FLAX
(Linum usitatissimum)

Proposed denomination: **'50'**
Application number: 07-5987
Application date: 2007/08/22
Applicant: Viterra Inc., Saskatoon, Saskatchewan
Agent in Canada: Viterra Inc., Regina, Saskatchewan
Breeder: J.C. Paul Dribnenki, Viterra Inc., Vegreville, Alberta

Varieties used for comparison: '2047', '2149' and 'CDC Gold'

Summary: *The plants of '50' are shorter than those of '2149'. Stem length of '50' is shorter than those of '2149' and 'CDC Gold'. Sepal dotting of '50' is very weak whereas it is weak to medium on '2047' and medium on '2149' and 'CDC Gold'. '50' flowers and matures later than all the reference varieties. '50' has a smaller seed size than the reference varieties. '50' has a high capability to produce basal branching whereas it is medium in '2047', low in '2149' and low to medium in 'CDC Gold'. '50' has significantly higher linolenic fatty acid and iodine content than the reference varieties.*

Description:
FLOWER: very weak sepal dotting, violet colour of crown at bud stage, flattened disk shape, medium sized corolla, violet corolla, no longitudinal folding of the petals
STAMEN: blue anthers
FILAMENT: blue at distal end, white at base
STIGMA: pale to medium violet
STYLE: violet at distal end, blue at basal end

BOLL: medium size, ciliation of the false septa present, indehiscent
SEED: yellow, medium size

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

AGRONOMY: late maturity, good resistance to shattering, capsule loss and lodging, high capability to produce basal branching

Origin and Breeding: '50' was developed from the cross, '00-44-F3-64'/'Linola 2047', conducted in 2001 by Viterra/United Grain Growers Limited originally located in Morden, Manitoba. The line was advanced using the pedigree method using yellow seed coat, linolenic fatty acid, high oil content, early maturity, vigour, rust and wilt resistance and lodging resistance as selection criteria. Single plant selections were made in the F3 and F4 generations. An F5 line, designated '01-91-F7-1401', was selected and harvested in bulk in 2004. This line was tested in the 2005 and 2006 Contract Registration test as 'CR50'. In 2006, breeder seed was bulked from pure lines grown at Rosebank, Manitoba.

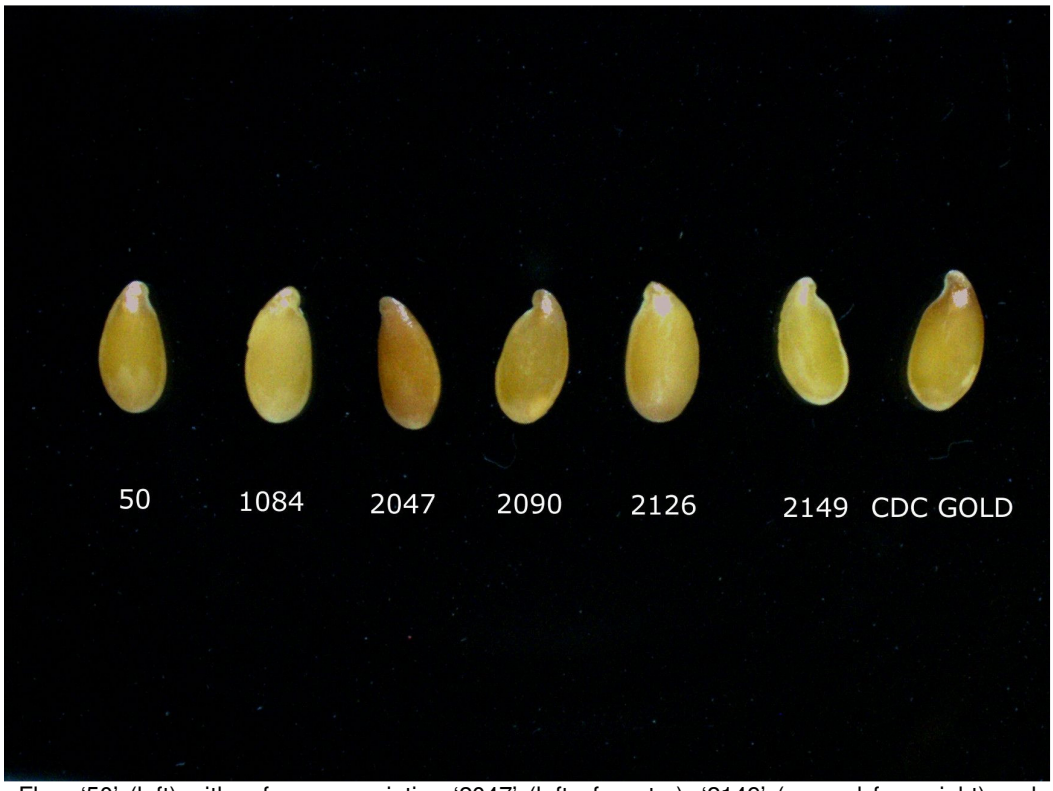
Tests and Trials: Tests and trials for '50' were conducted during the summers of 2008 and 2010 at the Alberta Innovates Technology Futures research facility in Vegreville, Alberta. The trial consisted of 4 replicates of 6-row plots that were approximately 3.0 meters in length with a row spacing of 17.5 centimeters. Data was collected from 40 measurements in each test year.

Comparison table for '50'

	'50'	'2047'*	'2149'*	'CDC Gold'*
Natural plant height - including branches (cm)				
mean	59.1	60.4	67.4	60.2
std. deviation	9.6	6.4	10.1	7.8

Stem length (cm)				
mean	32.1	33.4	34.9	36
std. deviation	6.4	4.7	9.7	6.7
Flowering date				
days to first bloom	63	62	62	60
Maturity date				
days to 75% brown capsules	118	115	113	106
Seed size (grams per 100 seeds)				
mean	5.3	6.0	5.8	6.0
std. deviation	0.4	0.1	0.5	0.5
Linolenic oil content				
% of oil	69.7	2.3	2.3	2.8
Iodine number				
mean	215	148	150	147

*reference varieties



Flax: '50' (left) with reference varieties '2047' (left of centre), '2149' (second from right) and 'CDC Gold' (right)

Flax: '50' (left) with reference varieties '2047' (left of centre), '2149' (second from right) and 'CDC Gold' (right)