**PEA**
***(Pisum sativum)***

**Proposed denomination:** **'AAC Planet'**
**Application number:** 21-10761
**Application date:** 2021/11/18
**Applicant:** Agriculture & Agri-Food Canada, Lacombe, Alberta
**Agent in Canada:** Agriculture & Agri-Food Canada, Saskatoon, Saskatchewan
**Breeder:** Deng-jin Bing, Agriculture & Agri-Food Canada, Lacombe, Alberta

**Varieties used for comparison:** 'Agassiz' and 'AAC Beyond'

**Summary:** *At flowering, the stem of 'AAC Planet' has more nodes than those of 'Agassiz' and 'AAC Beyond'. The stipule of 'AAC Planet' is narrower than that of 'AAC Beyond'. The plants of 'AAC Planet' flower later than those of the reference varieties. The shape of the base of the standard of 'AAC Planet' is moderately to strongly arched while that of 'AAC Beyond' is level to moderately arched. The peduncle of 'AAC Planet' is shorter than that of 'Agassiz'. The pod of 'AAC Planet' is shorter than those of the reference varieties. 'AAC Planet' has fewer ovules per pod than that of 'AAC Beyond'. At maturity, the stem including the first two nodes of 'AAC Planet' is longer than those of 'Agassiz' and 'AAC Beyond'.*

**Description:**
PLANT: field type, no anthocyanin colouration, no stem fasciation, green foliage, flowers late in the season

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

PETIOLE: long
LEAF: leaflets absent
STIPULE: medium length and width, very sparse flecking

PEDUNCLE: short to medium length from stem to first pod
FLOWER: maximum of two per node
STANDARD: medium width, moderately to strongly arched base

POD: medium to long, medium width, entire parchment, blunt distal part, weak curvature, green, medium number of ovules
IMMATURE SEED: light to medium green
SEED: ellipsoid, simple starch grains, yellow cotyledon, medium weight, matures mid to late season
HILUM: same colour as testa

**Origin and Breeding:** 'AAC Planet' (experimental designation P0936-3913) originated from the cross between 'Agassiz' and 'CDC1897-3' conducted in the winter of 2008-2009 at the Agriculture and Agri-Food Canada, Lacombe Research and Development Centre in Lacombe, Alberta. From 2009 to 2012, the F1 to F5 generations were grown in Lacombe, Alberta with single plants selected at each generation using single seed descent. Information was also collected on F1 plants grown in Morden, Manitoba in 2009 and on F3 plants grown in a winter nursery in Brawley, California, USA in 2010. The F6 generation was planted in Lacombe, Alberta in 2013 with 109 plants visually selected and grown in individual plots. From these plots, 21 F8 lines were selected based on maturity and lodging resistance and grown in replicated preliminary yield tests in Indian Head, Saskatchewan in 2015. One line, designated as P0936-3913, was selected based on yield, maturity and lodging resistance and was reevaluated in 2016 in Lacombe, Alberta. The line was further advanced to yield trials in 2017 in multiple locations in Alberta and Saskatchewan. In 2018, P0936-3913 was grown in strips for seed multiplication and purification in Lacombe, Alberta. The variety was then entered and evaluated in the 2019-2020 Western Canada Field Pea Cooperative Registration Test-A. Breeder seed was established at the F13 generation in 2021.

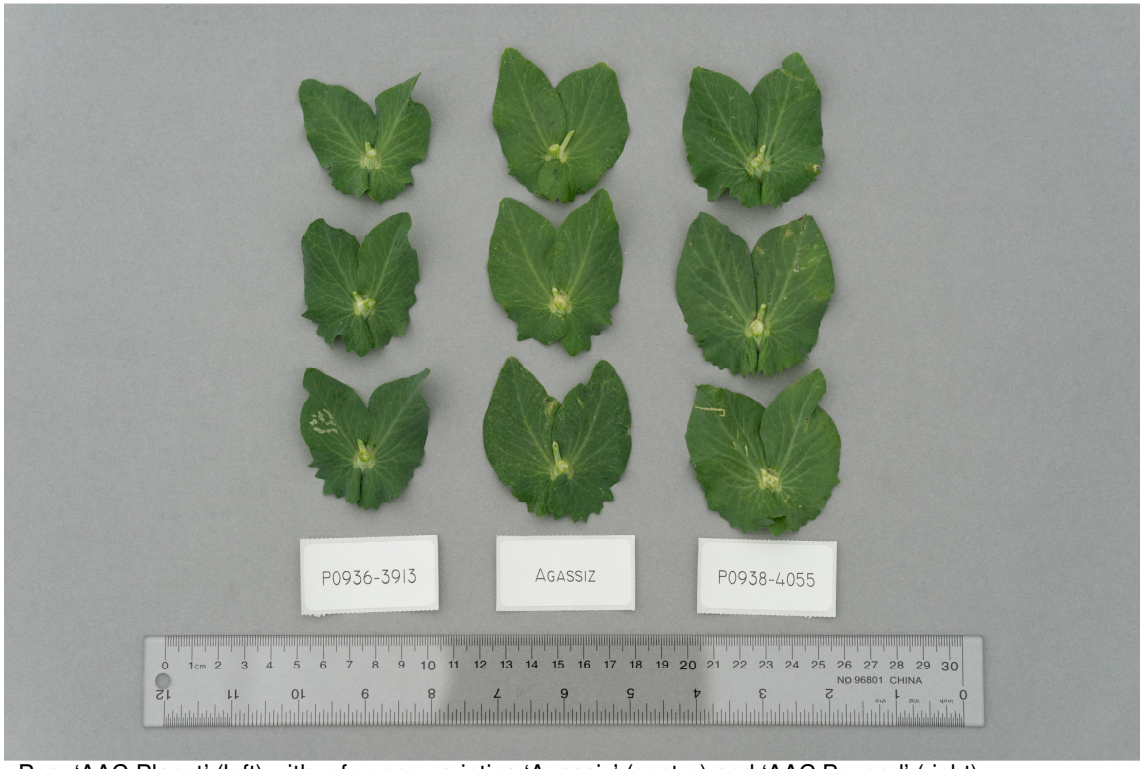
**Tests and Trials:** The comparative tests and trials for 'AAC Planet' were conducted at the Agriculture and Agri-Food Canada, Lacombe Research and Development Centre, in Lacombe, Alberta, in 2021 and 2022. The trials consisted of 4 replicates in a RCB design. Each replicate consisted of 4 rows spaced 25 cm apart, with a row length of 5 metres and a

planting density of 85 viable seeds per square metre. The measured characteristics were based on 20 measurements per variety per year. The mean differences were significant at the 5% confidence probability level based on a paired Student's t-test.

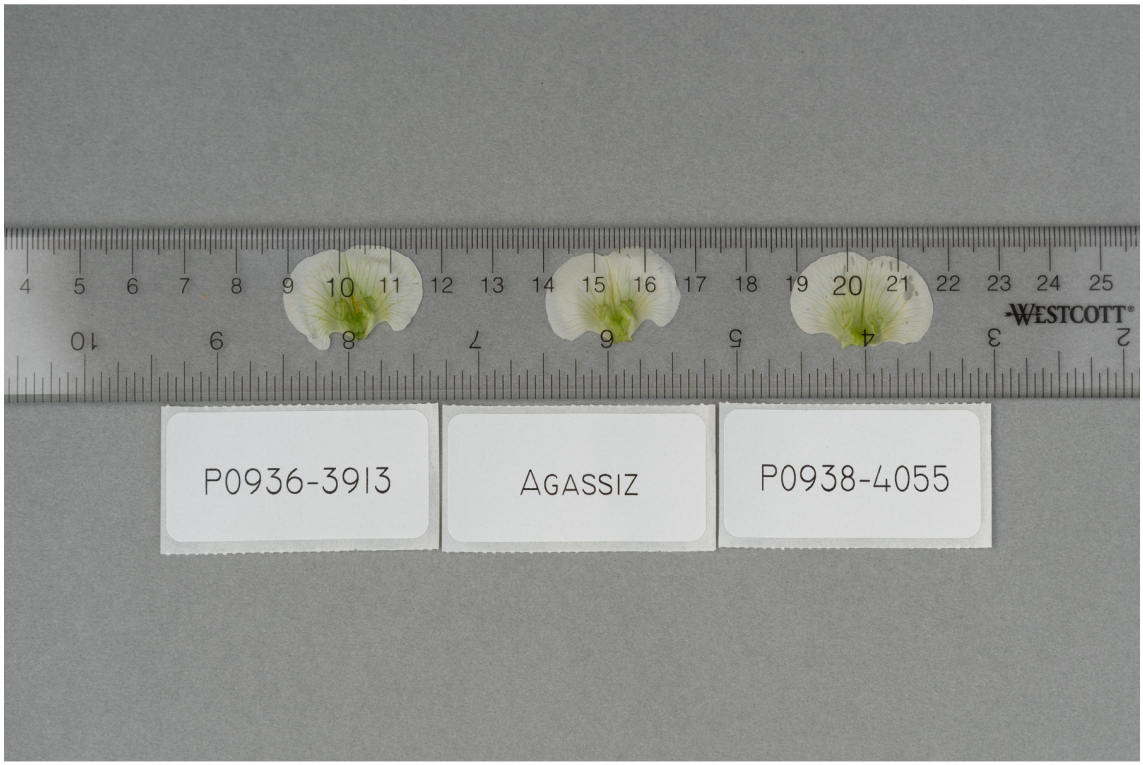
**Comparison table for 'AAC Planet'**

| | 'AAC Planet' | 'Agassiz'* | 'AAC Beyond'* |
|---|---|---|---|
| *Stem number of nodes (up to and including first fertile node) (count)* | | | |
| mean 2021 | 20.2 | 18.8 | 19.1 |
| std. deviation 2021 | 0.7 | 1.1 | 0.7 |
| mean 2022 | 20.0 | 18.1 | 17.4 |
| std. deviation 2022 | 1.6 | 1.2 | 1.3 |
| *Stipule width (at the second flowering node) (cm)* | | | |
| mean 2021 | 2.8 | 2.8 | 3.1 |
| std. deviation 2021 | 0.23 | 0.28 | 0.29 |
| mean 2022 | 3.7 | 3.9 | 4.4 |
| std. deviation 2022 | 0.47 | 0.38 | 0.58 |
| *Days to flower (number of days from planting to when 30% of plants have at least one flower open)* | | | |
| mean 2021 | 59.0 | 52.8 | 54.5 |
| mean 2022 | 65.5 | 59.3 | 61.8 |
| *Peduncle length (from stem to first pod) (cm)* | | | |
| mean 2021 | 34.0 | 51.7 | 37.0 |
| std. deviation 2021 | 6.5 | 9.6 | 6.6 |
| mean 2022 | 74.3 | 105.8 | 78.5 |
| std. deviation 2022 | 16.5 | 21.2 | 17.9 |
| *Pod length (at second fertile node) (cm)* | | | |
| mean 2021 | 6.8 | 7.1 | 7.1 |
| std. deviation 2021 | 0.26 | 0.36 | 0.37 |
| mean 2022 | 6.8 | 7.2 | 7.3 |
| std. deviation 2022 | 0.39 | 0.34 | 0.41 |
| *Number of ovules (count per pod)* | | | |
| mean 2021 | 6.8 | 7.6 | 7.8 |
| std. deviation 2021 | 0.6 | 0.5 | 0.5 |
| mean 2022 | 6.8 | 7.1 | 8.0 |
| std. deviation 2022 | 0.4 | 0.6 | 0.7 |
| *Stem length (including the first two nodes) (cm)* | | | |
| mean 2021 | 88.4 | 77.3 | 66.9 |
| std. deviation 2021 | 5.3 | 5.0 | 3.3 |
| mean 2022 | 133.8 | 122.0 | 109.3 |
| std. deviation 2022 | 8.7 | 7.0 | 11.9 |

*reference varieties




Pea: ‘AAC Planet’ (left) with reference varieties ‘Agassiz’ (centre) and ‘AAC Beyond’ (right)




Pea: ‘AAC Planet’ (left) with reference varieties ‘Agassiz’ (centre) and ‘AAC Beyond’ (right)