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Registration of 'Binscarth' Barley

'Binscarth' (CV-327, PI 642854; Canadian Reg. No. 6121) is a six-rowed spring forage barley (*Hordeum vulgare* L.) cultivar developed at the Agriculture and Agri-Food Canada (AAFC) Research Centre, Brandon, MB, Canada, which was registered on 5 May 2006 by the Variety Registration Office of the Canadian Food Inspection Agency, Ottawa, ON, Canada. Binscarth was tested at Brandon and in the Western Cooperative Forage Barley Registration Test (2002 and 2003) under the experimental number FB006. Binscarth was selected from the cross Brandon CC 053//'B1602'/BT 347/3/'Argyle'/'Conquest'/4/'Duel'//'Vivar'/'AC Rosser'. Brandon CC 053 is a Composite-Cross six-rowed line derived from five cycles of male-sterile derived recurrent selection; BT 347 is a six-rowed feed line developed at the AAFC Research Centre, Brandon, MB (Pedigree: 'Conquest'/'Bedford'; Canadian Food Inspection Agency, 1979); Argyle is a six-rowed malting barley cultivar developed by the University of Manitoba, Winnipeg, MB, Canada (Canadian Food Inspection Agency, 1981); Conquest is a six-rowed malting barley cultivar developed by AAFC Research Centre, Brandon, MB (Johnston, 1966); AC Rosser is a six-rowed feed barley cultivar developed by AAFC Research Centre, Brandon, MB (Therrien, 1998); Duel is a six-rowed (PI 539917) dual-purpose malting and feed cultivar developed by Busch Agricultural Resources Inc., Ft. Collins, CO, USA (Canadian Food Inspection Agency, 1990); B1602 is a six-rowed white aleurone malting barley developed by Anheuser-Busch Inc.(Canadian Food Inspection Agency, 1994); and Vivar is a six-rowed feed cultivar developed by the Field Crop Development Centre, Alberta Agriculture Food and Rural Development, Lacombe, AB, Canada (Helm et al., 2003).

Binscarth was selected from an F_3–derived population. The hybrid population (Brandon cross EX705) from which Binscarth was derived was developed at the AAFC Research Centre, Brandon, MB, Canada in 1996. One hundred five F_1 seed were sown in the greenhouse and harvested in bulk. The F_2 population was sown in the field as a 3-m row and bulk harvested. The procedure was repeated for the F_3 generation using two 3-m rows. Three hundred spikes were selected from the F_3 bulk sample on the basis of plant morphology including heavy tillering, large disease-free leaves, and large spikes and grown as individual F_4 progeny rows. Individual progeny rows were selected from the F_4 population on the basis of visual assessment for dense, upright growth, low levels of foliar disease, and late maturity. F_4 selections were grown as F_5 plots 3×1 m in a nearest-neighbor design with 'Virden' (Therrien et al., 1988) and 'AC Ranger' (Therrien, 2002) as alternating check cultivars repeated every 20 plots. A single plot (EX705–14) was selected from this F_5 population on the basis of heavy tillering (i.e., visually displaying many more tillers in a plot, relative to the check cultivar, AC Ranger), upright growth, high leaf area index (LAI), high resistance to lodging, and low incidence of foliar disease. EX705–14 was tested in a replicated field trial at Brandon in 1999. EX705–14 was tested at three locations in 2000 (Brandon, MB; Ste. Rose-du-Lac, MB; and Hamiota, MB) and four locations in 2001 (Brandon, Hamiota, MB; Saskatoon, SK; Shouldice and Olds, AB). It was entered in the Western Cooperative Forage Barley Test (FBCoop) as FB006 in 2002 and 2003 and grown at six locations (Brandon, MB; Saskatoon, SK; Shouldice, Olds, and Lacombe, AB) each year.

Over 2 yr of evaluation in the FBCoop, Binscarth had 3% higher forage yield than Virden (the forage check cultivar in western Canada), with a 9% yield advantage in Saskatchewan, its primary area of adaptation. Binscarth had 90% the grain yield of the check cultivar, 'AC Lacombe' (Kibite, 1994), which renders Binscarth unsuitable for grain production and classifies it as a forage-only cultivar. Compared with Virden, Binscarth is 3 cm taller, has poorer lodging resistance, and is approximately 1.5 d earlier maturing. Test weight of Binscarth is similar to Virden, but 1000-kernel weight and plumpness are lower than Virden.

Forage quality for Binscarth exceeded all the checks in the FBCoop, with total digestible nutrients (TDN) equal to AC Ranger (the forage quality check cultivar) and relative feeding value (RFV) that is approximately 4% higher than AC Ranger. The spike of Binscarth is short (6.0–9.0 cm, excluding the awns) and semi-erect to seminodding. Kernels are medium length and width with white aleurone. Lemma awns are rough and lemma awn tips are colorless (white).

Binscarth is susceptible to Fusarium head blight (*Fusarium graminearum* Schwabe [teleomorph *Gibberella zea* (Schwein)].), is moderately resistant to common root rot and resistant to spot blotch [both diseases incited by *Cochliobolus sativus* (Ito and Kuribayashi) Dreschs. ex Dastur.], and is resistant to net blotch (incited by *Pyrenophora teres* Dreschs) In addition, Binscarth is susceptible in reaction to scald [incited by *Rhynchosporium secalis* (Oudem) J.J. Davis] and Septoria (incited by *Septoria passerinii* Sacc.), is resistant to stem rust (except race QCCJ, incited by *Puccinia graminis* Pers.:Pers. = *P. graminis* Pers.:Pers. f. sp. *tritici* Eriks. & E. Henn.), and is susceptible to loose smut (incited by *Ustilago nuda L.*) and resistant to covered and false loose smuts [incited by *Ustilago hordei* (Pers.) Lagerh. and *U. nigra* Tapke, respectively).

Seed from 300 uniform progeny rows at the F_{10} generation were bulked to constitute the Breeder seed of Binscarth. Breeder seed is being maintained by AAFC at the Indian Head Research Farm, Indian Head, SK, Canada. Small quantities of seed of Binscarth, for research purposes, can be obtained from the author. The Canadian distributor for Binscarth is Wagon Wheel Seeds, R.R. #5, Churchbridge, SK.

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