

‘ERICKA’ and ‘ATHENA’
Winter Canola
(*Brassica napus* L.)

‘Ericka’ and ‘Athena’ winter canola (*Brassica napus* L. spp. *oleifera* (Metzg) Sinsk. f. *biennis*) cultivars were developed for use as an edible oil seed (canola-quality) cultivar by the Idaho Agricultural Experiment Station, Moscow, ID 83844. These cultivars are protected by U.S. Plant Variety Protection (Ericka PVP# 9700371 and Athena PVP pending).

Morphology and Crop Quality

Athena and Ericka emerge quickly and produce a good fall stand compared to other control cultivars (Table 1). This is particularly true when planted late in the fall or when re-cropped by seeding into straw stubble. On average Ericka flowered after 131 Julian days while Athena flowers significantly later, on average 128 Julian days. Athena flowering date is not significantly different from Ceres or Olsen (Table 2). Ericka has short stature (on average 53 inches tall) which means that it is particularly resistant to lodging. Plant height of Athena is not significantly different from Ceres or Olsen (Table 3). However, despite plant heights, Athena is lodge resistant and was found to be significantly less likely to lodge compared to Olsen. Ericka is early to maturity, while Athena plant maturity is intermediate, being significantly later than either Ericka or Cascade, but not significantly different from the other control cultivars. Both Ericka and Athena have a determinate growth habit and plants dry down evenly at maturity, an advantage to the grower because these traits can help avoid seedpod shatter and ease the harvest operation

Average oil content of Athena was 40.0%, while Ericka averaged 39.2%, compared to Ceres at 39.3% (Table 4). Oil content of either Ericka or Athena was never significantly lower than the highest oil content control in any of the trials. Oil quality in Ericka and Athena is very high (Table 5). Both cultivars have less than 1 g kg⁻¹ erucic acid, while Ericka has less than 85 g kg⁻¹ linolenic acid, and Athena less than 92 g kg⁻¹ linolenic acid. The remaining fatty acid profile was not significantly different from the high quality cultivar Cascade. Total seed meal glucosinolates in Ericka were low (12.9 μmol g⁻¹) and were moderate to low in Athena (25 μmol g⁻¹) (Table 6). Both cultivars consistently produced seed meal glucosinolate content less than the 30 μmol g⁻¹ "canola-quality" requirement.

Agronomic Performance Trials

Overall 56 site/years of evaluation, Athena produced significantly higher seed yield (3,332 lb acre⁻¹) than any Cascade, Olsen and Ericka (Table 7). Over the same locations Ericka seed yield was not significantly different from either Olsen or Ceres. Yield advantage of Athena was particularly marked in the re-crop sites. Similarly, Ericka showed an advantage over other cultivars when planted later in the fall.

Table 1. Fall crop establishment (1 = poor, 9 = excellent) of ‘Ericka’ and ‘Athena’ and three control cultivars (‘Cascade’, ‘Ceres’, and ‘Olsen’) evaluated from replicated field trials between 1997 and 2002.

Cultivar	Weighted Mean	Rank	2002 (3 sites)	2001 (3 sites)	2000 (3 sites)	1999 (3 sites)	1998 (3 sites)	1997 (3 sites)	
	- 1-9 -		----- 1 to 9 -----						
Ericka	7.5	1	6.9	6.3	7.3	8.4	8.3	7.7	
Athena	6.6	2	6.5	5.6	6.1	7.5	7.1	*	
Cascade	5.4	5	6.5	5.0	5.9	4.2	5.5	5.4	
Ceres	6.0	4	6.7	5.1	5.9	5.5	7.4	5.4	
Olsen	6.1	3	6.7	5.1	5.7	6.0	6.8	*	
s.e.	0.7		0.8	0.4	1.1	1.3	0.9	0.7	

Table 2. Days from January 1 to first flowers of ‘Ericka’ and ‘Athena’ and three control cultivars (‘Cascade’, ‘Ceres’, and ‘Olsen’) evaluated from replicated field trials between 1997 and 2002.

Cultivar	Weighted Mean	Rank	2002 (3 sites)	2001 (3 sites)	2000 (3 sites)	1999 (3 sites)	1998 (3 sites)	1997 (3 sites)	
	- days -		----- days -----						
Ericka	131.1	1	138	137	119	135	126	132	
Athena	133.4	3	139	139	123	141	125	*	
Cascade	131.5	2	137	139	118	138	125	132	
Ceres	133.7	4	138	137	123	141	128	135	
Olsen	134.0	5	139	140	123	141	127	*	
s.e.	1.0		1.2	2.4	2.6	1.9	n.s.	1.2	

Table 3. Plant Height of ‘Ericka’ and ‘Athena’ and three control cultivars (‘Cascade’, ‘Ceres’, and ‘Olsen’) evaluated from replicated field trials between 1997 and 2002.

Cultivar	Weighted Mean	Rank	2002 (3 sites)	2001 (3 sites)	2000 (3 sites)	1999 (3 sites)	1998 (3 sites)	1997 (3 sites)	
	- in -		----- inches -----						
Ericka	53.7	1	53	41	62	52	59	55	
Athena	56.6	3	56	44	65	55	63	*	
Cascade	56.5	2	60	43	64	54	62	56	
Ceres	58.7	5	60	48	65	55	65	59	
Olsen	58.0	4	60	44	70	55	61	*	
s.e.	1.4		3.2	2.4	2.1	0.9	1.3	0.6	

Table 4. Oil content ‘IdaGold’ three control cultivars (‘Cascade’, ‘Ceres’, and ‘Olsen’) evaluated from replicated field trials between 1997 and 2002.

Cultivar	Weighted Mean	Rank	2002 (7 sites)	2001 (7 sites)	2000 (5 sites)	1999 (6 sites)	1998 (3 sites)	1997 (2 sites)
	--- % ---		----- % -----					
Ericcka	39.2	5	38.0	37.9	41.1	38.5	41.4	41.4
Athena	40.0	1	38.6	39.1	41.0	40.3	41.8	41.8
Cascade	39.6	2	38.6	38.7	41.0	39.5	41.3	41.3
Ceres	39.3	4	38.7	38.0	40.8	38.7	41.2	41.2
Olsen	39.4	3	38.1	38.6	41.0	39.9	41.0	*
s.e.	n.s.		n.s.	0.8	n.s.	0.8	n.s.	n.s.

Table 5. Fatty acid profile of ‘Ericcka’ and ‘Athena’ compared to the control cultivar, ‘Cascade’.

Cultivar	16:0 ¹	18:0	18:1	18:2	18:3	20:1	22:1
	----- % Total oil content -----						
Ericcka	4.6	1.9	64.3	17.4	8.5	1.2	0.1
Athena	4.2	1.8	62.6	19.1	9.2	1.2	0.1
Cascade	5.1	1.8	60.4	20.2	10.3	1.5	0.6
s.e.	0.03	0.02	0.15	0.16	0.07	0.01	0.01

¹ 16:0 = palmitic acid; 18:0 = stearic acid; 18:1 = oleic acid; 18:2 = linoleic acid; 18:3 = linolenic acid; 20:1 = eicosenoic acid; 22:1 = erucic acid; and 24:1 = nervonic acid.

Table 6. Glucosinolate profile and total glucosinolate content in the seed meal of ‘Ericcka’, ‘Athena’, and ‘Cascade’. Data presented in parenthesis are standard errors of the means.

Cultivar	Total Glucosinolates	Butenyl †	OH-Butenyl	Pentenyl	OH-Pent
	----- μmol g ⁻¹ -----				
Ericcka	12.92 (0.69)	3.27 (0.27)	0.95 (0.04)	7.37 (0.38)	0.32 (0.02)
Athena	25.48 (0.16)	6.80 (0.04)	1.78 (0.02)	15.86 (0.10)	1.04 (0.02)
Cascade	12.72 (0.53)	3.54 (0.42)	0.81 (0.04)	8.07 (0.40)	0.30 (0.06)

† 3-butenyl glucosinolate, 2-hydroxy-3-butenyl glucosinolate, 4-pentenyl glucosinolate, 2-hydroxy-4-pentenyl glucosinolate.

Table 7. Seed yield of ‘IdaGold’ and three control cultivars (‘Cascade’, ‘Ceres’, and ‘Olsen’) evaluated from replicated field trials between 1997 and 2002.

Cultivar	Weighted Mean	Rank	2002 (9 sites)	2001 (10 sites)	2000 (8 sites)	1999 (8 sites)	1998 (10 sites)	1997 (11 sites)
	- lb/a -		----- lb/acre -----					
Erica	3,148	3	3,127	1,927	3,295	3,264	3,213	4,027
Athena	3,332	1	3,132	2,315	3,316	4,017	3,266	3,998
Cascade	2,550	5	2,749	1,786	2,702	2,341	3,028	2,688
Ceres	3,234	2	3,282	1,672	3,213	3,879	3,556	3,866
Olsen	3,140	4	3,184	2,054	3,094	3,952	3,577	*
s.e.	167		200	258	261	218	301	316