Registration of ‘Pennbar 66’ Barley

Pennbar 66, a winter barley (Hordeum vulgare L.) (Reg. no. CV-239, PI 555449), was developed by the Pennsylvania Agricultural Experiment Station and released in 1990. Pennbar 66 was tested under the experimental designation of PA 8444-66 and released for its high yield, test weight, winter survival, standability and field resistance to diseases.

Pennbar 66 was derived from a bulk population provided in 1979 by T.M. Starling of the Virginia Agricultural Experiment Station. The pedigree of the bulk population was “Harrison”/3/“Cebada Capa”/“Wong”/awnled “Hudson”/4/“Hanover”/“Jefferson”/“Barsoy.” Pennbar 66 traces to a single head selection made in the F1 generation in 1983.

Pennbar 66 was evaluated in replicated state yield trials from 1985 to 1990 in Centre County and in Lancaster County, PA, from 1987 to 1990. It was also evaluated in the USDA Uniform Winter Barley Yield Nursery at 26 locations in 1989 and 1990. Pennbar 66 was evaluated for winter hardiness in the USDA Uniform Winter Hardiness Nursery in 1989 and 1990, and in a laboratory freezing test in 1986. In the state yield trials in Centre County, grain yield of Pennbar 66 was comparable to that of ‘Pennco’ and 4% better than that of ‘Wyso.’ In Lancaster County, grain yield of Pennbar 66 was comparable to that of ‘Wyso’ but 5% better than that of Pennco. Bushel weight of Pennbar 66 was better than that of Pennco by 5.3 and 7.3% in Centre and Lancaster Counties, respectively. The winter hardiness of Pennbar 66 is comparable to that of Pennco based on field and laboratory evaluation. Over all locations in the Uniform Winter Barley Yield Nursery, Pennbar 66 averaged 3,717 kg ha⁻¹, which was 8 and 16% higher than ‘Wyso’ and ‘Milton,’ respectively, the check entries for that nursery.

Pennbar 66 exhibits moderate field resistance to leaf rust (caused by Puccinia hordei G. Otth), net blotch (caused by Pyrenophora teres Drechs.), and bunt (caused by Rhynchosporium secalis (Oudem.) J.J. Davis) as well as some resistance to powdery mildew (caused by Erysiphe graminis DC.) in Pennsylvania.

Pennbar 66 is a winter, six-rowed, rough awned, hulled, feed barley with medium height and medium maturity. The plants are semi-prostrate and deep green in the fall. Heads are semi-nodding to nodding at maturity and the stem neck is straight. The peduncle length ranges from 17 to 25 cm. The flag leaf is held predominantly upright and averages about 1.4 cm in width and 12.8 cm in length. Width and length of the second leaf average 1.6 and 18.4 cm, respectively. Basal leaf sheaths are pubescent and anthocyanin pigmentation is present; upper leaf sheaths are waxy; exposed stem nodes are green; auricles have a slight amount of anthocyanin.

Authorized seed classes will be breeder, foundation, and certified. Breeder seed of Pennbar 66 will be maintained by the Pennsylvania Agricultural Experiment Station. Foundation seed will be available from the Pennsylvania Foundation Seed Cooperative, PO Box 513, Manheim, PA 17545. Application has been made for U.S. Plant Variety Protection.

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References and Notes

Published in Crop Sci. 33:1407 (1993).

Registration of ‘Nublue’ Kentucky Bluegrass

Nublue, Kentucky bluegrass (Poa pratensis L.) (Reg. no. CV-47, PI 561037) is a turf-type cultivar released August, 1992, by Jacklin Seed Company, Post Falls, ID, and Medalist America, Inc., Albany, OR. Nublue was developed from germplasm obtained from the New Jersey Agricultural Experiment Station. Nublue Kentucky bluegrass originated as a single, highly apomorphic plant selected from the F1 progeny of the cross NJE P-59 × ‘Baron’ Kentucky bluegrass. The maternal parent, NJE P-59, was a single plant selection from the fourteenth fairway of the Colonia Golf Course, Colonia, NJ. NJE P-59 is a breeding line with moderately high seed yield potential, moderately low floral induction requirement, and a high proportion of reproductive tillers. This type of growth habit normally results in a stemmy turf with many reproductive tillers in late spring and early summer. Under mowed turf, NJE P-59 is moderately low growing with a medium leaf texture and a bright medium dark green color. It is noted for its early spring color and ability to remain green into late fall and early winter. Baron (2) is a widely used cultivar selected from an old turf in The Netherlands. Both NJE P-59 and Baron exhibit good turf performance, high seed yield potential, and resistance to many turfgrass diseases. Following hybridization (1,3), vegetative propagules of the progeny were established in a spaced-plant nursery in Ashtopia, NJ, in 1973. Hybrids were identified during May and June, 1974, by their obvious morphological differences from the maternal parent, NJE P-59. Seed was harvested and maintained separately from selected plants and used to establish turf trials at North Brunswick, NJ, in the late summer of 1974. Spaced-plant progeny trials were conducted to determine the level of apomictic reproduction. Replicated trials were established near Post Falls, ID, by Jacklin Seed Company in 1975 to evaluate the seed yield potential of Nublue. Seventeen years of seed yield and turf performance data were collected prior to release of Nublue. Nublue was tested under the experimental designations, H74-229 and J-229. A space-planted nursery was established at Post Falls in 1978 for breeder seed increase and evaluation of plant characteristics.

In 1992, Nublue, NJE P-59, and Baron were each analyzed using flow cytometry and random amplified polymorphic DNA (RAPD) markers. Nublue had an average nuclear 2C DNA content of 10.54 ± 0.26 pg suggesting an estimated chromosome number equivalence of approximately 79. These values are intermediate between NJE P-59 (8.03 ± 0.16 pg; about 58 chromosomes) and the paternal parent Baron (11.05 ± 0.16 pg: about 84 chromosomes). Furthermore, of 228 RAPD markers, Nublue exhibited 119 Baron-specific markers and 109 NJE P-59-specific markers. This paternal-to-maternal inheritance ratio was significantly (P < 0.001) different from expected ratios of 1:2 (76:152) and 2:1 (152:76), but was not significantly (P > 0.05) different from a 1:1 (114:114) expected ratio. Of the 228 parental polymorphisms, approximately one-half were inherited from the paternal parent, Baron, while the other half were inherited from the maternal parent, NJE P-59. Therefore, Nublue is thought to have resulted from the union of a reduced egg from NJE P-59 and a reduced pollen nucleus from Baron (i.e., a Bb hybrid).

Nublue is a facultative apomict with over 90 percent of its progeny appearing genetically identical to the maternal parent. Aberrant, sexually reproduced plants of Nublue tend to be smaller and weaker than maternal-