CDC Lewochko yellow field pea

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CULTIVAR DESCRIPTION

CDC Lewochko yellow field pea

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Abstract: CDC Lewochko, a yellow cotyledon field pea (*Pisum sativum* L.) cultivar, was released in 2018 by the Crop Development Centre, University of Saskatchewan, SK, Canada, for distribution to Select seed growers through the Variety Release Committee of the Saskatchewan Pulse Growers. CDC Lewochko has good lodging resistance, medium time to maturity, medium-sized round seeds, mean seed protein concentration of 21.0%, and good yielding ability. It is resistant to powdery mildew and moderately susceptible to *Mycosphaerella* blight and *Fusarium* root rot. CDC Lewochko is adapted to the field pea growing regions of western Canada.

Key words: field pea, *Pisum sativum* L., cultivar description.

Résumé : CDC Lewochko est un cultivar de pois de grande culture (*Pisum sativum* L.) à cotylédons jaunes homologué en 2018 par le Crop Development Centre de l'Université de la Saskatchewan (SK, Canada). La variété sera remise aux producteurs de semences Select par le biais du Variety Release Committee des Saskatchewan Pulse Growers. CDC Lewochko se caractérise par une bonne résistance à la verse, parvient à maturité au bout d'un temps moyen, donne des graines rondes de calibre moyen d'une teneur en protéines moyenne de 21,0 % et présente de bonnes aptitudes de rendement. Le cultivar résiste au blanc et est modérément sensible à la brûlure causée par *Mycosphaerella* de même qu'au pourridié fusarien. CDC Lewochko est acclimaté aux régions de l'Ouest canadien où l'on cultive le pois de plein champ. [Traduit par la Rédaction]

Mots-clés : pois de grande culture, *Pisum sativum* L., description de cultivar.

Introduction

CDC Lewochko is a field pea (*Pisum sativum* L.) cultivar developed by the Crop Development Centre (CDC), University of Saskatchewan (SK, Canada). It is named after Peter Lewochko, a son of Polish immigrants who homesteaded in the west-central region of Saskatchewan. As a largely self-taught and lifelong learner, he credited his success as a farmer and investor to his continuous dedication to study. His conviction in education was demonstrated through one of the largest bequests the University of Saskatchewan has ever received. His gift supports students in the Colleges of Agriculture and Bioresources, Engineering and Education at the University of Saskatchewan. CDC Lewochko was issued registration number 8404 on 2 Feb. 2018 by the Canadian Food Inspection Agency, Variety Registration Office.

Breeding Methods and Pedigree

CDC Lewochko was developed from the cross CDC 1897-14/Agassiz made in 2008. CDC 1897-14 is a high yielding F_8 breeding line developed by the CDC from the cross Miami/352-3-Y-2//Eclipse/458B-Y-5. Agassiz was developed by Agriculture and Agri-Food Canada (Bing et al. 2006). The objective of this cross was the development of a high yielding cultivar with good lodging resistance and medium seed size. Selection for seed size and shape was conducted in the F_1 and F_2 generations in Saskatoon, SK. The $F_{2:3}$ family was evaluated in field trials in Saskatoon in 2010. Preliminary replicated yield trials were conducted in the F_4 in Rosthern and Meath Park, SK, in 2011. An F_4 line, 4061-4, was selected based on good yield and good lodging resistance. This line was evaluated in replicated yield trials in Saskatoon, Rosthern, Meath Park, Wilkie, and Yorkton, SK, and

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Table 1. Summary of agronomic, quality, and disease data for CDC Lewochko and yellow cotyledon check cultivars Agassiz and CDC Golden for all station-years based on data from Field Pea Co-operative Test-A in western Canada, 2014–2015.

Cultivar	Yield (t·ha^{-1})	Maturity (d)	Vine length (cm)	Lodging score (1–9)[a]	Seed weight (g 1000·sd^{-1})	Seed shape (1–5)[b]	Protein (%)[c]	*Mycosphaerella* blight (0–9)[e]		Powdery mildew (0–9)[e]	*Fusarium* wilt (%)
								AB	SK		
CDC Lewochko	3.73	97	78	3.0	231	2.5	21.0	3.5	2.8	0.0	30
CDC Golden	3.14	93	68	4.1	213	2.5	21.2	3.5	3.6	0.0	53
Agassiz	3.28	94	72	3.9	229	2.9	20.8	3.2	3.2	0.0	36
LSD ($P = 0.05$)	0.24	1.0	3.6	0.5	8.2	0.3	1.3	1.7	0.4	—	8.6
Site-yr (n)	22	22	19	24	19	18	14	2	2	2	2

[a]1 = no lodging, 9 = completely lodged, assessed at physiological maturity.
[b]1 = round, 5 = cubed.
[c]Protein concentration (N × 6.25) expressed as dry weight basis, predicted by near-infrared spectroscopy.
[d]0 = no disease; 9 = whole plant severely blighted. AB = Lethbridge data; SK = mean of two Saskatchewan trials per year.
[e]0 = no disease; 9 = whole plant severely mildewed.

Vegreville, Alberta, in 2012, then in 2013 at the same six locations plus Milden and Limerick, SK, and Lacombe, AB. It was then entered as CDC 4061-4, an $F_{2:7}$ line, in the Field Pea Co-operative (Co-op) Registration Test-A in 2014 and 2015. The Co-op trials were conducted by the following organizations at the following locations: British Columbia Ministry of Agriculture research site at Fort St. John, BC, 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 (AAFC) Research Centres located in Indian Head, Scott, Melfort, and Swift Current, SK, Lacombe, AB, and Brandon, MB, with disease evaluation at AAFC Morden, MB, and University of Saskatchewan, SK. Breeder seed of CDC 4061-4, later named CDC Lewochko, was derived by bulking 43 $F_{6:9}$ lines in 2016, after discarding phenotypic outliers.

Performance

In 2 yr of testing in the Field Pea Co-operative Test-A (22 site-years), CDC Lewochko had significantly greater yield than the check cultivars Agassiz and CDC Golden (Table 1), i.e., 116% of the mean of these checks. CDC Lewochko was 3 d later maturing on average than Agassiz and 4 d later than CDC Golden, with longer vines than both checks. CDC Lewochko had better lodging resistance than both checks. CDC Lewochko had similar seed weight as Agassiz, greater than CDC Golden. Seed shape of CDC Lewochko was similarly round as CDC Golden, rounder than Agassiz. Seed protein concentration of CDC Lewochko was similar to that of the checks. CDC Lewochko is adapted to the field pea growing region of western Canada.

Other Characteristics

CDC Lewochko has a semi-leafless leaf type, white flowers, yellow cotyledons, opaque seed coat, and round, smooth seed. CDC Lewochko was evaluated in mist-irrigated field disease nurseries at Morden and Saskatoon as part of the Field Pea Co-operative Registration Test in 2014 and 2015. CDC Lewochko was rated as resistant to powdery mildew (*Erysiphe pisi* DC var. *pisi*), as were Agassiz and CDC Golden (Table 1). CDC Lewochko was moderately susceptible to *Mycosphaerella* blight [*Mycosphaerella pinodes* (Berk. & Bloxam) Vestergren], with lower disease score than CDC Golden in SK, similar to Agassiz (Table 1). CDC Lewochko was moderately susceptible to *Fusarium* root rot (multiple *Fusarium* species), with lower disease score than CDC Golden, similar to Agassiz (Table 1).

Availability of Propagating Material

Breeder seed of CDC Lewochko is maintained by the Crop Development Centre, University of Saskatchewan, 51 Campus Drive, Saskatoon, SK, Canada, S7N 5A8. Distribution rights for CDC Lewochko are held by the

Saskatchewan Pulse Growers (207–116 Research Drive, Saskatoon, SK S7N 3R3, Canada). Breeder seed of CDC Lewochko was first distributed in 2018 to seed growers qualified as Select seed growers by the Canadian Seed Growers' Association.

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