REGISTRATION OF WANUBET, A HULLESS, WAXY BARLEY GERMPLASM

WANUBET (Reg. no. GP-129, PI 538760) is a hulless, waxy barley (Hordeum vulgare L.) population that was derived from a ‘Betzes’ (CI 7563)/2/’Waxy Oderbrucker’ (CI 7563) cross and released in 1990 by the Montana Agricultural Experiment Station for use as germplasm. Following initial development in the mid-1970s, Wanubet was increased for several growing seasons in Montana and Arizona. Wanubet has long, rough awns, a nonadherent lemma and palea, and a waxy endosperm (wxwx nn Lk2 Lk2). The grain is cream colored and the spike is mid-long and mid-lax, with long rachilla hairs and hair-covered glumes and rachis edges. The population is heterogeneous for plant height, heading date, and maturity date.

Three years of testing in the Montana Agricultural Experiment Station statewide uniform yield nurseries (30 station-years) demonstrated that the Wanubet population yields ≈80% of the check cultivar ‘Hector’ (CI 15514) and 74% of the check cultivar ‘Steptoe’ (CI 15229). This germplasm can benefit plant breeding programs desiring a source of waxy starch or nonadherent hull in a two-rowed genetic background.

Seed samples of Wanubet are available upon request from Dr. Tom Blake, Department of Plant and Soil Sciences, Montana State University, Bozeman, MT 59717.

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References and Notes

REGISTRATION OF BUDWORM RESISTANT I-514 TOBACCO GERMPLASM

I-514 tobacco (Nicotiana tabacum L.) germplasm (Reg. no. GP-42, PI 537447) was developed cooperatively by the USDA-ARS, the North Carolina Agricultural Research Service and the Georgia Agricultural Experiment Station. It is resistant to tobacco budworms, Heliothis virescens (F.), and was released in 1987. I-514 was developed from a hybrid between Tobacco Introduction (TI) 165 and flue-cured cultivar North Carolina 82 (NC 82). TI 165 is an accession from Japan known as ‘Hatano’ and is classed as a cigar filler (1). NC 82 is a high quality, disease resistant flue-cured cultivar (2). I-514 originated as a single plant selected in the F2 population of TI 165 × NC 82. It was developed by pedigree selection through the F2 generation.

Resistance is shown in the reduced ability of tobacco budworm larvae to survive and develop on artificially infested I-514 plants in greenhouse and field tests using laboratory reared insects and by reduced infestations and damage ratings in the field during natural infestations. Larval survival in one greenhouse test was 26 and 47% for I-514 and NC 82, respectively. Average larval weights in a field test were 45, 53, and 270 mg for I-514, TI 165 and susceptible NC 2326, respectively. Nine selfed sublines selected within the F2 generation of I-514 averaged less infestation (arc-sin 30) than NC 82 (arc-sin 78) under natural conditions at Tifton, GA. Similar results were obtained for damage scores. Some of these lines were as low as TI 165, which may indicate some remaining genetic variability.

In a controlled feeding test in the field, these nine sublines averaged 28% budworm survival compared to 56% for NC 82 and 61% for NC 2326. In this experiment larval weights, after one week, averaged 64, 197, and 178 mg on the nine I-514 sublines, NC 82, and NC 2326, respectively.

Plants of TI 165 are shorter than NC 82, possess three fewer leaves, and the leaves are slightly shorter. I-514 is somewhat intermediate between its parents in these characteristics, but it tends to more closely resemble NC 82. Yields of nine sublines of I-514 were significantly greater than TI 165 and similar to NC 82. Cured leaf quality as measured by grade index, of these same lines was below NC 82. Percent total alkaloids in the cured leaf of these lines was higher than that of NC 82. Leaf washes of I-514 indicate that it produces sucrose esters in quantities similar to TI 165 and at a higher level than the standard cultivar, NC 2326. I-514 provides genetic material that can be used in further crossing and selection.

I-514 is being released to plant breeders, Agricultural Experiment Stations, and other organizations for research and breeding purposes. Stock seed will be maintained and distributed by the Crops Research Laboratory, USDA-ARS-SAA, Oxford, NC 27565.

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References and Notes

REGISTRATION OF SIX SEPTORIA NODORUM BLOTCH RESISTANT, SEMIHARDY WINTER BARLEY GERMPLASM LINES

Six barley (Hordeum vulgare L.) germplasm lines (Reg. no. GP-123 to GP-128, PI 537569 through 537574) with resistance to septoria nodorum blotch caused by Phaeosphaeria

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