research and plant breeding have been restricted with this grass. Germplasm derived from accessions 459, 467, and 469, from the collections of T.B. Vorster, formerly of the Botanical Research Institute, Pretoria, Republic of South Africa, and originally collected from the Northern Cape Province, was confirmed to be diploid (2n = 2x = 20). Plants were meiotically stable with chromosomes pairing as 10 bivalents. Cytological studies of megasporogenesis revealed the occurrence of a normal meiosis. Thus, this diploid germplasm reproduces sexually (2). Lack of seed set after self-pollination indicates that this germplasm is primarily cross-pollinated.

Plants of TEM-SD lehmann lovegrass are decumbent in growth habit, develop adventitious roots at the lower nodes, grow to a height of 30 to 40 cm, and have a seed mass of \( \approx 0.7 \text{ mg} \ 100 \text{ seed}^{-1} \). Thus, TEM-SD is similar to ‘A-68’ lehmann lovegrass.

TEM-SD is a bulk harvest of seed produced in all (30) surviving plants derived through open-pollination from the three South African accessions. TEM-SD is a source of sexuality in lehmann lovegrass and is essential to further conventional genetic research with that species.

Seed of TEM-SD will be maintained and distributed in limited quantities to breeders, geneticists, and others who request that appropriate recognition be given to the source of this germplasm if TEM-SD contributes significantly to new genetic information or to the development of new germplasm or cultivars.

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References and Notes


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Registration of TEM-LD1 Kleingrass Germplasm

TEM-LD1 Kleingrass (Panicum coloratum L.) germplasm (Reg. no. GP-64, PI 559908) was developed at the Grassland, Soil and Water Research Laboratory, Temple, TX, and released by USDA-ARS and the Texas Agricultural Experiment Station on 15 Oct. 1991. TEM-LD1 has low postharvest seed dormancy and will be useful plant breeding and genetic research. Kleingrass typically has postharvest dormancy from freshly harvested seed. The dormancy declines over time and is completely lost after \( \approx 6 \text{ mo} \) storage at room temperature. Because of this dormancy, a maximum of one cycle of selection per year can be achieved in plant improvement programs. Without dormancy, generation times can be reduced and the rate of plant improvement accelerated. Nondormant germplasm will also allow investigation of the ecological role of postharvest dormancy in natural reseeding of pastures and rangelands.

TEM-LD1 was derived through six cycles of recurrent selection for rapid germination immediately following harvest. TEM-LD1 that had been harvested during the late growing season has postharvest dormancy and is \( \approx 69\% \) viable. Germination percentages after 6 d were \( 69\% \) and 8\% for the base population (4). After 27 d, germination was 89 and 19\%, respectively, for the two populations. Dry matter yields of TEM-LD1 averaged across two sites and 2 yr at Temple, TX, were 12\% lower than Selection-75 and 13\% lower than ‘Verde’ (nonsignificant). Winterkill (0 = dead, 5 = 100\% crown recovery) averaged 2\% (\( P < 0.05 \)) for TEM-LD1 than Selection-75 fertilizer plot at Temple, TX.

Seed of TEM-LD1 will be maintained at the Grassland, Soil, and Water Research Laboratory, Temple, TX. Small quantities will be made available to interested breeders and geneticists upon written request. It is requested that appropriate recognition be given to the source of the germplasm if TEM-LD1 contributes to the development of a new cultivar.

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References and Notes