FLAX
(Linum usitatissimum)

Proposed denomination: **'Prairie Thunder'**
Application number: 06-5474
Application date: 2006/05/05
Applicant: Agriculture & Agri-Food Canada, Morden, Manitoba
Agent in Canada: Ann de St. Remy, Agriculture & Agri-Food Canada, Lacombe, Alberta
Breeder: Scott Duguid, Agriculture & Agri-Food Canada, Morden, Manitoba

Varieties used for comparison: 'Hanley', 'AC Linora', 'AC Watson' and 'CDC Bethune'

Summary: *'Prairie Thunder' is taller than 'AC Watson' and slightly shorter than 'CDC Bethune'. The sepal of 'Prairie Thunder' has stronger dotting than 'AC Linora', 'AC Watson' and 'CDC Bethune' and slightly stronger than 'Hanley'. 'Prairie Thunder' has a white colour at the top of the filament while it is blue on 'Hanley' and 'CDC Bethune'. The stigma of 'Prairie Thunder' is mainly light violet while it is white on 'AC Watson'. 'Prairie Thunder' has earlier capsule maturity than 'Hanley' and 'AC Linora'. The ciliation of the false septa is absent in 'Prairie Thunder' while it is present in 'Hanley' and 'AC Linora'. 'Prairie Thunder' has a stronger capability to produce basal shoots than 'AC Linora'. The seeds of 'Prairie Thunder' have a higher protein content than those of 'AC Linora' and 'AC Watson'. 'Prairie Thunder' has seeds with a slightly higher oil content than 'Hanley'. The stearic acid in the oil of 'Prairie Thunder' is higher than in 'Hanley' and 'AC Linora'. 'Prairie Thunder' has lower oleic acid in the oil than 'CDC Bethune'. The linoleic and linolenic acid content of the oil of 'Prairie Thunder' is higher than that in 'CDC Bethune'.*

Description:
HYPOCOTYL: absent to weak anthocyanin colouration

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

CAPSULE: medium to large, 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

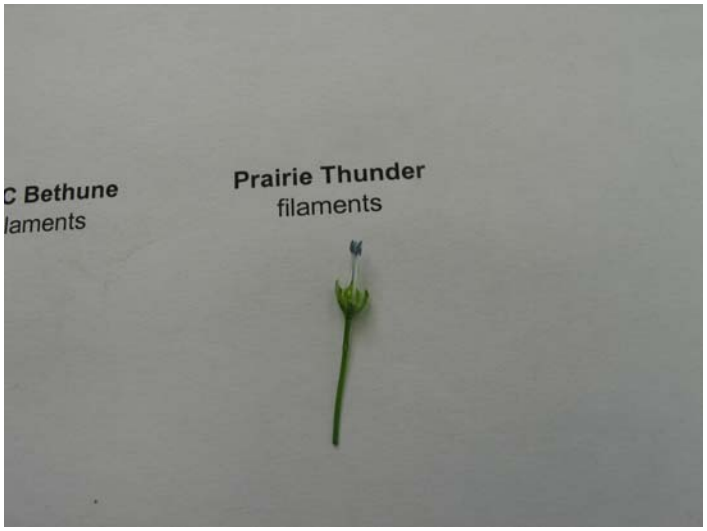
Origin and Breeding: 'Prairie Thunder' (experimental designation FP2137) was developed by Agriculture and Agri-Food Canada at the Morden Research Station, Morden, Manitoba from the cross FP974 / FP1043 made in 1995 where FP974 = AC Watson, FP1043 =FP935/AC Linora and FP935 = AC Emerson. Pedigree method was used to advance the line with selection criteria of oil content, oil quality, lodging resistance, and rust resistance. Single plant selections were made in the F3 and F5 generations. An F7 line, designated M6217, was selected and evaluated in preliminary yield trials in 2000 and for Fusarium Wilt in the Fusarium Wilt nurseries in Manitoba and Saskatchewan. The line was evaluated as M6217 in 2001 Canadian Flax Evaluation Trial at 7 locations in Manitoba and Saskatchewan and in the Flax Cooperative test from 2002 to 2004.

Tests and Trials: Tests and trials were conducted during the summers of 2006 and 2007 in Morden, Manitoba. Plots consisted of 6 rows that were 5.5 meters in length with a row spacing of 18 centimeters. There were 2 replicates arranged in a Randomized Complete Block (RCB) design.

Comparison table for 'Prairie Thunder'

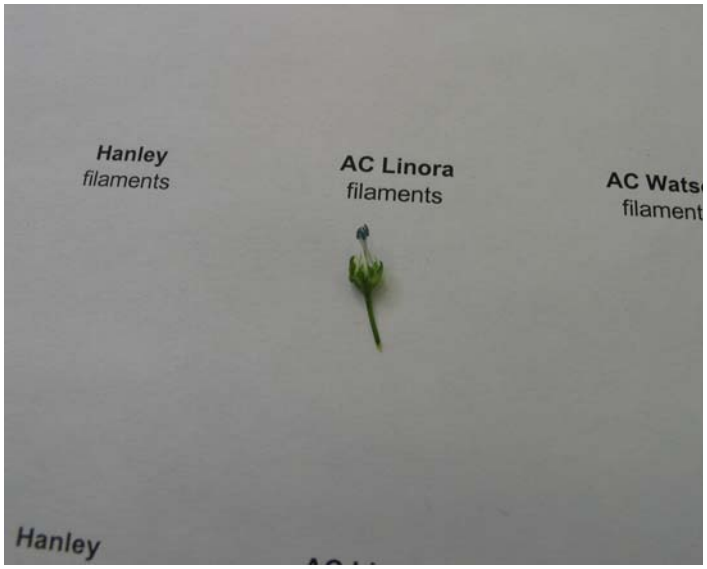
	'Prairie Thunder'	'Hanley'*	'AC Linora'*	'AC Watson'*	'CDC Bethune'*
Plant height (cm)					
mean	54.7	53.2	55.8	49.2	58.1
std. deviation (LSD=2.6)	3.9	7.9	9.6	6.4	4.8
Days to Capsule maturity					
mean	85.5	88.0	88.3	86.5	86.5
std. deviation (LSD=0.9)	7.7	5.2	5.4	7.4	5.5
Protein content (% protein)					
mean	29.2	27.5	26.7	26.2	27.6
std. deviation (LSD=0.5)	1.1	0.8	0.6	0.4	1.0
Oil content (of oven dry mature seed)					
mean	44.2	42.9	45.4	43.7	45.1
std. deviation (LSD=0.8)	1.2	0.6	0.7	0.7	0.8
Stearic acid (% of oil)					
mean	5.2	3.3	3.2	4.7	4.4
std. deviation (LSD=0.7)	0.1	0.2	0.0	0.1	0.1
Oleic acid (% of oil)					
mean	19.0	18.9	20.6	21.6	24.0
std. deviation (LSD=1.7)	0.4	0.2	1.0	0.2	1.0
Linoleic acid (% of oil)					
mean	16.3	16.7	15.9	15.6	14.9
std. deviation (LSD=0.6)	0.6	0.3	0.4	0.6	0.4
Linolenic acid (% of oil)					
mean	54.4	55.3	54.8	53.3	51.7
std. deviation (LSD=1.1)	1.0	0.4	1.2	0.9	1.3

*reference varieties

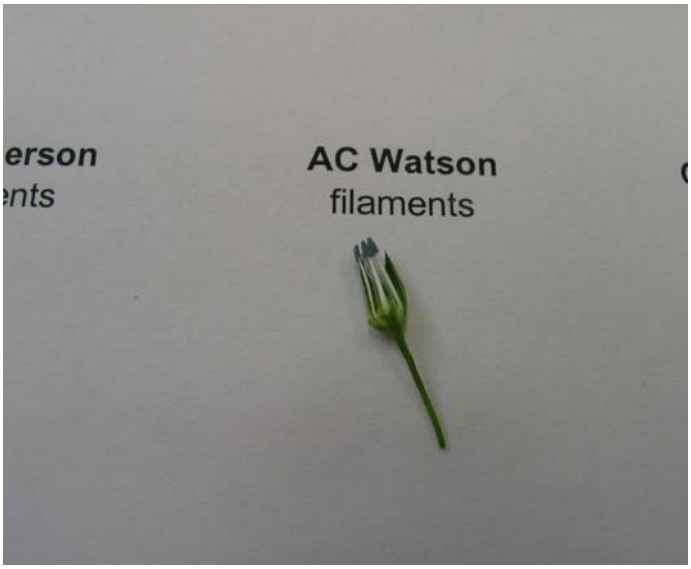


Flax: 'Prairie Thunder'

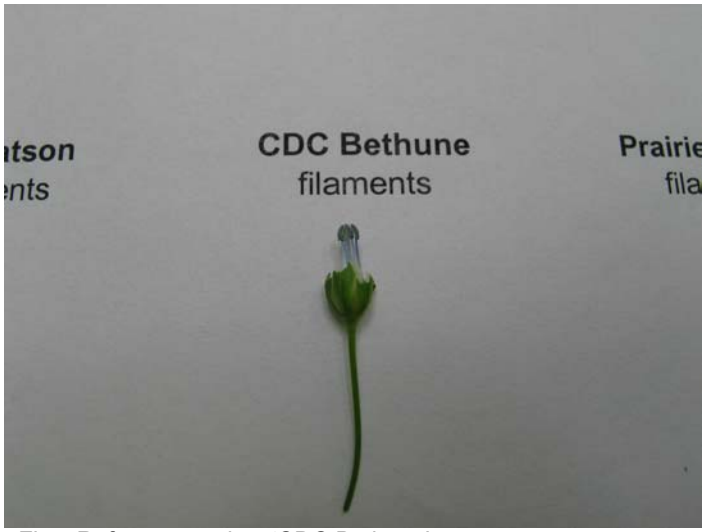
Flax: Reference variety 'Hanley'



Flax: Reference variety ‘AC Linora’



Reference variety ‘AC Watson’



Flax: Reference variety ‘CDC Bethune’