**CORN**
***(Zea mays)***

**Proposed denomination:** **'PH2G46'**
**Application number:** 18-9468
**Application date:** 2018/05/07
**Applicant:** Pioneer Hi-Bred International, Inc., Johnston, Iowa, United States of America
**Agent in Canada:** Pioneer Hi-Bred Production Co., Calgary, Alberta
**Breeder:** Steven King, Pioneer Hi-Bred Production Company, Woodstock, Ontario
Lori Scott, Pioneer Hi-Bred International, Inc., Johnston, Iowa, United States of America

**Variety used for comparison:** 'PHPPE'

**Summary:** *The silks of 'PH2G46' have an absent or very weak intensity of anthocyanin colouration whereas the silks of 'PHPPE' have a weak to medium intensity of anthocyanin colouration. The brace roots on the stem of 'PH2G46' have an absent or very weak intensity of anthocyanin colouration whereas the brace roots for 'PHPPE' have a medium intensity of anthocyanin colouration. The ears of 'PH2G46' are shorter than the ears of 'PHPPE'. The glumes on the cob of 'PH2G46' have a medium intensity of anthocyanin colouration whereas the glumes for 'PHPPE' have a very strong intensity of anthocyanin colouration. The primary ear on the stem of 'PH2G46' is located lower on the stem than it is for 'PHPPE'.*

**Description:**
PLANT: inbred yellow variety, very small ratio of height of insertion of peduncle of upper ear to plant height
STEM: absent or very weak intensity of anthocyanin colouration on brace roots

TASSEL: anthesis occurs early season, very small angle between main axis and lateral branches, moderately dense spikelets, medium to long main axis above lowest lateral branch, short to medium length main axis above highest lateral branch
LATERAL BRANCHES: many primary lateral branches on main axis of tassel, straight
GLUME: medium intensity of anthocyanin colouration at base, weak intensity of anthocyanin colouration at apex and middle
ANTHER: medium intensity of anthocyanin colouration

EAR: early season silk emergence, absent or very weak intensity of anthocyanin colouration of silks, medium to long husk (extends between one quarter to one third the length of ear above tip), conico-cylindrical shape, medium intensity of anthocyanin colouration on glumes of cob
KERNEL: dent type, yellow on top side and dorsal side

**Origin and Breeding:** 'PH2G46' was developed by Pioneer Hi-Bred International, Inc. from a cross between proprietary inbred lines made in 2008 in Moorhead, Minnesota, USA using a double haploid plant breeding method. In 2008, the F2 generation underwent a haploidization process. The haploids were doubled, self-pollinated and ears were selected, also in 2008. From 2009 to 2011, the subsequent D1 to D3 generations were self-pollinated and harvested in bulk. 'PH2G46' was selected in 2011 based on yield per se, yield in hybrid combination, tassel size, pollen production, stalk lodging resistance, late season plant health, grain quality, as well as disease and insect resistance. Yield trials were grown in Carman, Manitoba, Canada and Moorhead, Minnesota, USA in the initial years and other Pioneer research locations in Canada and the USA.

**Tests and Trials:** The comparative trial for 'PH2G46' was conducted in Woodstock, Ontario during the 2018 growing season. The trial was planted in a complete randomized design with 3 replicates. Plots consisted of one row 3 metres in length and a row spacing of 76 cm. Each plot contained approximately 20 plants resulting in a total of 50 to 60 plants per variety. Measured characteristics were based on a minimum of 30 measurements. Mean differences were significant at the 5% probability level based on paired Student's T-tests. Results were supported by the official technical examination report 201700160, purchased from the Plant Variety Protection Office in Washington, District of Columbia, USA.

**Comparison table for 'PH2G46'**

| | 'PH2G46' | 'PHPPE'* |
|---|---|---|
| *Ear length (cm)* | | |
| mean | 10.8 | 12.8 |
| std. deviation | 1.2 | 0.9 |
| *Primary ear, height from ground (metres)* | | |
| mean | 0.92 | 0.86 |
| std. deviation | 0.08 | 0.07 |

*reference variety


Corn: 'PH2G46' (right) with reference variety 'PHPPE' (left)


Corn: 'PH2G46'


Corn: Reference variety 'PHPPE'