



APPLICATIONS UNDER EXAMINATION

PEA

PEA
(*Pisum sativum*)

Proposed denomination: 'CDC 5791'
Application number: 21-10617
Application date: 2021/06/28
Applicant: Saskatchewan Pulse Growers, Saskatoon, Saskatchewan
Breeder: Tom Warkentin, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Inca', 'CDC Spectrum', 'CDC 5845' and 'CC Engage'

Summary: *The plants of 'CDC 5791' flower later than the plants of 'CDC Spectrum'. The pod curvature for 'CDC 5791' ranges between absent or very weak to very weak while it is weak to medium for 'CDC Spectrum' and ranging between weak and weak to medium for 'CDC Engage'. The stem of 'CDC 5791' is longer than those of the reference varieties. The 100 seed weight of 'CDC 5791' is greater than the 100 seed weight of 'CDC Inca' and 'CDC Engage'.*

Description:

PLANT: field type, no anthocyanin colouration, green foliage, flowers mid to late season

STEM: no anthocyanin colouration of axil, no fasciation, medium to long, medium number of nodes up to and including the first fertile node

LEAF: leaflets absent

STIPULE: medium length, medium to broad, medium length from axil to tip, short to medium length lobe below axil, medium to dense flecking

FLOWER: maximum of two per node

STANDARD: white, medium width, level to moderately arched base, absent or very weak undulation

UPPER SEPAL: medium width, acuminate apex

POD: medium to long, medium width, entire parchment, ranging between absent or very weak to very weak curvature, light to medium green, medium number of ovules

IMMATURE SEED: medium green

SEED: ellipsoid, simple starch grains, yellow cotyledon, medium weight, matures mid-season

HILUM: same colour as testa

Origin and Breeding: 'CDC 5791' (experimental designation CDC 5791-9) originated from a three way cross conducted in 2014 at the Crop Development Centre at the University of Saskatchewan, Saskatoon, Saskatchewan. The initial cross between 5450 and CDC 2950-19 was followed by a subsequent cross to CDC 2942-4. The variety was developed from a single plant selection from the F2 population. The selection criteria for 'CDC 5791' included plant type, seed type, grain yield, days to maturity, vine length, resistance to lodging, seed weight, resistance to seed coat breakage and disease resistance. Thirty eight F9 sub-lines were bulked to establish breeder seed in 2021.

Tests and Trials: The comparative tests and trials for 'CDC 5791' were conducted at the Sutherland Field Site of the Crop Development Centre of the University of Saskatchewan, Saskatoon, Saskatchewan during the 2021 and 2022 growing seasons. The trials were arranged in a RCB design consisting of 2 replications per variety. Each replicate consisted of 3 rows spaced 30 cm apart, with a row length of 3.66 metres and a planting density of 84 seeds per square metre. The measured characteristics were based on 20 measurements per variety per year except for 100 seed weight which was based on 8 measurements per variety per year. The mean differences were significant at the 5% confidence probability level based on LSD values.

Comparison table for 'CDC 5791'

	'CDC 5791'	'CDC Inca'*	'CDC Spectrum'*	'CDC 5845'*	'CDC Engage**'
<i>Days to flower (days from planting to when 30% of plants have at least one flower)</i>					
mean (2021)	63.5	62.5	61.0	65.0	64.5
mean (2022)	62.5	60.0	60.5	63.0	62.5
<i>Stem length (at maturity including the first 2 nodes with 'scale' leaves) (cm)</i>					
mean (2021) (LSD=4.0)	53.4	48.2	42.4	47.5	48.0
std. deviation (2021)	3.3	4.6	5.8	6.1	4.5
mean (2022) (LSD=2.4)	74.7	69.3	63.0	71.4	70.0
std. deviation (2022)	5.1	6.1	5.0	5.6	3.3
<i>Seed weight (grams per 100 seeds) (g)</i>					
mean (2021Y) (LSD=0.62)	24.6	22.0	23.7	23.8	23.5
std. deviation (2021)	0.2	0.4	0.5	0.5	0.6
mean (2022) (LSD=0.12)	26.4	24.2	26.6	27.0	25.8
std. deviation (2022)	0.3	0.1	0.2	0.4	0.2

*reference varieties



Pea: 'CDC 5791' (top left) with reference varieties 'CDC Engage' (top centre), 'CDC 5845' (top right), 'CDC Inca' (bottom left) and 'CDC Spectrum' (bottom right)

Proposed denomination: 'CDC 5845'
Application number: 21-10618
Application date: 2021/06/28
Applicant: Saskatchewan Pulse Growers, Saskatoon, Saskatchewan
Breeder: Tom Warkentin, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Inca', 'CDC Boundless', 'CDC 5791' and 'CDC Engage'

Summary: *The stipule of 'CDC 5845' is wider than those of 'CDC Boundless' and 'CDC Engage'. The plants of 'CDC 5845' flower later than the plants of 'CDC Inca'. The pod curvature for 'CDC 5845' ranges between absent or very weak to very weak while it ranges between weak and weak to medium for 'CDC Engage'. The stem of 'CDC 5845' is shorter than that of 'CDC 5791'. The 100 seed weight of 'CDC 5845' is greater than those of 'CDC Inca' and 'CDC Boundless'.*

Description:

PLANT: field type, no anthocyanin colouration, green foliage, flowers mid to late season

STEM: no anthocyanin colouration of axil, no fasciation, medium length, medium number of nodes up to and including the first fertile node

LEAF: leaflets absent

STIPULE: medium to long, medium width, medium length from axil to tip, short to medium length lobe below axil, medium to dense flecking

FLOWER: maximum of two per node

STANDARD: white, medium width, moderately arched base, absent or very weak undulation

UPPER SEPAL: medium width, acuminate apex

POD: medium to long, medium width, entire parchment, ranging between absent or very weak to very weak curvature, light to medium green, medium number of ovules

IMMATURE SEED: medium green

SEED: ellipsoid, simple starch grains, yellow cotyledon, medium weight, matures mid-season

HILUM: same colour as testa

Origin and Breeding: 'CDC 5845' (experimental designation CDC 5845-2) originated from a three way cross conducted in 2014 at the Crop Development Centre at the University of Saskatchewan, Saskatoon, Saskatchewan. The initial cross between P0414 and CDC 2942-4 was followed by a subsequent cross to CDC 4061-4. The variety was developed from a single plant selection from the F2 population. The selection criteria for 'CDC 5845' included plant type, seed type, grain yield, days to maturity, vine length, resistance to lodging, seed weight, resistance to seed coat breakage and disease resistance. Forty four F9 sub-lines were bulked to establish breeder seed in 2021.

Tests and Trials: The comparative tests and trials for 'CDC 5845' were conducted at the Sutherland Field Site of the Crop Development Centre of the University of Saskatchewan, Saskatoon, Saskatchewan during the 2021 and 2022 growing seasons. The trials were arranged in a RCB design consisting of 2 replications per variety. Each replicate consisted of 3 rows spaced 30 cm apart, with a row length of 3.66 metres and a planting density of 84 seeds per square metre. The measured characteristics were based on 20 measurements per variety per year except for 100 seed weight which was based on 8 measurements per variety per year. The mean differences were significant at the 5% confidence probability level based on LSD values.

Comparison table for 'CDC 5845'

	'CDC 5845'	'CDC Inca**	'CDC Boundless**	'CDC 5791**	'CDC Engage**
<i>Stipule width (cm)</i>					
mean (2021) (LSD=0.2)	2.4	2.0	2.0	2.3	2.2
std. deviation (2021)	0.4	0.3	0.3	0.4	0.4
mean (2022) (LSD=0.2)	3.0	2.9	2.5	2.8	2.8
std. deviation (2022)	0.4	0.5	0.4	0.4	0.4

Days to flower (days from planting to when 30% of plants have at least one flower)

mean (2021)	65.0	62.5	64.5	63.5	64.5
mean (2022)	63.0	60.0	63.0	62.5	62.5

Stem length (at maturity including the first 2 nodes with 'scale' leaves) (cm)

mean (2021) (LSD=4.0)	47.5	48.2	49.5	53.4	48.0
std. deviation (2021)	6.1	4.6	5.1	3.3	4.5
mean (2022) (LSD=2.4)	71.4	69.3	69	74.7	70.0
std. deviation (2022)	5.6	6.1	6.1	5.1	3.3

Seed weight (grams per 100 seeds) (g)

mean (2021) (LSD=0.62)	23.8	22.0	22.7	24.6	23.5
std. deviation (2021)	0.5	0.4	0.5	0.2	0.6
mean (2022) (LSD=0.12)	27.0	24.2	25.0	26.4	25.8
std. deviation (2022)	0.4	0.1	0.2	0.3	0.2

*reference varieties



Pea: 'CDC 5845' (top left) with reference varieties 'CDC 5791' (top centre), 'CDC Boundless' (top right), 'CDC Inca' (bottom left) and 'CDC Engage' (bottom right)

Proposed denomination: 'CDC Boundless'
Application number: 21-10615
Application date: 2021/06/28
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Tom Warkentin, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Amarillo', 'CDC Inca' and 'CDC Engage'

Summary: *The stipule of 'CDC Boundless' has a sparse to medium density of flecking while the stipule of 'CDC Amarillo' has dense to very dense flecking. The plants of 'CDC Boundless' flower later than the plants of 'CDC Amarillo' and 'CDC Inca'. The pod curvature for 'CDC Boundless' ranges between absent or very weak to weak while it ranges between weak and weak to medium for 'CDC Engage' and 'CDC Amarillo'. The 100 seed weight for 'CDC Boundless' is less than the 100 seed weight for 'CDC Engage' and greater than that of 'CDC Inca'.*

Description:

PLANT: field type, no anthocyanin colouration, green foliage, flowers mid to late season

STEM: no anthocyanin colouration of axil, no fasciation, medium to long, medium number of nodes up to and including the first fertile node

LEAF: leaflets absent

STIPULE: short to medium length, narrow to medium width, short to medium length from axil to tip, very short to short lobe below axil, sparse to medium density flecking

FLOWER: maximum of two per node

STANDARD: white, narrow to medium width, level to moderately arched base, absent or very weak undulation

UPPER SEPAL: medium width, acuminate apex

POD: medium to long, medium width, entire parchment, ranging between absent or very weak to very weak curvature, light to medium green, medium number of ovules

IMMATURE SEED: light to medium green

SEED: ellipsoid, simple starch grains, yellow cotyledon, medium weight, matures mid-season

HILUM: same colour as testa

Origin and Breeding: 'CDC Boundless' (experimental designation CDC 5779-1) originated from the cross between 5627 and CDC 2942-4, followed by a backcross to CDC 2942-4 conducted in 2014 at the Crop Development Centre at the University of Saskatchewan, Saskatoon, Saskatchewan. The variety was developed from a single plant selection from the F2 population. The selection criteria for 'CDC Boundless' included plant type, seed type, grain yield, days to maturity, vine length, resistance to lodging, seed weight, resistance to seed coat breakage and disease resistance. Thirty four F9 sub-lines were bulked to establish breeder seed in 2021.

Tests and Trials: The comparative tests and trials for 'CDC Boundless' were conducted at the Sutherland Field Site of the Crop Development Centre of the University of Saskatchewan, Saskatoon, Saskatchewan during the 2021 and 2022 growing seasons. The trials were arranged in a RCB design consisting of 2 replications per variety. Each replicate consisted of 3 rows spaced 30 cm apart, with a row length of 3.66 metres and a planting density of 84 seeds per square metre. The measured characteristics were based on 20 measurements per variety per year except for 100 seed weight which was based on 8 measurements per variety per year. The mean differences were significant at the 5% confidence probability level based on LSD values.

Comparison table for 'CDC Boundless'

	'CDC Boundless'	'CDC Amarillo'*	'CDC Inca'*	'CDC Engage'*
<i>Days to flower (days from planting to when 30% of plants have at least one flower)</i>				
mean (2021)	64.5	61.5	62.5	64.5
mean (2022)	63	59.5	60	62.5
<i>Seed weight (grams per 100 seeds) (g)</i>				
mean (2021) (LSD=0.62)	22.7	22.6	22.0	23.5
std. deviation (2021)	0.5	0.4	0.4	0.6
mean (2022) (LSD=0.12)	25.0	25.3	24.2	25.8
std. deviation (2022)	0.2	0.3	0.1	0.2

*reference varieties



Pea: 'CDC Boundless' (top left) with reference varieties 'CDC Amarillo' (top right), 'CDC Engage' (bottom left) and 'CDC Inca' (bottom right)

Proposed denomination: 'CDC Engage'
Application number: 21-10619
Application date: 2021/06/28
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Tom Warkentin, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Spectrum', 'CDC Boundless', 'CDC 5791' and 'CDC 5845'

Summary: *The plants of 'CDC Engage' flower later than the plants of 'CDC Spectrum'. The pod curvature for 'CDC Engage' ranges between weak and weak to medium while it ranges between absent or very weak and very weak for 'CDC 5845', 'CDC Boundless' and 'CDC 5791'. The stem of 'CDC Engage' is longer than the stem of 'CDC Spectrum' and shorter than that of 'CDC 5791'. The 100 seed weight of 'CDC Engage' is less than the 100 seed weight of 'CDC 5791' and greater than that of 'CDC Boundless'.*

Description:

PLANT: field type, no anthocyanin colouration, green foliage, flowers mid to late season

STEM: no anthocyanin colouration of axil, no fasciation, medium to long, medium number of nodes up to and including the first fertile node

LEAF: leaflets absent

STIPULE: medium length, medium to broad, medium length from axil to tip, short lobe below axil, medium to very dense flecking

FLOWER: maximum of two per node

STANDARD: white, medium width, moderately arched base, absent or very weak undulation

UPPER SEPAL: medium width, acuminate apex

POD: medium to long, medium width, entire parchment, ranging between weak and weak to medium curvature, light to medium green, medium number of ovules

IMMATURE SEED: light to medium green

SEED: ellipsoid, simple starch grains, yellow cotyledon, medium weight, matures mid-season

HILUM: same colour as testa

Origin and Breeding: 'CDC Engage' (experimental designation CDC 5947-4) originated from a three way cross conducted at the Crop Development Centre at the University of Saskatchewan, Saskatoon, Saskatchewan. The initial cross between CDC 3760-15 and CDC 3760-20 was conducted in the fall of 2014 with a subsequent cross to CDC 4061-5 in the winter of 2015. The variety was developed from a single plant selection from the F2 population. The selection criteria for 'CDC Engage' included plant type, seed type, grain yield, days to maturity, vine length, resistance to lodging, seed weight, resistance to seed coat breakage and disease resistance. Twenty four F9 sub-lines were bulked to establish breeder seed in 2021.

Tests and Trials: The comparative tests and trials for 'CDC Engage' were conducted at the Sutherland Field Site of the Crop Development Centre of the University of Saskatchewan, Saskatoon, Saskatchewan during the 2021 and 2022 growing seasons. The trials were arranged in a RCB design consisting of 2 replications per variety. Each replicate consisted of 3 rows spaced 30 cm apart, with a row length of 3.66 metres and a planting density of 84 seeds per square metre. The measured characteristics were based on 20 measurements per variety per year except for 100 seed weight which was based on 8 measurements per variety per year. The mean differences were significant at the 5% confidence probability level based on LSD values.

Comparison table for 'CDC Engage'

	'CDC Engage'	'CDC Spectrum'*	'CDC Boundless'*	'CDC 5791'*	'CDC 5845'*
<i>Days to flower (days from planting to when 30% of plants have at least one flower)</i>					
mean (2021)	64.5	61.0	64.5	63.5	65.0
mean (2022)	62.5	60.5	63.0	62.5	63.0
<i>Stem length (cm)</i>					
mean (2021) (LSD=4.0)	48.0	42.4	49.5	53.4	47.5
std. deviation (2021)	4.5	5.8	5.1	3.3	6.1
mean (2022) (LSD=2.4)	70.0	63.0	69.0	74.7	71.4
std. deviation (2022)	3.3	5.0	6.1	5.1	5.6
<i>Seed weight (grams per 100 seeds) (g)</i>					
mean (2021) (LSD=0.62)	23.5	23.7	22.7	24.6	23.8
std. deviation (2021)	0.6	0.5	0.5	0.2	0.5
mean (2022) (LSD=0.12)	25.8	26.6	25.0	26.4	27.0
std. deviation (2022)	0.2	0.2	0.2	0.3	0.4

*reference varieties



Pea: 'CDC Engage' (top left) with reference varieties 'CDC 5791' (top centre), 'CDC Boundless' (top right), 'CDC 5845' (bottom left) and 'CDC Spectrum' (bottom right)