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Registration of 'Wooding' Barley

'Wooding', a six-rowed spring barley (*Hordeum vulgare* L.) (Reg. no. CV-326, PI 642368), was developed by the Alaska Agricultural and Forestry Experiment Station of the University of Alaska Fairbanks. It was released for commercial production by the Alaska Agricultural and Forestry Experiment Station in 2006. Before release, Wooding was tested as (Jo1632/Otal)-44. The name Wooding was chosen to recognize the agronomic contributions of the late Dr. Frank J. Wooding, professor emeritus of agronomy of the School of Agriculture and Land Resources Management (now the School of Natural Resources and Agricultural Sciences) at the University of Alaska Fairbanks.

Wooding originated from the cross Jo1632/Otal made in 1990. Jo1632 was developed at the Plant Breeding Institute of the Jokioinen Agricultural Research Centre (now Boreal Plant Breeding Ltd.) in Jokioinen, Finland. In northern environments such as in Alaska, Jo1632 is high yielding and early maturing, with average to above-average tillering capacity, kernels/spike, kernel weight, and resistance to lodging. Otal (CV– 251, PI 562644) was developed by the USDA plant breeding program at the Alaska Agricultural and Forestry Experiment Station Palmer Research and Extension Center in 1981 (Taylor et al., 1995). Otal is high yielding, above-average kernel weight and early maturing (about 1 d earlier than Jo1632) (Taylor et al., 1995). Lodging resistance of Otal is only average. Wooding represents an improvement over Finaska (CV– 286, PI 613155), a cultivar previously released by the Alaska Agricultural and Forestry Experiment Station in 2001, in grain yield, early maturity, and higher straw yields (Dofing and Knight, 2001).

Progeny of the cross were grown in bulk from 1991 to 1998, at which time 3000 F_8 spikes were selected on the basis of early maturity and phenotypic characteristics such as spike length and kernel size. In 1999, seed from these spikes were sown in 60-cm rows. From these 3000 rows, 44 selections were made on the basis of early maturity, straw strength, and uniformity. These 44 selections were grown in unreplicated plots at Fairbanks, AK, in 2000 to increase seed. In the 5 yr of testing in Fairbanks, Palmer, and Delta Junction, AK, from 2001 to 2005, Wooding yielded an average of 3089.4 kg ha^{-1}, which was 459.3 kg ha^{-1} higher than Finaska during the same time period. Average test weight of Wooding was 56.3 kg hL^{-1}, which was 2.5 kg hL^{-1} higher than Finaska. Kernel size and shape are similar to that of Finaska, with 1000-kernel weights of 43 g for Wooding, only 1 g less than that for Finaska. Wooding matured in 72 d, which was 1 d earlier than Finaska. Average plant height of Wooding was 89 cm, which was 8 cm taller than Finaska. Despite its taller plant height, lodging resistance of Wooding was comparable to that of Finaska with 12% greater straw yield. Average grain crude protein of Wooding was 15.63%, which was 0.34% greater than Finaska. Neutral detergent fiber (NDF) for Wooding was 30.30% and acid detergent fiber (ADF) was 6.07%. Both of these values were slightly higher than the NDF and ADF values for Finaska (1.57% and 0.18%, respectively). In vitro dry matter digestibility (IVDMD) was equal to that of Finaska, while total nonstructural carbohydrates (TNC) was 0.5% lower for Wooding. Phosphorus and calcium percentages were similar for both Wooding and Finaska.

Although present on all of the 44 selections, no significant levels of common diseases of barley, including barley leaf scald [caused by *Rhynchosporium secalis* (Oudem). J.J. Davis], net blotch (caused by *Pyrenophora teres* Drechs.), or smut (caused by *Ustilago* spp.) were observed for Wooding, although incidence of these diseases is generally low under Alaskan growing conditions.

Spikes of Wooding are six-rowed, rough awned, medium length, and lax to medium density, with kernels overlapping at the tip. Kernels are midsize with white aleurone. The rachilla is long with short hairs. The basal rachis internode is short and straight. Lateral veins are slightly toothed, and lemmas are wrinkled. Lemma awns are long and rough. Glumes are lemma-like with thin awns and are about half the length of the lemma.

Breeder seed of Wooding is maintained by the Alaska Agricultural and Forestry Experiment Station, Fairbanks, AK, and can be obtained on request. Wooding is not protected by Plant Variety Protection. Researchers using this cultivar are requested to acknowledge its source as the Alaska Agricultural and Forestry Experiment Station.

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