OAC Lyrik common bean

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Smith, T. H., Michaels, T. E., Lindsay, A. M. and Pauls, K. P. 2009. OAC Lyrik common bean. Can. J. Plant Sci. 89: 307–308. OAC Lyrik is a determinate light red kidney bean (Phaseolus vulgaris L.) cultivar. It has excellent yield potential in wide row production and a large seed size. OAC Lyrik is resistant to races 1 and 15 of bean common mosaic virus and race 17 of anthracnose. It has acceptable cooking and canning qualities.

Key words: Phaseolus vulgaris L., kidney bean, common bean, cultivar description

The light red kidney bean (Phaseolus vulgaris L.) OAC Lyrik (CFIA registration no. 6446) is a determinate bush cultivar developed by the Department of Plant Agriculture, University of Guelph, Guelph, Ontario. OAC Lyrik may be grown in traditional wide (70 cm) rows with direct combine harvesting. It is intended for production in areas of Ontario with more than 2550 crop heat units (Brown and Bootsma 1997).

Pedigree and Breeding Methods

OAC Lyrik was derived from the cross AC Elk/AC Litekid made in a growth room at the University of Guelph in the winter of 1997. AC Elk (Park and Rupert 1999) was selected as an early maturing line and AC Litekid (Park and Tu 1996) was selected as a high-yielding variety with good cooking quality. F₁ plants were grown in the field in 1997 at the Elora Research Station, Elora, Ontario, and all seeds were bulked. Bulk population advancement was used for the F₂ to F₄ generations. The F₂ and F₄ generations were grown utilizing a winter nursery in New Zealand. The F₃ generation was grown at the Elora Research Station in the summer of 1998. Single plant selections for early maturity, upright plant habit, high pod number and seed size, colour and shape were made from F₅ population bulk plots in the field at the Elora Research Station in 1999. F₅:₆ selections were grown in 2000 at the Elora Research Station in head rows. The F₅:₇ generation was grown in preliminary yield trials in 2001 and the F₆ and F₉ generations were grown in advance yield trials in 2002 and 2003, all at the Elora Research Station. Selection criteria for F₅:₆ to F₅:₉ populations contained the same agronomic traits as for the F₅ population as well as high seed yield. Entries from advanced trials were entered into the Ontario Pulse Crop Committee’s Coloured Bean Variety Registration Trials in St. Thomas, Thorndale, Kippen, Monkton in 2004 and in Kippen, St. Thomas, Thorndale in 2005. One hundred single plants from the F₅:₁₀ generation, grown in a growth room in the winter of 2005–2006 were rogued to obtain a set with a uniform plant type, and seed from the remaining plants was bulked and sent to Twin Falls, Idaho, USA, for breeder seed production in 2006.

OAC Lyrik was tested for resistance to bean common mosaic virus and anthracnose by artificial inoculation in growth rooms at the University of Guelph. Cooking quality was assessed for appearance by a panel at Agriculture and Agri-Food Canada Greenhouse and Processing Crops Research Centre, Harrow, Ontario. A Hunter Labscan (Hunter Associates Laboratories, Reston, Virginia) was used to determine dry and canned bean colour as L (white to black), aL (red to green), bL (yellow to blue) and WI (whiteness index). Canned bean texture was evaluated using the Ottawa texture measurement system for firmness (N mm⁻¹) and texture (N) (Voisey 1971). A visual examination for the degree of clumping of canned beans, the drain weight of washed-drained beans and the amount of water absorbed by a standard weight of beans were also used to judge cooking quality.
OAC Lyrik matured approximately 3 d earlier than the early-maturing variety AC Elk. The yield was slightly greater than for later-maturing AC Litekid and 209 kg ha\(^{-1}\) greater than for AC Elk with similar maturity over seven environments in 2 yr (Table 1). Seed size of OAC Lyrik is larger than both AC Litekid and AC Elk (Table 1). OAC Lyrik has acceptable cooking and canning quality, similar to AC Elk (Table 2). Similar to AC Litekid, OAC Lyrik is resistant to races 1 and 15 of bean common mosaic virus and race 17 of anthracnose, but susceptible to race 23 of anthracnose (Table 2).

**Other Characteristics**

OAC Lyrik has green hypocotyls in the seedling stage and pink flowers, which appear approximately 42 d after planting. At maturity, plants are approximately 47 cm in height, taller than both AC Litekid and AC Elk. Pods at maturity are light beige, although faint purple flecking may occur. The leaves are larger than AC Elk, and the same size as AC Litekid. Seeds are light red in colour, although slightly darker than AC Elk and kidney shaped.

**Performance**

OAC Lyrik matured approximately 3 d earlier than the early-maturing variety AC Elk. The yield was slightly greater than for later-maturing AC Litekid and 209 kg ha\(^{-1}\) greater than for AC Elk with similar maturity over seven environments in 2 yr (Table 1). Seed size of OAC Lyrik is larger than both AC Litekid and AC Elk (Table 1). OAC Lyrik has acceptable cooking and canning quality, similar to AC Elk (Table 2). Similar to AC Litekid, OAC Lyrik is resistant to races 1 and 15 of bean common mosaic virus and race 17 of anthracnose, but susceptible to race 23 of anthracnose (Table 2).

**Maintenance and Distribution of Pedigreed Seed**

Breeder seed of OAC Lyrik is maintained by the Department of Plant Agriculture, University of Guelph, Guelph, Ontario, Canada N1G 2W1. Pedigreed seed is currently distributed through the University of Guelph.

The authors gratefully acknowledge the technical assistance of Ron Chauvin, the collaboration of Soon Park, Chris Gillard, and John Van Herk in conducting the Ontario Coloured Bean Variety Registration Trials, and the financial support provided by the Ontario Ministry of Agriculture, Food and Rural Affairs, and the Ontario Coloured Bean Growers.

**Table 1. Maturity, yield and seed weight of OAC Lyrik and three checks in the Ontario Pulse Crop Committee White Bean Variety Registration Trials\(^{a}\)**

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Yield (kg ha(^{-1}))</th>
<th>Maturity (d)</th>
<th>Seed weight (g 100 seed)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2004</td>
<td>2005</td>
<td>Mean(^{3})</td>
</tr>
<tr>
<td>OAC Lyrik</td>
<td>2697</td>
<td>2312</td>
<td>2532</td>
</tr>
<tr>
<td>AC Litekid</td>
<td>2603</td>
<td>2373</td>
<td>2504</td>
</tr>
<tr>
<td>AC Elk</td>
<td>2373</td>
<td>2258</td>
<td>2323</td>
</tr>
<tr>
<td>SE(^{x})</td>
<td>90.2</td>
<td>173.3</td>
<td>116.9</td>
</tr>
<tr>
<td>No. of trials</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

\(^{a}\)Trials were conducted at St. Thomas, Kippen, Thorndale and Monkton in 2004 and in Kippen, St. Thomas and Thorndale in 2005.

\(^{3}\)Based on total number of trials.

\(^{x}\)Based on trial means of four cultivars.

**Table 2. Cooking quality and disease reaction of OAC Lyrik and two checks in the Ontario Pulse Crop Committee White Bean Variety Registration Trials\(^{a}\)**

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Panel(^{y})</th>
<th>Texture(^{e})</th>
<th>Packing(^{e})</th>
<th>Drain wt.(^{e})</th>
<th>Hyd. Coef.(^{u})</th>
<th>BCMV</th>
<th>Anthracnose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1–5)</td>
<td>Plat. (N)</td>
<td>Firm. (N/mm)</td>
<td>(1–5)</td>
<td>(%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OAC Lyrik</td>
<td>2.0</td>
<td>219.9</td>
<td>15.05</td>
<td>3.0</td>
<td>68.11</td>
<td>1.93</td>
<td>–</td>
</tr>
<tr>
<td>AC Litekid</td>
<td>3.2</td>
<td>182.6</td>
<td>13.66</td>
<td>2.67</td>
<td>68.67</td>
<td>1.78</td>
<td>–</td>
</tr>
<tr>
<td>AC Elk</td>
<td>2.0</td>
<td>202.0</td>
<td>15.70</td>
<td>2.67</td>
<td>70.65</td>
<td>1.92</td>
<td>–</td>
</tr>
<tr>
<td>SE(^{r})</td>
<td>0.236</td>
<td>8.962</td>
<td>0.391</td>
<td>0.164</td>
<td>0.992</td>
<td>0.037</td>
<td></td>
</tr>
</tbody>
</table>

\(^{a}\)Trials were grown at St. Thomas, Thorndale, and Monkton in 2005.

\(^{y}\)Eight panelists evaluated for appearance of beans canned in a salt-sugar brine using a scale of 1–5; 1, poor; 5, excellent.

\(^{e}\)Texture of washed-drained canned beans measured on Instron Texture measurement system using wire extrusion cells for plateau force (N) and firmness (N mm\(^{-1}\)).

\(^{e}\)Packing refers to degree of clumping of canned beans, scored visually from 1 to 5: 1, no clumping; 5, over half clumped.

\(^{e}\)Drain Weight: weight of washed-drained canned beans expressed as a percentage of unwashed-undrained weight.

\(^{u}\)Soak weight/dry weight (determined for 500 g of dry beans soaked for 40 min at 88°C).

\(^{r}\)Resistance (–) or susceptibility (+) to bean common mosaic virus (BCMV) races 1 and 15.

\(^{s}\)Resistance (–) or susceptibility (+) to Anthracnose races 17 and 23.

\(^{r}\)Based on trial means of five cultivars.

**References**


