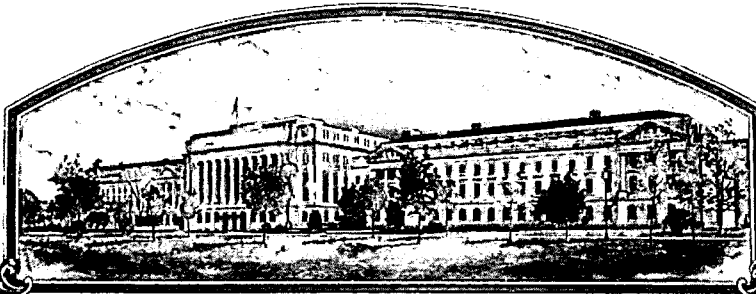


No.



201500351

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## Texas A&M AgriLife Research; State of Texas Research Agency

Whereas, THERE HAS BEEN PRESENTED TO THE

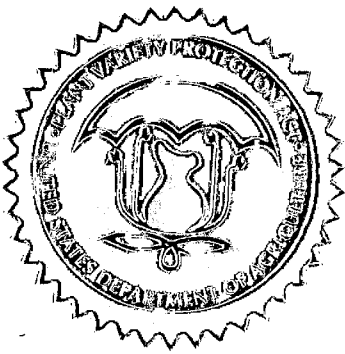
Secretary of Agriculture

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 there from, to the extent provided by the PLANT VARIETY PROTECTION ACT. In the United States seed of this variety (1) shall be sold by variety name only as a class of certified seed and (2) shall conform to the number of generations specified by the owner of the rights. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

POTATO

'Reveille Russet'



Attest:

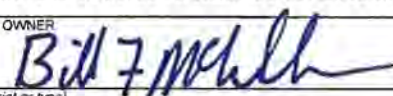
In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this third day of June, in the year two thousand and sixteen.

Commissioner

Secretary of Agriculture

REPRODUCE LOCALLY. Include form number and date on all reproductions

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE  APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE (Instructions and information collection burden statement on reverse)		The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.  Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426)	
1 NAME OF OWNER <b>Texas A&amp;M AgriLife Research</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME <b>ATX91137-1Ru</b>	3 VARIETY NAME <b>Reveille Russet</b>
4 ADDRESS (Street and No., or R.F.D. No., City, State and ZIP Code and Country) Dr. Bill F. McCutchen Executive Associate Director Texas A&M AgriLife Research 2147 TAMU College Station, TX 77843-2147		5. TELEPHONE (include area code) <b>979-845-4747</b>	FOR OFFICIAL USE ONLY PVPO NUMBER <b>201500351</b>
7 IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) <b>State of Texas Research Agency</b>		6. FAX (include area code) <b>979-458-4765</b>	FILING DATE <b>6/19/2015</b>
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) Janie Hurley, Sr. Licensing Manager Texas A&M System Technology Commercialization The Texas A&M University System 3369 TAMU College Station, TX 77843-3369		11 TELEPHONE (include area code) <b>979-847-8682</b>	FILING AND EXAMINATION FEES: \$ <b>4,382</b>
13 E-MAIL <b>jhurley@tamus.edu</b>		12 FAX (include area code) <b>979-845-1402</b>	DATE <b>6/19/2015</b> CERTIFICATION FEE: \$ DATE
14 CROP KIND (Common Name) <b>Potato</b>	15 GENUS AND SPECIES NAME OF CROP <b>Solanum tuberosum (L.)</b>	16 FAMILY NAME (Botanical) <b>Solanaceae</b>	
17 IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	18 DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  IF YES, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION	20 DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES (if "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (if "no", go to item 23) <input type="checkbox"/> UNDECIDED	
19 CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f <input checked="" type="checkbox"/> Filing and Examination Fee (\$4,382) make checks payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office) other methods of payment explained in the instructions		21 DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED	
23 HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U.S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO  IF YES YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)		22 DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1, 2, 3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED <i>(If additional explanation is necessary, please use the space indicated on the reverse.)</i>	
25 The owners declare that a viable sample of basic seed will be furnished directly to an acceptable depository in support of the variety within three months of filing. Seed will be replenished upon request in accordance with such regulations as may be applicable. For a tuber propagated variety or vegetative propagated parent of the variety a tissue culture or vegetative sample will be deposited in a public repository within three months of the date of the certificate fee request letter. These will be maintained for the duration of the certificate. The undersigned owner(s) is (are) the owner(s) 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		24 IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	
SIGNATURE OF OWNER 		SIGNATURE OF OWNER	
NAME (Please print or type) <b>Bill F. McCutchen</b>		NAME (Please print or type)	
CAPACITY OR TITLE Executive Associate Director, Texas A&M AgriLife Research	DATE <b>5-29-15</b>	CAPACITY OR TITLE	DATE

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

23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

February 2015 first transfer of material for commercial seed production purposes under agreement (U.S.)

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).)*

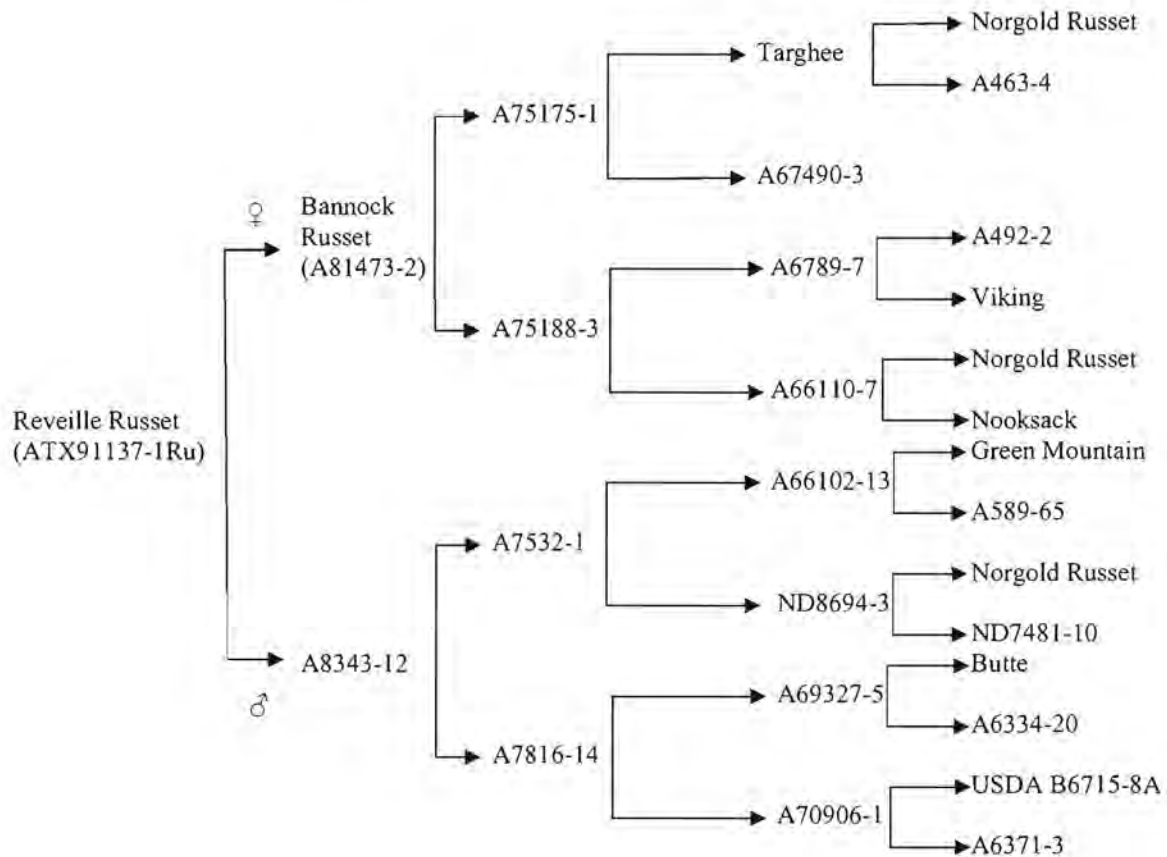
U.S. DEPARTMENT OF AGRICULTURE AGRICULTURAL MARKETING SERVICE SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  <b>EXHIBIT A – ORIGIN AND BREEDING HISTORY</b> <small>** Use additional pages as needed</small>		FOR OFFICIAL USE ONLY PVPO NUMBER
1. Name of Owner  Texas A&M AgrLife Research	2. Temporary Designation or Experimental Name  ATX91137-1Ru	3. Variety Name  Reveille Russet
4. Describe the genealogy (back to and including public and commercial varieties, lines, or clones used) and the breeding method(s). ** See attached		
5. Give the details of subsequent stages of selection and multiplication. **		
Year See attached	Detail of Stage	Selection Criteria
6. Is the variety uniform? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  How did you test for uniformity? Reveille Russet has been asexually propagated and observed over the past eight years of trials in seven states and from multiple cycles of tuber and tissue culture stocks, and has proven to be uniform (no off-types observed) for all traits evaluated since the original selection in 1993.		
7. Is the variety stable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  How did you test for stability? Over how many generations? Reveille Russet has been asexually propagated and observed over the past 22 years of trials in seven states and from multiple cycles of tuber and tissue culture stocks and has proven to be stable for all traits evaluated since the original selection in 1993.		
8. Are genetic variants observed or expected during reproduction and multiplication? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  If yes, state how these variants may be identified, their type and frequency.		

### Exhibit A – Origin and Breeding History

#### ‘Reveille Russet’

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

‘Reveille Russet’ (ATX91137-1Ru) resulted from a cross between A81473-2 x A83343-12 that was made by the USDA/ARS, Aberdeen, ID Potato Breeding Program in 1992. The ARS Program provided second size-seedling tubers from this family to the Texas A&M AgriLife Research Potato Breeding Program. These were then planted in the field in Springlake, Texas. The original selection of ATX91137-1Ru (an oblong russet tuber) was made by the Texas A&M AgriLife Research Potato Breeding Program under the direction of J. Creighton Miller, Jr. in 1993. The first selection cycle criteria was strictly based on tuber appearance.



**Breeding procedure used** – Conventional hybridization breeding techniques were used where the genotype is fixed in the F1, with subsequent propagation by asexual procedures. A more detailed description of the breeding method is described below within the Additional Background Information of Exhibit A.

2. Give the details of subsequent stages of selection and multiplication.		
Year	Detail of Stage	Selection Criteria
1993	Original selection made by TAMU Program from second-size seedling tuber family provided by USDA/ARD, Aberdeen, ID	Tuber shape and skin characteristics
1994-5	Evaluated as 12-hill selections	Tuber shape, skin characteristics, and yield
1996-2002	Program replicated trials	Tuber shape, skin and internal characteristics, and yield
2003	Southwestern Regional Trials	Tuber shape, skin and internal characteristics, and yield
2004-05	Western Regional Trials	Tuber shape, skin and internal characteristics, and yield
2006-	Program replicated trials and commercial test trials	Tuber shape, skin and internal characteristics, yield, and market acceptability
	For details of these and other trials see Evaluation History, Exhibit A of the PVP document.	

### Additional Background Information for Exhibit A

Breeding History Description: First year seedlings of 'Reveille Russet' were produced in Aberdeen, ID (USDA/ARS) from true (botanical) seed in 1993. Second-size seedling tuberlings were provided to the Texas A&M AgriLife Research Potato Breeding Program through the regular sharing of second- and third-size tuberlings among public potato breeding programs. 'Reveille Russet' was subsequently first selected in Springlake in 1993 as a first year seedling selection. Selection at this point was based strictly on tuber type and shape.

Additional Breeding Procedure Description: Potato breeding begins with the crossing of selected parents. If crosses are successful, seed balls are formed which can contain zero to 300+ seed. Each seed is genetically different and represents a potential new variety. Seed of the individual families or crosses are germinated, and the resulting seedlings (1 to 2 inches tall) are transplanted to 2-inch cells or pots in the greenhouse. Plants from each cell can produce five or more mini tubers (the size of a quarter or less). Public breeders in the US keep the largest mini tuber from each pot for their planting in the spring at two to three foot intervals in the field, where daughter tubers are dug at plant maturity and original clonal selections are made. The other genetically-identical mini tubers (referred to as B, C, etc., or second size, third size, etc.) from each pot/cell from the greenhouse planting are provided to other breeder colleagues around the country for similar field original selection. The Texas program routinely selects from more than 100,000 field seedlings each year, about 80,000 of which are obtained through this exchange with as many as six other breeding programs. It is commonly recognized that, since the unused, smaller mini tubers would have been discarded by the originating breeding programs, recipients are free to plant them and select from them as they choose. The same philosophy is shared regarding the distribution of remnant true seed to a second program. It is also recognized that the selection and development phases in variety development are the most difficult, time consuming, and expensive aspects of the total process, thus the selecting institution takes the lead in the varieties' release. At the same time, some recognition should go to the breeder who identified and/or developed the parental germplasm, made the cross and produced the mini tuber. Occasionally, as was the case with Reveille Russet, a breeding program will have extra true (botanical) seed and will provide this remnant seed to another breeding program for its use with the same procedure followed as described above.

Evaluation History. Reveille Russet has been extensively evaluated in Texas from 2003 -2014 (Miller et al. 2003-2014) (Exhibit D, Attachment 1 Tables 1-3). The Texas trials were four replication data across two locations (Springlake and Dalhart) over 12 years. In 2003, Reveille Russet was entered in the Southwestern Regional Trials (Texas, Colorado, and California) (Miller et al., 2003), using Colorado grown seed. In 2004 and 2005, Reveille Russet was entered in the Western Regional Russet Trial (Exhibit D, Attachment 2, Tables 4-8). These trials were conducted at nine locations in Texas, Colorado, California, Idaho, Washington, and Oregon (Culp, 2007; Culp, 2008). Results from the Texas, Southwestern, and Western Regional Trials and selected additional pertinent information are presented herein. Potato seed is asexually propagated for no more than 4-6 generations from nuclear seed which are derived from virus-free tissue culture stocks. This is referred to as limited generation seed production system. No genetic variants have been observed in the numerous experimental field trials, large scale experimental grower trials, or from tissue culture stocks since the original selection in 1993. This suggests that Reveille Russet is uniform and stable. References provided in Exhibit D.

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

FOR OFFICIAL USE ONLY
PVPO NUMBER

**EXHIBIT B – STATEMENT OF DISTINCTNESS**  
**\*\* Use additional tables to present clear differences for additional comparison varieties. Use additional pages to present supporting evidence.**

1. Name of Owner Texas A&M AgriLife Research	2. Temporary Designation or Experimental Name ATX91137-1Ru	3. Variety Name Reveille Russet
---	---	------------------------------------

Based on overall morphology, Reveille Russet is most similar to Russet Norkotah Reveille Russet most clearly  
*Applicant's new variety* *Most similar comparison variety(ies)* *Applicant's new variety*  
 differs from Russet Norkotah in the following traits Name the specific trait Then list the value of that trait for each variety in the comparison. Submit  
*Most similar comparison variety(ies)*  
 appropriate supporting evidence (see the Guidelines for Presenting Evidence in Support of Variety Distinctness in the instructions)

	<i>Eg. Leaf Pubescence</i> <i>Eg. Leaf Color</i> <i>Eg. Plant Height</i>	<i>heavy pubescence</i> <i>Dark Green (5GY 3/4)</i> <i>200 cm +/- 10 cm (N=25)</i>	<i>glabrous</i> <i>Light Green (2.5GY 8/10)</i> <i>250 cm +/- 15 cm (N=25)</i>	<i>photograph attached</i> <i>Munsell Color Chart</i> <i>statistics attached</i>
	1. Qualitative traits:	2. Color traits:	3. Quantitative traits:	4. Other traits:
Application Variety	Reveille Russet See attached			
Comparison Variety 1	Russet Norkotah See attached			
Comparison Variety 2				
Comparison Variety 3				

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



## Exhibit B Statement of Distinctness for ‘Reveille Russet’

Based on overall morphology, Reveille Russet is most similar to Russet Norkotah.

Reveille Russet most clearly differs from Russet Norkotah in the following traits:

<i>Eg. Leaf Pubescence</i> <i>Eg. Leaf Color</i> <i>Eg. Plant Height</i>	<i>heavy pubescence</i> <i>Dark Green (5GY 3/4)</i> <i>200 cm +/- 10 cm (N=25)</i>	<i>glabrous</i> <i>Light Green (2.5GY 8/10)</i> <i>250 cm +/- 15 cm (N=25)</i>	<i>photograph attached</i> <i>Munsell Color Chart</i> <i>statistics attached</i>																																																																		
1. Qualitative traits:  Skinning	Applicant's New Variety <b><u>Reveille Russet</u></b>  Does not suberize to black	1 <sup>st</sup> Comparison Variety <b><u>Russet Norkotah</u></b>  Suberizes black	Location of Evidence  Figure 1.																																																																		
2. Color traits:																																																																					
3. Quantitative traits:	Higher percent of 6-10 oz and 10-18 oz tubers	Higher percent of >18oz and <4oz tubers	Figure 2 and Exhibit D, Attachment 1, Table 2.																																																																		
4. Other:  Percent similarity of pairwise SNP genotype comparisons of the most similar samples.	<p><i>Percent similarity of pairwise SNP genotype comparisons of the most similar samples, sorted by percent similarity.</i></p> <table border="1"> <thead> <tr> <th><i>Sample 1</i></th> <th><i>Sample 2</i></th> <th><i>Percent similarity (%)</i></th> <th><i>Match</i></th> <th><i>Mismatch</i></th> <th><i>Total Reads</i></th> </tr> </thead> <tbody> <tr> <td colspan="6"><i>ATX91137-1Ru and the five most similar samples:</i></td> </tr> <tr> <td><i>ATX91137-1Ru</i></td> <td><i>GemStar Russet</i></td> <td><i>47.8</i></td> <td><i>1537</i></td> <td><i>1701</i></td> <td><i>3238</i></td> </tr> <tr> <td><i>ATX91137-1Ru</i></td> <td><i>TK08332-5Ru</i></td> <td><i>45.6</i></td> <td><i>1536</i></td> <td><i>1854</i></td> <td><i>3410</i></td> </tr> <tr> <td><i>ATX91137-1Ru</i></td> <td><i>Alfons</i></td> <td><i>45.5</i></td> <td><i>1523</i></td> <td><i>1813</i></td> <td><i>3326</i></td> </tr> <tr> <td><i>ATX91137-1Ru</i></td> <td><i>Russet Norkotah</i></td> <td><i>44.1</i></td> <td><i>1322</i></td> <td><i>1678</i></td> <td><i>3000</i></td> </tr> <tr> <td><i>ATX91137-1Ru</i></td> <td><i>Klamath Russet</i></td> <td><i>44.0</i></td> <td><i>1486</i></td> <td><i>1888</i></td> <td><i>3374</i></td> </tr> <tr> <td colspan="6"><i>ATX91137-1Ru and three reference varieties:</i></td> </tr> <tr> <td><i>ATX91137-1Ru</i></td> <td><i>Atlantic</i></td> <td><i>41.5</i></td> <td><i>1445</i></td> <td><i>2039</i></td> <td><i>3484</i></td> </tr> <tr> <td><i>ATX91137-1Ru</i></td> <td><i>Dark Red Norkotah</i></td> <td><i>37.6</i></td> <td><i>1207</i></td> <td><i>2007</i></td> <td><i>3214</i></td> </tr> <tr> <td><i>ATX91137-1Ru</i></td> <td><i>Russet Norkotah</i></td> <td><i>44.1</i></td> <td><i>1322</i></td> <td><i>1678</i></td> <td><i>3000</i></td> </tr> </tbody> </table>		<i>Sample 1</i>	<i>Sample 2</i>	<i>Percent similarity (%)</i>	<i>Match</i>	<i>Mismatch</i>	<i>Total Reads</i>	<i>ATX91137-1Ru and the five most similar samples:</i>						<i>ATX91137-1Ru</i>	<i>GemStar Russet</i>	<i>47.8</i>	<i>1537</i>	<i>1701</i>	<i>3238</i>	<i>ATX91137-1Ru</i>	<i>TK08332-5Ru</i>	<i>45.6</i>	<i>1536</i>	<i>1854</i>	<i>3410</i>	<i>ATX91137-1Ru</i>	<i>Alfons</i>	<i>45.5</i>	<i>1523</i>	<i>1813</i>	<i>3326</i>	<i>ATX91137-1Ru</i>	<i>Russet Norkotah</i>	<i>44.1</i>	<i>1322</i>	<i>1678</i>	<i>3000</i>	<i>ATX91137-1Ru</i>	<i>Klamath Russet</i>	<i>44.0</i>	<i>1486</i>	<i>1888</i>	<i>3374</i>	<i>ATX91137-1Ru and three reference varieties:</i>						<i>ATX91137-1Ru</i>	<i>Atlantic</i>	<i>41.5</i>	<i>1445</i>	<i>2039</i>	<i>3484</i>	<i>ATX91137-1Ru</i>	<i>Dark Red Norkotah</i>	<i>37.6</i>	<i>1207</i>	<i>2007</i>	<i>3214</i>	<i>ATX91137-1Ru</i>	<i>Russet Norkotah</i>	<i>44.1</i>	<i>1322</i>	<i>1678</i>	<i>3000</i>	SNP genotype comparison: Exhibit B, Novelty Statement
<i>Sample 1</i>	<i>Sample 2</i>	<i>Percent similarity (%)</i>	<i>Match</i>	<i>Mismatch</i>	<i>Total Reads</i>																																																																
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*Use additional tables to present clear differences for additional comparison varieties. Use additional pages to present supporting evidence.*

## Major Traits:

1. Reveille Russet tends to wound-heal a lighter brown color upon skinning at harvest and handling as compared to Russet Norkotah which usually turns black.

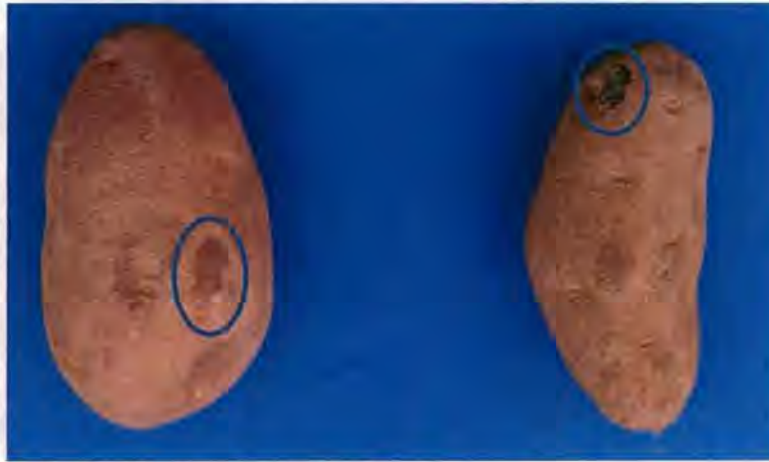


Figure 1. Wound healing of Reveille Russet (L) and Russet Norkotah (R) following skinning

2. Percent by weight of 6-10 and 10-18 oz tubers.

Table 2. Percent by weight of U.S. No. 1, under 4 ounce and culls/No 2 potatoes and, specific gravity of Reveille Russet and Russet Norkotah - four replications across two locations over twelve years, Springlake and Dalhart, Texas-2003-2014.

Location Variety or Selection	Percent By Weight of U.S. No. 1				Percent By Weight			Specific* Gravity	% Solids
	Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz.	Under 4 oz.	Culls/ No. 2		
Dalhart	72.4	136 b	27.9	30.8 a	10.0 A	10.5 b	7.0	1.064	13.9
Springlake	72.1	23.6 a	28.3	20.1 b	2.4 b	18.1 a	7.3	1.062	13.6
SE	ns	1	ns	1.4	0.9	1.4	ns	ns	ns
Reveille Russet	76.5 a	18.2	30.8 a	27.5 a	5.0 b	12.4 b	6.1	1.062	13.6
Russet Norkotah	68.0 b	19.0	25.5 b	23.4 b	7.5 a	16.2 a	8.2	1.064	13.9
Average	72.3	18.6	28.2	25.5	6.3	14.3	7.2	1.063	13.8
SE	1.8	ns	1.30	1.4	0.86	1.40	ns	ns	ns

Figure 2. Reveille Russet has a higher percentage of 6-10 ounce and 10-18 ounce tubers than Russet Norkotah. However, Russet norkotah has a higher percentage of over 18 ounce tubers as well as a higher percentage of under 4 ounce tubers. Reveille Russet has been reported to have a consistently higher pack out of count cartons than does Russet Norkotah.

3. SNP genotype comparisons of Reveille Russet, five most similar clones, as well as three reference varieties.

Sample1	Sample2	Percent similarity		Number of SNPs	
		(%)	Match	Mismatch	Total Reads
Reveille Russet and the five most similar samples:					
ATX91137-1Ru	GemStar Russet	47.8	1557	1701	3258
ATX91137-1Ru	TX08352-5Ru	45.6	1556	1854	3410
ATX91137-1Ru	Alturas	45.5	1513	1813	3326
ATX91137-1Ru	Russet Norkotah	44.1	1322	1678	3000
ATX91137-1Ru	Klamath Russet	44.0	1486	1888	3374
ATX91137-1Ru and three reference varieties:					
ATX91137-1Ru	Atlantic	41.5	1445	2039	3484
ATX91137-1Ru	Dark Red Norland	37.6	1207	2007	3214
ATX91137-1Ru	Russet Norkotah	44.1	1322	1678	3000

DNA was assayed for SNP (single nucleotide polymorphism) marker genotyping based upon the SolCAP 8303 Infinium Potato SNP Array (Hirsch et al., 2013. Retrospective view of North American potato (*Solanum tuberosum* L.) breeding in the 20th and 21st centuries. *Genes Genomes and Genetics*. doi:10.1534/g3.113.005595). For the similarity analysis, the samples were evaluated and compared based upon 3,702 SNPs with tetraploid (five cluster, dosage-specific) marker genotypes. The SNPs were filtered from the 3,763 reported by Hirsch et al., 2013 to 3,702 based on the new potato genome sequence pseudomolecule v. 4.03. The samples were compared in a pairwise fashion and with 221 different potato clones, including reference check varieties.

Figure 3. Percent similarity of pairwise SNP genotype comparisons of the most similar samples, sorted by percent similarity.

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

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

Exhibit C

**OBJECTIVE DESCRIPTION OF VARIETY**  
**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).

Unofficial Copy

**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.

NAME OF APPLICANT (S) Texas A&M AgriLife Research	TEMPORARY OR EXPERIMENTAL DESIGNATION ATX91137-1Ru	VARIETY NAME Reveille Russet
ADDRESS (Street and No. or RD No., City, State, Zip Code, and Country) Office of the Director, Texas A&M AgriLife Research 2147 TAMU College Station, TX 77843-2147		FOR OFFICIAL USE ONLY  PVPO NUMBER

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)
ATX91137-1Ru	Russet Norkotah			

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	5	R1	5	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

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

\*LIGHT SPROUT BASE: PUBESCENCE OF TIP

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

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

\*LIGHT SPROUT BASE: ANTHOCYANIN COLORATION

1 = Green 2 = Red-violet 3 = Blue-violet 4 = Other(describe) \_\_\_\_\_

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

\*LIGHT SPROUT BASE: INTENSITY OF ANTHOCYANIN COLORATION (IF PRESENT)

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

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

\* LIGHT SPROUT TIP: HABIT

1 = Closed 2 = Intermediate 3 = Open

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

2. LIGHT SPROUT CHARACTERISTICS: (continued)

LIGHT SPROUT TIP: PUBESCENCE

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

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

LIGHT SPROUT TIP ANTHOCYANIN COLORATION

1 = Green 2 = Red-violet 3 = Blue-violet 4 = Other(describe) \_\_\_\_\_

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

LIGHT SPROUT TIP: INTENSITY OF ANTHOCANIN COLORATION (IF PRESENT)

1 = Absent 2 = Weak 3 = Medium 4 = Strong 5 = Very Strong

V	5	R1	2	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

LIGHT SPROUT ROOT INITIALS: FREQUENCY

1 = Short 2 = Medium 3 = Long

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

3. PLANT CHARACTERISTICS:

GROWTH HABIT: (See Figure 2)

3 = Erect (>45° with ground) 5 = Semi-erect (30-45° with ground) 7 = Spreading

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

TYPE:

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

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

MATURITY: Days after planting (DAP) at vine senescence

V	110	R1	110	R2		R3		R4	
---	-----	----	-----	----	--	----	--	----	--

PLANTING DATE:

V	3-29	R1	3-29	R2		R3		R4	
---	------	----	------	----	--	----	--	----	--

\*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	5	R1	5	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

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	2	R1	2	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

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

## \* STEM ANTHOCYANIN COLORATION:

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

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

## STEM WINGS: (See Figure 3)

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

V	3	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	4	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	137A	R1	137B	R2		R3		R4	
---	------	----	------	----	--	----	--	----	--

## LEAF PUBESCENCE DENSITY:

1 = Absent 2 = Sparse 3 = Medium 4 = Thick 5 = Heavy

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

## LEAF STIPULES SIZE: (See Figure 5)

1 = Absent 3 = Small 5 = Medium 7 = Large

V	5	R1	3	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	2	R1	2	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--



## 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 \*Asymmetrically \_\_\_\_\_

V	3	R1	3*	R2		R3		R4	
---	---	----	----	----	--	----	--	----	--

**TERMINAL LEAFLET MARGIN WAVINESS:**

1 = Absent 2 = Slight 3 = Weak 4 = Medium 5 = Strong

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

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

V	3.9	R1	3	R2		R3		R4	
---	-----	----	---	----	--	----	--	----	--

**RANGE:**

V	3	to	6	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	2	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

**PRIMARY LEAFLET SIZE:**

1 = Very Small 2 = Small 3 = Medium 4 = Large 5 = Very Large

V	4	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	2	R1	1	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	4	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

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

V	7.7	R1	14	R2		R3		R4	
---	-----	----	----	----	--	----	--	----	--

**RANGE:**

V	5	to	11	R1	8	to	19	R2		to	R3		to	R4		to
---	---	----	----	----	---	----	----	----	--	----	----	--	----	----	--	----

## 5. LEAF CHARACTERISTICS: (continued)

## NUMBER OF INFLORESCENCE/PLANT:

## AVERAGE:

V	3.6	R1	3.2	R2		R3		R4	
---	-----	----	-----	----	--	----	--	----	--

## RANGE:

V	1	to	6	R1	2	to	4	R2		to		R3		to		R4		to	
---	---	----	---	----	---	----	---	----	--	----	--	----	--	----	--	----	--	----	--

## NUMBER OF FLORETS/INFLORESCENCE:

## AVERAGE:

V	9.7	R1	8.9	R2		R3		R4	
---	-----	----	-----	----	--	----	--	----	--

## RANGE:

V	5	to	17	R1	6	to	12	R2		to		R3		to		R4		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	85A	R1	155C	R2		R3		R4	
---	-----	----	------	----	--	----	--	----	--

\* 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	85A	R1	155C	R2		R3		R4	
	Violet		White						

\* 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	15	R1	1	R2		R3		R4	
---	----	----	---	----	--	----	--	----	--

## COROLLA SHAPE: (See Figure 10)

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

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

## 6. INFLORESCENCE CHARACTERISTICS:

## CALYX ANTHOCYANIN COLORATION:

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

V	4	R1	1	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

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

V	17C	R1	17B	R2		R3		R4	
---	-----	----	-----	----	--	----	--	----	--

## ANTHER SHAPE: (See Figure 11)

1 = Broad cone 2 = Narrow cone 3 = Pear-shaped cone 4 = Loose 5 = Other

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

## 6. INFLORESCENCE CHARACTERISTICS: (continued)

## POLLEN PRODUCTION:

1 = None 3 = Some 5 = Abundant

V	3	R1	3	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 Munsell Color Chart (Circle the appropriate color chart)

V	137A	R1	137A	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	6	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

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

V	199B	R1	199A	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 = Netted 4 = Russetted 5 = Heavily russetted 6 = Other \_\_\_\_\_

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

## 7. TUBER CHARACTERISTICS: (continued)

## \* TUBER SHAPE: (See Figure 14)

1 = Compressed 2 = Round 3 = Oval 4 = Oblong 5 = Long 6 = Other \_\_\_\_\_

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

## TUBER THICKNESS:

1 = Round 2 = Medium thick 3 = Slightly flattened 4 = Flattened 5 = Other \_\_\_\_\_

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

## TUBER LENGTH (mm):

## AVERAGE:

V	103	R1	86	R2		R3		R4	
---	-----	----	----	----	--	----	--	----	--

## RANGE:

V	76	to	133	R1	79	to	96	R2		to	R3		to	R4		to
---	----	----	-----	----	----	----	----	----	--	----	----	--	----	----	--	----

## STANDARD DEVIATION:

V	13.069	R1	5.7	R2		R3		R4	
---	--------	----	-----	----	--	----	--	----	--

## AVERAGE WEIGHT OF SAMPLE TAKEN:

V	177	R1	128	R2		R3		R4	
---	-----	----	-----	----	--	----	--	----	--

## TUBER WIDTH (mm)

## AVERAGE:

V	47	R1	23	R2		R3		R4	
---	----	----	----	----	--	----	--	----	--

## RANGE:

V	38	to	57	R1	46	to	59	R2		to	R3		to	R4		to
---	----	----	----	----	----	----	----	----	--	----	----	--	----	----	--	----

## STANDARD DEVIATION:

V	4.906	R1	3.9	R2		R3		R4	
---	-------	----	-----	----	--	----	--	----	--

## AVERAGE WEIGHT OF SAMPLE TAKEN (g):

V	177	R1	128	R2		R3		R4	
---	-----	----	-----	----	--	----	--	----	--

7. TUBER CHARACTERISTICS: (continued)

TUBER THICKNESS (mm):

AVERAGE:

V	59	R1	46	R2		R3		R4	
---	----	----	----	----	--	----	--	----	--

RANGE:

V	44	to	76	R1	40	to	53	R2		to		R3		to		R4		to	
---	----	----	----	----	----	----	----	----	--	----	--	----	--	----	--	----	--	----	--

STANDARD DEVIATION:

V	5.917	R1	4.0	R2		R3		R4	
---	-------	----	-----	----	--	----	--	----	--

AVERAGE WEIGHT OF SAMPLE TAKEN (g):

V	177	R1	128	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	3	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

NUMBER EYE/TUBER:

AVERAGE:

V	13	R1	17	R2		R3		R4	
---	----	----	----	----	--	----	--	----	--

RANGE:

V	1	to	19	R1	16	to	18	R2		to		R3		to		R4		to	
---	---	----	----	----	----	----	----	----	--	----	--	----	--	----	--	----	--	----	--

DISTRIBUTION OF TUBER EYES:

1 = Predominantly apical    2 = Evenly distributed

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

PROMINENCE OF TUBER EYEBROWS:

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

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

## 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	155B	R1	158D	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	1	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

## 8. DISEASES CHARACTERISTICS:

DISEASES REACTION: 0 = Not Tested 1 = Highly Resistant 2 = Resistant Few Symptoms 3 = Resistance Few Lesions 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	6	R1	9	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

## SOFT ROT (Erwinia)

V	4	R1	7	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

## COMMON SCAB (Streptomyces)

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

## POWDERY SCAB (Spongospora)

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

## DRY ROT (Fusarium)

V	0	R1	5	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

## POTATO LEAF ROLL VIRUS (PLRV)

V	0	R1	7	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

8. DISEASES CHARACTERISTICS: (continued)

POTATO VIRUS X (PVX)

V	0	R1	7	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

POTATO VIRUS Y (PVY)

V	0	R1	7	R2		R3		R4	
---	---	----	---	----	--	----	--	----	--

POTATO VIRUS M (PVM)

V	0	R1	7	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 Bacterial Ring Rot

V	7	R1	0	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 Lesions 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		R2		R3		R4	
---	---	----	--	----	--	----	--	----	--

GREEN PEACH APHID (*Myzus*)

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

OTHER:

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

OTHER:

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



**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 = &lt;1.060 2 = 1.060-1.069 3 = 1.070-1.079 4 = 1.080-1.089 5 = &gt;1.090

V 2

R1 2

R2

R3

R4

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

V 1.0

R1 1.6

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.

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**12. CHEMICAL IDENTIFICATION:**

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

SNP genotype comparisons are included in Exhibit B.

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**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. ADDITIONAL COMMENTS AND CHARACTERISTICS:**

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

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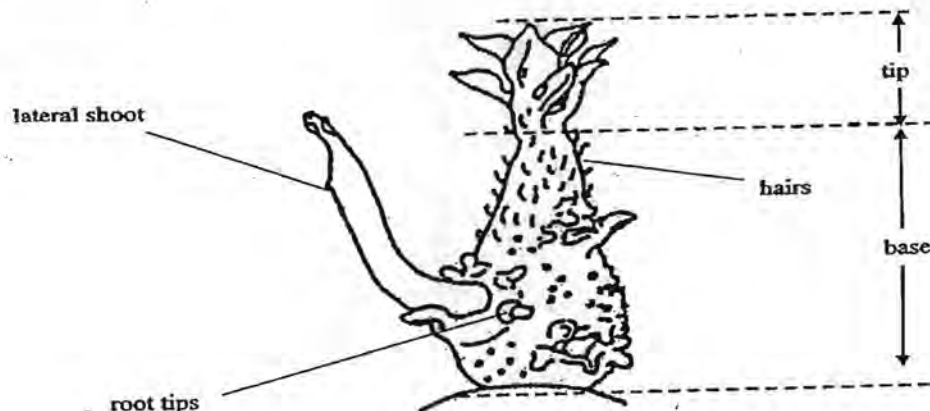
---



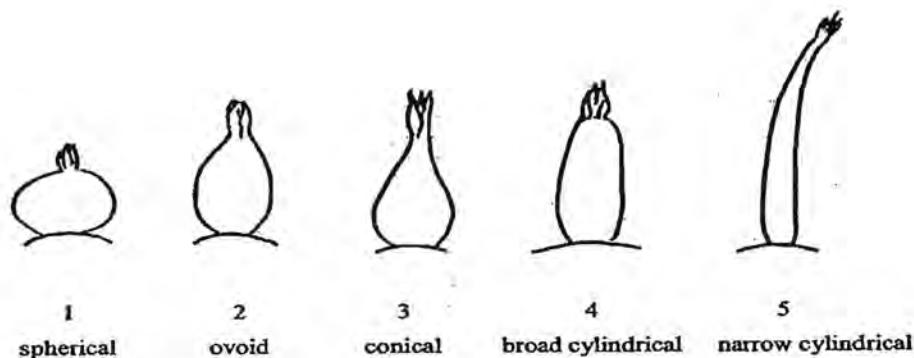
---

Figure 1: Light sprout

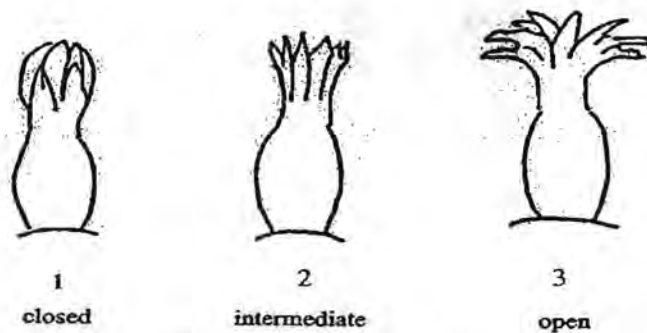
Light sprout dissection



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

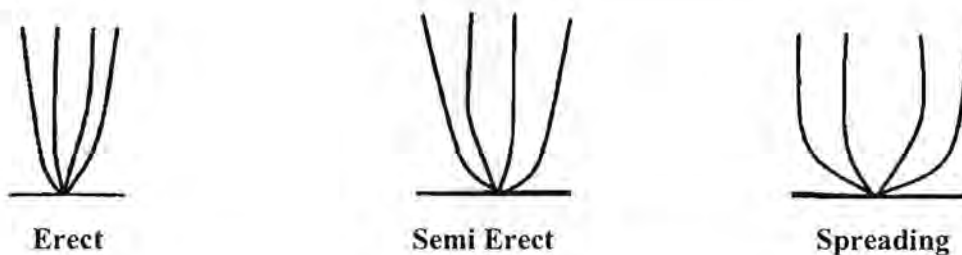


Figure 3: Stem Wings

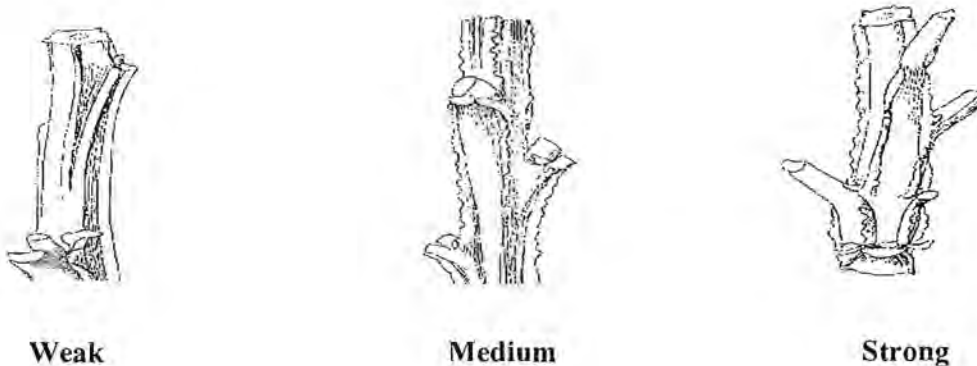


Figure 4: Leaf Silhouette

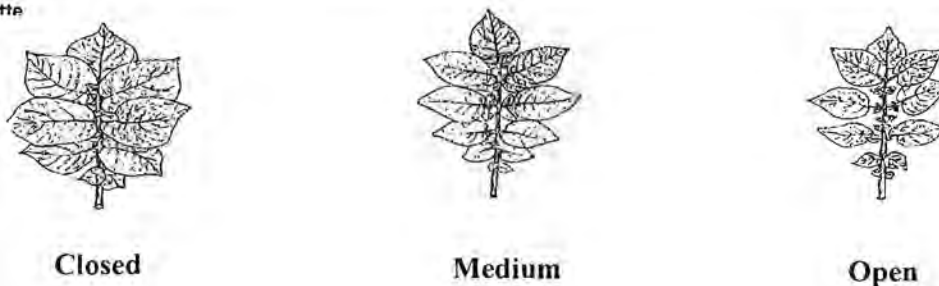


Figure 5: Leaf Stipules

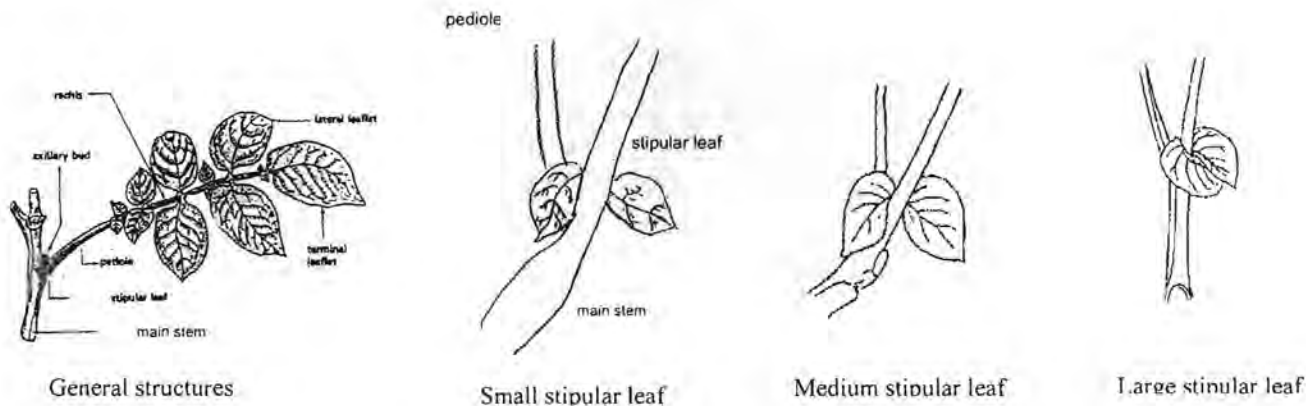


Figure 6: Leaf Dissection

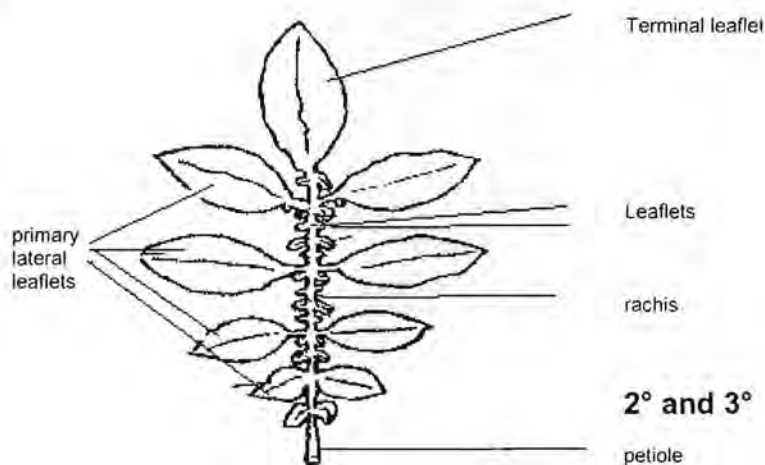


Figure 7: Terminal Leaflet Shape/Primary Leaflet Shape

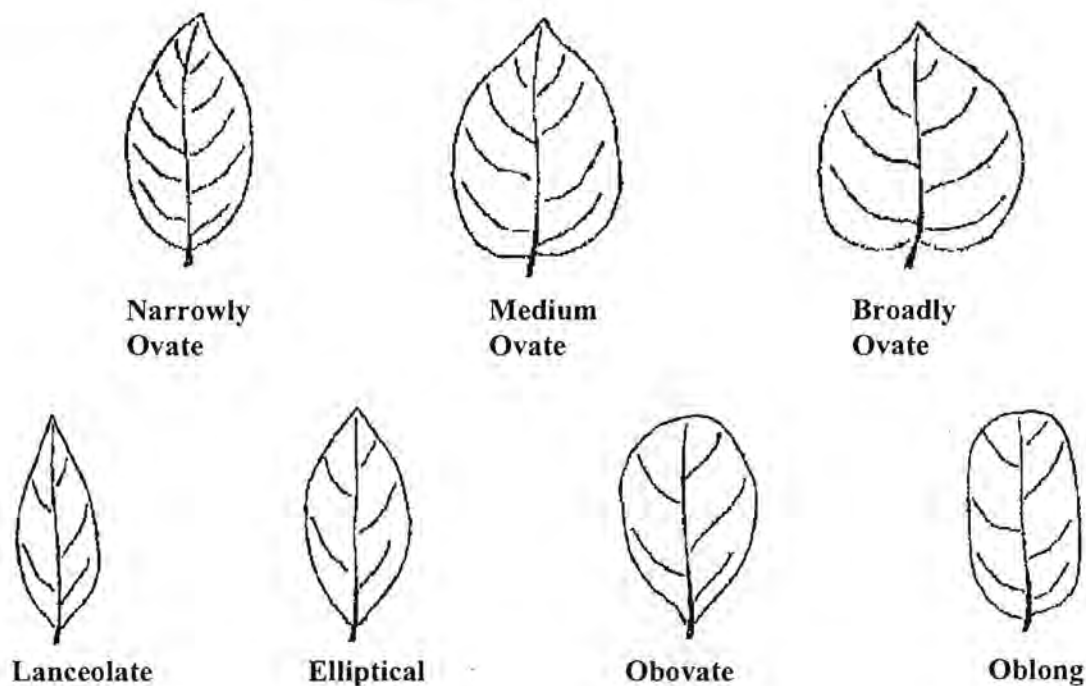


Figure 8: Terminal Leaflet Shape of Tip/Primary Leaflet Shape of Tip

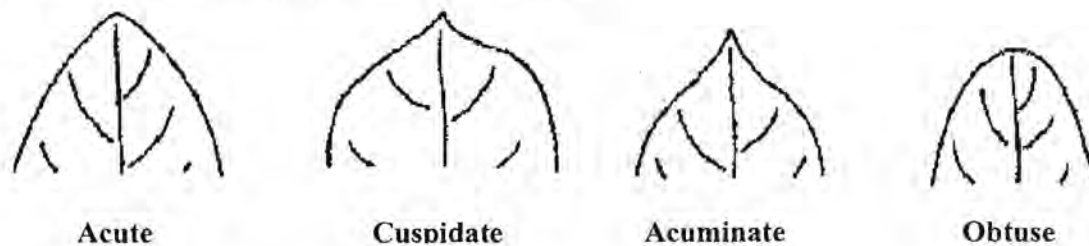


Figure 9: Terminal Leaflet Shape of Base/Primary Leaflet Shape of Base

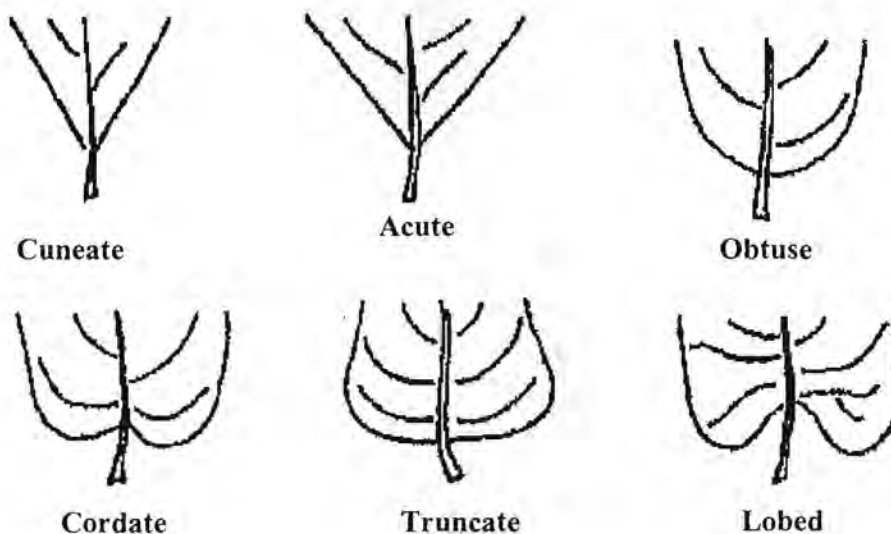


Figure 10: Corolla Shape

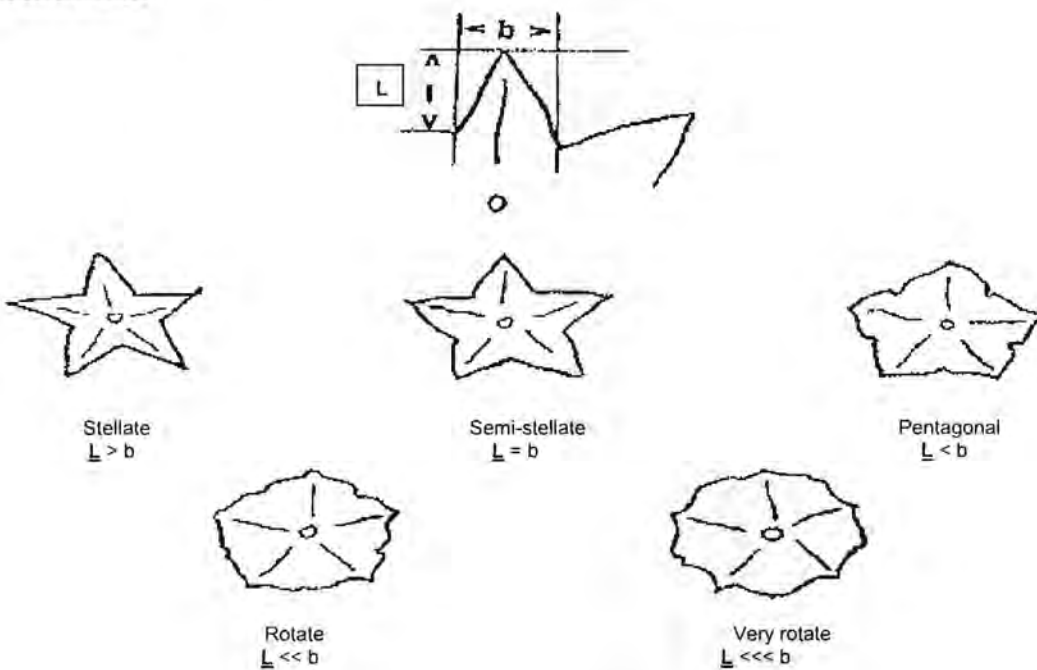


Figure 11: Anther Shape

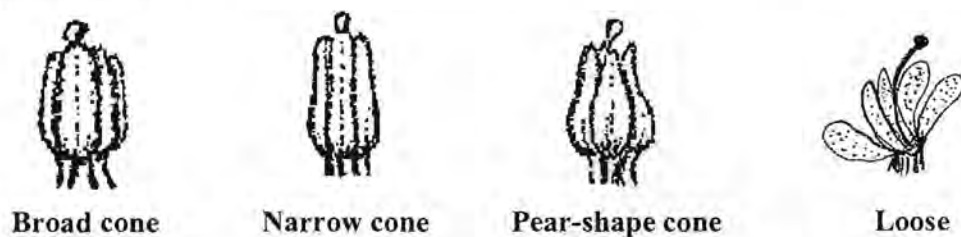


Figure 12: Stigma Shape



Capitate

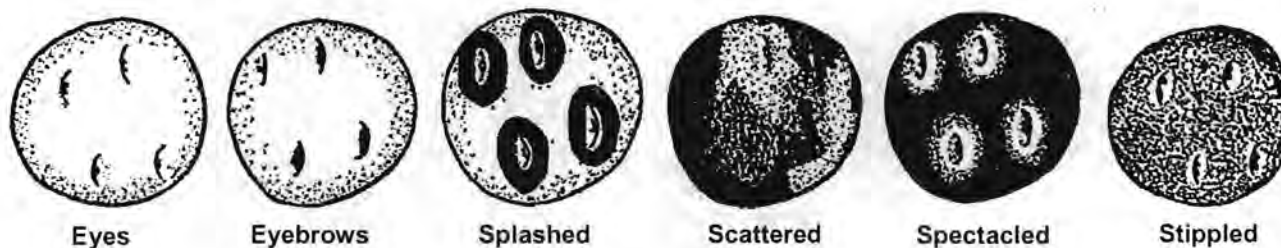


Clavate



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.

## **Exhibit D. Additional Description of the Variety (Summary from attachments and other information)**

### **Summary Description:**

Reveille Russet has been extensively evaluated in Texas from 2003 -2012 (Miller et al. 2003-2012) as well as in several other states. For brevity only, the discussion below includes cumulative results from the 2003-2014 Texas trials (Exhibit D, Attachment 1, Tables 1-3), and selected mean data from the 2004 and 2005 Western Regional Potato Variety Trials (Exhibit D, Attachment 2, Tables 4-8). The Texas trials are from four replication data across two locations (Springlake and Dalhart) over ten years (2003-2012). The Southwestern and Western Regional Potato Variety Trials were conducted over a 3 year period in 12 locations across 6 western states (California, Colorado, Idaho, Oregon, Texas, and Washington). In general, these results have demonstrated that Reveille Russet consistently exhibited growth and yield performance comparable to the industry standard, Russet Norkotah. Reveille Russet is an outstanding early-market russet potato with high pack out and the ability to wound heal a light tan color after harvest skinning.

### **Detailed Description:**

**Light Sprouts.** The light sprouts of Reveille Russet and Russet Norkotah differ somewhat from each other. The general shape for Reveille Russet is conical with strong pubescence at the base. The base also has very strong blue-violet anthocyanin coloration. The tip habit is intermediate with medium pubescence, very strong blue-violet anthocyanin coloration, and short root initials. The light sprout of Russet Norkotah is broadly cylindrical in shape with weak pubescence and strong red-violet anthocyanin coloration at its base. The tip habit is closed with medium pubescence, weak red-violet anthocyanin coloration, and short root initials (Exhibit C).



Figure 4. Light sprouts (L-R) of Reveille Russet and Russet Norkotah.

## Plant Characteristics:

### Vine Size and Maturity.

The vine size of Reveille Russet and Russet Norkotah are similarly medium 3.9/5=large and 3.8 (Exhibit D, Attachment 1, Table 3). Reveille Russet has an erect growth habit and medium-early 3.3/5=late maturity, whereas Russet Norkotah has a semi-erect growth habit and early vine maturity 2.8 (Figure 5). Reveille Russet has weak anthocyanin coloration in its stems, which is absent in Russet Norkotah.



Figure 5. Vines (L-R) of Reveille Russet and Russet Norkotah.

**Leaves.** Leaves (Figure 2) of Reveille Russet are medium green with short sparse pubescence. The leaf silhouette is open and there is a very weak anthocyanin color at the petioles. Russet Norkotah has a dark green leaf with short sparse pubescence. It has an open leaf silhouette, with no petiole coloration and small stipules. Reveille Russet has an average of 3.8 primary leaflet pairs and 7.3 average secondary and tertiary leaflets, whereas Russet Norkotah has an average of 3 primary leaflet pairs and 14 secondary and tertiary leaflet pairs (Exhibit C).





**Flowers.** The corolla is primarily violet in color (3:1 violet-white) with a stellate shape (Figure 6). The calyx has weak-medium anthocyanin coloration compared to a white corolla color, pentagonal shape, and weak anthocyanin in the calyx for Russet Norktoah. Reveille Russet has pear-shaped cone anthers, while Russet Norkotah has a narrow cone. Both have some pollen production, capitate stigma shape, and no berry production in Texas (Exhibit C).



Figure 6. Flowers (L-R) of Reveille Russet and Russet Norkotah.

Tuber Characteristics:

The brown tuber skin color of Reveille Russet is very similar to Russet Norkotah. Russet Norkotah is ranked as heavily russetted while Reveille Russet is ranked as russetted (Figure 7).



Figure 7. Tuber and flesh color (R-L) of Reveille Russet and Russet Norkotah

Reveille Russet has significantly more tubers per plant (5.5) than Russet Norkotah (5.0). These tubers were significantly larger (7.2 oz) than Russet Norkotah (6.5 oz) (Exhibit D, Attachment 1, Table 3). Tubers of Reveille Russet are shorter (4.0/5=long) than Russet Norkotah (4.3) (Exhibit C, Exhibit D Attachment 1, Table 3). Reveille Russet (4.1/5=shallow) has shallow eyes as compared to intermediate for Russet Norkotah (3.7). (Exhibit C, Page 10 and Exhibit D, Attachment 1, Table 3). The specific gravity for Reveille Russet (1.062) and Russet Norkotah (1.064) are similar (Exhibit D, Attachment 1, Table 2).

#### Yield Characteristics:

Total yield of Reveille Russet (464 cwt) is significantly higher than Russet Norkotah (412 cwt). Total yield of U.S. No. 1s also follows a similar trend 356 cwt vs 286 cwt, respectively. Breaking down the U.S. No. 1 size profile further; Reveille Russet and Russet Norkotah produce similar amounts of 4-6 oz tuber yields - 73 cwt vs 68 cwt, respectively. Reveille Russet produced significantly more 6-10 oz tuber yields (139 cwt) and 10-18 oz tuber yields (144 cwt) than Russet Norkotah 9103 cwt and 115 cwt). **These two size profiles produce the premium fresh market russet pack.** Conversely, Reveille Russet produced significantly less culls/No 2. Tubers (31 cwt) vs (34 cwt) for Russet Norkotah. (Exhibit D, Attachment 1, Table 1). The percent by weight of the No. 1's also responded significantly. The percentage of 6-10 oz tubers (30.8%) and 10-18 oz tubers (27.5%) of Reveille Russet was significantly greater than that of Russet Norkotah (25.5% and 23.4%, respectively) (Exhibit D, Attachment 1, Table 2)

#### Disease Reactions:

- **Late Blight.** Reveille Russet exhibits severe leaf symptoms of late blight, similar to Russet Norkotah; however, 83% of the Russet Norkotah tubers tested exhibited tuber

symptoms, whereas Reveille Russet tubers affected were significantly less at 29%. Both had similar foliar reactions (Exhibit D, Attachment 2, Table 6).

- **Common Scab.** Both Reveille Russet and Russet Norkotah have low scores in their susceptibility to common scab (Exhibit D, Attachment 2, Table 6).
- **Corky Ringspot and Root Knot Nematode.** Reveille Russet has a lower percentage of tubers exhibiting corky ringspot (11%) than those of Russet Norkotah (28%). Both are susceptible to root knot nematode (Exhibit D, Attachment 2, Table 6).
- **Bacterial Ring Rot.** Reveille Russet is susceptible to bacterial ring rot (*Clavibacter michiganensis*) with first foliar symptoms occurring within 65 days after planting. Symptoms are typical, and the timing and number of plants expressing symptoms is adequate for effective seed certification. Tubers are susceptible to symptoms, but generally not high in number. The overall rating for Reveille Russet regarding BRR symptom timing and development was a four on a scale of 0-5=strongest symptoms (data reported by Dr. Rob Davidson, Colorado State University).

#### Herbicide Reaction:

- **Metribuzin.** Reveille Russet exhibits moderate to very resistant Metribuzin reaction, whereas Russet Norkotah exhibits resistant to very resistant reaction (Exhibit D, Attachment 2, Table 6).

#### Chemical Composition:

- **Solids, Sugars, Protein, Vitamin C, and Glycoalkaloids.** Reveille Russet has slightly higher solids (20.1%) than Russet Norkotah (19.6%). It has slightly lower dextrose (.07%) and slightly higher sucrose (.22%) than Russet Norkotah (.11% and .14%). Protein (.59%) and Vitamin C (25.5 mg/100g) are slightly higher in Reveille Russet than in Russet Norkotah (5.4% and 25.1 mg/100g). Reveille Russet has slightly lower glycoalkaloids (1.0 mg/100g) than Russet Norkotah (1.6 mg/100g) however, both are much less than the Lenape check (Exhibit D, Attachment 2, Table 7).

#### External Defects:

- **Growth Cracks, Second Growth, Shatter Bruise, and Scab.** Reveille Russet and Russet Norkotah have similar ratings for growth cracks, second growth, shatter bruise and scab (Exhibit D, Attachment 2, Table 4).

Internal Defects:

- **Hollow Heart, Internal Brown Spot, Vascular Discoloration, and Blackspot Bruise.** Reveille Russet and Russet Norkotah both have very little hollow heart, internal brown spot, vascular discoloration, and black spot bruise. However, in the Idaho abrasive peel test for black spot bruise, Reveille Russet performed slightly better than Russet Norkotah. (Exhibit D, Attachment 2, Table 5).

Fresh Market Quality:

- **Merit Scores.** In the Western Regional Trial, Reveille Russet (2.3/5=best and 3.5) scored slightly better than Russet Norkotah (1.9 and 3.2) in both the processing and fresh trials (Exhibit D, Attachment 2, Table 8). Both Reveille Russet and Russet Norkotah are fresh market varieties and therefore performed much better in those trials.

## Exhibit D, Attachment 1, Tables 1-3.

Table 1. Total yield, total yield of U.S. No. 1, under 4 ounce and culls/No. 2 potatoes and general rating of Reville Russet and Russet Norkotah - four replications across two locations over twelve years, Springlake and Dalhart, Texas-2003-2014.

Location Variety or Selection	Total Yield Cwt/A	U.S. No. 1 Cwt. Per Acre				Over 18 oz	Under 4 oz.	Culls/ No. 2	General Rating <sup>1</sup> Grading
		Total Yield	4-6 oz	6-10 oz	10-18 oz				
Dalhart	559.7 a	400.9 a	70.8	151.7 a	178.8 a	62.7 a	54.3 a	40.8 a	3.7
Springlake	317.1 b	241.3 b	70.2	90.4 b	86.7 b	10.2 b	41.9 b	23.7 b	3.6
SE	18.5	13.9	ns	5.8	9.2	5.7	3.0	5.0	ns
Reville Russet	464.6 a	356.0 a	72.8	139.2 a	144.0 a	30.8	47.1	30.5 b	3.9 a
Russet Norkotah	412.1 b	286.3 b	68.2	102.8 b	115.4 b	42.2	49.4	34.0 a	3.4 b
Average	438.4	321.2	70.5	121.0	129.7	36.5	48.3	32.3	3.7
SE	17.1	13.6	ns	5.6	9.0	ns	ns	4.9	0.06

<sup>1</sup> 1=very poor to 5= excellent

Table 2. Percent by weight of U.S. No. 1, under 4 ounce and culls No. 2 potatoes and, specific gravity of Reville Russet and Russet Norkotah - four replications across two locations over twelve years, Springlake and Dalhart, Texas-2003-2014.

Location Variety or Selection	Percent By Weight of U.S. No. 1				Percent By Weight			Specific <sup>a</sup> Gravity	% Solids
	Total Yield	4-6 oz	6-10 oz	10-18 oz	Over 18 oz.	Under 4 oz.	Culls- No. 2		
Dalhart	72.4	136 b	27.9	30.8 a	10.0 A	10.5 b	7.0	1.064	13.9
Springlake	72.1	23.6 a	28.3	20.1 b	2.4 b	18.1 a	7.3	1.062	13.6
SE	ns	1	ns	1.4	0.9	1.4	ns	ns	ns
Reville Russet	76.5 a	18.2	30.8 a	27.5 a	5.0 b	12.4 b	6.1	1.062	13.6
Russet Norkotah	68.0 b	19.0	25.5 b	23.4 b	7.5 a	16.2 a	8.2	1.064	13.9
Average	72.3	18.6	28.2	25.5	6.3	14.3	7.2	1.063	13.8
SE	1.8	ns	1.30	1.4	0.86	1.40	ns	ns	ns

Table 3. Eye depth, tuber shape, average number of tubers per plant, average tuber weight, percent stand 60 days after planting, plant characteristics and percent dead vines at vine kill of Reville Russet and Russet Norkotah - four replications across two locations over twelve years, Springlake and Dalhart, Texas-2003-2014.

Variety or Selection	Eye Depth <sup>1</sup>	Tuber Shape <sup>2</sup>	Average Number Tubers/ Plant	Average Tuber Weight In oz.	Percent Stand 60 DAP	Plant Characteristics				
						Plant Type <sup>3</sup>	Vigor <sup>4</sup>	Maturity <sup>5</sup>	Vine Size <sup>6</sup>	Percent Dead Vines
Dalhart	4.0 a	4.2 a	6.3 a	7.5 a	95.4	1.7	3.9	3.0	4.0 a	48.7
Springlake	3.8 b	4.0 b	4.2 b	6.1 b	96.2	1.8	3.6	3.1	3.7 B	50.3
SE	0.04	0.04	0.2	0.22	ns	ns	ns	ns	0.08	ns
Reville Russet	4.1 a	4.0 b	5.5 a	7.2 a	94 b	1.7	3.8	3.3 a	3.9	39.7 b
Russet Norkotah	3.7 b	4.3 a	5.0 b	6.5 b	97 a	1.8	3.7	2.8 b	3.8	50.3 a
Average	3.9	4.1	5.3	6.9	96	1.8	3.8	3.1	3.9	49.5
SE	0.03	0.04	0.19	0.22	1.20	ns	ns	0.10	ns	3.2

<sup>1</sup> 1= deep, 3= medium, 5=shallow

<sup>2</sup> 1= short, 3= medium, 5= long

<sup>3</sup> 1= upright, 2= semiprostrate, 3= prostrate

<sup>4</sup> 1= poor, 2= fair, 3= medium, 4= vigorous, 5= very vigorous

<sup>5</sup> 1= very early, 2= early, 3= medium, 4=late, 5= very late

<sup>6</sup> 1=very small, 2=small, 3=medium, 4=large, 5=very large

Exhibit D, Attachment 2, Tables 4-8.

TABLE 4: 2004 and 2005 External Defects Means of Locations - Growth Cracks, Second Growth, Shatter Bruise, and Scab<sup>1</sup>. Western Regional Potato Variety Trial 2-Year Summary

Clone	Growth Cracks		Second Growth		Shatter Bruise		AB <sup>2</sup>	Scab	
	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial		Early Trial	Late Trial
ATX91137-1Ru	4.8	4.7	4.8	4.9	4.8	4.1	3.1	5.0	5.0
R. NORKOTAH	4.9	4.8	4.9	4.7	4.8	4.8	3.1	4.9	5.0
Entry Means	4.8	4.8	4.8	4.8	4.8	4.5	3.1	4.9	5.0

<sup>1</sup>All scores [1-5(none)]. Individual trial sites with relatively extreme values are listed to the right of the entry means.

<sup>2</sup>Aberdeen shatter scores reflect decrease from shatter chamber (1-5(none)).

TABLE 5: 2004 and 2005 Internal Defects Means of Locations - Hollow Heart/Brown Center, Internal Brown Spot, Vascular Discoloration/Net Necrosis, and Blackspot<sup>1</sup>. Western Regional Potato Variety Trials 2-Year

Clone	Percent Hollow Heart Plus Brown Center		Percent Internal Brown Spot		Percent Net Necrosis/Vascular Discoloration		Blackspot Bruise [1-5(none)]		% Bruise	
	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial	Early Trial	Late Trial	ID <sup>2</sup>	OTH-L <sup>3</sup>
ATX91137-1Ru	0	0.1	0.3	1.9	2.8	0.3	5.0	4.7	3.3	7.2
R. NORKOTAH	0	2.4	0.6	0.8	1.2	1.3	4.9	4.6	2.3	
Entry Means	0	1.3	0.5	1.3	2.0	0.8	4.9	4.7	2.8	7.2

<sup>1</sup>Individual trial sites with relatively extreme values are listed right of the entry means.

<sup>2</sup>Aberdeen and Kimberly Idaho, blackspot scores reflect abrasive peel test [1-5(none)].

<sup>3</sup>Controlled Blackspot study conducted in Othello; Samples from Idaho, Oregon, Washington.

TABLE 6: 2004 and 2005 - Disease Evaluation and Metribuzin Reaction. Western Regional Potato Variety Trials 2-Year Summary

Clone	Vert. Wilt		Early Blight <sup>3</sup>	Late Blight <sup>3</sup>		Common Scab <sup>3</sup>		% Net Necrosis		Prosser		Fusarium		Erwina	Metribuzin Reaction <sup>4</sup>
	Early/Down			Corvallis <sup>3</sup>		AB	SV	% Corley Root-		Fusarium		Soft Rot <sup>4</sup>			
	AB <sup>1</sup>	HRM <sup>2</sup>	Blight <sup>3</sup>	Foliar	Tuber	% Severe Defects	AB <sup>1</sup>	HRM <sup>2</sup>	Roespt <sup>4</sup>	knof <sup>4</sup>	F(sam)		F(sol)	(0-5)	AB
ATX91137-1Ru	6.6	7.8	5.7	8.8	29	7	0	17	18	11	\$, \$	3.0	2.5	3.9	MR, VR
R. NORKOTAH	8.7	9.0	4.5	8.8	83	7	27	7	-	28	\$, \$	2.0	2.5	4.0	VR, R
Entry Means	7.6	8.4	5.1	8.8	56	7	13	12	18	19		2.5	2.5	4.0	

<sup>1</sup> Evaluations made at Aberdeen and Swan Valley, Idaho by Jonathan Whitworth; scale as indicated with highest number being most severe. Net necrosis % represents the number of tubers with a 3 rating (0-5 scale) or higher, divided by the total number of tubers examined.

<sup>2</sup> Evaluations made at Hermiston, Oregon by Dan Hane; scale as indicated with highest number being most severe.

<sup>3</sup> Evaluations made at Corvallis, Oregon by Al Mosky and Solomon Yama; scale as indicated with highest number being most severe.

<sup>4</sup> Evaluations made at Prosser, Washington by Chuck Brown.

<sup>5</sup> Evaluations made at Prosser, Washington by Chuck Brown: R=resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible.

<sup>6</sup> Evaluations made at Aberdeen, Idaho by Steve Love and Tom Sahajiz: R=resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible.

TABLE 7: 2004 and 2005 Western Regional Potato Variety Trial - Solids, Dextrose, Sucrose, Protein, Vitamin C, and Glycoalkaloids - Aberdeen, ID. Western Regional Trials 2-Year Summary

Clone	Solids		Sugars			Protein	Vitamin C	Glycoalkaloids <sup>2</sup>
	Oven Dry (%)	Dextrose (%FWB) <sup>1</sup>	Sucrose (%FWB) <sup>1</sup>	Protein (%DWB) <sup>1</sup>	(mg/100g FWB) <sup>1</sup>			
ATX91137-1Ru	20.1	0.07	0.22	5.9	25.5	1.0		
RUSSET NORKOTAH	19.6	0.11	0.14	5.4	25.1	1.6		
Entry Means	19.8	0.09	0.18	5.6	25.3	1.3		

<sup>1</sup> DWB = Dry Weight Basis; FWB = Fresh Weight Basis

<sup>2</sup> Glycoalkaloids: The 2004 Lenape check from Aberdeen was 20.48 mg/100g

TABLE 8: 2004 and 2005 - MERIT SCORES [1-5(best)]. Western Regional Potato Variety Trials 2-Year Summary

Clone	Process									Process WA <sup>1</sup>	Fresh																							
	CO			ID			OR				WA			Entry	CA			CO			ID			OR			TX			WA				
	SLV	AB	KIM	HRM	KLM	OTH	OTH	OTH	OTH		OTH	OTH	OTH		OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH	OTH
R. NORKOTAH	1.0	2.3	2.4	2.5	2.0	1.8	1.4		1.9			3.7	1.5	2.7	3.8	3.3	3.0	4.2	3.5	3.0	3.1	3.2												
ATX91137-1Ru	3.5	3.1	3.3	2.0	1.0	2.0	1.4	2.4	2.3	2.0		4.2	1.0	4.0	4.0	4.0	3.5	3.7	3.5	2.8	4.5	3.5												
Location Means	2.3	2.7	2.9	2.3	1.5	1.9	1.4	2.4	2.1	2.0		3.9	1.3	3.3	3.9	3.6	3.3	3.9	3.5	2.9	3.8	3.3												

<sup>1</sup> Score based upon Idaho, Oregon, and Washington samples evaluated postharvest at Washington State University. ([www.potatoes.wsu.edu](http://www.potatoes.wsu.edu))

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

FOR OFFICIAL USE ONLY  
PVPO NUMBER

EXHIBIT E - STATEMENT OF THE BASIS OF OWNERSHIP

1. Name of Owner: Texas A&M AgriLife Research  
2. Temporary Designation or Experimental Name: ATX91137-1Ru  
3. Variety Name: Reveille Russet

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

5. Is the applicant a U.S. national or a U.S. based entity? If no, give name of country.  YES  NO

6. 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

7. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):  
Dr. J. Creighton Miller, Jr., a Texas A&M AgriLife Research employee with the Horticultural Sciences department in College Station, Texas, directed the final selection that led to development of the 'Reveille Russet' cultivar. Texas A&M AgriLife Research policy and handbook manual provide that all germplasm and varieties developed by its employees in the course of their duties are owned by Texas A&M AgriLife Research (formerly Texas Agricultural Experiment Station).

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.

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 BELTSVILLE, MD 20705

EXHIBIT F  
 DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S) Texas A&M AgriLife Research	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) Office of the Director, Texas A&M AgriLife Research 2147 TAMU College Station, TX 77843-2147	TEMPORARY OR EXPERIMENTAL DESIGNATION ATX91137-1Ru
		VARIETY NAME Reveille Russet
NAME OF OWNER REPRESENTATIVE (S) Bill F. McCutchen	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) Office of the Director, Texas A&M AgriLife Research 2147 TAMU College Station, TX 77843-2147	FOR OFFICIAL USE ONLY
		PVPO NUMBER

Unofficial Copy

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.

Bill F. McCutchen  
 Signature

5-29-2015  
 Date

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