No. 200300307

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Idaho Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

An application requesting a certificate of protection for an alleged distinct variety of sexually reproduced, or tuber propagated plant, the name and description of which are contained in the application and exhibits, a copy of which is hereunto annexed and made a part hereof, and the various requirements of LAW in such cases made and provided have been complied with, and the title thereto is, from the records of the PLANT VARIETY PROTECTION OFFICE, in the applicant(s) indicated in the said copy, and Whereas, upon due examination made, the said applicant(s) is (are) adjudged to be entitled to a certificate of plant variety protection under the LAW.

Now, therefore, this certificate of plant variety protection is to grant unto the said applicant(s) and the successors, heirs or assigns of the said applicant(s) for the term of TWENTY years from the date of this grant, subject to the payment of the required fees and periodic replenishment of viable basic seed of the variety in a public repository as provided by LAW, the right to exclude others from selling the variety, or offering it for sale, or reproducing it, or importing it, or exporting it, or conditioning it for propagation, or stocking it for any of the above purposes, or using it in producing a hybrid or different variety therefrom, to the extent provided by the PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

RAPE, WINTER

'Athena'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the* ***City of Washington, D.C.*** *this twenty-fifth day of March, in the year* ***two thousand and eleven.***

Attest:

Acting Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions* — Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
Idaho Agricultural Experiment Station

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
UI.93WC.4.634

3. VARIETY NAME
Athena

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
University of Idaho,
Moscow, Idaho, 83844-2339

5. TELEPHONE *(include area code)*
(208) 885 7173

6. FAX *(include area code)*
(208) 885 6654

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200300307

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
Agricultural Experiment Station

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

Jack Brown
PSES, CALS
Transfer
PO Box 442339
University of Idaho
Moscow, ID, 83844-2339

Include on all communications: Gaylene Anderson
Office of Technology

PO Box 443003
Morrill Hall 414
Moscow, ID 83844-3003

FEES RECEIVED

FILING AND EXAMINATION FEE
$3,652.00
DATE: 8/14/2003

CERTIFICATE FEE:
$ 768.00
DATE 3/15/2011

11. TELEPHONE (Include area code)
(208) 885 7078

12. FAX (Include area code)
(208) 885 7760

13. E-MAIL
jbrown@uidaho.edu & gaylene@uidaho.edu

14. CROP KIND *(Common Name)*
Winter rapeseed

16. FAMILY NAME *(Botanical)*
Brassicaceae

15. GENUS AND SPECIES NAME OF CROP

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

18. DOES THE VARIETY CONTAIN ANY TRANSGENES? ***(OPTIONAL)***
☐ YES ☒ NO
IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION. _____

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED
(Follow instructions on reverse)

a. ☒ Exhibit A. Origin and Breeding History of the Variety
b. ☒ Exhibit B. Statement of Distinctness
c. ☒ Exhibit C. Objective Description of Variety
d. ☒ Exhibit D. Additional Description of the Variety *(Optional)*
e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
f. ☒ Exhibit F. Declaration Regarding Deposit
g. ☒ Voucher Sample *(3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
h. ☐ Filing and Examination Fee ($4,382), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes", answer items 21 and 22 below)* ☐ NO *(If "no", go to item 23)* ☐ UNDECIDED

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?
☒ YES ☐ NO
IF YES, WHICH CLASSES? ☒ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☒ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☒ YES ☐ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER
Jack Brown

NAME *(Please print or type)*
Jack Brown

CAPACITY OR TITLE
Professor/Plant breeder

DATE
8/5/2003

SIGNATURE OF OWNER

NAME *(Please print or type)*

CAPACITY OR TITLE

DATE

ST-470 (07-01-2009) designed by the Plant Variety Protection Office

(See reverse for instructions and information collection burden statement)

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for $4,382 ($518 filing fee and $3,864 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice).* **NEW:** With the application for a seed reproduced variety **or by direct deposit soon after filing**, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to **reproduce** the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of $768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

Plant Variety Protection Office
Telephone: (301) 504-5518 **FAX:** (301) 504-5291
General E-mail: PVPOmail@usda.gov
Homepage: http://www.ams.usda.gov/science/pvpo/PVPindex.htm

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SPECIFIC INSTRUCTIONS:
To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and **provide evidence** that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, **Seed Regulatory and Testing Branch**, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the
new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

22. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*
Amount of seed sold September 2002 to produce Certifiied seed in 2003. Non-certified seed to be sold for commodity in fall 2003.

24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

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'Athena'
Winter Canola
***Brassica napus* L.**

Exhibit A: Origin and Breeding History

'Athena' is a near-homozygous winter rapeseed cultivar with canola-quality seed oil and canola-quality seed meal, selected for high adaptability to the dryland and irrigated regions of the inland Pacific Northwest.

This cultivar was developed from a single plant selection in 1997 from an F_5 population from the cross Capricorn/CPB.89606. Capricorn is a low erucic acid (less than 20 g kg^{-1}), low glucosinolate content cultivar (less than 30μmol g^{-1} of defatted seed meal, developed by The National Seed Development Organization, England, UK (PVP 8810022). CPB. 89606 is an advanced breeding selection From Cambridge Plant Breeding, England, UK, derived from the cross Tapidor/Lindora-00. Tapidor is a low erucic acid, low glucosinolate cultivar developed by Serasem (PVP 8810066). Lindora-00 is a low erucic acid, low glucosinolate cultivar developed by Deut Saatveredelung, Germany (PVP 8600037).

F_1 seeds from the original cross were produced in spring of 1993 and the F_1 plant generation was increased to F_2 seeds in the greenhouse over winter 1993-1994. Individual F_3 field plants were selected in 1995, and seed threshed separately. Seed from these F_3 plants was screened for glucosinolate content using a glucose sensitive Tes-tape procedure (Lein, 1970), and fatty acid profile. Selected single plant selections were planted as F_3 head-rows (2-rows x 6 m) at a single location in northern Idaho in the fall of 1995. At harvest (summer 1996) each F_3 head-rows were visually assessed and specific head rows selected according to pod appearance, earliness, short plant stature, lodging resistance, insect and sclerotinia white mold resistance. Ten single plant selections were taken from each selected plot. In addition, the remainder of the head-row plot was hand harvested and threshed as a head-row bulk. The 10 single plant selections were evaluated for oil content, glucosinolate content and fatty acid profile, and planted as head-row plots (2-row x 6 m) in an F_4 replicated nested design in fall of 1996, where each family was represented by 2 randomized plots, each containing five head-row plots grown adjacently. In addition to the head-rows, each family was evaluated in replicated yield trials at two locations in 1996-1997 for yield and a range of other morphological characters using the head-row bulk seed. At harvest in 1997, the "best" families were selected based on the performance of the bulk populations from the replicated yield trials.

Thereafter, the F_5 head-row plots were visually inspected and the most desirable individual head-rows identified. As in 1996, the remainder of the plot was harvested and threshed by hand and this head-row bulk was used to plant replicated yield trials at four locations in the 1997-1998 growing season. The process of single plant selection and head-row plots was repeated in the 1998-1999 season (F_6). At 1999 harvest, 400 F_7 single plants were selected and were used to plant Breeders' Seed in the fall of 1999. The 400 selections were made by visually inspecting each plant to have the same general plant morphology (i.e. same plant height, leaf shape, etc.). At harvest in 2000, a further 200, now F_8 single plants were

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selected from the Breeders' Seed using the same criteria as in 1999, and used to plant Foundation Seed in fall of 2000. Throughout the later stages of Athena seed increases including pre-Breeders seed, Breeders seed, Foundation seed and Certified seed production no variants were observed over this four year period. Athena was observed to be uniform and stable during this period of time.

References

(bt: 7/21/2010 per applicant's authorization)

Lein, K.A., 1970. Methods for quantitative determination of seed glucosinolates of *Brassica* spp. and their application in plant breeding of rape low in glucosinolate content. *Z. Planzenzuecht* 63:137-154.

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'Athena'
Winter Canola
***Brassica napus* L.**

Exhibit B: Statement of Distinctness

Athena is most similar in plant appearance to the cultivar Ericka (Brown et al., 1997). However, Athena plants flower significantly later than those from Ericka (Table 1). In addition, the lower leaves of Athena have moderate to high lobing and no clasping, while the lower leaves of Ericka have less lobing and are highly clasped around the stem (Figure 1).

Table 1. Days from January 1 to first flowers of 'Athena' and 'Ericka' evaluated from replicated field trials in 2001 and 2003.

	2000		2002	
Cultivar	Moscow	Genesee	Moscow	Genesee
	---------- Julian Days ----------			
Athena	125.5	128.0	139.5	136.8
Ericka	119.2	131.8	134.2	134.0
LSD 5%	2.13	1.66	1.04	1.35

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Figure 1. Lower leaves of Athena and Ericka at flowering.

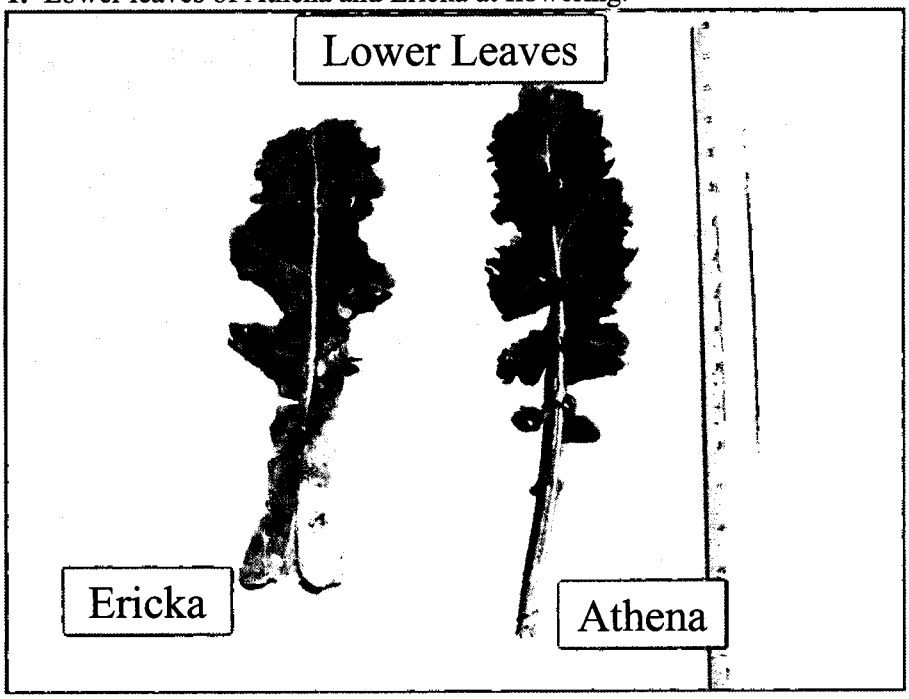
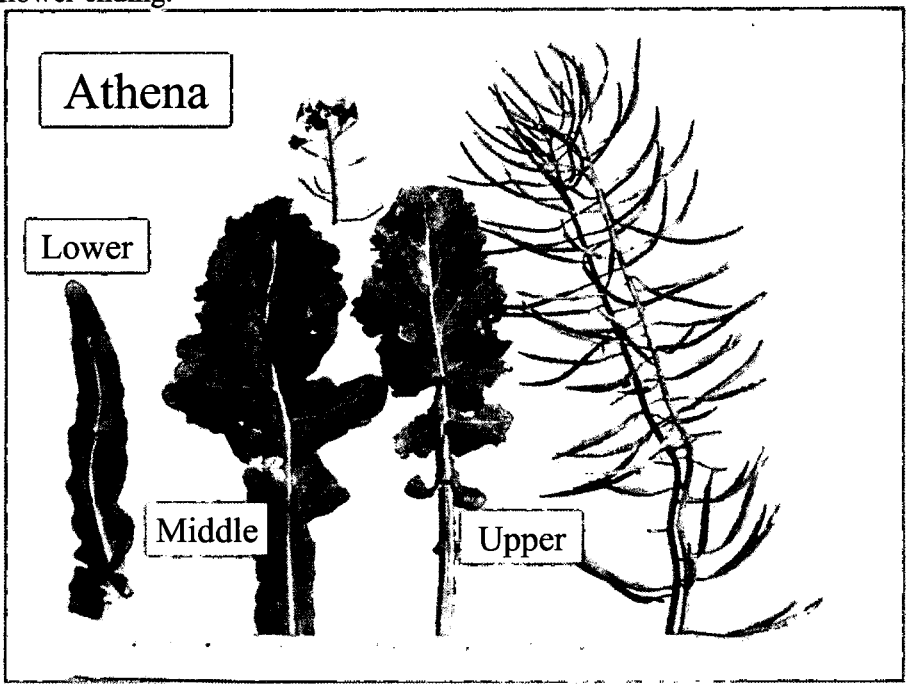


Figure 2. Lower, middle and upper leaves, main raceme, and flower of Athena just before flower ending.



U.S. DEPARTMENT OF EXHIBIT C
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY
RAPESEED (*Brassica napus* and *B. campestris*)

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME
Idaho Agricultural Experiment Station	UI.93.WC.4.634	Athena

ADDRESS ***(Street and No. or RD No., City, State, Zip Code, and Country)***

University of Idaho

Moscow, Idaho, 83844-2339

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PVPO NUMBER

#200300307

1. SPECIES

* _X_ Brassica napus ___ Brassica campestris

2. TYPE

* ___ Spring _X_ Winter

3. **PLANT HEIGHT** (at pod maturity)

_1_ _4_ _4_._0_ cm Tall (compare to standard variety below)

___ _4_._8_ cm shorter than Check variety: _Ceres_

Height same as Check variety: _Cascade_

___ _8_._2_ cm taller than Check variety: _Ericka_

* Height Class: _3_ Autumn sown ___ Spring sown

1 = Short (Candle) 1 = Short (Erglu)
2 = Medium short ( ) 2 = Medium short ( )
3 = Medium (Jet Neuf) 3 = Medium (Cresus)
4 = Medium tall ( ) 4 = Medium tall ( )
5 = Tall (Dwarf Essex) 5 = Tall (Petranova)

4. STEM ANTHOCYANIN

_1_ 1 = Absent 2 = Weak 3 = Medium 4 = Strong

5. **SEED COTYLEDONS** (maximum width fully developed; mean of 50 graded seeds)

_2_ 1 = Narrow (Erglu) 2 = Medium (Primor) 3 = Broad (Expander)

6. **SEEDLING GROWTH HABIT** (leaf rosette)

_1_ 1 = Upright 2 = Prostrate (short photoperiod)

7. LEAVES

* _3_ Margins (serration): 1 = Absent or very weak (Akela) 2 = Weak (Arvor, Jet Neuf) 3 = Medium (Primor) 4 = Strong (Candle, Kentan)

* _4_ Lobing (fully developed leaf on plant or rosette)
1 = Absent or very weak (Akela) 2 = Weak (Arvor) 3 = Medium (Primor)
4 = Medium Strong (Argus) 5 = Strong (Kentan)

* _3_ Leaf Attachment to Stem: 1 = Fully clasping (Candle) 2 = Partial clasping (Jet Neuf) 3 = No Clasping ( )

* _3_ Color: 1 = Light green (Arvor) 2 = Medium green (Primor) 3 = Medium dark green (Oro) 4 = Dark green (Brunowski, Rapora)

* _1_ Glaucosity: 1 = Absent 2 = Weak (Span) 3 = Weak to Medium (Gulliver) 4 = Medium (Magnus) 5 = Medium to strong (Oro) 6 = Strong

---

8. FLOWERS

* _1_ Flower Buds Location 1 = Buds at tip of apical meristem (Jet Neuf) 2 = Buds immediately below apical meristem (Candle)

* _2_ Petal color: 1 = Pale yellow ( ) 2 = Yellow (Jet Neuf, Primor) 3 = Orange ( ) 4 = White ( )

* _1_ Anther dotting (at opening of flower; given percentage %) 1 = Absent ( ) 2 = Few ( ) 3 = Medium (Primor) 4 = Many ( )

* _4_ Flowering class (Autumn sown) _x_ Flowering class (Spring sown)

1 = Very early (Arvor)	1 = Very early (Tower)
2 = Early (Primor)	2 = Early (Kosa)
3 = Medium early ( )	3 = Medium early ( )
4 = Medium late (X)	4 = Medium late ( )
5 = Late (Marcus)	5 = Late (Petranova)
6 = Very late ( )	6 = (Very late)

---

9. **PODS** (Slique)

* _1_ Pod type: 1 = Bilateral single pod (Jet Neuf) 2 = Other ( )

* _2_ Silique beak length: (given length:_13.14_ mm)1 = Short (Forto) 2 = Medium (Liragold) 3 = Long (Rapol)

* _2_ Pod length; (give length: _70_._68_ mm) 1 = Short ( ) 2 = Medium (X) 3 = Long ( )

* _2_ Pod width; (give width: _4_._6_ mm) 1 = Narrow ( ) 2 = Medium (X) 3 = Wide ( )

* _4_ Pod habit: 1 = Erect (Gulliver) 2 = Semi-erect to erect (Oro) 3 = Semi-erect 4 = Horizonal to semi-erect (Brink) 5 = Horizonal

* _2_ Pedicel length: (given length _20.86_ mm) 1 = Very short ( ) 2 = Short ( ) 3 = Long ( )

* _2_ Ripening Class (Autum sown): 1 = Very early ( ) 2 = Early (X) 3 = Medium ( ) 4 = Late ( ) 5 = Very late ( )

* _2_ _0_ _7_ Days to Maturity

* __ _1_ Days earlyier than Check variety: _Olsen_

* Maturity same as Check variety: _Ceres_

* ___ _7_ Days later than Check variety: _Ericka_

---

10. SEEDS

* _5_._1_ g/1000 unsized seed

* ___.___ g less than Check variety: _____

* Weight same as Check variety: _Ericka_

* _0_._5_ g more than Check variety: _Cascade_

* _4_ Weight Class (grams): 1 = less than 3.0 (Candle) 2 = 3.0 – 3.9 ( ) 3 = 4.0 – 5.0 (Jet Neuf) 4 = more than 5.0 (X)

_2_ Seeds Per Pod: (give number: _24.14_ per pod): 1 = Low ( ) 2 = Medium (X) 3 = High ( )

* _4_ Testa Color: 1 = Black (Jet Neuf) 2 = Red ( )
3 = Yellow (Yellow Sarson) 4 = Dark to black (X)
5 = Reddish-brown to black ( ) 6 = Other _____

11. CHEMICAL COMPOSITION OF SEED #200300307

* 1 Euric Acid: 1 = Low (less than 2%) 2 = Intermediate 3 = High (more than 50%)

* 1 Glucosinate Content; (give: 2 5.0 µmol/gram of defatted seed meal)
1 = Low – less than 30 µmol/gram of defatted seed meal (Candle) 2 = High – More than 30 µmol/gram of defatted seed meal (Mikado)

* 40.0 % Oil

___.___ % Protein (oil free meal)

Fatty Acid Composition (%):

	Palmitic	Stearic	Oleic	Linoleic	Linolenic	Eicosenoic	Erucic
	16:0	18:0	18:1	18:2	18:3	20:1	22:1
*	4.2	1.8	62.6	19.1	9.2	1.2	0.1

12. **FROST TOLERANCE** (Late spring frosts)

* 4 Tolerance: 1 = Not hardy – susceptible (Indore) 2 = Moderately suscesptible ( ) 3 = Moderately resistant ( ) 4 = Hardy (Bridger)

13. LODGING RESISTANCE

* 3 Resistance: 1 = Weak (Span) 2 = Moderately weak (Olga) 3 = Moderately strong (X) 4 = Strong (Torpe)

14. HERBICIDE RESISTANCE

* 1 Atrazine: 1 = Susceptible (Jet Neuf) 2 = Resistant ( )

* ___ Other _____: 1 = Suscept) 4 = Hardy (Bridger)

15. **DISEASE RESISTANCE** (0 = Not tested 1 = Susceptible 2 = Low resistance 3 = Moderate resistance 4 = High resistance)

* 0 Selerotinia Stem Rot (Scerotinia sclerotiorum)

* 0 Black Let, Stem Canker (*Leptosphaeria maculans, Plenodomus lingum, Phoma lingam*)

* 0 White Rust (*Albugo candida, A. Cruciferrarum*)

* 0 Light Leaf Spot (*Pyrenopeziza brassicae*)

* 0 Downy Mildew (*Peronospora parasitica*)

* 0 Rhizoctonia Root Rot (*Rhizoctonia solani*)

* 0 Alternaria Black Spot (*Alternaria brassicicola*)

* 0 Other _____

16. **COMMENTS** (Please give any additional comments which characterizes the variety)

Glucosinolate composition of seed meal (µmol g^{-1} defatter seed meal

Butenyl	OH Butenyl	Pentenyl	OH Pentenyl
6.80	1.78	15.86	1.04

17. DIRECTIONS

Select the number which characterizes the variety in the features above. Those characteristics marked with an asterisk "*" should be recorded. Any others should be recorded if possible to help establish novelty or uniqueness. Characteristics described, including numerical measurements, should represent those that are typical for the variety. Give test area _____ conditions _____.

'Athena'
Winter Canola
***Brassica napus* L.**

Exhibit D: Additional Description of Variety

After fall seeding, Athena seedlings emerges quickly and produce a good fall stand compared to other check cultivars. This is particularly true when planted late in the fall or when re-cropped by direct seeding into straw stubble. Athena has medium sized cotyledons and an upright juvenile growth habit. Athena vegetative and lower plant leaves have moderate to high lobing, while middle and upper leaves have less lobing (Figure 2). Lower leaves have no clasping around the stem. Athena bilateral single pods are of medium length.

After flower ending Athena plants were on an average 144 cm tall compared to Ericka which has shorter stature (on average 136 cm tall) (Table 2). Ericka is over 7 days earlier to maturity, while Athena plant maturity is intermediate (207 Julian days) (Table 3). 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%, and was not significantly higher than Ericka which averaged 39.2% oil content (Table 4). 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 slightly lower linolenic acid (85 g kg^{-1}) than Athena (92 g kg^{-1}). Otherwise, the remaining fatty acid profile was not different from each other. Total seed meal glucosinolates in Ericka were low (12.9 μmol g^{-1}) but are only moderate to low in Athena (25 μmol g^{-1}) (Table 6). However, Athena consistently produced seed meal glucosinolate content less than the 30 μmol g^{-1} "canola-quality" requirement.

Athena was evaluated in field trials in Idaho, Washington and Oregon for six growing seasons from 1996-1997 to 2001-2002. The evaluations trial conducted from the 1998-1999 season to the 2001-2002 season were part of the Pacific Northwest Winter Canola Variety Trials (Brown *et al.*, 1999, 2000, 2001, 2002). Performance was compared to four commercially available cultivars: 'Ericka'; 'Ceres'; 'Cascade'; and 'Olsen'. The cultivars Ericka (Brown et al., 1997), Cascade (Auld et al, 1987), Ceres, and Olsen have occupied almost the total acreage of winter canola in the region over the past 10 years. Field trials were planted using bulked seed remaining from the breeders' seed increase single plant plots. Over 56 evaluation trials, Athena produced higher seed yield (3,332 kg ha^{-1}) than any check cultivar (Table 7). Athena showed high adaptation to later planting and direct seeding into cereal stubble. Yield advantage of Athena was particularly marked in these conditions. Athena was the highest yielding entry in five of the six years tested and ranked second highest yielder in the other year.

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References

Brown, J., D.A. Erickson, J.B. Davis, A.P. Brown, L. Seip & D.L. Auld, 1997. Registration of 'Ericka' winter rapeseed. *Crop Sci.* **38**:543.

Table 2. Plant height of 'Ericka' and 'Athena' evaluated from replicated field trials between 1997 and 2002.

Cultivar	Mean	Rank	2002 (3 sites)	2001 (3 sites)	2000 (3 sites)	1999 (3 sites)	1998 (3 sites)	1997 (3 sites)
	- cm -		---------- cm ----------					
Ericka	136	1	135	104	157	132	150	140
Athena	144	2	142	112	165	140	160	*
LSD 5%	3.6		8.1	6.1	5.3	2.2	3.3	-

Table 3. Days from January 1 to full crop maturity of 'Ericka' and 'Athena' evaluated from replicated field trials between 1997 and 2002.

Cultivar	Mean	Rank	2002 (3 sites)	2001 (3 sites)	2000 (3 sites)	1999 (3 sites)	1998 (3 sites)	1997 (3 sites)
	- days -		---------- Julian Days ----------					
Ericka	199.8	1	204	205	185	209	196	200
Athena	207.0	2	207	210	195	214	209	*
LSD 5%	1.84		3.22	3.68	3.68	4.38	3.45	-

Table 4. Oil content 'Athena' and 'Ericka' evaluated from replicated field trials between 1997 and 2002.

Cultivar	Mean	Rank	2002 (7 sites)	2001 (7 sites)	2000 (5 sites)	1999 (6 sites)	1998 (3 sites)	1997 (2 sites)
	--% --		---------- % ----------					
Ericka	39.2	2	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
LSD 5%	n.s.		n.s.	1.09	n.s.	1.71	n.s.	n.s.

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Table 5. Fatty acid profile of 'Athena' Foundation seeds and 'Ericka'.

Cultivar	16:0[1]	18:0	18:1	18:2	18:3	20:1	22:1
	% Total oil content						
Ericka	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

[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 'Athena' Foundation seed and 'Ericka'. Data presented in parenthesis are standard errors of the means based on 50 independent samples.

Cultivar	Total Glucosinolates	Butenyl [†]	OH-Butenyl	Pentenyl	OH-Pent
	$\mu mol\ g^{-1}$				
Ericka	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)

[†] 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	Mean	Rank	2002 (9 sites)	2001 (10 sites)	2000 (8 sites)	1999 (8 sites)	1998 (10 sites)	1997 (11 sites)
	-lb/a-		lb/acre					
Athena	3,332	1	3,132	2,315	3,316	4,017	3,266	3,998
Ericka	3,148	3	3,127	1,927	3,295	3,264	3,213	4,027
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	*
LSD 5%	327		397	511	517	432	399	623

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Idaho Agricultural Experiment Station	UI.93WC.4.634	~~Atehna~~ Athena (Lot: 3/15/2010)
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(Include area code)*	**6. FAX** *(Include area code)*
University of Idaho Moscow, Idaho 83844-2339	(208) 885-7173	(208) 885-6654
	7. PVPO NUMBER 200300307	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** [X] **YES** [ ] **NO**

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** [X] **YES** [ ] **NO**

10. Is the applicant the original owner? [X] **YES** [ ] **NO** **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
[X] **YES** [ ] **NO** **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
[X] **YES** [ ] **NO** **If no, give name of country**

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

This cultivar was developed entirely at the University of Idaho.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.

2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.

3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.