Registration of Germplasms

WINTER BARLEY COMPOSITE CROSS XL
GERMPLASM

A FACILITATED mating winter barley (Hordeum vulgare L.) (Reg. no. GP62) population, designated Composite Cross XL, was released in September 1982 by the USDA-ARS and Maryland Agricultural Experiment Station.

Composite Cross XL originated from crosses between male lines having superior agronomic performance and female lines that were genetically male sterile. The male lines (26 U.S. cultivars and experimental lines) were identified as being high yielding in the Uniform Winter Barley Nursery (hardy varieties), Uniform Winter Barley Nursery (semihardy varieties), in replicated field tests in Maryland, or in the literature. The male lines were also chosen because they were superior in one or more of the following characteristics: earliness, straw strength, winterhardiness, and resistance or tolerance to powdery mildew (incited by Erysiphe graminis DC. ex Mérat f. sp. hordei Em. Marchal), scald (incited by Rhynchosporium secalis (Oud.) J. J. Davis), net blotch (incited by Drechslera teres (Sacc.) Shoem.), leaf rust (incited by Puccinia hordei Otth), and leaf rust (incited by P. hordei var. hordei). The female lines were genetic male sterile stocks 124 and 128 which contain the msg lca gene (formerly known as ms, ms 1, or msg l) and are near-isogenic lines of cultivars ‘Harrison’ and ‘Hudson’, respectively (1). Each male line was crossed with at least one of the female lines. The crosses were made at Beltsville, Md, in 1978 and 1979. F1 plants were grown in the greenhouse in 1979 and 1980. In 1980, F2 seed of six of the crosses involving locally adapted male lines was bulked so that each male line was equally represented by weight. The bulk was grown at Beltsville in 1980-1981 and has not been formally released due to its expected narrow adaptation. In 1981, F2 seed of the crosses with the remaining 20 male lines was bulked with a portion of the unreleased bulk so that each of the 26 male lines was equally represented by weight in the final population. This population was grown at Beltsville in 1981-1982 prior to its release as Composite Cross XL.

The population will segregate for a wide range of characters. It should contain diverse yield genes and gene complexes presently being used by winter barley breeders in the United States. The incorporation of male sterility will enhance cross pollination and should facilitate recurrent selection procedures for yield improvement. Additionally, the population contains genes for agronomic improvement for earliness, straw strength, and winterhardiness coupled with genes currently used for resistance or tolerance to many of the diseases prevalent in winter barley growing regions. This population differs from past composite cross population releases in that it incorporates facilitated mating

References and Notes


NC-83 BIRDSFOOT TREFOIL GERMPLASM

NC-83 birdfoot trefoil (Lotus corniculatus L.) germplasm was developed by the Illinois, Missouri, Iowa, and Minnesota Agricultural Experiment Stations and was released in 1981. NC-83 traces to 30 selected genotypes from the breeding programs of these four states (16 clones), Missouri (9 clones), Iowa (6 clones), and Minnesota (7 clones). The clones were selected for increased yield, seed yield, disease resistance, persistence, and for an erect growth habit. Open-pollination seed of NC-83 was collected from replicated tests at Urbana, Ill.; Rosemount, Minn.; Columbia, Mo.; Fargo, N. Dak.; and Corvallis, Oreg. (1).

NC-83 yielded significantly more forage than the cultivar ‘Leo’ when evaluated over 19 test years in nine states. This germplasm possesses great variation in characters such as erectness of growth habit, plant height, number of stems/plant, umbels/plant, pods/umbel, seed weight, seed yield, maturity, plant height, resistance, and persistence. Therefore, it is a suitable germplasm for additional selection because of its broad genetic base. Its probable area of adaptation is the northern part of the USA.

Seed of NC-83 will be maintained in the USDA-ARS low temperature controlled storage and can be obtained from J. Elling or D. K. Barnes, Dep. of Agronomy and Plant Genetics, Univ. of Minnesota, St. Paul, Mn. Requests for additional seed under scientific study should be made to the Curator, USDA Small Grains Collection, USDA-ARS, Beltsville Agricultural Res. Ctr., Beltsville, Md 20705 U.S.A., who maintains the population, or from J. Elling or D. K. Barnes, Dep. of Agronomy and Plant Genetics, Univ. of Maryland, St. Paul, Md 20705, USA.

References and Notes