



APPLICATIONS UNDER EXAMINATION

BEAN

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(*Phaseolus vulgaris*)

Proposed denomination: 'CDC Whitetrack'
Application number: 21-10591
Application date: 2021/06/28
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Kirstin Bett, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'Envoy' and 'Portage'

Summary: *The plant growth type of 'CDC Whitetrack' is indeterminate while that of 'Envoy' is determinate. The development of the guides on 'CDC Whitetrack' is present while it is absent for 'Envoy'. The plants of 'CDC Whitetrack' mature later than those of 'Portage'. When the plants are fully flowering, the terminal leaflet of 'CDC Whitetrack' is medium to large whereas that of 'Envoy' is small to medium sized. Excluding the beak, the pod of 'CDC Whitetrack' is longer than that of 'Envoy'. The beak curvature on the pod of 'CDC Whitetrack' is absent or very weak while that of 'Portage' is weak. The seed weight of 'CDC Whitetrack' is greater than that of both reference varieties.*

Description:

PLANT: navy bean type, dwarf growth type, indeterminate growth type, medium length guides, 50% of plants begin flowering mid-season

LEAF: medium green upper side, medium to strong rugosity

TERMINAL LEAFLET: medium to large, circular to quadrangular shaped, medium length tip

INFLORESCENCE: predominantly positioned in foliage at full flowering

FLOWER: white standard, white wing

POD: elliptic in cross-section, green ground colour, no secondary colour, stringiness of ventral suture present, weak to medium degree of curvature, distal part is acute to truncate shaped, absent or very weak curvature of beak, smooth or slightly rough texture of surface, moderate constrictions at dry stage

SEED: low weight, circular to elliptic shape in longitudinal cross-section, medium elliptic shape in cross-section, narrow to medium width in cross-section, short to medium length, one colour, white, no secondary colour

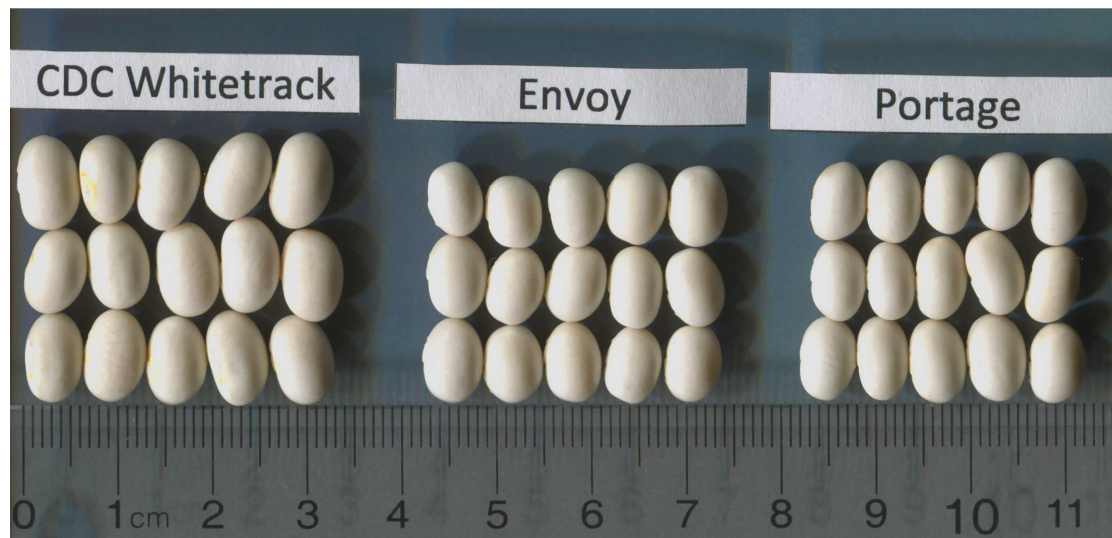
Origin and Breeding: 'CDC Whitetrack' (experimental designation 4910CBB-2) originated from a cross between an F2 single plant selection from the controlled cross between 1190m-13 and OAC 95-4, and an F1 plant selection from the cross between breeding line 2558-19 and Genebank accession UDO303684. The initial cross was made in the summer 2011 and the final cross was made in the winter of 2012. The breeding program was based at the Crop Development Centre, University of Saskatchewan in Saskatoon, Saskatchewan. Screening and selection was done from the F3 to the F8 generations. Selection criteria was based on days to flower, days to maturity, yield, plant height, resistance to lodging, pod clearance above the cutter bar, seed weight, disease resistance and canning traits. At the F6 generation, single plants were selected, seed bulked and progeny were grown in plots for two generations with selection for uniformity of days to maturity, plant type, presence of common bacterial blight marker SU91, anthracnose tolerance and seed size. The line was identified and advanced in the 2019 registration trials. At the F9 generation, 39 sub-lines were used to establish breeder seed in 2020.

Tests and Trials: The comparative trials for 'CDC Whitetrack' were conducted in the summer of 2021 and 2022 at the University of Saskatchewan Campus Field in Saskatoon, Saskatchewan. Plots were arranged in a RCB design with 2 replicates of 160 plants per plot for a total of 320 seeds planted per variety. The plots were 3.35 square metres with a row spacing of 0.30 metres and a row length of 3.66 metres. Plants were seeded at 48 seeds per square metre. Observations and measurements were taken on a total of 20 plants per variety per year between July and September.

Comparison table for 'CDC Whitetrack'

	'CDC Whitetrack'	'Envoy'*	'Portage'*
<i>Plant height (cm)</i>			
mean 2021	49.9	47.4	50.1
std. deviation 2021	3.1	4.0	3.3
mean 2022	47.9	40.3	45.0
std. deviation 2022	3.9	4.4	5.6
<i>Days to maturity</i>			
mean 2021	97	97	93
mean 2022	96	98	94
<i>Seed weight (grams per 100 seed)</i>			
mean 2021	20.5	18.72	18.11
std. deviation 2021	0.6	0.7	0.3
mean 2022	20.32	18.72	18.16
std. deviation 2022	0.4	0.1	0.1

*reference varieties



Bean: 'CDC Whitetrack' (left) with reference varieties 'Envoy' (centre) and 'Portage' (right)