



APPLICATIONS UNDER EXAMINATION

CHICKPEA

CHICKPEA
(*Cicer arietinum*)

Proposed denomination: 'CDC Kala'
Application number: 20-10123
Application date: 2020/03/16
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Bunyamin Taran, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Consul' and 'CDC Cory'

Summary: *The leaflet of 'CDC Kala' is longer than that of 'CDC Cory'. The pod of 'CDC Kala' is narrower than that of 'CDC Consul'. The seed of 'CDC Kala' is black whereas the seed of 'CDC Consul' is yellowish brown and that of 'CDC Cory' is brown. The seed of 'CDC Kala' has an angular shape whereas those for the reference varieties have a round to angular shape. 'CDC Kala' has strong to very strong ribbing of the seed whereas the seed of 'CDC Consul' has weak to medium ribbing and that of 'CDC Cory' has medium to strong ribbing. The dry seed weight of 'CDC Kala' is less than those of the reference varieties. The plants of 'CDC Kala' are tolerant to imidazolinone herbicide whereas the plants 'CDC Consul' are not tolerant.*

Description:

PLANT: erect to semi-erect growth habit, weak to medium ramification, medium to tall, early to mid-season maturity

STEM: medium to strong intensity of anthocyanin colouration

LEAF: medium green

FLOWER: flowers early to mid-season, purplish pink

POD: light to medium green, short to medium length beak, one and two ovules per pod

DRY SEED: black one month after harvest, low seed weight, angular shape, strong to very strong ribbing

Origin and Breeding: 'CDC Kala' (experimental designation 2570-2) originated from the cross between 'CDC Ebony' and 'CDC Cory' with a subsequent backcross to 'CDC Ebony' made in 2011 at the Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan. A single plant selection was made from the F2 population. Subsequent selections were made in the F3 to F8 generations where 52 F9 sub-lines were used to establish the breeder seed in 2020. Selection criteria included yield, seed weight, seed size, seed coat colour, days to flower, days to maturity, plant height and disease resistance.

Tests and Trials: The comparative trials for 'CDC Kala' were conducted by the Crop Development Centre of the University of Saskatchewan, in Elrose, Saskatchewan in 2020 and 2021. 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 40 seeds per square metre. Measured characteristics were based on 20 measurements per variety per year except for seed weight which was based on 8 measurements per variety per year. Mean differences were significant at the 5% confidence probability level based on LSD values.

Comparison table for 'CDC Kala'

	'CDC Kala'	'CDC Consul'*	'CDC Cory'*
<i>Leaflet length (cm)</i>			
mean 2020 (LSD=0.1)	1.6	1.5	1.3
std. deviation 2020	0.1	0.2	0.1
mean 2021 (LSD=0.2)	1.0	1.0	0.9
std. deviation 2021	0.1	1.0	0.1

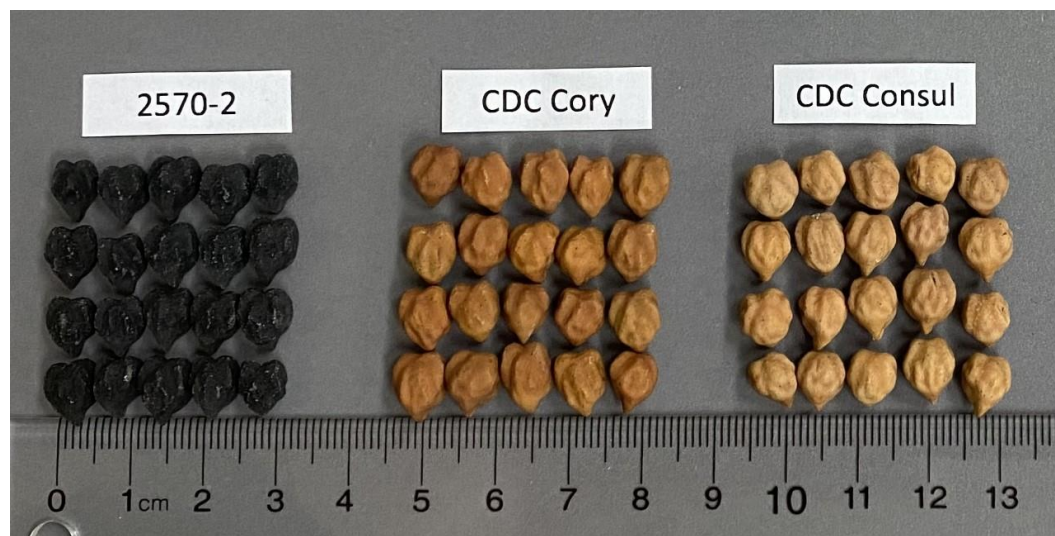
Pod width (mm)

mean 2020 (LSD=1.7)	12	13	12
std. deviation 2020	0.8	0.9	0.6
mean 2021 (LSD=0.6)	11	12	12
std. deviation 2021	0.6	0.5	0.6

Seed weight (grams per 100 seed)

mean 2020 (LSD=1.4)	21.9	27.1	24.9
std. deviation 2020	0.3	0.4	0.5
mean 2021 (LSD= 2.0)	22.0	27.8	25.2
std. deviation 2021	0.3	0.6	0.7

*reference varieties



Chickpea: 'CDC Kala' (left) with reference varieties 'CDC Cory' (centre) and 'CDC Consul' (right)

Proposed denomination: 'CDC Lancer'
Application number: 18-9458
Application date: 2018/05/02
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Bunyamin Taran, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Leader', 'CDC Frontier' and 'Amit'

Summary: *The pod of 'CDC Lancer' is shorter than the pods of the reference varieties and narrower than those of 'CDC Leader' and 'CDC Frontier'. The seed of 'CDC Lancer' has a round to angular shape with medium to strong ribbing whereas the seed of 'Amit' is round with absent or very weak to weak ribbing. The dry seed weight of 'CDC Lancer' is greater than that of 'Amit'. The plants of 'CDC Lancer' are tolerant to imidazolinone herbicide whereas the plants of 'CDC Leader', 'CDC Frontier' and 'Amit' are not tolerant.*

Description:

PLANT: erect to semi-erect growth habit, weak to medium ramification, medium to tall, early to mid-season maturity

STEM: no anthocyanin colouration

LEAF: medium green

FLOWER: flowers early to mid-season, white

POD: light to medium green, medium length beak, one and two ovules per pod

DRY SEED: beige one month after harvest, high seed weight, round to angular shape, medium to strong ribbing

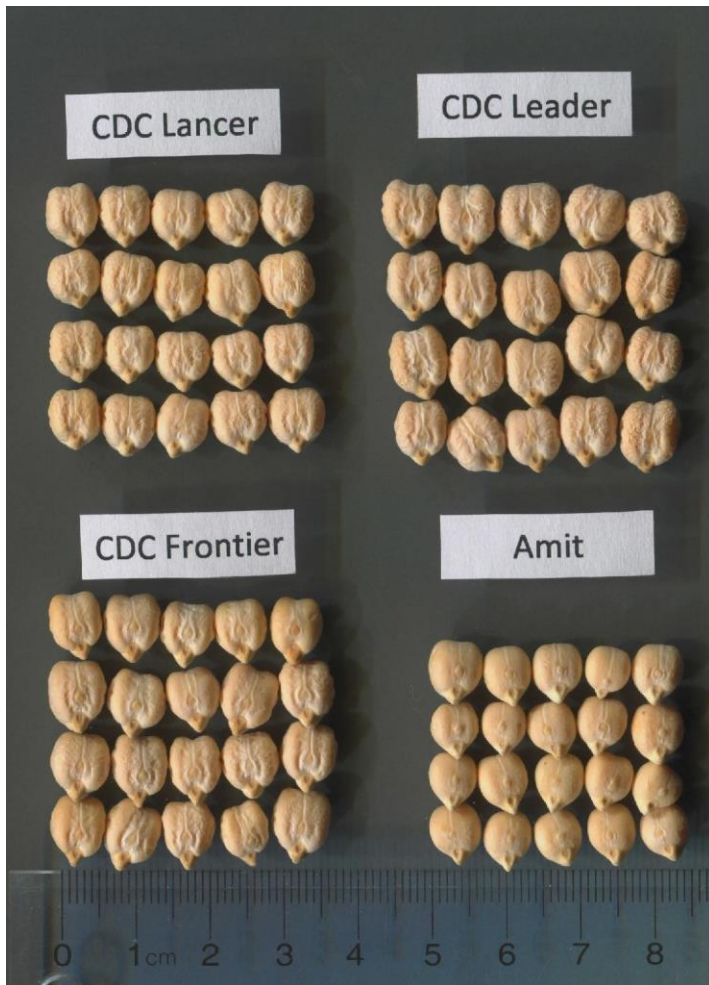
Origin and Breeding: ‘CDC Lancer’ (experimental designation 3662) originated from the cross between ‘CDC Orkney’ and 2144-1 with two subsequent backcrosses to 2144-1 made in 2015 at the Crop Development Centre at the University of Saskatchewan, Saskatoon, Saskatchewan. A single plant selection was made from the F2 population. Subsequent selections were made in the F3 to F8 generations where 9 F9 sub-lines were used to establish the breeder seed in 2016. Selection criteria included yield, seed weight, seed size, seed coat colour, days to flower, days to maturity, plant height and disease resistance.

Tests and Trials: The comparative trials for ‘CDC Lancer’ were conducted by the Crop Development Centre of the University of Saskatchewan, at Elrose, Saskatchewan in 2018 and 2021. 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 40 seeds per square metre. Measured characteristics were based on 20 measurements per variety per year except for seed weight which was based on 4 measurements per variety in 2018 and 8 measurements per variety in 2021. Mean differences were significant at the 5% confidence probability level based on LSD values.

Comparison table for ‘CDC Lancer’

	‘CDC Lancer’	‘CDC Leader’*	‘CDC Frontier’*	‘Amit’*
<i>Pod length (mm)</i>				
mean 2018 (LSD= 2.2)	22	24	23	24
std. deviation 2018	1.2	1.7	1.7	1.0
mean 2021 (LSD=1.1)	19	23	20	22
std. deviation 2021	1.2	1.8	1.3	1.8
<i>Pod width (mm)</i>				
mean 2018 (LSD= 2.5)	12	13	13	12
std. deviation 2018	1.1	1.0	1.1	0.7
mean 2021 (LSD= 0.8)	12	13	13	12
std. deviation 2021	0.9	0.8	0.8	0.8
<i>Seed weight (grams per 100 seeds)</i>				
mean 2018 (LSD= 2.1)	38.2	39.5	34.5	25.7
std. deviation 2018	1.4	0.9	0.5	0.1
mean 2021 (LSD= 0.6)	29.1	35.3	31.9	23.9
std. deviation 2021	0.6	0.6	0.5	0.7

*reference varieties



Chickpea: 'CDC Lancer' (top left) with reference varieties 'CDC Leader' (top right), 'CDC Frontier' (bottom left) and 'Amit' (bottom right)

Proposed denomination: 'CDC Orkney'
Application number: 18-9455
Application date: 2018/05/02
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Bunyamin Taran, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Leader', 'CDC Frontier' and 'Amit'

Summary: *The leaflet of 'CDC Orkney' is shorter than that of 'CDC Leader'. The pod of 'CDC Orkney' is shorter than the pods of the reference varieties. The seed of 'CDC Orkney' has a round to angular shape with weak to medium ribbing whereas the seed of 'Amit' is round with absent or very weak to weak ribbing. The dry seed weight of 'CDC Orkney' is less than that of 'CDC Leader' and greater than that of 'CDC Frontier' and 'Amit'. The plants of 'CDC Orkney' are tolerant to imidazolinone herbicide whereas the plants of 'CDC Leader', 'CDC Frontier' and 'Amit' are not tolerant.*

Description:

PLANT: erect to semi-erect growth habit, weak to medium ramification, medium to tall, early to mid-season maturity

STEM: no anthocyanin colouration

LEAF: medium green

FLOWER: flowers early to mid-season, white

POD: light to medium green, short to medium length beak, one and two ovules per pod.

DRY SEED: beige one month after harvest, medium to high seed weight, round to angular shape, weak to medium ribbing

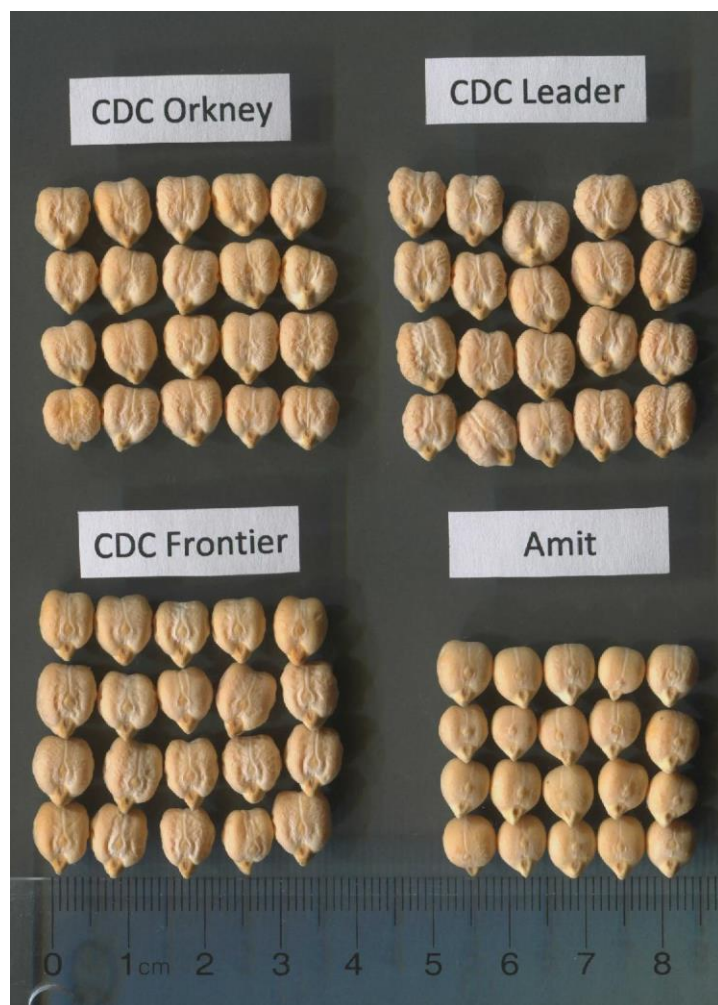
Origin and Breeding: ‘CDC Orkney’ (experimental designation 1748-1) originated from the cross between ‘CDC Frontier’ and 491-5 made in 2008 at the Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan. A single plant selection was made from the F2 population. Subsequent selections were made in the F3 to F8 generations where 4 F9 sub-lines were used to establish the breeder seed in 2016. Selection criteria included on yield, seed weight, seed size, seed coat colour, days to flower, days to maturity, plant height and disease resistance.

Tests and Trials: The comparative trials for ‘CDC Orkney’ were conducted by the Crop Development Centre, University of Saskatchewan, at Elrose, Saskatchewan in 2018 and 2021. 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 40 seeds per square metre. Measured characteristics were based on 20 measurements per variety per year except for seed weight which was based on 4 measurements per variety in 2018 and 8 measurements per variety in 2021. Mean differences were significant at the 5% confidence probability level based on LSD values.

Comparison table for ‘CDC Orkney’

	‘CDC Orkney’	‘CDC Leader’*	‘CDC Frontier’*	‘Amit’*
<i>Leaflet length (cm)</i>				
mean 2018 (LSD= 0.1)	1.7	1.9	1.6	1.5
std. deviation 2018	0.2	0.3	0.1	0.1
mean 2021 (LSD= 0.2)	0.9	1.1	0.9	0.9
std. deviation 2021	0.2	0.2	0.1	0.1
<i>Pod length (mm)</i>				
mean 2018 (LSD= 1.4)	22	24	23	24
std. deviation 2018	1.4	1.7	1.7	1.0
mean 2021 (LSD= 0.9)	19	23	20	22
std. deviation 2021	1.0	1.8	1.3	1.8
<i>Seed weight (grams per 100 seeds)</i>				
mean 2018 (LSD= 1.7)	36.6	39.4	34.5	25.7
std. deviation 2018	1.1	0.9	0.5	0.1
mean 2021 (LSD= 0.2)	32.7	35.3	31.9	23.9
std. deviation 2021	0.6	0.6	0.5	0.7

*reference varieties



Chickpea: 'CDC Orkney' (top left) with reference varieties 'CDC Leader' (top right), 'CDC Frontier' (bottom left) and 'Amit' (bottom right)

Proposed denomination: 'CDC Pasqua'
Application number: 20-10125
Application date: 2020/03/16
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Bunyamin Taran, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Leader', 'CDC Frontier' and 'Amit'

Summary: *The seed of 'CDC Pasqua' has a round to angular shape with medium ribbing whereas the seed of 'Amit' is round with absent or very weak to weak ribbing. The dry seed weight of 'CDC Pasqua' is greater than that of 'CDC Leader', 'CDC Frontier' and 'Amit'. The plants of 'CDC Pasqua' are tolerant to imidazolinone herbicide whereas the plants 'CDC Leader', 'CDC Frontier' and 'Amit' are not tolerant.*

Description:

PLANT: erect to semi-erect growth habit, medium ramification, medium to tall, mid-season maturity

STEM: no anthocyanin colouration

LEAF: medium green

FLOWER: flowers early to mid-season, white

POD: light to medium green, medium length beak, one and two ovules per pod

DRY SEED: beige one month after harvest, high to very high seed weight, round to angular shape, medium ribbing

Origin and Breeding: ‘CDC Pasqua’ (experimental designation 3652) originated from the cross between 2075-1 and AB06-106-2 with two subsequent backcrosses to AB06-106-2 made in 2015 at the Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan. A single plant selection was made from the BC2F2 population. Subsequent selections were made in the BC2F3 to BC2F8 generations where 5 BC2F9 sub-lines were used to establish breeder seed in 2017. Selection criteria included on yield, seed weight, seed size, seed coat colour, days to flower, days to maturity, plant height and disease resistance.

Tests and Trials: The comparative trials for ‘CDC Pasqua’ were conducted by the Crop Development Centre, University of Saskatchewan, at Elrose, Saskatchewan in 2020 and 2021. 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 40 seeds per square metre. Measured characteristics were based on 20 measurements per variety per year except for seed weight which was based on 8 measurements per variety per year. Mean differences were significant at the 5% confidence probability level based on LSD values.

Comparison table for ‘CDC Pasqua’

	‘CDC Pasqua’	‘CDC Leader’*	‘CDC Frontier’*	‘Amit’*
<i>Seed weight (grams per 100 seeds)</i>				
mean 2020 (LSD=1.2)	37.1	34.3	33.5	23.8
std. deviation 2020	0.7	0.8	0.8	0.4
mean 2021 (LSD=1.1)	36.9	35.3	31.9	23.9
std. deviation 2021	0.7	0.6	0.5	0.7

*reference varieties



Chickpea: 'CDC Pasqua' (top left) with reference varieties 'CDC Leader' (top right), 'CDC Frontier' (bottom left) and 'Amit' (bottom right)

Proposed denomination: 'CDC Pearl'
Application number: 20-10124
Application date: 2020/03/16
Applicant: University of Saskatchewan, Saskatoon, Saskatchewan
Breeder: Bunyamin Taran, University of Saskatchewan, Saskatoon, Saskatchewan

Varieties used for comparison: 'CDC Leader', 'CDC Frontier' and 'Amit'

Summary: *The leaflet of 'CDC Pearl' is narrower than that of 'Amit'. The plants of 'CDC Pearl' flower early to mid-season while the plants of 'Amit' flower mid to late season. 'CDC Pearl' has a longer peduncle than that of 'Amit'. The pod of 'CDC Pearl' is shorter and narrower than that of 'CDC Leader'. The seed of 'CDC Pearl' is a round to angular in shape whereas the seed of 'Amit' is round. The seed of 'CDC Pearl' has absent or very weak to weak ribbing whereas the seed of 'CDC Leader' and 'CDC Frontier' have medium ribbing. The dry seed weight of 'CDC Pearl' is less than that of 'CDC Leader' and 'CDC Frontier' and greater than that of 'Amit'. The plants of 'CDC Pearl' are tolerant to imidazolinone herbicide whereas the plants of 'CDC Leader', 'CDC Frontier' and 'Amit' are not tolerant.*

Description:

PLANT: erect to semi-erect growth habit, medium ramification, medium to tall, mid-season maturity

STEM: no anthocyanin colouration

LEAF: medium green

FLOWER: flowers early to mid-season, white

POD: light to medium green, short to medium length beak, one and two ovules per pod

DRY SEED: beige one month after harvest, medium seed weight, round to angular shape, absent or very weak to weak ribbing

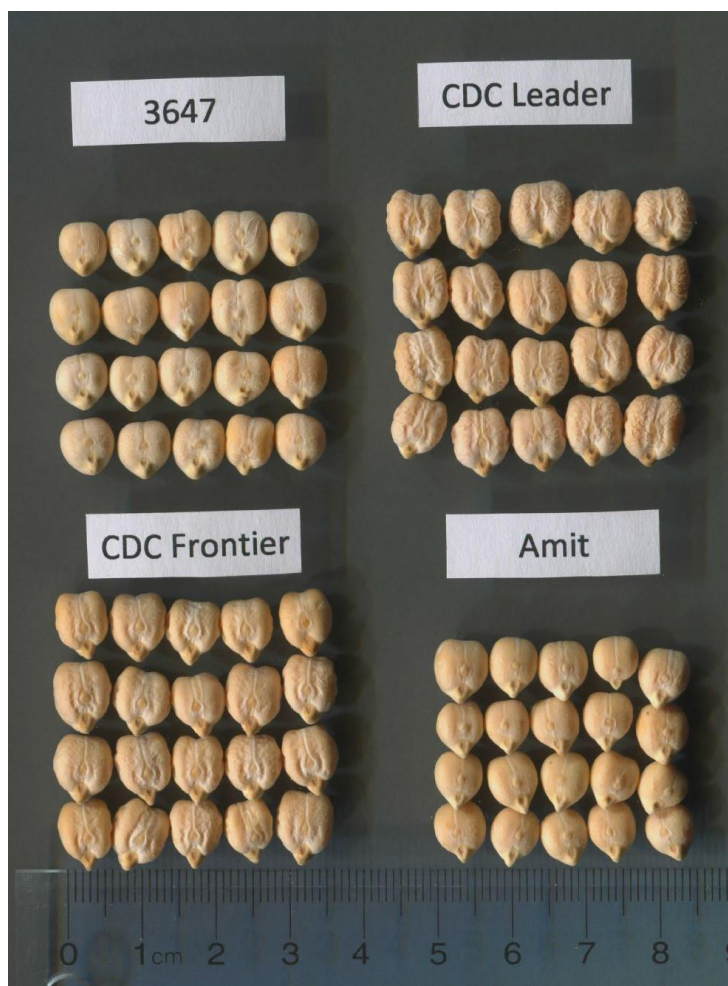
Origin and Breeding: ‘CDC Pearl’ (experimental designation 3647) originated from the cross between ‘CDC Orkney’ and CA05-75-45 with two subsequent backcrosses to CA05-75-45 made in 2015 at the Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan. A single plant selection was made from the BC2F2 population. Subsequent selections were made in the BC2F3 to BC2F8 generations where 3 BC2F9 sub-lines were used to establish the breeder seed in 2017. Selection criteria included yield, seed weight, seed size, seed coat colour, days to flower, days to maturity, plant height and disease resistance.

Tests and Trials: The comparative trials for ‘CDC Pearl’ were conducted by the Crop Development Centre, University of Saskatchewan, at Elrose, Saskatchewan in 2020 and 2021. 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 40 seeds per square metre. Measured characteristics were based on 20 measurements per variety per year except for seed weight which was based on 8 measurements per variety per year. Mean differences were significant at the 5% confidence probability level based LSD values.

Comparison table for ‘CDC Pearl’

	‘CDC Pearl’	‘CDC Leader’*	‘CDC Frontier’*	‘Amit’*
<i>Leaflet width (cm)</i>				
mean 2020 (LSD=0.1)	0.7	0.7	1.0	0.8
std. deviation 2020	0.1	0.1	0.1	0.1
mean 2021 (LSD=0.1)	0.6	0.7	0.6	0.7
std. deviation 2021	0.1	0.2	0.1	0.1
<i>Pod peduncle length (mm)</i>				
mean 2020 (LSD=2.6)	15	18	17	13
std. deviation 2020	2.9	3.3	2.3	1.6
mean 2021 (LSD=1.5)	10	9	10	8
std. deviation 2021	2.7	2.4	2.1	1.7
<i>Pod length (mm)</i>				
mean 2020 (LSD=2.7)	24	27	26	25
std. deviation 2020	1.1	1.6	2.2	2.1
mean 2021 (LSD=0.4)	21	23	20	22
std. deviation 2021	2.1	1.8	1.3	1.8
<i>Pod width (mm)</i>				
mean 2020 (LSD=0.8)	13	14	13	12
std. deviation 2020	0.6	0.9	0.7	0.7
mean 2021 (LSD= 0.8)	12	13	13	12
std. deviation 2021	0.8	0.8	0.8	0.8
<i>Seed weight (grams per 100 seeds)</i>				
mean 2020 (LSD=1.3)	26.8	34.3	33.5	23.8
std. deviation 2020	0.4	0.8	0.8	0.4
mean 2021 (LSD=1.1)	26.1	35.3	31.9	23.9
std. deviation 2021	0.5	0.6	0.5	0.7

*reference varieties



Chickpea: 'CDC Pearl' (top left) with reference varieties 'CDC Leader' (top right), 'CDC Frontier' (bottom left) and 'Amit' (bottom right)