



APPLICATIONS UNDER EXAMINATION

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(Medicago sativa subsp. falcata)

Proposed denomination: 'Yellowhead'
Application number: 05-4961
Application date: 2005/06/08
Applicant: Agriculture & Agri-Food Canada, Swift Current, Saskatchewan
Agent in Canada: Agriculture & Agri-Food Canada, Lacombe, Alberta
Breeder: Dr. Grant McLeod, Agriculture & Agri-Food Canada, Swift Current, Saskatchewan

Varieties used for comparison: 'Anik' and 'Beaver'

Summary: 'Yellowhead' differs from the reference varieties, 'Anik' and 'Beaver' mainly in ploidy, height of fall re-growth, flower colour, pod shape and resistance to bacterial wilt (*Corynebacterium insidiosum*). 'Yellowhead' is a tetraploid whereas 'Anik' is a diploid. The fall re-growth of 'Yellowhead' is taller than that of 'Anik' and shorter than that of 'Beaver'. The flowers of 'Yellowhead' are predominantly yellow whereas they are predominantly yellow-orange in 'Anik' and predominantly variegated in 'Beaver'. The pods of 'Yellowhead' 97% sickle shaped whereas the pods of 'Beaver' are predominantly crescent-shape to coiled in two spirals (70%) with some coiled in one spiral (18%) and three (12%) spirals. 'Yellowhead' is moderately resistant to bacterial wilt (*Corynebacterium insidiosum*) whereas 'Anik' is susceptible and 'Beaver' is resistant.

Description:

PLOIDY: tetraploid

FALL GROWTH HABIT: 8% semi-prostrate, 70% intermediate, 22% semi-erect

STEM: no pubescence

FLOWER: 97% yellow, 3% yellow-green

ROOT: tap to rhizomatous to creeping, narrow crown

POD: 97% sickle shape, 3% crescent-shape to coiled in one spiral, no pubescence

REACTION TO DISEASES: moderately resistant to bacterial wilt (*Corynebacterium insidiosum*)

Origin and Breeding: 'Yellowhead', tested as 'SCMF-3713', was developed by mass selection of *Medicago falcata* populations growing in the wild in the Swift Current, Saskatchewan area. Only plants with pure *M. falcata* flower colour were selected. Selected plants were polycrossed in a growth room and sterile plants were discarded. Further seed increases were carried out in the field at Swift Current and Melfort. Breeder seed plot was established in 1994. Subsequent re-selection for resistance to bacterial wilt took place for 3 cycles thereafter.

Tests and Trials: The tests and trials for 'Yellowhead' were conducted at the Semi-Arid Prairie Agricultural Research Centre, Agriculture and Agri-Food Canada in Swift Current, Saskatchewan during the summers of 2007 and 2008. Trials were arranged using a randomized complete block design (RCBD) with four replicates per variety. Plots consisted of single rows of 30 plants spaced 1 metre apart within the row. Observations were based on a minimum of 60 plants.

Comparison table for 'Yellowhead'

	'Yellowhead'	'Anik'*	'Beaver'*
<i>Mid-summer plant height (cm)</i>			
mean	48.1	43.3	61.1
std. deviation	10.8	10.6	8.1

Fall re-growth, natural plant height (cm)

mean	25.0	20.9	51.4
std. deviation	8.44	6.53	9.32

*reference varieties



Alfalfa: 'Yellowhead'



Alfalfa: 'Anik'



Alfalfa: 'Beaver'