 Variety Description

Variety Name
MAJESTY

Crop Kind
BEAN, FIELD, RED KIDNEY TYPE

Registration No.: 5986
Experimental No.: HR111-1889; HR111-DRK
Registration Status: National Registration

Registration Date: 2005-09-29
Expiry Date:
Reinstated Date:
Cancellation Date:

Regions:

Terms & Conditions:

Breeder: AAF, GREENHOUSE AND PROCESSING CROPS RESEARCH CENTRE, HARROW, ONT.

Canadian Representative:
AAFC, GREENHOUSE AND PROCESSING CROPS RESEARCH CENTRE, HARROW, ONT.

Phone: 519-738-2251 Fax: 519-738-3756

Canadian Distributor(s): HENSALL DISTRICT CO-OP

PLANT TRAITS

Hypocotyl anthocyanin: absent
Plant growth type: indeterminate bush, erect stem and branches, with guides
Plant growth habit: erect to intermediate
Ozone tolerance: -

Vine length: short (< 30 cm)
Lodging resistance: fair to good
Time to maturity: 89

LEAF TRAITS

Leaf colour: light to medium green
Terminal leaflet size: medium
Terminal leaflet apex: short acuminate

Leaf texture: smooth
Terminal leaflet shape: triangular
Leaf underside pubescence: slightly pubescent

FLOWER TRAITS

Time to flowering: medium
Flower standard colour: pink

Flower bract size: large
Flower wing colour: pale pink

POD TRAITS

Pod length: long
Pod cross section shape: broad elliptic
Pod ground colour intensity: light
Pod pigment flecks: -
Pod curvature shape: towards ventral part
Pod beak length: very short
Pod texture: smooth
Pod distribution on plant: high

Pod width: broad (kidney)
Pod ground colour: green
Pod pigmentation: none
Pod curvature degree: slight
Pod beak shape: pointed
Pod beak curvature: weak
Pod constrictions: slight

SEED TRAITS

Seed weight (g/1000 seeds): 596
Seed cross section shape: flat
No. secondary seed colours: one
Seed coat lustre: shiny

Seed shape: broad kidney shaped
Seed coat main colour: red
Main secondary seed colour: -
Main secondary colour location: -
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Main secondary colour pattern: -
Seed hilar ring: white

Seed veins: weak
Cooking quality: fair to good

REACTION TO DISEASES AND PESTS

Anthracnose: resistant
Anthracnose, alpha Brazil:
Anthracnose, beta race:
Anthracnose - gamma race:
BCMV race 1: resistant
BCMV NL-4:
BCMV - common strains:
Yellow bean mosaic virus:
Rhizoctonia root rot (R. solani):
Powdery mildew (Erysiphe polygoni):
Bean rust, race 54:
Fuscos blight:
Curly top virus:
Brown spot:

Common blight (Xanthomonas campestris):
Halo bacterial blight (Pseudomonas syringae):
Alfalfa mosaic virus 2:
BCMV race necrotic NL8:

Deviant Plants:

Off-Types:

Additional Information:

Additional Chemical Characteristics:

Distinguishing Characteristics:

Additional Information:
DESCRIPTION OF VARIETY

Crop: Dark red kidney bean type field bean
Variety: HR111 DRK
Registration No:
Registration Date:

Origin and Breeding:

HR111DRK (tentative, experimental) is a dark red kidney bean, tested as HR111-1889. It was developed at the Greenhouse and Processing Crops Research Centre of Agriculture and Agri-Food Canada, Harrow, Ontario. HR111DRK was selected from cross between Montcalm and DRK15 made in 1989 at Harrow. Montcalm is used for its good kidney quality and good yield potential, and DRK 15 is used for its upright vine (Ii). The cross was prepared to improve plant type with semi-determinate upright growth habit so that the new selection might be suitable for narrow row bean production.

The F₁ was grown in 1989 at Harrow and F₂, F₃ bulks were advanced in the field nurseries in 1990 - 1991. Then, F₄ plant rows were grown in pedigree nursery because of the wide cross to select indeterminate plant types and then row bulked in 1994. Again plant selections were made from the plant row bulk in 1995 and they were grown in the pedigree nursery in 1996 and a line PN72367 was selected as W1889-72367 for its upright plant type and high yield potential with large seed size. This line was tested in observation trial in 1997 and in replicated yield trials during 1998-2000. The line was planted in an isolation plot for purification and multiplication of seed in 1997 and it was tested as HR111-1889 for registration in 2001-2002 in the Ontario Cooperative Coloured Bean Variety Registration Trials and Performance trials in 2003. It was supported for registration in 2002 by the Ontario Pulse Committee.

Variety Characteristics:

Growth Habit: Semi-determinate (Ii\(^a\)) with upright plant type and short vine
Hypocotyl colour: green
Flower colour: light pink
Pods: light tan when ripe, straight (absence of curvature) pod with short straight beak
Seeds: dark red kidney seed with shiny coat lustre with white hilum, kidney shape, 59.6 g per 100 seed
Maturity: medium season maturing bean, three days earlier than Montcalm.
Cooking quality: good canning quality similar to AC Calmont and Montcalm with good appearance and firm texture of canned bean
Disease reaction: resistant to bean common mosaic virus (BCMV) races 1 and 15, and resistant to alpha but susceptible to delta race of anthracnose.

Performance:

HR111 DRK is a medium season maturity and has good yield potential with large seed size in Southwestern Ontario. HR111DRK yielded about 373 kg per ha more than an average yield of three check cultivars and 580 kg per ha more seed yield than Moncalm which was about three days later in maturity in 11 trials during three year period (Table 1). It matured about a day earlier than average of three checks and 2 days later than Red Hawk (Table 1). HR111 has seed mass of 59.6 g per 100 seeds, about 25.5% larger seed size than the three checks, averaged to be 47.5 g (Table 1). It has a unique growth habit as a dark red kidney bean, semi-determinate growth habit with very upright plant type with short vine and high podding nodes, and it may be suited for narrow row bean production. It is adapted to the areas having 2650 or more crop heat units in Ontario. It has good cooking and canning quality, similar to AC Calmont. It is resistant to bean common mosaic virus races 1 and 15, and resistant to anthracnose alpha but susceptible to delta race.

Maintenance of Breeder Seed:

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

Canadian Distributor:

Hensall District Co-operative Inc.,
1 Davidson Drive, P.O. Box 219
Hensall, Ontario N0M 1X0
Experimental Data:

Table 1. Average performance of HR111 DRK and check cultivars tested in 11 trials of the Ontario Cooperative Coloured Bean Cultivar Trials* in 2001-2003

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Yield (kg ha⁻¹)</th>
<th>Maturity (days)</th>
<th>Seed weight (g 100 sd⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001 2002 2003</td>
<td>Mean</td>
<td></td>
</tr>
<tr>
<td>HR111 DRK</td>
<td>1721 2458 3158</td>
<td>2381</td>
<td>89</td>
</tr>
<tr>
<td>Montcalm</td>
<td>1050 1997 2538</td>
<td>1800</td>
<td>92</td>
</tr>
<tr>
<td>AC Calmont</td>
<td>1333 2446 2931</td>
<td>2174</td>
<td>91</td>
</tr>
<tr>
<td>Red Hawk</td>
<td>1194 2307 2853</td>
<td>2051</td>
<td>87</td>
</tr>
<tr>
<td>No. of trials</td>
<td>4 4 3</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

z. Trials were conducted at Thorndale, Kippen, Woodstock, St. Thomas.
Table 2. Cooking quality of canned beans (mean of 6 trials) and disease reaction of HR111DRK and checks grown in the Ontario Cooperative Colored Bean Cultivar Trials in 2001-2003 and reaction to anthracnose and bean common mosaic virus (BCMV).

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Canned bean quality</th>
<th>Disease reaction $^a$</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Organo leptic $^1$</td>
<td>Can yield $^2$</td>
<td>Hydration coeff. $^3$</td>
</tr>
<tr>
<td>HR111DRK</td>
<td>2.4</td>
<td>17.9</td>
<td>2.0</td>
</tr>
<tr>
<td>Montcalm</td>
<td>2.9</td>
<td>18.4</td>
<td>2.0</td>
</tr>
<tr>
<td>AC Calmont</td>
<td>2.4</td>
<td>17.3</td>
<td>2.0</td>
</tr>
<tr>
<td>Check Mean</td>
<td>2.6</td>
<td>17.8</td>
<td>2.0</td>
</tr>
</tbody>
</table>

1. Sensory evaluation of appearance by panellists as mean of six trials in two years, a scale of 1-5 in each attribute, 1, poor and 5, excellent.
2. Canned bean yield: number of 8 oz cans filled with 160 ml of blanched beans 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.