



APPLICATIONS UNDER EXAMINATION

SOYBEAN

SOYBEAN (*Glycine max*)

Proposed denomination: 'ND17009GT'
Application number: 20-10107
Application date: 2020/02/27
Applicant: North Dakota State University Research Foundation, Fargo, North Dakota, United States of America
Agent in Canada: SeCan Association, Kanata, Ontario
Breeder: North Dakota State University Research Foundation, Fargo, North Dakota, United States of America

Variety used for comparison: 'Mahony R2'

Summary: *When the cotyledons are completely unfolded, the hypocotyl of 'ND17009GT' has an absent or very weak intensity of anthocyanin colouration while the hypocotyl of 'Mahony R2' has a medium to strong intensity of anthocyanin colouration. When 95% of the pods are ripe, the plants of 'ND17009GT' are taller than those of 'Mahony R2'. When 50% of the flowers are open, the lateral leaflet of 'ND17009GT' is rounded ovate while that of 'Mahony R2' is pointed ovate. The flower of 'ND17009GT' is white while that of 'Mahony R2' is violet. The 100 seed weight of 'ND17009GT' is greater than that of 'Mahony R2'. The plants of 'ND17009GT' flower earlier than those of 'Mahony R2'. The plants of 'ND17009GT' mature later than those of 'Mahony R2'.*

Description:

HYPOCOTYL: absent or very weak intensity of anthocyanin colouration

PLANT: oilseed type, indeterminate growth type, light tawny pubescence on middle third of main stem, begins flowering mid-season, matures late in the season

LEAF: rounded ovate lateral leaflet

FLOWER: white

POD: medium to dark brown

SEED: spherical flattened, yellow ground colour of testa

HILUM: black, funicle same colour as testa

Origin and Breeding: 'ND17009GT' (experimental designation ND12-21598) originated from the cross between the lines OAC07-26C and ND607RR conducted in Prosper, North Dakota, USA in the summer of 2010. The variety was advanced from the F1 to the F3 generation in North Dakota and contra season nurseries in Chile based on yield, maturity, resistance to phytophthora root rot and tolerance to iron-deficiency chlorosis. One F3:4 line was designated ND12-21598 in 2012. Breeder seed was established at the F5:6 generation in 2014.

Tests and Trials: The comparative trials of 'ND17009GT' were conducted near Oak Bluff, Manitoba during the 2021 and 2022 growing seasons. The trial was arranged in a RCB design with four replicates per variety. Each plot consisted of 7 rows with a 1.5 metre, centre to centre spacing between plots and each row measuring 6.2 metres long. The seeding density of 54 seeds per metre squared resulted in 500 plants per variety per year. Measured characteristics were based on 20 measurements per variety per year. Mean differences were significant at the 5% confidence probability level based on a paired Student's t-test.

Comparison table for 'ND17009GT'

	'ND17009GT'	'Mahony R2'*
<i>Plant height (when 95% pods are ripe) (cm)</i>		
mean (2021)	95.0	86.0
std. deviation (2021)	0.9	1.5
mean (2022)	49.0	44.4
std. deviation (2022)	1.9	2.8
<i>Seed weight (grams per 100 seeds) (g)</i>		
mean (2021)	20.1	19
std. deviation (2021)	0.9	0.6
mean (2022)	19.9	15.2
std. deviation (2022)	0.6	1.1
<i>Time of flowering (days from planting to 50% of plants with at least one flower open)</i>		
mean (2021)	38	40
mean (2022)	47	49
<i>Days to maturity (days from planting to when 95% of pods are ripe)</i>		
mean (2021)	116	112
mean (2022)	132	112

*reference variety



Soybean: 'ND17009GT' (left) with reference variety 'Mahony R2' (right)

Proposed denomination: 'ND21008GT20'
Application number: 21-10739
Application date: 2021/11/03
Applicant: North Dakota State University Research Foundation, Fargo, North Dakota, United States of America
Agent in Canada: SeCan Association, Kanata, Ontario
Breeder: North Dakota State University Research Foundation, Fargo, North Dakota, United States of America

Variety used for comparison: 'Mahony R2'

Summary: *When the cotyledons are completely unfolded, the hypocotyl of 'ND21008GT20' has a very weak intensity of anthocyanin colouration while the hypocotyl of 'Mahony R2' has a medium to strong intensity of anthocyanin colouration. When 50% of the flowers are open, the lateral leaflet of 'ND21008GT20' is rounded ovate while that of 'Mahony R2' is pointed ovate. At maturity, the hilum on the seed of 'ND21008GT20' is grey while that of 'Mahony R2' is black. The plants of 'ND21008GT20' mature later than those of 'Mahony R2'.*

Description:

HYPOCOTYL: very weak intensity of anthocyanin colouration

PLANT: oilseed type, indeterminate growth type, light tawny pubescence on middle third of main stem, begins flowering mid-season, matures late in the season

LEAF: rounded ovate lateral leaflet

FLOWER: violet

POD: medium brown

SEED: spherical flattened, yellow ground colour of testa

HILUM: grey, funicle same colour as testa

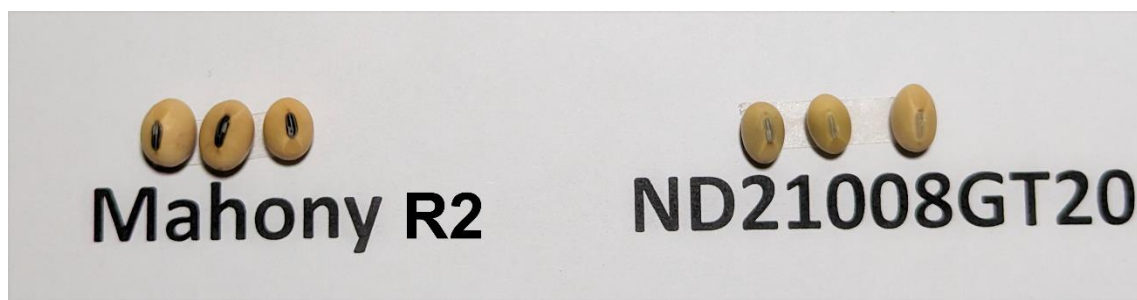
Origin and Breeding: 'ND21008GT20' (experimental designation ND14-6120GT) was developed using a single seed descent breeding technique. The variety was developed using five crosses. Two initial crosses were conducted, the first between the variety 'Barnes' and a line designated SD1091RR and a second between the varieties 'Surge' and 'Resnik RR'. The resulting progeny of these two crosses were then crossed to produce one parental line. A cross between the variety 'Duel' and the line RG607RR resulted in the second parental line. The final cross between the 2 parental lines was conducted in North Dakota, USA in 2011. The variety was advanced from the F1 to the F4 generation in North Dakota with one F4:5 line being designated ND14-6120GT in 2014. Breeder seed was established using F8:F9 purification rows in North Dakota in 2018.

Tests and Trials: The comparative trials of 'ND21008GT20' were conducted near Oak Bluff, Manitoba during the 2021 and 2022 growing seasons. The trial was arranged in a RCB design with four replicates per variety. Each plot consisted of 7 rows with a 1.5 metre centre to centre spacing between plots and each row measuring 6.2 metres long. The seeding density of 54 seeds per metre squared resulted in 500 plants per variety per year. Measured characteristics were based on 20 measurements per variety per year.

Comparison table for 'ND21008GT20'

	'ND21008GT20'	'Mahony R2'*
<i>Days to maturity (days from planting to when 95% of pods are ripe)</i>		
mean (2021)	126	112
mean (2022)	118	112

*reference variety



Soybean: 'ND21008GT20' (right) with reference variety 'Mahony R2' (left)