

DESCRIPTION OF VARIETY

Crop: Navy bean type Field bean

Registration No:

Variety: HR81-5 (tentative name: Nautica)

Registration Date:

Origin and Breeding:

Erie tested as HR81-5, was developed at the Greenhouse and Processing Crops Research Centre of Agriculture and Agri-Food Canada, Harrow, Ontario. It was selected from a cross of cross between OAC Laser and HR20-827 where , where a selection derived from a cross Ex Rico 23 x Midnight. The cross was made at Harrow in 1989 spring to incorporate high yield potential and upright plant type from OAC Laser, and upright plant type with semi-determinate growth habit (II^a), white mould tolerance and good yield potential from HR20-827. The F₁ was grown in hybrid nursery at Harrow in 1989 and F₂- F₃ bulks were advanced as single seed descent in winter nursery in 1990-1991 and plant selections were made based on erect plant canopy type from F₄ bulk population at Harrow in 1992. Then, F₅ plant rows were grown in a pedigree nursery in 1993 and a line W1769e-64254A was selected for its upright plant type and high yield potential for agronomic evaluation. This line was tested in replicated trials in 1994-1996 at St. Thomas. Advanced line HR81-1769 was tested in Ontario Coop Trials in 1997-1998. Then 50 plant rows from HR81-1769 were grown to purify further in an isolation nursery in 1999 and tested in yield trials during 2000-2001, Then a line HR81-5 was finally selected for its high yield potential and semi-determinate erect plant type, and good canning quality. It was planted in an isolation plot for purification and multiplication of seed in 2003. Spinnaker was tested as HR81-5 for registration in 2002-2004 in the Ontario Cooperative White Bean Variety Registration Trials. It was supported for registration in 2004 by the Ontario Pulse Committee.

Variety Characteristics:

Growth Habit:	Semi-determinate (II ^a) with upright plant type
Hypocotyl colour:	green
Flower colour:	white
Pods:	light tan when ripe, straight (absence of curvature) pod with short straight beak
Seeds:	white, dull seed coat lustre with clear hilum, oval shape, 19.1 g per 100 seed
Maturity:	full season maturing in Ontario, similar to OAC Rex and other checks
Cooking quality:	very good canning quality better than that of OAC Gryphon with good appearance and firm texture of canned bean

Disease reaction: resistant to bean common mosaic virus (BCMV) race 1 and 15, but susceptible to anthracnose. It is tolerance to white mould, probably because of very erect plant canopy and possibly tolerance from Ex Rico 23 as a grandparent.

Performance:

HR81-5 is a full season maturity and has good yield potential in Southwestern Ontario. It has semi-determinate growth habit (II^a) with very upright plant type. It is suitable for bean production in narrow/solid seeding. HR81-5 yielded about 106 kg per ha more than an average yield of three check cultivars in 9 trials during three year period (Table 1). It matured about two days later than an average of three checks (Table 1). HR81-5 has seed mass of 19.1 g per 100 seeds, similar to Vista but it has oval seed shape and dull seed coat luster (Table 1). It is adapted to the areas having 2700 or more crop heat units in Ontario. It has very good cooking and canning quality, better than that of OAC Gryphon. It is resistant to bean common mosaic virus race 1 and 15, but susceptible to anthracnose. (Table 2). HR81-5 has tolerance to white mould (Table 1).

It has very good canning quality.

Maintenance of Breeder Seed:

Agriculture and Agri-Food Canada Greenhouse & Processing Crops Research Centre, Harrow, Ontario will maintains breeder seed.

Canadian Distributor:

SeCan Ltd., 201-52 Antares Drive, Ottawa, Ontario K2E 7Z1

Tel: (613)-225-6891, Toll free: (1-800-764-5487, Fax: (613)-225-6422, e-mail: seed@secan.com

Experimental Data:**Table 1.** Average performance of HR81-5 Navy and check cultivars tested in 9 trials of the Ontario Cooperative White Bean Cultivar Trials* in 2002-2004, and white mould in yield trial nursery at St. Thomas in 2004 .

Cultivar	Yield (kg/ha)			Mean	Maturity (Days)	Seed weight (g/100sd)	Desire score (1-5) ^a
	2002	2003	2004				
HR81-5	2737	4164	3414	3521	96	19.1	3.8
OAC Gryphon	2918	3697	2992	3290	94	19.9	2.9
OAC Rex	2852	4333	2817	3502	95	21.1	3.7
Vista	2867	4142	2953	3453	94	19.0	3.1
Check mean	2879	4057	2921	3415	94	20.0	-
No. of trials	3	4	2	9	9	9	1

* Trials were conducted at Kippen, St. Thomas, Granton and Kemptville.

a Agronomic desirability of plants in a plot is visually scored 1-5 where 1=very poor and 5=most desirable.

Table 2. Cooking quality of canned beans and disease reaction of Erie (HR81-5) navy and checks grown in the Ontario Cooperative White Bean Cultivar Trials in 2002-2004.

Cultivar	Canned bean quality						Disease reaction ⁶				
	Organo leptic ¹ Score	Can yield ²	Hydration coef. ³	Washed -drained wt. ⁴	Texture ⁵		Anthracnose				White mould (1-9) ⁷
					Firmness	Plateau Force	17	23	1	15	
Erie (HR81-5)	10.2	15.4	1.9	65.5	20.1	272	+	+	-	-	1.6
Envoy	9.0	14.4	1.9	66.3	25.0	311	-	+	-	-	7.1
OAC Thunder	9.9	14.2	1.8	66.3	23.8	282	-	-	-	-	2.6
Cirus	9.6	14.9	1.9	65.1	25.4	304	+	+	-	-	6.7
OAC Gryphon	9.5	14.8	1.9	65.4	25.7	315	-	-	-	-	2.9
Check Mean	9.5	14.6	1.9	65.8	25.0	303					4.8

1. Sensory evaluation of total scores of appearance, flavour and texture by panellists as mean of six trials in two years, a scale of 1-5 in each attribute, 1, poor and 5, excellent, 3 yr mean.
2. Canned bean yield: number of 8 oz cans filled with blanched beans (160 ml) from 1,000 g of dry bean.
3. Hydration coefficient: water uptake of 500 g of dry beans.
4. Washed-drained solid of canned beans in tomato sauce is expressed in percent (required +/-60%).
5. Texture of canned beans was measured using wire extrusion cells for firmness ($N\ mm^{-1}$) and plateau force (N).
6. Disease reaction: Susceptible (+) and resistant (-) when tested by artificial inoculation under controlled condition. Anthracnose race 17 (alpha) and 23 (delta).
7. White mould is rated on a scale of 1-9, as inclement of 10% , where 1=none, 2=up to 20%, and 9= over 90% of plot showing white mould infection at yield trial nursery at St. Thomas in 2004.