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 EXHIBIT, 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 THEREFOR IS FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(s) INDICATED IN THE SAI(D) 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 REPORTING 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 USING IT FOR ANY PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PERMITTED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

POTATO

'Gem Russet'

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-third day of May, in the year two thousand and seven.

Attest:

[Signature]

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

[Signature]

Secretary of Agriculture
APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

1. NAME OF OWNER: Idaho Agricultural Experiment Station (representing also, the interests of the Experiment Stations of Oregon State Univ., & Washington State Univ., & the USDA-ARS) per letter 3-08-01

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME: A8495-1

3. VARIETY NAME: Gem Russet

4. ADDRESS: (Street and No., or R.F.D., No., City, State, and ZIP Code, and Country)
   Idaho Agricultural Experiment Station
   University of Idaho
   Moscow, ID 83844

5. TELEPHONE (include area code): (208) 885-7173

6. FAX (include area code): (208) 885-6869

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.)
   Educational Institution

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION: 10/16/2000

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

   Stephen L. Love
   Aberdeen R&E Center
   PO Box 870
   Aberdeen, ID 83210

11. TELEPHONE (include area code): (208) 397-4181

12. FAX (include area code): (208) 397-4311

13. E-MAIL: slove@uidaho.edu

14. CROP NAME (Common Name): Potato

15. GENUS AND SPECIES NAME OF CROP: Solanum tuberosum

16. FAMILY NAME (Botanical): Solanaceae

17. IS THE VARIETY A FIRST GENERATION HYBRID? NO

18. 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. Voucher Sample (2,000 viable untreated seeds or, for tuber propagated varieties, certification that tissue culture will be deposited and maintained in an approved public repository)

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? NO (If "yes", answer Item 20 and 21 below)

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
   a. FOUNDATION
   b. REGISTERED
   c. CERTIFIED

21. IF "YES" TO ITEM 20, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

22. 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?
   a. YES
   b. NO

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)?
   a. YES
   b. NO

24. The owner declares that a viable sample of basic seed of the variety will be 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) declare(s) the owner of this sexually reproduced or tuber propagated plant variety, and believer(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) are informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER:

RICHARD C. HEIMSGH, DIRECTOR
IDAHIO AG. EXPERIMENT STATION

CAPACITY OR TITLE:


SIGNATURE OF OWNER:

NAME: (Please print or type)

DATE: (Sign reverse for instructions and information collection burden statement)
GENERAL: 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; (3) at least 2,500 viable untreated seeds, or for tuber reproduced varieties verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in a public repository prior to issuance of a certificate; (4) check drawn on a U.S. bank for $2,450 ($300 filing fee and $2,150 examination fee), payable to "Treasurer of the United States" (See Section 97.175 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 30 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 1030 Baltimore Blvd., 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 required to send a check payable to "Treasurer of the United States" in the amount of $300 for issuance of the Certificate.

Plant Variety Protection Office
Telephone: (301) 504-5518

ITEM

16a. 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.

16b. 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 statistical data for characters expressed numerically and demonstrate that these are clear differences;

(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

16c. Exhibit C forms are available from the PVPO for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Varieties) form as completely as possible to describe your variety.

16d. 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.

16e. Section 52(4) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. The applicant may be the actual breeder, the employee of the breeder, the owner through purchase or inheritance, etc.

17. 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 labelled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See P.L. 103-349 for additional information.)

20. See Sections 41, 42, and 43 of the Act and Section 97.175 of the regulations for eligibility requirements.

22. First unrestricted sales February and May of 2001

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 during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175 of Regulations and Rules of Practice.)

To avoid conflict with other-variety names in use, the applicant should check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 293, Building 306, Beltsville Agricultural Research Center-East, Beltsville, MD 20705.
Telephone: (301) 504-8089.
Exhibit A

Origin and Breeding History of the Variety

Variety: Gem Russet
Experimental Designation: A8495-1
Owner: University of Idaho

Gem Russet originated from a cross of A77182-1 and Russet Norkotah made at the University of Idaho’s Aberdeen Research and Extension Center in April of 1984. It was originally maintained under the breeding designation A8495-1. A four-generation pedigree is attached. Gem Russet was selected out of an F₁ population using the following selection criteria: appearance, yield, specific gravity, french fry quality, resistance to common field diseases including Verticillium wilt, early blight, and net necrosis, and resistance to internal defects such as hollow heart, blackspot bruise, and heat necrosis.

Gem Russet has been clonally propagated since the first year of selection. The variety has remained true-to-type during all subsequent years of maintenance and propagation. It has not produced recognizable variants.
Exhibit A (Addendum)

**Origin and Breeding History of the Variety**

**Variety:** Gem Russet  
**Experimental Designation:** A8495-1  
**Owner:** University of Idaho

**Details of Selection and Multiplication**

<table>
<thead>
<tr>
<th>Year</th>
<th>Stage</th>
<th>Selection Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>Unripped single hill</td>
<td>Visual appearance</td>
</tr>
<tr>
<td>1987</td>
<td>Unripped 12-hill</td>
<td>Visual appearance, specific gravity, fry color</td>
</tr>
<tr>
<td>1987</td>
<td>2 replicate yield trial</td>
<td>Yield, grade, specific gravity, fry color</td>
</tr>
<tr>
<td>1988-1991</td>
<td>Multi-location yield trials</td>
<td>Yield, grade, tuber defects, disease response, processing quality</td>
</tr>
<tr>
<td>1992-1995</td>
<td>Regional yield trials</td>
<td>Yield, grade, adaptation, disease response</td>
</tr>
<tr>
<td>1996-2001</td>
<td>Grower trials</td>
<td>Yield, grade, storage ability, market reaction</td>
</tr>
<tr>
<td>1996-2001</td>
<td>Grower seed increases</td>
<td>None</td>
</tr>
</tbody>
</table>

**Uniformity and Stability**

In every trial to date, Gem Russet has proven to be uniform.  
Beginning with the 12-hill stage, plots were inspected twice annually for off-type plants. None were found.

Across years, Gem Russet has shown itself to be stable.  
Comparison of major descriptors recorded in breeding records for trials from 1984 to 2001 has confirmed consistent appearance and performance.

Gem Russet is clonally propagated. To date no sports or variants have been observed. It is concluded that variants will be very rare and lack of history makes prediction of type and frequency impossible.
CLONE: GEM RUSSET

GEM RUSSET

A74133-1

A66107-51

A119-1*

NORFLO RUSSET

A183-8*

A139-1*

A492-2

A183-8*

A139-1*

A6789-7

VIKING

REDSKIN*

NORDAK*

A492-2*

A69327-5

BUTTE

NORFLO RUSSET*

A492-2*

A6334-20

NORFLO RUSSET*

A463-4*

A6371-3

A6715-8A

LENAPE*

B6715-8A

USDA 56170

A70906-1

NORFLO RUSSET*
Exhibit B

Statement of Distinctness

Variety: Gem Russet

Owner: University of Idaho

'Gem Russet' most closely resembles the variety named 'Russet Burbank'. It is distinct from 'Russet Burbank' for a number of characteristics. In direct comparisons with 'Russet Burbank', 'Gem Russet' produces a higher percentage of U.S. No 1 tubers, higher tuber specific gravity, lower (better) fry color following cold storage, and better resistance to potato virus X (PVX) and potato leafroll virus induced net necrosis (See table below).

In Exhibit C, other differences are documented between the two varieties. 'Gem Russet' has closed plant foliage with stems hardly visible compared to open foliage with stem clearly visible for 'Russet Burbank'. In comparison with 'Russet Burbank', 'Gem Russet also has a more erect growth habit, less stem anthocyanin coloration on the stems, petioles and calyx, and a more closed leaf silhouette. 'Gem Russet' also produces more florets per inflorescence. 'Gem Russet' flowers also produce abundant viable pollen, while those of 'Russet Burbank' produce none. Tubers of 'Gem Russet' have a slightly prominent eyebrow and eyes distributed predominantly on the bud end, while those of 'Russet Burbank' have no eyebrow and more evenly distributed eyes. Other differences as documented in Exhibit C are also evident.

Comparison of tuber and disease resistance characteristics of 'Gem Russet' with those of 'Russet Burbank'.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Percent No. 1 Yield(^2)</th>
<th>Specific Gravity(^3)</th>
<th>Fry Color(^4)</th>
<th>PVX(^5)</th>
<th>Net Necrosis(^5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gem Russet</td>
<td>85</td>
<td>1.089</td>
<td>2.2</td>
<td>1.0</td>
<td>3.2</td>
</tr>
<tr>
<td>Russet Burbank</td>
<td>62</td>
<td>1.082</td>
<td>3.8</td>
<td>8.9</td>
<td>5.6</td>
</tr>
<tr>
<td>LSD (.05)</td>
<td>4</td>
<td>0.002</td>
<td>0.3</td>
<td>0.3</td>
<td>2.0</td>
</tr>
</tbody>
</table>

\(^1\) Analysis for all characteristics except PVX and net necrosis includes data accumulated at Aberdeen, Idaho from 1993-1995 and combined for analysis. The trials were designed as typical one-row variety trials with four replications and 20-foot plots (N=12 for each variety). The PVX measurements were taken at Kimberly, Idaho and include data from trials conducted in 1992 and 1993 (N=6 for each variety). The net necrosis data were collected from leafroll screening trials conducted at Kimberly, Idaho in 1995, 1997, and 1998 (N=9 for each variety). The virus screening trials were designed with three replications of 5 hills, with alternate virus-infected spreader rows and a protocol that included release of green peach aphids.

\(^2\) Percent No. 1 yield reflects U.S. No.1 grade and is expressed as a percent of total yield.

\(^3\) Tuber specific gravity is an estimate of dry matter and was measured using the weight-in-air, weight-in-water method.

\(^4\) French fry color was determined using tubers stored for 3 months at 40°F. Fry color was rated using the USDA Color Chart wherein 0=light, attractive color, 4=dark, unattractive color.

\(^5\) Disease incidence rated 1-9 where 1=very resistant, 9=very susceptible. PVX rated using the proportion of infected plants as determined using ELIZA. Net necrosis rated using a proportion of tubers expressing severe necrotic symptoms.
Univariate Procedure
Schematic Plots

Variable=PVX
Plant virus X

Susceptible 9 + *---+-*

8 + *

7 +

6 +

5 +

4 +

3 +

2 +

Resistant 1 + *---+-*

VARIETY
gr
gem russet

rb
russet burbank
Variable=NN

Net necrosis

Susceptible

8 +

7 +

6 +

5 +

4 +

3 +

2 +

Resistant

1 +

VARIETY

gr
gem russet

rb
russet burbank
Variable=PCTNO1

Percent U.S. #1

95 +
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| 90 +
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| 85 +
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| 80 +
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| 75 +
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| 70 +
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| 65 +
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| 50 +
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VARIETY
gem russet

gr

rb
russet burbank
Variable=SG
Specific Gravity

92 +
90 +
88 +
86 +
84 +
82 +
80 +

VARIETY
gr
gem russet
rb
russet burbank
Variable=FRY40
Fry color 40 Degree F storage

- Dark 4 +
  - 3.75 +
  - 3.5 +
  - 3.25 +
  - 3 +
  - 2.75 +
  - 2.5 +
  - 2.25 +
  - 2 +
  - 1.75 +
  - 1.5 +
  - 1.25 +
- Light 1 +

VARIETY
  - gem russet
  - russet burbank
Light sprout characteristics of Gem Russet and Russet Burbank.
Flower characteristics of Gem Russet and Russet Burbank.
Leaf characteristics of Gem Russet and Russet Burbank.

Gem Russet Leaf

Russet Burbank Leaf
Plant characteristics of Gem Russet and Russet Burbank.

Gem Russet Plant

Russet Burbank Plant
Tuber characteristics of Gem Russet and Russet Burbank.

Gem Russet Tuber

Russet Burbank Tuber
Gem Russet

Gem Russet Tuber

Gem Russet Light Sprout
OBJECTIVE DESCRIPTION OF VARIETY
POTATO (Solanum tuberosum L.)

INSTRUCTIONS

The Objective Description Form:
The objective description form lists characteristics to be used as the basis for developing the description of potato varieties. It is
designed to guide the applicant in describing a variety in detail so a meaningful comparison with other potato varieties can be
accomplished. It is recommended that this form be completed in as much detail as possible to ensure an accurate description. Please
fill in the requested data and place the appropriate number that describes the varietal characters typical of this potato variety and the
reference varieties in the respective boxes.

Test Guidelines:
Any statistical and trial (field test) data that may be necessary to support the variety description should be attached to this form. Please
include for trial data the plot size, number of replications, number of plants, plant spacing, trial locations and growing periods. Trials
should normally be conducted at one place, in the region that the variety has been adapted for, with a minimum of one growing period
in the U.S.A. All comparative data should be determined from varieties entered in the same trials. The size of the plots should be
such that plants or plant parts of plants may be removed for measuring and counting without prejudice to the observations which must
be made at the end of the growing period. As a minimum, each test should include a total of 60 plants which should be divided
between two or more replicates. Separate plots for observation and measuring can only be used if they have been subject to similar
environmental conditions. To determine color for a plant or plant parts a recognized standard color chart must be used such as the
Royal Horticultural Society (R.H.S.) Color Chart.

Reference Varieties:
The application variety should be compared to a set of reference varieties. The reference varieties should be market class standard
varieties currently grown in the United States and the varieties most similar. The following varieties are recommended as market class
standards to be used as reference varieties:

- Yellow-flesh tablestock
- Round-white tablestock
- Chip-processing
- Frozen-processing
- Russet tablestock
- Red tablestock
- Yukon Gold
- Superior
- Atlantic, Snowden, Norchip
- Russet Burbank
- Russet Burbank, Russet Norkotah, Goldrush
- Red Pontiac, Red Norland, Red Lasoda

Characteristics:
The plant type and growth habit characteristics are collected at early first bloom. Figure 1 is supplied to help visualize the growth
habit. For this descriptor, look at the stems rather than the stems and foliage. Plant maturity is measured at natural vine senescence.

Stem characteristics are also collected at early bloom. Stem anthocyanin coloration is divided into two descriptors: Location and
intensity. Figure 12 is supplied to give an example of stem wings.

Leaf characteristics are observed at early first bloom. Fully-developed leaves located on the middle third of the plant should be used.
Leaf pubescence refers to general trichomes. Figure 2 is supplied for examples of leaf silhouette. Figure 3 should be used to
describe terminal and primary leaflet shape. Figures 4 and 5 are used to describe the terminal and primary leaflet shape of tip and
base, respectively. To measure the total number of primary leaflets pairs, collect 10 fully-developed petioles (with leaves attached
from each replication and take the average number of secondary and tertiary leaflets. Figure 11 is supplied to define leaf
characteristics. Glandular trichomes should be described through descriptor #12 (Additional Comments and Characteristics). Leaf
stipules are shown in figure 13 for visual definition.

Inflorescence characteristics should be measured at early first bloom. Figures 6 and 7 are supplied to describe corolla and anther
shape, respectively. Corolla, calyx, anther, stigma and pollen should be observed on newly opened flowers. Berry production should
be based on field-grown plants rather than greenhouse plants.

Tuber characteristics should be observed following harvest. Figures 9 and 10 are available to describe distribution of secondary color
and tuber shape, respectively.
Disease and pest reactions should be based upon specific tests rather than field observations. Other diseases or pests reactions not requested can be described if it is felt that it would be helpful to the description.

Quality characteristics should be described according to the market use.

If the plant is transgenic, this gene insertion(s) should be described.

Chemical identification and any other characteristics can be describe if they are helpful in distinguishing the variety.

A rating system of 1-9 provides a scale for describing most characteristics in this form. Characteristic may be rated with intermediate values where the characteristic grades gradually from one extreme to another. For example where the states for a characteristic are described as: 3 = Small; 5 = Medium; 7 = Large; the other values of 1, 2, 4, 6, 8, or 9 may be selected.

Legend:
V = Application Variety
R1-R4 = Reference Varieties
### Objective Description of Variety

**Potato (Solanum tuberosum L.)**

**Name of Applicant(s):** Idaho Agricultural Experimental Station

**Address:**
University of Idaho
Agricultural Experiment Station
Moscow, ID 83844

<table>
<thead>
<tr>
<th>Reference Variety 1 (R1)</th>
<th>Reference Variety 2 (R2)</th>
<th>Reference Variety 3 (R3)</th>
<th>Reference Variety 4 (R4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russet Burbank</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 1. Market Characteristics:

**Market Class:**
- 1 = Yellow-flesh tablestock; 2 = Round-white tablestock; 3 = Chip-processing; 4 = Frozen-processing; 5 = Russet tablestock; 6 = Other

| V | 4/5 | R1 | 4/5 | R2 | R3 | R4 |

#### 2. Plant Characteristics:

**Growth Habit:** (See figure 1)
- 3 = Erect (>45° with ground); 5 = Semi-erect (30-45° with ground); 7 = Spreading

| V | 5   | R1 | 7   | R2 | R3 | R4 |

**Type:**
- 1 = Stem (foliage open, stems clearly visible); 2 = Intermediate; 3 = Leaf (Foliage closed, stems hardly visible)

| V | 3   | R1 | 1   | R2 | R3 | R4 |

**Maturity:** Days after planting (DAP) at vine senescence

| V | 130 | R1 | 130 | R2 | R3 | R4 |

**Planting Date:**
- V 28 Apr 97-98

**Region/Area:**
- V Aberdeen, ID
- R1 Aberdeen, ID
**OBJECTIVE DESCRIPTION OF VARIETY**

**MATURITY CLASS:**
1 = Very Early (<100 DAP); 2 = Early (100-110 DAP); 3 = Mid-season (111-120 DAP); 4 = Late (121-130 DAP); 5 = Very Late (>130 DAP).

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>4</th>
<th>R1</th>
<th>4</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**3. STEM CHARACTERISTICS:** Measure at early first bloom

**STEM ANTHOCYANIN COLORATION:**
1 = Absent; 3 = Weak; 5 = Medium; 7 = Strong; 9 = Very Strong

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>1</th>
<th>R1</th>
<th>2</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**STEM WINGS:** (See figure 12)
1 = Absent; 3 = Weak; 5 = Medium; 7 = Strong; 9 = Very Strong

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>2</th>
<th>R1</th>
<th>2</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**4. LEAF CHARACTERISTICS:**

**LEAF COLOR:** Observe fully developed leaves located on middle 1/3 of plant
1 = Yellowish-green; 2 = Olive-green; 3 = Medium green; 4 = Dark green; 5 = Grey-green; 6 = Other

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>1</th>
<th>R1</th>
<th>1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**LEAF COLOR:** Observe fully developed leaves located on middle 1/3 of plant and circle the appropriate color chart (Royal Horticulture Society Color Chart value or Munsell Color Chart value)

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>146A</th>
<th>R1</th>
<th>146B</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**LEAF PUBESCENCE DENSITY:**
1 = Absent; 2 = Sparse; 3 = Medium; 4 = Thick; 5 = Heavy

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>2</th>
<th>R1</th>
<th>3</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**LEAF PUBESCENCE LENGTH:**
1 = None; 2 = Short; 3 = Medium; 4 = Long; 5 = Very long

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>2</th>
<th>R1</th>
<th>2</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

(Note: Descriptor #19 can be used to describe the type and length of the glandular trichomes observed.)

**LEAF SILHOUETTE:** (See figure 2)
1 = Closed; 3 = Medium; 5 = Open

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>3</th>
<th>R1</th>
<th>5</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

Per data provided 10-9-2006 LMC
### Objective Description of Variety

**Petaloles Anthocyanin Coloration:**
- 1 = Absent; 3 = Weak; 5 = Medium; 7 = Strong; 9 = Very Strong

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>1</th>
<th>R1</th>
<th>3</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**Leaf Stipules Size:** *(See figure 13)*
- 1 = Absent; 3 = Small; 5 = Medium; 7 = Large

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>5</th>
<th>R1</th>
<th>5</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**Terminal Leaflet Shape:** *(See figure 3 & II)*
- 1 = Narrowly ovate; 2 = Medium ovate; 3 = Broadly ovate; 4 = Lanceolate; 5 = Elliptical; 6 = Obovate; 7 = Oblong; 8 = Other

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>3</th>
<th>R1</th>
<th>2</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**Terminal Leaflet Tip Shape:** *(See figure 4 & II)*
- 1 = Acute; 2 = Cuspidate; 3 = Acuminate; 4 = Obtuse; 5 = Other

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>2</th>
<th>R1</th>
<th>3</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**Terminal Leaflet Base Shape:** *(See figure 5 & II)*
- 1 = Cuneate; 2 = Acute; 3 = Obtuse; 4 = Cordate; 5 = Truncate; 6 = Lobed; 7 = Other

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>4</th>
<th>R1</th>
<th>3</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**Terminal Leaflet Margin Waviness:**
- 1 = Absent; 2 = Slight; 3 = Weak; 4 = Medium; 5 = Strong

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>2</th>
<th>R1</th>
<th>2</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

**Number of Primary Leaflet Pairs:** *(See figure II)*

**Average:**
- V | 5.0 | R1 | 4.3 | R2 | R3 | R4 |

**Range:**

| V | 3 to 6 | R1 | 2 to 5 | R2 | R3 | R4 |

**Primary Leaflet Tip Shape:** *(See figure 4 & II)*
- 1 = Acute; 2 = Cuspidate; 3 = Acuminate; 4 = Obtuse; 5 = Other

| V | 3 | R1 | 3 | R2 | R3 | R4 |

---

22
### Objective Description of Variety

**Primary Leaflet Shape:** (See figure 3 & 11)
- 1 = Narrowly ovate; 2 = Medium ovate; 3 = Broadly ovate; 4 = Lanceolate; 5 = Elliptical;
- 6 = Obovate; 7 = Oblong; 8 = Other

**Primary Leaflet Base Shape:** (See figure 5 & 11)
- 1 = Cuneate; 2 = Acute; 3 = Obtuse; 4 = Cordate; 5 = Truncate; 6 = Loded; 7 = Other

**Number of Secondary and Tertiary Leaflet Pairs:** (See figure 11)

<table>
<thead>
<tr>
<th>Range</th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>2 to 14</td>
<td>0 to 10</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>R1</td>
<td>1 to 5</td>
<td>1 to 5</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>R2</td>
<td></td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>R3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R4</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Inflorescence Characteristics

**Number of Inflorescence / Plant:**

<table>
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<tr>
<th>Range</th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>1 to 4</td>
<td>1 to 5</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>R1</td>
<td>2.2</td>
<td>2.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Number of Florets / Inflorescence:**

<table>
<thead>
<tr>
<th>Range</th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>8 to 18</td>
<td>5 to 15</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td>R1</td>
<td>8.6</td>
<td>8.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Corolla Inner Surface Color:** Measure predominant color of newly open flower and circle the appropriate color chart value or Munsell Color Chart value

- Royal Horticulture Society Color Chart value
- Munsell Color Chart value

<table>
<thead>
<tr>
<th>V</th>
<th>R1</th>
</tr>
</thead>
<tbody>
<tr>
<td>V White 155A</td>
<td>R1 White 155A</td>
</tr>
<tr>
<td>R2</td>
<td>R3</td>
</tr>
</tbody>
</table>

**Corolla Outer Surface Color:** Circle the appropriate color chart

- Royal Horticulture Society Color Chart value
- Munsell Color Chart value

<table>
<thead>
<tr>
<th>V</th>
<th>R1</th>
</tr>
</thead>
<tbody>
<tr>
<td>V White 155A</td>
<td>R1 White 155A</td>
</tr>
<tr>
<td>R2</td>
<td>R3</td>
</tr>
</tbody>
</table>
## Objective Description of Variety

### Corolla Shape

1 = Very rotate; 2 = Rotate; 3 = Pentagonal; 4 = Semi-stellate; 5 = Stellate

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>3</td>
<td>R1</td>
<td>4</td>
<td>R2</td>
<td>R3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R4</td>
<td></td>
</tr>
</tbody>
</table>

### Calyx Anthocyanin Coloration

1 = Absent; 3 = Weak; 5 = Medium; 7 = Strong; 9 = Very strong

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>1</td>
<td>R1</td>
<td>3</td>
<td>R2</td>
<td>R3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R4</td>
<td></td>
</tr>
</tbody>
</table>

### Anther Color

Measure when newly opened flower is fully expanded and circle the appropriate color chart

Royal Horticulture Society Color Chart value or Munsell Color Chart value

<table>
<thead>
<tr>
<th></th>
<th>Y-0 15A</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Y-0 15A</td>
<td>R1</td>
<td></td>
<td>R2</td>
<td>R3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R4</td>
<td></td>
</tr>
</tbody>
</table>

### Anther Shape

1 = Broad cone; 2 = Narrow cone; 3 = Pear shape cone; 4 = Loose; 5 = Other

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>2</td>
<td>R1</td>
<td>3</td>
<td>R2</td>
<td>R3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R4</td>
<td></td>
</tr>
</tbody>
</table>

### Pollen Production

1 = None; 3 = Some; 5 = Abundant

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>5</td>
<td>R1</td>
<td>1</td>
<td>R2</td>
<td>R3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R4</td>
<td></td>
</tr>
</tbody>
</table>

*Per data provided 10-9-2006 LMC*

### Stigma Shape

1 = Capitate; 2 = Clavate; 3 = Bi-lobed

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>1</td>
<td>R1</td>
<td>1</td>
<td>R2</td>
<td>R3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R4</td>
<td></td>
</tr>
</tbody>
</table>

### Stigma Color

Circle the appropriate color chart

Royal Horticulture Society Color Chart value or Munsell Color Chart value

<table>
<thead>
<tr>
<th></th>
<th>Y-G 146A</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Y-G 146A</td>
<td>R1</td>
<td></td>
<td>R2</td>
<td>R3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R4</td>
<td></td>
</tr>
</tbody>
</table>

### Berry Production

Under field conditions

1 = None; 3 = Low; 5 = Moderate; 7 = Heavy; 9 = Very heavy

<table>
<thead>
<tr>
<th></th>
<th>3</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>3</td>
<td>R1</td>
<td>1</td>
<td>R2</td>
<td>R3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R4</td>
<td></td>
</tr>
</tbody>
</table>
5. TUBER CHARACTERISTICS:

PREDOMINANT SKIN COLOR:
1 = White; 2 = Light Yellow; 3 = Yellow; 4 = Buff; 5 = Tan; 6 = Brown; 7 = Pink; 8 = Red; 9 = Purplish-red; 10 = Purple; 11 = Dark purple-black; 12 = Other

GIVE COLOR CHART VALUE AND CIRCLE THE APPROPRIATE COLOR CHART
Royal Horticulture Society Color Chart value or Munsell Color Chart value

SECONDARY SKIN COLOR:
1 = Absent; 2 = Present, please describe

IF PRESENT, GIVE COLOR CHART VALUE AND CIRCLE THE APPROPRIATE COLOR CHART
Royal Horticulture Society Color Chart value or Munsell Color Chart value

SECONDARY SKIN COLOR DISTRIBUTION: If present
1 = Eyes; 2 = Eyebrows; 3 = Splashed; 4 = Scattered; 5 = Spectacled; 6 = Stippled; 7 = Other

SKIN TEXTURE:
1 = Smooth; 2 = Rough (flaky); 3 = Netted; 4 = Russetted; 5 = Heavily russetted; 6 = Other

TUBER SHAPE: (See figure 10)
1 = Compressed; 2 = Round; 3 = Oval; 4 = Oblong; 5 = Long; 6 = Other

TUBE THICKNESS:
1 = Round; 2 = Medium thick; 3 = Slightly flatted; 4 = Flatted; 5 = Other
## Tuber Length (mm)

**AVERAGE:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>118</td>
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</tbody>
</table>

**RANGE:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>86 to 139</td>
<td>82 to 163</td>
<td></td>
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<td></td>
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</tbody>
</table>

**Standard Deviation:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>14</td>
<td></td>
<td></td>
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</tbody>
</table>

**Average Weight of Sample Taken:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>225g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Tuber Width (mm)

**AVERAGE:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
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<tbody>
<tr>
<td>63</td>
<td>63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**RANGE:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>54 to 74</td>
<td>50 to 73</td>
<td></td>
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</table>

**Standard Deviation:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>.4</td>
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</table>

**Average Weight of Sample Taken:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>225g</td>
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</table>

## Tuber Thickness (mm)

**AVERAGE:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
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<tr>
<td>56</td>
<td>53</td>
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</table>

**RANGE:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>46 to 69</td>
<td>42 to 63</td>
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</tbody>
</table>

**Standard Deviation:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
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**Average Weight of Sample Taken:**

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>225g</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Tuber Eye Depth:

1 = Protruding; 2 = Shallow; 3 = Intermediate; 4 = Deep; 5 = Very deep

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Tuber Lateral Eyes

1 = Protruding; 2 = Shallow; 3 = Intermediate; 4 = Deep; 5 = Very deep

<table>
<thead>
<tr>
<th>V</th>
<th>2</th>
<th>R1</th>
<th>3</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

### Number Eyes / Tuber: Average

<table>
<thead>
<tr>
<th>V 16.4</th>
<th>R1 15.5</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

### Range:

<table>
<thead>
<tr>
<th>V 10 to 21</th>
<th>R1 12 to 19</th>
<th>R2 to</th>
<th>R3 to</th>
<th>R4 to</th>
</tr>
</thead>
</table>

### Distribution of Tuber Eyes:

1 = Predominantly apical; 2 = Evenly distributed

<table>
<thead>
<tr>
<th>V 1</th>
<th>R1 2</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

### Prominence of Tuber Eyebrows:

1 = Not prominent; 2 = Slight prominence; 3 = Medium prominence; 4 = Very prominence; 5 = Other

<table>
<thead>
<tr>
<th>V 2</th>
<th>R1 1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

### Primary Tuber Flesh Color:
Circle the appropriate color chart

- Royal Horticulture Society Color Chart value
- Munsell Color Chart value

<table>
<thead>
<tr>
<th>V 158D</th>
<th>R1 159D</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

### Secondary Tuber Flesh Color:

1 = Absent; 2 = Present, please describe

<table>
<thead>
<tr>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

### If present, circle the appropriate color chart:

- Royal Horticulture Society Color Chart value
- Munsell Color Chart value

<table>
<thead>
<tr>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

### Number of Tuber / Plant:

1 = Low (<8); 2 = Medium (8 - 15); 3 = High (>15)

<table>
<thead>
<tr>
<th>V 1</th>
<th>R1 2</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>
**6. DISEASES CHARACTERISTICS:**

DISEASES REACTION: 0 = NOT TESTED; 1 = RESISTANT; 3 = MODERATELY RESISTANT; 
5 = MODERATELY SUSCEPTIBLE; 7 = SUSCEPTIBLE; 9 = HIGHLY SUSCEPTIBLE

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACTERIAL RING ROT:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foliar reaction</td>
<td>4</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuber reaction</td>
<td>5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LATE BLIGHT</td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLRV (leaf roll)</td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVX</td>
<td>1</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVY</td>
<td>8</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER:</td>
<td>V</td>
<td>R1</td>
<td>R2</td>
<td>R3</td>
<td>R4</td>
</tr>
<tr>
<td>Verticillium wilt</td>
<td>5</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**7. PESTS CHARACTERISTICS:**

PEST REACTION: 0 = NOT TESTED; 1 = RESISTANT; 3 = MODERATELY RESISTANT; 
5 = MODERATELY SUSCEPTIBLE; 7 = SUSCEPTIBLE; 9 = HIGHLY SUSCEPTIBLE

<table>
<thead>
<tr>
<th></th>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOLDEN NEMATODE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHER:</td>
<td>V</td>
<td>R1</td>
<td>R2</td>
<td>R3</td>
<td>R4</td>
</tr>
</tbody>
</table>

**8. GENE TRAITS:**

INSERTION OF GENES:  

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

If YES, describe the gene(s) introduced or attach information:

__________________________
__________________________
__________________________
__________________________

28
9. QUALITY CHARACTERISTICS:

CHIEF MARKET: Frozen processing / Russet tablestock

SPECIFIC GRAVITY (wt. air/wt. air - wt. water)
1 < 1.060; 2 = 1.060-1.069; 3 = 1.070-1.079; 4 = 1.080-1.089; 5 > 1.090

V 4 R1 4 R2 R3 R4

TOTAL GLYCOALKALOID CONTENT (mg. / 100 g. fresh tuber)

V 2.8 R1 7.0 R2 R3 R4

OTHER QUALITY CHARACTERISTICS: Describe any other quality characteristics that may aid in identification, (e.g. chip-processing, french fry processing, baking, boiling, after-cooking darkening). Please attach data and corresponding protocol.

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

11. CHEMICAL IDENTIFICATION:

Describe chemical traits of the candidate variety that aid in its identification (e.g. protein or DNA electrophoresis). Please attach data and the corresponding protocol.

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

12. ADDITIONAL COMMENTS AND CHARACTERISTICS:

Include any additional descriptors that would be useful in distinguishing the candidate variety.

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________
Idaho Agricultural Experiment Station
University of Idaho
Moscow ID 83844

REFERENCE VARIETIES: Enter the reference variety name in the appropriate box.

<table>
<thead>
<tr>
<th>Application Variety (V)</th>
<th>Reference Variety 1 (R1)</th>
<th>Reference Variety 2 (R2)</th>
<th>Reference Variety 3 (R3)</th>
<th>Reference Variety 4 (R4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gem Russet</td>
<td>Russet Burbank</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

1. MARKET CHARACTERISTICS:

*MARKET CLASS:
1 = Yellow-flush Tablestock  2 = Round-white Tablestock  3 = Chip-processing  4 = Frozen-processing
5 = Russet Tablestock  6 = Other

V  R1  R2  R3  R4

2. LIGHT SPROUT CHARACTERISTICS: (See Figure 1)

*LIGHT SPROUT: GENERAL SHAPE
1 = Spherical  2 = Ovoid  3 = Conica  4 = Broad cylindrical  5 = Narrow cylindrical  6 = Other

V  1  R1  1  R2  R3  R4

*LIGHT SPROUT BASE: PUBESCENCE OF TIP
1 = Absent  2 = Weak  3 = Medium  4 = Strong  5 = Very Strong

V  2  R1  3  R2  R3  R4

*LIGHT SPROUT BASE: ANTHOCYANIN COLORATION
1 = Green  2 = Red-violet  3 = Blue-violet  4 = Other(describe)

V  2  R1  2  R2  R3  R4

*LIGHT SPROUT BASE: INTENSITY OF ANTHOCYANIN COLORATION (IF PRESENT)
1 = Absent  2 = Weak  3 = Medium  4 = Strong  5 = Very Strong

V  3  R1  3  R2  R3  R4

* LIGHT SPROUT TIP: HABIT
1 = Closed  2 = Intermediate  3 = Open

V  3  R1  1  R2  R3  R4
2. LIGHT SPROUT CHARACTERISTICS: (continued)

<table>
<thead>
<tr>
<th>LIGHT SPROUT TIP: PUBESCENCE</th>
<th>1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong</th>
</tr>
</thead>
<tbody>
<tr>
<td>V 3</td>
<td>R1 3 R2 R3 R4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LIGHT SPROUT TIP ANTHOCYANIN COLORATION</th>
<th>1 = Green 2 = Red-violet 3 = Blue-violet 4 = Other (describe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V 1</td>
<td>R1 2 R2 R3 R4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LIGHT SPROUT TIP: INTENSITY OF ANTHOCYANIN COLORATION (IF PRESENT)</th>
<th>1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong</th>
</tr>
</thead>
<tbody>
<tr>
<td>V 1</td>
<td>R1 2 R2 R3 R4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LIGHT SPROOT ROOT INITIALS: FREQUENCY</th>
<th>1 = Short 2 = Medium 3 = Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>V 1</td>
<td>R1 2 R2 R3 R4</td>
</tr>
</tbody>
</table>

3. PLANT CHARACTERISTICS:

<table>
<thead>
<tr>
<th>GROWTH HABIT: (See Figure 2)</th>
<th>1 = Erect (&gt;45° with ground) 2 = Semi-erect (30-45° with ground) 3 = Spreading</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>R1 R2 R3 R4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TYPE</th>
<th>1 = Stem (foliage open, stems clearly visible) 2 = Intermediate 3 = Leaf (Foliage closed, stems hardly visible)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>R1 R2 R3 R4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MATURITY: Days after planting (DAP) at vine senescence</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>R1</td>
<td>R2</td>
<td>R3</td>
<td>R4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLANTING DATE</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>R1</td>
<td>R2</td>
<td>R3</td>
<td>R4</td>
</tr>
</tbody>
</table>

*REGIONAL AREA:*

1 = Pacific North West (WA, OR, ID, CO, CA) 2 = North Central (ND, WI, MI, MN, OH) 3 = North East (ME, NY, PA, NJ, MD, MA, RI) 4 = Mid-Atlantic Erect (VI, NC, SC, South NJ, FL) 5 = South (LA, TX, AZ, NE) 6 = Canada 7 = Europe 8 = England 9 = Latin America 10 = Brazil 11 = Other

<table>
<thead>
<tr>
<th>V</th>
<th>R1</th>
<th>R2</th>
<th>R3</th>
<th>R4</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>MATURITY CLASS:</th>
<th>1 = Very Early (&lt;100 DAP) 2 = Early (100-110 DAP) 3 = Mid-season (111-120 DAP) 4 = Late (121-130 DAP) 5 = Very Late (&gt;130 DAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>R1</td>
</tr>
</tbody>
</table>
EXHIBIT E

STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S)

Idaho Agricultural Experiment Station

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER

A8495-1

3. VARIETY NAME

Gem Russet

4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)

University of Idaho
Moscow, ID 83844

5. TELEPHONE (include area code)

(208) 397-4181

6. FAX (include area code)

(208) 397-4311

7. PVPO NUMBER

200100010

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

X YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company?

X YES ☐ NO

If no, give name of country

10. Is the applicant the original owner?

X YES ☐ NO

If no, please answer one of the following:

a. If 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 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 (if needed, use reverse for extra space):

The Idaho Agricultural Experiment Station is associated with a Tri-State Variety release agreement. In order to meet the specifications of this agreement, it is necessary to use language indicating the Idaho Agricultural Experiment Station is representing the interests of the other parties, although IAES will be the legal owner.

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of 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 final breeding. See Section 411(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1980, no persons are 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 10 minutes 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.

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# Exhibit F

## Declaration Regarding Deposit

<table>
<thead>
<tr>
<th>Name of Owner (S)</th>
<th>Address (Street and No. or Rd No., City, State, and Zip Code and Country)</th>
<th>Temporary or Experimental Designation</th>
<th>Variety Name</th>
<th>PVPO Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idaho Agricultural</td>
<td>University of Idaho, Moscow, ID 83844</td>
<td>A8495-1</td>
<td>Gem Russet</td>
<td>200100010</td>
</tr>
<tr>
<td>Experiment Station</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.**

Propagation sample of Gem Russet will be maintained at the University of Idaho potato propagation laboratory for the life of the certificate.

---

Signatre: [Signature]

Date: 9 Oct 06