

No.



201100364

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Peak Plant Genetics, LLC and Rutgers,
The State University of New Jersey**

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. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

FESCUE, CHEWINGS

'Radar'



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 eleventh day of March, in the year two thousand and fourteen.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

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

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).

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

1. NAME OF OWNER 1) Peak Plant Genetics, LLC 2) Rutgers, The State University of New Jersey		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME MVS-FRC-101	3. VARIETY NAME Radar
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 1) PO Box 359 Jefferson, OR 97352, USA 2) Rutgers University - Cook Campus 88 Lipman Drive, New Brunswick, NJ 08901, USA		5. TELEPHONE (include area code) 541-905-3463	FOR OFFICIAL USE ONLY PVPO NUMBER 201100364 FILING DATE April 13, 2011
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) 1) Limited Liability Company 2) University		6. FAX (include area code) N/A	
8. IF INCORPORATED, GIVE STATE OF INCORPORATION 1) OR	9. DATE OF INCORPORATION April 24, 2008		FILING AND EXAMINATION FEES: \$ 4382.00 DATE 04/13/2011 CERTIFICATION FEE: \$ DATE
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Stephen W. Johnson Peak Plant Genetics, LLC PO Box 359 Jefferson, OR 97352			

11. TELEPHONE (Include area code) 541-905-3463	12. FAX (Include area code) N/A	13. E-MAIL peakplantgen@peak.org
14. CROP KIND (Common Name) Chewings Fescue	16. FAMILY NAME (Botanical) Graminae	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
15. GENUS AND SPECIES NAME OF CROP Festuca commutata <i>tubra susp.</i>	17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Exhibit F. Declaration Regarding Deposit g. <input checked="" type="checkbox"/> 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. <input checked="" type="checkbox"/> Filing and Examination Fee (\$4,382), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)
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? <input type="checkbox"/> YES <input checked="" type="checkbox"/> 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.)		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) <input type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input checked="" type="checkbox"/> NO (If "no", go to item 23) <input type="checkbox"/> UNDECIDED
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.		21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED
24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)		22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)

SIGNATURE OF OWNER 	SIGNATURE OF OWNER
NAME (Please print or type) Stephen W. Johnson	NAME (Please print or type) Bradley Hillman
CAPACITY OR TITLE President	CAPACITY OR TITLE Sr. Assoc. Director NJAES
DATE 4/11/11	DATE 2/4/11

dbc 07/15/2013

dbc 07/15/2013

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 initiated 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>

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/sg/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.)

Breeder seed is maintained by DLF International Seeds, Halsey, Oregon. Foundation stands may only be planted from breeder seed. Registered stands may be established from either Foundation or Breeder Seed. Certified fields may be established from Breeder, Foundation, or Registered seed. Foundation and Registered class fields will be limited to three harvests of Foundation or Registered production followed by four additional harvests as Certified class production. Certified class fields will be limited to seven years of seed production. Additional years of seed production may be approved by the breeder or an individual designated by the breeder.

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.)

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).)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

EXHIBIT A

Origin and Breeding History of Radar Chewings Fescue

Radar Chewings fescue (*Festuca rubra* L. subsp. *commutata* Gaud.) was bred from 153 plants. Radar was developed for improved seed yield and turf performance, dark bright green color, a high percentage of leaves in the canopy, freedom from disease and medium maturity.

Fifty-eight percent of the clones trace maternally to plants related to Longfellow Chewings fescue and its associated endophyte which is referred to as the Cambridge endophyte. This was discovered in plants selected from Longfellow Park in Cambridge, MA. Twelve percent trace maternally to plants selected from 4 Delaware Drive in East Brunswick, NJ. Ten percent trace to plants related to Treazure Chewings fescue. Nine percent trace maternally to the Longfellow crossed with Banner and Shadow germplasm sources. Seven percent trace maternally to plants collected from Italy in 2003. Two percent trace to plants collected from France in 2003. One percent trace to plants collected from Slovenia in 2003. Another one percent trace to plants collected from a golf course in Sweden in 2002.

The germplasm used in the development of Radar Chewings fescue was developed using a germplasm and population improvement program initiated at the New Jersey Agricultural Experiment Station in 1962. The most promising plants used in this program were selected from old lawn-type turfs on the grounds of Fort Mc Henry, Baltimore, MD, Johnson Park in Piscataway, NJ, the College Avenue Campus of Rutgers University, New Brunswick, NJ, the Bridgehampton Golf Course, Bridgehampton, NY, Longfellow Park in Cambridge, MA, Westview Cemetery in Atlanta, GA, old parks in Philadelphia, PA, Tennant Cemetery, in Tennant, NJ, and a lawn located at 4 Delaware Drive in East Brunswick, NJ.

Although Chewings fescue originated in Europe and performs best in cool-summer climates typical of northwestern Europe and the British Isles, millions of kilograms of seed have been used in turfgrass mixtures throughout the eastern United States. The performance of common types of Chewings fescue has been reasonably good on moderately fertile, moderately acid, well drained soils in the cool-summer parts of New England and upstate New York, especially under conditions where light shade with adequate air circulation produce a cooling effect. In warmer regions, only a few elite plants have survived in old turfs. Many of these rare, outstanding plants have persisted and spread to produce attractive patches of turf often exceeding one or two meters in diameter. Such patches can be found in old turfs as far south as Atlanta, GA. The origin of these plants is unknown. However, selected plants appeared to be many decades old.

An intensive germplasm collection effort was initiated by Rutgers University in 1962 to select and utilize the best plants surviving in old turfs. Many weeks were spent examining old turfs for attractive, well-adapted plants of Chewings fescue and other useful turfgrasses. Promising plants selected from old turfs were subjected to clonal and progeny evaluation in closely mowed turf trials and spaced-plant nurseries. Of over a thousand Chewings fescue plants collected, only a few dozen were saved for further breeding work. These elite selections were crossed with other promising selections from the germplasm collection program or from current

cycles of the breeding program. Progenies from these crosses were included in population improvement programs, which included screening in a greenhouse for improved disease resistance, in spaced-plant nurseries for increased seed yield and uniformity, and in closely mowed turf trials for improved turf performance and increased stress tolerance. The Cambridge endophyte and the Delaware endophyte were introduced into the germplasm base through population backcrossing. Extensive screening for improved disease resistance was conducted under greenhouse conditions as well as in spaced-plant nurseries and closely mowed turf trials at North Brunswick, and Adelphia, NJ.

Additionally, a European collection programs was initiated in 1996 to diversify the germplasm of Chewings fescue available at the New Jersey Agricultural Experiment Station. Since 1996, this collection effort has resulted in the addition of several hundred new germplasm sources. These sources have been introgressed into the NJAES Chewing fescue germplasm using population improvement and recurrent selection breeding techniques.

In the fall of 2004, tillers were selected from better performing turf plots from the 2002 and 2003 fine fescue trials at Adelphia, NJ. Twelve single-plot progenies were selected from the 2002 trial and seventeen were selected from the 2003 trial. The plants were established in greenhouse flats prior to their transfer to a mowed spaced-plant evaluation trial established in the spring of 2005 at the Rutgers Horticultural Research Farm #2 in North Brunswick, NJ. After a summer of severe drought and heat stress, the best performing clones were selected from this evaluation trial in the spring of 2006 and incorporated into two crossing blocks based on maturity. Seed was harvested from these plants and germinated in the greenhouse in the spring of 2007. Individual seedlings were placed into separate cells and maintained in the greenhouse for approximately eight weeks.

In the spring of 2007, these plants were used to establish a spaced-plant nursery at the Rutgers Plant Biology and Pathology Research and Extension Farm in Adelphia, NJ containing 2,688 plants. In the spring of 2008, 155 plants were selected from this nursery for dark bright green color, high seed yield potential, a high percentage of leaves in the canopy, freedom from disease and medium maturity and moved to an isolated crossing block. One hundred and fifty-three plants with excellent floret fertility were harvested and bulked together to produce Breeder seed of Radar. This seed source was used to enter into the National Fine Fescue Trial sponsored by the National Turfgrass Evaluation Program. The remainder of the seed was sent to Peak Plant Genetics, Jefferson, Oregon in the summer of 2008 for increase and PVP analysis.

The variety Radar has appeared uniform and stable during multiplication from breeder generation to foundation generation in the years 2008-2009. Radar has a small percentage (<0.05%) of variant plants that are somewhat taller and coarser than the rest of the population. The percentage of these plants appears to be stable when seed is multiplied from breeder to foundation seed.

EXHIBIT B

Statement of Distinctness

Radar Chewings fescue (*Festuca rubra* L. subsp. *commutata* Gaud.) is a cool-season bunch grass developed for use in turf.

Radar is most similar to the variety Longfellow II. Radar differs from this variety in characteristics including, but not necessarily limited to the following:

- 1) Radar has a significantly shorter plant height at maturity (72.6 cm vs 79.0 cm; see Table 2).
- 2) Radar has a significantly lower flag leaf height (24.7 cm vs. 30.1 cm; see Table 2).
- 3) Radar has a significantly shorter lemma length (4.89 vs. 5.25 mm; see Table 3).

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

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

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Fine Leaved Fescues (*Festuca* spp.)

NAME OF APPLICANT (S) 1) Peak Plant Genetics, LLC 2) Rutgers, The State University of New Jersey	TEMPORARY OR EXPERIMENTAL DESIGNATION MVS-FRC-101	VARIETY NAME Radar
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country) 1) PO Box 359, Jefferson, OR 97352 2) Rutgers University - Cook Campus 88 Lipman Drive, New Brunswick, NJ 08901	FOR OFFICIAL USE ONLY PVPO NUMBER 201100364	

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Use leading zeroes when necessary (e.g., or). Characteristics described including numerical measurements, should represent those that are typical for the variety. Measured data should be for SPACE PLANTS. Royal Horticultural Society or any recognized color fan may be used to determine plant colors; designate system used: 1-9 scale; 9= very dark green

Describe location of test area, conditions and number of plants used: Jefferson, OR, 3 reps of 20 plants (60 plants total)

1. SPECIES: (With comparison varieties for use below – use varieties within species of application variety)

- | | | | | |
|--------------------------------|--|---------------|---------------------|----------------|
| <input type="text" value="1"/> | 1 = <i>F. rubra</i> spp. <i>commutata</i> (Chewings) | 11 = Cascade | 12 = Highlight | 13 = Jamestown |
| | 2 = <i>F. rubra</i> spp. <i>litoralis</i> (Creeping Red) | 14 = Banner | 15 = Barfalla | 23 = Merlin |
| | 3 = <i>F. rubra</i> spp. <i>rubra</i> (Spreading Red) | 21 = Dawson | 22 = Starlight | |
| | 4 = <i>F. ovina</i> (Sheep) | 24 = Pennlawn | 32 = Ruby | 33 = Fortress |
| | 5 = <i>F. longifolia</i> (Hard) | 31 = Boreal | 34 = Ensylva | |
| | 6 = <i>F. tenuifolia</i> (Fine-Leaved Sheep) | 41 = Covar | 52 = Biljart (C-26) | 53 = Scaldis |
| | 7 = Other (Specify) <u>F.</u> | 51 = Durar | 61 = Panda | 62 = Barok |

2. CYTOLOGY:

Chromosome Number Ploidy 1 = diploid 2 = tetraploid 3 = hexaploid 4 = octoploid

3. ADAPTATION: (0 = Not Tested, 1 = Not Adapted, 2 = Adapted)

Northeast Southeast North Central Pacific Northwest Other (Specify) _____

4. MATURITY: Date First Headed (Panicle Emergence) Location(s) of Trail(s) Jefferson, Oregon

Maturity Class:
1 = Very Early (Covar) 2 = Early (Highlight) 3 = Medium Early (Boreal, Dawson) 4 = Medium Late (Cascade, Ruby)
5 = Late (Jamestown, Agram) 6 = Very Late
Date Headed May 14

4. MATURITY: (continued)

<input type="text" value="0"/> <input type="text" value="7"/>	Days earlier than	<input type="text" value="1"/> <input type="text" value="3"/>	} Comparison Variety
	Maturity Same as	<input type="text" value="1"/> <input type="text" value="4"/>	
<input type="text" value=""/> <input type="text" value=""/>	Days later than	<input type="text" value=""/> <input type="text" value=""/>	

5. PLANT HEIGHT: (At Maturity; to Top of Panicle; Average of 10 Tallest Culms)

<input type="text" value="7"/> <input type="text" value="2"/> <input type="text" value="6"/>	mm Height		} Comparison Variety
<input type="text" value=""/> <input type="text" value="8"/> <input type="text" value="3"/>	mm shorter than	<input type="text" value="1"/> <input type="text" value="3"/>	
	Height the same as	<input type="text" value=""/> <input type="text" value=""/>	
<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	mm taller than	<input type="text" value=""/> <input type="text" value=""/>	

6. GROWTH HABIT: (Mature)

<input type="text" value="2"/>	1 = Erect (Ruby)	2 = Semi-erect (Highlight)	3 = Prostrate (Silvana)
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7. RHIZOMES:

<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	mm Length	<input type="text" value=""/> <input type="text" value=""/>	mm Width	<input type="text" value=""/> <input type="text" value=""/>	mm Internode Length
<input type="text" value="1"/>	1 = Absent (Highlight)	2 = Weakly Creeping (Dawson)	3 = Strongly Creeping (Boreal)		
	4 = Very Strongly Creeping (Fortress)				

8. LEAF BLADE:

<input type="text" value="4"/>	Color:	1 = Light Green (Starlight)	2 = Medium Light Green (Highlight)	3 = Medium Dark Green (Ruby, Agram)
		4 = Dark Green (Jamestown, Manoir)	5 = Bluegreen (Saphir)	6 = Graygreen (Scaldis)
		7 = Other (Specify)		

<input type="text" value="1"/>	Glaucoity (Sowing Year):	1 = Absent (Koket)	2 = Present (Vendome)
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<input type="text" value="2"/>	Anthocyanin:	1 = Absent	2 = Present	<input type="text" value="1"/>	Hairs (Basal):	1 = Absent	2 = Present
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<input type="text" value="1"/>	Margins:	1 = Smooth	2 = Semi-rough	3 = Rough
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<input type="text" value="2"/>	Margin folding (closure):	1 = Rolled inward (closed-Highlight)	2 = Flat (open-Jamestown, Engina)
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<input type="text" value="2"/>	Width class:	1 = Very Fine (Agram, Frida)	2 = Fine (Jamestown, Highlight, Banner, Dawson)
		3 = Medium Fine (Fortress, Ruby Scaldis)	4 = Medium Coarse (Engina)

<input type="text" value="0"/> <input type="text" value="7"/> <input type="text" value="2"/>	mm Length (flag leaf)
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<input type="text" value="2"/> <input type="text" value="5"/>	mm Shorter than	<input type="text" value="1"/> <input type="text" value="4"/>	} Comparison Variety
	Blade length same as	<input type="text" value="1"/> <input type="text" value="3"/>	
<input type="text" value=""/> <input type="text" value=""/>	mm Longer than	<input type="text" value=""/> <input type="text" value=""/>	

<input type="text" value="2"/> <input type="text" value="8"/> <input type="text" value="0"/>	mm Width (flag leaf)
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<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	mm Narrower than	<input type="text" value=""/> <input type="text" value=""/>	} Comparison Variety
	Blade width same as	<input type="text" value="1"/> <input type="text" value="4"/>	
<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	mm Wider than	<input type="text" value=""/> <input type="text" value=""/>	

9. LEAF SHEATH:

<input type="text" value="2"/>	Anthocyanin (seedling):	1 = Absent (Highlight)	2 = Present (Jamestown, Fortress, Marga)
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<input type="text" value="1"/>	Auricle Hairiness:	1 = Absent	2 = Present
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<input type="text" value="2"/>	Margins:	1 = Open (Highlight)	2 = Closed (Jamestown)
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10. PANICLE: (Mature plant)

<input type="text" value="2"/>	Shape:	1 = Narrow-tapering	2 = Ovate	3 = Oblong	4 = Other (Specify) _____
<input type="text" value="2"/>	Type:	1 = Open	2 = Intermediate	3 = Compact	
<input type="text" value="1"/>	Orientation:	1 = Erect	2 = Nodding		
<input type="text" value="1"/>	Branch Pubescence:	1 = Glabrous	2 = Pubescent		
<input type="text" value="1"/>	Anther Color:	1 = Yellowish Green 2 = Green 3 = Bluish Green 4 = Purplish 5 = Reddish 6 = Other (Specify) _____			
<input type="text" value="4"/>	Glume Color (At 50% flowering)				
<input type="text" value="1"/> <input type="text" value="1"/> <input type="text" value="0"/>	mm Length				
<input type="text" value="2"/> <input type="text" value="6"/>	mm Shorter than	<input type="text" value="1"/> <input type="text" value="3"/>	} Comparison Variety		
<input type="text" value=""/>	Panicle length same as	<input type="text" value=""/> <input type="text" value=""/>			
<input type="text" value=""/>	mm Longer than	<input type="text" value=""/> <input type="text" value=""/>			

11. PALEA:

<input type="text" value="2"/>	Hairs (On keels or margins):	1 = Absent (Banner)	2 = Short (Agram, Scaldis, Olds)
		3 = Long (Ranier, Fortress, Jamestown)	

12. LEMMA: (Mature)

<input type="text" value="2"/>	Hairs:	1 = Absent (Jamestown)	2 = Several	3 = Many (Highlight)
<input type="text" value="4"/> <input type="text" value="9"/>	mm Lemma Length			
<input type="text" value=""/> <input type="text" value=""/>	mm Shorter than	<input type="text" value=""/> <input type="text" value=""/>	} Comparison Variety	
<input type="text" value=""/> <input type="text" value=""/>	Lemma length same as	<input type="text" value="1"/> <input type="text" value="3"/>		
<input type="text" value=""/> <input type="text" value=""/>	mm Longer than	<input type="text" value=""/> <input type="text" value=""/>		
<input type="text" value="0"/> <input type="text" value="9"/> <input type="text" value="9"/>	mm Lemma Width			
<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	mm Narrower than	<input type="text" value=""/> <input type="text" value=""/>	} Comparison Variety	
<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	Lemma width same as	<input type="text" value=""/> <input type="text" value=""/>		
<input type="text" value="0"/> <input type="text" value="0"/> <input type="text" value="8"/>	mm Wider than	<input type="text" value="1"/> <input type="text" value="3"/>		
<input type="text" value="2"/>	Awns:	1 = Absent	2 = Present	
<input type="text" value="2"/> <input type="text" value="4"/>	mm Awn Length			
<input type="text" value=""/> <input type="text" value=""/>	mm Shorter than	<input type="text" value=""/> <input type="text" value=""/>	} Comparison Variety	
<input type="text" value=""/> <input type="text" value=""/>	Awn length same as	<input type="text" value="1"/> <input type="text" value="3"/>		
<input type="text" value=""/> <input type="text" value=""/>	mm Longer than	<input type="text" value=""/> <input type="text" value=""/>		

13. SEED: (With lemma & palea)

<input type="text" value="3"/>	Size Class (g/1000 seed):	1 = < .9 g (Biljart, Dawson)	2 = .9 - < 1.1 g (Jamestown, Highlight)	
		3 = 1.1 - 1.3 g (Fortress, Novorubra)	4 = > 1.3 g (Boreal, Golfrood)	
<input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="2"/> <input type="text" value="9"/>	mg per 1000 seed			
<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	mg per 1000 seed less than	<input type="text" value=""/> <input type="text" value=""/>	} Comparison Variety	
<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	Seed Weight same as	<input type="text" value="1"/> <input type="text" value="3"/>		
<input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/> <input type="text" value=""/>	mg per 1000 seed more than	<input type="text" value=""/> <input type="text" value=""/>		

14. DISEASE INSECT, AND NEMATODE REACTION: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

<input type="text" value="0"/>	Melting-out (<i>Drechslera poae</i>) (<i>Helminthosporium vagans</i>)	<input type="text" value="0"/>	Stripe Rust (<i>P. striiformis</i>)
<input type="text" value="0"/>	Leaf Spot (<i>D. siccans</i>)	<input type="text" value="0"/>	Leaf Rust (<i>P. poae-nemoralis</i>)
<input type="text" value="2"/>	Net Blotch (<i>D. dictyoides</i>)	<input type="text" value="0"/>	<i>P. crandallii</i>
<input type="text" value="0"/>	Leaf Spot (<i>Bipolaris sorokiniana</i>)	<input type="text" value="0"/>	Pythium Blight (<i>Pythium ultimum</i>)
<input type="text" value="2"/>	Brown Patch (<i>Rhizoctonia solani</i>)	<input type="text" value="2"/>	Red Thread (<i>Corticium fusciforme</i>)
<input type="text" value="0"/>	Powdery Mildew (<i>Erysiphe graminis</i>)	<input type="text" value="0"/>	Dollar Spot (<i>Sclerotinia homeocarpa</i>)
<input type="text" value="0"/>	Stripe Smut (<i>Ustilago striiformis</i>)	<input type="text" value="0"/>	Insect _____
<input type="text" value="0"/>	F. Patch, Pink Snow-mold (<i>Fusarium nivale</i>)	<input type="text" value="0"/>	Nematode _____
<input type="text" value="0"/>	Fusarium blight (<i>F. tricinctum</i> , <i>F. roseum</i>)	<input type="text" value="0"/>	Other _____
<input type="text" value="0"/>	Gray snow mold (<i>Typhula lotana</i>)	<input type="text" value="0"/>	Other _____
<input type="text" value="0"/>	Stem rust (<i>Puccinia graminis</i>)	<input type="text" value="0"/>	Other _____

15. GIVE VARIETY OR VARIETIES THAT MOST CLOSELY RESEMBLE THE SUBMITTED VARIETY: For the following characteristics indicate the Degree of Resemblance by placing the column marked D.R. with one of the following numbers:

1 = Application variety is less than comparison variety 2 = Same as 3 = More than, better, greater, darker, more disease resistant, etc.

CHARACTER	VARIETY	D.R.	CHARACTER	VARIETY	D.R.
Rhizome Length			Growth Habit	Longfellow II	2
Leaf Width	Longfellow II	2	Leaf Color	Longfellow II	3
Panicle Color	Longfellow II	2	Panicle Shape	Longfellow II	2
Winter Color	Longfellow II	2	Cold Injury		
Shade Tolerance			Heat		
Drought			Disease*		

* Specify each disease evaluated.

16. ADDITIONAL DESCRIPTION: (Use additional sheets as required).

Describe all characteristics that cannot be adequately described in the form above in Exhibit D. Varieties used for comparison should be used as may be appropriate, such as for disease reactions. Append all comparative trial and evaluation data, including measured characters, environmental, and disease tests results. Providing such information may aid in conducting a more thorough review of the applicants claims of distinctness.

EXHIBIT D

Table 1. Maturity of chewings fescue varieties grown near Jefferson, Oregon in 2009 and 2010.

The test was grown on McAlpin silty clay loam. Fertilizer consisted of 165 pounds per acre of actual nitrogen per year. The test consisted of three replications with 20 plants per replication planted in a complete randomized bloc design. Plan spacing was 1.5 feet within rows and 3 feet between rows. (Note: May 1 = Day of Year 121).

Variety	Heading (Day of Year)		
	2009	2010	Average
Koket	131.3	126.7	129.0
Longfellow II	135.6	131.5	133.5
Fairmont	136.0	125.3	130.8
Shadow II	136.6	131.8	134.2
Banner	136.6	136.8	136.7
Radar	137.6	131.2	134.4
Jamestown	141.6	141.2	141.4
LSD @ 0.05	1.5	2.9	
CV (%)	0.6	1.2	

EXHIBIT D

Table 2. Morphological characteristics of Chewings fescue varieties grown near Jefferson, Oregon in 2010.

The test was grown on McAlpin silty clay loam. Fertilizer consisted of 165 pounds per acre of actual nitrogen per year

The test consisted of three replications with 20 plants per replication planted in a complete randomized bloc design.

Plan spacing was 1.5 feet within rows and 3 feet between rows.

Variety	Plant Height (cm)			Flag Leaf Height (cm)			Flag Leaf Length (cm)			Flag Leaf Width (mm)			Panicle Length (cm)		
	2009	2010	Average	2009	2010	Average	2009	2010	Average	2009	2010	Average	2009	2010	Average
Banner	56.0	109.3	82.6	22.8	44.0	33.4	7.7	11.7	9.7	2.6	2.6	2.6	12.6	14.6	13.6
Jamestown	55.9	105.8	80.9	21.7	43.1	32.4	5.7	10.9	8.3	2.4	2.6	2.5	12.3	14.9	13.6
Longfellow II	55.3	102.6	79.0	19.8	40.4	30.1	5.8	10.2	8.0	3.0	3.0	3.0	11.4	13.1	12.3
Koket	53.7	107.9	80.8	17.7	36.1	26.9	7.3	9.0	8.2	2.9	2.5	2.7	12.4	14.0	13.2
Shadow II	53.2	102.1	77.6	17.0	37.7	27.4	6.2	11.1	8.6	2.6	3.0	2.8	10.7	14.5	12.6
Farimont	49.8	98.1	73.9	15.1	32.0	23.5	4.9	9.4	7.2	2.9	2.5	2.7	9.3	12.9	11.1
Radar	48.4	96.7	72.6	15.0	34.4	24.7	5.3	9.1	7.2	2.5	3.0	2.8	9.7	12.2	11.0
LSD @ 0.05	3.2	3.8		1.8	3.2		0.9	1.5		NS	0.4		1.0	0.9	
CV (%)	3.4	2.0		5.5	4.7		8.3	8.1		8.7	8.6		5.1	3.8	

EXHIBIT D

Table 3. Seed characteristics of hard fescue varieties grown near Jefferson, Oregon in 2009 and 2010. The test was grown on McAlpin silty clay loam. Fertilizer consisted of 165 pounds per acre of actual nitrogen per year. The test consisted of three replications with 20 plants per replication planted in a complete randomized bloc design. Plan spacing was 1.5 feet within rows and 3 feet between rows.

Variety	Seed Length (mm)			Seed Width (mm)			Awn Length (mm)			1000 Seed Wt (mg)		
	2009	2010	Average	2009	2010	Average	2009	2010	Average	2009	2010	Average
Koket	5.26	5.84	5.55	1.02	1.05	1.03	1.93	2.66	2.29	1361.7	1520.0	1440.8
Fairmont	5.07	5.36	5.21	0.95	1.02	0.98	1.99	2.53	2.26	1286.7	1356.7	1321.7
Shadow II	5.00	5.24	5.12	0.96	0.97	0.96	1.74	2.23	1.99	1308.3	1313.3	1310.8
Longfellow II	4.98	5.52	5.25	0.98	0.99	0.99	1.87	2.65	2.26	1380.0	1303.3	1341.7
Banner	4.84	5.42	5.13	0.94	0.96	0.95	1.80	2.45	2.13	1350.0	1211.7	1280.8
Jamestown	4.78	5.43	5.11	0.91	0.91	0.91	1.98	2.27	2.13	1260.0	1175.0	1217.5
Radar	4.73	5.06	4.89	0.99	1.00	0.99	2.12	2.63	2.38	1215.0	1243.3	1229.2
LSD @ 0.05	0.17	0.09		0.03	0.01		NS	NS		104.8	80.7	
CV (%)	2.73	2.89		2.58	2.63		11.19	13.03		4.5	3.5	

REPRODUCE LOCALLY. Include form number and edition date on all reproductions.

FORM APPROVED - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

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).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) 1) Peak Plant Genetics LLC 2) Rutgers, The State University of New Jersey		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER MVS-FRC-101	3. VARIETY NAME Radar
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 1) PO Box 359, Jefferson, OR 97352, USA 2) Rutgers University - Cook Campus 88 Lipman Drive New Brunswick, NJ 08901 USA		5. TELEPHONE (Include area code) 541-905-3463	6. FAX (Include area code) N/A
		7. PVPO NUMBER 201100364	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. YES NO9. Is the applicant a U.S. national or a U.S. based entity? If no, give name of country. YES NO

10. Is the applicant the original owner? 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)?
 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?
 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):

PLEASE NOTE:

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

- 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.
- 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.
- 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.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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Form Approved OMB NO 0581-0055

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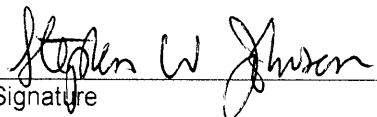
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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S) 1) Peak Plant Genetics, LLC 2) Rutgers, The State University of New Jersey	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 1) PO Box 359, Jefferson, OR 97352, USA 2) Rutgers University - Cook Campus 88 Lipman Drive, New Brunswick, NJ 08901, USA	TEMPORARY OR EXPERIMENTAL DESIGNATION MVS-FRC-101
		VARIETY NAME Radar
NAME OF OWNER REPRESENTATIVE (S) Stephen W. Johnson	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) Peak Plant Genetics, LLC PO Box 359, Jefferson, OR 97352 USA	FOR OFFICIAL USE ONLY
		PVPO NUMBER 201100364

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.


Signature

4/11/11
Date