# CDC Canary yellow field pea

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<td>Banniza, Sabine; University of Saskatchewan, Crop Development Centre</td>
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CULTIVAR DESCRIPTION

CDC Canary yellow field pea

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CDC Canary, a yellow cotyledon field pea (\textit{Pisum sativum} L.) cultivar, was released in 2017 by the Crop Development Centre, University of Saskatchewan for distribution to Select seed growers through the Variety Release Committee of the Saskatchewan Pulse Growers. CDC Canary has good lodging resistance, medium-sized, round seeds, early maturity, and good yielding ability. CDC Canary is adapted to the field pea growing regions of western Canada.

\textbf{Key words:} field pea, \textit{Pisum sativum} L., cultivar description

CDC Canary is a field pea (\textit{Pisum sativum} L.) cultivar developed by the Crop
Development Centre (CDC), University of Saskatchewan. It was issued registration number 8221 on March 31, 2017 by the Canadian Food Inspection Agency, Variety Registration Office.

Breeding Methods and Pedigree

CDC Canary was developed from the pedigree Ceb 4159/Carneval//CDC Meadow, whereby the F$_1$ from the simple cross was used to develop the second cross made in 2006. CDC Meadow was developed by the Crop Development Centre (CDC), University of Saskatchewan (Warkentin et al., 2007). Carneval was developed by Svalof Weibull (Sweden) and Ceb 4159 was developed by Cebeco Zaden (Netherlands). The objective of this cross was the development of a high yielding cultivar with powdery mildew (Erysiphe pisi DC.) resistance, improved lodging resistance and medium seed size. Selection for seed size and shape was conducted in the F$_1$ and F$_2$ generations. Selection for powdery mildew resistance was conducted in the F$_2$ generation under natural infection conditions, with CDC Meadow and Ceb 4159 being resistant parents. The F$_{2:3}$ family was evaluated in field trials in Saskatoon in 2009. Preliminary replicated yield trials were conducted in the F$_4$ in Saskatoon in 2010. An F$_4$ line, 3360-7, was selected based on good yield, good lodging resistance, and medium seed size. This line was evaluated in replicated yield trials in Saskatoon, Rosthern, Meath Park, Pasqua and Wilkie, Saskatchewan and St. Albert, Alberta in 2011, then in 2012 at the same locations (except Pasqua) plus Milden and Yorkton in Saskatchewan, and Barrhead, Lacombe, and Vegreville, Alberta. It was then entered as CDC 3360-7, an F$_{2:7}$ line, in the Field Pea Co-
operative Registration Test-B in 2013 and 2014.

These trials were conducted by the following organizations at the following locations:

- Alberta Agriculture and Forestry research sites at Brooks, Barrhead, St. Albert, and Vegreville, AB
- University of Saskatchewan in Saskatoon, Limerick, and Yorkton, SK
- Agriculture and Agri-Food Canada Research Centres located in Indian Head, Scott, Melfort, and Swift Current, SK, Lacombe, AB and Brandon, MB

Breeder seed of CDC 3360-7, later named CDC Canary, was derived by bulking 78 F_{6:9} lines in 2014, after discarding phenotypic outliers.

**Performance**

In two years of testing in the Field Pea Co-operative Test-B (22 site-years), CDC Canary had significantly greater yield than the check cultivars Agassiz and CDC Golden (Table 1). CDC Canary had the same time to maturity as CDC Golden, one day earlier on average than Agassiz, with longer vines compared to the checks. In the lodging score, CDC Canary was superior to CDC Golden, not significantly different from Agassiz. CDC Canary had greater seed weight than the checks, with somewhat blockier seed shape. Protein concentration of CDC Canary was the same as Agassiz, somewhat less than CDC Golden. CDC Canary had similar percent seed coat breakage (Reichert et al., 1986) as CDC Golden, less than Agassiz. CDC Canary is adapted to the field pea growing region of western Canada.
Other Characteristics

CDC Canary has a semileafless leaf type, white flowers, yellow cotyledons, opaque seed coat and round, smooth seed. CDC Canary was evaluated in mist-irrigated field disease nurseries at Morden and Saskatoon as part of the Field Pea Co-operative Registration Test in 2013 and 2014. CDC Canary was resistant to powdery mildew, as were CDC Golden and Agassiz (Table 1). CDC Canary was moderately susceptible to mycosphaerella blight [Mycosphaerella pinodes (Berk. & Bloxam) Vestergren] and moderately resistant to Fusarium wilt [Fusarium oxysporum Schlecht. emend. Snyd. & Hans. f. sp. pisi (van Hall) Snyd. & Hans], similar to the checks (Table 1).

Availability of Propagating Material

Breeder seed of CDC Canary is maintained by the Crop Development Centre, University of Saskatchewan, 51 Campus Drive, Saskatoon, Saskatchewan, Canada, S7N 5A8. Distribution rights for CDC Canary are held by the Saskatchewan Pulse Growers (207-116 Research Drive, Saskatoon, Saskatchewan, Canada, S7N 3R3). Breeder seed of CDC Canary was first distributed in 2017 to seed growers qualified as Select seed growers by the Canadian Seed Growers’ Association.

Appreciation is expressed to the pulse crop breeding staff at the Crop Development Centre, University of Saskatchewan, for their technical assistance in the development of CDC Canary, and to Dave Benallack and Craig Ells (also at the Crop Development Centre) for breeder seed production. Financial support of the Saskatchewan Pulse
Growers and Saskatchewan Ministry of Agriculture is gratefully acknowledged.

References


Table 1. Summary of agronomic, quality, and disease data for CDC Canary and yellow cotyledon check cultivars Agassiz and CDC Golden for all station-years based on data from Field Pea Co-operative Test-B in western Canada, 2013-2014

<table>
<thead>
<tr>
<th>Cultivar</th>
<th>Yield (t ha⁻¹)</th>
<th>Maturity (d)</th>
<th>Vine length (cm)</th>
<th>Score (1-9)</th>
<th>Seed weight (g 1000 sd⁻¹)</th>
<th>Seed shape (1-5)</th>
<th>Seed coat breakage (%)</th>
<th>Protein (%)</th>
<th>Mycosphaerella blight</th>
<th>Powdery mildew</th>
<th>Fusarium wilt</th>
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<tr>
<td>CDC Canary</td>
<td>5.10</td>
<td>97</td>
<td>95</td>
<td>3.9</td>
<td>232</td>
<td>3.0</td>
<td>2</td>
<td>22.7</td>
<td>4.9</td>
<td>4.4</td>
<td>0.0</td>
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<tr>
<td>CDC Golden</td>
<td>4.47</td>
<td>97</td>
<td>87</td>
<td>4.7</td>
<td>210</td>
<td>2.5</td>
<td>2</td>
<td>23.7</td>
<td>4.8</td>
<td>4.2</td>
<td>0.0</td>
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<tr>
<td>Agassiz</td>
<td>4.80</td>
<td>98</td>
<td>90</td>
<td>4.2</td>
<td>223</td>
<td>2.6</td>
<td>5</td>
<td>22.7</td>
<td>5.0</td>
<td>4.4</td>
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<tr>
<td>LSD (P=0.05)</td>
<td>0.29</td>
<td>0.8</td>
<td>3.8</td>
<td>0.5</td>
<td>7.7</td>
<td>0.2</td>
<td>2.6</td>
<td>0.7</td>
<td>1.2</td>
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<tr>
<td>Site-yr (n)</td>
<td>22</td>
<td>20</td>
<td>16</td>
<td>23</td>
<td>19</td>
<td>20</td>
<td>4</td>
<td>9</td>
<td>2</td>
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*a* = no lodging, 9 = completely lodged, assessed at physiological maturity.

*b* = round, 5 = cubed.

Based on Reichert et al. (1986) with the following modifications: seed equilibration to 14% moisture content, use of equal seed volumes per well, instead of equal numbers of seeds per well, and without arcsin data transformation.

Protein content (N X 6.25) expressed as dry weight basis, predicted by near infrared spectroscopy (NIR).

0 = no disease; 9 = whole plant severely blighted.

0 = no disease; 9 = whole plant severely mildewed.

percent of plants with symptoms of Fusarium wilt.