Registration of ‘Nautica’ Common Bean

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Navy bean (Phaseolus vulgaris L.) cultivar ‘Nautica’ (Reg. No. CV-279, PI 648357) was developed at the Agriculture and Agri-Food Canada (AAFC) Greenhouse and Processing Crops Research Centre (GPCRC), Harrow, ON, Canada. Nautica was tested originally as HR81-5 in the Ontario Cooperative Cultivar Registration Trials (OCCRT) between 2002 and 2004. Nautica was supported for registration in 2004 by the Ontario Pulse Committee (OPC) for its high yield potential and semideterminate growth habit with very upright plant type and full season maturity in southwestern Ontario. Nautica was registered by the Canadian Food Inspection Agency Variety Registration Office (Reg. No. 5987) on 29 Sept. 2005.

Nautica was selected from the cross ‘OAC Laser’/HR20-827. OAC Laser was derived from a cross between a black bean ‘Midnight’ and an early navy bean ‘Seafarer’. OAC Laser is used for its semideterminate growth habit (IIa) with upright plant type. HR20-827, a selection derived from a cross between white mold-resistant navy bean ‘Ex Rico 23’ and Midnight, also has a tall erect plant type with semi-determinate growth habit, high yield potential and tolerance to white mold [caused by Sclerotinia sclerotiorum (Lib.) de Bary] (Park and Welacky, 1992). The cross was made at Harrow in 1989 to incorporate high yield potential and upright plant type with semideterminate growth habit (IIa), and white mold resistance. This cultivar is suitable for narrow row bean production and direct combine harvest because of its upright plant type with narrow canopy and lodging resistance.

The F₁ was grown in a hybrid nursery at Harrow in 1989, and F₂₃, bulks were advanced by single seed descent in a winter nursery in Puerto Rico in 1990–1991. Plant selections were made based on erect plant canopy type from an F₄ bulk population at Harrow in 1992. F₅ plant rows were grown in a pedigree nursery in 1993, and the line W1769e-64254A was selected for its upright plant type and high yield potential for agronomic evaluation. This line was tested in replicated yield trials from 1994 through 1996 at St. Thomas, ON. Advanced line HR81-1769 was tested in Ontario Coop Trials in 1997–1998. Fifty plant rows from this line were grown in an isolation nursery in 1999 to further evaluate and they were tested in replicated yield trials. Line HR81-5 was finally selected for its high potential and semideterminate growth habit with an erect plant type.

Nautica was tested as HR81-5 for registration in the Ontario Cooperative White Bean Cultivar Registration Trials conducted by the Kemptville and Ridgetown Colleges (AAFC-GPCRC, University of Guelph, Hyland Seed Co., and AAFC-GPCRC, St. Thomas), Harrow. Cooking quality was tested by a panel evaluation for appearance, flavor, and bean color was measured by Hunter Labscanner (Hunter Assoc. Laboratories, Reston, VA) based on reflectance as a measure of white to black. Hydration percent solid/drain weight and yield of canned beans of 227-g (8-oz) cans filled with blanched beans of 227 g/kg of dry beans were measured. Texture of beans was measured by the Instron texture measurement (kg mm⁻¹) and plateau force in kg (Voiello et al., 1997).

Tests for resistance to anthracnose, caused by Colletotrichum lindemuthianum (Sacc. & Magnus) Lams.–Scrib., and mosaic virus (BCMV) were conducted under controlled conditions by artificial inoculation at GPCRC, Harrow, for common bacterial blight [Xanthomonas campestris pv. phaseoli] (Smith) Dye] resistance was conducted by artificial inoculation in a growth room. Reaction to white mold was evaluated under field nursery at St. Thomas, ON, where heavy infestations pre-}

Nautica is a full-season cultivar and has good yield potential and high yield in southwestern Ontario. It yielded 3521 kg ha⁻¹ more than an average yield (3415 kg ha⁻¹) for common bacterial blight (Xanthomonas campestris pv. phaseoli) check cultivars (‘OAC Gryphon’, ‘OAC Thunder’, ‘Cirus’, and OAC Gryphon) in Ontario for 3 yr, checks OAC Gryphon (94 d), OAC Rex (95 d), and Vista (94 d).