No. 9800256

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

President, Colorado Certified Potato Growers' Association, Inc.

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 SIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, DITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR USING IT IN A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PRO N ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

POTATO

'RUSSET-NORKOTAH-SELECTION-3'

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 twelfth day of September, in the year two thousand one.

PLANT VARIETY PROTECTION OFFICE U.S. DEPARTMENT OF AGRICULTURE

Attest:

Paul M. Jankowski

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

9800256

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 DIVISION - 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 APPLICANT(S) *(as it is to appear on the Certificate)*
President
Colorado Certified Potato Growers' Association, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER
Russet Norkotah Selection 3

3. VARIETY NAME
Russet Norkotah Selection 3

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
0249 East Road 9 North
Center, CO 81125

5. TELEPHONE *(include area code)*
719-754-3496

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PVPO NUMBER 9800256

6. FAX *(include area code)*
719-754-2619

FILING DATE: 5-4-98

7. GENUS AND SPECIES NAME
Solanum tuberosum

8. FAMILY NAME *(Botanical)*
Solanaceae

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FILING AND EXAMINATION FEE: $ 2450 DATE 5/4/1998
CERTIFICATION FEE: $ 320.00 DATE 6/23/01

9. CROP KIND NAME *(Common name)*
Irish Potato

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)* *(Common name)*
Association

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Colorado

12. DATE OF INCORPORATION
April, 1996

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
President
Colorado Certified Potato Growers' Assn., Inc.
0249 East Road 9 North
Center CO 81125

14. TELEPHONE *(include area code)*
719-754-3496

15. FAX *(include area code)*
719-754-2619

16. 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 the Variety
- d. ☐ Exhibit D. Additional Description of the Variety *(Optional)*
- e. ☒ Exhibit E. Statement of the Basis of the Applicant's Ownership
- f. ☒ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository)*
- g. ☒ Filing and Examination Fee ($2,450), made payable to "Treasurer of the United States" *(Mail to PVPO)*

*19. Six field generations beyond laboratory tested stocks which may be tissue cultured plantlets or greenhouse produced minitubers.

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes," answer items 18 and 19 below)* ☐ NO *(If "no," go to item 20)* corrected 18 May 2001 AAA

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☒ YES ☐ NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
*See Above
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☒ YES *(If "yes," give names of countries and dates)* ☐ NO Tissue-cultured plantlets of this selection were pre-released to local seed growers for research and evaluation purposes under an agreement regarding experimental potato selections. A copy of this agreement is attached as Appendix 1.

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

The undersigned applicant(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.

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

SIGNATURE OF APPLICANT *(Owner(s))*		SIGNATURE OF APPLICANT *(Owner(s))*	
NAME *(Please print or type)* Rod Kehler		NAME *(Please print or type)*	
CAPACITY OR TITLE President, CCPGA, Inc.	DATE 4/27/98	CAPACITY OR TITLE	DATE

STD-470 (03-96) *(Previous editions are to be destroyed)* *(See reverse for instructions and information collection burden statement)*

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed Exhibits A, B, C, E; (3) at least 2,500 viable untreated seeds, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $2,450 ($300 filing fee and $2,150 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Blvd., Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $300 for issuance of the Certificate.

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

ITEM

16a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;

(2) the details of subsequent stages of selection and multiplication;

(3) evidence of uniformity and stability; and

(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified.

16b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;

(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences;

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

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

16d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.

16e. Section 52(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.

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

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

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of Regulations and Rules of Practice.)*

To avoid conflict with other variety names in use, the applicant should check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089.

Public reporting burden for this collection of information is estimated to average 30 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. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Jamie L. Whitten Building, Washington, D.C. 20250. When replying, refer to OMB No. 0581-0055 and form number in your letter. Under the PRA of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

The U.S. Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (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 the USDA Office of Communications at (202) 720-2791. To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call (202) 720-7327 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

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Exhibit A

Origin and Breeding History of the Variety

Russet Norkotah was publicly released in May, 1987 by North Dakota State University as an early fresh market russet. Russet Norkotah has many strengths including long tuber tuber type, shallow eyes, high percentage of US #1 tubers, and early maturity. To maximize yield and quality of Russet Norkotah generally requires managing the crop with above average input levels of nitrogen, water, and fungicides when compared with other potato cultivars in Colorado. Improper management of these production inputs has resulted in highly variable yields from year-to year and between growers. Much of this variability can be attributed to the lack of vine vigor associated with early maturity.

A research project was initiated in 1991 by Dr. David G. Holm to identify clonal selections of Russet Norkotah with improved vine vigor and yield potential. Ten clonal selections (including Russet Norkotah-Selection 3) with improved vine vigor and later maturity were identified in August of 1991 in a tuber-united seed lot planted at the San Luis Valley Research Center. Seed was increased In 1992 of each selection. Additionally the selections were observed for uniformity of vine vigor and maturity. In 1992 tissue-culture based stocks were developed of three of the selections (including Selection 3). Tissue-cultured plantlets were prereleased to local seed growers for research and evaluation purposes under an agreement regarding experimental potato selections. The selections were entered into comparative performance trials conducted at the SLV Research Center in 1993-1995.

WCC-27 (Western Coordinating Committee-27 for Potato Variety Development) trials on Selection 3 were conducted in 1997 in several locations around the Western United States. Information from these trials is not presented as part of this application for plant variety protection.

No variants have been identified either in the field or from tissue-cultured stocks since original selection in 1991 suggesting that Russet Norkotah-Selection 3 is uniform and stable.

President, Colorado Certified Potato Growers' Association, Inc.

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Exhibit B

Statement of Distinctness

Appendix 2, Tables 1 and 2, presents data that is to be considered to identify distinctness for Russet Norkotah-Selection 3. The tables are a summary for data collected over a three year period.

Field trials were conducted on a Norte gravelly sandy loam soil at the San Luis Valley Research Center, Center, CO in 1993-1995. Trials were planted and harvested on the following dates: 1993 - planted 5/15, harvested 9/18; 1994 - planted 5/20, harvested 9/29; and 1995 - planted 5/20, harvested 9/27.

The clonal selections plus the standard Russet Norkotah, were planted in a randomized complete block design with four replications. Each replication consisted of a single row 25 ft long. Between-row spacing was 34 in and in-row spacing, 12 in. All trials were conducted with 140 lbs of nitrogen and 100 lbs of phosphate applied per acre each year. Grower applications of nitrogen generally range from 240-280 lbs per acre for standard Russet Norkotah. The relatively low nitrogen applications allowed us to determine the yield potential of the clonal selections under "sustainable" nitrogen applications.

Data were collected on yield, grade, stand, emergence uniformity, vine vigor (mid- and late-season), plant height, stem number, vine maturity, and tuber number. From the data collected the following variables were calculated: average tuber weight, tubers per plant, and tubers per stem.

Data were analyzed by analysis of variance over years to identify clonal selections with average yields that were stable and high. The LSD was used to test for differences among means when F tests for clonal selections was significant. The error term employed to determine the significance of the F test for clonal selections was the year x clonal selection interaction mean squares.

Russet Norkotah-Selection 3 had a significantly greater total yield, yield of US #1 tubers, and yield of >10 oz tubers compared to the standard Russet Norkotah. Other significant differences include more vigorous late season plants, taller plants, later vine maturity, greater average tuber weight, and more tubers per stem in comparison to the standard Russet Norkotah.

Other characteristics of Selection 3, which have not been analyzed, but appear to be different from the standard Russet Norkotah are a greater number of inflorescences/plant, greater number of florets per inflorescence, and greater amount of berry production under field conditions. Field observations indicate that Selection 3 is also more resistant to Verticillium wilt.

Selection 8, another selection for which an application for Plant Variety Protection has been prepared, is intermediate between the standard Russet Norkotah and Russet Norkotah-Selection 3 for the yield and growth characteristics measured.

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Appendix 2.

Table 1. Yield and grade for Russet Norkotah Selection 3 and standard Russet Norkotah, 1993-1995 summary.

	Yield (Cwt/A)				
		US #1			
Clone	Total	Total	%	>10 oz	<4 oz
3	447	409	90.9	225	26
S[1]	332	295	88.5	112	29
Significance[2]	**	**	NS	**	NS

[1]Standard clone grown at the SLV Research Center.

[2]Significance: NS=not significant, **= 0.01.

Table 2. Plant characteristics for Russet Norkotah Selection 3 and standard Russet Norkotah, 1993-1995 summary.

Clone	Vine Vigor[1]	Vine Vigor[2]	Plant Height (in)	Vine Maturity[3]	Tuber Weight (oz)	Tubers/ Plant	Stems/ Plant	Tubers/ Stem
3	2.7	3.6	20.3	3.2	8.5	5.6	2.6	2.2
S[4]	2.6	1.8	13.5	1.8	6.8	5.2	2.9	1.8
Significance[5]	NS	**	**	**	**	NS	NS	**

[1]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines. Vine vigor rated on 7/8, 7/16, and 7/10 in 1993-1995 respectively.

[2]Scale used the same as in Note 1. Vine vigor rated on 8/19, 8/10, and 8/26 in 1993-1995 respectively.

[3]Vine maturity is rated on a 1 to 5 scale, with 5 indicating very late maturing vines.

[4]Standard clone grown at the SLV Research Center.

[5]Significance: NS=not significant, **= 0.01.

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NAME OF APPLICANT(S)	FOR OFFICIAL USE ONLY
President Colorado Certified Potato Growers' Association, Inc.	PVPO NUMBER 9800256
ADDRESS (*Street and No. or R.F.D. No., City, State, and Zip Code*) 0249 East Road 9 North Center CO 81125	VARIETY (V) NAME
	TEMPORARY OR EXPERIMENTAL DESIGNATION

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

Reference Variety 1 (R1)	Reference Variety 2 (R2)	Reference Variety 3 (R3)	Reference Variety 4 (R4)
Russet Norkotah			

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
5	5			

2. PLANT CHARACTERISTICS:

GROWTH HABIT: *(See figure 1)*

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

V	R1	R2	R3	R4
5	5			

TYPE:

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

V	R1	R2	R3	R4
2	2			

MATURITY: Days after planting (DAP) at vine senescence Three years - 1993-1995

V	R1	R2	R3	R4
118;113; 118	110;103; 95			

PLANTING DATE:

V	R1	R2	R3	R4
5/15/93;5/20/94; 5/20/95	5/15/93;5/20/94; 5/20/95			

REGION/AREA:

V	R1	R2	R3	R4
San Luis Valley Colorado	San Luis Valley Colorado			

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).

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V	R1	R2	R3	R4
3	2			

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

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

V	R1	R2	R3	R4
3	3			

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

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V	R1	R2	R3	R4
3	3			

4. LEAF CHARACTERISTICS:

LEAF COLOR: *(Observe fully developed leaves located on middle $^1/_3$ of plant)*
1 = Yellowish-green; 2 = Olive-green; 3 = Medium green; 4 = Dark green; 5 = Grey-green; 6 = Other_____

V	R1	R2	R3	R4
3	3			

LEAF COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart
(Observe fully developed leaves located on middle $^1/_3$ of plant & circle the appropriate color chart)

V	R1	R2	R3	R4
141A	141A			

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

V	R1	R2	R3	R4
2	2			

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

V	R1	R2	R3	R4
3	3			

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

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

V	R1	R2	R3	R4
3	3			

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

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V	R1	R2	R3	R4
3	3			

LEAF STIPULES SIZE: *(See figure 13)*
1 = Absent; 3 = Small; 5 = Medium; 7 = Large

V	R1	R2	R3	R4
5	3			

TERMINAL LEAFLET SHAPE: *(See figure 3 & 11)*
1 = Narrowly ovate; 2 = Medium ovate; 3 = Broadly ovate; 4 = Lanceolate; 5 = Elliptical;
6= Obovate; 7 = Oblong; 8 = Other_____

V	R1	R2	R3	R4
2	2			

TERMINAL LEAFLET TIP SHAPE: *(See figure 4 & 11)*
1 = Acute; 2 = Cuspidate; 3 = Acuminate; 4 = Obtuse; 5 = Other_____

V	R1	R2	R3	R4
3	3			

* **TERMINAL LEAFLET BASE SHAPE:** *(See figure 5 & 11)*
1 = Cuneate; 2 = Acute; 3 = Obtuse; 4 = Cordate; 5 = Truncate; 6 = Lobed; 7 = Other_____

V	R1	R2	R3	R4
4	4			

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

V	R1	R2	R3	R4
3	3			

NUMBER OF PRIMARY LEAFLET PAIRS: *(See figure 11)*

AVERAGE:

V	R1	R2	R3	R4
5.0	4.9			

RANGE:

V	R1	R2	R3	R4
4 to 5	4 to 5	to	to	to

PRIMARY LEAFLET TIP SHAPE: *(See figure 4 & 11)*
1 = Acute; 2 = Cuspidate; 3 = Acuminate; 4 = Obtuse; 5 = Other_____

V	R1	R2	R3	R4
3	3			

* **PRIMARY LEAFLET SIZE:**

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

V	R1	R2	R3	R4
3	3			

PRIMARY LEAFLET SHAPE: *(See figure 3 & 11)*

1 = Narrowly ovate; 2 = Medium ovate; 3 = Broadly ovate; 4 = Lanceolate; 5 = Elliptical; 6= Obovate; 7 = Oblong; 8 = Other_____

V	R1	R2	R3	R4
2	2			

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PRIMARY LEAFLET BASE SHAPE: *(See figure 5 & 11)*

1 = Cuneate; 2 = Acute; 3 = Obtuse; 4 = Cordate; 5 = Truncate; 6 = Lobed; 7 = Other_____

V	R1	R2	R3	R4
4	4			

NUMBER OF SECONDARY AND TERTIARY LEAFLET PAIRS: *(See figure 11)*

AVERAGE:

V	R1	R2	R3	R4
10.6	11.2			

RANGE:

V	R1	R2	R3	R4
8 to 14	8 to 13	to	to	to

5. INFLORESCENCE CHARACTERISTICS:

NUMBER OF INFLORESCENCE / PLANT:

AVERAGE:

V	R1	R2	R3	R4
2.1	0.2			

RANGE:

V	R1	R2	R3	R4
1 to 6	0 to 3	to	to	to

NUMBER OF FLORETS / INFLORESCENCE:

AVERAGE:

V	R1	R2	R3	R4
10.2	6.5			

RANGE:

V	R1	R2	R3	R4
2 to 17	5 to 9	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 & circle the appropriate color chart)

V	R1	R2	R3	R4
155C	155C			

* **COROLLA INNER SURFACE COLOR:** *(Measure predominant color of newly open flower)*

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1 = White; 2 = Red-violet; 3 = Blue-violet; 4 = Other_____

V	R1	R2	R3	R4
1	1			

COROLLA SHAPE: *(See figure 6)*

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

V	R1	R2	R3	R4
3	3			

CALYX ANTHOCYANIN COLORATION:

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

V	R1	R2	R3	R4
1	1			

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	R1	R2	R3	R4
15A	15A			

ANTHER SHAPE: *(See figure 7)*

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

V	R1	R2	R3	R4
2	2			

POLLEN PRODUCTION:

1 = None; 3 = Some; 5 = Abundant

V	R1	R2	R3	R4
3	3			

STIGMA SHAPE: *(See figure 8)*

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

V	R1	R2	R3	R4
1	1			

STIGMA COLOR CHART VALUE: Royal Horticulture Society Color Chart or Munsell Color Chart

(Circle the appropriate color chart)

V	R1	R2	R3	R4
137D	137D			

BERRY PRODUCTION: *(Under field conditions)*

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

V	R1	R2	R3	R4
4	1			

5. TUBER CHARACTERISTICS:

* **PREDOMINANT SKIN COLOR:**

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

V	R1	R2	R3	R4
6	6			

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

V	R1	R2	R3	R4
199A	199A			

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

V	R1	R2	R3	R4
1	1			

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:
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	R1	R2	R3	R4
4	4			

* **TUBER SHAPE:** *(See figure 10)*

1 = Compressed; 2 = Round; 3 = Oval; 4 = Oblong; 5 = Long; 6 = Other_____

V	R1	R2	R3	R4
5	5			

TUBER THICKNESS:
1 = Round; 2 = Medium thick; 3 = Slightly flattened; 4 = Flattened; 5 = Other_____

V	R1	R2	R3	R4
2	2			

TUBER LENGTH (mm):

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AVERAGE:

V	R1	R2	R3	R4
135	134			

RANGE:

V	R1	R2	R3	R4
117 to 154	115 to 161	to	to	to

STANDARD DEVIATION:

V	R1	R2	R3	R4
8	9			

AVERAGE WEIGHT OF SAMPLE TAKEN:

V	R1	R2	R3	R4
262	261			

TUBER WIDTH (mm):

AVERAGE:

V	R1	R2	R3	R4
64	65			

RANGE:

V	R1	R2	R3	R4
56 to 72	57 to 74	to	to	to

STANDARD DEVIATION:

V	R1	R2	R3	R4
3	4			

AVERAGE WEIGHT OF SAMPLE TAKEN:

V	R1	R2	R3	R4
262	261			

TUBER THICKNESS (mm):

AVERAGE:

V	R1	R2	R3	R4
54	54			

RANGE:

V	R1	R2	R3	R4
47 to 64	47 to 65	to	to	to

STANDARD DEVIATION:

V	R1	R2	R3	R4
3	4			

AVERAGE WEIGHT OF SAMPLE TAKEN:

V	R1	R2	R3	R4
262	261			

TUBER EYE DEPTH:

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

V	R1	R2	R3	R4
3	3			

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

V	R1	R2	R3	R4
3	3			

NUMBER EYE / TUBER:

AVERAGE:

V	R1	R2	R3	R4
18	17			

RANGE:

V	R1	R2	R3	R4
13 to 23	13 to 23	to	to	to

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DISTRIBUTION OF TUBER EYES: '98 MAY -4 P2:17
1 = Predominantly apical; 2 = Evenly distributed

V	R1	R2	R3	R4
2	2			

PROMINENCE OF TUBER EYEBROWS:
1 = Not prominent; 2 = Slight prominence; 3 = Medium prominence; 4 = Very prominent; 5 = Other_____

V	R1	R2	R3	R4
3	3			

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

V	R1	R2	R3	R4
11C	11C			

SECONDARY TUBER FLESH COLOR:
1 = Absent; 2 = Present, please describe: _____

V	R1	R2	R3	R4
1	1			

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	R1	R2	R3	R4
1	1			

6. DISEASES CHARACTERISTICS:

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

BACTERIAL RING ROT: Foliar reaction

V	R1	R2	R3	R4
7	7			

BACTERIAL RING ROT: Tuber reaction

V	R1	R2	R3	R4
7	7			

LATE BLIGHT

V	R1	R2	R3	R4
0	0			

PLRV (leaf roll)

V	R1	R2	R3	R4
7	7			

PVX

V	R1	R2	R3	R4
7	7			

PVY

V	R1	R2	R3	R4
9	9			

OTHER: Verticillium Wilt

V	R1	R2	R3	R4
3	9			

OTHER: _____

V	R1	R2	R3	R4

7. PESTS CHARACTERISTICS:

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

GOLDEN NEMATODE

V	R1	R2	R3	R4
0	0			

OTHER: _____

V	R1	R2	R3	R4

8. GENE TRAITS:

INSERTION OF GENES: ☐ YES ☒ NO

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

9. QUALITY CHARACTERISTICS:

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CHIEF MARKET: Russet table-stock

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	R1	R2	R3	R4
3	3			

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

V	R1	R2	R3	R4
---	---			

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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.

No distinguishing quality characteristics have been determined.

11. CHEMICAL IDENTIFICATION:

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

Protein Fourier Transform Infrared Spectral Analysis (FTIR) of minitubers and field tubers of Russet Norkotah-Selection 3 and the standard Russet Norkotah. Information is provided in Appendix 3 regarding FTIR sample preparation, analysis, and library searches to differentiate Selection 3 and the standard Russet Norkotah.

12. ADDITIONAL COMMENTS AND CHARACTERISTICS:

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

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Standard Operating Procedure for Fourier Transform Infrared Spectral Analysis (FTIR) of Freeze Dried Potato tubers and Minitubers. Analyses are based primarily on vibrational characteristics of proteins in the Amide I and Amide II wave number rgeions.

Preparation for FTIR analysis

1. Tuber samples collected from source
2. Held at 4C if necessary
3. Samples were washed and rinsed with deionized water and briefly (5 minutes) air dried
4. Tubers were cut into quarters (or smaller) to facilitate freeze drying
5. Liquid nitrogen was poured over tubers
6. Tubers were immediately put into a freeze dryer for approximately one week
7. Samples were ground with a wiley mill using an 80 mesh screen
8. Ground sample was sieved thru a 400 mesh screen and stored in vials in desiccator over silica gel.

FTIR analysis

1. Sample powder was placed on crystal surface of a BioRad FTS-7 optical bench equipped with an MCT detector. Powder was compressed with a 10g weight. A vacuum of approximately 24 pounds was applied to the system prior to the beginning of the scan.

2. Scans were obtained using Lab Calc software (W2.22) (Galactic Industries Corporation) with the following settings:

   a. type = single beam
   b. scans = 1024
   c. resolution = 4 cm-1
   d. scan velocity = 20KHz
   e. sampling rate = UDR2
   f. gain = 1
   g. filter = 4.5KHz
   h. aperture = open
   i. detector = internal
   j. beam = internal
   k. igram symmetry = single-sided
   l. WL limits (hi,lo) 2000, 600

3. Interferograms were standardized using the Lab Calc software to:

   a. convert to absorbance using a reference background scan of the day
   b. subtract background from sample interferogram using background scan of the day (used automatic subtraction factor for optimum consistency)
   c. smooth using Savitsky-Golay 19 point smoothing technique

4. The subtracted, smoothed scans were used to create libraries of known cultivars

5. Unknown scans were then compared to the known cultivars using the Lab Calc software. A value known as Hit Quality Index (HQI) was generated for each comparison. HQI's may range from 0.0 to 1.414. The lower the value the more likely the scans are of the same cultivar. Criteria for evaluating similarities and differences were those published by Brian C. Smith. Fundamentals of Fourier Transform Infrared Spectroscopy. CRC Press (1996), p.76. Where HQI's from 0 to 0.3 are considered identical, those between 0.3 and 0.7 are considered very similar and those >0.7 are not at all similar.

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Table 1. Hit Quality Indices from FTIR analyses of Standard Russet Norkotah mini-tubers from three different growers; San Luis Valley Research Center, Zapata Seed, Martinez Farms. Libraries consist of 1000 scans over a wave number range of 600 to 2000 collected with an MCT detector installed in a Biorad FTS7. (0 < 0.3 = identical, 0.3 < 0.7 = similar but not identical, > 0.7 = not similar)

	SLVRC	Zapata Seed	Martinez Farms
Standards treated as unknowns			
SLVRC	0.0	0.127	0.155
Zapata Seed	0.133	0.0	0.210
Martinez Farms	0.122	0.127	0.0

Table 2. Hit Quality Indices from FTIR analyses of S3 Russet Norkotah mini-tubers from five different growers; San Luis Valley Research Center, Zapata Seed, Martinez Farms, Rockey farms, Worley Seed. Libraries consist of 1000 scans over a wave number range of 600 to 2000 collected with an MCT detector installed in a Biorad FTS7. (0 < 0.3 = identical, 0.3 < 0.7 = similar but not identical, > 0.7 = not similar)

	SLVRC	Zapata Seed	Martinez Farms	Rockey Farms	Worley Seed
S3 treated as unknowns					
SLVRC S3	0.0	0.382	0.232	0.415	0.227
Zapata S3	0.382	0.0	0.515	0.133	0.493
Martinez S3	0.171	0.483	0.0	0.449	0.255
Rockey S3	0.415	0.133	0.471	0.0	0.526
Worley S3	0.177	0.454	0.232	0.488	0.0

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Table 3.	Hit Quality Indices from FTIR analyses of S8 Russet Norkotah mini-tubers from four different growers; San Luis Valley Research Center, Zapata Seed, Martinez Farms, Worley Seed. Libraries consist of 1000 scans over a wave number range of 600 to 2000 collected with an MCT detector installed in a Biorad FTS7. (0 < 0.3 = identical, 0.3 < 0.7 = similar but not identical, > 0.7 = not similar)			
	SLVRC	Zapata Seed	Martinez Farms	Worley Seed
S8 treated as unknowns				
SLVRC S8	0.0	0.388	0.183	0.160
Zapata S8	0.388	0.0	0.432	0.443
Martinez S8	0.166	0.543	0.0	0.377
Worley S8	0.110	0.454	0.216	0.0

Table 4.	Hit Quality Indices from FTIR analyses of Standard, S3, and S8 Russet Norkotah field tubers grown at the San Luis Valley Research Center. Libraries consist of 1000 scans over a wave number range of 600 to 2000 collected with an MCT detector installed in a Biorad FTS7. (0 < 0.3 = identical, 0.3 < 0.7 = similar but not identical, > 0.7 = not similar)		
	Russet Norkoah Standard	Russet Norkotah S3	Russet Norkotah S8
Tested as unknowns			
Standard	0.155	0.465	0.399
S3	0.393	0.0	0.576
S8	0.454	0.576	0.0

Summary Comments

1. When tested as an unknown against libraries derived from minituber preparations within each category there was a perfect match (0.0) in all cases (Table 1,2,3). The HQI for field tubers (Table 4) correctly identified S3 and S8 as a perfect match and the standard as a very good match (0.155)

2. When standards, S3, and S8 entries were tested as unknowns against libraries derived of the same category from different growers, the data indicate the samples were identical <.3 HQI or very similar (<.7). All entries have been archived as freeze dried powders for possible future comparisons.

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EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

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 APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
President Colorado Certified Potato Growers' Assn., Inc.	Russet Norkotah Selection 3	Russet Norkotah Selection 3
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)* 0249 East Road 9 North Center CO 81125	**5. TELEPHONE** *(include area code)* 719-754-3496	**6. FAX** *(include area code)* 719-754-2619
	7. PVPO NUMBER 9800256	

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

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

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

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

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

11. Additional explanation on ownership *(If needed, use reverse for extra space):*

The Colorado Certified Potato Growers' Association, Inc. and the governing board of Colorado State University, the Colorado State Board of Agriculture, entered into an agreement on February 1, 1998. This agreement allows the transfer of ownership of potato cultivars developed at Colorado State University by the Agricultural Experiment Station to the Colorado Certified Potato Growers' Association.

PLEASE NOTE:

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

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

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

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

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

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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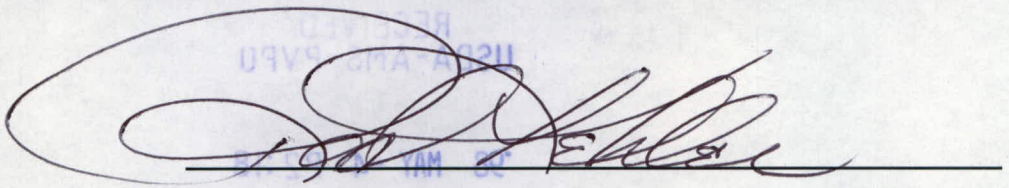
Exhibit F

Upon the request of the Commissioner of the Plant Variety Protection Office, the Colorado Certified Potato Growers' Association, Inc. agrees to deposit in a public repository in the United States a viable tissue culture sample for the variety Russet Norkotah - Selection 3 upon issuance of a certificate of protection. The Colorado Certified Potato Growers' Association, Inc. further agrees to replenish the sample if viability does not meet or falls below required standards.



President, Colorado Certified Potato Growers' Association, Inc.