



## APPLICATIONS UNDER EXAMINATION

## SOYBEAN

### SOYBEAN (*Glycine max*)

**Proposed denomination:** 'Aya'  
**Application number:** 21-10660  
**Application date:** 2021/07/29  
**Applicant:** Semences Prograin Inc., Saint-Césaire, Quebec  
**Breeder:** Sylvain Legay, Semences Prograin Inc., Saint-Césaire, Quebec

**Varieties used for comparison:** 'Nara' and 'SeCan 18-68C'

**Summary:** *The intensity of anthocyanin colouration on the hypocotyl of 'Aya' is strong whereas it is weak for 'Nara'. When 50% of the flowers are open, the branching attitude of 'Aya' is semi-erect whereas it is erect to semi-erect for 'SeCan 18-68C' and semi-erect to horizontal for 'Nara'. When 95% of the pods are ripe, the brown colour on the pod of 'Aya' is of medium intensity whereas it is of weak intensity on the pod of 'Nara'. The seed weight of 'Aya' is less than that of 'Nara' and greater than that of 'SeCan 18-68C'.*

#### **Description:**

**PLANT:** oilseed type, indeterminate growth type, semi-erect branch attitude, grey pubescence on middle third of main stem, begins flowering and matures early to mid-season

**HYPOCOTYL:** strong intensity of anthocyanin colouration

**LEAF:** pointed ovate lateral leaflet

**FLOWER:** violet

**SEED:** spherical flattened, yellow ground colour of testa

**HILUM:** yellow

**Origin and Breeding:** 'Aya' (experimental designation PR130803Z-24) originated from a cross between the line, S05124,48, and the variety, 'S15-C2', conducted in 2013 in Saint-Césaire, Québec, Canada. A modified single seed descent method was used to develop the variety. From 2013 to 2015, the F1 to F3 generations were grown and harvested in bulk between a winter nursery in Rancagua, Chile and Saint-Césaire, Québec. In 2015, individual plants were selected from the F4 generation in Saint-Césaire based on a visual assessment of the appearance, lodging resistance, yield, maturity and disease resistance. Subsequent F5 and F6 line row plots were grown and selections made for uniformity in flower colour, pod colour, pubescence colour, hilum colour, lodging resistance, seed weight as well as protein and oil content. In 2018, the variety designated as 'Aya' was identified and tested in replicated private trials in Quebec and Ontario and advanced to the public trials of the Réseau Grandes Cultures du Québec in 2020 and the Ontario Oil and Protein Seed Crop Committee in 2021. In 2021, breeder seed was bulked at the F11 generation.

**Tests and Trials:** The comparative trials for 'Aya' were conducted in 2021 and 2022 at a research farm in Saint-Césaire, Québec, Canada. The trials were arranged in a RCB design with 2 replicates per variety. Each 14 square metre plot consisted of 2 rows, each 5 metres long with inter-row spacing of 0.76 metres. The plants were spaced 3.3 cm apart and the planting density resulted in a total of 350 plants per variety. Measurements were taken from 20 plants, or parts of 20 plants, of each variety per year with the exception of 5 seed weights measured per variety in 2021 and 10 seed weights measured per variety in 2022. Mean differences were significant at the 5% probability level based on LSD values.

## Comparison table for 'Aya'

	'Aya'	'Nara'*	'SeCan 18-68C'*
<i>Seed weight (grams per 100 seeds) (g)</i>			
mean 2021 (LSD=1.32)	24.89	29.54	17.83
std. deviation 2021	0.99	1.21	1.52
mean 2022 (LSD=0.30)	23.87	28.49	22.49
std. deviation 2022	0.44	1.7	0.24

\*reference varieties



Soybean: 'Aya' (centre) with reference varieties 'Nara' (left) and 'SeCan 18-68C' (right)



Soybean: 'Aya' (centre) with reference varieties 'Nara' (left) and 'SeCan 18-68C' (right)



Soybean: 'Aya' (centre) with reference varieties 'Nara' (top) and 'SeCan 18-68C' (bottom)

**Proposed denomination:** 'S04-K9'  
**Application number:** 20-10080  
**Application date:** 2020/01/17  
**Applicant:** Syngenta Crop Protection AG, Basel, Switzerland  
**Agent in Canada:** Syngenta Canada Inc., Arva, Ontario  
**Breeder:** David Lee, Syngenta Canada Inc., Arva, Ontario

**Variety used for comparison:** 'S03-W4'

**Summary:** *When 95% of the pods are ripe, the pubescence on the middle third of the main stem of 'S04-K9' is grey whereas it is tawny for 'S03-W4'. The plants of 'S04-K9' are shorter than the plants of 'S03-W4'. When 95% of the pods are ripe, 'S04-K9' has a light brown pod whereas 'S03-W4' has a dark brown pod.*

**Description:**

PLANT: oilseed type, indeterminate growth type, semi-erect growth habit, grey pubescence on middle third of main stem, begins flowering and matures early to mid-season

HYPOCOTYL: medium intensity of anthocyanin colouration

LEAF: pointed ovate lateral leaflet

FLOWER: violet

POD: light brown

SEED: spherical, yellow ground colour of testa

HILUM: yellow

**Origin and Breeding:** 'S04-K9' (experimental designation EE1600174) originated from the cross between 12DL000130 and 12D000165 conducted in the winter of 2013 in a contra season nursery in Graneros, Chile. Using a single seed descent method, the F2-F3 generations were grown in Arica, Chile in 2013 and 2014. Single F4 plants were selected for yield based on plant appearance in the winter of 2014 in Graneros, Chile and the resulting F5 generation was evaluated in a single replication trial in Arva, Ontario, Canada in 2015. The F6 and F7 generations were further evaluated in multiple trial locations in Canada and the United States in 2016 and 2017. A bulk increase of 'S04-K9' occurred at the F8 generation in Staffa, Ontario, Canada in 2018. Selection criteria included hilum colour, protein content and yield.

**Tests and Trials:** The comparative trials for 'S04-K9' were conducted at Syngenta Canada, Inc., Arva, Ontario in 2021 and 2022. The plots consisted of 2 replicates per variety containing 2 rows per replicate with a row length of 5 metres and a row spacing of 0.75 metres. The planting density resulted in a minimum of 300 plants per variety. The plant height was based on 20 measurements per variety per year. Mean differences were significant at the 5% probability level based on LSD values.

**Comparison table for 'S04-K9'**

	'S04-K9'	'S03-W4'*
<i>Plant height (cm)</i>		
mean 2021 (LSD=2.57)	84.35	96.85
std. deviation 2021	2.92	6.04
mean 2022 (LSD=2.13)	82.35	94.85
std. deviation 2022	2.37	5.06

\*reference variety



Soybean: 'S04-K9' (left) with reference variety 'S03-W4' (right)