



APPLICATIONS UNDER EXAMINATION

FLAX

FLAX
(Linum usitatissimum)

Proposed denomination: 'Shape'
Application number: 08-6336
Application date: 2008/05/16
Applicant: Agriculture & Agri-Food Canada, Morden, Manitoba
Agent in Canada: Agriculture & Agri-Food Canada, Lacombe, Alberta
Breeder: Scott Duguid, Agriculture & Agri-Food Canada, Morden, Manitoba

Varieties used for comparison: 'CDC Bethune', 'CDC Sorrel' and 'Hanley'

Summary: *The plants of 'Shape' are shorter than those of 'CDC Sorrel'. The stigma colour of 'Shape' is pale violet whereas it is white for 'CDC Sorrel'. 'Shape' matures earlier than 'CDC Sorrel' but later than 'Hanley'. The ciliation of the false septa is absent in 'Shape' whereas it is present in 'CDC Sorrel' and 'Hanley'. The seeds of 'Shape' have a higher oil content than those of the reference varieties. The oil from 'Shape' contains more palmitic acid and linolenic acid and less oleic acid than the oils from 'CDC Bethune' and 'CDC Sorrel'. The stearic acid content of the oil of 'Shape' is higher than that of the reference varieties.*

Description:

HYPOCOTYL: weak to moderate anthocyanin colouration

FLOWER: flattened disk shape, medium sized corolla, no longitudinal folding of the petals, absent to weak sepal dotting, medium blue petal colour, white filament, blue anthers, white style, pale violet stigma

CAPSULE: medium size, semi-dehiscent, no ciliation of the false septa

SEED: medium brown, medium size

DISEASE RESISTANCE: immune to flax rust (*Melampsora lini*), resistant to flax wilt (*Fusarium oxysporum* f. sp. *lini*)

AGRONOMY: good resistance to shattering, lodging and capsule loss

USE: oilseed flax variety

Origin and Breeding: 'Shape' (experimental designation FP2188) was developed by Agriculture and Agri-Food Canada at the Morden Research Station, Morden, Manitoba. The original cross between 'M4684' and 'FP 1043' occurred in 1997. The pedigree method was used to advance the line with selection criteria based on oil content, oil quality, lodging resistance and rust resistance. Single plant selections were made in the F3 and F5 generations. An F7 line, designated 'M7308', was selected and evaluated in preliminary yield trials in 2003 and for Fusarium Wilt trials in Manitoba and Saskatchewan. This line was further evaluated from 2003 to 2006 in Manitoba and Saskatchewan.

Tests and Trials: Tests and trials for 'Shape' were conducted during the summers of 2007 and 2008 in Morden, Manitoba. Plots consisted of 6 rows that were 5.5 meters in length with a row spacing of 18 centimeters.

Comparison table for 'Shape'

	'Shape'	'CDC Bethune'*	'CDC Sorrel'*	'Hanley'*
<i>Plant height (cm)</i>				
mean	63.8	64.1	68.4	62.7
<i>Protein content (% protein)</i>				
mean	26.4	26.5	25.4	27.6
<i>Oil content (of oven dry mature seed) (%)</i>				
mean	49.5	46.6	46.8	44.3

<i>Palmitic acid (% of oil)</i>				
mean	5.5	5.0	4.9	5.7
<i>Stearic acid (% of oil)</i>				
mean	4.8	4.0	3.7	3.1
<i>Oleic acid (% of oil)</i>				
mean	17.8	22.7	21.5	17.5
<i>Linoleic acid (% of oil)</i>				
mean	16.0	14.7	13.1	16.8
<i>Linolenic acid (% of oil)</i>				
mean	56.0	53.5	56.4	56.9

*reference varieties

Style



Flax: 'Shape' (left) with reference varieties 'CDC Bethune' (left centre), 'CDC Sorrel' (right centre) and 'Hanley' (right)

Filaments



Flax: 'Shape' (left) with reference varieties 'CDC Bethune' (left centre), 'CDC Sorrel' (right centre) and 'Hanley' (right)

Stigma



Flax: 'Shape' (left) with reference varieties 'CDC Bethune' (left centre), 'CDC Sorrel' (right centre) and 'Hanley' (right)