No. 200900441

# THE UNITED STATES OF AMERICA

## TO ALL TO WHOM THESE PRESENTS SHALL COME:

The State of Idaho acting by and through the State Board of Higher Education on behalf of the University of Idaho is partner in the Northwest (Tri-State) Potato Variety Development Program and a signatory of the General Agreement on Policy and Procedure for Release of New Publicly Developed Plant Varieties in Idaho, Oregon, Washington, between Washington State University, Oregon State University, University of Idaho and (USDA-ARS) The United States of America, as represented by the Secretary of Agriculture. In accordance with provision 2 .2 of this Agreement, University of Idaho is applying for the PVPC.

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.)

*POTATO*

*'Classic 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 nineteenth day of June, in the year* ***two thousand and thirteen.***

*Attest:*

*Commissioner*
*Plant Variety Protection Office*
*Agricultural Marketing Service*

*Secretary of Agriculture*

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

Form Approved - OMB No. 0581-0055

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

RAD
9/27/2012

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

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

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

1. NAME OF OWNER
~~University of Idaho~~ The State of Idaho
(continued on Exhibit E, 11)

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
A95109-1

3. VARIETY NAME
Classic Russet

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
Office of Technology Transfer
Morrill Hall 414, PO Box 443003
Moscow ID 83844 -3003

5. TELEPHONE *(include area code)*
208-885-4550

6. FAX *(include area code)*
208-885-4551

**FOR OFFICIAL USE ONLY**

**PVPO NUMBER**
#200900441

**FILING DATE**
August 24, 09

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
Land Grant University

8. IF INCORPORATED, GIVE STATE OF INCORPORATION

9. DATE OF INCORPORATION

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
Gaylene Anderson, University of Idaho, Morrill Hall 414, P.O. Box 443003, Moscow, ID 83844-3003;
Jeffrey C. Stark, University of Idaho
1776 Science Center Drive Suite 205
Idaho Falls ID 83402 -1575

FEES RECEIVED

**FILING AND EXAMINATION FEES:**
$ 4,382.-
DATE 8/24/09

**CERTIFICATION FEE:**
$
DATE

11. TELEPHONE (Include area code)
(208) 529-8376, 208-885-4550

12. FAX (Include area code)
208 522-2954, 208-885-4551

13. E-MAIL
jstark@uidaho.edu; gaylene@uidaho.edu

14. CROP KIND *(Common Name)*
Potato

16. FAMILY NAME *(Botanical)*
Solanaceae

15. GENUS AND SPECIES NAME OF CROP
Solanum tuberosum

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

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

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

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

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

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

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

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

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

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

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

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

| SIGNATURE OF OWNER | | SIGNATURE OF OWNER | |
|---|---|---|---|
| NAME *(Please print or type)* | | NAME *(Please print or type)* | |
| Gaylene Anderson | | | |
| CAPACITY OR TITLE | DATE | CAPACITY OR TITLE | DATE |
| Licensing Associate | 8/17/2009 | | |

ST-470 (02-06) designed by the Plant Variety Protection Office using Word 2003.

2009 AUG 24 PM 9:26

#200900441

(See reverse for instructions and information collection burden statement)

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

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

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

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

**ITEM**

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

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

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

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

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

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

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

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

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

RAD
9/10/2012

**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.)*

Application filed within one year of release date. 5/8/2009

**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 al 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).*

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Received August 24, 2009

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# Exhibit A Form

1. Describe the genealogy (back to and including public and commercial varieties, lines, or clones used) and the breeding method(s).

Classic Russet was derived from a sexual hybridization made at the University of Idaho's Aberdeen Research and Extension Center in 1995. It resulted from a cross of Blazer Russet (female parent) and Summit Russet (male parent). It was first selected in the field in 1997 and subsequently evaluated for 12 years.

A four generation pedigree is attached.

2. Give the details of subsequent stages of selection and multiplication.

| Year | Detail of Stage | Selection Criteria |
|---|---|---|
| 1997 | Field selection in 1997. | Early yield and maturity, appearance, higher protein content, resistance to tuber defects, excellent culinary qualities. |
| 2003 | In 2003 Classic Russet was evaluated in the Tri-State Potato Variety Trials. | |
| 2004-2006 | In 2004-2006 Classic Russet was entered and evaluated in the Western Regional Variety Trials. Classic Russet was selected for use in the early to medium season russet tablestock and french fry processing markets. | |
| 2006-present | Classic Russet in agronomic field trials. | |
| | Seed source maintained at UI Tetonia R&E Center | |

3a. Is the variety uniform? X Yes No

How did you test for uniformity?

Classic Russet has been clonally propagated since the first year of selection. The variety has remained uniform during all subsequent years of maintenance and propagation.

3b. Is the variety stable? X Yes No

How did you test for stability? Over how many generations?

Classic Russet has been clonally propagated for ten years of evaluations. It has shown stability over ten generations and has not produced any recognizable variants.

4. Are genetic variants observed or expected during reproduction and multiplication? _____ Yes _X_ No

If yes, state how these variants may be identified, their type and frequency.

*Continue on additional pages if necessary.*

Received September 7, 2012

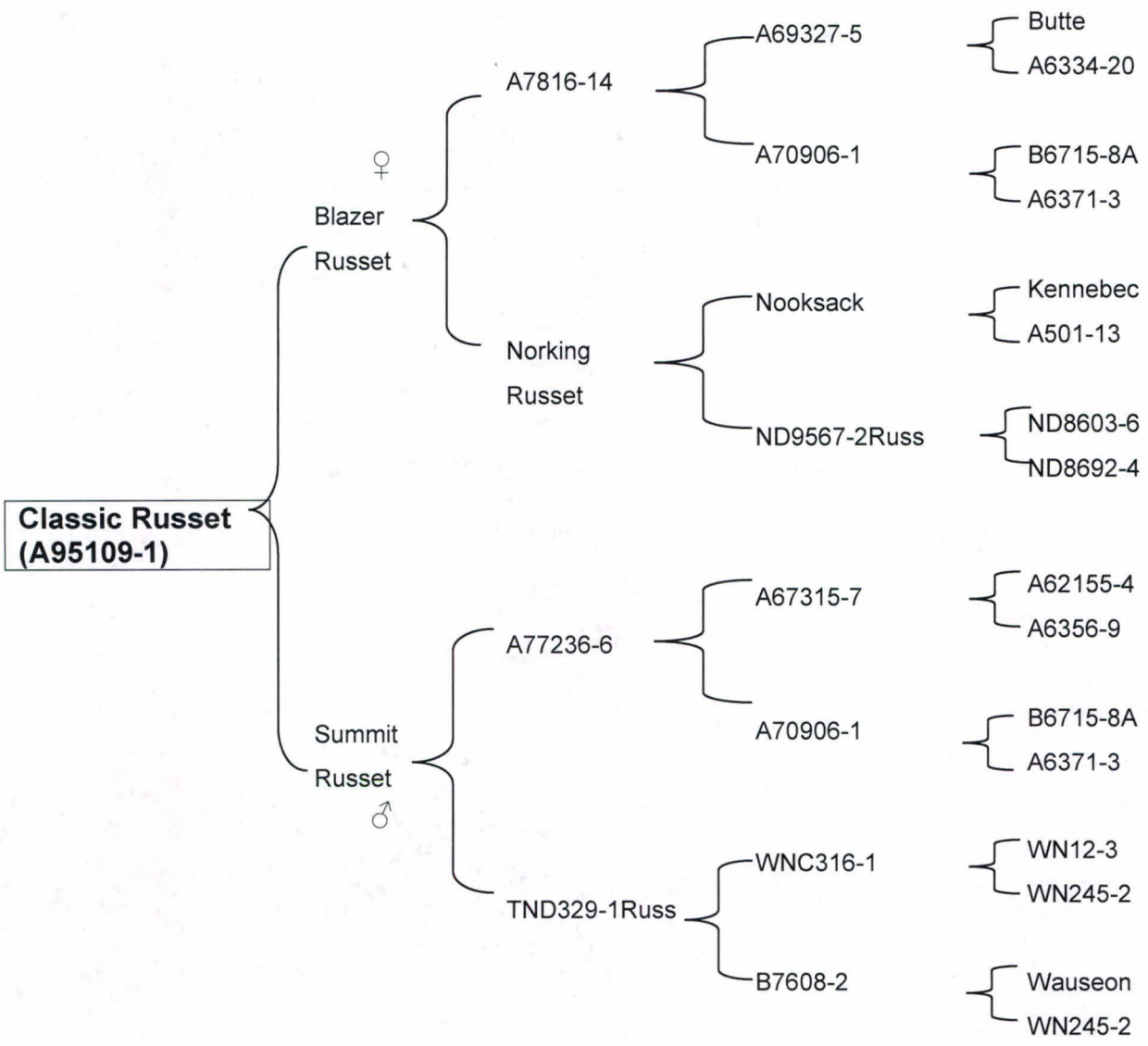


Figure 1. Pedigree of Classic Russet.

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# Exhibit B Form

Based on overall morphology, __'Classic Russet'_ is most similar to ___'Russet Burbank'_
*Applicant's new variety* *Most similar comparison variety(ies)*

_'Classic Russet' _ most clearly differs from __ ' Russet Burbank ' ___ in the following traits:
*Applicant's new variety* *Most similar comparison variety(ies)*

Name the specific trait, and then list the value of that trait for each variety in the comparison. Attach appropriate supporting evidence (see the Guidelines for Presenting Evidence in Support of Variety Distinctness, available from the PVP Office or website).

| 1. Qualitative traits: | Applicant's New Variety<br>'Classic Russet' | 1st Comparison Variety<br>'Russet Burbank' | Location of Evidence |
|---|---|---|---|
| Plant growth habit<br>Leaflet shape<br>Sprout tip<br>Stipules | Erect (3)<br>Lanceolate (4)<br>Open (3)<br>Absent (1) | Semi-spreading (5)<br>Medium ovate (2)<br>Intermediately closed(2)<br>Medium (5) | Exhibit C |
| 2. Color traits: * measured using the Royal Horticultural Society Colour Chart (RHS) | | | |
| Leaf color*<br><br>Stem Anthocyanin<br>Petiole Anthocyanin<br>Light sprout Anthocyanin | Dark green (RHS 137B )<br>Strong (7)<br>Strong (7)<br>Strong (7) | Olive green (RHS 146 B)<br>Weak (3)<br>Weak (3)<br>Weak (3) | Exhibit C and photographs |
| 3. Quantitative traits: | | | |
| Protein<br><br>Glycoalkaloids (TGA) | High (6.5%) in 2005 (6.8%) in 2006<br><br>Low (0.72 and 0.90 mg/100g FWB) respectively | Low (4.7%) in 2005 (4.6 %) in 2006<br><br>Medium-Low (3.21 and 3.55 mg/100g FWB) respectively | Exhibit D<br>2005 Pr> F 0.0104 protein 0.0077 TGA.<br>2006 Pr> F 0.0019 protein, 0.0131 TGA |
| 4. Other: | | | |
| | | | |

*Use additional tables to present clear differences for additional comparison varieties. Use additional pages to present supporting evidence*

Received September 7, 2012

CLASSIC RUSSET

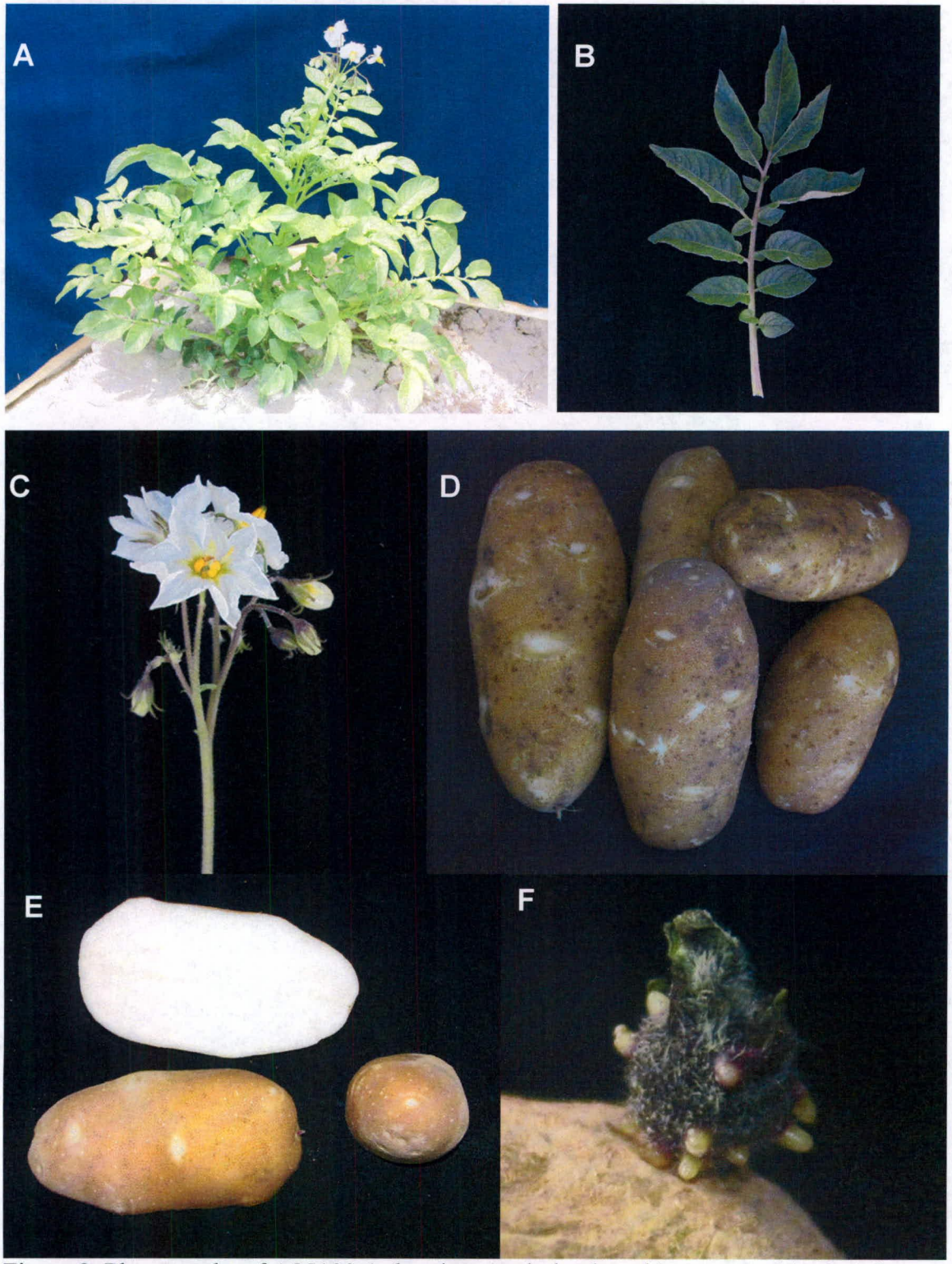


Figure 2. Photographs of A95109-1 showing a) whole plant, b) compound leaf, c) flower, d) field tubers, e) external tuber appearance and tuber flesh color, and f) light sprout.

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RUSSET BURBANK

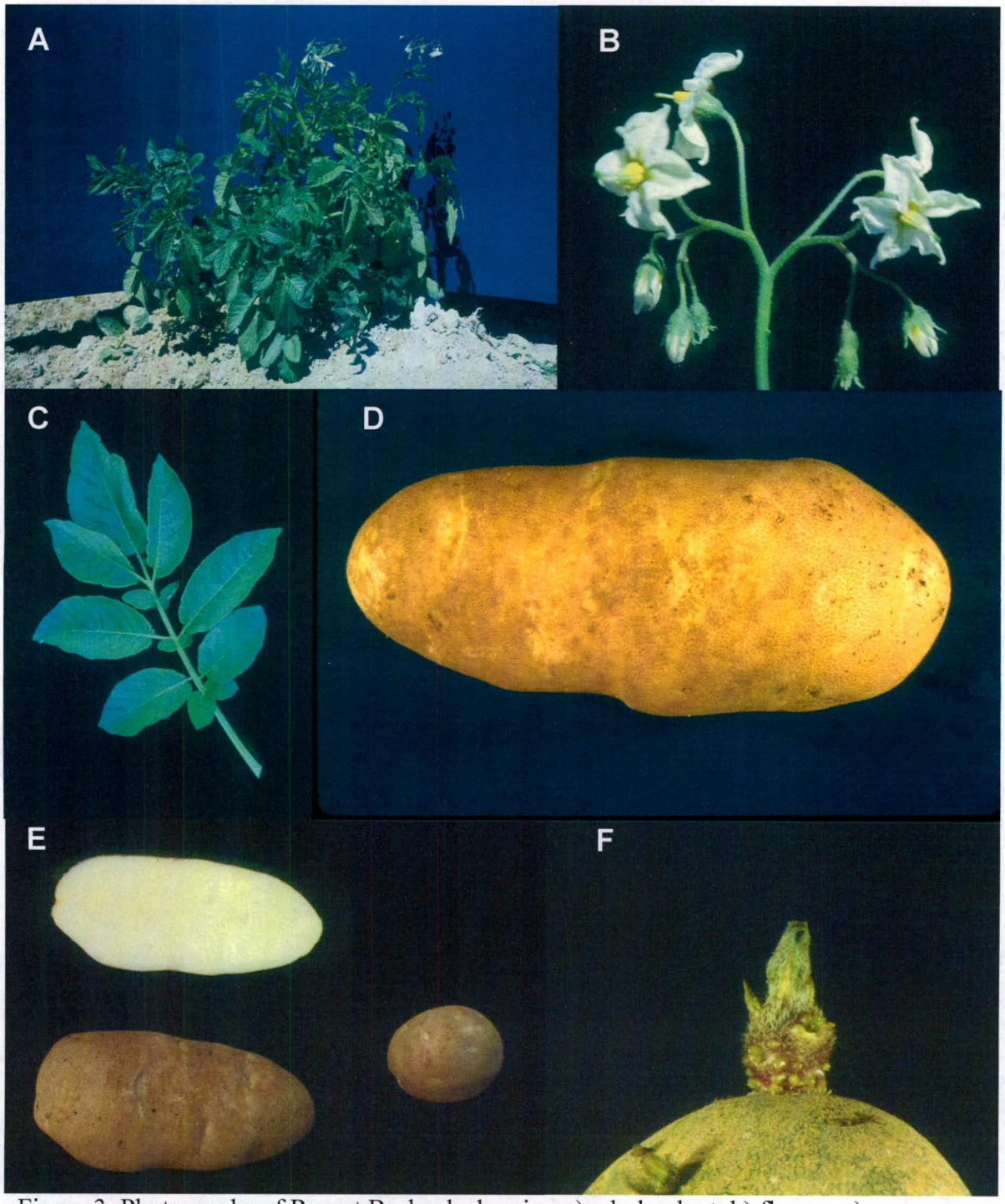


Figure 3. Photographs of Russet Burbank showing a) whole plant, b) flower, c) compound leaf, d) field tuber, e) external tuber appearance and tuber flesh color, and f) light sprout.

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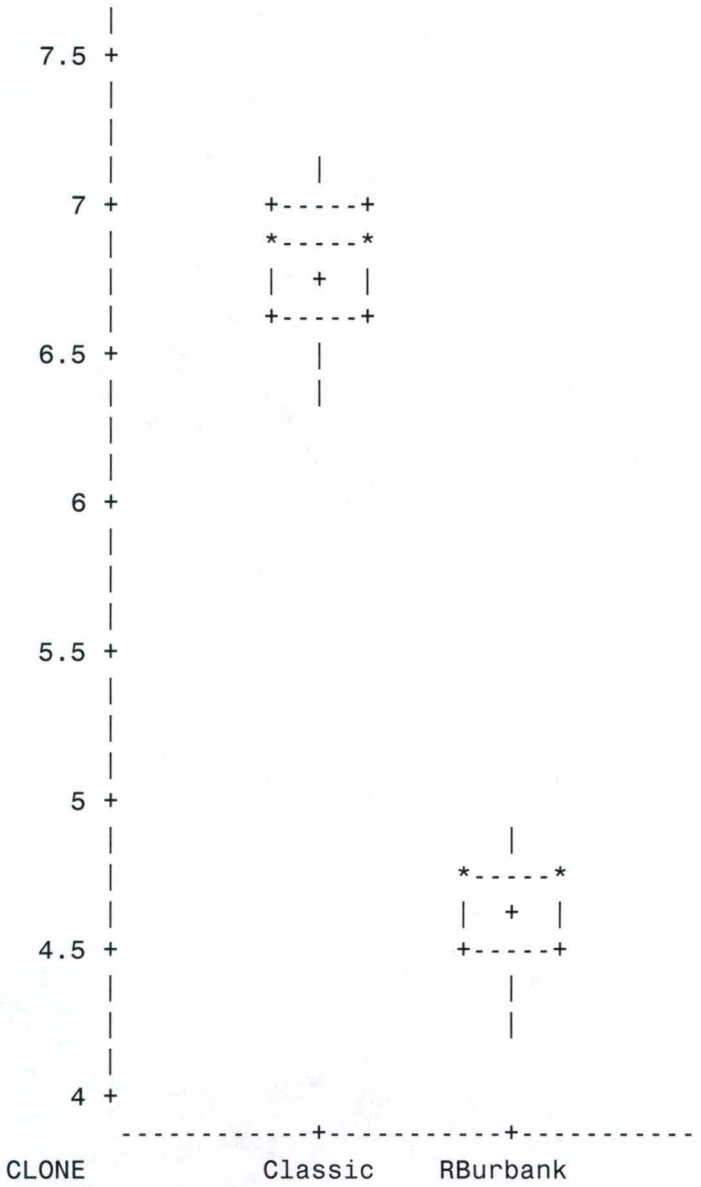
#200900441

The UNIVARIATE Procedure
Variable: Protein

Schematic Plots



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*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.*

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

**Exhibit C**

# 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 United States. All comparative data should be determined from varieties entered in the same trials. The size of the plots should be such that plants or 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 (RHS) Color Chart or Munsell Color Chart (MCC).

**Reference Varieties**:
The application variety should be compared to at least one reference variety preferably a set of reference varieties. The reference varieties should be market class standard varieties currently grown in the United States and or the variety (ies) most similar. The following varieties are recommended as market class standards to be used as reference varieties:

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

If the applicant does not use one of the recommended reference varieties by the PVP office, a complete description of the reference variety should be submitted by the applicant (Exhibit C).

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**Characteristics**:
Light sprout characteristics are supplied in **Figure 1**. The plant type and growth habit characteristics are collected at early first bloom. **Figure 2** 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 3** 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 4** is supplied for examples of leaf silhouette. Leaf stipules are shown in **Figure 5** for visual definition. **Figure 6** is supplied to define leaf characteristics. **Figure 7** should be used to describe terminal and primary leaflet shape. **Figures 8 and 9** 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. Glandular trichomes should be described in the Additional Comments and Characteristics (Descriptor 15).

Inflorescence characteristics should be measured at early first bloom. **Figures 10, 11 and 12** are supplied to describe anther and stigma 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 13 and 14** are available to describe distribution of secondary color and tuber shape, respectively.

Disease and pest reactions should be based upon specific tests or statistical analysis rather than just field observations, rating 1 as Highly Resistance and 9 as Highly Susceptible, please follow the scale on each descriptor. Other diseases or pests reactions not requested can be described if it is felt that it would be helpful to determine novelty of the variety.

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 described if they are helpful in distinguishing the variety.

Legend:

**V** = Application Variety

**R1-R4** = Reference Varieties

* = Both the reference variety (ies) and application variety must be described for characteristics designated with an asterisk.

Received August 24, 2009

RAD
9/27/2012



| NAME OF APPLICANT (S) | TEMPORARY OR EXPERIMENTAL DESIGNATION | VARIETY NAME |
|---|---|---|
| ~~University of Idaho~~ The State of Idaho (continued on Exhibit E, 11) | A95109-1 | Classic Russet |

ADDRESS *(Street and No. or RD No., City, State, Zip Code, and Country)*
Office of Technology Transfer
Morrill Hall 414
PO Box 443003
Moscow ID 83844-3003

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PVPO NUMBER
#200900441

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

| Application Variety (V) | Reference Variety 1 (R1) | Reference Variety 2 (R2) | Reference Variety 3 (R3) | Reference Variety 4 (R4) |
|---|---|---|---|---|
| Classic Russet | Russet Burbank | | | |

**PLEASE READ ALL INSTRUCTIONS CAREFULLY:**

**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 | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 4-5 | 4-5 | | | |

**2. LIGHT SPROUT CHARACTERISTICS**: (See Figure 1)

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

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 2 | 2 | | | |

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

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 5 | 3 | | | |

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

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 3 | 2 | | | |

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

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 5 | 3 | | | |

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

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 3 | 2 | | | |



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**2. LIGHT SPROUT CHARACTERISTICS**: (continued)

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

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 4 | 3 | | | |

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

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 3 | 2 | | | |

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

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 4 | 2 | | | |

**LIGHT SPROUT ROOT INITIALS: FREQUENCY**
1 = Absent 2 = Some 3 = Abundant

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 2 | 2 | | | |

**3. PLANT CHARACTERISTICS**:

**GROWTH HABIT**: (See Figure 2)
3 = Erect (>45° with ground) 5 = Semi-erect (30-45° with ground) 7 = Spreading

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 3 | 5 | | | |

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

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 1 | 1 | | | |

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

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 112 | 125 | | | |

**PLANTING DATE**:

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 4-27-2005, 5-1-2006 | 4-27-2005, 5-1-2006 | | | |

***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 _____

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 1 Aberdeen, ID | 1 Aberdeen, ID | | | |

**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).

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 3 | 4 | | | |



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

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

| V | 5 | R1 | 3 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

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

| V | 5 | R1 | 3 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**5. LEAF CHARACTERISTICS**:

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

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

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

| V | 137 B | R1 | 146 B | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

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

| V | 2 | R1 | 3 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

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

| V | 2 | R1 | 2 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

(*Note Descriptor #15 can be used to describe the type and length of the glandular trichomes observed.)*

*** LEAF SILHOUETTE**: (See Figure 4)
1 = Closed 3 = Medium 5 = Open

| V | 5 | R1 | 5 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

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

| V | 5 | R1 | 3 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**LEAF STIPULES SIZE**: (Se Figure 5)
1 = Absent 3 = Small 5 = Medium 7 = Large

| V | 1 | R1 | 5 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**TERMINAL LEAFLET SHAPE** (See Figures 6 and 7)
1 = Narrowly ovate 2 = Medium Ovate 3 = Broadly Ovate 4 = Lanceolate 5 = Elliptical 6 = Obovate 7 = Oblong 8 = Other _____

| V | 4 | R1 | 2 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|



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**5. LEAF CHARACTERISTICS**: (continued)

**TERMINAL LEAFLET TIP SHAPE**: (See Figures 6 and 8)
1 = Acute 2 = Cuspidate 3 = Acuminate 4 = Obtuse 5 = Other _____

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

* **TERMINAL LEAFLET BASE SHAPE**: (See Figure 9)
1 = Cuneate 2 = Acute 3 = Obtuse 4 = Cordate 5 = Truncate 6 = Lobed 7 = Other _____

| V | 2 | R1 | 3 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**TERMINAL LEAFLET MARGIN WAVINESS**:
1 = Absent 2 = Slight 3 = Weak 4 = Medium 5 = Strong

| V | 2 | R1 | 2 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**NUMBER OF PRIMARY LEAFLET PAIRS**: (See Figure 6)

**AVERAGE**:

| V | 3.6 | R1 | 3.6 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**RANGE**:

| V | 3 to 4 | R1 | 3 to 5 | R2 | to | R3 | to | R4 | to |
|---|---|---|---|---|---|---|---|---|---|

**PRIMARY LEAFLET TIP SHAPE**: (See Figures 6 and 8)
1 = Acute 2 = Cuspidate 3 = Acuminate 4 = Obtuse 5 = Other _____

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

**PRIMARY LEAFLET SIZE**:
1 = Very Small 2 = Small 3 = Medium 4 = Large 5 = Very Large

| V | 2 | R1 | 3 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**PRIMARY LEAFLET SHAPE**: (See Figures 6 and 7)
1 = Narrowly ovate 2 = Medium ovate 3 = Broadly ovate 4 = Lanceolate 5 = Elliptical 6 = Ovate 7 = Oblong 8 = Other _____

| V | 1 | R1 | 2 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**PRIMARY LEAFLET BASE SHAPE:** (See Figures 6 and 9)
1 = Cuneate 2 = Acute 3 = Obtuse 4 = Cordate 5 = Truncate 6 = Lobed 7 = Other _____

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

**NUMBER OF SECONDARY AND TERTIARY LEAFLET PAIRS**: (See Figure 6)

**AVERAGE**:

| V | 5.6 | R1 | 6.1 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**RANGE**:

| V | 2 to 9 | R1 | 2 to 11 | R2 | to | R3 | to | R4 | to |
|---|---|---|---|---|---|---|---|---|---|



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**5. LEAF CHARACTERISTICS**: (continued)

**NUMBER OF INFLORESCENCE/PLANT**:

**AVERAGE**:

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 4.1 | 4.2 | | | |

**RANGE**:

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 1 to 7 | 1 to 9 | to | to | to |

**NUMBER OF FLORETS/INFLORESCENCE**:

**AVERAGE**:

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 7.5 | 12.5 | | | |

**RANGE**:

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 1 to 15 | 7 to 24 | to | to | to |

*** COROLLA INNER SURFACE COLOR CHART VALUE**: Royal Horticulture Society Color Chart or Munsell Color Chart (Measure predominant color of newly open flower and circle the appropriate color chart)

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 155 A | 155 A | | | |

*** COROLLA OUTER SURFACE COLOR CHART VALUE**: Royal Horticulture Society Color Chart or Munsell Color Chart (Measure predominant color of newly open flower and circle the appropriate color chart)

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 155 B | 155 B | | | |

*** COROLLA INNER SURFACE COLOR**: (Measure predominant color of newly open flower, if flowers are bi-color please use the ratio codes)
1 = White 2 = Red-violet 3 = Blue-violet 4 = Cream 5 = Red-purple 6 = Blue 7 = Pink 8 = Pink-white 9 = Purple 10 = Violet 11 = Purple-violet 13 = Violet-White 1:1 14 = Violet-White 1:3 15 = Violet-White 3:1 16 = Violet-White Halo 17 = Pink-White 1:1 18 = Pink-White 1:3 19 = Pink-White 3:1 20 = Pink-White Halo 21 = RedViolet-White 1:1 22 = RedViolet-White 1:3 23 = RedViolet-White 3:1 24 = RedViolet-White Halo 25 = BlueViolet-White 1:1 26 = BlueViolet-White 1:3 27 = BlueViolet-White 3:1 28 = BlueViolet-White Halo
12 = Other _____

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 1 | 1 | | | |

**COROLLA SHAPE**: (See Figure 10)
1 = Very rotate 2 = Rotate 3 = Pentagonal 4 = Semi-stellate 5 = Stellate

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 4 | 4 | | | |

**6. INFLORESCENCE CHARACTERISTICS**:

**CALYX ANTHOCYANIN COLORATION**:
1 = Absent 3 = Weak 5 = Medium 7 = Strong 9 = Very strong

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 7 | 3 | | | |

**ANTHER COLOR CHART VALUE**: Royal Horticulture Society Color Chart or Munsel Color Chart (Measure when newly opened flower is fully expanded and circle the appropriate color chart)

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 15 A | 15 A | | | |

**ANTHER SHAPE**: (See Figure 11)
1 = Broad cone 2 = Narrow cone 3 = Pear-shaped cone 4 = Loose 5 = Other

| V | R1 | R2 | R3 | R4 |
|---|---|---|---|---|
| 4 | 3 | | | |



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**6. INFLORESCENCE CHARACTERISTICS**: (continued)

**POLLEN PRODUCTION**:
1 = None 3 = Some 5 = Abundant

| V | 1 | R1 | 1 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**STIGMA SHAPE**: (See Figure 12)
1 = Capitate 2 = Clavate 3 Bi-lobed

| V | 1 | R1 | 1 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**STIGMA COLOR CHART VALUE**: Royal Horticulture Society Color Chart or Munsel Color Chart (Circle the appropriate color chart)

| V | 146 A | R1 | 146 B | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**BERRY PRODUCTION**: (Under field conditions)
1 = Absent 3 = Low 5 = Moderate 7 = Heavy 9 = Very Heavy

| V | 1 | R1 | 1 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**7. 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 _____

| V | 6 | R1 | 5 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**PREDOMINANT SKIN COLOR CHART VALUE**: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart)

| V | 165 B | R1 | 164 B | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**SECONDARY SKIN COLOR**:
1 = Absent 2 = Present (please describe)

| V | 1 | R1 | 1 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**SECONDARY SKIN COLOR CHART VALUE**: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color)

| V | | R1 | | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**SECONDARY SKIN COLOR DISTRIBUTION**: (See Figure 13)
1 = Eyes 2 = Eyebrows 3 = Splashed 4 = Scattered 5 = Spectacled 6 = Stippled 7 = Other _____

| V | | R1 | | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**SKIN TEXTURE**:
1 = Smooth 2 = Rough (flaky) 3 = Netled 4 = Russetted 5 = Heavily russetted 6 = Other _____

| V | 4 | R1 | 4 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|



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7. **TUBER CHARACTERISTICS**: (continued)

* **TUBER SHAPE**: (See Figure 14)
1 = Compressed 2 = Round 3 = Oval 4 = Oblong 5 = Long 6 = Other _____

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

**TUBER THICKNESS**:
1 = Round 2 = Medium thick 3 = Slightly flattened 4 = Flattened 5 = Other _____

| V | 2 | R1 | 3 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**TUBER LENGTH (mm)**:

**AVERAGE**:

| V | 119 | R1 | 135 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**RANGE**:

| V | 93 to 151 | R1 | 85 to 180 | R2 | to | R3 | to | R4 | to |
|---|---|---|---|---|---|---|---|---|---|

**STANDARD DEVIATION**:

| V | 10.8 | R1 | 18.6 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**AVERAGE WEIGHT OF SAMPLE TAKEN**:

| V | 267 | R1 | 236 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**TUBER WIDTH (mm)**

**AVERAGE**:

| V | 66 | R1 | 61 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**RANGE**:

| V | 55 to 84 | R1 | 49 to 79 | R2 | to | R3 | to | R4 | to |
|---|---|---|---|---|---|---|---|---|---|

**STANDARD DEVIATION**:

| V | 4.54 | R1 | 5.82 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**AVERAGE WEIGHT OF SAMPLE TAKEN (g)**:

| V | 267 | R1 | 236 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|



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7. **TUBER CHARACTERISTICS**: (continued)

**TUBER THICKNESS (mm)**:

**AVERAGE**:

| V | 59 | R1 | 53 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**RANGE**:

| V | 49 to 69 | R1 | 43 to 72 | R2 | to | R3 | to | R4 | to |
|---|---|---|---|---|---|---|---|---|---|

**STANDARD DEVIATION**:

| V | 4.53 | R1 | 5.56 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**AVERAGE WEIGHT OF SAMPLE TAKEN (g)**:

| V | 267 | R1 | 236 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**TUBER EYE DEPTH**:

1 = Protruding 3 = Shallow 5 = Intermediate 7 = Deep 9 = Very deep

| V | 3 | R1 | 5 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**TUBER LATERAL EYES**:

1 = Protruding 3 = Shallow 5 = Intermediate 7 = Deep 9 = Very deep

| V | 3 | R1 | 5 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**NUMBER EYE/TUBER**:

**AVERAGE**:

| V | 12.6 | R1 | 26.6 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**RANGE**:

| V | 7 to 16 | R1 | 19 to 42 | R2 | to | R3 | to | R4 | to |
|---|---|---|---|---|---|---|---|---|---|

**DISTRIBUTION OF TUBER EYES**:

1 = Predominantly apical 2 = Evenly distributed

| V | 2 | R1 | 2 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**PROMINENCE OF TUBER EYEBROWS**:

1= Absent 2 = Slight prominence 3 = Medium prominence 4 = Very prominent 5 = Other _____

| V | 3 | R1 | 2 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|



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7. **TUBER CHARACTERISTICS**: (continued)

**PREDOMINANT TUBER FLESH 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 _____

| V | 1 | R1 | 1 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**PRIMARY TUBER FLESH COLOR CHART VALUE**: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart)

| V | 158 C | R1 | 158 C | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**SECONDARY TUBER FLESH COLOR**:

1 = Absent 2 = Present, please describe: _____

| V | 1 | R1 | 1 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**SECONDARY TUBER FLESH COLOR CHART VALUE**: Royal Horticulture Society Color Chart or Munsell Color Chart (Circle the appropriate color chart)

| V | | R1 | | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**NUMBER OF TUBERS/PLANT**:
1 = Low (<8 ) 2 = Medium (8-15) 3 = High (>15)

| V | 1 | R1 | 2 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|



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**8. DISEASES CHARACTERISTICS:**

**DISEASES REACTION:** 0 = Not Tested 1 = Highly Resistant 2 = Resistant Few Symptoms 3 = Resistance Few Lessions in Number and Size 4 = Moderately Resistance 5 = Intermedia Susceptible 6 = Moderate Susceptible 7 = Susceptible 9 = Highly Susceptible

**LATE BLIGHT: (Phytophthora)**

| V | 7 | R1 | 7 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**EARLY BLIGHT: (Alternaria)**

| V | 5 | R1 | 6 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**SOFT ROT (Erwinia)**

| V | 7 | R1 | 7 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**COMMON SCAB (Streptomyces)**

| V | 4 | R1 | 4 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**POWDERY SCAB (Spongospora)**

| V | 0 | R1 | 0 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**DRY ROT (Fusarium)**

| V | 4 | R1 | 6 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**POTATO LEAF ROLL VIRUS (PLRV)**

| V | 7 | R1 | 9 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|



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8. **DISEASES CHARACTERISTICS**: (continued)

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**POTATO VIRUS X (PVX)**

| V | 9 | R1 | 9 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**POTATO VIRUS Y (PVY)**

| V | 7 | R1 | 7 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**POTATO VIRUS M (PVM)**

| V | 0 | R1 | 0 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**POTATO VIRUS A (PVA)**

| V | 0 | R1 | 0 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**GOLDEN NEMATODE (Globodera)**

| V | 0 | R1 | 0 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**ROOT – KNOT NEMATODE (Meloidogyne)**

| V | 7 | R1 | 7 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**OTHER DISEASE** _____

| V | | R1 | | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**PHYSIOLOGICAL DISORDER**

1 = Malformed shape 2 = Tuber cracking 3 = Feathering 4 = Hollow heart 5 = Internal necrosis
6 = Blackheart 7 = Internal sprouting 8 = Other _____

| V | | R1 | | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

9. **PESTS CHARACTERISTICS**:

**PEST REACTION**: 0 = Not Tested 1 = Highly Resistant 2 = Resistant Few Symptoms 3 = Resistance Few Lessions in Number and Size
4 = Moderately Resistance 5 = Intermedia Susceptible 6 = Moderate Susceptible
7 = Susceptible 9 = Highly Susceptible

**COLORADO POTATO BEETLE (CPB) (*Leptinotarsa*)**

| V | 0 | R1 | 0 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**GREEN PEACH APHID** *(Myzus)*

| V | 0 | R1 | 0 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**OTHER:**

| V | | R1 | | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

**OTHER:**

| V | | R1 | | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|



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**10. GENE TRAITS**:

**INSERTION OF GENES**: 1 = YES 2 = NO ☑

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

**11. QUALITY CHARACTERISTICS**:

**CHIEF MARKET**:

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 | 3-4 | R1 | 3-4 | R2 | | R3 | | R4 | |
|---|---|---|---|---|---|---|---|---|---|

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

| V | 0.8 | R1 | 3.2 | 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.

**12. CHEMICAL IDENTIFICATION**:

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

Classic Russet has higher percent protein content (6.7%) than Russet Burbank (4.6%).

Classic Russet has lower total glycoalkaloid content (0.81 mg/100g Fresh weight basis FWB) than Russet Burbank (3.38 mg/100 g FWB).

See protocol and attached Exhibit D

**13. FINGER PRINTING MARKERS:**

**ISOZYMES** 1 = YES 2 = NO ☑

IF YES, attach information

**14. DNA PROFILE:** 1 = YES 2 = NO ☑

IF YES, attach information

**15. ADDDITIONAL COMMENTS AND CHARACTERISTICS**:

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



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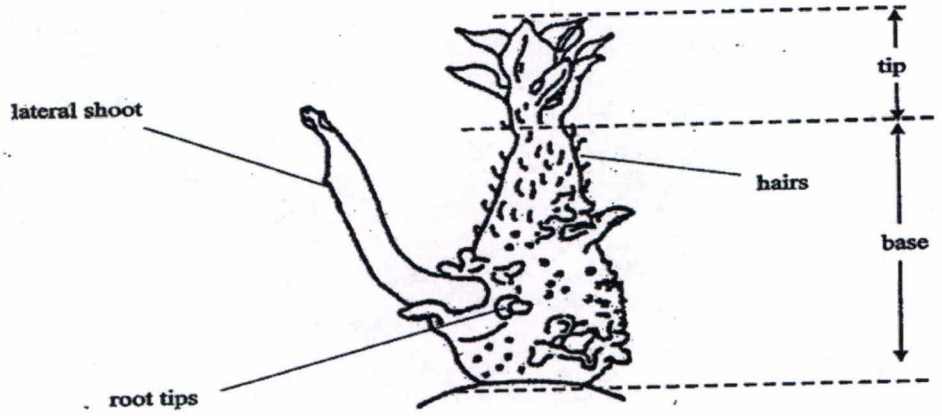
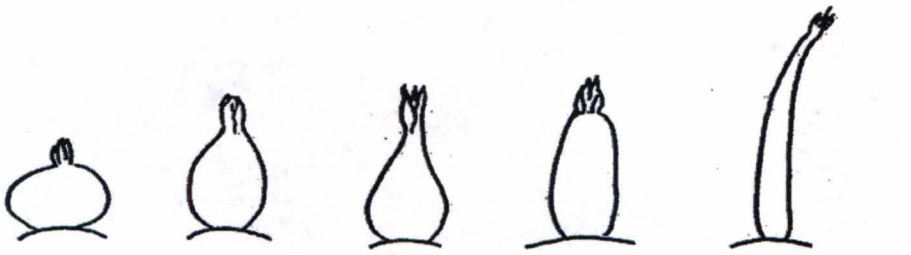
Figure 1: Light sprout

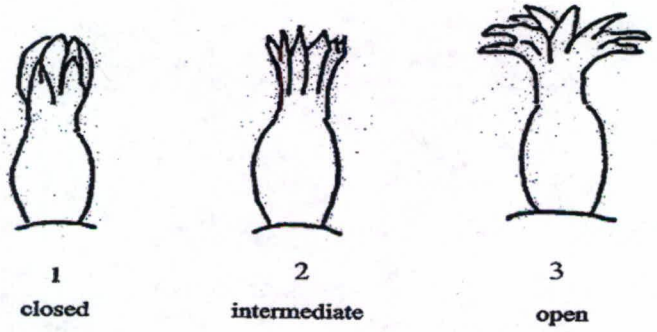
Light sprout dissection




Light sprout shape




Light sprout tip habit

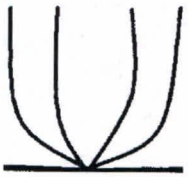



**The characteristic should be observed after about 10 weeks to obtain a good differentiation in the collection.**

**Figure 2: Growth Habit**

**Erect**

**Semi Erect**

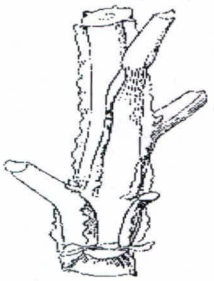


**Spreading**

**Figure 3: Stem Wings**

**Weak**

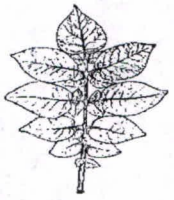
**Medium**



**Strong**

**Figure 4: Leaf Sillhouette**

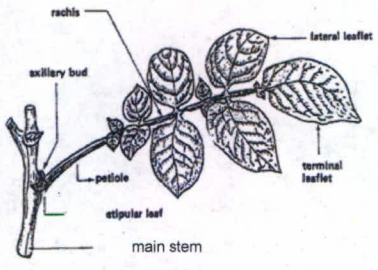
**Closed**



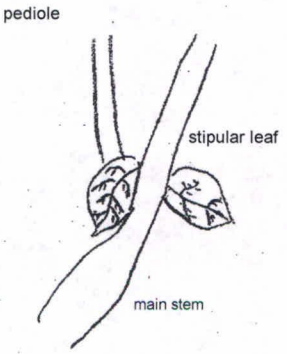
**Medium**

**Open**

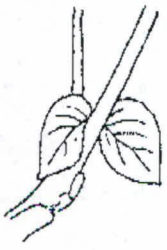
**Figure 5: Leaf Stipules**



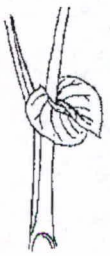

General structures




Small stipular leaf



Medium stipular leaf



Large stipular leaf

**Figure 6: Leaf Dissection**

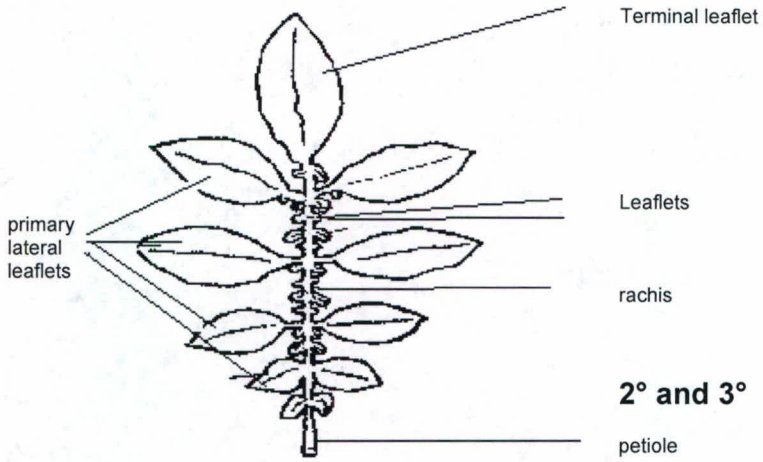
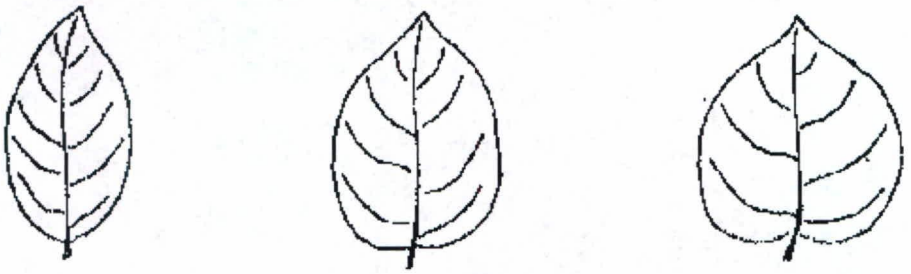
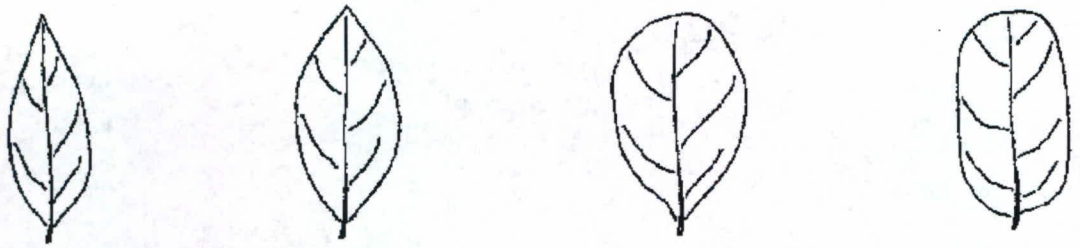



**Figure 7: Terminal Leaflet Shape/Primary Leaflet Shape**



Narrowly Ovate | Medium Ovate | Broadly Ovate



Lanceolate | Elliptical | Obovate | Oblong

**Figure 8: Terminal Leaflet Shape of Tip/Primary Leaflet Shape of Tip**

Acute | Cuspidate | Acuminate | Obtuse

**Figure 9: Terminal Leaflet Shape of Base/Primary Leafelet Shape of Base**

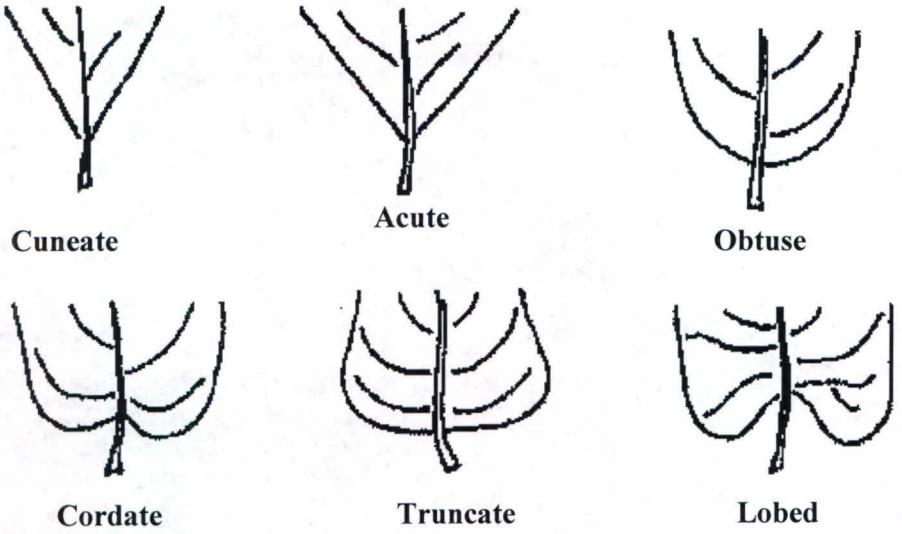



**Figure 10: Corolla Shape**

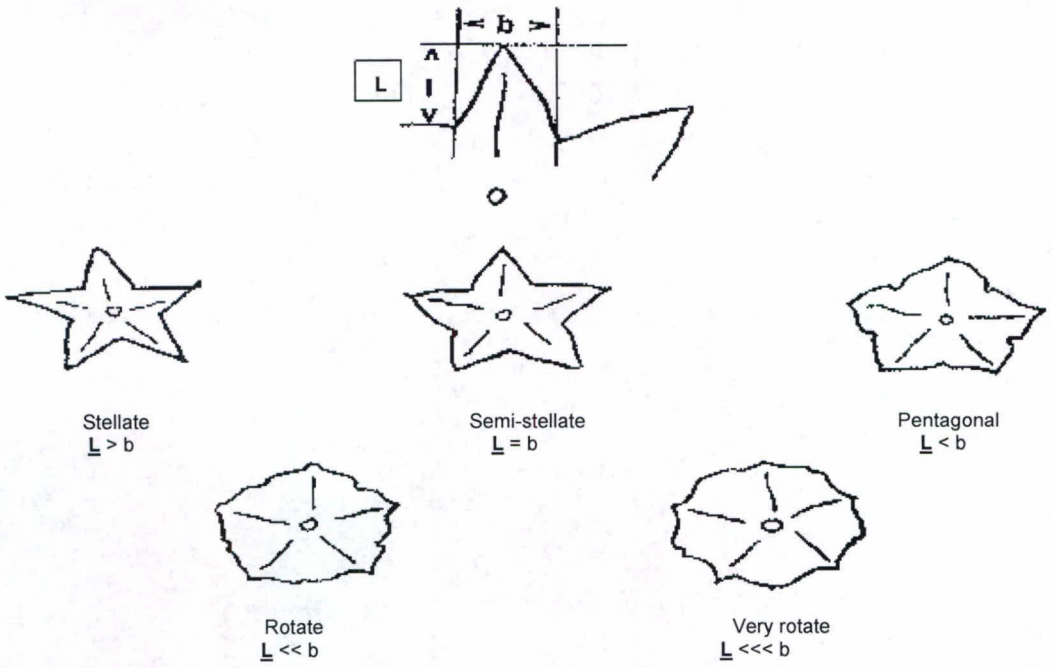



**Figure 11: Anther Shape**

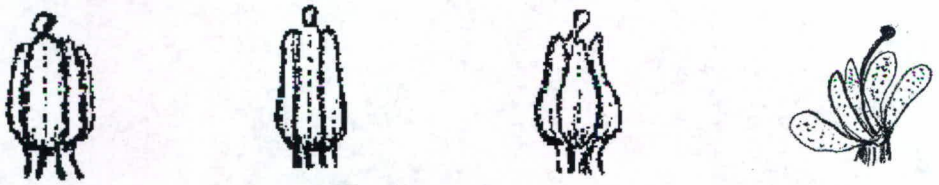
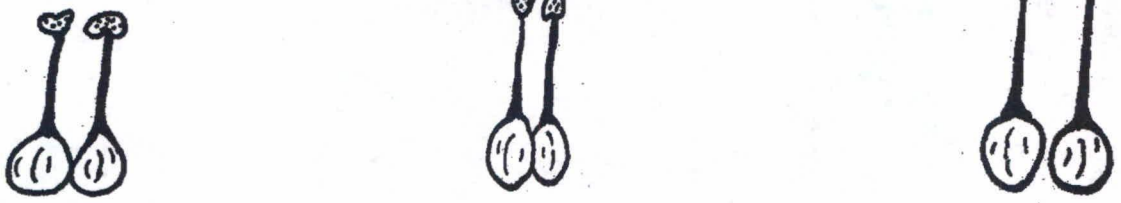
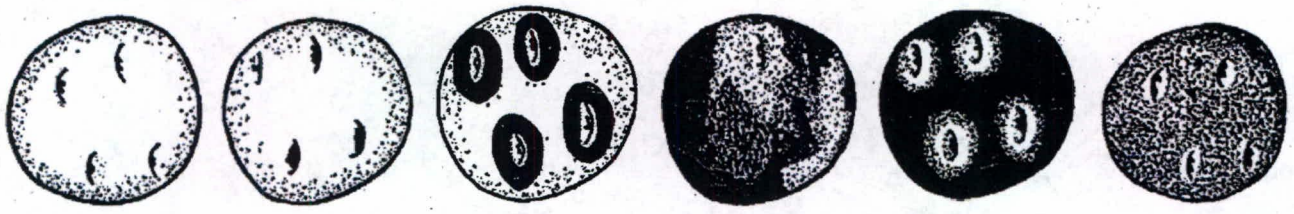


Figure 12: Stigma Shape



Capitate Clavate Bi-lobed

Figure 13: Distribution of Secondary Skin Tuber Color



Eyes Eyebrows Splashed Scattered Spectacled Stippled

Figure 14: Tuber Shape

Compressed Round Oval Oblong Long

References:
Huaman, Z. 1986. Systematic botany and morphology of the potato. Technical information Bulletin 6. International Potato Center, Lima, Peru.

Huaman, Z., Williams, J.T., Salhuana, W. and Vincent, L. Descriptors for the cultivated potato and the maintenance and distribution of germplasm collections. 1977. International Board for Plant Genetic Resources. Rome, Italy.

Potato (*Solanum tuberosum* L.) Guidelines for the conduct of tests for distinctness, uniformity and stability. International union for the protection of new varieties of plants (UPOV). 2004-03-31.

**Application for Plant Variety Protection Certificate**

**Exhibit D: Additional Description Information**
**Variety:** Classic Russet
**Owner:** Idaho Agricultural Experiment Station

In direct comparison with Russet Burbank, Classic Russet tubers have higher protein content (6.7% protein for Classic Russet vs. 4.6% protein for Russet Burbank averaged over 2 years) Mean protein content for individual years were 6.25% for Classic Russet and 4.65% for Russet Burbank in 2005 ($p=0.01$) and 6.95% for Classic Russet and 4.64% for Russet Burbank in 2006 ($p=0.01$).

Classic Russet tubers have lower Total Glycoalkaloid content (0.81mg/100g Fresh Weight Basis (FWB) vs. 3.38mg/100g FWB averaged over 2 years). Mean total glycoalalkaloid contents for individual years were 0.72 mg/100g FWB for Classic Russet and 3.21mg/100g FWB for Russet Burbank in 2005, ($p=0.01$) and 0.90 mg/100g FWB for Classic Russet and 3.55 mg/100g FWB for Russet Burbank in 2006 ($p=0.01$).

Protocols are attached. Statistical analysis was performed using the GLM and Univariate procedures from SAS (analysis attached).

# PROTEIN
## Standard Operating Procedure

**Title:** Determination of Protein Content of Freeze-dried Tuber Powder
Coomassie Blue Protein Assay.

Reagents:

1. Dye Reagent: Dissolve 100mg Coomassie Blue G-250 (Sigma) in 50ml of 95% Methanol; Add several hundred ml Ultra Purified Water ($UPH_2O$) , mix, slowly add 100ml of 85% Phosphoric Acid, bring to 1 liter final volume with $UPH_2O$. Protect from light. Discard after 2 weeks.
2. 0.5 N Sodium Hydroxide: Disolve 20g NaOH in about 500ml $UPH_2O$, cool, make up to 1 liter.
3. Protein standard (100ug/ml): Make up solution of Bovine Gamma Globulin (BGG) 5 mg/50ml 0.5N NaOH. BGG dissolves best in 1N NaOH, therefore, Dissolve 5mg BGG in 25 ml 1N NaOH then add 25ml $UPH_2O$. Should be made up fresh daily.

Procedure:

1. Weigh sample of about 15mg of freeze dried and ground tuber tissue into a test tube. Record exact weight. Duplicate each sample.
2. Add 5ml of 0.5N NaOH, gently mix (with vortex) with minimum foaming.
3. Let stand at room temperature for 2.5 hours.
4. Transfer a 0.2ml aliquote of the sample extract into a clean test tube and add 0.8ml of 0.5N NaOH.
5. Add 5ml dye reagent, mix well, read absorbance at 595nm after 5 minutes but within ½ hour of dye addition.
6. For standards add 0.1, 0.2, 0.3, 0.4 and 0.5ml to test tubes, bring to 1 ml volume with 0.5N NaOH, add 5ml of dye reagent, mix and read absorbance after 5 minutes but within ½ hr of dye addition.
7. Blank 1 ml 0.5N NaOH and 5ml dye reagent.

Calculations:

1. Determine average µg protein per OD unit from standards.
2. Unknown OD x µg protein/OD unit = µg protein in unknown per 0.2 aliquot.
3. µg protein per 0.2 ml aliquot x 5ml total extract volume – total µg
4. Total microgram protein $\upsilon$ mg tissue extracted =µg /mg (or mg/g)

-- or total microgram protein $\sum$ µg tissue extracted x 100 - % protein

--actual protein* = $\frac{\text{coomassie blue protein estimate using BGG (mg/G)} - 5.6}{0.86}$

*Actual protein determined from microkjeldahl anaysis of 80% ethanol extracted freeze dried powder compared with coomassie blue estimate using BGG standard (linear regression analysis 1989).

Reference: Bradford N.M. (1975) A rapid and sensitive method for the quantitation of microgram quantities of protein using the principle of protein dye binding. Anal. Biochem. 73:248-254

# TGA Standard Operating Procedure

**Title**: Determination of Total Glycoalkaloid Content in Freeze-dried Tuber Powder.

**Reagents :**

1. **80% Ethanol : 20% Ultra Purified Water**

2. **Acetic acid solution 10%**: Mix 100ml. glacial acetic acid in Ultra Purified Water, bring to 1 liter final volume.

3. **Ammonium Hydroxide**, concentrated reagent.

4. **Phosphoric Acid 7%** (w/w) add 4.9ml. of 85% $H_3PO_4$ to 93ml. UP $H_20$.

5. **Paraformaldehyde-Phosphoric Acid reagent**: Dissolve 30mg paraformaldehyde in 100 ml concentrated (85%) phosphoric acid.
[Alternatively use 0.065 g 37% formaldehyde in 135g 85% $H_3PO_4$ which gives enough reagent for about 20 determinations (80 ml)]

6. **Solanine standard 1mg/ml**: dissolve 5mg Solanine powder in 5ml of 7% phosphoric acid.

**Procedure:**

1. Weigh 8 grams freeze dried and ground potato tissue into 250ml evaporating flask.

2. Add 100 ml 80% ethanol and 2 glass beads. Turn on hot plates and water on temp controlled refluxing apparatus! Bring to boil. Boil for 15 minutes.

3. TURN ON HOT WATER BATHS

4. Filter the hot extract through Whatman filter paper in a Buchner funnel with suction into a Buchner vacuum flask. Wash flask and filter with 3 washes of 80% ethanol.

5. Transfer filtrate to 500 ml evaporating flask with at least 3 washes of 80% ethanol.

6. Attach flask to rotary evaporator at about $60^0$C. Let sample heat for 3 minutes then turn on the vacuum.
Concentrate to about one-tenth of the original volume. (10mls) takes about 10 to 15 minutes and works best with partial vacuum (can slightly feel vacuum on end of hose).

7. Transfer to 50ml centrifuge tubes and mix with 20ml of 10% acetic acid, using this acid to rinse flask 10mls at a time. DO THIS IN VENTILATION HOOD.

8. Centrifuge (8 at a time) at $10^0$ for 30 minutes at 10,000g to remove interfering lipids. Carefully decant supernatant into another 50 ml centrifuge tube.

9. Add concentrated $NH_4OH$ to pH 10 (about 6 ml; use pH strips to check pH).
This will often cause a clouding and a yellow color to develop. IN HOOD!

10. The alkaloids are then precipitated by heating for 20 minutes in a $70^0$C waterbath.
IN VENTILATION HOOD! Put the centrifuge tube in rack and cover with glass cover six inches in diameter, with water level just below the edge of the lid.

11. Cool to $4^0$C for at least 3 hours or refrigerate overnight.

**12**. Centrifuge at 10$^0$C next morning for 30 minutes at 10,000g.

**13**. Carefully pour of supernatant and discard.

**14**. Turn upside down on a paper towel and let dry 45 minutes.
This can then be reserved in a desiccator in the refrigerator for up to a week.

WHEN READY TO READ GLLYCOALKALOID CONTENT

**15**. Dissolve pellet in 4 ml of 7% phosphoric acid (use more or less volume of 7% Phos. acid, depending on glycoalkaloid concentration)

**16**. For Blank: Put 0.4 ml 7% phos. acid in 20 ml test tube and proceed with **17**.
For a Standards: Use 0.2, 0.3, and 0.4 ml of 1mg/ml standard Solanine solution (200ug, 300ug and 400ug) in three different 20 ml test tubes and proceed with **17**.

**17**. Mix 0.4ml (or other suitable aliquot, depending on alkaloid concentration) with 4ml of paraformaldehyde:phosphoric acid reagent, in a 20ml test tube.
**Vortex to mix thoroughly**!
A blue color develops reaching maximum intensity between 20-40 minutes and then slowly fades.

**18**. Read absorbance at 600nm around 30 minutes after addition of reagent.

**Calculation:**
OD unknown x ug solanine OD unit = ug solanine in unknown sample/0.4 alɜiquot.
Ug solanine/0.4 aliquot x 4 ml total volume = ug x 10 = total ug solanine.
Total ug solanine Ɜ sample weight in g = ug/g convert to mg/22 dry weight.

**Reference:**
Bergers, W.W. (1980). A rapid quantitative assay for solanidine glycoalkaloids in potatoes and industrial potato protein. Potato Research 23:105-110.

| 7% Phosphoric Acid | | |
|---|---|---|
| Samples | $H_3PO_4$ | UP $H_2O$ |
| Generous | ml | ml |
| 20 | 4.9 | 93 |
| 40 | 9.8 | 186 |
| 50 | 12.0 | 228 |
| 70 | 16.9 | 325.5 |
| 100 | 24 | 456 |
| 120 | 28.5 | 541 |

| Paraform/Phos. Acid | | |
|---|---|---|
| Samples | Paraformaldehyde | $H_3PO_4$ |
| | mg | ml |
| 20 | 30 | 100 |
| 30 | 45 | 150 |
| 55 | 75 | 250 |
| 70 | 90 | 300 |
| 100 | 135 | 450 |
| 120 | 150 | 500 |

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The GLM Procedure

Class Level Information

| Class | Levels | Values |
|---|---|---|
| CLONE | 2 | Classic RBurbank |
| REP | 4 | 1 2 3 4 |

| | |
|---|---|
| Number of Observations Read | 8 |
| Number of Observations Used | 8 |

#200900441

The GLM Procedure

Dependent Variable: Protein

| Source | DF | Sum of Squares | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| Model | 4 | 7.87265000 | 1.96816250 | 9.29 | 0.0487 |
| Error | 3 | 0.63523750 | 0.21174583 | | |
| Corrected Total | 7 | 8.50788750 | | | |

| R-Square | Coeff Var | Root MSE | Protein Mean |
|---|---|---|---|
| 0.925335 | 8.233657 | 0.460158 | 5.588750 |

| Source | DF | Type I SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| REP | 3 | 0.86013750 | 0.28671250 | 1.35 | 0.4046 |
| CLONE | 1 | 7.01251250 | 7.01251250 | 33.12 | 0.0104 |

| Source | DF | Type III SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| REP | 3 | 0.86013750 | 0.28671250 | 1.35 | 0.4046 |
| CLONE | 1 | 7.01251250 | 7.01251250 | 33.12 | 0.0104 |

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The GLM Procedure

Dependent Variable: Glyco

| Source | DF | Sum of Squares | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| Model | 4 | 13.58500000 | 3.39625000 | 11.23 | 0.0377 |
| Error | 3 | 0.90695000 | 0.30231667 | | |
| Corrected Total | 7 | 14.49195000 | | | |

| R-Square | Coeff Var | Root MSE | Glyco Mean |
|---|---|---|---|
| 0.937417 | 28.01698 | 0.549833 | 1.962500 |

| Source | DF | Type I SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| REP | 3 | 1.13495000 | 0.37831667 | 1.25 | 0.4291 |
| CLONE | 1 | 12.45005000 | 12.45005000 | 41.18 | 0.0077 |

| Source | DF | Type III SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| REP | 3 | 1.13495000 | 0.37831667 | 1.25 | 0.4291 |
| CLONE | 1 | 12.45005000 | 12.45005000 | 41.18 | 0.0077 |

#200900441

The GLM Procedure

t Tests (LSD) for Protein

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

| | |
|---|---|
| Alpha | 0.05 |
| Error Degrees of Freedom | 3 |
| Error Mean Square | 0.211746 |
| Critical Value of t | 3.18245 |
| Least Significant Difference | 1.0355 |

Means with the same letter are not significantly different.

| t Grouping | Mean | N | CLONE |
|---|---|---|---|
| A | 6.5250 | 4 | Classic |
| B | 4.6525 | 4 | RBurbank |

The GLM Procedure #200900441

t Tests (LSD) for Glyco

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

| | |
|---|---|
| Alpha | 0.05 |
| Error Degrees of Freedom | 3 |
| Error Mean Square | 0.302317 |
| Critical Value of t | 3.18245 |
| Least Significant Difference | 1.2373 |

Means with the same letter are not significantly different.

| t Grouping | Mean | N | CLONE |
|---|---|---|---|
| A | 3.2100 | 4 | RBurbank |
| B | 0.7150 | 4 | Classic |

#200900441

---------- CLONE=Classic ----------

The UNIVARIATE Procedure
Variable: Protein

Moments

| | | | |
|---|---|---|---|
| N | 4 | Sum Weights | 4 |
| Mean | 6.525 | Sum Observations | 26.1 |
| Std Deviation | 0.69495803 | Variance | 0.48296667 |
| Skewness | 0.59513487 | Kurtosis | 1.67328594 |
| Uncorrected SS | 171.7514 | Corrected SS | 1.4489 |
| Coeff Variation | 10.6506978 | Std Error Mean | 0.34747902 |

Basic Statistical Measures

| Location | | Variability | |
|---|---|---|---|
| Mean | 6.525000 | Std Deviation | 0.69496 |
| Median | 6.455000 | Variance | 0.48297 |
| Mode | . | Range | 1.69000 |
| | | Interquartile Range | 0.87000 |

Tests for Location: Mu0=0

| Test | -Statistic- | | -----p Value------ | |
|---|---|---|---|---|
| Student's t | t | 18.77811 | Pr > \|t\| | 0.0003 |
| Sign | M | 2 | Pr >= \|M\| | 0.1250 |
| Signed Rank | S | 5 | Pr >= \|S\| | 0.1250 |

Tests for Normality

| Test | --Statistic--- | | -----p Value------ | |
|---|---|---|---|---|
| Shapiro-Wilk | W | 0.944452 | Pr < W | 0.6817 |
| Kolmogorov-Smirnov | D | 0.275814 | Pr > D | >0.1500 |
| Cramer-von Mises | W-Sq | 0.049584 | Pr > W-Sq | >0.2500 |
| Anderson-Darling | A-Sq | 0.276311 | Pr > A-Sq | >0.2500 |

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 100% Max | 7.440 |
| 99% | 7.440 |
| 95% | 7.440 |

---------- CLONE=Classic ----------

The UNIVARIATE Procedure
Variable: Protein

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 90% | 7.440 |
| 75% Q3 | 6.960 |
| 50% Median | 6.455 |
| 25% Q1 | 6.090 |
| 10% | 5.750 |
| 5% | 5.750 |
| 1% | 5.750 |
| 0% Min | 5.750 |

Extreme Observations

| ----Lowest---- | | ----Highest--- | |
|---|---|---|---|
| Value | Obs | Value | Obs |
| 5.75 | 1 | 5.75 | 1 |
| 6.43 | 3 | 6.43 | 3 |
| 6.48 | 2 | 6.48 | 2 |
| 7.44 | 4 | 7.44 | 4 |

```
Stem Leaf                     #             Boxplot
  74 4                        1                |
  72                                           |
  70                                           |
  68                                          +-----+
  66                                          |     |
  64 38                       2               *--+--*
  62                                          |     |
  60                                          +-----+
  58                                             |
  56 5                        1                  |
     ----+----+----+----+
 Multiply Stem.Leaf by 10**-1
```

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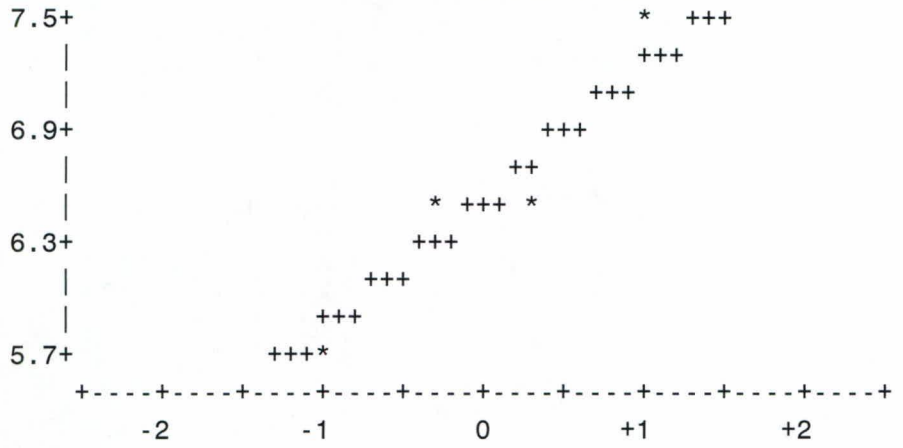
---------- CLONE=Classic ----------

The UNIVARIATE Procedure
Variable: Protein

Normal Probability Plot



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---------- CLONE=Classic ----------

The UNIVARIATE Procedure
Variable: Glyco

Moments

| | | | |
|---|---|---|---|
| N | 4 | Sum Weights | 4 |
| Mean | 0.715 | Sum Observations | 2.86 |
| Std Deviation | 0.16114176 | Variance | 0.02596667 |
| Skewness | -1.6963353 | Kurtosis | 2.78083386 |
| Uncorrected SS | 2.1228 | Corrected SS | 0.0779 |
| Coeff Variation | 22.537309 | Std Error Mean | 0.08057088 |

Basic Statistical Measures

| Location | | Variability | |
|---|---|---|---|
| Mean | 0.715000 | Std Deviation | 0.16114 |
| Median | 0.780000 | Variance | 0.02597 |
| Mode | 0.820000 | Range | 0.34000 |
| | | Interquartile Range | 0.21000 |

Tests for Location: Mu0=0

| Test | -Statistic- | | -----p Value------ | |
|---|---|---|---|---|
| Student's t | t | 8.874174 | Pr > \|t\| | 0.0030 |
| Sign | M | 2 | Pr >= \|M\| | 0.1250 |
| Signed Rank | S | 5 | Pr >= \|S\| | 0.1250 |

Tests for Normality

| Test | --Statistic--- | | -----p Value------ | |
|---|---|---|---|---|
| Shapiro-Wilk | W | 0.783023 | Pr < W | 0.0751 |
| Kolmogorov-Smirnov | D | 0.311646 | Pr > D | >0.1500 |
| Cramer-von Mises | W-Sq | 0.089797 | Pr > W-Sq | 0.1115 |
| Anderson-Darling | A-Sq | 0.501429 | Pr > A-Sq | 0.0856 |

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 100% Max | 0.82 |
| 99% | 0.82 |
| 95% | 0.82 |

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---------- CLONE=Classic ----------

The UNIVARIATE Procedure
Variable: Glyco

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 90% | 0.82 |
| 75% Q3 | 0.82 |
| 50% Median | 0.78 |
| 25% Q1 | 0.61 |
| 10% | 0.48 |
| 5% | 0.48 |
| 1% | 0.48 |
| 0% Min | 0.48 |

Extreme Observations

| ----Lowest---- | | ----Highest--- | |
|---|---|---|---|
| Value | Obs | Value | Obs |
| 0.48 | 4 | 0.48 | 4 |
| 0.74 | 3 | 0.74 | 3 |
| 0.82 | 2 | 0.82 | 1 |
| 0.82 | 1 | 0.82 | 2 |

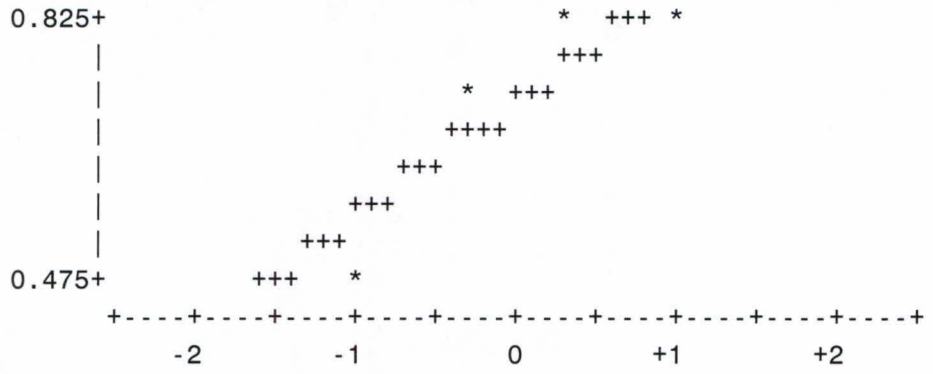
```
Stem Leaf                     #             Boxplot
   8 22                       2             +-----+
   7                                        *-----*
   7 4                        1             |  +  |
   6                                        |     |
   6                                        +-----+
   5                                           |
   5                                           |
   4 8                        1                |
     ----+----+----+----+
 Multiply Stem.Leaf by 10**-1
```

#200900441

---------- CLONE=Classic ----------

The UNIVARIATE Procedure
Variable: Glyco

Normal Probability Plot



#200900441

CLONE=RBurbank

The UNIVARIATE Procedure
Variable: Protein

Moments

| | | | |
|---|---|---|---|
| N | 4 | Sum Weights | 4 |
| Mean | 4.6525 | Sum Observations | 18.61 |
| Std Deviation | 0.12446552 | Variance | 0.01549167 |
| Skewness | -0.854563 | Kurtosis | -1.2892562 |
| Uncorrected SS | 86.6295 | Corrected SS | 0.046475 |
| Coeff Variation | 2.67523963 | Std Error Mean | 0.06223276 |

Basic Statistical Measures

| Location | | Variability | |
|---|---|---|---|
| Mean | 4.652500 | Std Deviation | 0.12447 |
| Median | 4.685000 | Variance | 0.01549 |
| Mode | 4.750000 | Range | 0.26000 |
| | | Interquartile Range | 0.19500 |

Tests for Location: Mu0=0

| Test | -Statistic- | | -----p Value------ | |
|---|---|---|---|---|
| Student's t | t | 74.75966 | Pr > \|t\| | <.0001 |
| Sign | M | 2 | Pr >= \|M\| | 0.1250 |
| Signed Rank | S | 5 | Pr >= \|S\| | 0.1250 |

Tests for Normality

| Test | --Statistic--- | | -----p Value------ | |
|---|---|---|---|---|
| Shapiro-Wilk | W | 0.863369 | Pr < W | 0.2725 |
| Kolmogorov-Smirnov | D | 0.283289 | Pr > D | >0.1500 |
| Cramer-von Mises | W-Sq | 0.055634 | Pr > W-Sq | >0.2500 |
| Anderson-Darling | A-Sq | 0.349688 | Pr > A-Sq | >0.2500 |

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 100% Max | 4.750 |
| 99% | 4.750 |
| 95% | 4.750 |

#200900441

---------- CLONE=RBurbank ----------

The UNIVARIATE Procedure
Variable: Protein

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 90% | 4.750 |
| 75% Q3 | 4.750 |
| 50% Median | 4.685 |
| 25% Q1 | 4.555 |
| 10% | 4.490 |
| 5% | 4.490 |
| 1% | 4.490 |
| 0% Min | 4.490 |

Extreme Observations

| ----Lowest---- | | ----Highest--- | |
|---|---|---|---|
| Value | Obs | Value | Obs |
| 4.49 | 6 | 4.49 | 6 |
| 4.62 | 5 | 4.62 | 5 |
| 4.75 | 8 | 4.75 | 7 |
| 4.75 | 7 | 4.75 | 8 |

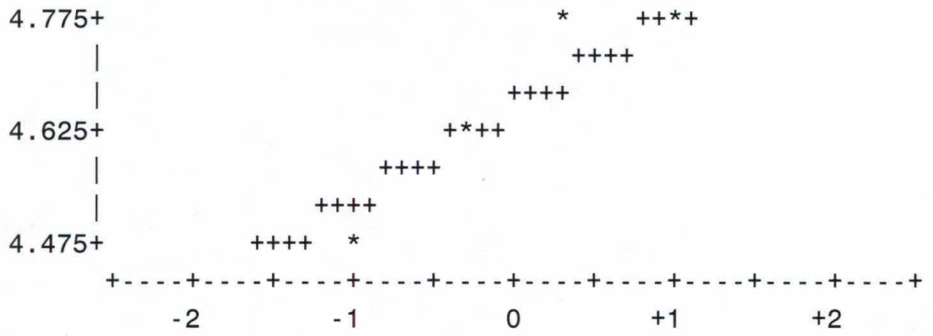
```
Stem Leaf                     #             Boxplot
  47 55                       2             +-----+
  47                                        |     |
  46                                        *--+--*
  46 2                        1             |     |
  45                                        +-----+
  45                                           |
  44 9                        1                |
     ----+----+----+----+
 Multiply Stem.Leaf by 10**-1
```

#200900441

---------- CLONE=RBurbank ----------

The UNIVARIATE Procedure
Variable: Protein

Normal Probability Plot



#200900441

---------- CLONE=RBurbank ----------

The UNIVARIATE Procedure
Variable: Glyco

Moments

| | | | |
|---|---|---|---|
| N | 4 | Sum Weights | 4 |
| Mean | 3.21 | Sum Observations | 12.84 |
| Std Deviation | 0.80911474 | Variance | 0.65466667 |
| Skewness | 0.15314316 | Kurtosis | -2.3909943 |
| Uncorrected SS | 43.1804 | Corrected SS | 1.964 |
| Coeff Variation | 25.2060667 | Std Error Mean | 0.40455737 |

Basic Statistical Measures

| Location | | Variability | |
|---|---|---|---|
| Mean | 3.210000 | Std Deviation | 0.80911 |
| Median | 3.180000 | Variance | 0.65467 |
| Mode | . | Range | 1.82000 |
| | | Interquartile Range | 1.30000 |

Tests for Location: Mu0=0

| Test | -Statistic- | | -----p Value------ | |
|---|---|---|---|---|
| Student's t | t | 7.934598 | Pr > \|t\| | 0.0042 |
| Sign | M | 2 | Pr >= \|M\| | 0.1250 |
| Signed Rank | S | 5 | Pr >= \|S\| | 0.1250 |

Tests for Normality

| Test | --Statistic--- | | -----p Value------ | |
|---|---|---|---|---|
| Shapiro-Wilk | W | 0.970446 | Pr < W | 0.8442 |
| Kolmogorov-Smirnov | D | 0.19815 | Pr > D | >0.1500 |
| Cramer-von Mises | W-Sq | 0.02856 | Pr > W-Sq | >0.2500 |
| Anderson-Darling | A-Sq | 0.189045 | Pr > A-Sq | >0.2500 |

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 100% Max | 4.15 |
| 99% | 4.15 |
| 95% | 4.15 |

#200900441

CLONE=RBurbank

The UNIVARIATE Procedure
Variable: Glyco

Quantiles (Definition 5)

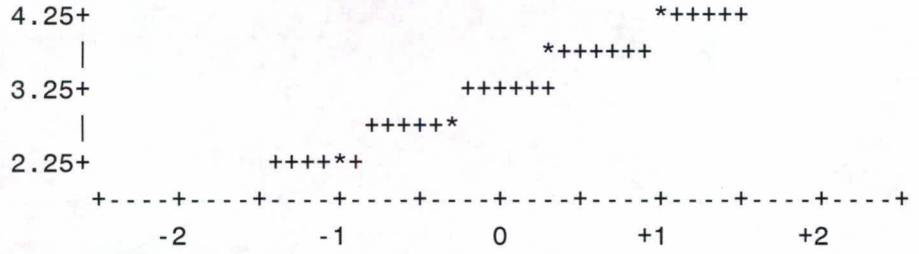
| Quantile | Estimate |
|---|---|
| 90% | 4.15 |
| 75% Q3 | 3.86 |
| 50% Median | 3.18 |
| 25% Q1 | 2.56 |
| 10% | 2.33 |
| 5% | 2.33 |
| 1% | 2.33 |
| 0% Min | 2.33 |

Extreme Observations

| ----Lowest---- | | ----Highest--- | |
|---|---|---|---|
| Value | Obs | Value | Obs |
| 2.33 | 5 | 2.33 | 5 |
| 2.79 | 8 | 2.79 | 8 |
| 3.57 | 7 | 3.57 | 7 |
| 4.15 | 6 | 4.15 | 6 |

```
Stem Leaf                     #             Boxplot
   4 2                       1                |
   3 6                       1               +-----+
   3                                         *--+--*
   2 8                       1               +-----+
   2 3                       1                |
     ----+----+----+----+
```

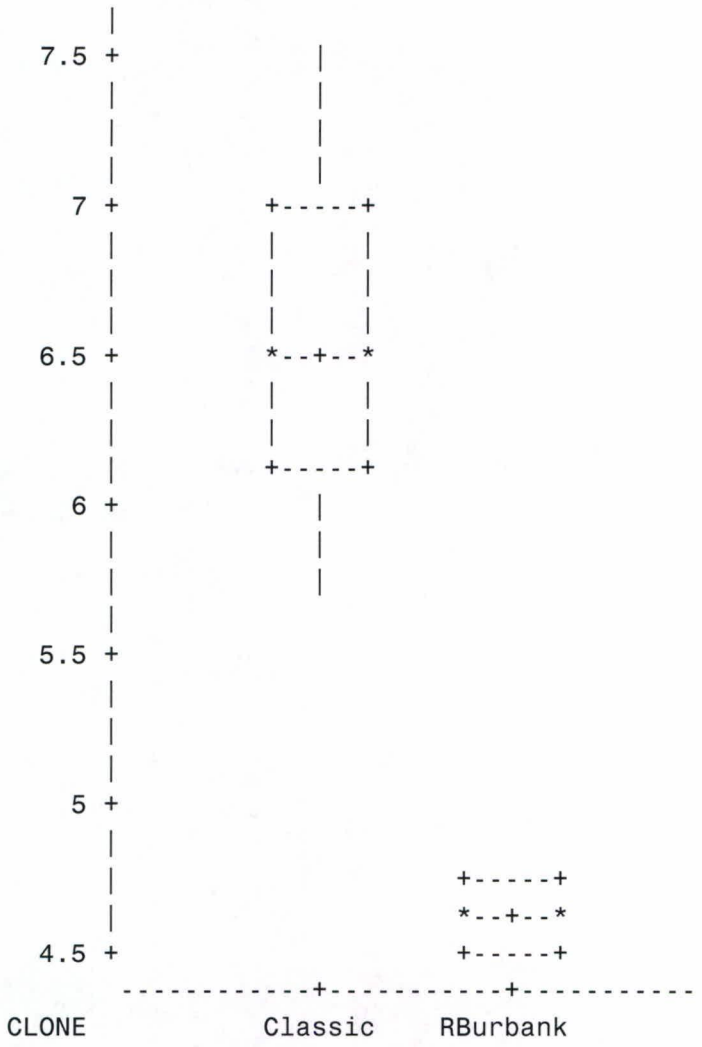
Normal Probability Plot



#200900441

The UNIVARIATE Procedure
Variable: Protein

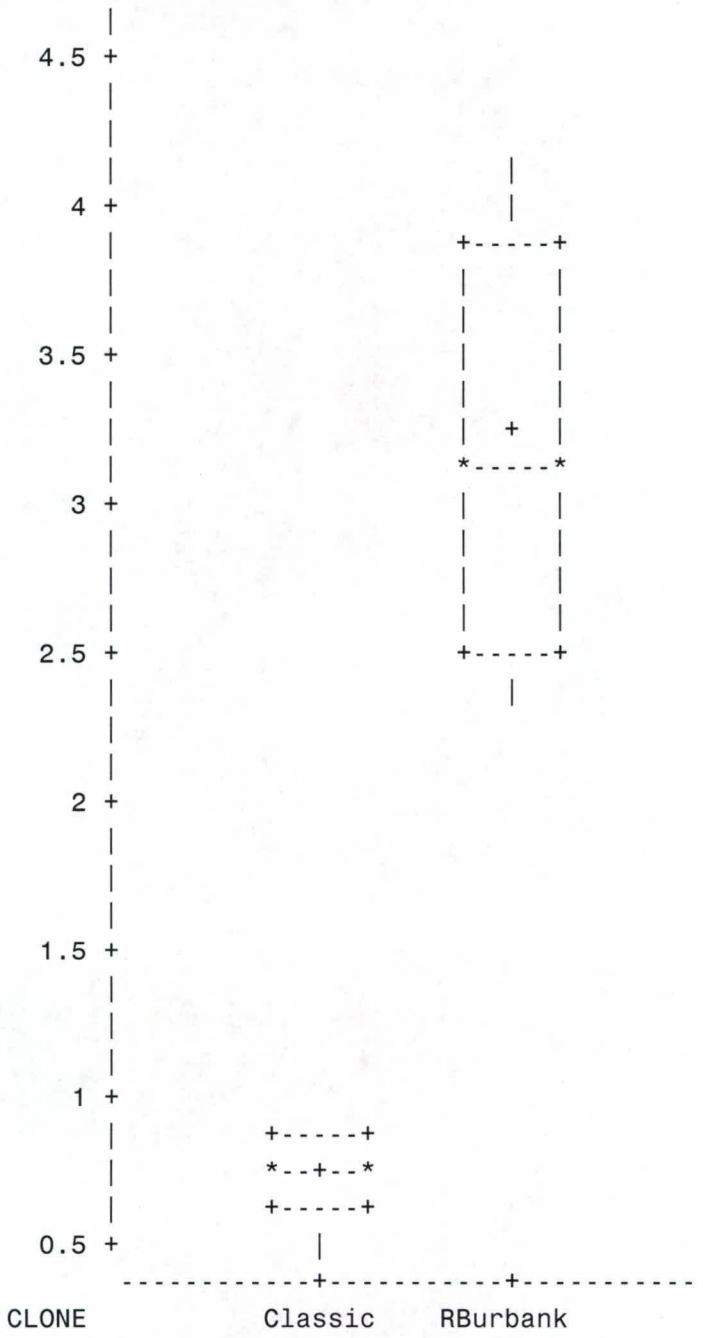
Schematic Plots



#200900441

The UNIVARIATE Procedure
Variable: Glyco

Schematic Plots



#200900441

The GLM Procedure

Class Level Information

| Class | Levels | Values |
|---|---|---|
| CLONE | 2 | Classic RBurbank |
| REP | 4 | 1 2 3 4 |

| | |
|---|---|
| Number of Observations Read | 8 |
| Number of Observations Used | 8 |

The GLM Procedure

#200900441

Dependent Variable: Protein

| Source | DF | Sum of Squares | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| Model | 4 | 9.47665000 | 2.36916250 | 27.44 | 0.0107 |
| Error | 3 | 0.25903750 | 0.08634583 | | |
| Corrected Total | 7 | 9.73568750 | | | |

| R-Square | Coeff Var | Root MSE | Protein Mean |
|---|---|---|---|
| 0.973393 | 5.138301 | 0.293847 | 5.718750 |

| Source | DF | Type I SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| REP | 3 | 0.21013750 | 0.07004583 | 0.81 | 0.5662 |
| CLONE | 1 | 9.26651250 | 9.26651250 | 107.32 | 0.0019 |

| Source | DF | Type III SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| REP | 3 | 0.21013750 | 0.07004583 | 0.81 | 0.5662 |
| CLONE | 1 | 9.26651250 | 9.26651250 | 107.32 | 0.0019 |

#200900441

The GLM Procedure

Dependent Variable: Glyco

| Source | DF | Sum of Squares | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| Model | 4 | 16.56620000 | 4.14155000 | 8.28 | 0.0569 |
| Error | 3 | 1.50100000 | 0.50033333 | | |
| Corrected Total | 7 | 18.06720000 | | | |

| R-Square | Coeff Var | Root MSE | Glyco Mean |
|---|---|---|---|
| 0.916921 | 31.86227 | 0.707342 | 2.220000 |

| Source | DF | Type I SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| REP | 3 | 2.52120000 | 0.84040000 | 1.68 | 0.3403 |
| CLONE | 1 | 14.04500000 | 14.04500000 | 28.07 | 0.0131 |

| Source | DF | Type III SS | Mean Square | F Value | Pr > F |
|---|---|---|---|---|---|
| REP | 3 | 2.52120000 | 0.84040000 | 1.68 | 0.3403 |
| CLONE | 1 | 14.04500000 | 14.04500000 | 28.07 | 0.0131 |

#200900441

The GLM Procedure

t Tests (LSD) for Protein

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

| | |
|---|---|
| Alpha | 0.05 |
| Error Degrees of Freedom | 3 |
| Error Mean Square | 0.086346 |
| Critical Value of t | 3.18245 |
| Least Significant Difference | 0.6613 |

Means with the same letter are not significantly different.

| t Grouping | Mean | N | CLONE |
|---|---|---|---|
| A | 6.7950 | 4 | Classic |
| B | 4.6425 | 4 | RBurbank |

The GLM Procedure

#200900441

t Tests (LSD) for Glyco

NOTE: This test controls the Type I comparisonwise error rate, not the experimentwise error rate.

| | |
|---|---|
| Alpha | 0.05 |
| Error Degrees of Freedom | 3 |
| Error Mean Square | 0.500333 |
| Critical Value of t | 3.18245 |
| Least Significant Difference | 1.5918 |

Means with the same letter are not significantly different.

| t Grouping | Mean | N | CLONE |
|---|---|---|---|
| A | 3.5450 | 4 | RBurbank |
| B | 0.8950 | 4 | Classic |

#200900441

CLONE=Classic

The UNIVARIATE Procedure
Variable: Protein

Moments

| | | | |
|---|---|---|---|
| N | 4 | Sum Weights | 4 |
| Mean | 6.795 | Sum Observations | 27.18 |
| Std Deviation | 0.32150687 | Variance | 0.10336667 |
| Skewness | -0.9633771 | Kurtosis | 0.88015153 |
| Uncorrected SS | 184.9982 | Corrected SS | 0.3101 |
| Coeff Variation | 4.73152125 | Std Error Mean | 0.16075343 |

Basic Statistical Measures

| Location | | Variability | |
|---|---|---|---|
| Mean | 6.795000 | Std Deviation | 0.32151 |
| Median | 6.855000 | Variance | 0.10337 |
| Mode | . | Range | 0.75000 |
| | | Interquartile Range | 0.46000 |

Tests for Location: Mu0=0

| Test | -Statistic- | | -----p Value------ | |
|---|---|---|---|---|
| Student's t | t | 42.2697 | Pr > \|t\| | <.0001 |
| Sign | M | 2 | Pr >= \|M\| | 0.1250 |
| Signed Rank | S | 5 | Pr >= \|S\| | 0.1250 |

Tests for Normality

| Test | --Statistic--- | | -----p Value------ | |
|---|---|---|---|---|
| Shapiro-Wilk | W | 0.953361 | Pr < W | 0.7372 |
| Kolmogorov-Smirnov | D | 0.21901 | Pr > D | >0.1500 |
| Cramer-von Mises | W-Sq | 0.03493 | Pr > W-Sq | >0.2500 |
| Anderson-Darling | A-Sq | 0.226916 | Pr > A-Sq | >0.2500 |

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 100% Max | 7.110 |
| 99% | 7.110 |
| 95% | 7.110 |

#200900441

---------- CLONE=Classic ----------

The UNIVARIATE Procedure
Variable: Protein

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 90% | 7.110 |
| 75% Q3 | 7.025 |
| 50% Median | 6.855 |
| 25% Q1 | 6.565 |
| 10% | 6.360 |
| 5% | 6.360 |
| 1% | 6.360 |
| 0% Min | 6.360 |

Extreme Observations

| ----Lowest---- | | ----Highest--- | |
|---|---|---|---|
| Value | Obs | Value | Obs |
| 6.36 | 4 | 6.36 | 4 |
| 6.77 | 1 | 6.77 | 1 |
| 6.94 | 3 | 6.94 | 3 |
| 7.11 | 2 | 7.11 | 2 |

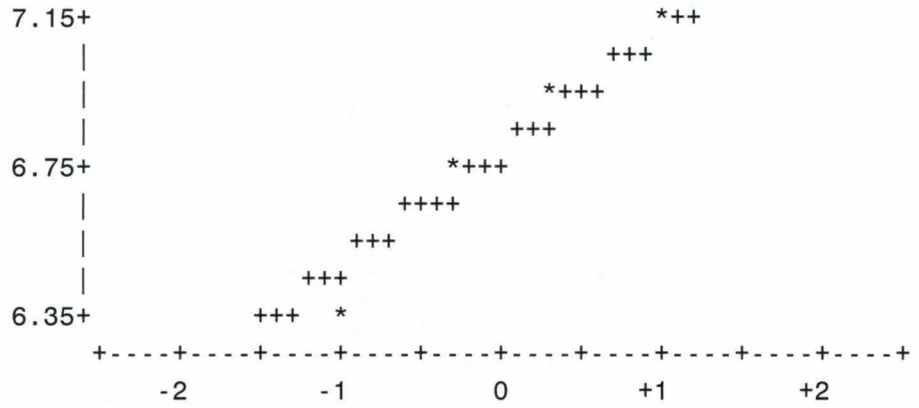
```
Stem Leaf                     #             Boxplot
  71 1                        1                |
  70                                           +-----+
  69 4                        1                |     |
  68                                           *--+--*
  67 7                        1                |     |
  66                                           |     |
  65                                           +-----+
  64                                              |
  63 6                        1                   |
     ----+----+----+----+
Multiply Stem.Leaf by 10**-1
```

#200900441

---------- CLONE=Classic ----------

The UNIVARIATE Procedure
Variable: Protein

Normal Probability Plot



#200900441

CLONE=Classic

The UNIVARIATE Procedure
Variable: Glyco

Moments

| | | | |
|---|---|---|---|
| N | 4 | Sum Weights | 4 |
| Mean | 0.895 | Sum Observations | 3.58 |
| Std Deviation | 0.32357379 | Variance | 0.1047 |
| Skewness | 1.35780627 | Kurtosis | 1.35534921 |
| Uncorrected SS | 3.5182 | Corrected SS | 0.3141 |
| Coeff Variation | 36.1534965 | Std Error Mean | 0.1617869 |

Basic Statistical Measures

| Location | | Variability | |
|---|---|---|---|
| Mean | 0.895000 | Std Deviation | 0.32357 |
| Median | 0.795000 | Variance | 0.10470 |
| Mode | . | Range | 0.71000 |
| | | Interquartile Range | 0.46000 |

Tests for Location: Mu0=0

| Test | -Statistic- | | -----p Value------ | |
|---|---|---|---|---|
| Student's t | t | 5.531968 | Pr > \|t\| | 0.0116 |
| Sign | M | 2 | Pr >= \|M\| | 0.1250 |
| Signed Rank | S | 5 | Pr >= \|S\| | 0.1250 |

Tests for Normality

| Test | --Statistic--- | | -----p Value------ | |
|---|---|---|---|---|
| Shapiro-Wilk | W | 0.870462 | Pr < W | 0.2995 |
| Kolmogorov-Smirnov | D | 0.243836 | Pr > D | >0.1500 |
| Cramer-von Mises | W-Sq | 0.057656 | Pr > W-Sq | >0.2500 |
| Anderson-Darling | A-Sq | 0.349029 | Pr > A-Sq | >0.2500 |

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 100% Max | 1.350 |
| 99% | 1.350 |
| 95% | 1.350 |

#200900441

---------- CLONE=Classic ----------

The UNIVARIATE Procedure
Variable: Glyco

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 90% | 1.350 |
| 75% Q3 | 1.125 |
| 50% Median | 0.795 |
| 25% Q1 | 0.665 |
| 10% | 0.640 |
| 5% | 0.640 |
| 1% | 0.640 |
| 0% Min | 0.640 |

Extreme Observations

| ----Lowest---- | | ----Highest--- | |
|---|---|---|---|
| Value | Obs | Value | Obs |
| 0.64 | 4 | 0.64 | 4 |
| 0.69 | 1 | 0.69 | 1 |
| 0.90 | 2 | 0.90 | 2 |
| 1.35 | 3 | 1.35 | 3 |

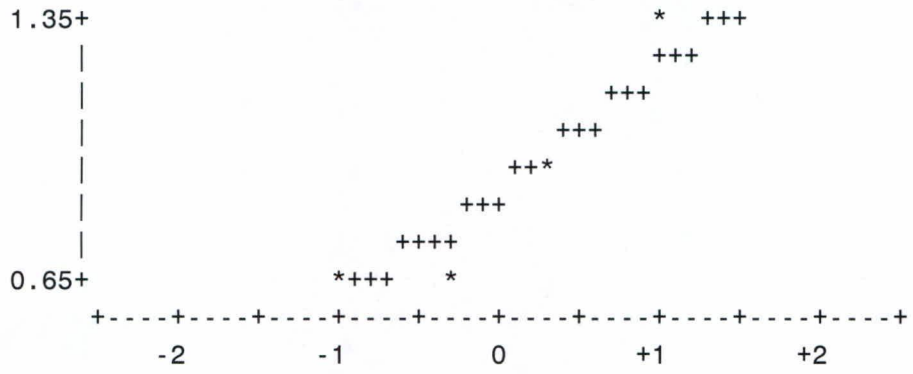
```
Stem Leaf                     #             Boxplot
  13 5                        1                |
  12                                           |
  11                                          +-----+
  10                                          |     |
   9 0                        1               |  +  |
   8                                          *-----*
   7                                          |     |
   6 49                       2               +-----+
     ----+----+----+----+
Multiply Stem.Leaf by 10**-1
```

#200900441

---------- CLONE=Classic ----------

The UNIVARIATE Procedure
Variable: Glyco

Normal Probability Plot



#200900441

CLONE=RBurbank

The UNIVARIATE Procedure
Variable: Protein

Moments

| | | | |
|---|---|---|---|
| N | 4 | Sum Weights | 4 |
| Mean | 4.6425 | Sum Observations | 18.57 |
| Std Deviation | 0.23027158 | Variance | 0.053025 |
| Skewness | -1.5874293 | Kurtosis | 2.48131914 |
| Uncorrected SS | 86.3703 | Corrected SS | 0.159075 |
| Coeff Variation | 4.96007709 | Std Error Mean | 0.11513579 |

Basic Statistical Measures

| Location | | Variability | |
|---|---|---|---|
| Mean | 4.642500 | Std Deviation | 0.23027 |
| Median | 4.720000 | Variance | 0.05303 |
| Mode | . | Range | 0.51000 |
| | | Interquartile Range | 0.30500 |

Tests for Location: Mu0=0

| Test | -Statistic- | | -----p Value------ | |
|---|---|---|---|---|
| Student's t | t | 40.32195 | Pr > \|t\| | <.0001 |
| Sign | M | 2 | Pr >= \|M\| | 0.1250 |
| Signed Rank | S | 5 | Pr >= \|S\| | 0.1250 |

Tests for Normality

| Test | --Statistic--- | | -----p Value------ | |
|---|---|---|---|---|
| Shapiro-Wilk | W | 0.84734 | Pr < W | 0.2177 |
| Kolmogorov-Smirnov | D | 0.29753 | Pr > D | >0.1500 |
| Cramer-von Mises | W-Sq | 0.069508 | Pr > W-Sq | 0.2253 |
| Anderson-Darling | A-Sq | 0.398347 | Pr > A-Sq | 0.1851 |

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 100% Max | 4.820 |
| 99% | 4.820 |
| 95% | 4.820 |

#200900441

---------- CLONE=RBurbank ----------

The UNIVARIATE Procedure
Variable: Protein

Quantiles (Definition 5)

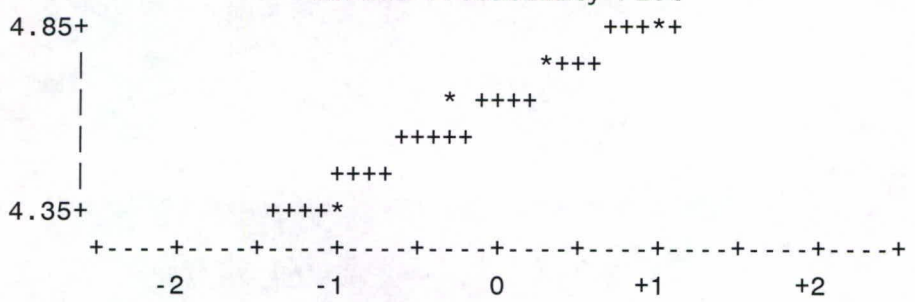
| Quantile | Estimate |
|---|---|
| 90% | 4.820 |
| 75% Q3 | 4.795 |
| 50% Median | 4.720 |
| 25% Q1 | 4.490 |
| 10% | 4.310 |
| 5% | 4.310 |
| 1% | 4.310 |
| 0% Min | 4.310 |

Extreme Observations

| ----Lowest---- | | ----Highest--- | |
|---|---|---|---|
| Value | Obs | Value | Obs |
| 4.31 | 7 | 4.31 | 7 |
| 4.67 | 8 | 4.67 | 8 |
| 4.77 | 6 | 4.77 | 6 |
| 4.82 | 5 | 4.82 | 5 |

```
Stem Leaf                     #             Boxplot
  48 2                        1             +-----+
  47 7                        1             *-----*
  46 7                        1             |  +  |
  45                                        |     |
  44                                        +-----+
  43 1                        1                |
     ----+----+----+----+
Multiply Stem.Leaf by 10**-1
```

Normal Probability Plot



#200900441

CLONE=RBurbank

The UNIVARIATE Procedure
Variable: Glyco

Moments

| | | | |
|---|---|---|---|
| N | 4 | Sum Weights | 4 |
| Mean | 3.545 | Sum Observations | 14.18 |
| Std Deviation | 1.11177036 | Variance | 1.23603333 |
| Skewness | -1.686742 | Kurtosis | 3.1909879 |
| Uncorrected SS | 53.9762 | Corrected SS | 3.7081 |
| Coeff Variation | 31.3616463 | Std Error Mean | 0.55588518 |

Basic Statistical Measures

| Location | | Variability | |
|---|---|---|---|
| Mean | 3.545000 | Std Deviation | 1.11177 |
| Median | 3.910000 | Variance | 1.23603 |
| Mode | 3.910000 | Range | 2.52000 |
| | | Interquartile Range | 1.26000 |

Tests for Location: Mu0=0

| Test | | -Statistic- | -----p Value------ | |
|---|---|---|---|---|
| Student's t | t | 6.377216 | Pr > \|t\| | 0.0078 |
| Sign | M | 2 | Pr >= \|M\| | 0.1250 |
| Signed Rank | S | 5 | Pr >= \|S\| | 0.1250 |

Tests for Normality

| Test | --Statistic--- | | -----p Value------ | |
|---|---|---|---|---|
| Shapiro-Wilk | W | 0.808904 | Pr < W | 0.1192 |
| Kolmogorov-Smirnov | D | 0.37866 | Pr > D | 0.0419 |
| Cramer-von Mises | W-Sq | 0.095301 | Pr > W-Sq | 0.0927 |
| Anderson-Darling | A-Sq | 0.501357 | Pr > A-Sq | 0.0856 |

Quantiles (Definition 5)

| Quantile | Estimate |
|---|---|
| 100% Max | 4.440 |
| 99% | 4.440 |
| 95% | 4.440 |

#200900441

---------- CLONE=RBurbank ----------

The UNIVARIATE Procedure
Variable: Glyco

Quantiles (Definition 5)

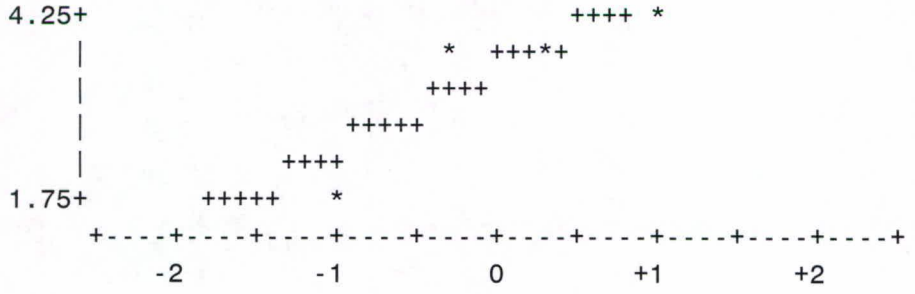
| Quantile | Estimate |
|---|---|
| 90% | 4.440 |
| 75% Q3 | 4.175 |
| 50% Median | 3.910 |
| 25% Q1 | 2.915 |
| 10% | 1.920 |
| 5% | 1.920 |
| 1% | 1.920 |
| 0% Min | 1.920 |

Extreme Observations

| ----Lowest---- | | ----Highest--- | |
|---|---|---|---|
| Value | Obs | Value | Obs |
| 1.92 | 8 | 1.92 | 8 |
| 3.91 | 7 | 3.91 | 5 |
| 3.91 | 5 | 3.91 | 7 |
| 4.44 | 6 | 4.44 | 6 |

```
Stem Leaf                     #             Boxplot
   4 4                        1             +-----+
   3 99                       2             *--+--*
   3                                        |     |
   2                                        +-----+
   2                                           |
   1 9                        1                |
     ----+----+----+----+
```

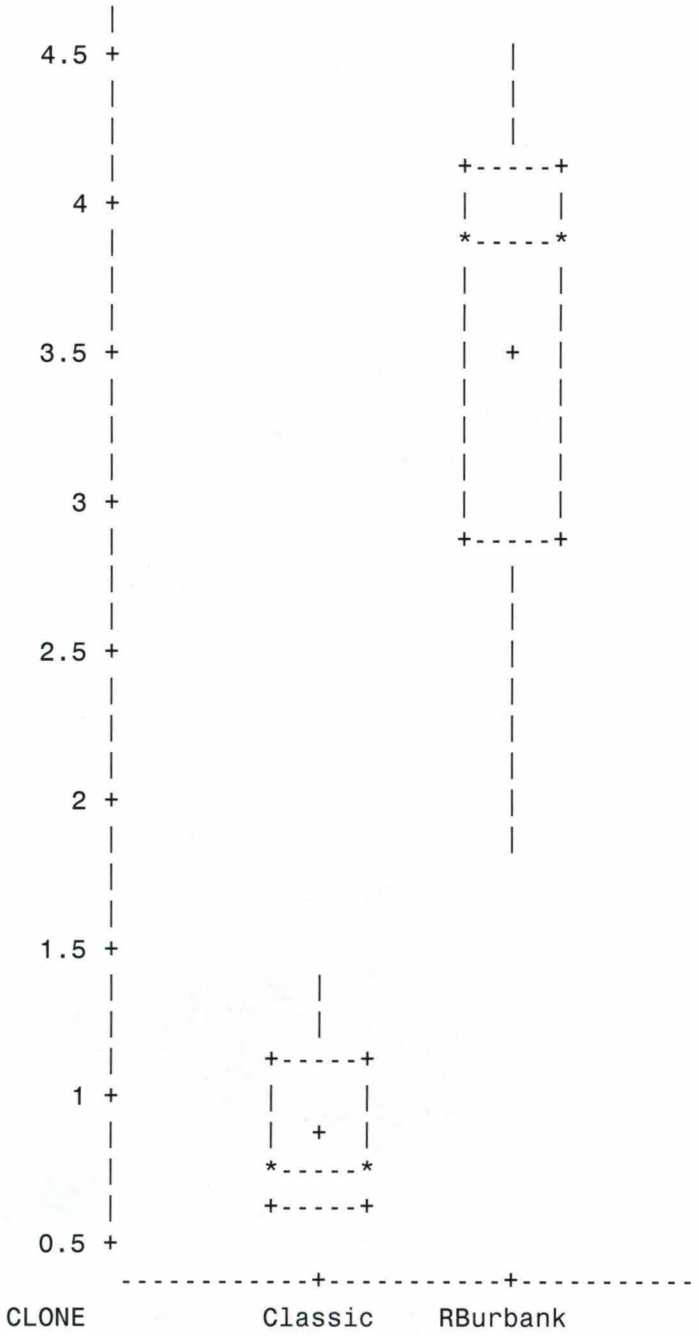
Normal Probability Plot



#200900441

The UNIVARIATE Procedure
Variable: Glyco

Schematic Plots



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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

# EXHIBIT E
# STATEMENT OF THE BASIS OF OWNERSHIP

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

RAD
9/27/2012

1. NAME OF APPLICANT(S)
~~University of Idaho~~
~~representing the interests of the entities listed under Exhibit E- item 11~~
The State of Idaho (continued on Exhibit E, 11)

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
A95109-1

3. VARIETY NAME
Classic Russet

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*
Office of Technology Transfer
Morrill Hall 414
PO Box 443003
Moscow ID 83844-3003

5. TELEPHONE *(Include area code)*
(208) 885-4550

6. FAX *(Include area code)*
(208) 885-4551

7. PVPO NUMBER
#200900441

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

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

RAD
10/02/2012

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

~~The State of Idaho~~ acting by and through the State Board of Higher Education on behalf of the University of Idaho is partner in the Northwest (Tri-State) Potato Variety Development Program and a signatory of the General Agreement on Policy and Procedure for Release of New Publicly Developed Plant Varieties in Idaho, Oregon, Washington, between Washington State University, Oregon State University, University of Idaho and (USDA-ARS)The United States of America, as represented by the Secretary of Agriculture. In accordance with provision 2.2 of this Agreement, University of Idaho is applying for the PVPC.

**PLEASE NOTE:**

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

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

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

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

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

*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.*

*The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (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 USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provide and employer.*

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*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 5 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.*

*The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (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).*

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

RAD\
9/27/2012

## EXHIBIT F
## DECLARATION REGARDING DEPOSIT

| NAME OF OWNER (S) | ADDRESS *(Street and No. or RD No., City, State, and Zip Code and Country)* | TEMPORARY OR EXPERIMENTAL DESIGNATION |
|---|---|---|
| ~~University of Idaho~~<br>The State of Idaho<br>(continued on Exhibit E, 11) | Morrill Hall 414<br>PO Box 443003<br>Moscow, ID 83844-3003 | A95109-1<br>**VARIETY NAME**<br>Classic Russet |
| **NAME OF OWNER REPRESENTATIVE (S)** | **ADDRESS** *(Street and No. or RD No., City, State, and Zip Code and Country)* | **FOR OFFICIAL USE ONLY** |
| Jeffrey C. Stark<br>Gaylene Anderson | Morrill Hall 414<br>PO Box 443003<br>Moscow, ID 83844-3003 | **PVPO NUMBER**<br>#200900441 |

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.

Jeffrey C. Stark
Signature

10 Aug 2009
Date