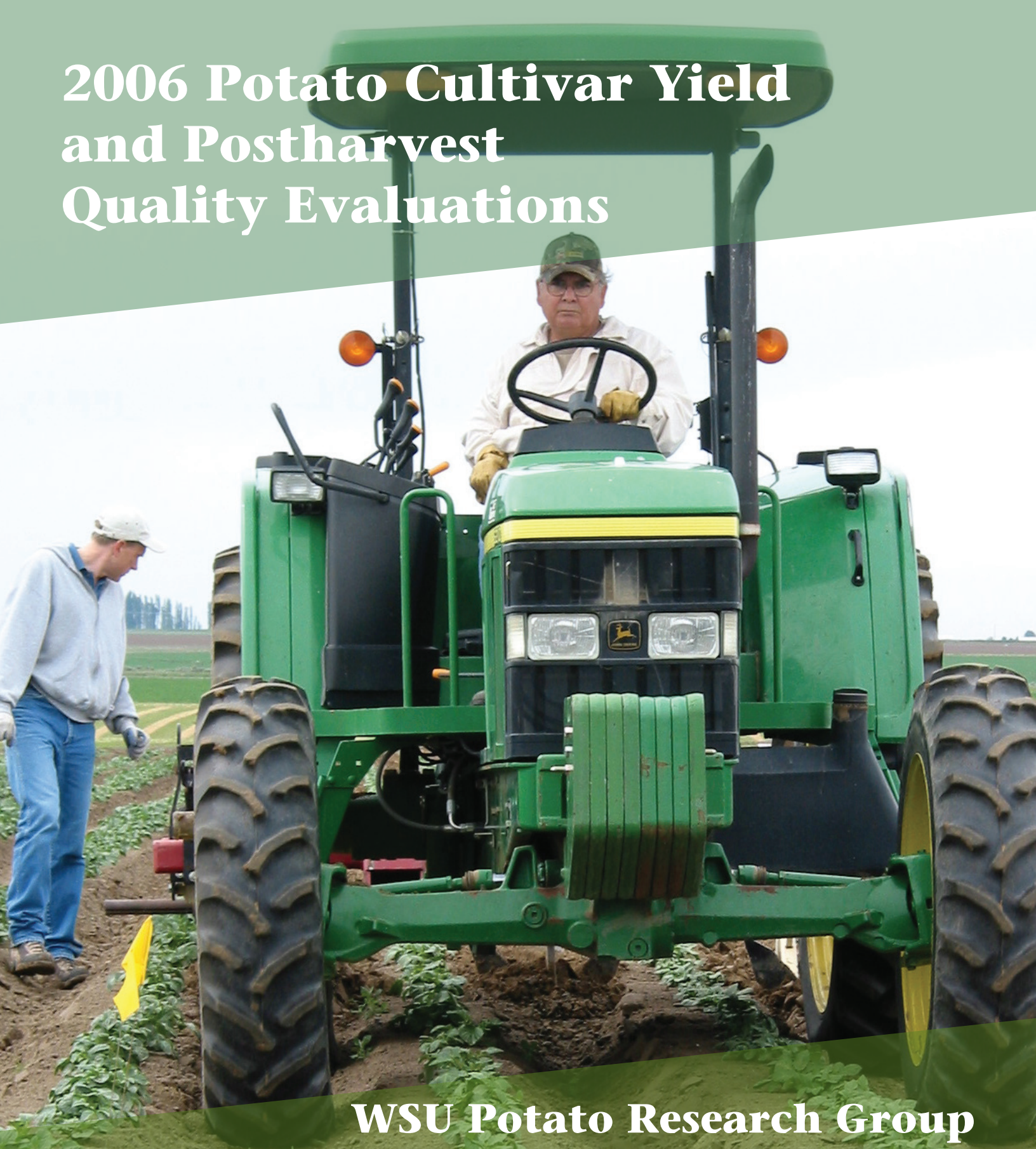
2006 Potato Cultivar Yield and Postharvest Quality Evaluations



WSU Potato Research Group

Washington State University
World Class. Face to Face.

2006 Potato Cultivar Yield and Postharvest Quality Evaluations

Washington State University
Potato Research Group

PO Box 646414
Pullman, WA 99164-6414

potatoes@wsu.edu
http://www.potatoes.wsu.edu/

Principal Investigators

N. Richard Knowles
Postharvest Trials and Information
509-335-3451
rknowles@wsu.edu
Additional contact:
Nora Fuller, 509-335-4447
fullern@wsu.edu

Mark J. Pavek
Field Trials and Information
509-335-6861
mjpavek@wsu.edu
Additional contact:
Edward Driskill, Jr., 509-335-6859
driskill@wsu.edu

Fax: 509-335-8690

Faculty and Staff
Brian C. Clark
Edward Driskill, Jr.
Nora Fuller
Raul G. Garza
Raul "Rudy" G. Garza Jr.
Chris Hiles
Zachary J. Holden
Lisa O. Knowles
Josh Rodriguez
Esther Erickson

Special Thanks

Othello Research Farm Crew; Washington State Potato Commission, Growers and Industry; Conner Flying Service; Martin Aeriolla; Sunrise Farms; Darrin Morrison; Debra Inglis and Crew; Dennis Johnson; Tom Cummings; Mandy Hughes; Mark Trent; Amy Morrison; Vanessa Coil

Table of Contents

INTRODUCTION

The 2006 Washington "Potato Cultivar Yield and Postharvest Quality Evaluations" annual report provides detailed information about promising new potato cultivars and how they compare to traditional reference varieties when grown in Washington. The data in this report are the result of intensive in-field and postharvest research conducted by the Washington State University (WSU) Potato Variety Development Program. Our objective is to identify new potato varieties that will provide profitable, sustainable production for the grower, improved competitiveness for the Washington potato industry, a healthy, inexpensive food supply for American consumers, and contributions towards a healthy environment.

This book reports the results from five variety trials: Red and Specialty, Early-Harvest Tri-State, Early-Harvest Regional, Late-Harvest Tri-State, and Late-Harvest Regional. The Tri-State trials evaluate the newest clones coming from the Tri-State program (Washington, Oregon, and Idaho) and the Regional Trials evaluate advanced clones that have graduated from the Tri-State in addition to advanced clones from other programs.

The majority of the potato clones and cultivars evaluated in this report came from USDA/ARS-funded breeding programs located at Aberdeen, ID and Prosser, WA. Additional clones and cultivars came from Oregon State University, Colorado State University, Texas A&M, North Dakota State University, University of Minnesota, USDA/ARS Beltsville, and Vauxhall, Alberta, Canada. The WSU Potato Variety Development Program is aided in research, administrative detail, and funding by the Washington State Potato Commission, the Northwest (Tri-State) Potato Variety Development Program (Idaho, Oregon, and Washington, USDA/ARS), the Western Coordinating Committee 27 (WERA-27), and other members of the U.S. potato industry.

We do our best to provide meaningful information that can be used by growers, processors, fresh-pack sheds, researchers, and other industry personnel. The results from this year's trials are presented in "user-friendly" graphs, figures, and charts. An economic analysis was conducted on all clones and cultivars for both the fresh and process markets, with the exception of the red and specialty clones. We also provide a merit rating for each cultivar within a specific market. The cultivars are ranked according to their overall performance which takes into account economics, yields, tuber-size profiles, tuber quality and many post-harvest attributes. It is our hope that this report is useful and easy to understand.

Accomplishments in 2006:
Ten years ago, 50% of the Northwest potato acreage was planted with Russet Burbank. As a result of the NW Variety Development Program's efforts, less than 35% of the 2006 acreage was planted with Russet Burbank while 30% was planted with varieties released by the NWVDP program - a two-fold increase from 1997. During 2006 the following potato clones were released by the NWVDP: A93157-6LS, A9045-7, and NDA5507-3Y. They will be grown in the U.S. under the trademarked names of 'Premier Russet', 'Highland Russet', and Yukon Gem', respectively. Each clone has traits that are unique and superior to many conventional varieties. More information is available for each clone at: www.potatoes.wsu.edu.

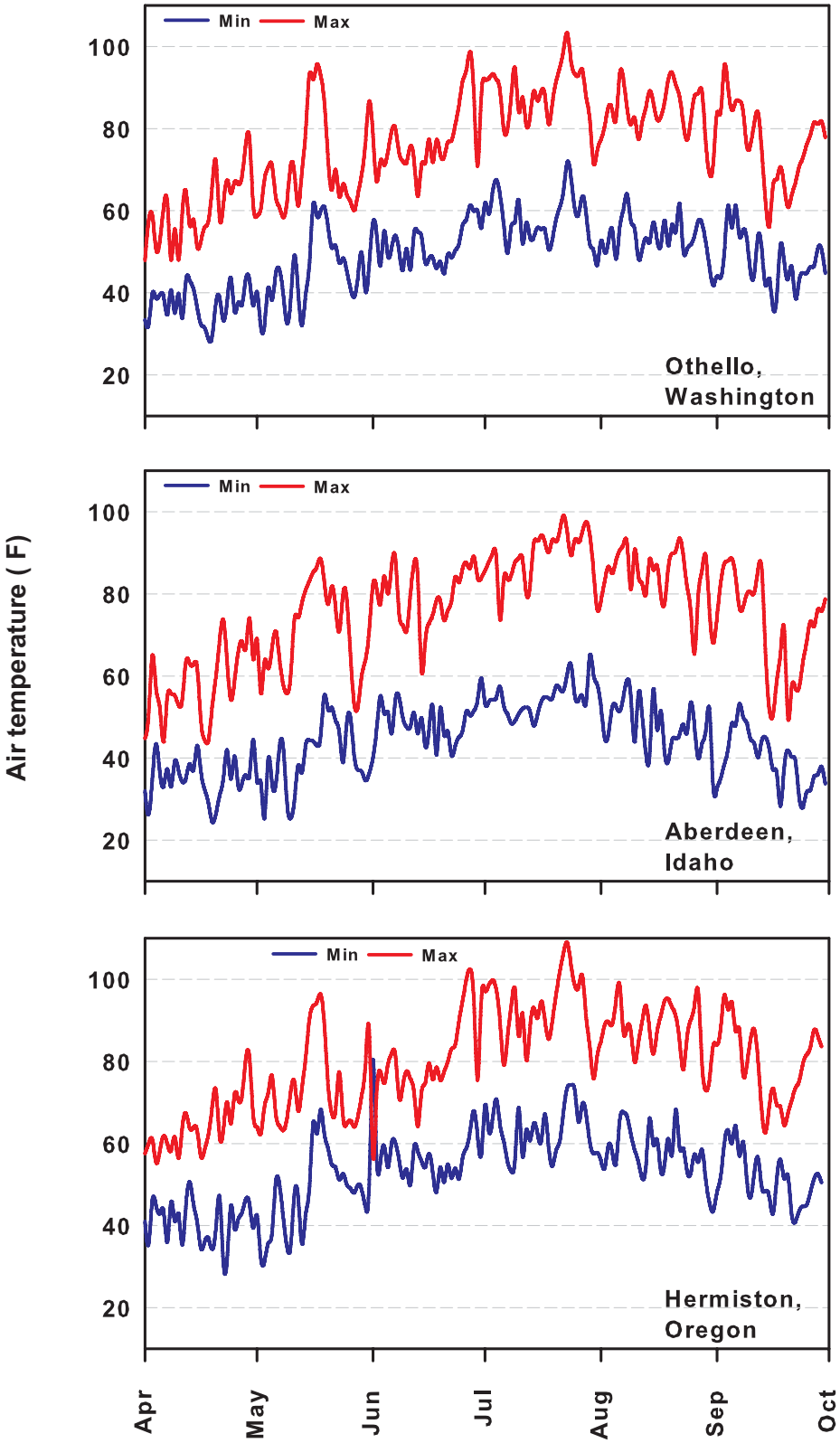
Cultural Information

Late Tri-State and Late Regional Trials

Tri-State Trial	**Othello, WA**	**Aberdeen, ID**	**Hermiston, OR**
Soil type	Shano silt loam	Silt loam	Loamy fine sand
Previous crop	Alfalfa	Small Grains	Spring Oats
Planting date	April 20	May 2	April 7
Vine kill date	September 15	September 5	September 5
Soil moisture at harvest	Dry	70%	74% field capacity
Temperature at harvest	76°F	65°F	75°F
Harvest date	September 25	September 18	October 1
Storage temperature	N/A	55-60°F	N/A
Date received at Pullman	September 26	October 3	October 2

Regional Trial	**Othello, WA**	**Aberdeen, ID**	**Hermiston, OR**
Soil type	Shano silt loam	Silt loam	Loamy fine sand
Previous crop	Alfalfa	Small Grains	Spring Oats
Planting date	April 20	May 2	April 7
Vine kill date	September 15	September 5	September 5
Soil moisture at harvest	Dry	70 %	74% field capacity
Temperature at harvest	76°F	65°F	75°F
Harvest date	September 25	September 18	October 1
Storage temperature	N/A	55-60°F	N/A
Date received at Pullman	September 26	October 3	October 2

2006 Growing Season Temperatures



Guide to Clone Designations

Example: ATX91137-1Ru		
	ATX91137-1Ru	Breeding Program (**A**berdeen, ID)
	A**TX**91137-1Ru	Selection Site (**Tex**as)
	ATX**91**137-1Ru	Year of Cross (19**91**)
	ATX91**137**-1Ru	Cross Number (**137**)
	ATX91137-**1**Ru	Tuber Selection (**1**)
	ATX91137-1**Ru**	Russet (**Ru**)

Location Codes

Designation		**Breeding Program**	**Selection Program**	**Other**
A	=	**A**berdeen, Idaho	**A**berdeen, Idaho	
AO	=	**A**berdeen, Idaho	**O**regon	
AOA	=	**A**berdeen, Idaho	**O**regon	**A**berdeen,Idaho
ATX	=	**A**berdeen, Idaho	**Tex**as	
BTX	=	**B**eltsville, Maryland	**Tex**as	
CO	=	**Co**lorado		
MWTX	=	**M**adison **W**isconsin	**Tex**as	
NDA	=	**N**orth **D**akota	**A**berdeen, Idaho	
NY	=	**N**ew **Y**ork		
PA	=	**P**rosser, WA	**A**berdeen, Idaho	
POR	=	**P**rosser, WA	**O**regon	
TC	=	**T**exas	**Co**lorado	
TE	=	**Te**tonia, ID		
TXA	=	**Tex**as	**A**berdeen, Idaho	
TXNS	=	**Tex**as		**N**orkotah **S**train
VC	=	**V**auxhall, Alberta, **C**anada		

Miscellaneous Designations

PA97**B**3-2	**B**	=	Chuck **B**rown's cross
A93157-6**LS**	**LS**	=	**L**ow **S**ugar
CO94165-3**P/P**	**P/P**	=	**P**urple skin & **P**urple flesh
A96741-2**R**	**R**	=	**R**ed skin
CO94183-1**R/R**	**R/R**	=	**R**ed skin / **R**ed flesh
VC0967-2**R/Y**	**R/Y**	=	**R**ed skin / **Y**ellow flesh
ATX92230-1**Ru**	**Ru**	=	**Ru**sset skin
VC1009-1**W/Y**	**W/Y**	=	**W**hite skin & **Y**ellow flesh
A97066-42**LB**	**LB**	=	**L**ate **B**light resistance

OVERALL CULTIVAR & CLONE PERFORMANCE

Merit Score Methods

Overview: Overall performance for each entry was rated on a scale of 1 to 5; 5 indicating the best performance possible. The methods are explained below. Economic analysis methods are explained near the front of this book.

FRESH MARKET MERIT SCORE METHODS:

75% Fresh market economic value

25% Internal quality – blackspot bruise, shatter bruise, hollow heart, internal brown spot, and brown center. An average merit value is taken. Of the five internal categories listed above, the worst internal defect or bruise rating for each cultivar is weighted 50% so serious bruise or defect problems are reflected in the final merit score.

Researcher's Discretion: The overall merit score may be reduced by up to 50% for any unacceptable trait not quantified in the data (e.g. poor appearance or poor flavor).

EARLY PROCESS MARKET MERIT SCORE METHODS:

75% Early harvest process market economic value

25% Internal quality – blackspot bruise, shatter bruise, hollow heart, internal brown spot, and brown center. An average merit value is taken. Of the five internal categories listed above, the worst internal defect or bruise rating for each cultivar is weighted 50% so serious bruise or defect problems are reflected in the final merit score.

Researcher's Discretion: The overall merit score may be reduced by up to 50% for any unacceptable trait not quantified in the data.

LATE PROCESS MARKET MERIT SCORE METHODS:

50% Field/Economic Performance – methods were the same as "Early Process Market Merit Score Methods" shown above, with the exception that a late harvest economic analysis was conducted.

50% Post-Harvest Performance – see "Postharvest Procedures" section near front of book.

Exception 1. The Advanced Lines/Late Regional entries have a merit score listed for both field and post-harvest performance.

Exception 2. For the Newest/Tri-State entries: If a field performance or post-harvest merit score was less than 2.6 for a particular entry, that value was used as the overall merit score (rather than an average of the two). If both values were below 2.6, the lower of the two was used. Using the < 2.6 score prevents the masking of poor economic or post-harvest performance that may otherwise occur when two scores are averaged.

ADVANCED LINES - REGIONAL TRIAL

Fresh Market Value Merit Scores - Washington

(Entries ranked according to performance)

Scores based on 1 to 5 (5 = Best) and are averaged across multiple trials, unless bolded. Values of bolded entries are from one year only.

Rank	Entry	Early Harvest Merit	Rank	Entry	Late Harvest Merit
1	**AOTX95265-2ARu**	4.5	1	A95109-1	4.6
2	A95109-1	4.4	2	**MWTX2609-4Ru**	4.5
3	AO96141-3	4.3	3	A95409-1	4.3
4	MWTX2609-2Ru	4.1	4	CORN-3	3.7
5	A95409-1	4.0	5	AO96164-1	3.7
6	**AOTX95265-4Ru**	3.8	6	MWTX2609-2Ru	3.5
7	Russet Norkotah	3.5	7	**AOTX95265-2ARu**	3.4
8	CORN-3	3.4	8	**AOTX95265-4Ru**	3.4
9	AO96164-1	3.3	9	TXA549-1Ru	3.4
10	**MWTX2609-4Ru**	3.3	10	CO94035-15Ru	3.3
11	TXA549-1Ru	3.3	11	AOA95155-7	3.2
12	A96104-2	3.1	12	Ranger Russet	3.1
13	CO94035-15Ru	2.6	13	AOA95154-1	3.0
14	AOA95154-1	2.5	14	A96104-2	2.9
15	Ranger Russet	2.4	15	Russet Norkotah	2.8
16	AO96160-3	2.3	16	AO96160-3	2.8
17	**AC96052-1Ru**	1.9	17	AO96141-3	2.6
18	CO95172-3Ru	1.9	18	CO95172-3Ru	2.3
19	Russet Burbank	1.8	19	**AC96052-1Ru**	1.9
20	Shepody	1.6	20	A95074-6	1.6
21	AOA95155-7	1.4	21	Russet Burbank	1.2
22	A95074-6	1.1	22	**CO97137-1W**	0.7
23	**CO97137-1W**	1.0			

For more information on these cultivars, see the Early and Late Harvest Regional Trial Sections in This Book.

NEWEST ENTRIES - TRI-STATE TRIAL

Fresh Market Value Merit Scores - Washington

(Entries ranked according to performance)

Scores based on 1 to 5 (5 = Best) and reflect 2006 performance only.

Rank	Entry	Early Harvest Merit	Rank	Entry	Late Harvest Merit
1	A0008-1TE	4.9	1	PA00N10-5	4.4
2	A99006-2TE	4.9	2	PA99N2-1	3.3
3	Russet Norkotah	4.1	3	A0008-1TE	2.9
4	PA99N2-1	3.5	4	PA98NM2-3	2.8
5	PA99N82-4	3.5	5	Ranger Russet	2.7
6	TXNS278	3.5	6	A97287-6	2.3
7	A97287-6	3.4	7	PA99N46-1	2.3
8	PA98NM30-11	3.2	8	A97066-42LB	2.2
9	PA99N46-1	3.2	9	A99006-2TE	2.0
10	Ranger Russet	3.1	10	PA99N82-4	1.4
11	Russet Burbank	2.5	11	PA98NM30-11	1.1
12	Shepody	2.5	12	A99040-1TE	1.1
13	A99040-1TE	2.1	13	Russet Burbank	0.8
14	A97066-42LB	1.4			
15	PA98NM2-3	1.4			
16	PA00N10-5	0.9			

For more information on these cultivars, see the Early and Late Harvest Tri-State Trial Sections in This Book.

ADVANCED LINES - REGIONAL TRIAL

Process Market Merit Scores - Washington

(Entries ranked according to WA performance)

Scores based on 1 to 5 (5 = Best) and are averaged across multiple trials, unless bolded.
Values of bolded entries are from one year only.

				Late Harvest	
Rank	Entry	Early Harvest Merit	Entry	Field Performance Merit	Post-Harvest Processing Merit
1	AO96141-3	4.2	**MWTX2609-4Ru**	**4.6**	**2.1**
2	AO96164-1	3.9	A95409-1	4.0	2.7
3	A95409-1	3.7	Ranger Russet	3.9	2.9
4	TXA549-1Ru	3.6	AO96141-3	3.3	3.0
5	A95109-1	3.6	**CO94035-15RU**	**3.3**	**2.8**
6	**AOTX95265-2ARu**	3.5	**CORN-3**	3.3	not rated
8	Shepody	3.4	A95109-1	3.2	2.4
9	Ranger Russet	3.4	MWTX2609-2Ru	3.1	not rated
10	MWTX2609-2Ru	3.2	A96104-2	3.1	2.8
11	**AOTX95265-4Ru**	3.1	AOA95154-1	3.0	3.8
12	**MWTX2609-4Ru**	3.0	A95074-6	2.9	4.0
13	A96104-2	3.0	AO96160-3	2.9	4.0
14	**TXNS278**	2.9	AOA95155-7	2.7	4.0
15	**CO97137-1W**	2.9	TXA549-1Ru	2.6	2.5
16	AOA95154-1	2.8	AO96164-1	2.5	4.2
17	AO96160-3	2.7	**AOTX95265-4Ru**	**2.5**	**1.7**
18	CO95172-3RU	2.6	CO95172-3RU	2.2	not rated
19	Russet Burbank	2.1	**AC96052-1RU**	**1.9**	**4.3**
20	Russet Norkotah	2.0	**AOTX95265-2ARu**	**1.7**	**2.0**
21	A95074-6	1.8	Russet Burbank	1.6	2.6
22	CO94035-15RU	1.6	**CO97137-1W**	**1.3**	not rated
23	**AC96052-1RU**	1.5	Russet Norkotah	1.2	not rated
24	AOA95155-7	1.4			

For more information on these cultivars, see the Early and Late Harvest Regional Trial Sections in This Book.

NEWEST ENTRIES - TRI-STATE TRIAL

Process Market Merit Scores - Washington

(Entries ranked according to WA performance)

Scores based on 1 to 5 (5 = Best) and reflect 2006 performance only.

		Early Harvest			Late Harvest
Rank	Entry	Merit	Rank	Entry	Merit
1	A99006-2TE	4.5	1	A97287-6	4.3
2	PA99N46-1	4.2	2	PA99N82-4	4.1
3	Russet Norkotah	4.1	3	PA00N10-5	3.7
4	Shepody	4.1	4	PA99N2-1	3.7
5	A0008-1TE	4.1	5	A97066-42LB	3.5
6	PA99N2-1	4.0	6	Ranger Russet	3.3
7	PA99N82-4	3.8	7	PA99N46-1	3.3
8	A97287-6	3.7	8	A99040-1TE	2.2
9	Ranger Russet	3.2	9	A0008-1TE	2.1
10	Russet Burbank	3.2	10	PA98NM2-3	2.0
11	A97066-42LB	3.1	11	PA98NM30-11	1.4
12	A99040-1TE	2.9	12	A99006-2TE	1.2
13	PA98NM30-11	2.5	13	Russet Burbank	1.0
14	PA00N10-5	2.4			
15	PA98NM2-3	1.9			

For more information on these cultivars, see the Early and Late Harvest Tri-State Trial Sections in This Book.
Late Harvest Merit Scores WA = WA field results + WA post-harvest results.

2006 Red & Specialty Potato Clones - Washington State University

RANKED ACCORDING TO 2006 US# 1 Yield

	US# 1 Yield					
	2006			2005		
	US#1 Yield CWT/A	0-6 oz	6-10oz	US#1 Yield CWT/A	Skin/ Flesh Color	Comments
		-----%-----				
VC1009-1W/Y	450	76	20	290	W/Y	Skin appeared "dirty" after wash, some growth cracks
Red LaSoda	430	40	38	320	R/W	Non-uniform color and size, rough, deep eyes
Yukon Gold	420	29	42	310	W/Y	Large tubers, mostly round
VC1123-2W/Y	415	60	31	365	W/Y	Nice shape/size, some flattening, netting- "wheat puffs"
POR01PG20-12	390	77	23	240	P/P	Deep red, long, nonuniform sizes, some irregular shape
CO97233-3R/Y	390	54	33		R/Y	Long, deep red color and good shape, very large size
CO97232-2R/Y	385	68	29		R/Y	Flat, some russeting & alligator hide, non-uniform color
A96510-4Y	370	27	36		Y	Ugly shape and skin, pear-shaped DISCARD
AC97521-1R/Y	340	78	18		R/Y	Uniform shape, color, & size, russeting skin a problem
Dk Red Norland	340	74	21	360	R/W	Bronzing, non uniform color and size
All Blue	340	91	6	250	P/P	Deep purple, nice color & size, lot of bronzing, bumpy
CO97226-2R/R	315	98	3		R/R	Deep purple, small uniform size & shape, plum-like
PA99P11-2	305	87	10		R/Y	Small uniform size, deep eyes, sticky stolons, greening
CO97232-1R/Y	290	83	17		R/Y	Long, non-uniform skin color - not very attractive
POR01PG16-1	180	97	3		P/P	Deep purple,long, small, nice overall apperance, bumpy
POR01PG22-1	160	94	3		R/R	Deep red/purple fingerling, nice color/size, low yield

Skin/Flesh Color: R = Red, W = White, Y = Yellow, P = Purple, Rus = Russet, Buff = off-white with or without light russeting.

The 2006 Regional Red and Specialty Trial was grown in a commercial field near Mt. Vernon, WA.

Fresh Market Value - Methods

Economic Potential

The gross return in U.S. dollars per acre for each trial entry was calculated using WA (Columbia Basin) four-year average fresh potato prices. Production costs per acre were not applied. All assumptions are listed in the table below. Assessing the fresh value of a given lot of potatoes is difficult because the actual market allows fresh-pack sheds to utilize a mix of tuber sizes, packaging, and marketing opportunities to maximize income potential. Following discussions with actual pack-sheds and complying with USDA standards, the packaging and size ranges described below provide a good base for variety comparison. A packaging and handling fee (pack-shed operating fee) of $3.50 was assessed on each CWT of potatoes. This economic evaluation does not fully account for consumer preferences for each trial entry.

Fresh-pack market 4-year average shipping point prices per tuber size and grade with associated pack-fees.

	Range of Tuber Sizes for Each Package Type and USDA Grade		Four Year WA State Columbia Basin	Pack-Shed Fee: Packaging	
Markets/Packaging[a]	**U.S. No. 1[b]**	**U.S. No. 2**	**Average Prices[c]**	**and Handling**	**Adjusted Value**
50 lb cartons	oz	oz	$/CWT	$/CWT	$/CWT
100 Count	7 to 8.5		$11.98	$3.50	$8.48
90 Count	8.5 to 9.5		$13.44	$3.50	$9.94
80 Count	9.5 to 10.5		$15.28	$3.50	$11.78
70 Count	10.5 to 12.5		$16.81	$3.50	$13.31
60 Count	12.5 to 14		$16.67	$3.50	$13.17
50 Count	14 to 18		$15.51	$3.50	$12.01
10 lb Film Bags					
Non-size A	4 to 7		$8.05	$3.50	$4.55
100 lb Burlap Sacks					
10 oz Min. Size U.S. No. 2		10 to 20	$7.87	$3.50	$4.37
10 oz Min. Size U.S. No. 2	18 to 20		$7.87	$3.50	$4.37
Bulk					
Process-Culls	< 4	< 10	$2.00	$3.50	-$1.50
Process-Culls	> 20	> 20	$2.00	$3.50	-$1.50

[a]Count = tuber number per 50 lb carton.

[b]18 to 20 oz U.S. No. 1 tubers are typically of marginal value on the fresh market due to their large size. They were therefore priced as U.S. No. 2, 10 oz minimum size.

[c]Sales F.O.B. Shipping Point, market periods 2000/2001 to 2003/2004 (USDA Federal-State Market News Service 2000-2004). Process-culls priced at regional process-cull market value.

Process Value - Methods

Early Harvest

Economic Potential
The gross return in U.S. dollars per acre for each trial entry was calculated using an early-harvest mock processing contract similar to those used by Washington State processors. All assumptions are listed below.

Contract Assumptions:

1. Base price of $102/ton.
   a. Base price is an average of early-harvest Ranger Russet contracts from Washington processors based on an August 1, 2006 harvest date.
2. Market Yield (U.S. #1s & 2s) of tubers greater than 4 oz, was multiplied by the base price.
3. Undersized market-grade potatoes less than 4 oz (process culls) were valued at $40/ton.
4. Specific gravity reject level for Ranger Russet contract = 1.074.
5. No premiums and penalties were applied for tuber fry color, sugar content, internal defects, or bruise.

Late Harvest

Economic Potential
The gross return in U.S. dollars per acre for each trial entry was calculated using a late-harvest mock processing contract. Process-market values are based on criteria (below) similar to that used by WA potato processors. Production costs per acre were not applied. Direct delivery contract assumptions are listed below.

Contract Assumptions:

1. Base price per ton was $77 for market (U.S. #1 & 2) grade tubers.
2. Premiums for 6 oz and larger market grade tubers of $0.60/ton for each percentage point greater than 50% they contribute to the total tuber yield composite, up to 70%, with a maximum of $12.00/ton. Penalties were $0.60/ton for each percentage point below 50%. Below 48%, penalties were $1.20/ton with no rejection minimum.
3. Penalty for 12 oz and larger market grade tubers of $0.60/ton for each percentage point greater than 35% they contribute to the total yield composite, with no rejection minimum.
4. Premiums for average tuber specific gravity values above, and penalties for values below, 1.076. Premium per CWT is $0.05 at 1.077, $0.20 at 1.078, $0.30 at 1.079, $0.40 at 1.080, $0.50 at 1.081, $0.60 at 1.082, $0.70 at 1.083, with a maximum of $0.70 for 1.084 through 1.088. Above 1.088 the premiums drop: $0.65 at 1.089, $0.60 at 1.090, $0.55 at 1.091, $0.45 at 1.092, $0.35 at 1.093, $0.25 at 1.094, $0.15 at 1.095. Above 1.096 penalty of $0.15/CWT. No premium or penalty for 1.076, $0.50 penalty at 1.075, for each 0.001-point decline from 1.075, lots were penalized $1.00/CWT with no rejection minimum.
5. Premium of $0.03 for each percentage of bruise-free tubers above 54% of total yield, up to a maximum of $0.75 for > 79% bruise free tubers; Below 54%, no premium or penalty.
6. Undersized market grade potatoes less than 4 oz (process culls) were valued at $40.00/ton.
7. No premiums or penalties were applied for tuber fry color, sugar content, or internal defects.

2006 Postharvest Procedures

Early Harvest

Testing of clones in the early harvest Tri-State and Regional Trials involved French frying samples at harvest only, following the same procedure as used in the late harvest trials. In addition to French frying and chipping, culinary and quality characteristics of clones from the Red/Specialty Trial were evaluated after oven-baking, microwaving and boiling. Four- to six-ounce tubers were selected for the cooking protocols described below. After cooking, each tuber was halved from stem to bud end. One half was immediately tasted and evaluated on a scale from 1 to 5 (5 is best) for texture, flavor, tuber center, and skin characteristics. The remaining half was incubated for 30 minutes at room temperature and after-cooking-darkening was then graded on a 1 to 5 scale based on a color chart for white- and yellow-fleshed clones (1 = excessive graying, 5 = no discoloration).

Oven Baking - Tubers were pierced twice with a fork on each side and baked at 400°F for 1 hour.

Boiling - Tubers were cooked in a sieved double-boiler for 1 hour after coming to a boil.

Microwaving - Tubers were pierced twice with a fork on each side and cooked for 10 minutes at the outer edge of a microwave oven (high setting). The tubers were then turned over and moved to the center of the microwave where they were cooked an additional 10 minutes. Four-tuber samples from each of two clones (eight tubers total) were cooked simultaneously.

Chipping - Tubers were cut longitudinally from stem to bud end. One half was used to make French fries as described below. The other half was sliced into 0.05-inch thick chips. The first slice was discarded to insure uniform thickness of the subsequent chips. The samples (12-tubers/clone) were rinsed with water and fried in 375°F vegetable oil for 2 minutes. The chips were drained on paper towels and chip color was graded using the Potato Chip/Snack Food Association (PC/SFA) color chart (1 = light, 5 = dark).

Late Harvest

Testing of clones in the late harvest trials involved the following postharvest quality evaluations. As soon as possible after harvest, tuber specific gravity and fry color (Photovolt readings) were measured on 12 tubers from each clone. Clones designated as fresh processing were French fried and Photovolt readings compared at harvest only. Additional tubers of each clone were placed in storage at 40°, 44° and 48°F. Tubers stored at 48°F were evaluated for bruise potential, soft rot susceptibility, consumer acceptance of French fries, and cooking time in October and November. Reducing sugar content and French fry color were assessed in early December. The extent of sprouting was recorded in late December. Tubers stored at 44°F were also evaluated for sugar accumulation in December. Storage of tubers at 40°F until mid December was done to determine the “cold-frying” potential of clones. Fry color and reducing sugar content were assessed in these tubers but the results are not reflected in the final numerical rating for each clone (see below).

Statistical Analysis

Least significant difference (LSD) values are included in the tables to facilitate evaluation of differences in fry color (Photovolt readings) and specific gravity among clones. Any two means whose difference is greater than or equal to the LSD value are significantly different. LSD values allow comparisons of the relative performance of any two clones for a particular characteristic, such as fry color.

Evaluation of Rated Characteristics

Specific gravity - was measured on a 12-tuber sample from each clone prior to storage by the weight-in-air/weight-in-water method and values were transformed into a 5-point scale as shown below. These same tubers were then used for French fry quality evaluation.

5 = 1.083 – 1.088
4 = 1.081 – 1.082 and 1.089 – 1.091
3 = 1.080 and 1.092 – 1.093
2 = 1.078 – 1.079 and 1.094 – 1.095
1 = 1.076 – 1.077 and 1.096 or higher
0 = 1.075 or lower

French fries - were processed by frying tuber slices (3/8" x 1 1/8") in 375°F oil for 3.5 minutes. Fry color was measured with a Photovolt meter within 3 minutes of frying. A Photovolt reading of 19 or less was considered unacceptably dark. The stem and bud end Photovolt readings were reported along with the USDA color class (see below). A difference of 9 Photovolt units or more between bud and stem end constitutes non-uniform fry color. A point was either added or subtracted from the total score, based on the uniformity of fry color. A (+) or (-) symbol is included with the Photovolt ratings to indicate that a point has been added or subtracted during tabulation of the total score. The USDA color classes assigned to French fries were based upon Photovolt readings of the darkest ends (usually the stem end) and are for information only; they were not used in determining the final rating.

Photovolt readings	USDA color
>31	0
25-30	1
20-24	2
15-19	3
<14	4

Rating/Av. Photovolt reading

5 = 41 or higher
4 = 36 thru 40
3 = 31 thru 35
2 = 25 thru 30
1 = 20 thru 24
0 = 19 or less

Taste panels - were used to determine the consumer acceptance of French fries from each clone. All of the clones evaluated by the taste panels were produced through classical breeding techniques. Slices (3/8" x 3/8") from tubers stored at 48°F were fried in 375°F oil for 4.5 minutes. Approximately 20 untrained panelists rated the fries on a 1 to 5 (5=best) scale for taste, texture, internal flesh color, and weak units (limpness). The average rating of the four fry characteristics is reported and was used in calculating the total rating score for each clone.

Reducing sugar - concentrations of tuber stem and bud ends were determined on a percent dry weight basis. Reducing sugars were assayed spectrophotometrically or were estimated based on fry color in tubers stored at 44° and 48°F and percent values were transformed into a 5-point scale as shown below. Sugar scores contributed to the final rating of each clone.

5 = 0.9% or lower
4 = 1.0 through 1.49%
3 = 1.5 through 1.9%
2 = 2.0 through 2.49%
1 = 2.5% or higher

Calculation of Total Score - The overall postharvest rating for each clone is equal to the sum of the individual ratings for each of the following quality characteristics:

Quality Parameter	Max. Rating*
Fry color prior to storage (0-5)	5**
Specific gravity (0-5)	5
Taste panel (avg of 5 pts for taste, texture, internal flesh color and limpness of cooked fries). (1-5)	5
After-storage (~60 days) fry colors & reducing sugars for tubers stored at:	
48F fry color (0-5)	5**
48F Reducing sugars (1-5)	5
44F fry color(0-5)	5**
44F Reducing sugars (1-5)	5
Postharvest rating =	35

*all characteristics rated from 0-5 or 1-5 as indicated. A rating of 5 is best. **fry color can get ±1 for uniformity (see explanation below)

**Uniformity of color from bud to stem end is also assessed. The fry color ratings will gain or lose a point, depending on uniformity. For example, if the difference between stem and bud end fry color is <9 photovolt reflectance units, indicating highly uniform fry color, then a point is added to determine the overall score. On the other hand, if the difference between stem and bud end fry color is ≥9 photovolt reflectance units (non-uniform fry color), a point is subtracted to end up with the final score. Hence, a clone can receive a maximum of 38 points.

Evaluation of Non-Rated Characteristics

Bruise potential - For each clone, 12 tubers were warmed to room temperature for one day. Each tuber was then held under a device that dropped a 4-ounce weight from a height of 23". Each tuber received four such impacts, two on the stem end and two on the bud end. After 24 hours, the tubers were peeled and the percentage of impacts resulting in a blackspot or shatter bruise was calculated. In addition, the severity of bruise was also rated on a 1-5 scale as indicated below. Bruises that rated 3, 4, or 5 were used in the overall percentage calculation.

Bruise Severity Ratings:

1 = No bruise
2 = White Knot bruise
3 = Less than 50% of the impact area darkened
4 = Greater than 50% of the impact area darkened, or the whole impact area is light brown
5 = 100% of the impact area is dark

Soft rot index - Bacterial soft rot susceptibility was determined by wounding the stem and bud ends of room-temperature tubers, inoculating the wounds with *Erwinia carotovora* var. *carotovora*, and incubating the tubers (6 tubers per clone) for 24 hours at 72°F in a mist chamber. The percentage fresh weight of tissue lost due to rot is reported.

Reconditioning potential - Reconditioning ability of tubers stored at 40°F for approximately 40 days was determined by subsequently storing the tubers at 60°F for 21 days. The change in fry color over the reconditioning interval provides a relative measure of the reconditioning potential for each clone.

Sprouting - The degree of sprout development in tubers stored at 40° and 48°F was assessed after all other tests had been completed (usually late December). The percentage of tubers that sprouted and the average sprout length per tuber were recorded for 15 tubers of each clone.

Tuber shape characteristics - The lengths and widths of up to twenty five 8- to 10-ounce tubers from each clone were measured and length:width (L/W) ratios reported. This was done to reveal the effects (if any) of growing location on tuber shape and to estimate the yield (% by number) of ≥3-inch long fries for each clone. Fry yields were calculated based on algorithms relating tuber shape (L/W) to the number and weight of fries. The following table reflects these relationships.

Visual Shape	Tuber L/W ratio	Percentage of French Fries (≥3in.) (by weight)	(by number)
Round	1.00	53.9	35.2
↓	1.25	70.3	51.6
Blocky	1.50	82.6	64.1
	1.75	90.8	72.8
↓	2.00	95.0	77.6
Elongated	2.25	95.1	78.5

A L/W ratio close to one indicates a round tuber which is not ideally suited for French fry production. A ratio in the 1.5 to 1.75 range represents an oblong, blocky tuber, such as Russet Burbank, which is desirable for processing. A typical L/W ratio for Russet Burbank is about 1.80. A schematic illustrating the relative sizes of potatoes having various ratios is included in the postharvest sections for the Tri-State and Regional Trials. Blocky tubers result in high French fry yield with less waste.

Long-term Storage Characteristics of Clones in the 2005 Tri-State and Regional Variety Trials

For evaluation of long-term storability, tubers were held at 48°F until late December and were then transferred to 44°F. The tubers were processed into French fries, and reducing sugars were measured in late April or early May of the following year. Tubers were not reconditioned prior to frying. Results from clones that were advanced from the Tri-State to the Regional Trial are reported in the Regional Trial section.

2006 Early Harvest Tri-State Trial

Location: WSU Research Center - Othello, WA
Planting Date: April 3
Harvest Date: Aug 7
Fertility Preplant: 75-100-300
Vine Kill Date: July 31
Days Grown: 119
Fertility Inseason: 148-90-0

The Tri-State trial is conducted annually in Washington, Idaho, and Oregon. The Tri-State committee designates which clones are entered in the trial. Selected cultivars and clones in the early trial are grown and managed for an early harvest (July/Aug) using practices specific to each participating state. The 2006 trial compared 4 local reference varieties to 11 new clones on the Washington State University research station near Othello, WA. Many of the clones had good shape, size, and yield. The following is a summary of the Washington field and post-harvest results.

Fresh Market Standouts: A99006-2TE, A0008-1TE, and PA99N2-1.
Process Market Standouts: A0008-1TE and PA99N2-1.

Standcounts

- **40 Day**
  Fast emergence: A99006-2TE (77%) and Russet Norkotah (71%).
  Slow emergence: PA98NM2-3 (10%) and PA98NM30-11 (11%).

- **60 Day**
  Full emergence: Most entries had 90% or higher emergence at 60 days.
  Poor emergence: PA98NM30-11 (78%).

Plant and Tuber Growth & Development

- **Above Ground Stem Number Per Plant**
  Most: A99006-2TE (2.1).
  Least: PA98NM2-3 (1.2), and A97287-6 (1.3).

- **Average Tuber Number Per Plant**
  Most: PA99N46-1 and PA00N10-5 (7.9).
  Least: Shepody (4.4), and PA98NM2-3 (4.7).

- **Average Tuber Size (oz)**
  Largest: Shepody (10.9) and A99006-2TE (8.0).
  Smallest: A97066-42LB (5.0), and PA00N10-5 (5.1).

- **Undersized Tubers (< 4 oz)**
  Most: PA00N10-5 (97 CWT/A), A97066-42LB (84 CWT/A).
  Fewest: Shepody (14 CWT/A).

Yield and Economic Data

- **Total Yield**
  Highest: A0008-1TE, R. Norkotah, PA99N2-1, and PA99N46-1, all > 570 CWT/A.
  Lowest: PA98NM2-3 and A97066-42LB.

- **% U.S. #1's (>4 oz)**
  Highest: A99006-2TE (91%) and A0008-1TE (89%).
  Lowest: PA00N10-5 (72%), Russet Burbank (75%) and A97066-42LB (75%).

- **Carton Yield (100 to 50 Count (7 to 18 oz U.S.#1 Tubers))**
  Highest: A0008-1TE, PA99N2-1, and A99006-2TE (all > 330 CWT/A).
  Compare to R. Norkotah (320 CWT/A).
  Lowest: PA00N10-5 (125 CWT/A) and A97066-42LB (130 CWT/A).

- **Specific Gravity**
  Highest: A97066-42LB (1.088), A99040-1TE (1.081).
  Lowest: PA98NM30-11 (1.067), PA98NM2-3 (1.072).

- **Gross Return ($/acre)**
  Fresh Market Highest: A0008-1TE, PA99N2-1, and A99006-2TE.
  Fresh Market Lowest: A97066-42LB, PA00N10-5, PA98NM2-3, and A99040-1TE.
  Process Market Highest: A0008-1TE, Russet Norkotah, and PA99N2-1.
  Process Market Lowest: A97066-42LB, PA98NM2-3, and A99040-1TE.

Tuber Defects

- **External Defects (% of Total yield)**
  Notable Defects: All entries had little to no external defects. Russet Burbank had the highest percentage of growth cracks (5%).

- **Internal Defects (% out of 40 tubers, 8-12 oz)**
  Notable Defects: PA00N10-5 had the most hollow heart (13%), while PA99N82-4 had 5%. Russet Burbank had the highest occurrence of brown center (10%), PA00N10-5 (3%). Internal Brown Spot: Russet Burbank and A99040-1TE (3%). All other entries were 0%.

- **Bruise (% out of 40 Tubers)**
  Highest Blackspot: A97287-6 (33%) and Russet Burbank (23%), all other entries had 13% or less.
  Highest Shatter: PA99N82-4 (40%), PA00N10-5 (23%), and PA99N2-1 (18%), all other entries were below 10%.

2006 Early Harvest Tri-State Trial

Summaries

ENTRY	TOTAL YIELD (CWT/A)	STATS**	TOTAL YIELD (Tons/A)	US # 1's* > 4 oz % of Total Yield	US # 2's* > 4 oz % of Total Yield	Culls* & < 4 oz % of Total Yield	CARTON YIELD 100-50 count (US 1's 7-18 oz) % of Total Yield	CARTON YIELD (Tons/A)	PROCESS YIELD US 1's and 2's > 6 oz % of Total Yield	PROCESS YIELD (Tons/A)
Ranger Russet	469	*B*	23.4	85	4	12	61	14.2	74	17.4
Russet Burbank	530	*A*	26.5	75	7	18	46	12.2	63	16.6
Russet Norkotah	581	*A*	29.1	86	4	10	55	16.0	69	20.1
Shepody	539	*A*	27.0	89	7	4	56	15.0	74	20.1
A97066-42LB	364	*C*	18.2	75	1	24	36	6.5	49	8.9
A97287-6	532	*A*	26.6	88	2	11	59	15.6	72	19.1
A99006-2TE	541	*A*	27.1	91	1	8	62	16.7	78	21.0
A99040-1TE	411	*BC*	20.5	82	2	16	45	9.3	58	11.9
A0008-1TE	584	*A*	29.2	89	2	9	64	18.7	77	22.4
PA98NM2-3	352	*C*	17.6	80	9	11	50	8.8	69	12.1
PA98NM30-11	458	*B*	22.9	88	2	10	64	14.7	78	17.8
PA99N2-1	579	*A*	28.9	87	3	10	59	17.1	72	21.0
PA99N46-1	573	*A*	28.6	84	3	13	55	15.7	67	19.2
PA99N82-4	567	*A*	28.4	87	2	12	56	15.9	69	19.5
PA00N10-5	457	*B*	22.9	72	6	23	27	6.2	46	10.5

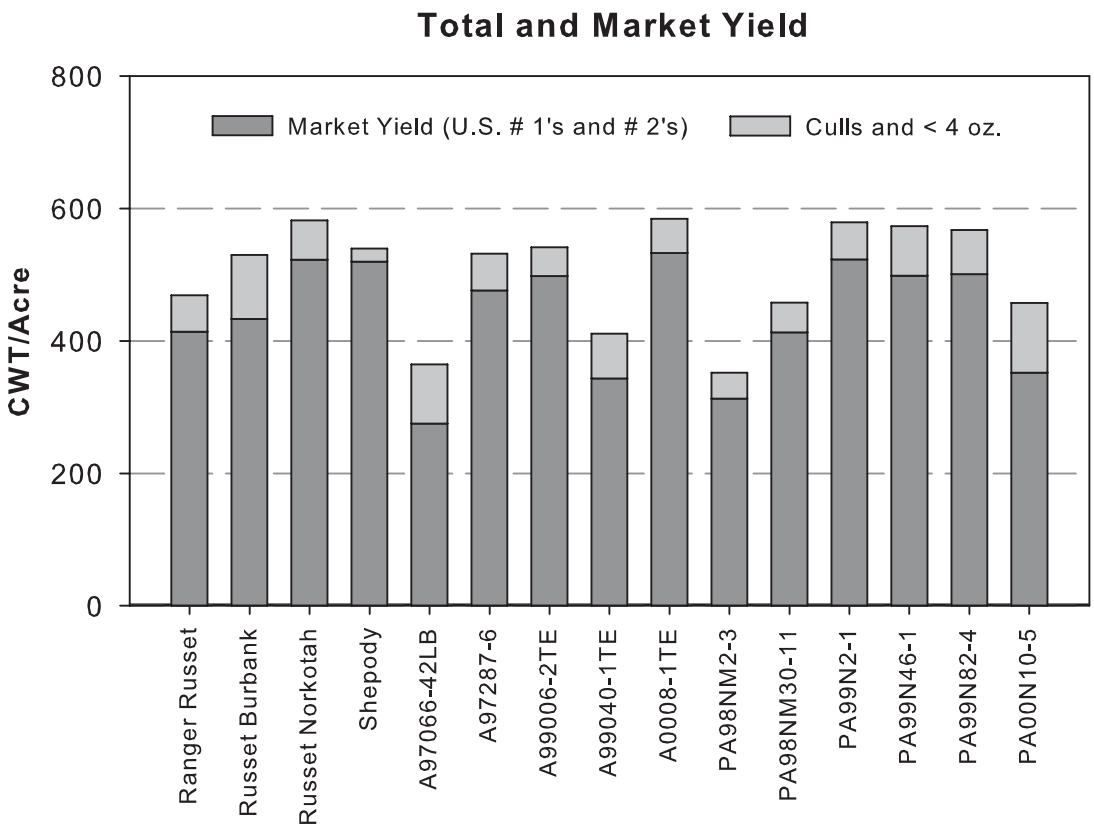
ENTRY	US # 1 YIELD > 4 oz (CWT/A)	STATS**	US # 1 YIELD > 4 oz (Tons/A)	4-7 oz* %	7-14 oz* %	> 14 oz* %	> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers) % HH	% BC	% IBS
Ranger Russet	397	*C*	19.9	25	63	12	1.078	0	0	0
Russet Burbank	396	*BC*	19.8	39	57	5	1.078	0	10	3
Russet Norkotah	500	*A*	25.0	29	57	14	1.075	3	0	0
Shepody	481	*A*	24.1	13	40	46	1.077	0	0	0
A97066-42LB	273	*E*	13.7	52	47	2	1.088	3	0	0
A97287-6	467	*AB*	23.3	32	58	10	1.080	3	0	0
A99006-2TE	492	*A*	24.6	21	57	23	1.080	0	0	0
A99040-1TE	338	*D*	16.9	44	51	5	1.081	0	0	3
A0008-1TE	522	*A*	26.1	24	61	15	1.076	0	0	0
PA98NM2-3	282	*DE*	14.1	38	58	4	1.072	0	0	0
PA98NM30-11	403	*C*	20.1	26	65	9	1.067	0	0	0
PA99N2-1	504	*A*	25.2	28	56	16	1.078	3	0	0
PA99N46-1	483	*A*	24.1	35	59	6	1.076	0	0	0
PA99N82-4	491	*A*	24.5	30	53	17	1.077	5	0	0
PA00N10-5	327	*D*	16.4	61	36	3	1.076	13	3	0

ENTRY	30 DAY STAND % Emerged	40 DAY STAND % Emerged	60 DAY STAND % Emerged	STEMS PER PLANT Above Ground	AVERAGE TUBER WEIGHT Ounces	AVERAGE TUBER NUMBER Tubers/Plant	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers) BLACKSPOT	BRUISE (%) (8-12 oz tubers) SHATTER
Ranger Russet	0	39	97	1.6	7.1	5.8	3	4	10	5
Russet Burbank	0	61	99	1.6	6.3	7.3	2	3	23	10
Russet Norkotah	0	71	97	1.9	7.0	7.2	3	4	8	0
Shepody	0	41	98	1.7	10.9	4.4	4	3	10	0
A97066-42LB	0	18	90	1.4	5.0	6.3	3	3	8	0
A97287-6	0	24	97	1.3	6.9	6.8	3	3	33	5
A99006-2TE	0	77	99	2.1	8.0	5.9	3	4	13	3
A99040-1TE	0	33	96	1.4	5.7	6.3	2	4	5	8
A0008-1TE	0	32	94	1.9	7.9	6.5	4	4	13	8
PA98NM2-3	0	10	90	1.2	6.6	4.7	3	2	10	8
PA98NM30-11	0	11	78	1.4	7.4	5.6	4	4	5	0
PA99N2-1	0	17	94	1.9	7.1	7.1	3	4	5	8
PA99N46-1	0	59	98	1.5	6.3	7.9	3	3	0	0
PA99N82-4	0	47	99	1.8	6.9	7.2	3	4	5	40
PA00N10-5	0	31	96	1.8	5.1	7.9	3	3	3	23

* Percent values may not total 100% due to rounding

**Numbers followed by the same letter are not significantly different at the 5 % level using Fisher's LSD Test

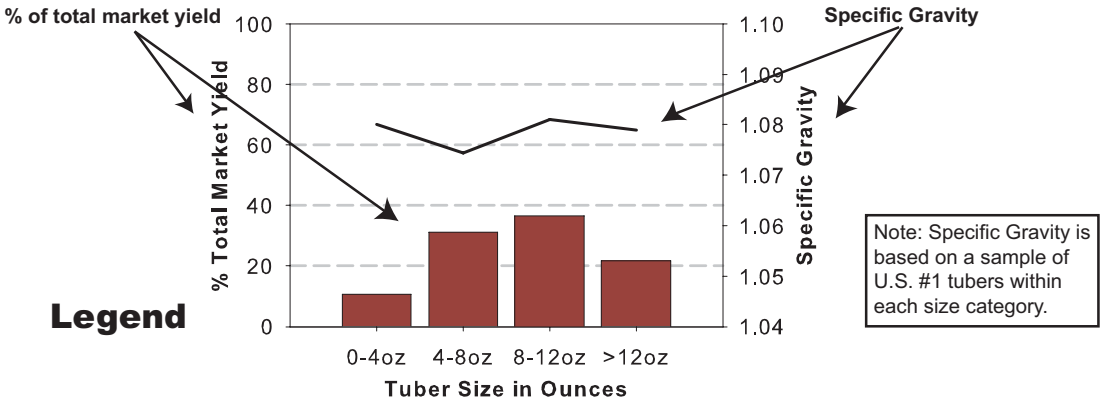
2006 Early Harvest Tri-State Trial



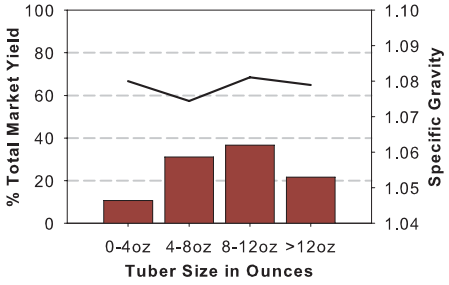
Tri-State researchers select new cultivars at the Powell Butte research center.

2006 Early Harvest Tri-State Trial

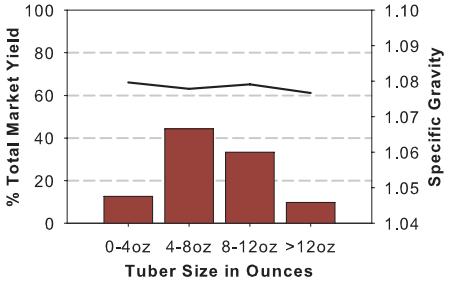
Tuber Yield and Specific Gravity Distributions



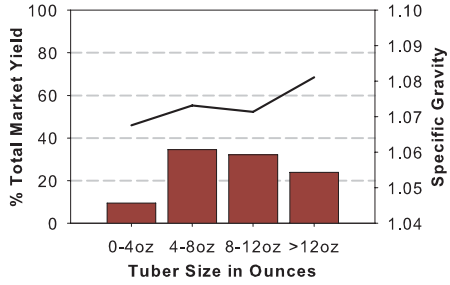
RANGER RUSSET



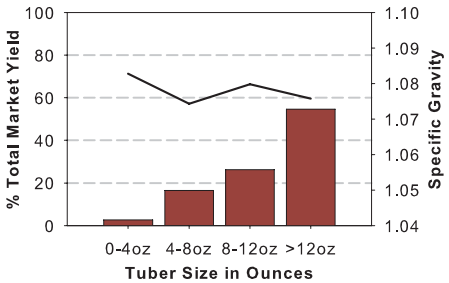
RUSSET BURBANK



RUSSET NORKOTAH

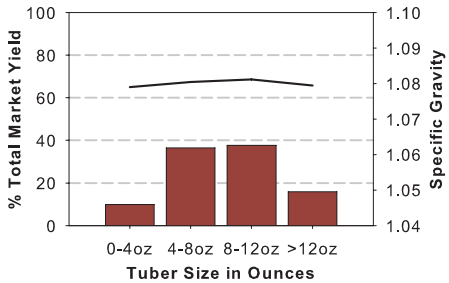


SHEPODY

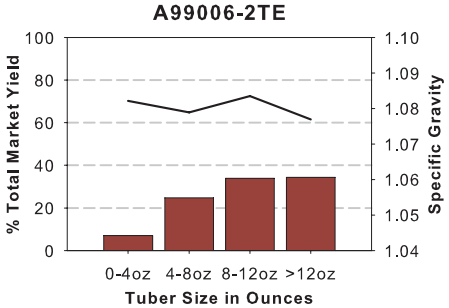


A97066-42LB

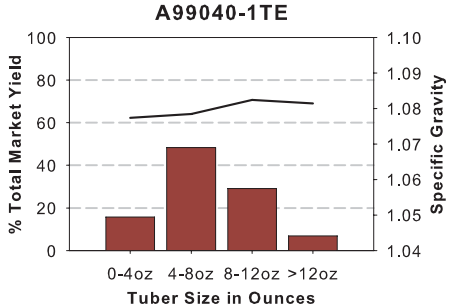
A97287-6



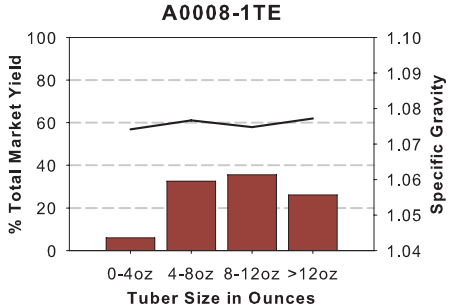
A99006-2TE

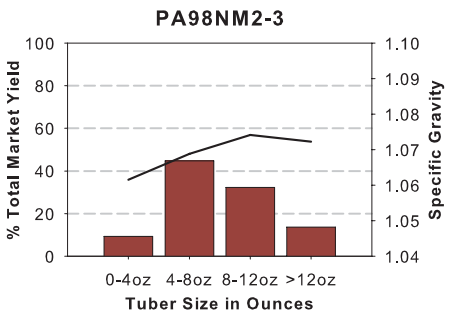


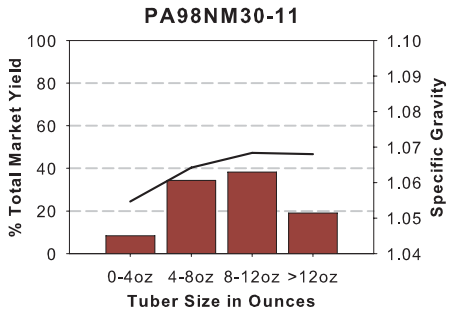
A99040-1TE

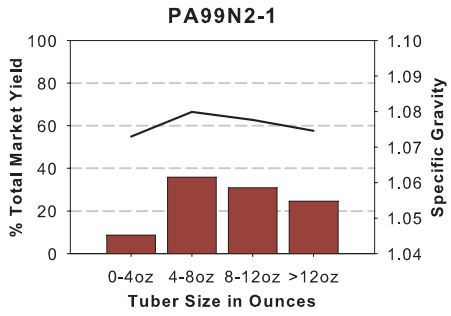


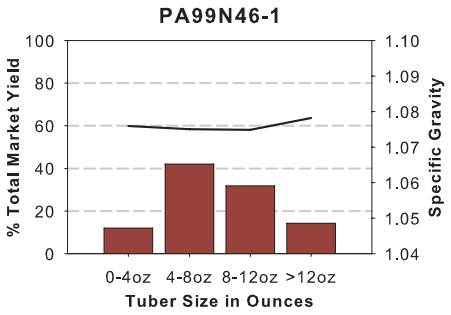
A0008-1TE

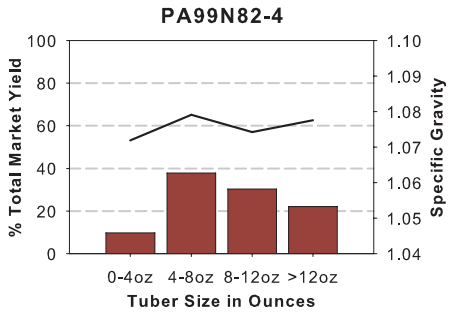


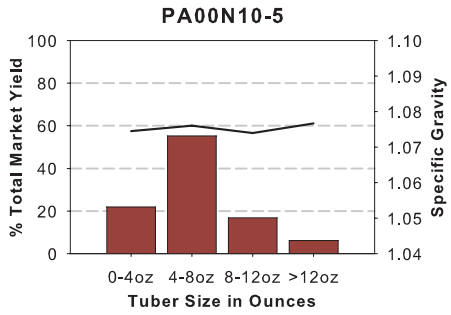












Bags of hand-cut potatoes await planting during 2006.

2006 Early Harvest Tri-State Trial

Fresh Value

Economic Potential

The gross return in U.S. dollars per acre for each trial entry was calculated using WA (Columbia Basin) four-year average fresh potatoes prices. Production costs per acre were not applied. All assumptions are listed at the front of the book under “Fresh Market Value-Methods”. Assessing the fresh value of a given lot of potatoes is difficult because the actual market allows fresh-pack sheds to utilize a mix of tuber sizes and packaging to meet demand changes in an effort to maximize income potential. Following discussions with actual pack-sheds and complying with USDA standards, the packaging and size ranges used to produce the fresh values below (figure 1) provide a good base for variety comparison. A packaging and handling fee (pack-shed operating fee) of $3.50 was assessed on each CWT of potatoes. This economic evaluation does not fully account for consumer preferences for each trial entry. Figure 1, below, shows the difference in gross value from Russet Norkotah for all trial entries.

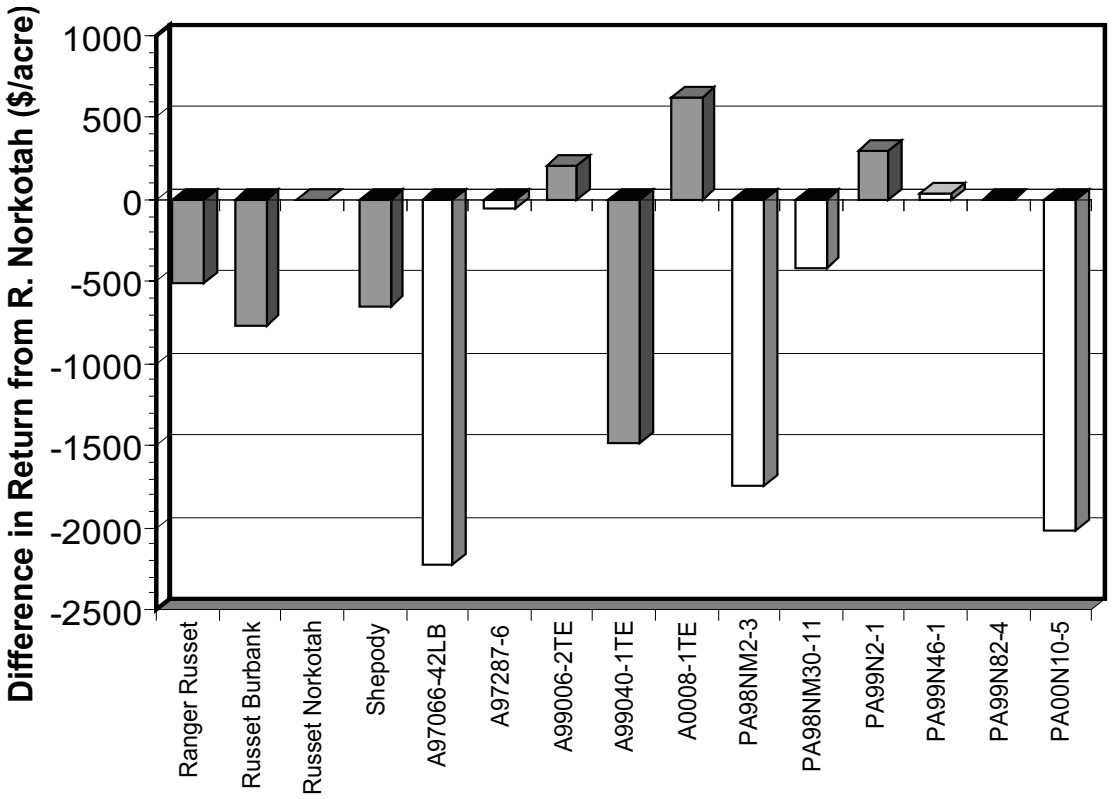


Figure 1. Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah ($4320) from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to undesirable shape or appearance.

2006 Early Harvest Tri-State Trial

Process Value

Economic Potential

The gross return in U.S. dollars per acre for each trial entry was calculated using an early-harvest mock processing contract. Process-market values are based on criteria similar to that used by WA potato processors. Production costs per acre were not applied. Contract assumptions are listed at the front of the book under “Process Market Value-Methods.” Figure 1, below, shows the gross value of all trial entries when compared against a standard reference variety.

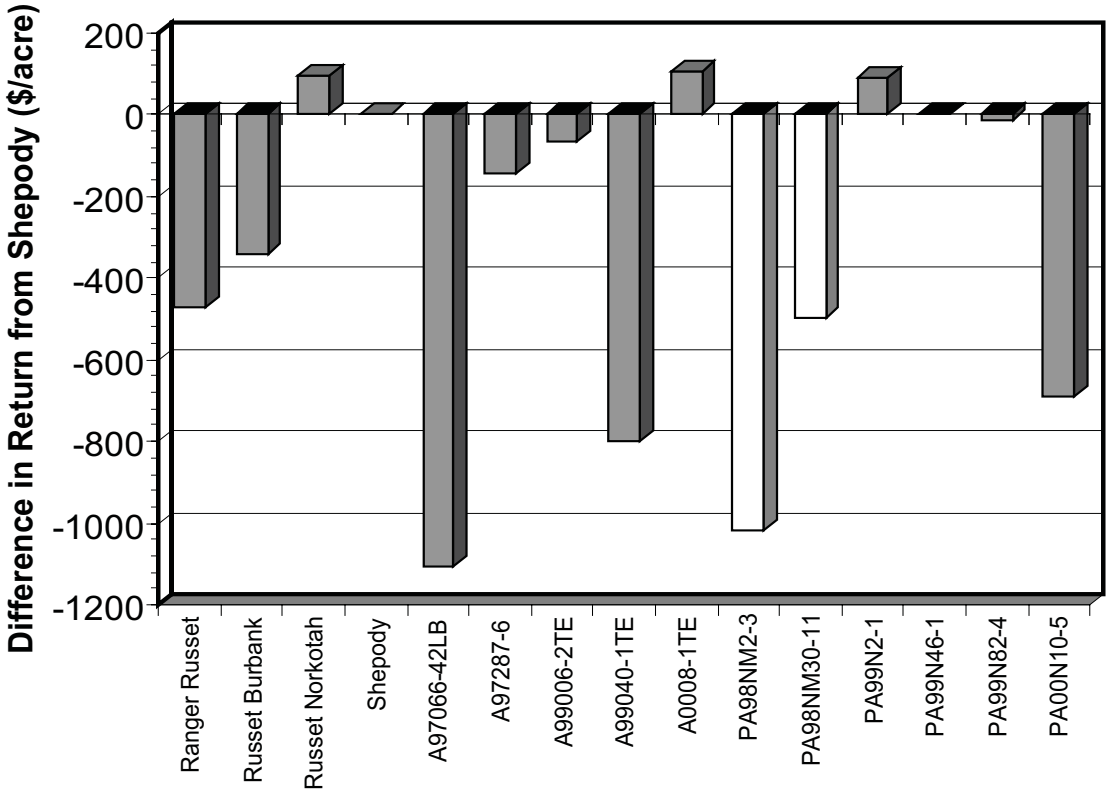
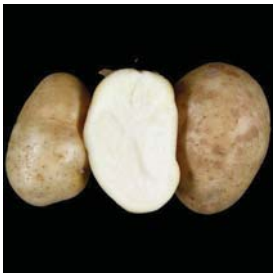
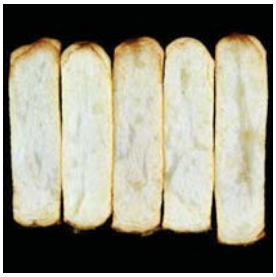
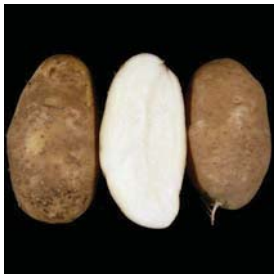
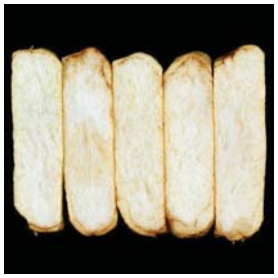
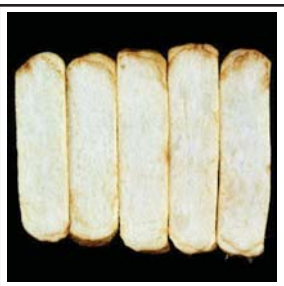
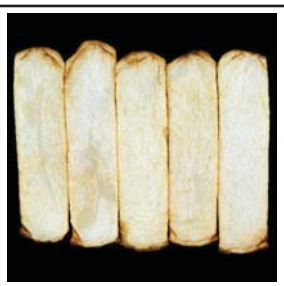
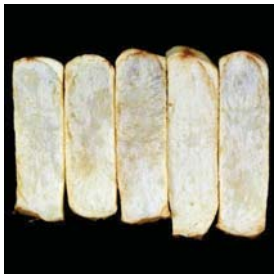


Figure 1. Difference in gross return per acre (Process Market) from Shepody calculated by subtracting the gross return of Shepody ($2678) from the gross return of the particular entry. Entries with the white-colored bars were REJECTED (under the mock contract parameters) due to low specific gravity.

Tubers	Fries	WA Early Harvest Tri-State Trial Comments
Ranger Russet		
		**Tubers:** Oblong to long, moderately heavy russet, fair skin set; moderate eye depth. **Fry Color:** Light, uniform.
Russet Burbank		
		**Tubers:** Oblong to long, moderate russet, poor skin set; moderate eye depth. **Fry Color:** Light, uniform.
Russet Norkotah		
		**Tubers:** Oblong to long tubers, moderately heavy russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.
Shepody		
		**Tubers:** Oblong tubers, no russeting, good skin set; shallow eyes. **Fry Color:** Light, uniform.
A97066-42LB		
		**Tubers:** Oblong tubers, moderate russet, fair skin set; very shallow eyes. **Fry Color:** Light, uniform.

Tubers	Fries	WA Early Harvest Tri-State Trial Comments
A97287-6		
		**Tubers:** Oblong tubers, moderate russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.
A99006-2TE		
		**Tubers:** Oblong to long tubers, moderate russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.
A99040-1TE		
		**Tubers:** Long tubers, moderate russet, poor skin set; shallow eyes. **Fry Color:** Light, uniform.
A0008-1TE		
		**Tubers:** Oblong tubers, moderate russet, good skin set; shallow eyes. **Fry Color:** Light, uniform.
PA98NM2-3		
		**Tubers:** Oblong tubers, heavy russet, fair skin set; moderate eye depth. **Fry Color:** Light, uniform.

Tubers	Fries	WA Early Harvest Tri-State Trial Comments
PA98NM30-11		
		**Tubers:** Oblong tubers, light russet, good skin set; moderate eye depth. **Fry Color:** Light, uniform.
PA99N2-1		
		**Tubers:** Round to oblong tubers, moderate russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.
PA99N46-1		
		**Tubers:** Round to oblong tubers, moderate russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.
PA99N82-4		
		**Tubers:** Round to oblong tubers, heavy russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.
PA00N10-5		
		**Tubers:** Round to oblong tubers, moderate russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.

2006 Early Harvest Tri-State Trial

Postharvest Evaluation

The 2006 Early Tri-State trial consisted of 4 cultivars and 11 numbered clones. All entries fried light and uniform from bud to stem end. Photovolt readings fell in the 46 to 55 range, resulting in a highly desirable USDA 0 rating for all clones.

		PHOTOVOLT			DIFFERENCE *	USDA
	Clone	Stem	Bud	Average	STEM - BUD	COLOR
1	Ranger Russet	50.2	49.7	50.0	5.0	0
2	Russet Burbank	48.7	50.5	49.6	3.0	0
3	Russet Norkotah	49.8	49.8	49.8	3.2	0
4	Shepody	54.3	53.1	53.7	3.7	0
5	A97066-42LB	51.6	51.5	51.5	3.8	0
6	A97287-6	56.8	54.0	55.4	3.6	0
7	A99006-2TE	55.1	55.6	55.3	4.3	0
8	A99040-1TE	52.6	52.4	52.5	2.9	0
9	A0008-1TE	54.1	51.4	52.8	3.8	0
10	PA98NM2-3	55.0	53.5	54.2	4.4	0
11	PA98NM30-11	49.6	43.1	46.4	6.6	0
12	PA99N2-1	50.3	52.9	51.6	3.8	0
13	PA99N46-1	52.2	49.8	51.0	3.7	0
14	PA99N82-4	53.5	50.6	52.0	4.3	0
15	PA00N10-5	54.0	49.6	51.8	5.0	0
			LSD 0.05	*2.3*	*3.1*	
	Average	52.5	51.2	51.8	4.1	0

* Average of 12 individual tuber absolute differences

Planting Date: April 3
Harvest date: August 7
Fried on: August 9

2006 Late Harvest Tri-State Trial

Location: Commercial field near Othello, WA
Planting Date: April 20
Harvest Date: Sept 25
Fertility: 233-225-344
Vine Kill Date: Sept 15
Days Grown: 148

The Tri-State trial is a part of the cooperative cultivar development program conducted at locations in Washington, Oregon, and Idaho. The Tri-State committee selects all official entries in this trial. All entries are grown for full season late harvest in each of the three states to determine how they perform when grown under different management and climatic conditions. The 2006 Washington State Late Harvest Tri-State Trial was grown in conjunction with the Late Harvest Regional Trial in a field near Othello, WA. Growing conditions were not completely favorable as a cool spring delayed emergence, the previous alfalfa crop left volunteers and debris in the field, and the soil was poor. The following is a summary of the Washington field and post harvest results.

Fresh Market Standout: PA00N10-5; high economic value, round.
Process Market Standouts: PA99N46-1 and PA99N2-1, and A97287-6.

Standcounts

- **30 Day**
  Fast emergence: Russet Burbank (91%) and A99006-2TE (87%).
  Slow emergence: PA98NM30-11 (46%), PA99N2-1 (57%), and PA98NM2-3 (61%).

- **50 Day**
  Full emergence: All entries had 93% or greater emergence at 50 DAP.

Plant and Tuber Growth & Development

- **Above Ground Stem Number Per Plant**
  Most: PA99N2-1 (2.6) and A0008-1TE (2.5).
  Least: PA98NM2-3 (1.1), A97066-42LB (1.2), and A99040-1TE (1.4).

- **Average Tuber Number Per Plant**
  Most: PA00N10-5 (8.1) and PA99N46-1 (7.4).
  Least: PA98NM30-11 (5.0).

- **Average Tuber Size (oz)**
  Largest: Ranger (8.9) and PA99N46-1 (8.1).
  Smallest: A99040-1TE (5.4), Russet Burbank (6.0), and A97287-6 (5.7).

- **Undersized Tubers (< 4 oz)**
  Most: Russet Burbank, A97287-6, A99040-1TE, PA00N10-5 all > 68 CWT/A.
  Least: PA98NM2-3 and PA98NM30-11 each at (30 CWT/A).

Yield and Economic Data

- **Total and Market Yield (US 1s & 2s > 4oz)**
  Highest: PA99N46-1 had the highest total yield (688 CWT/A) followed by PA00N10-5 (640 CWT/A). PA99N46-1 and PA00N10-5 had the highest market yield (576 and 529 CWT/A, respectively).
  Lowest: PA98NM30-11 had the lowest total & market yields (412 and 321 CWT/A, respectively).

- **% Market Yield Greater Than 6 oz.**
  Highest: Ranger Russet (78%).
  Lowest: A99040-1TE (49%) and Russet Burbank (57%).

- **Carton Yield (100 to 50 Count, 7 to 18 oz US#1 Tubers)**
  Highest: PA99N46-1 (387 CWT/A) and PA00N10-5 (366 CWT/A).
  Lowest: PA98NM30-11, A99040-1TE, and R. Burbank; all less than 215 CWT/A.

- **Gross Return ($/acre)**
  Fresh Market Highest: PA00N10-5 and PA99N2-1.
  Fresh Market Lowest: Russet Burbank, A99040-1TE, and PA98NM30-11.
  Process Market Highest: PA99N46-1, PA00N10-5, PA99N2-1, A97287-6.
  Process Market Lowest: Russet Burbank, A99006-2TE, PA98NM30-11.

Tuber Defects (% out of 40 tubers, 8-12 oz.)

- **External Defects**
  Notable Defects: PA98NM30-11 had 4% malformed tubers. PA99N82-4 had 3% growth cracks and 2% green tubers.

- **Internal Defects**
  Notable Defects: Russet Burbank had 18% brown center and 4% hollow heart. A97287-6 had 7% brown center. None of the other entries had any internal defects.

- **Bruise**
  Highest Blackspot: A99006-2TE (83%), Russet Burbank (46%), and Ranger Russet (37%).
  Highest/Lowest Shatter: PA99N2-1 and PA98NM2-3 (63%). A97287-6 and PA98NM30-11 had the lowest (13%).

2006 Late Harvest Tri-State Trial

Postharvest Information

- **Overall Postharvest Rating**
  Highest scoring clones: A97287-6, PA99N82-4, and PA99N2-1
  Lowest scoring clones: RB, PA99N46-1, and PA98NM30-11

- **Low temperature Sweetening**
  Most resistant: A97287-6, A97066-42LB, and PA99N82-4
  Most susceptible: PA98NM30-11 and PA99N46-1

- **Taste Panel**
  Highest rated: PA00N10-5, A97287-6, and PA99N82-4
  Lowest rated: PA98NM30-11 and RB

- **Blackspot Bruise Susceptibility**
  Most resistant: A97287-6, A0008-1TE, and PA98NM2-3
  Most susceptible: RR, A99040-1TE, and PA99N2-1

- **Variability in Tuber Shape & Fry Yield (8- to 10-oz tubers)**
  Least variable: RR, PA00N10-5, A0008-1TE, and PA98NM2-3
  Most variable: PA99N82-4, PA99N46-1, and A97287-6

Details

- In addition to rating overall bruise susceptibility, a blackspot bruise severity scale was developed. The scale ranges from 1 to 5 (max. bruise) based on color intensity and percentage of impacted area showing color (1= no bruise, 2= white knot bruise, 3= less than 50% of impact area with color, 4= >50% of impact area darkened or whole area light brown, 5= full impact area dark). Bruise severity was greatest for RR, A99040-1TE, A99006-2TE, and PA99N2-1. A97287-6, A0008-1TE, and PA98NM2-3 had the lowest percentage bruise; however, A97287-6 from WA and OR had considerable white-knot bruise.

- When averaged across states, all entries except PA98NM30-11 and PA99N46-1 received higher overall postharvest scores than Russet Burbank.

- A97287-6 was the highest rated entry, scoring 32.3 out of 38 points. This clone had significant resistance to low temperature sweetening, with ID- and OR-grown samples producing USDA 0 fries and the WA-grown samples USDA 1 fries when stored for 54 days at 40°F. Storage at 44°F resulted in USDA 0 fries regardless of production site. This clone ranked 3rd highest in the 2005 trial.

- PA99N46-1 and PA98NM30-11 received the lowest overall postharvest scores (13.4/38 and 9.3/38, respectively). Stem-end fry colors were dark at harvest and deteriorated during the 54-day storage period, regardless of temperature.

- Average gravities of PA98NM30-11, PA99N46-1, and A0008-1TE were 1.068, 1.074, and 1.075, respectively, too low for most processing contracts. At the other extreme, the gravity of A97066-42LB ranged from 1.099 to 1.103 (avg.= 1.101), which is too high for most contracts.

- PA00N10-5, A97287-6, and PA99N82-4 were the favorites in the taste panels, receiving ratings of 3.4 to 4.0 (5 is best) from all growing locations. PA98NM30-11 had the lowest average taste panel score (2.3/5). PA99N2-1 had severe after-cooking-darkening.

- The 8- to 10-oz tubers of PA99N2-1, PA00N10-5, PA99N46-1, and PA99N82-4 had low average length-to-width ratios of 1.39, 1.41, 1.43, and 1.47, respectively, resulting in yield of 3-inch or longer fries ranging from only 58 to 61% by number. PA99N82-4 and PA99N46-1 showed the greatest variation in L/W ratios across production states, whereas the low average L/W ratio of PA00N10-5 was consistent across states. The only numbered entries to have L/W ratios statistically equal to Ranger (1.93) and Russet Burbank (1.95) were A0008-1TE (1.87), A99040-1TE (1.93), and PA98NM30-11 (2.00) (equivalent to 74% fry yield by number).

- Reconditioning (60°F, 21 days) tubers of PA99N82-4 and PA00N10-5 that had been previously stored at 40°F for 54 days resulted in the greatest improvement in fry color compared with the other clones. In contrast, PA98NM30-11, PA99N46-1, and A0008-1TE did not recondition well.

Overall Tri-State Postharvest Merit Scores

		Postharvest Merit Scores			3 state
	Clone	WA	ID	OR	Average
4	A97287-6	4.7	4.0	4.0	4.3
12	PA99N82-4	4.4	3.4	3.5	3.8
10	PA99N2-1	3.6	3.9	3.7	3.7
3	A97066-42LB	3.4	3.7	3.8	3.6
5	A99006-2TE	4.0	3.4	3.3	3.6
6	A99040-1TE	3.2	3.5	3.5	3.4
13	PA00N10-5	2.9	4.3	2.8	3.3
8	PA98NM2-3	3.7	3.1	3.1	3.3
1	Ranger Russet	3.0	4.2	2.6	3.3
7	A0008-1TE	2.3	3.6	2.8	2.9
2	Russet Burbank	2.1	2.0	2.1	2.1
11	PA99N46-1	2.0	2.0	1.3	1.8
9	PA98NM30-11	1.6	0.6	1.5	1.2

2006 Late Harvest Tri-State Trial

Summaries

ENTRY	TOTAL YIELD (CWT/A)	STATS**	(Tons/A)	US # 1's* > 4 oz % of Total Yield	US # 2's* > 4 oz % of Total Yield	Culls* & < 4 oz % of Total Yield	CARTON YIELD 100-50 count (US 1's 7-18 oz) % of Total Yield	(Tons/A)	PROCESS YIELD US 1's and 2's > 6 oz % of Total Yield	(Tons/A)
Ranger Russet	578	*B*	28.9	85	8	7	61	17.6	78	22.7
Russet Burbank	461	*CD*	23.0	67	10	23	40	9.1	57	13.1
A97066-42LB	599	*B*	29.9	85	2	13	58	17.5	72	21.4
A97287-6	581	*B*	29.1	86	1	13	56	16.4	69	20.1
A99006-2TE	437	*CD*	21.8	85	1	14	56	12.2	68	14.9
A99040-1TE	448	*CD*	22.4	78	5	17	33	7.5	49	11.0
A0008-1TE	500	*C*	25.0	82	4	14	55	13.8	69	17.2
PA98NM2-3	435	*CD*	21.7	92	1	7	63	13.7	74	16.1
PA98NM30-11	412	*D*	20.6	78	8	14	51	10.5	71	14.5
PA99N2-1	592	*B*	29.6	84	3	13	60	17.7	73	21.7
PA99N46-1	688	*A*	34.4	84	6	10	56	19.4	73	25.1
PA99N82-4	596	*B*	29.8	81	4	15	52	15.5	63	18.6
PA00N10-5	640	*AB*	32.0	83	5	12	57	18.3	73	23.3

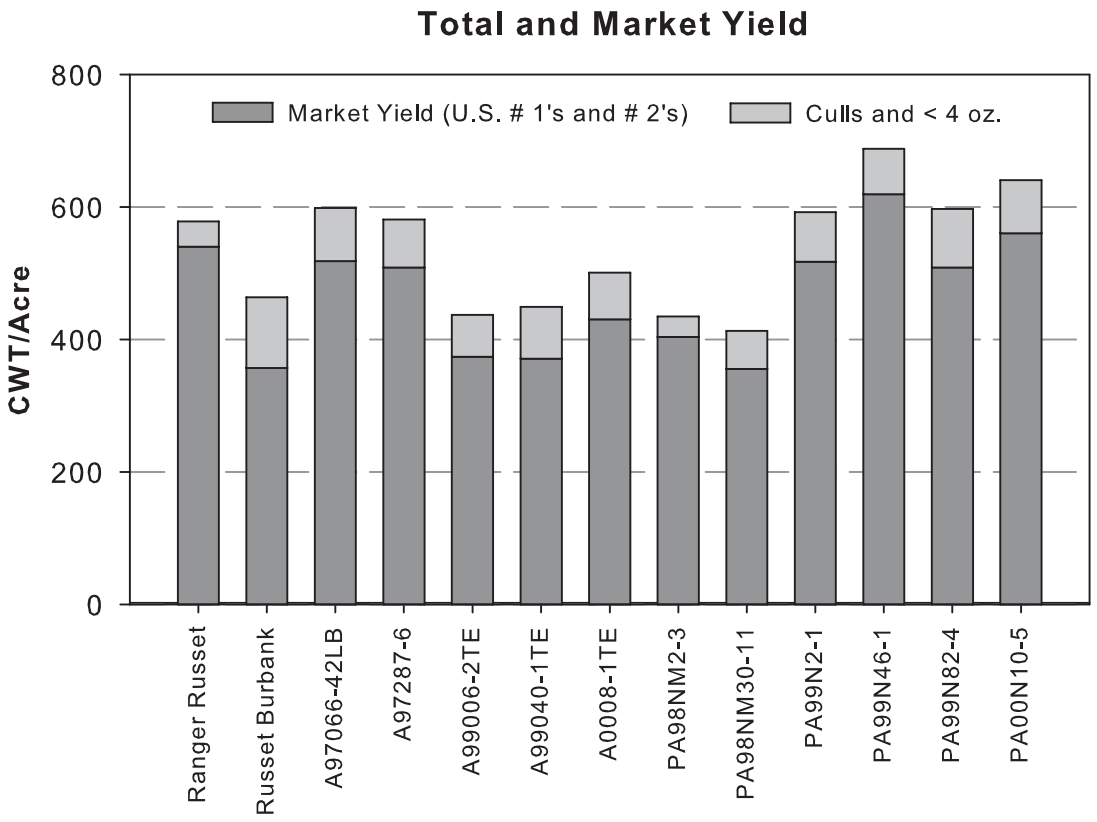
ENTRY	US # 1 YIELD > 4 oz (CWT/A)	STATS**	(Tons/A)	4-7 oz* %	7-14 oz* %	> 14 oz* %	> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers) % HH	% BC	% IBS
Ranger Russet	491	*ABC*	24.5	18	49	33	1.090	0	0	0
Russet Burbank	309	*G*	15.5	39	51	10	1.071	4	18	0
A97066-42LB	506	*AB*	25.3	27	61	12	1.103	0	0	0
A97287-6	502	*AB*	25.1	31	54	15	1.085	0	7	0
A99006-2TE	369	*EFG*	18.4	23	55	22	1.075	0	0	0
A99040-1TE	349	*EFG*	17.5	57	40	3	1.093	0	0	0
A0008-1TE	409	*CDE*	20.4	29	59	12	1.073	0	0	0
PA98NM2-3	402	*DEF*	20.1	31	60	9	1.076	0	0	0
PA98NM30-11	321	*FG*	16.1	31	56	13	1.064	0	0	0
PA99N2-1	498	*AB*	24.9	27	62	11	1.085	0	0	0
PA99N46-1	576	*A*	28.8	24	50	26	1.083	0	0	0
PA99N82-4	485	*BCD*	24.3	21	53	26	1.081	0	0	0
PA00N10-5	529	*AB*	26.4	30	61	9	1.094	0	0	0

ENTRY	30 DAY STAND (% Emerged)	40 DAY STAND (% Emerged)	50 DAY STAND (% Emerged)	STEMS PER PLANT (Above Ground)	AVERAGE TUBER WEIGHT (Ounces)	AVERAGE TUBER NUMBER (Tubers/Plant)	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers) BLACKSPOT	SHATTER
Ranger Russet	85	96	99	1.6	8.9	5.7	3	4	37	37
Russet Burbank	91	96	99	2.2	6.0	6.7	3	4	46	18
A97066-42LB	66	91	93	1.2	7.2	7.3	3	3	0	50
A97287-6	81	98	99	1.5	6.7	7.6	4	3	17	13
A99006-2TE	87	92	97	1.9	7.3	5.2	4	3	83	27
A99040-1TE	72	96	97	1.4	5.4	7.2	4	4	0	29
A0008-1TE	76	93	97	2.5	7.0	6.2	4	4	0	47
PA98NM2-3	61	97	97	1.1	7.2	5.3	4	2	20	63
PA98NM30-11	46	86	94	1.5	7.1	5.0	4	4	3	13
PA99N2-1	57	89	96	2.6	7.2	7.1	3	2	3	63
PA99N46-1	84	95	97	1.9	8.1	7.4	3	2	17	20
PA99N82-4	69	94	96	2.1	7.4	7.0	4	2	13	53
PA00N10-5	72	89	93	1.9	6.9	8.1	3	2	3	60

* Percent values may not total 100% due to rounding

**Numbers followed by the same letter are not significantly different at the 5 % level using Fisher's LSD Test

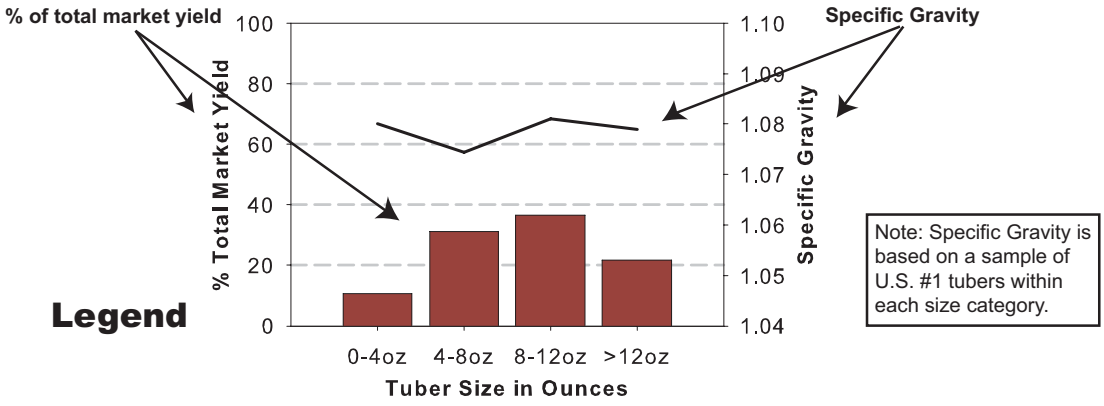
2006 Late Harvest Tri-State Trial



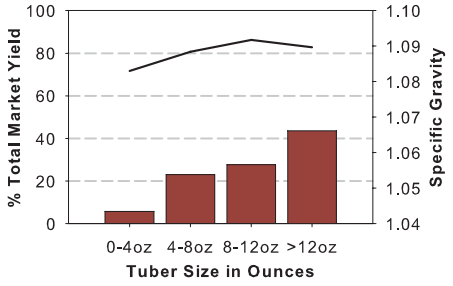
Rudy Garza, Zach Holden, and Ed Driskill planting an early variety trial in the Columbia Basin.

2006 Late Harvest Tri-State Trial

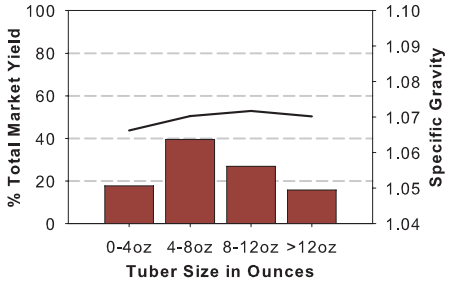
Tuber Yield and Specific Gravity Distributions



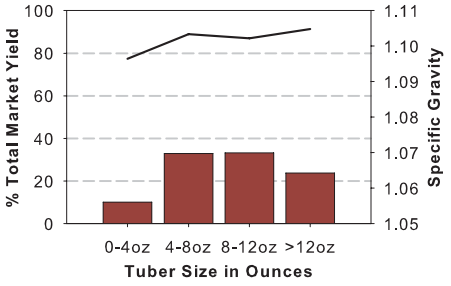
RANGER RUSSET



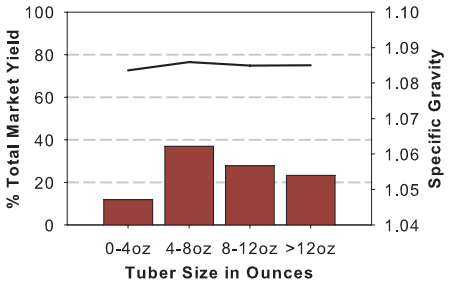
RUSSET BURBANK



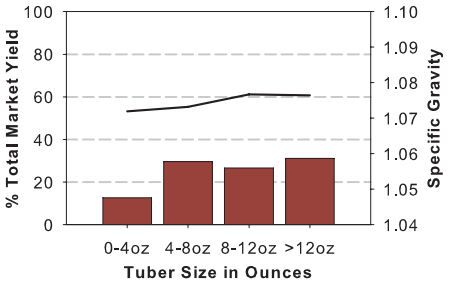
A97066-42LB



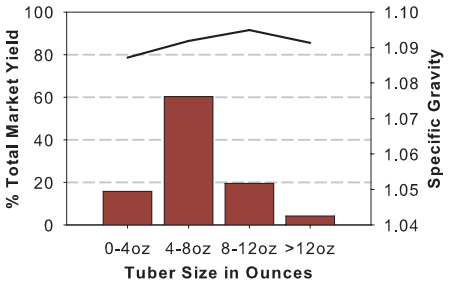
A97287-6



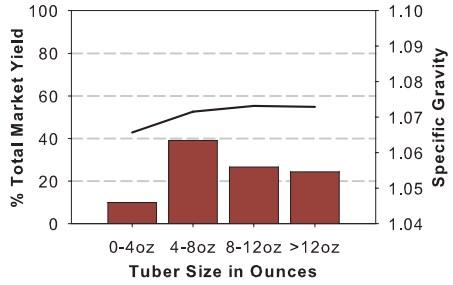
A99006-2TE



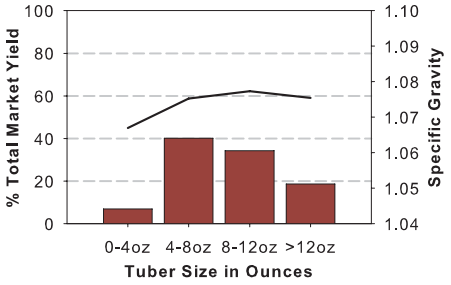
A99040-1TE



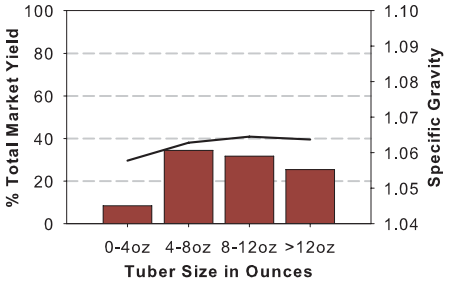
A0008-1TE

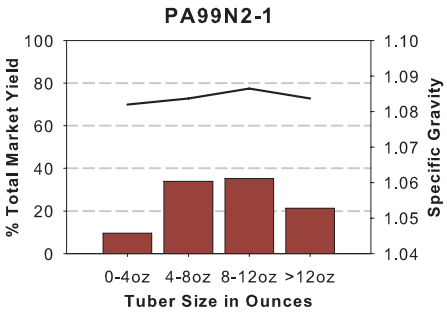


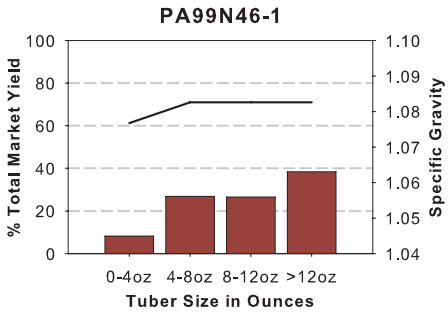
PA98NM2-3

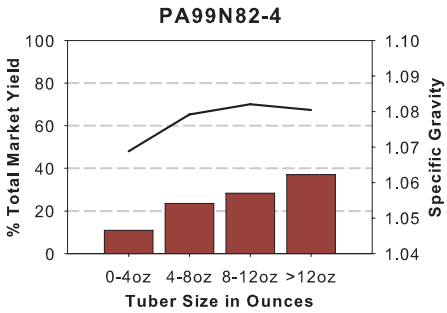


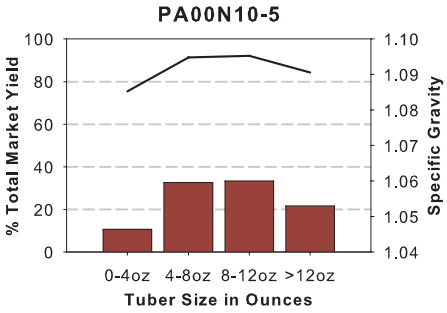
PA98NM30-11











Prior to planting, Ed Driskill adjusts the hilling discs.

2006 Late Harvest Tri-State Trial

Fresh Value

Economic Potential

The gross return in U.S. dollars per acre for each trial entry was calculated using WA (Columbia Basin) four-year average fresh potatoes prices. Production costs per acre were not applied. All assumptions are listed at the front of the book under “Fresh Market Value-Methods”. Assessing the fresh value of a given lot of potatoes is difficult because the actual market allows fresh-pack sheds to utilize a mix of tuber sizes and packaging to meet demand changes in an effort to maximize income potential. Following discussions with actual pack-sheds and complying with USDA standards, the packaging and size ranges used to produce the fresh values below (figure 1) provide a good base for variety comparison. A packaging and handling fee (pack-shed operating fee) of $3.50 was assessed on each CWT of potatoes. This economic evaluation does not fully account for consumer preferences for each trial entry. Figure 1, below, shows the gross value of all trial entries.

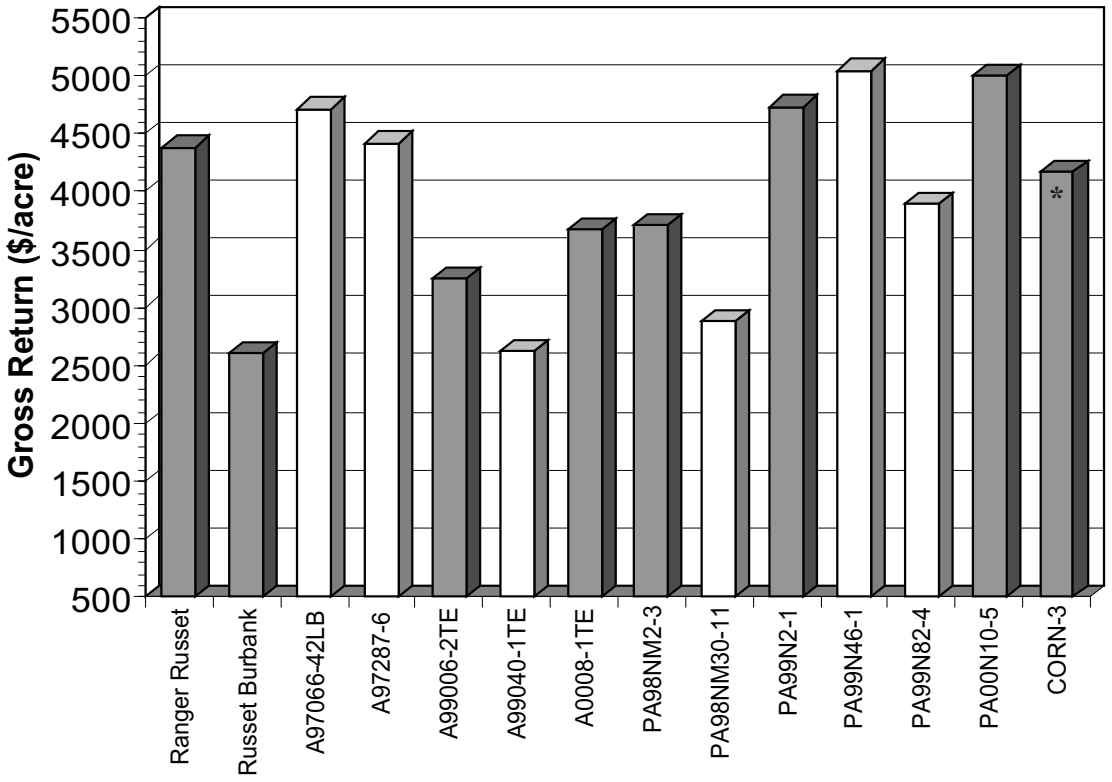


Figure 1. Gross return per acre in U.S. dollars using trial results in the mock fresh contract. Entries with the white-colored bars may not appeal to fresh market consumers due to undesirable shape or appearance.

***** Colorado Russet Norkotah Strain 3 (CORN-3) value is from another variety trial located in the same field.

2006 Late Harvest Tri-State Trial

Process Value

Economic Potential

The gross return in U.S. dollars per acre for each trial entry was calculated using a late-harvest mock processing contract. Process-market values are based on criteria similar to that used by WA potato processors. Production costs per acre were not applied. Contract assumptions are listed at front of book under “Process Market Value-Methods.” Figure 1, below, shows the gross value of all trial entries when compared against a standard reference variety.

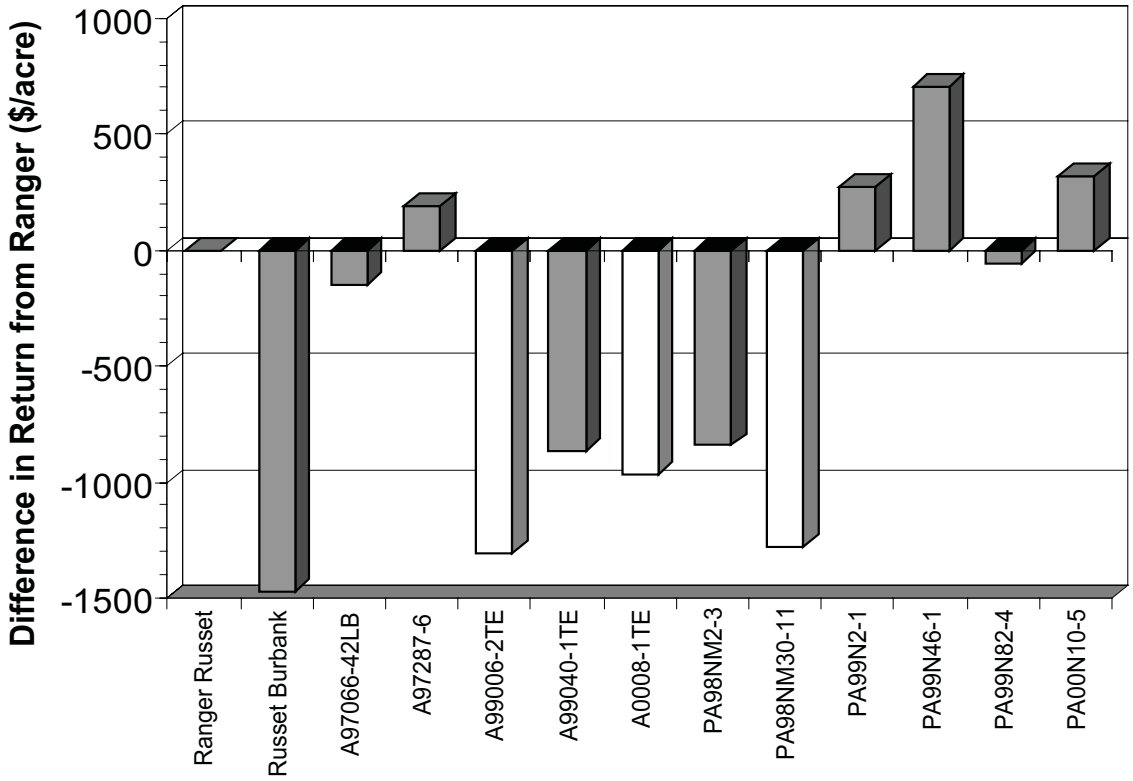
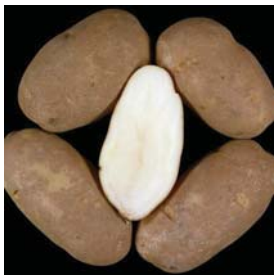
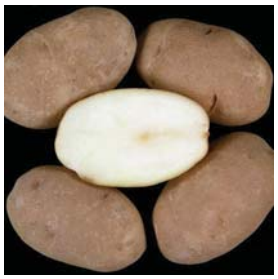
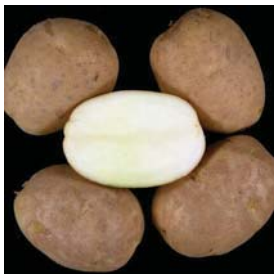
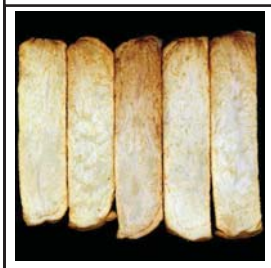
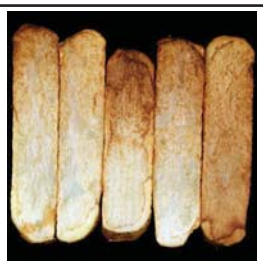
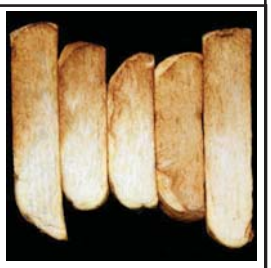
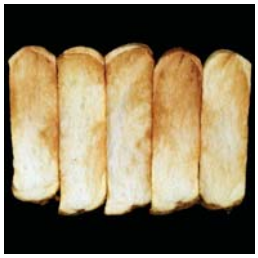
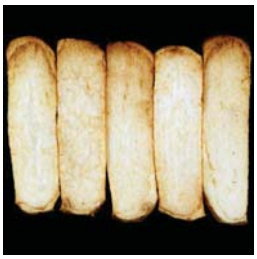
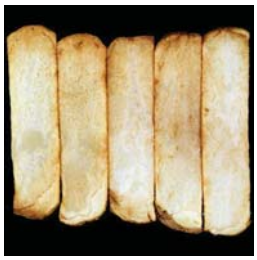
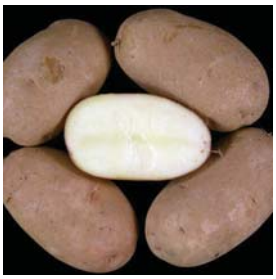
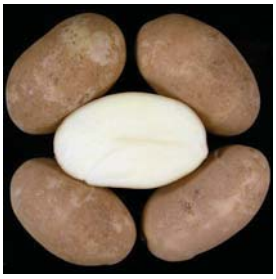
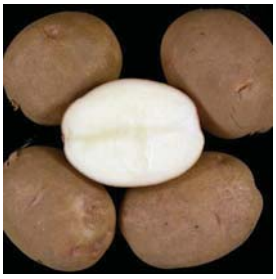
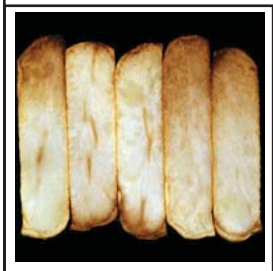
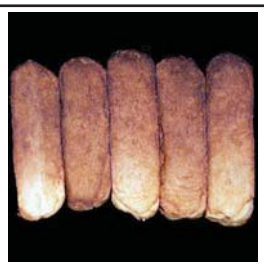


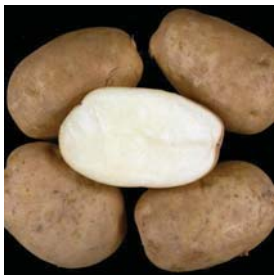
Figure 1. Difference in gross return per acre (Process Market) from Ranger Russet calculated by subtracting the gross return of Ranger Russet ($2777) from the gross return of the particular entry. Entries with white-colored bars were REJECTED under the mock contract parameters due to low specific gravity.

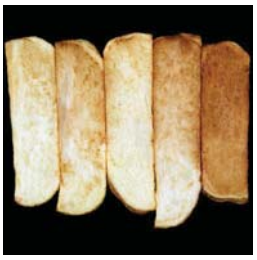
Tubers	WA Late Harvest Tri-state Trial Comments
Ranger Russet	
	**Tubers:** Oblong to long tubers, moderately heavy russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.
Russet Burbank	
	**Tubers:** Oblong to long tubers, moderate russet, very poor skin set; moderate eye depth. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40°F = unacceptably dark, non-uniform; reconditioned = relatively dark, non-uniform.
A97066-42LB	
	**Tubers:** Oblong tubers, moderate russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.
A97287-6	
	**Tubers:** Oblong tubers, moderately heavy russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, uniform; after approximately 2 months of storage at 48°F = light, uniform; 44°F = light, uniform; 40°F = relatively dark, non-uniform; reconditioned = light, uniform.
A99006-2TE	
	**Tubers:** Oblong tubers, moderate russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, uniform; after approximately 2 months of storage at 48°F = light, uniform; 44°F = relatively dark, uniform; 40°F = relatively dark, uniform; reconditioned = relatively dark, uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
Ranger Russet				
				
Russet Burbank				
				
A97066-42LB				
				
A97278-6				
				
A99006-2TE				
				

Tubers	WA Late Harvest Tri-state Trial Comments
A99040-1TE	
	**Tubers:** Oblong to long tubers, moderate russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.
A0008-1TE	
	**Tubers:** Oblong to long tubers, moderate russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40°F = unacceptably dark, uniform; reconditioned = relatively dark, uniform.
PA98NM2-3	
	**Tubers:** Round to oblong tubers, moderately heavy russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, uniform; after approximately 2 months of storage at 48°F = light, uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.
PA98NM30-11	
	**Tubers:** Oblong to long tubers, moderate russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = relatively dark, non-uniform; 44°F = relatively dark, non-uniform; 40°F = unacceptably dark, non-uniform; reconditioned = relatively dark, non-uniform.
PA99N2-1	
	**Tubers:** Round to oblong tubers, moderate russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, uniform; 44°F = relatively dark, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
A99040-1TE				
				
A0008-1TE				
				
PA98NM2-3				
				
PA98NM30-11				
				
PA99N2-1				
				

Tubers	WA Late Harvest Tri-state Trial Comments
PA99N46-1	
	**Tubers:** Round to oblong tubers, moderate russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40° F = unacceptably dark, non-uniform; reconditioned = light, non-uniform.
PA99N82-4	
	**Tubers:** Round to oblong tubers, moderately heavy russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, uniform; after approximately 2 months of storage at 48°F = light, uniform; 44°F = light, uniform; 40°F = relatively dark, non-uniform; reconditioned = light, uniform.
PA00N10-5	
	**Tubers:** Round to oblong tubers, moderate russet, very poor skin set; shallow eyes. **Fry Color:** at harvest = light, uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40°F = unacceptably dark, non-uniform; reconditioned = light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
PA99N46-1				
				
PA99N82-4				
				
PA00N10-5				
				

2006 Late Harvest Tri-State Trial

Accumulated Total Postharvest Rating of Clones

Clone	WA Rating Total §	WA Discard §§	ID Rating Total §	ID Discard §§	OR Rating Total §	OR Discard §§	3 State av. Rating Total
4 A97287-6	35.8		30.7		30.5		32.3
12 PA99N82-4	33.6		25.6	Sp.Gr.	26.4	Sp. Gr.	28.5
10 PA99N2-1	27.5		30.0		27.9		28.5
3 A97066-42LB	25.6		28.2		28.5		27.4
5 A99006-2TE	30.3		26.2		25.2	Sp. Gr.	27.2
6 A99040-1TE	24.4		26.5		26.9		25.9
13 PA00N10-5	21.7		33.0		21.4		25.4
8 PA98NM2-3	28.3		23.4		23.5		25.1
1 Ranger Russet	22.7		32.1		20.1		25.0
7 A0008-1TE	17.3	Sp. Gr.	27.5		21.3	Sp. Gr.	22.0
2 Russet Burbank	15.9	Sp. Gr.	14.9		16.0		15.6
11 PA99N46-1	15.2		15.2	Sp. Gr.	9.8	44°F	13.4
9 PA98NM30-11	12.3	Sp. Gr.	4.4	Initial, Sp. Gr.	11.3	Sp. Gr.	9.3
Average	23.9		24.4		22.2		23.5

§ maximum rating possible = 38
§§ Values for the indicated evaluation are lower than the rejection level.

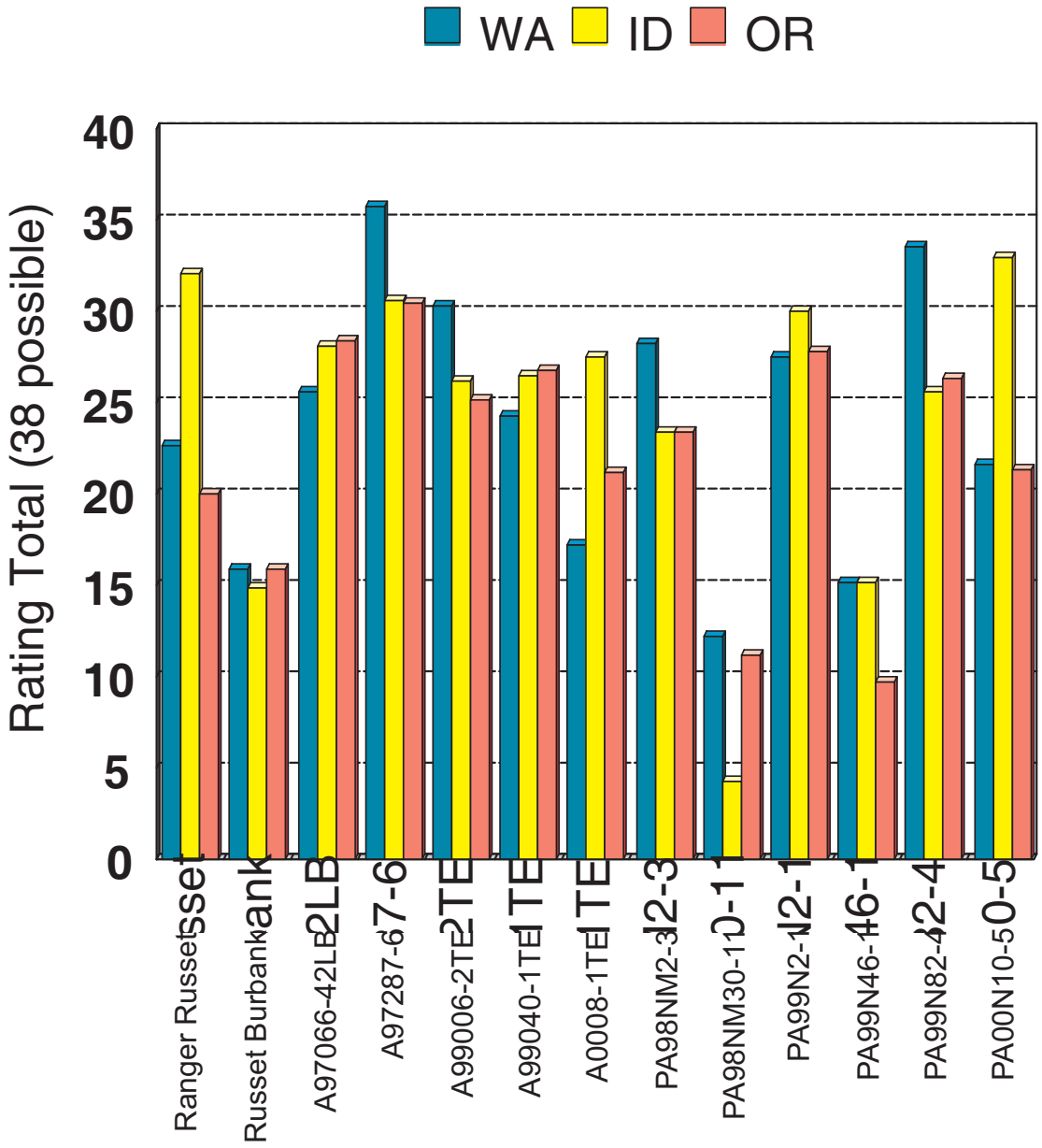
Overall Postharvest Performance of Clones Compared to Russet Burbank.

Clone	WA	ID	OR	Average
1 Ranger Russet	**H**	**H**	**H**	**H**
3 A97066-42LB	**H**	**H**	**H**	**H**
4 A97287-6	**H**	**H**	**H**	**H**
5 A99006-2TE	**H**	**H**	**H**	**H**
6 A99040-1TE	**H**	**H**	**H**	**H**
7 A0008-1TE	**H**	**H**	**H**	**H**
8 PA98NM2-3	**H**	**H**	**H**	**H**
9 PA98NM30-11	**L**	**L**	**L**	**L**
10 PA99N2-1	**H**	**H**	**H**	**H**
11 PA99N46-1	**L**	**H**	**L**	**L**
12 PA99N82-4	**H**	**H**	**H**	**H**
13 PA00N10-5	**H**	**H**	**H**	**H**

H= Higher than Russet Burbank
S= Same as Russet Burbank
L= Lower than Russet Burbank

2006 Late Harvest Tri-State Trial

Late Harvest Tri-State Postharvest Ratings



In a joint study with Oregon State University, each plant is staked for identification.

Rudy Garza applies water-run fertilizer with a machine that simulates fertigation.

2006 Late Harvest Tri-State Trial

Prior to Storage

Clone	PHOTOVOLT READING stem	bud	av	rtg §	DIFF	USDA COLOR	SPECIFIC GRAVITY	rtg
Washington								
1 Ranger Russet	36.9	44.3	40.6	**5-**	9.0	0	1.099	**1**
2 Russet Burbank	30.8	48.8	39.8	**4-**	18.1	1	1.074	**0**
3 A97066-42LB	43.6	48.9	46.3	**5+**	5.8	0	1.103	**1**
4 A97287-6	46.2	52.6	49.4	**5+**	7.8	0	1.088	**5**
5 A99006-2TE	42.0	50.2	46.1	**5+**	8.8	0	1.085	**5**
6 A99040-1TE	39.9	48.7	44.3	**5-**	9.2	0	1.094	**2**
7 A0008-1TE	38.9	51.8	45.4	**5-**	13.0	0	1.072	**0**
8 PA98NM2-3	47.1	52.0	49.6	**5+**	5.9	0	1.078	**2**
9 PA98NM30-11	29.1	44.8	36.9	**4-**	17.1	2	1.064	**0**
10 PA99N2-1	42.8	43.6	43.2	**5-**	4.4	0	1.085	**5**
11 PA99N46-1	24.3	45.5	34.9	**3-**	21.2	1	1.081	**4**
12 PA99N82-4	45.4	49.2	47.3	**5+**	5.6	0	1.084	**5**
13 PA00N10-5	42.4	48.6	45.5	**5+**	7.5	0	1.097	**1**
		LSD 0.05	*3.5*		*5.1*		*0.008*	
Average	39.2	48.4	43.8		10.2	0	1.085	
Idaho								
1 Ranger Russet	30.1	36.4	33.2	**3+**	8.0	1	1.088	**5**
2 Russet Burbank	23.9	31.6	27.7	**2-**	11.9	2	1.078	**2**
3 A97066-42LB	31.3	36.5	33.9	**3+**	6.5	0	1.102	**1**
4 A97287-6	32.2	37.6	34.9	**3+**	7.2	0	1.082	**4**
5 A99006-2TE	24.2	34.0	29.1	**2-**	10.1	2	1.083	**5**
6 A99040-1TE	26.8	30.4	28.6	**2+**	6.1	1	1.081	**4**
7 A0008-1TE	22.2	39.2	30.7	**3-**	16.9	2	1.083	**5**
8 PA98NM2-3	25.3	32.5	28.9	**2+**	7.4	1	1.078	**2**
9 PA98NM30-11	13.4	24.6	19.0	**0**	11.2	4	1.069	**0**
10 PA99N2-1	30.5	36.1	33.3	**3+**	7.3	0	1.084	**5**
11 PA99N46-1	22.7	24.9	23.8	**1+**	5.5	2	1.063	**0**
12 PA99N82-4	31.9	31.9	31.9	**3+**	7.0	0	1.069	**0**
13 PA00N10-5	34.6	36.9	35.7	**4+**	4.6	0	1.084	**5**
		LSD 0.05	*3.8*		*4.3*		*0.005*	
Average	26.8	33.3	30.0		8.4	1	1.080	
Oregon								
1 Ranger Russet	27.0	37.7	32.4	**3-**	10.8	1	1.086	**5**
2 Russet Burbank	26.5	43.9	35.2	**3-**	17.4	1	1.077	**1**
3 A97066-42LB	35.0	44.3	39.7	**4-**	9.3	0	1.099	**1**
4 A97287-6	50.1	51.9	51.0	**5+**	5.6	0	1.077	**1**
5 A99006-2TE	34.6	45.7	40.1	**4-**	12.8	0	1.073	**0**
6 A99040-1TE	32.4	48.0	40.2	**4-**	15.6	0	1.086	**5**
7 A0008-1TE	40.8	50.5	45.7	**5-**	10.9	0	1.070	**0**
8 PA98NM2-3	37.8	48.8	43.3	**5-**	11.1	0	1.076	**1**
9 PA98NM30-11	28.4	37.4	32.9	**3-**	10.9	1	1.070	**0**
10 PA99N2-1	37.6	44.6	41.1	**5+**	7.1	0	1.079	**2**
11 PA99N46-1	17.5	35.6	26.6	**2-**	18.8	3	1.078	**2**
12 PA99N82-4	41.9	49.8	45.9	**5+**	8.2	0	1.074	**0**
13 PA00N10-5	28.3	44.0	36.2	**4-**	15.7	1	1.080	**3**
		LSD 0.05	*3.6*		*4.8*		*0.006*	
Average	33.7	44.8	39.2		11.9	1	1.079	

Date test performed:

Washington	October 10	October 2
Idaho	October 16	October 10
Oregon	October 18	October 13

§ rtg = rating (1-5, 5 is best); av = average Photovolt reading; Diff = Absolute difference between stem and bud Photovolt reading. Stem to bud differences of nine or greater (-) lose one point and differences of less than nine (+) gain one point in the accumulated total postharvest rating.

2006 Late Harvest Tri-State Trial

Stored at 48°F after Arrival

Clone	FRENCH FRY TASTE PANEL rating	BRUISE POTENTIAL (percent) stem	bud	[color 5=darkest] stem	bud	SOFT ROT INDEX (percent) stem	bud
Washington							
1 Ranger Russet	**3.7**	92	58	4.0	2.2	13	10
2 Russet Burbank	**2.9**	46	4	2.0	1.1	12	13
3 A97066-42LB	**3.6**	63	29	2.2	1.6	9	12
4 A97287-6	**3.8**	54	4	2.3	1.3	9	14
5 A99006-2TE	**3.3**	92	4	3.7	1.1	9	13
6 A99040-1TE	**3.4**	71	54	2.5	2.1	10	10
7 A0008-1TE	**3.3**	25	4	1.5	1.1	8	13
8 PA98NM2-3	**3.3**	8	33	1.2	1.7	9	17
9 PA98NM30-11	**2.3**	13	46	1.3	1.9	7	9
10 PA99N2-1	**3.5**	88	54	2.8	2.1	8	9
11 PA99N46-1	**3.2**	75	0	2.8	1.0	9	7
12 PA99N82-4	**3.6**	42	38	2.0	1.8	12	12
13 PA00N10-5	**3.7**	67	4	2.7	1.1	9	10
LSD 0.05	*0.4*	*29*	*25*			*3*	*5*
Average	3.4	56.4	1.5	2.4	1.5	9.6	11.4
Idaho							
1 Ranger Russet	**3.1**	75	0	3.0	1.0	6	6
2 Russet Burbank	**2.9**	17	4	1.4	1.1	6	6
3 A97066-42LB	**3.2**	75	13	2.8	1.3	6	7
4 A97287-6	**3.7**	8	0	1.2	1.0	7	8
5 A99006-2TE	**3.2**	63	0	2.4	1.0	5	6
6 A99040-1TE	**3.5**	54	17	2.2	1.4	5	9
7 A0008-1TE	**3.5**	25	0	1.5	1.0	7	6
8 PA98NM2-3	**3.4**	8	4	1.2	1.1	3	4
9 PA98NM30-11	**2.4**	8	21	1.2	1.5	4	5
10 PA99N2-1	**3.0**	33	25	1.8	1.5	5	7
11 PA99N46-1	**3.2**	4	0	1.1	1.0	3	5
12 PA99N82-4	**3.6**	21	4	1.5	1.1	7	8
13 PA00N10-5	**4.0**	0	4	1.0	1.1	6	4
LSD 0.05	*0.3*	*24*	*15*			*2*	*3*
Average	3.3	30.1	1.2	1.7	1.2	5.4	6.3
Oregon							
1 Ranger Russet	**3.1**	100	25	4.3	1.5	8	9
2 Russet Burbank	**3.0**	63	54	2.8	2.5	6	9
3 A97066-42LB	**3.5**	67	21	2.5	1.4	5	7
4 A97287-6	**3.5**	17	4	1.5	1.4	7	11
5 A99006-2TE	**3.2**	71	4	3.0	1.1	6	10
6 A99040-1TE	**2.9**	67	38	2.4	2.0	8	11
7 A0008-1TE	**3.3**	42	0	2.1	1.0	6	7
8 PA98NM2-3	**3.5**	25	21	1.6	1.5	5	12
9 PA98NM30-11	**2.3**	17	21	1.5	1.4	5	4
10 PA99N2-1	**2.9**	58	25	2.2	1.5	5	7
11 PA99N46-1	**2.8**	33	0	1.8	1.0	5	3
12 PA99N82-4	**3.4**	38	50	2.3	2.4	5	8
13 PA00N10-5	**3.4**	38	0	1.9	1.0	5	5
LSD 0.05	*0.3*	*32*	*25*			*3*	*4*
Average	3.1	48.7	20.2	2.3	1.5	5.8	8.0

Date test performed:

Washington	Oct. 12	Oct. 17	Nov. 8
Idaho	Oct. 19	Oct. 24	Nov. 17
Oregon	Oct. 26	Oct. 31	Nov. 30

2006 Late Harvest Tri-State Trial

Stored at 48°F after Arrival

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg	SPROUTING (%)	length (in)
Washington											
1 Ranger Russet	33.7	44.9	39.3	**4-**	12.8	0	1.1	0.6	**5**	73	1/2"
2 Russet Burbank	23.8	41.1	32.4	**3-**	18.4	2	2.1	0.7	**4**	0	
3 A97066-42LB	39.1	49.9	44.5	**5-**	10.8	0	0.8	0.5	**5**	13	1/8"
4 A97287-6	49.0	53.7	51.4	**5+**	7.1	0	0.5	0.5	**5**	20	1/8"
5 A99006-2TE	35.5	44.3	39.9	**4+**	8.9	0	1.0	0.6	**5**	60	1/4"
6 A99040-1TE	32.5	47.7	40.1	**4-**	15.3	0	1.2	0.5	**5**	40	1/2"
7 A0008-1TE	29.2	39.3	34.3	**3-**	12.3	1	1.5	0.8	**4**	93	3/4"
8 PA98NM2-3	41.5	47.7	44.6	**5+**	6.8	0	0.7	0.5	**5**	27	1/8"
9 PA98NM30-11	20.4	38.6	29.5	**2-**	18.2	2	2.6	0.8	**3**	73	1/4"
10 PA99N2-1	37.1	45.6	41.4	**5+**	8.6	0	0.9	0.6	**5**	100	1/2"
11 PA99N46-1	21.4	43.7	32.5	**3-**	22.3	2	2.5	0.6	**3**	100	1/2"
12 PA99N82-4	38.4	47.2	42.8	**5+**	8.8	0	0.8	0.5	**5**	93	1/4"
13 PA00N10-5	30.8	41.0	35.9	**4-**	10.8	0	1.3	0.7	**4**	87	1/4"
		LSD 0.05	*3.3*		*4.9*					*21*	
Average	33.3	45.0	39.1		12.4	1	1.3	0.6		60	
Idaho											
1 Ranger Russet	38.9	43.3	41.1	**5+**	6.7	0	0.8	0.6	**5**	53	1/8"
2 Russet Burbank	26.0	34.0	30.0	**2-**	12.4	1	1.8	1.1	**4**	0	
3 A97066-42LB	38.4	41.9	40.1	**4+**	4.5	0	0.8	0.7	**5**	13	1/8"
4 A97287-6	45.3	41.5	43.4	**5+**	6.3	0	0.6	0.7	**5**	0	
5 A99006-2TE	37.5	40.8	39.2	**4+**	6.6	0	0.8	0.7	**5**	0	
6 A99040-1TE	34.0	34.3	34.1	**3+**	4.8	0	1.1	1.0	**4**	33	1/8"
7 A0008-1TE	34.5	42.2	38.4	**4+**	7.8	0	1.0	0.6	**5**	33	1/8"
8 PA98NM2-3	29.2	42.2	35.7	**4-**	13.1	1	1.5	0.6	**4**	0	
9 PA98NM30-11	13.5	33.6	23.5	**1-**	20.1	4	4.0	1.1	**1**	73	1/8"
10 PA99N2-1	35.6	41.9	38.8	**4+**	7.0	0	1.0	0.7	**5**	87	1/8"
11 PA99N46-1	27.3	35.1	31.2	**3-**	9.4	1	1.7	1.0	**4**	87	1/8"
12 PA99N82-4	35.9	37.9	36.9	**4+**	7.7	0	0.9	0.8	**5**	7	1/8"
13 PA00N10-5	41.6	44.6	43.1	**5+**	5.0	0	0.7	0.6	**5**	27	1/8"
		LSD 0.05	*4.0*		*4.9*					*21*	
Average	33.7	39.5	36.6		8.6	1	1.3	0.8		32	
Oregon											
1 Ranger Russet	27.0	37.3	32.1	**3-**	10.3	1	1.7	0.9	**4**	87	3/4"
2 Russet Burbank	24.5	39.6	32.0	**3-**	15.1	1	2.0	0.8	**4**	0	
3 A97066-42LB	37.2	44.8	41.0	**5+**	8.1	0	0.9	0.6	**5**	47	1/8"
4 A97287-6	45.5	50.8	48.2	**5+**	5.6	0	0.6	0.5	**5**	7	1/8"
5 A99006-2TE	39.2	45.9	42.6	**5+**	6.8	0	0.8	0.5	**5**	67	1/4"
6 A99040-1TE	32.3	41.9	37.1	**4-**	10.1	0	1.2	0.7	**5**	93	1/4"
7 A0008-1TE	32.3	42.4	37.4	**4-**	10.3	0	1.2	0.6	**5**	73	1/4"
8 PA98NM2-3	33.8	49.1	41.4	**5-**	15.2	0	1.1	0.5	**5**	27	1/8"
9 PA98NM30-11	22.7	34.6	28.6	**2-**	11.8	2	2.3	1.0	**3**	100	3/4"
10 PA99N2-1	32.6	39.9	36.2	**4+**	7.6	0	1.2	0.7	**4**	87	1/8"
11 PA99N46-1	16.1	34.7	25.4	**2-**	18.6	3	3.4	1.0	**2**	100	1/2"
12 PA99N82-4	35.3	47.1	41.2	**5-**	13.5	0	1.0	0.5	**5**	100	1/2"
13 PA00N10-5	29.6	39.7	34.6	**3-**	10.9	1	1.4	0.7	**4**	80	1/4"
		LSD 0.05	*3.2*		*4.2*					*20*	
Average	31.4	42.1	36.8		11.1	1	1.4	0.7		67	

Date test performed:

Washington	December 2	December 28
Idaho	December 8	December 28
Oregon	December 14	December 28

§ rtg = rating (1-5, 5 is best); av = average Photovolt reading; Diff = Absolute difference between stem and bud Photovolt reading. Stem to bud differences of nine or greater (-) lose one point and differences of less than nine (+) gain one point in the accumulated total postharvest rating.

2006 Late Harvest Tri-State Trial

Stored at 44°F after Arrival

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg
Washington									
1 Ranger Russet	24.5	45.7	35.1	**3-**	21.2	1	2.0	0.6	**4**
2 Russet Burbank	22.5	32.3	27.4	**2-**	9.9	2	2.3	1.2	**3**
3 A97066-42LB	27.2	38.3	32.7	**3-**	11.1	1	1.7	0.8	**4**
4 A97287-6	34.5	40.7	37.6	**4+**	8.2	0	1.0	0.7	**5**
5 A99006-2TE	24.7	26.2	25.4	**2+**	4.3	1	2.0	1.8	**3**
6 A99040-1TE	28.8	42.2	35.5	**4-**	13.4	1	1.5	0.6	**4**
7 A0008-1TE	24.7	33.7	29.2	**2-**	10.3	1	2.0	1.1	**3**
8 PA98NM2-3	28.7	41.9	35.3	**3-**	13.2	1	1.5	0.7	**4**
9 PA98NM30-11	14.8	36.5	25.6	**2-**	21.6	3	3.7	0.9	**2**
10 PA99N2-1	23.4	34.5	28.9	**2-**	12.1	2	2.2	1.0	**3**
11 PA99N46-1	16.4	25.7	21.0	**1-**	9.4	3	3.3	1.9	**1**
12 PA99N82-4	30.2	38.3	34.2	**3+**	8.6	1	1.4	0.8	**4**
13 PA00N10-5	20.5	35.1	27.8	**2-**	14.6	2	2.6	1.0	**3**
		LSD 0.05	*3.4*		*4.4*				
Average	24.7	36.2	30.5		12.1	1	2.1	1.0	
Idaho									
1 Ranger Russet	34.7	36.3	35.5	**4+**	4.7	0	1.0	0.9	**4**
2 Russet Burbank	21.9	25.4	23.6	**1+**	7.1	2	2.4	1.9	**2**
3 A97066-42LB	34.4	38.8	36.6	**4+**	4.8	0	1.0	0.8	**5**
4 A97287-6	31.8	35.4	33.6	**3+**	5.6	0	1.2	1.0	**4**
5 A99006-2TE	29.4	30.9	30.1	**2+**	5.0	1	1.5	1.3	**4**
6 A99040-1TE	30.2	33.9	32.1	**3+**	5.6	1	1.4	1.1	**4**
7 A0008-1TE	26.0	34.8	30.4	**2+**	8.8	1	1.8	1.0	**4**
8 PA98NM2-3	28.6	33.6	31.1	**3+**	5.0	1	1.5	1.1	**4**
9 PA98NM30-11	13.9	28.8	21.4	**1-**	14.9	4	3.9	1.5	**1**
10 PA99N2-1	32.5	33.9	33.2	**3+**	3.5	0	1.2	1.1	**4**
11 PA99N46-1	22.4	25.7	24.1	**1+**	3.7	2	2.3	1.9	**2**
12 PA99N82-4	30.1	31.4	30.8	**3+**	4.1	1	1.4	1.3	**4**
13 PA00N10-5	32.2	36.7	34.4	**3+**	4.7	0	1.2	0.9	**4**
		LSD 0.05	*3.4*		*3.4*				
Average	28.3	32.7	30.5		6.0	1	1.7	1.2	
Oregon									
1 Ranger Russet	20.5	35.5	28.0	**2-**	15.0	2	2.6	1.0	**3**
2 Russet Burbank	19.5	35.8	27.6	**2-**	16.3	2	2.8	0.9	**3**
3 A97066-42LB	32.5	40.5	36.5	**4+**	8.0	0	1.2	0.7	**5**
4 A97287-6	37.3	47.0	42.1	**5-**	9.8	0	0.9	0.5	**5**
5 A99006-2TE	33.1	31.5	32.3	**3+**	4.5	0	1.1	1.3	**4**
6 A99040-1TE	31.1	37.7	34.4	**3+**	8.3	0	1.3	0.8	**4**
7 A0008-1TE	26.2	30.0	28.1	**2+**	5.7	1	1.8	1.4	**3**
8 PA98NM2-3	25.5	38.0	31.7	**3-**	12.4	1	1.9	0.8	**4**
9 PA98NM30-11	21.1	28.9	25.0	**2-**	9.2	2	2.5	1.5	**2**
10 PA99N2-1	30.3	37.2	33.7	**3+**	7.3	1	1.4	0.9	**4**
11 PA99N46-1	13.8	23.3	18.5	**0**	9.5	4	3.9	2.2	**1**
12 PA99N82-4	33.7	39.8	36.7	**4-**	9.5	0	1.1	0.7	**5**
13 PA00N10-5	23.1	28.1	25.6	**2+**	6.3	2	2.2	1.6	**3**
		LSD 0.05	*3.0*		*3.8*				
Average	26.7	34.9	30.8		9.4	1	1.9	1.1	

Date test performed:

Washington	December 3	December 3
Idaho	December 9	December 9
Oregon	December 15	December 15

§ rtg = rating (1-5, 5 is best); av = average Photovolt reading; Diff = Absolute difference between stem and bud Photovolt reading. Stem to bud differences of nine or greater (-) lose one point and differences of less than nine (+) gain one point in the accumulated total postharvest rating.

2006 Late Harvest Tri-State Trial

Stored at 40°F for 54 Days and Reconditioned

Clone	SPROUTING (%)	PHOTOVOLT (54 Days at 40°F) stem	bud	average	DIFF	USDA COLOR	PHOTOVOLT AFTER RECONDITIONING (21 days at 60°F) stem	bud	average	DIFF	USDA COLOR
Washington											
1 Ranger Russet	0	20.0	38.7	29.3	18.7	2	25.7	43.6	34.6	17.9	1
2 Russet Burbank	0	16.4	31.7	24.0	16.1	3	22.8	43.1	32.9	20.2	2
3 A95074-6	0	29.9	40.3	35.1	10.4	1	39.9	45.9	42.9	8.1	0
4 A95109-1	0	22.0	28.8	25.4	7.4	2	23.6	32.7	28.2	9.1	2
5 A95409-1	0	21.5	33.4	27.4	11.8	2	26.1	42.0	34.0	16.0	1
6 A96104-2	0	19.7	35.9	27.8	16.2	2	27.7	43.6	35.6	15.9	1
7 AC96052-1Ru	0	29.5	44.3	36.9	14.8	1	43.3	49.9	46.6	7.0	0
8 AO96141-3	0	19.5	37.5	28.5	18.3	2	21.8	39.3	30.5	17.5	2
9 AO96160-3	0	30.9	42.0	36.4	11.1	0	37.7	48.7	43.2	13.4	0
10 AO96164-1	0	35.3	46.5	40.9	11.3	0	44.7	51.7	48.2	7.1	0
11 AOA95154-1	0	28.8	44.0	36.4	15.7	1	41.9	55.4	48.6	13.4	0
12 AOA95155-7	0	25.5	36.1	30.8	10.6	1	34.9	42.1	38.5	9.1	0
13 AOTX95265-2ARu	0	13.9	23.3	18.6	9.4	4	22.9	32.3	27.6	10.0	2
14 AOTX95265-4Ru	0	16.9	22.6	19.8	5.8	3	24.1	34.0	29.0	9.9	2
15 CO94035-15Ru	0	21.1	32.6	26.9	11.5	2	26.2	39.0	32.6	12.9	1
16 MWTX2609-4Ru	0	17.9	23.0	20.4	6.8	3	21.2	32.6	26.9	11.4	2
17 TXA549-1Ru	0	23.1	34.8	28.9	11.7	2	28.4	43.9	36.1	15.6	1
LSD 0.05	*ns*			*3.4*	*4.8*				*3.9*	*5.1*	
Average	0	23.0	35.0	29.0	12.2	2	30.2	42.3	36.2	12.6	1
Idaho											
1 Ranger Russet	0	26.9	39.4	33.2	13.1	1	41.8	43.5	42.6	11.3	0
2 Russet Burbank	0	26.1	24.9	25.5	12.9	1	28.4	40.6	34.5	13.8	1
3 A95074-6	0	27.8	26.8	27.3	5.1	1	26.2	33.5	29.9	9.1	1
4 A95109-1	0	29.8	20.6	25.2	10.6	2	19.2	29.1	24.2	10.0	3
5 A95409-1	0	25.2	23.8	24.5	6.6	2	33.3	29.2	31.2	7.0	1
6 A96104-2	0	35.7	28.9	32.3	6.8	1	36.2	43.8	40.0	11.9	0
7 AC96052-1Ru	0	37.6	22.6	30.1	15.0	2	37.9	44.5	41.2	7.3	0
8 AO96141-3	0	39.9	25.2	32.5	16.1	1	32.0	35.1	33.5	11.3	0
9 AO96160-3	0	34.2	32.6	33.4	2.6	0	29.3	28.7	29.0	8.3	1
10 AO96164-1	0	39.6	32.1	35.9	9.5	0	38.5	44.2	41.4	6.6	0
11 AOA95154-1	0	41.5	39.0	40.2	5.3	0	42.2	45.8	44.0	6.4	0
12 AOA95155-7	0	37.2	33.8	35.5	5.9	0	41.0	41.1	41.0	6.5	0
13 AOTX95265-2ARu	0	25.0	17.2	21.1	8.8	3	32.7	38.0	35.3	10.6	0
14 AOTX95265-4Ru	0	34.5	22.9	28.7	11.6	2	31.6	39.2	35.4	9.6	0
15 CO94035-15Ru	0	34.0	33.6	33.8	4.1	0	34.8	37.5	36.2	9.9	0
16 MWTX2609-4Ru	0	25.4	18.1	21.8	8.0	3	21.3	26.5	23.9	6.0	2
17 TXA549-1Ru	0	43.4	30.8	37.1	14.0	0	34.7	44.6	39.6	9.9	0
LSD 0.05	*ns*			*4.1*	*4.6*				*4.4*	*4.9*	
Average	0	33.2	27.8	30.5	9.2	1	33.0	37.9	35.5	9.1	1
Oregon											
1 Ranger Russet	0	22.8	36.7	29.8	13.9	2	25.4	41.3	33.4	18.4	1
2 Russet Burbank	0	19.4	31.6	25.5	12.2	3	17.3	34.3	25.8	17.0	3
3 A95074-6	0	29.4	33.7	31.5	6.7	1	32.1	45.8	38.9	13.9	0
4 A95109-1	0	17.5	21.1	19.3	4.9	3	17.4	25.1	21.2	8.1	3
5 A95409-1	0	20.4	27.0	23.7	7.3	2	18.9	34.6	26.8	15.8	3
6 A96104-2	0	18.2	26.3	22.3	8.1	3	25.9	37.6	31.8	11.7	1
7 AC96052-1Ru	0	25.0	37.7	31.3	12.7	1	33.2	49.4	41.3	16.2	0
8 AO96141-3	0	29.8	37.8	33.8	11.2	1	32.7	38.1	35.4	7.3	0
9 AO96160-3	0	26.7	36.1	31.4	9.8	1	32.9	45.4	39.1	12.6	0
10 AO96164-1	0	30.3	42.5	36.4	12.1	1	34.2	46.1	40.2	13.4	0
11 AOA95154-1	0	25.7	44.7	35.2	18.9	1	31.9	49.4	40.6	17.4	0
12 AOA95155-7	0	21.1	39.8	30.5	18.8	2	23.5	46.6	35.0	23.1	2
13 AOTX95265-2ARu	0	16.5	23.9	20.2	7.9	3	21.0	31.3	26.2	10.8	2
14 AOTX95265-4Ru	0	18.2	23.4	20.8	6.1	3	20.8	40.2	30.5	19.5	2
15 CO94035-15Ru	0	21.1	25.3	23.2	4.9	2	20.4	27.7	24.1	7.4	2
16 MWTX2609-4Ru	0	16.8	20.7	18.7	6.0	3	15.9	22.4	19.2	6.5	3
17 TXA549-1Ru	0	24.0	29.7	26.8	10.4	2	24.7	40.0	32.3	15.3	1
LSD 0.05	*ns*			*2.9*	*4.3*				*3.4*	*5.2*	
Average	0	22.5	31.6	27.1	10.1	2	25.2	38.6	31.9	13.8	1

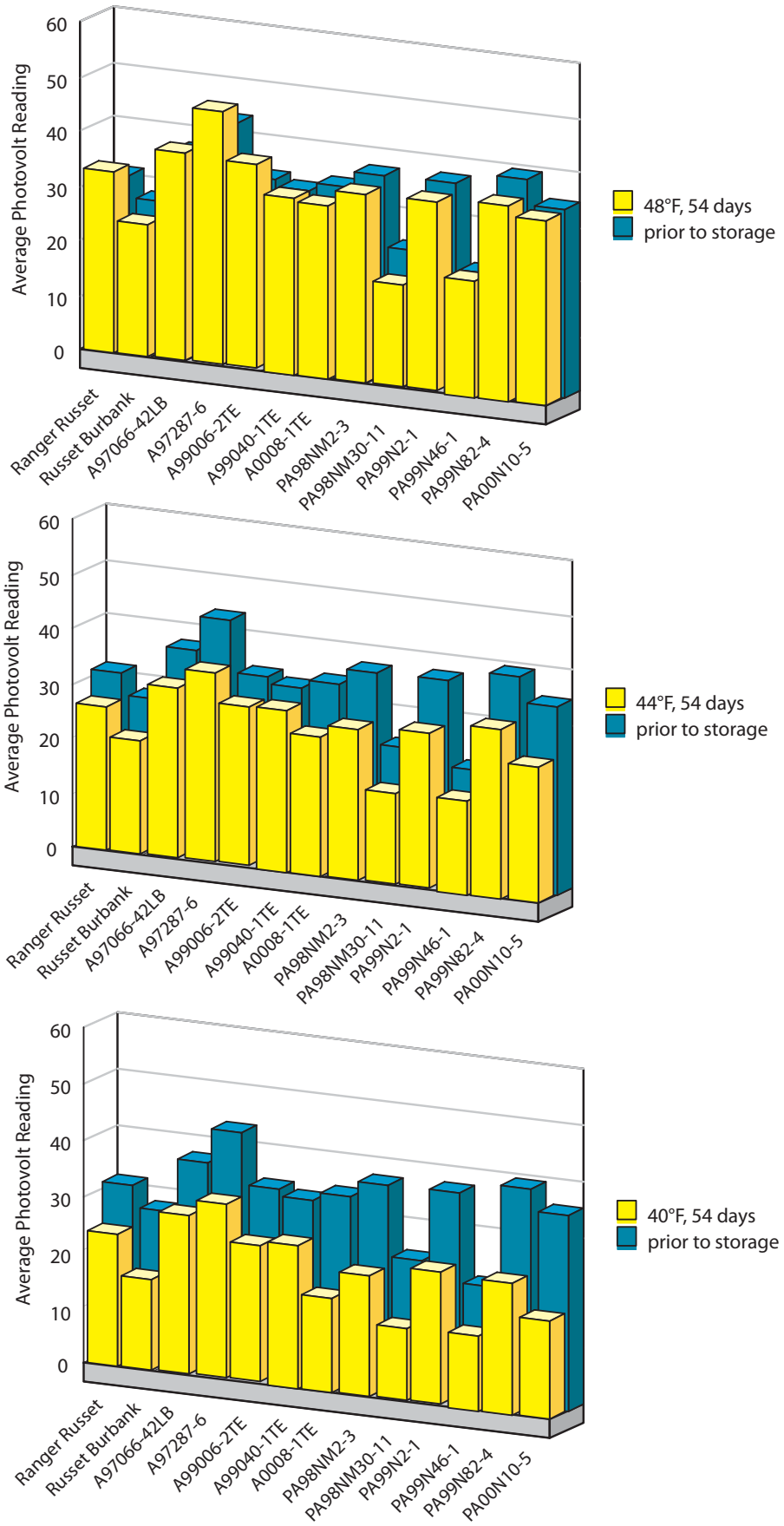
Date test performed:

Washington	December 27	December 7	December 20
Idaho	December 27	December 13	December 21
Oregon	December 27	December 19	December 22

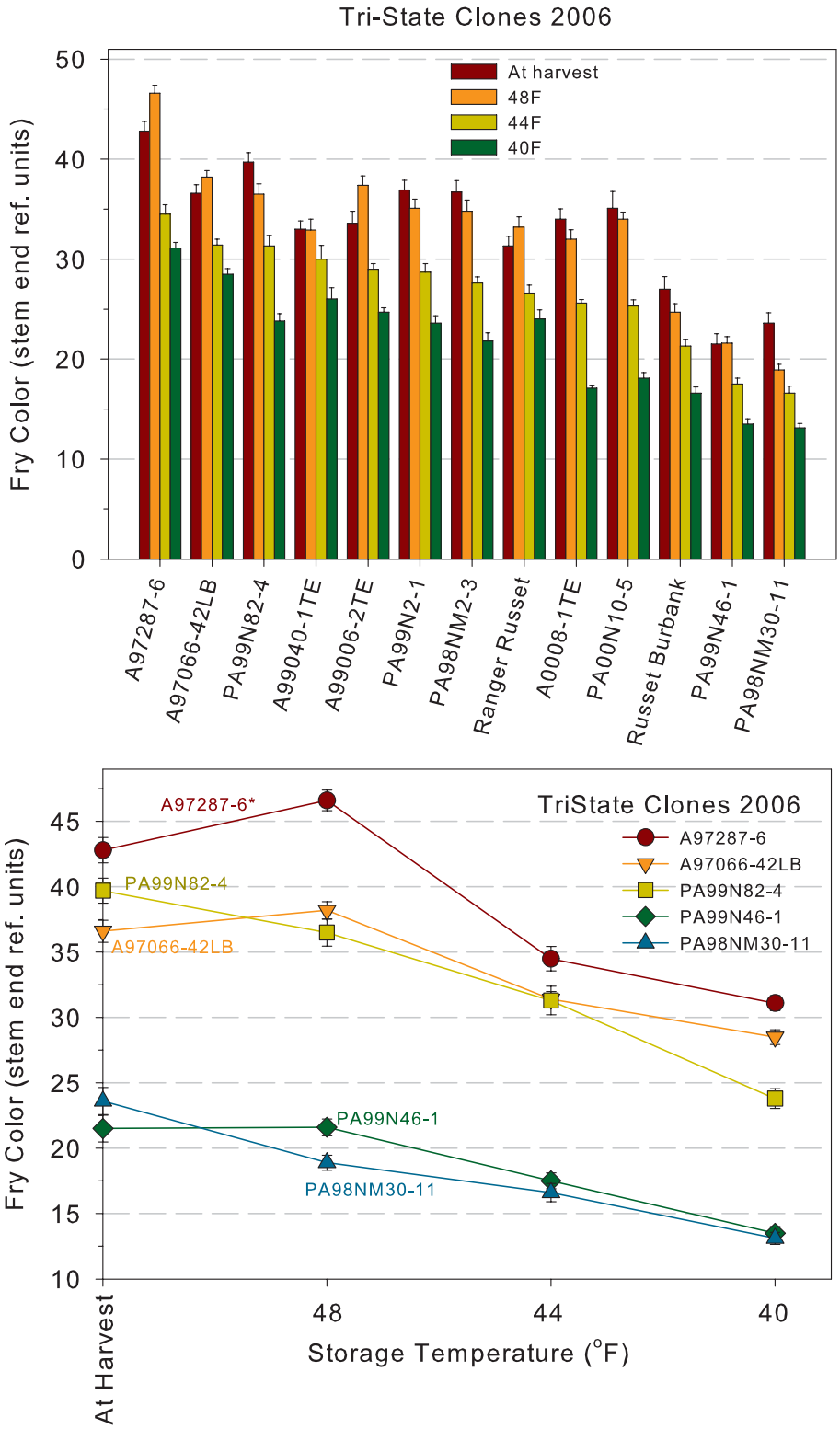
DIFF=Absolute difference between bud and stem photovolt reading.

2006 Late Harvest Tri-State Trial

Tri-State Trial - 3 State Average of Stem End



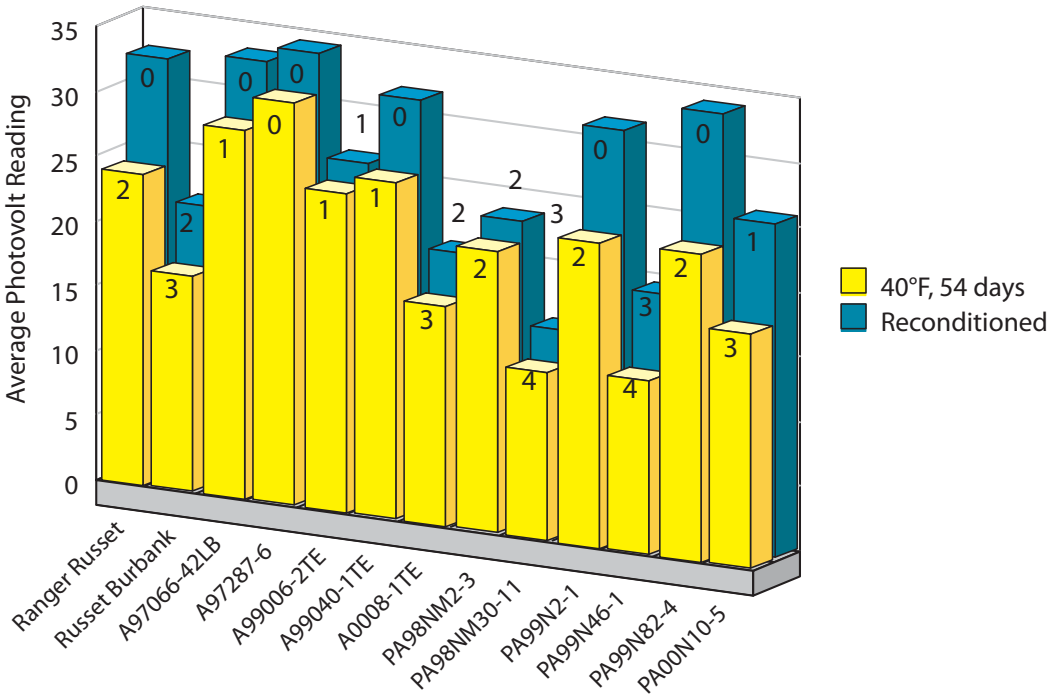
2006 Late Harvest Tri-State Trial

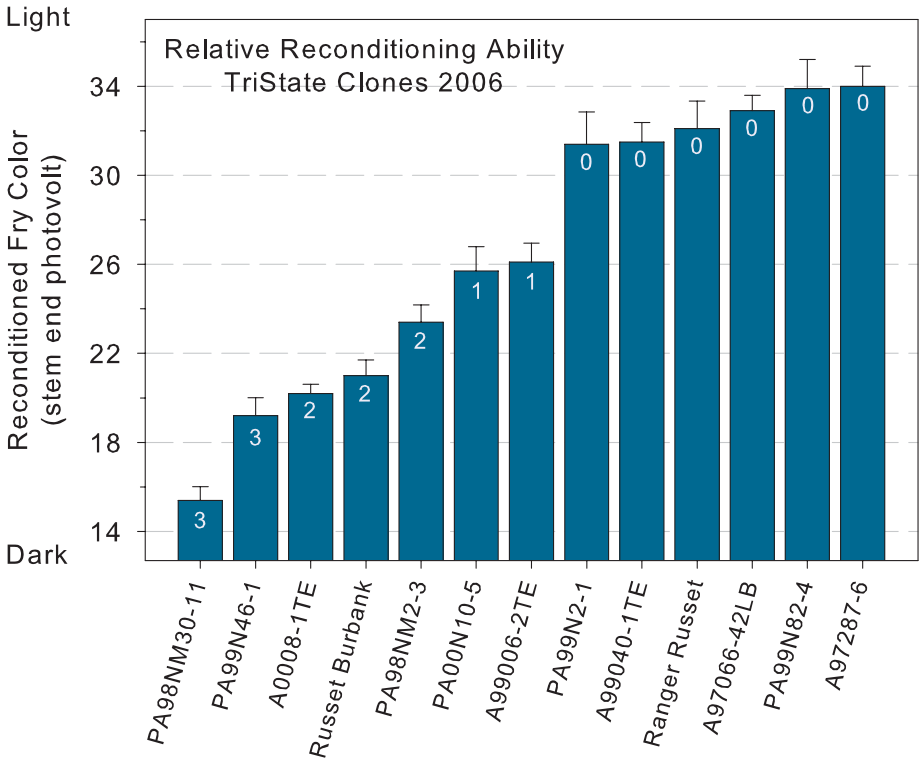


Top: At-harvest and after-storage French fry colors (stem end) of clones in the Tri-State Trial. Tubers were stored for 54 days at 48, 44 and 40°F. The clones are ranked from best to worst based on fry color of the 44°F-stored tubers. High reflectance values indicate light colored fries.

Bottom: Line graph depicting the effects of storage temperature on the change in French fry processing quality (stem end fry color) of the best (A97287-6, PA99N82-4, A97066-42LB) and worst (PA99N46-1, PA98NM30-11) performing clones in the Tri-State Trial. *Indicates similar performance of the clones last year.

2006 Late Harvest Tri-State Trial





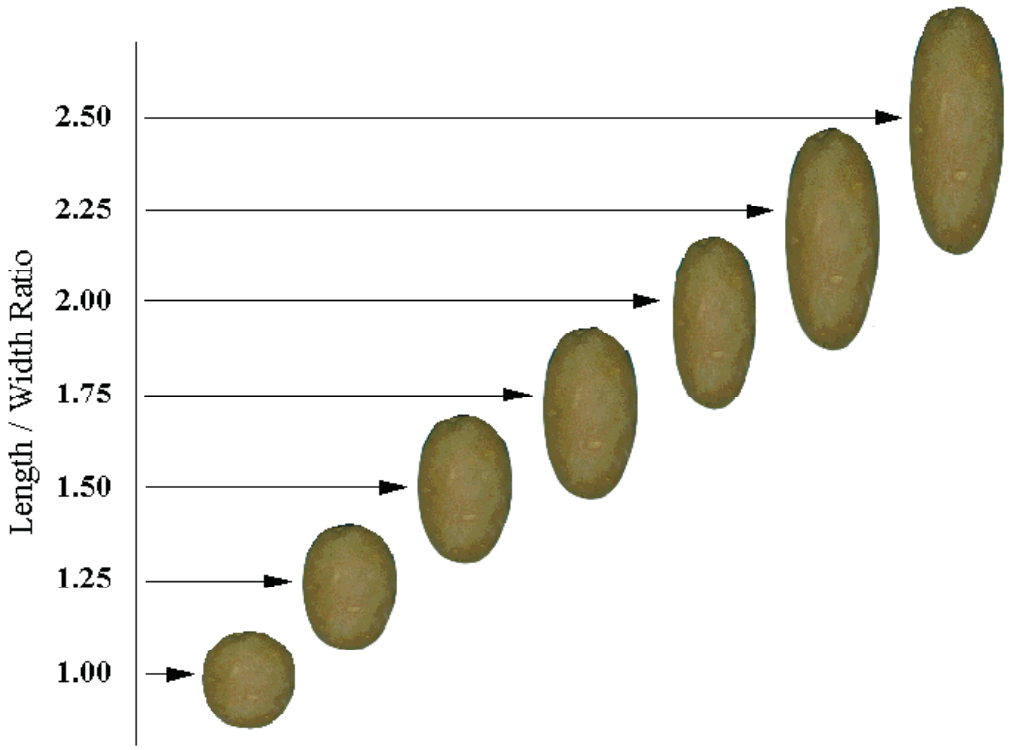
Reconditioning abilities of clones in the 2006 Tri-State Trial (3-state averages). Clones were stored at 40°F for 54 days after harvest and then reconditioned at 60°F for 21 days. Color of the stem ends of French fries was measured with a Photovolt reflectance meter. Numbers in bars indicate the USDA color rating of the stem end.

2006 Late Harvest Tri-State Trial

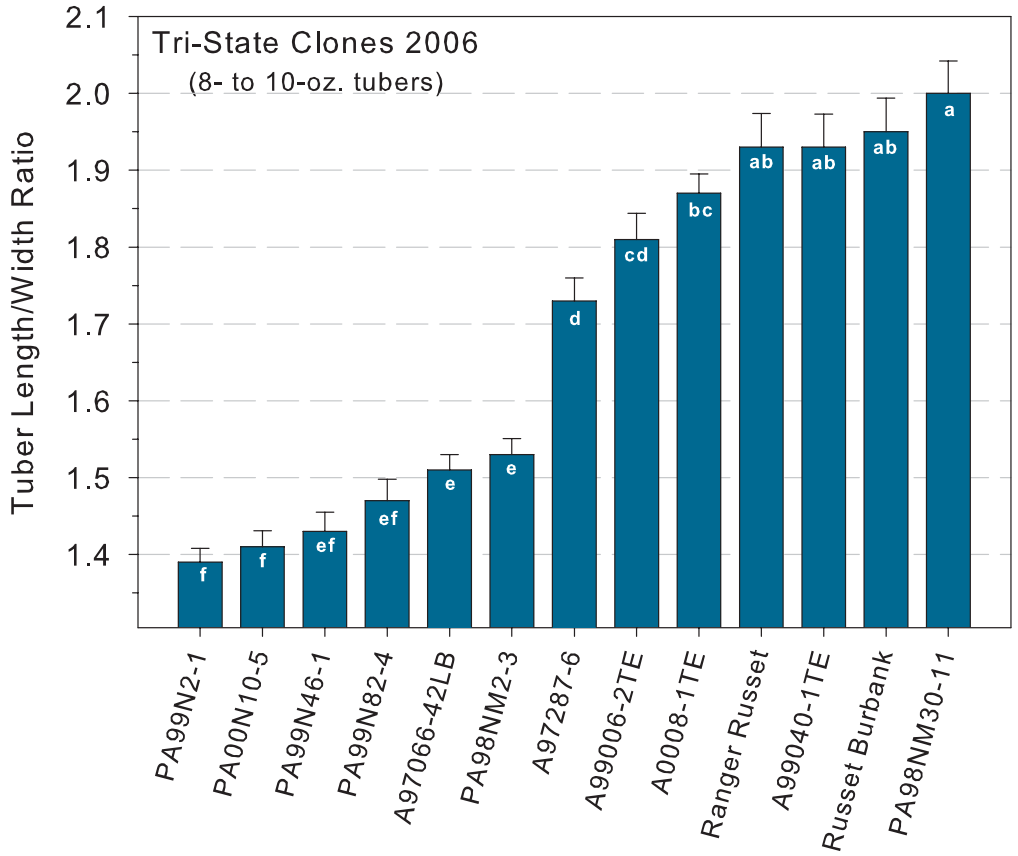
Tuber Shape and Associated French Fry Yields

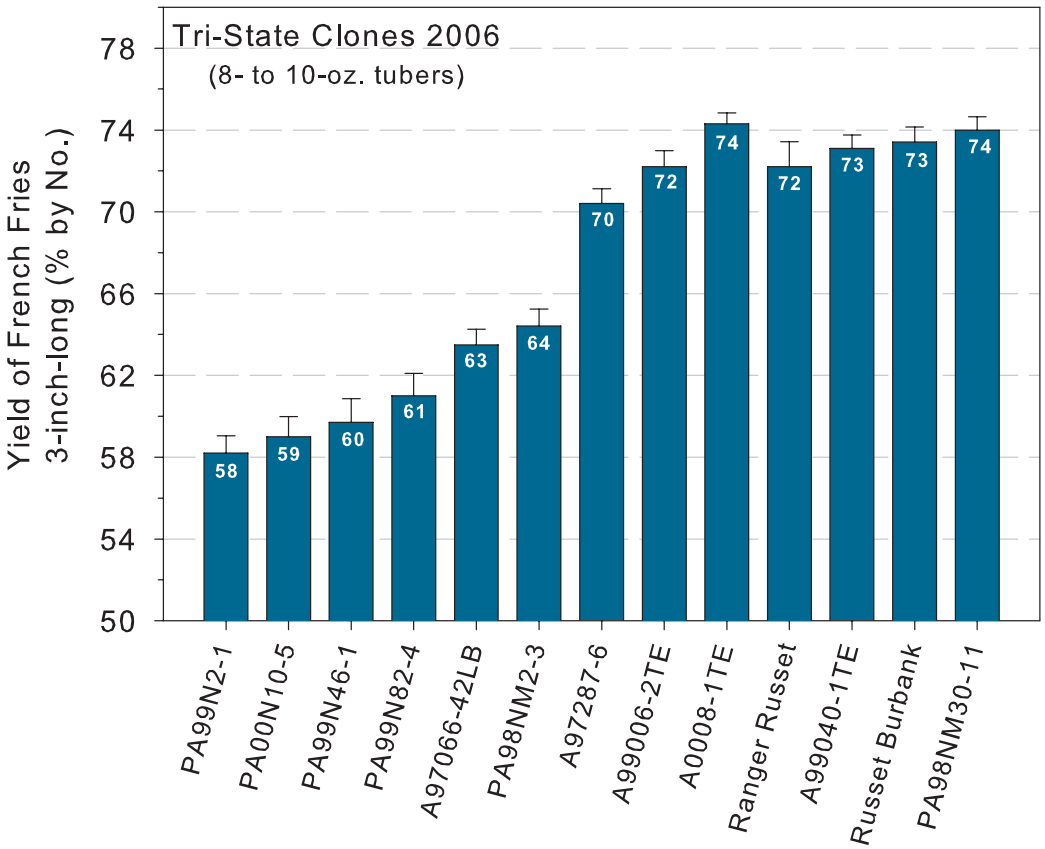
(8- to 10-oz Tubers)

Clone	Length to width ratio			Yield of 3" or longer fries (% by number)		
	WA	ID	OR	WA	ID	OR
1 Ranger Russet	1.79	2.27	1.73	73	72	71
2 Russet Burbank	1.98	2.21	1.77	75	74	71
3 A97066-42LB	1.53	1.59	1.41	65	66	60
4 A97287-6	1.58	2.02	1.61	67	77	68
5 A99006-2TE	1.70	2.04	1.64	70	77	69
6 A99040-1TE	2.04	2.09	1.72	76	74	70
7 A0008-1TE	1.84	1.98	1.80	73	76	73
8 PA98NM2-3	1.48	1.56	1.55	62	65	66
9 PA98NM30-11	2.01	2.26	1.73	74	77	71
10 PA99N2-1	1.41	1.44	1.31	59	61	55
11 PA99N46-1	1.41	1.58	1.31	59	66	54
12 PA99N82-4	1.38	1.66	1.36	58	69	57
13 PA00N10-5	1.41	1.37	1.44	59	57	60
Average	1.66	1.85	1.57	67	70	65

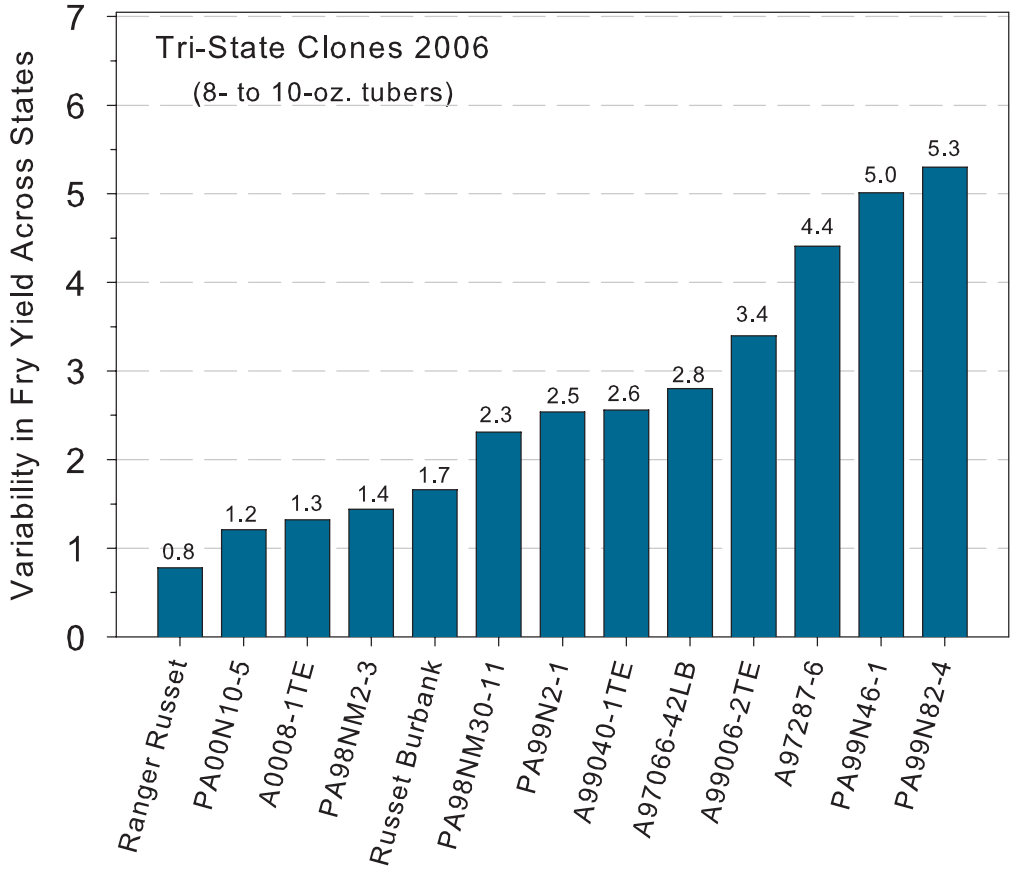


2006 Late Harvest Tri-State Trial





2006 Late Harvest Tri-State Trial



Relative ranking of clones in the Late Season Tri-State Trial for variability in yield of French fries from 8- to 10-oz tubers. Variability is expressed as the standard deviation (calculated across ID, WA and OR production sites) for the yield of fries ≥3 inches in length (% by number) from 8- to 10-oz tubers. High values reflect more variation in tuber shape and thus fry yield from state to state. For example, PA99N82-4 had a length to width ratio of 1.47 (see previous page), resulting in 61% of the tuber yielding French fries that were ≥3 inches in length. However, tuber shape varied across production regions (above), resulting in fry yields ranging from 55.7% to 66.3% (61 ±5.3%). Tuber length to width ratios and the associated percentage yield of fries are shown on the previous page. Bars with same letter are not significantly different (P≤0.01).

2006 Late Harvest Tri-State Trial

Entries Retained from the 2005 Trial Currently in the Tri-State Trial

Harvested fall of 2005
Held at 48°F until December 18, 2005
Stored at 44°F until analysis on May 1-4, 2006

A97287-6 was retained from the 2005 Tri-State Trial. On average, it produced lighter and more uniform colored fries than Ranger or Russet Burbank after 7 months of storage. It also had slightly lower reducing sugars than the checks. Sprout lengths were comparable with Ranger and greater than Russet Burbank.

	PHOTOVOLT READING				USDA	% REDUCING SUGAR			Sprouting	
Clone	stem	bud	avg	DIFF	COLOR	stem	bud	avg	percent	length
Washington										
1 Ranger Russet	19.5	31.3	25.4	11.8	2	2.8	1.3	2.0	100	1 1/2"
2 Russet Burbank	25.7	43.4	34.6	17.6	1	1.9	0.6	1.2	100	1/4"
3 A97287-6	25.4	33.3	29.3	9.1	1	1.9	1.1	1.5	100	2"
		LSD 0.05	*4.6*	*4.5*						
Average	23.5	36.0	29.8	12.9	1.3	2.2	1.0	1.6	100	
Idaho										
1 Ranger Russet	28.9	40.5	34.7	11.6	1	1.5	0.7	1.1	100	1 1/2"
2 Russet Burbank	27.4	41.2	34.3	14.0	1	1.7	0.7	1.2	100	3/4"
3 A97287-6	41.6	35.7	38.7	7.8	0	0.7	1.0	0.8	100	3/4"
		LSD 0.05	*ns*	*ns*						
Average	32.6	39.1	35.9	11.1	0.7	1.3	0.8	1.0	100	
Oregon										
1 Ranger Russet	26.6	40.8	33.7	14.2	1	1.8	0.7	1.2	100	2"
2 Russet Burbank	27.1	42.3	34.7	15.2	1	1.7	0.6	1.2	100	1/4"
3 A97287-6	33.3	47.7	40.5	15.0	0	1.1	0.5	0.8	100	1 1/2"
		LSD 0.05	*4.2*	*ns*						
Average	29.0	43.6	36.3	14.8	0.7	1.5	0.6	1.1	100	

Date test performed:

Washington	May 1
Idaho	May 3
Oregon	May 4

Lisa Knowles, Rudy Garza, and Josh Rodriguez plant a trial.

Nora Fuller analyzes the stored tubers for sugars.

2006 Early Harvest Regional Trial

Location: WSU Research Center - Othello
Planting Date: April 4
Harvest Date: Aug 7
Fertility Preplant: 75-100-300
Vine Kill Date: July 31
Days Grown: 118
Fertility Inseason: 148-90-0

The Regional trials are conducted throughout the western region of the United States. Entries in the Regional Trial are chosen by a coordinating committee, representing the participating western states, and are grown for both early (Early Regional) and full (Late Regional) season harvest. The 2006 early harvest trial compared 4 local reference varieties to 19 new clones in a field on the WSU research station near Othello, WA. Potato emergence was delayed during 2006 due to a cool spring. The following is a summary of the Washington field and postharvest results.

General Comments: All clones produced a high proportion of U.S. #1 tubers during 2006. A95109-1, a fresh standout over the last few years, was not a standout in this early trial, but performed as well as standard Russet Norkotah and Russet Norkotah TXS 278.

Fresh Market Standouts: A95409-1, AO96141-3, TXA549-1Ru, and AOTX95265-4Ru.
Process Market Standouts: AO96141-3, TXA549-1Ru, and AOTX95265-2ARu.

Standcounts

- **40 Day** *(cool spring delayed emergence)*
  Fast emergence: AOTX95265-2ARu (90%) and AOTX95265-4Ru (90%).
  Slow emergence: A95109-1 (11%), AOA95155-7 (13%), and AOA95154-1 (19%).

- **50 Day**
  Full emergence: Most entries had > 95% of plants emerged at 50 DAP.
  Poor emergence: CO94035-15RU (93%).

Plant and Tuber Growth & Development

- **Above Ground Stem Number Per Plant**
  Most: CO97137-1W (2.9), TXNS278 (2.6), and TXA549-1Ru (2.5).
  Least: Ranger Russet, Shepody, A95074-6, and AO96164-1 all had 1.4 stems.

- **Average Tuber Number Per Plant**
  Most: CO97137-1W (9.4) and TXNS278 (8.3).
  Least: Shepody (4.3), A95409-1 (5.2), CO94035-15Ru (5.3).

- **Average Tuber Size (oz)**
  Largest: Shepody (10.3), A95409-1 (9.1), AO96164-1 (9.0), and MWTX2609-2Ru (8.9).
  Smallest: CO95172-3Ru (4.7), CO97137-1W, and AOA95155-7 (5.1)

- **Undersized Tubers (< 4 oz)**
  Most: CO97137-1W (114 CWT/A) and CO95172-3Ru (111 CWT/A).
  Fewest: Shepody (15 CWT/A) and A95409-1 (21 CWT/A).

Yield and Economic Data

- **Total Yield and U.S. #1 Yield**
  Highest: For the second year in a row MWTX2609-2Ru had the highest total and U.S. # 1 yield with (625 CWT/A and 572 CWT/A respectively). TXA549-1Ru had a total yield of 608 CWT/A and AOTX95265-2ARu had 595 CWT/A. A95409-1 had the second highest U.S. # 1 yield with 523 CWT/A.
  Lowest: A95074-6, AC96052-1Ru, AO96160-3, AOA95155-7, CO94035-15Ru, and CO95172-3Ru each had a total yield of < 450 CWT/A. A95074-6, AOA95155-7, and CO95172-3Ru had less than 350 CWT/A U.S. # 1's.

- **% U.S. #1's (greater than 4 oz)**
  Highest: A95409-1 (95%) and MWTX2609-4Ru (92%).
  Compare to R. Norkotah at 87%.
  Lowest: Russet Burbank (69%), CO97137-1W (72%), and CO95172-3Ru (73%).

- **Carton Yield (100 to 50 Count (7 to 18 oz U.S.#1 Tubers))**
  Highest: A95409-1 (389 CWT/A), MWTX2609-2Ru and MWTX2609-4Ru (375 CWT/A).
  Compare to R. Norkotah at 310 CWT/A.
  Lowest: A95155-7 (125 CWT/A), and CO95172-3Ru (126 CWT/A).

- **Gross Return ($/acre)**
  Fresh Market Highest: MWTX2609-4Ru, A95409-1, MWTX2609-2Ru, and A096141-3.
  Fresh Market Lowest: CO95172-3Ru, AOA95155-7, A95074-6, and AO96160-3.
  Process Market Highest: MWTX2609-4Ru, TXA549-1Ru, and AOTX95265-2ARu.
  Process Market Lowest: A95074-6, CO95172-3Ru, and AOA95155-7.

Tuber Defects

- **External Defects**
  Notable Defects: Russet Burbank had the highest percentage of knobs (7%) and growth cracks (5%). AO96164-1 had 5% growth cracks.

- **Internal Defects (defects on a 40 tuber sample of 8-12 oz.)**
  Notable Defects: Russet Burbank had the highest occurrence of hollow heart (5%) and brown center (10%). Five other entries had 3% hollow heart; CO94035-15Ru, MWTX2609-4Ru, TXA549-1Ru, TXN278, and A95409-1. CO95172-3Ru had 5% brown center. No entries had internal brown spot.

- **Bruise (defects on a 40 tuber sample of 8-12 oz.)**
  Highest Blackspot: All entries had a low occurrence of blackspot. Twenty percent of the tubers from entries A95109-1 and CO97137-1W had black spot.
  Highest Shatter: AC96052-1Ru (48%) and CO95172-3Ru (45%).

2006 Early Harvest Regional Trial

Summaries

ENTRY	TOTAL YIELD (CWT/A)	STATS**	TOTAL YIELD (Tons/A)	US # 1's* > 4 oz % of Total Yield	US # 2's* > 4 oz % of Total Yield	Culls* & < 4 oz % of Total Yield	CARTON YIELD 100-50 count (US 1's 7-18 oz) % of Total Yield	CARTON YIELD (Tons/A)	PROCESS YIELD US 1's and 2's > 6 oz % of Total Yield	PROCESS YIELD (Tons/A)
Ranger Russet	489	*EF*	24.5	90	2	8	62	15.1	75	18.4
Russet Burbank	524	*CDE*	26.2	69	7	24	41	10.7	56	14.8
Russet Norkotah	548	*BCDE*	27.4	87	1	12	57	15.5	68	18.7
Shepody	506	*DEF*	25.3	86	7	8	56	14.3	70	17.7
A95074-6	410	*G*	20.5	80	4	16	47	9.6	62	12.6
A95109-1	523	*CDE*	26.2	86	2	12	61	16.0	71	18.5
A95409-1	548	*BCDE*	27.4	95	0	4	71	19.4	80	21.9
A96104-2	501	*DEF*	25.1	84	2	14	52	13.0	67	16.8
AC96052-1Ru	447	*FG*	22.4	82	0	18	38	8.5	53	11.8
AO96141-3	556	*ABCDE*	27.8	86	5	9	58	16.2	73	20.3
AO96160-3	437	*FG*	21.9	81	0	18	39	8.6	52	11.4
AO96164-1	557	*ABCDE*	27.9	85	3	11	57	15.9	70	19.5
AOA95154-1	507	*DEF*	25.3	82	3	16	41	10.3	57	14.5
AOA95155-7	436	*FG*	21.8	80	1	20	29	6.2	47	10.2
AOTX95265-2ARu	595	*ABC*	29.7	86	2	12	53	15.8	68	20.1
AOTX95265-4Ru	561	*ABCDE*	28.1	84	5	12	51	14.3	68	19.0
CO94035-15Ru	445	*FG*	22.3	89	1	10	60	13.4	74	16.4
CO95172-3Ru	417	*G*	20.8	73	0	27	30	6.3	41	8.6
CO97137-1W	549	*BCDE*	27.4	72	2	27	30	8.3	44	12.0
MWTX2609-2Ru	573	*ABCD*	28.7	88	3	9	66	18.8	79	22.5
MWTX2609-4Ru	625	*A*	31.3	92	2	6	60	18.8	76	23.8
TXA549-1Ru	608	*AB*	30.4	84	3	13	55	16.8	69	21.1
TXNS278	567	*ABCD*	28.4	84	1	15	50	14.3	64	18.0

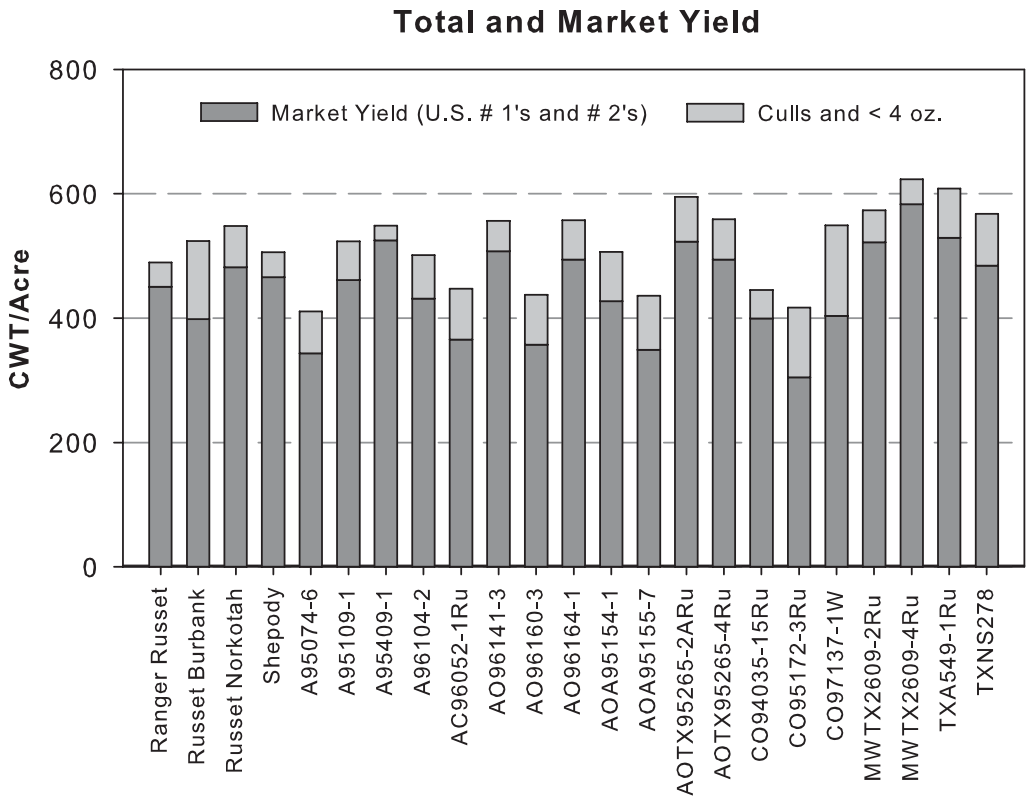
ENTRY	US # 1 YIELD > 4 oz (CWT/A)	STATS**	US # 1 YIELD > 4 oz (Tons/A)	4-7 oz* %	7-14 oz* %	> 14 oz* %	> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers) % HH	% BC	% IBS
Ranger Russet	441	*DEF*	22.0	28	58	14	1.079	0	0	0
Russet Burbank	361	*GHI*	18.1	36	55	9	1.081	5	10	0
Russet Norkotah	478	*BCDE*	23.9	32	61	7	1.074	0	0	0
Shepody	434	*EF*	21.7	13	44	43	1.074	0	0	0
A95074-6	327	*I*	16.3	38	52	10	1.082	0	0	0
A95109-1	452	*CDEF*	22.6	25	60	15	1.074	3	0	0
A95409-1	523	*AB*	26.1	15	59	26	1.082	0	0	0
A96104-2	423	*EFG*	21.2	38	56	6	1.074	0	0	0
AC96052-1Ru	365	*GHI*	18.2	53	46	1	1.078	0	0	0
AO96141-3	481	*BCDE*	24.0	31	60	9	1.088	0	0	0
AO96160-3	356	*GHI*	17.8	51	46	3	1.084	0	0	0
AO96164-1	475	*BCDE*	23.8	18	49	33	1.076	0	0	0
AOA95154-1	414	*EFGH*	20.7	50	47	3	1.078	0	0	0
AOA95155-7	347	*HI*	17.3	64	35	1	1.076	0	0	0
AOTX95265-2ARu	512	*ABC*	25.6	35	54	11	1.077	0	0	0
AOTX95265-4Ru	471	*BCDE*	23.6	37	54	10	1.077	0	0	0
CO94035-15Ru	396	*FGH*	19.8	26	56	18	1.076	3	0	0
CO95172-3Ru	304	*I*	15.2	58	38	4	1.080	0	5	0
CO97137-1W	395	*FGH*	19.8	58	41	2	1.081	0	0	0
MWTX2609-2Ru	504	*ABCD*	25.2	17	58	25	1.072	0	3	0
MWTX2609-4Ru	572	*A*	28.6	22	55	22	1.075	3	0	0
TXA549-1Ru	510	*ABC*	25.5	28	55	17	1.078	3	0	0
TXNS278	476	*BCDE*	23.8	39	54	7	1.078	3	0	0

* Percent values may not total 100% due to rounding

**Numbers followed by the same letter are not significantly different at the 5 % level using Fisher's LSD Test

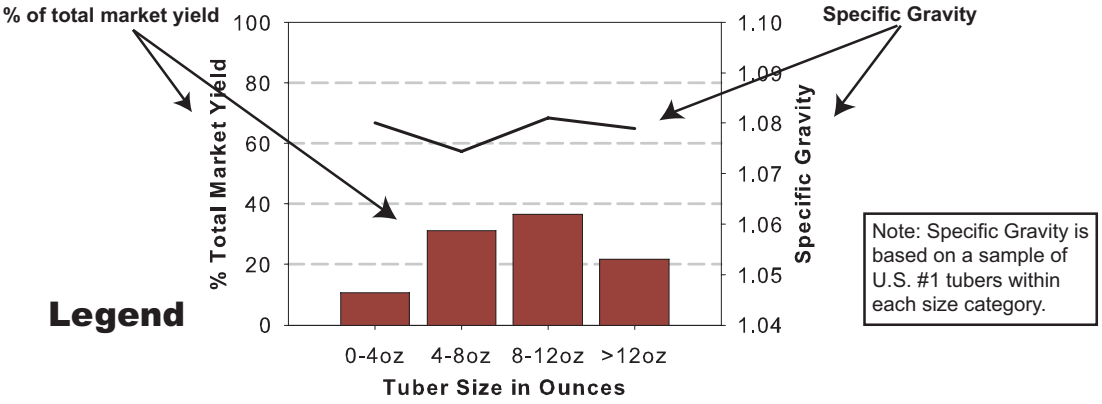
ENTRY	30 DAY STAND (% Emerged)	40 DAY STAND (% Emerged)	50 DAY STAND (% Emerged)	STEMS PER PLANT (Above Ground)	AVERAGE TUBER WEIGHT (Ounces)	AVERAGE TUBER NUMBER (Tubers/Plant)	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers) BLACKSPOT	BRUISE (%) (8-12 oz tubers) SHATTER
Ranger Russet	0	71	97	1.4	7.4	5.8	4	4	13	3
Russet Burbank	0	58	100	1.6	6.5	7.0	3	3	10	13
Russet Norkotah	0	69	100	1.9	6.6	7.3	4	3	3	8
Shepody	0	46	95	1.4	10.3	4.3	4	3	8	0
A95074-6	0	24	98	1.4	6.1	5.9	1	3	0	8
A95109-1	0	11	93	1.6	7.7	6.1	4	3	20	23
A95409-1	0	48	100	1.5	9.1	5.2	3	3	8	10
A96104-2	0	63	98	1.9	6.1	7.1	4	3	8	13
AC96052-1Ru	0	28	97	2.0	5.3	7.4	4	3	13	48
AO96141-3	0	57	97	2.2	7.0	6.9	3	4	0	0
AO96160-3	0	39	100	1.7	5.5	7.0	4	3	0	5
AO96164-1	0	31	97	1.4	9.0	5.5	3	4	8	10
AOA95154-1	0	19	94	2.1	5.7	7.7	4	3	5	8
AOA95155-7	0	13	98	1.7	5.1	7.4	3	3	8	5
AOTX95265-2ARu	0	91	99	2.4	6.6	7.8	4	3	8	0
AOTX95265-4Ru	0	90	100	2.4	6.5	7.5	4	3	5	0
CO94035-15Ru	0	31	93	1.9	7.3	5.3	4	2	5	18
CO95172-3Ru	0	48	100	2.0	4.7	7.7	4	3	13	45
CO97137-1W	0	85	96	2.9	5.1	9.4	4	4	20	18
MWTX2609-2Ru	0	24	94	1.6	8.9	5.7	4	4	8	0
MWTX2609-4Ru	0	74	99	1.8	8.4	6.5	3	3	3	13
TXA549-1Ru	0	55	94	2.5	6.9	7.7	3	2	3	13
TXNS278	0	78	96	2.6	6.0	8.3	4	3	13	13

* Percent values may not total 100% due to rounding
**Numbers followed by the same letter are not significantly different at the 5 % level using Fisher's LSD Test

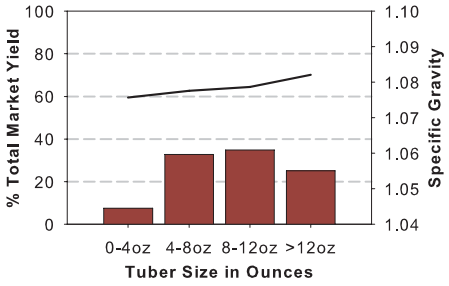


2006 Early Harvest Regional Trial

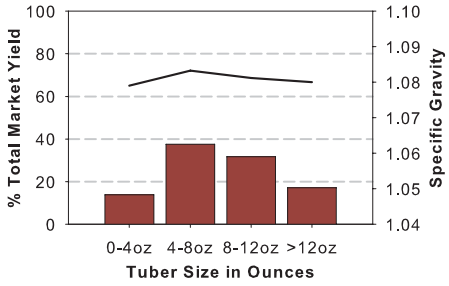
Tuber Yield and Specific Gravity Distributions



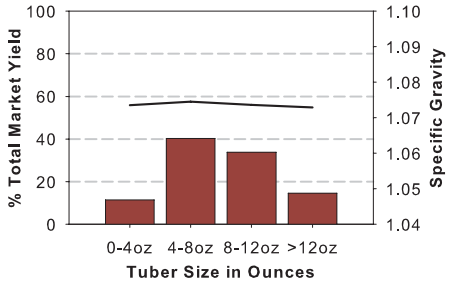
RANGER RUSSET



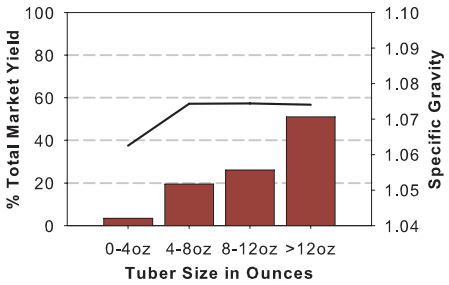
RUSSET BURBANK



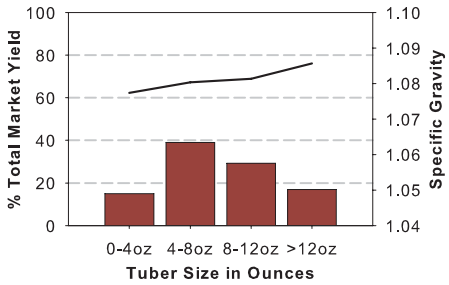
RUSSET NORKOTAH



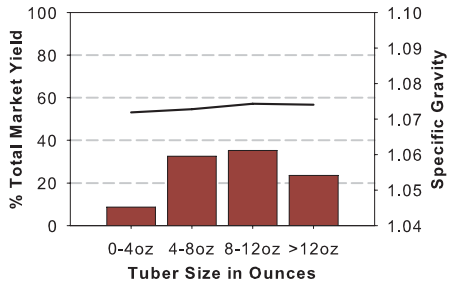
SHEPODY



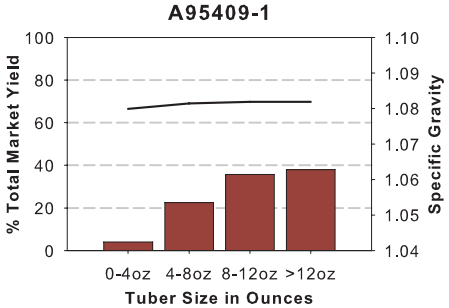
A95074-6



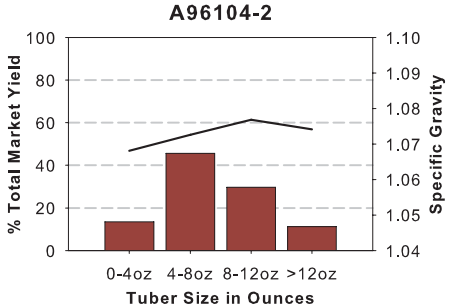
A95109-1



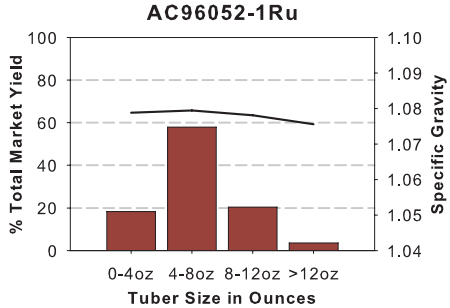
A95409-1

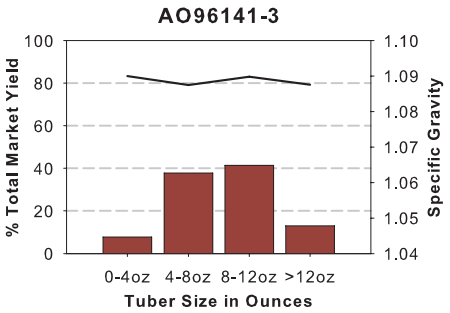


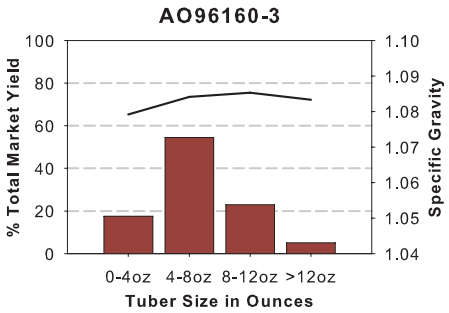
A96104-2

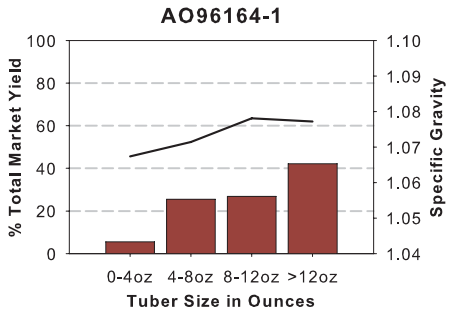


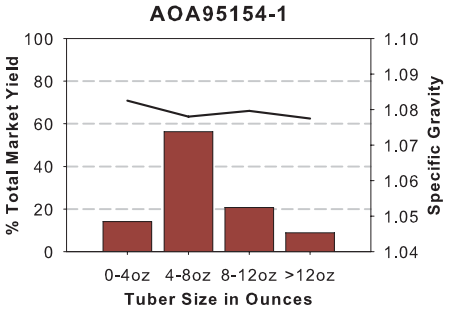
AC96052-1Ru

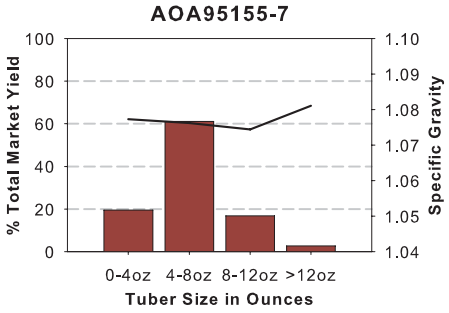


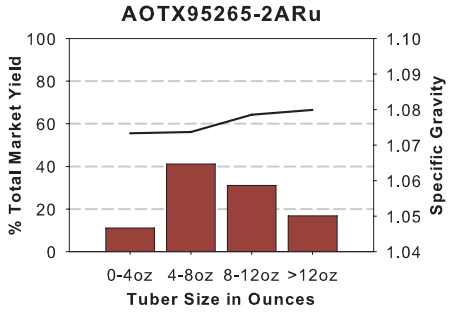

AO96141-3
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

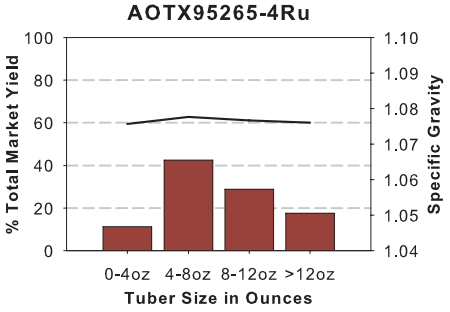

AO96160-3
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

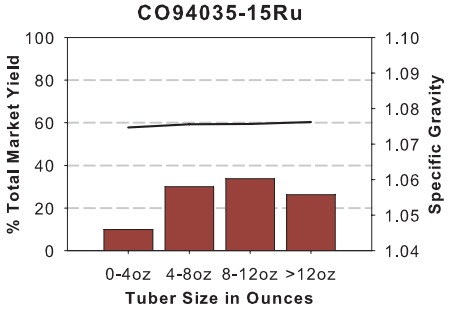

AO96164-1
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

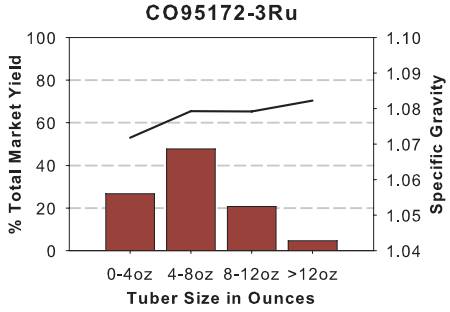

AOA95154-1
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

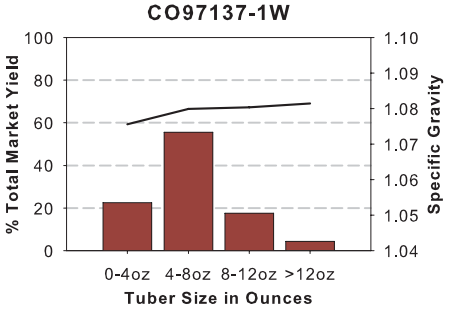

AOA95155-7
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

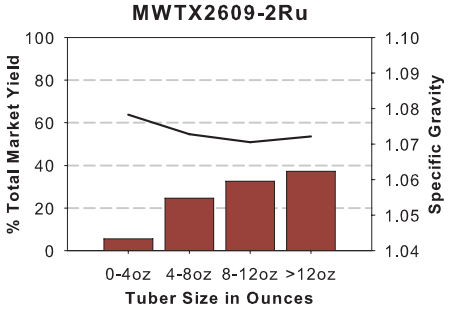

AOTX95265-2ARu
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

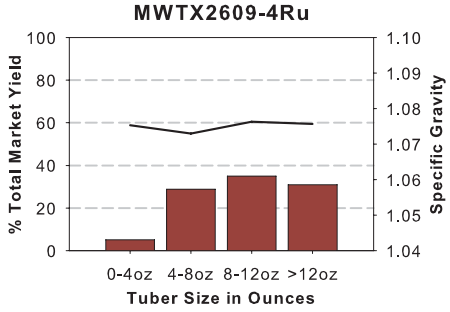

AOTX95265-4Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

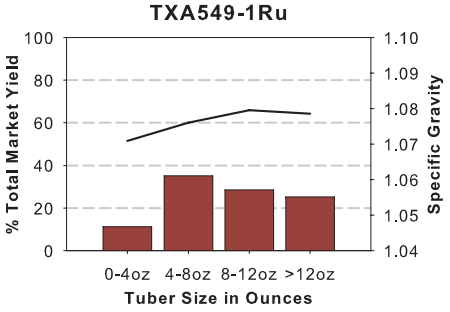

CO94035-15Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

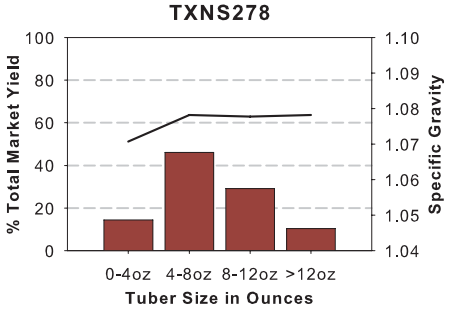

CO95172-3Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


CO97137-1W
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


MWTX2609-2Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


MWTX2609-4Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


TXA549-1Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


TXNS278
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

2006 Early Harvest Regional Trial

Fresh Value

Economic Potential

The gross return in U.S. dollars per acre for each trial entry was calculated using WA (Columbia Basin) four-year average fresh potatoes prices. Production costs per acre were not applied. All assumptions are listed at the front of the book under “Fresh Market Value - Methods.” Assessing the fresh value of a given lot of potatoes is difficult because the actual market allows fresh-pack sheds to utilize a mix of tuber sizes and packaging to meet demand changes in an effort to maximize income potential. Following discussions with actual pack-sheds and complying with USDA standards, the packaging and size ranges used to produce the fresh value below (figure 1) provide a good base for variety comparison. A packaging and handling fee (pack-shed operating fee) of $3.50 was assessed on each CWT of potatoes. This economic evaluation does not fully account for consumer preferences for each trial entry. Figure 1, below, shows the difference in gross value from Texas Norkotah Strain 278 for all trial entries.

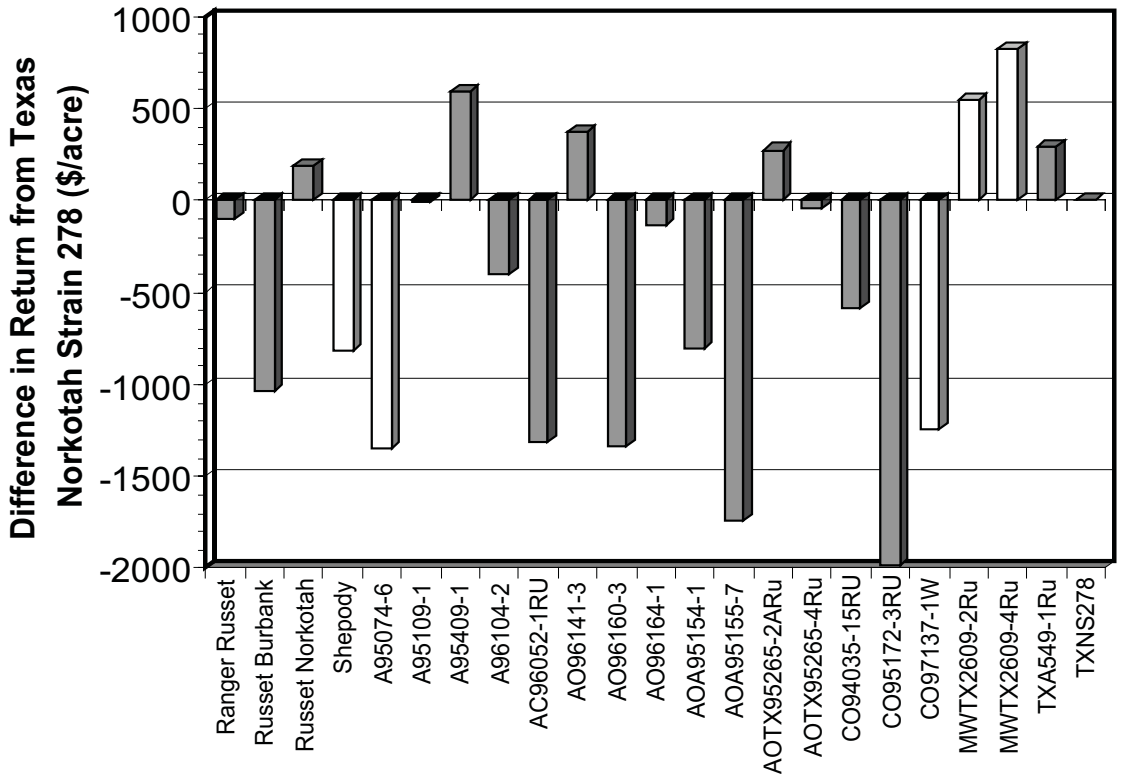


Figure 1. Difference in gross return per acre (Fresh Market) from Texas Russet Norkotah Strain 278 calculated by subtracting the gross return of Texas Russet Norkotah Strain ($4155) from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to undesirable shape or appearance.

2006 Early Harvest Regional Trial

Process Value

Economic Potential
The gross return in U.S. dollars per acre for each trial entry was calculated using an early-harvest mock processing contract. Process-market values are based on criteria and assumptions similar to that used by WA potato processors (see “Process Market Value-Methods” in front of book). Production costs per acre were not applied. Figure 1, below, shows the gross value of all trial entries when compared against a standard reference variety.

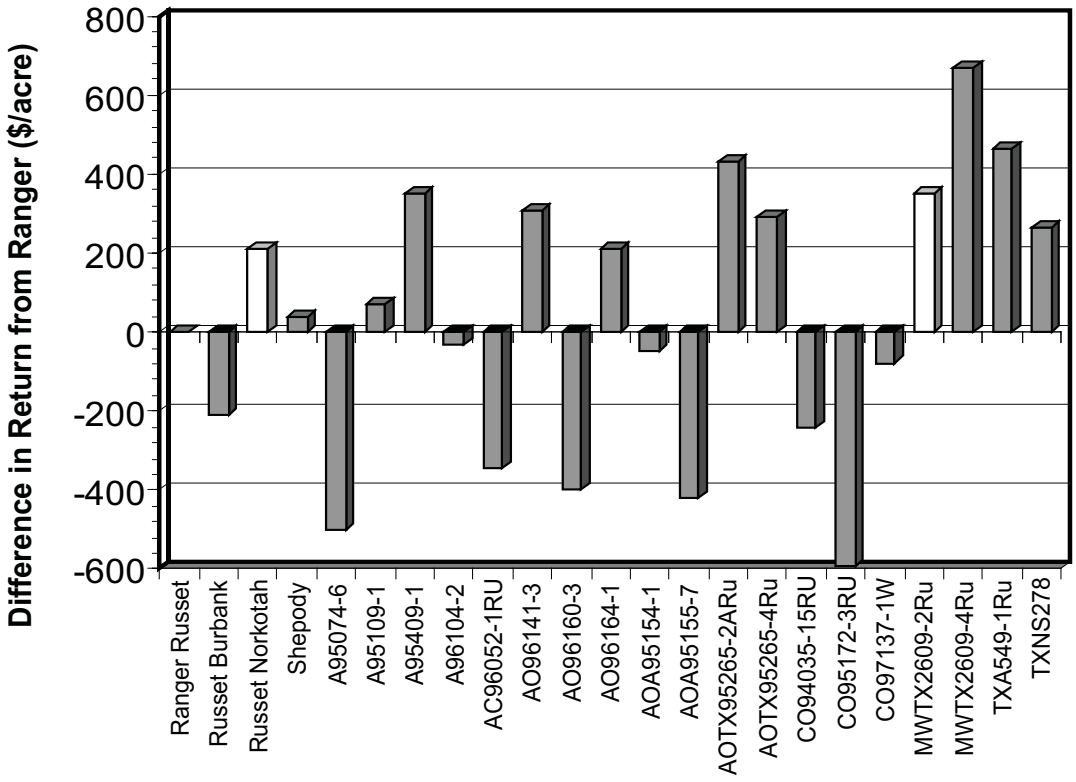
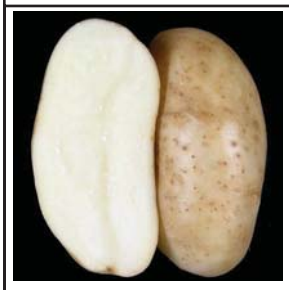
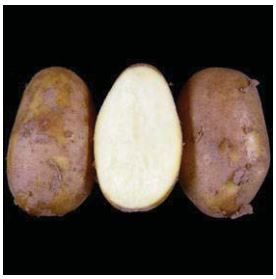
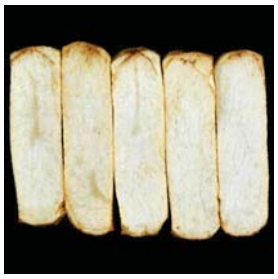
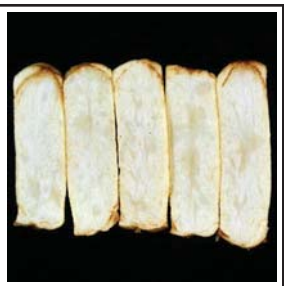
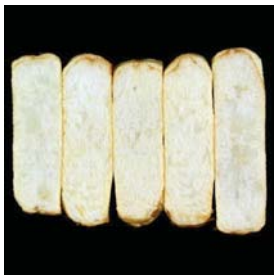
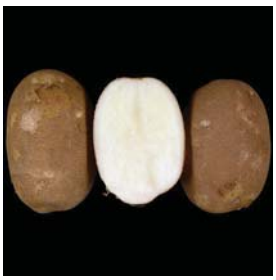
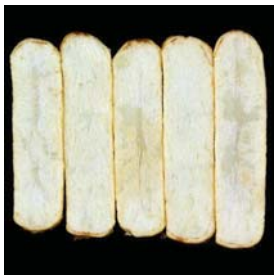
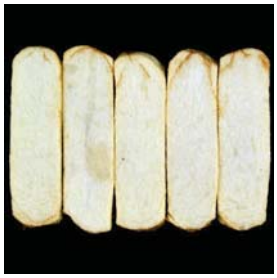
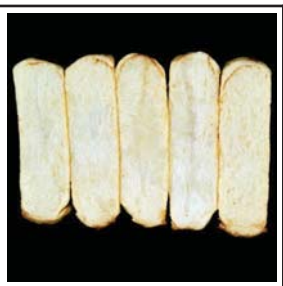
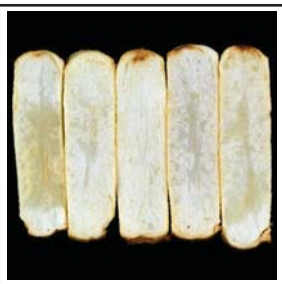
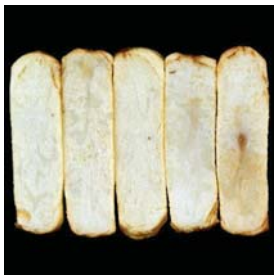
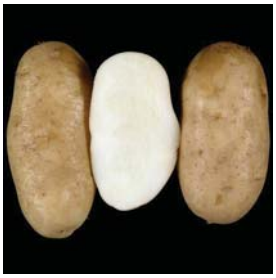
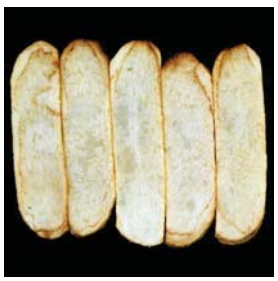


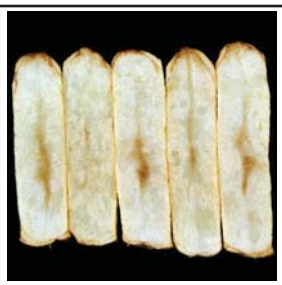
Figure 1. Difference in gross return per acre (Process Market) from Ranger Russet calculated by subtracting the gross return of Ranger Russet ($2369) from the gross return of the particular entry. Entries with the white-colored bars were REJECTED (under the mock contract parameters) due to low specific gravity.

Tubers	Fries	WA Early Harvest Regional Trial Comments
Ranger Russett		
		**Tubers:** Oblong to long tubers, moderate russet, good skin set; moderate eye depth. **Fry Color:** Light, uniform.
Russet Burbank		
		**Tubers:** Oblong tubers, moderate russet, fair skin set; moderate eye depth. **Fry Color:** Light, uniform.
Russet Norkotah		
		**Tubers:** Oblong tubers, moderate heavy russet, good skin set; moderate eye depth. **Fry Color:** Light, uniform.
Shepody		
		**Tubers:** Oblong tubers, no russet, good skin set; shallow eyes. **Fry Color:** Light, non-uniform.
A95704-6		
		**Tubers:** Oblong tubers, light russet, very poor skin set; shallow eyes. **Fry Color:** Light uniform.

Tubers	Fries	WA Early Harvest Regional Trial Comments
A95109-1		
		**Tubers:** Oblong tubers, moderate russet, good skin set; moderate eye depth. **Fry Color:** Light, uniform.
A95409-1		
		**Tubers:** Oblong tubers, light russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.
A96104-2		
		**Tubers:** Oblong tubers, moderately heavy russet, good skin set; shallow eyes. **Fry Color:** Light, uniform.
AC96052-1Ru		
		**Tubers:** Oblong tubers, moderately heavy russet, good skin set; shallow eyes. **Fry Color:** Light, uniform.
AO96141-3		
		**Tubers:** Oblong to long tubers, light russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.

Tubers	Fries	WA Early Harvest Regional Trial Comments
AO96160-3		
		**Tubers:** Oblong tubers, moderately heavy russet, good skin set; shallow eyes. **Fry Color:** Light, uniform.
AO96164-1		
		**Tubers:** Oblong to long tubers, moderate russet, fair skin set; shallow eyes. **Fry Color:** Light uniform.
AOA95154-1		
		**Tubers:** Oblong tubers, moderately heavy russet, good skin set; shallow eyes. **Fry Color:** Light, uniform.
AOA95155-7		
		**Tubers:** Oblong tubers, moderate russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.
AOTX95265-2ARu		
		**Tubers:** Oblong tubers, moderately heavy russet, good skin set; shallow eyes. **Fry Color:** Light, uniform.

Tubers	Fries	WA Early Harvest Regional Trial Comments
AOTX95265-4Ru		
		**Tubers:** Oblong tubers, moderately heavy russet, good skin set; moderate eye depth. **Fry Color:** Light, uniform.
CO94035-15Ru		
		**Tubers:** Round to oblong tubers, heavy russet, good skin set; shallow eyes. **Fry Color:** Light, uniform.
CO95172-3Ru		
		**Tubers:** Oblong tubers, moderate russet, good skin set; shallow eyes. **Fry Color:** Light, uniform.
CO97137-1W		
		**Tubers:** Oblong to long tubers, no russet, good skin set; shallow eyes. **Fry Color:** Light, uniform.
MWTX2609-2Ru		
		**Tubers:** Oblong to long tubers, light russet, good skin set; moderate eye depth. **Fry Color:** Light, uniform.

Tubers	Fries	WA Early Harvest Regional Trial Comments
MWTX2609-4Ru		
		**Tubers:** Oblong tubers, light russet, fair skin set; moderate eye depth. **Fry Color:** Light, uniform.
TXA549-1Ru		
		**Tubers:** Round to oblong tubers, moderate russet, fair skin set; shallow eyes. **Fry Color:** Light, uniform.
TXNS278		
		**Tubers:** Oblong tubers, moderately heavy russet, good skin set; moderate eye depth. **Fry Color:** Light, uniform.

2006 Early Harvest Regional Trial

Postharvest Evaluation

The 2006 Early Regional Trial consisted of 4 cultivars and 19 numbered clones. All numbered entries fried light and uniform with USDA ratings of "0".

	Clone	PHOTOVOLT Stem	PHOTOVOLT Bud	Average	DIFFERENCE STEM - BUD	USDA COLOR
1	Ranger Russet	51.5	52.0	51.7	4.5	0
2	Russet Burbank	50.9	49.4	50.1	2.8	0
3	Russet Norkotah	48.3	52.5	50.4	5.9	0
4	Shepody	51.2	51.3	51.3	9.2	0
5	A95074-6	56.1	55.1	55.6	1.9	0
6	A95109-1	55.4	51.2	53.3	4.5	0
7	A95409-1	54.7	56.4	55.5	2.6	0
8	A96104-2	54.4	54.3	54.4	3.4	0
9	AC96052-1Ru	55.6	56.1	55.9	2.2	0
10	AO96141-3	57.8	55.7	56.8	3.3	0
11	AO96160-3	55.2	55.3	55.2	2.0	0
12	AO96164-1	51.3	53.1	52.2	2.5	0
13	AOA95154-1	54.1	57.5	55.8	3.9	0
14	AOA95155-7	53.9	53.7	53.8	2.6	0
15	AOTX95265-2ARu	49.4	51.0	50.2	3.7	0
16	AOTX95265-4Ru	50.0	51.1	50.5	5.6	0
17	CO94035-15Ru	55.5	55.9	55.7	3.8	0
18	CO95172-3Ru	51.1	52.5	51.8	3.6	0
19	CO97137-1W	47.2	49.9	48.6	3.6	0
20	MWTX2609-2Ru	50.9	50.7	50.8	3.3	0
21	MWTX2609-4Ru	52.7	48.0	50.3	5.1	0
22	TXA549-1Ru	49.6	51.9	50.7	5.2	0
23	TXNS278	50.9	51.1	51.0	2.2	0
			LSD 0.05	*1.9*	*2.6*	
	Average	52.6	52.9	52.8	3.9	0

* Average of 12 individual tuber absolute differences

Planting date:	April 3
Harvest date:	August 8
Fried on:	August 10

2006 Late Harvest Regional Trial

Location: Commercial field near Othello, WA
Planting Date: April 20 Vine Kill Date: Sept 15
Harvest Date: Sept 25 Days Grown: 148
Fertility: 233-225-344

Regional trials are conducted throughout the western region of the United States. Entries in the Regional Trial are chosen by a coordinating committee, representing the participating western states, and are grown for both early (Early Regional) and full (Late Regional) season harvest. This year the late trial was grown in a commercial field near Othello, WA and included 3 local reference varieties and 19 experimental clones. Growing conditions were not completely favorable as a cool spring delayed emergence, the previous alfalfa crop left volunteers and debris in the field, and the soil was poor. The following is a summary of the Washington field and post harvest results.

Fresh market standouts: A95109-1, A95409-1, MWTX2609-4Ru, and A96104-2.
Process market standouts: A96104-2, MWTX2609-4Ru, CO94035-15Ru, and AOA95155-7.

Standcounts

- **30 Day**
  Fast emergence: Ranger Russet (91%) and CO97137-1W (91%).
  Slow emergence: AOA95155-7 (10%) and AOA95154-1 (22%).

- **50 Day**
  Worst emergence: A95074-6 (94%). All other entries were > 97% emerged.

Plant and Tuber Growth and Development

- **Above Ground Stem Number Per Plant**
  Most: CO97137-1W (3.4) and AO96141-3 (3.0).
  Least: A95409-1(1.5), AO96164-1 (1.9), and AO96160-3 (2.0).

- **Average Tuber Number Per Plant**
  Most: AO96160-3 (9.9), AOA95154-1 (9.7), and CORN-3 (9.3).
  Least: Ranger Russet (6.1) and A95409-1 (6.3).

- **Average Tuber Size (oz)**
  Largest: MWTX2609-4Ru (10), A95409-1 (9.3), and MWTX2609-2Ru (9.0).
  Smallest: CO97137-1W (4.5), AOA95154-1 (4.9), and AC96052-1Ru (5.3).

- **Undersized Tubers (< 4 oz)**
  Most: CO97137-1W (138 CWT/A) and AOA95154-1 (137 CWT/A).
  Least: A95109-1 (32 CWT/A), A95409-1 and MWTX2609-4Ru both at (33 CWT/A).

Yield and Economic Data

- **Total and Market Yield**
  Highest: MWTX2609-4Ru had the highest total yield (870 CWT/A) and the highest market yield (773 CWT/A). A96104-2 and MWTX2609-2Ru each had a total yield of 747 CWT/A.
  Lowest: CO97137-1W had the lowest total yield (455 CWT/A) and the lowest market yield (292 CWT/A). Russet Norkotah had the second lowest total yield (461 CWT/A) and market yield (356 CWT/A).

- **% Market Yield Greater Than 6 oz.**
  Highest: A95109-1 (77%), A95409-1 and Ranger Russet (75%).
  Lowest: CO97137-1W (35%), AOA95154-1 (45%) and AC96052-1Ru (49%).

- **Carton Yield (100 to 50 Count (7 to 18 oz US#1 Tubers))**
  Highest: MWTX2609-4Ru, A95109-1, AOA95155-7, A96104-2, and CO94035-15Ru, all greater than 400 CWT/A carton yield.
  (Compare to CORN-3 at 278 CWT/A)
  Lowest: CO97137-1W (97 CWT/A) and AOA95154-1 (160 CWT/A).

- **Gross Return ($/acre)**
  Fresh Market Highest Five: A96104-2, MWTX2609-4Ru, A95109-1, CO94035-15Ru, & AOA95155-7.
  Fresh Market Lowest: CO97137-1W, AOA95154-1, Russet Norkotah, Russet Burbank, & AC96052-1Ru.
  Process Market Highest Five: A96104-2, MWTX2609-4Ru, CO94035-15Ru, A95109-1, & MWTX2609-2Ru.
  Process Market Lowest: CO97137-1W, Russet Norkotah, AOTX95265-2ARu, AOA95154-1, & AC96052-1Ru.

Tuber Defects (% out of 40 Tubers, 8-12 oz.)

- **External Defects**
  Notable Defects: Most entries were free of external defects; Russet Burbank had 4% growth cracks and TXA549-1Ru had 3% green tubers.

- **Internal Defects**
  Notable Defects: Most entries were free of internal defects; Russet Burbank had 38% brown center and 5% internal black spot, AC96052-1Ru had 10% internal black spot. All other entries had less than 5% internal defects.

- **Bruise**
  Highest Blackspot: Ranger Russet (83%) and MWTX2609-4Ru (65%)
  Lowest Blackspot: AOA95155-7 (0%), AOA95154-1 and CO94035-15Ru each had (13%).
  Highest Shatter: CO95172-3Ru (95%) and CO97137-1W (89%).
  Lowest Shatter: AOTX95265-2ARu (5%) and AOTX95265-4Ru (8%).

2006 Late Harvest Regional Trial

Postharvest Information

- **Overall Postharvest Rating**
  Highest scoring clones: AO96160-3, AO96164-1, A95074-6, AC96052-1Ru, AOA95154-1
  Lowest scoring clones: AOTX95265-4Ru, AOTX95265-2ARu, MWTX2609-4Ru, RB

- **Low temperature Sweetening**
  Most resistant: AO96164-1, A95074-6, AC96052-1Ru, AOA95154-1
  Most susceptible: AOTX95265-4Ru, AOTX95265-2ARu, MWTX2609-4Ru, RB

- **Taste Panel**
  Highest rated: AO96141-3, A95074-6, RR, AC96052-1Ru, AO96160-3
  Lowest rated: AOTX95265-2ARu, AOTX95265-4Ru, MWTX2609-4Ru

- **Blackspot Bruise Susceptibility**
  Most resistant: AOA95155-7, AO96141-3, AOTX95265-4Ru, AOTX95265-2ARu
  Most susceptible: TXA549-1Ru, RR, CO94035-15Ru, MWTX2609-4Ru

- **Variability in Tuber Shape & Fry Yield (8- to 10-oz tubers)**
  Least variable: TXA549-1Ru, AO96141-3, RB, AOTX95265-4Ru, AOTX95265-2ARu
  Most variable: AOA95154-1, A95409-1, CO94035-15Ru

Details

- AO96160-3, AO96164-1, and A95074-6 were the highest rated entries, accumulating an average of 32 of 38 possible points. These clones, along with AC96052-1Ru and AOA95154-1, had significant resistance to low temperature sweetening, producing USDA 0 to 1 fries (darkest end) when stored for 54 days at 40°F. AO96160-3 and AO96164-1 were rated among the top three clones in the 2005 trials. AO96160-3 was entered in the 2003 Tri-State trial and has been among the top clones in every trial since.

- Gravities of AOTX95265-4Ru and AOTX95265-2ARu averaged 1.071 and 1.070, respectively, too low for processing contracts. These clones received the lowest taste panel ratings with lots of comments about soggy or limp fries. AOTX95265-4Ru, AOTX95265-2ARu, and MWTX2609-4Ru were the lowest scoring clones, receiving 13/38, 15/38, and 15.8/38 points, respectively. All three clones sweetened and produced relatively dark fries at all storage temperatures.

- AO96141-3 had an average gravity of 1.088, second only to Ranger (1.091). It received the highest average taste panel rating of 3.7/5, with many positive comments. Approximately 70% of variation in taste panel scores can be explained by differences in gravity among the clones.

- AO96141-3, A95074-6, RR, AC96052-1Ru, and AO96160-3 were the favorites of the taste panelists, receiving ratings of 3.4 to 3.7 (5 is best) when averaged across growing locations.

- On average, ID- and WA-grown tubers produced the lightest at-harvest fry color. When stored at 44°F, ID-grown tubers retained more of their at-harvest processing quality than those grown in WA, characterizing a significant effect of production site on storability. Averaged across the three production sites, the Regional clones retained 92% and 83% of their processing quality when stored at 48 and 44°F for 54 days, respectively.

- Before- and after-storage fry color was non-uniform from bud to stem end for many of the WA- and OR-grown clones, regardless of storage temperature. TXA549-1Ru, CO94035-15Ru, and A96104-2 showed variability in retention of processing quality during storage for 54 days at 44°F, as affected by production site.

- MWTX2609-4Ru and A95109-1 did not recondition well.

- Similar to last year, AOA95155-7 was highly resistant to blackspot, with only 5.6% of impacts showing bruise (3-state average). In contrast, TXA549-1Ru, RR, CO94035-15Ru, and MWTX2609-4Ru had 74, 62, 43, and 42% of impacts developing bruise, respectively.

- On average, ID-grown tubers had the highest L/W ratios (8-10 oz tubers) compared with those grown in WA and OR. TXA549-1Ru, CO94035-15Ru, and AC96052-1Ru had the lowest L/W ratios (average=1.57), reflecting rounder tubers. AO9614-3, RR, RB, and AO96164-1 had the highest L/W ratios (1.85-2.2, avg.= 1.99). CO94035-15Ru, A95409-1, and AOA95154-1 had the greatest variation in shape of 8- to 10-oz tubers across states. The L/W ratios of TXA549-1Ru (=1.53) and AO96141-3 (=2.2) were least affected by growing location.

- TXA549-1Ru produced at least 2% hollow heart from each state. Hollow heart was also evident (approx. 6%) in AC96052-1Ru, AO96160-3, AOA95154-1, AOTX95265-2ARu, AOTX95265-4Ru, and CO94035-15Ru from OR and ID.

Overall Regional Postharvest Merit Scores

Clone	Postharvest Merit Scores WA	ID	OR	3 state Average
9 AO96160-3	4.1	3.8	4.8	4.2
10 AO96164-1	4.5	4.0	4.1	4.2
3 A95074-6	4.0	3.7	4.9	4.2
7 AC96052-1Ru	4.3	3.5	3.8	3.9
11 AOA95154-1	3.4	4.7	3.4	3.8
12 AOA95155-7	4.1	4.1	2.6	3.6
6 A96104-2	3.5	4.0	3.2	3.6
8 AO96141-3	3.0	3.8	3.0	3.3
15 CO94035-15Ru	3.3	3.7	2.3	3.1
1 Ranger Russet	2.8	3.7	2.8	3.1
17 TXA549-1Ru	2.9	4.0	2.4	3.1
5 A95409-1	3.0	3.2	3.1	3.1
4 A95109-1	3.1	2.6	3.1	2.9
2 Russet Burbank	2.7	2.1	2.1	2.3
16 MWTX2609-4Ru	2.1	2.7	1.5	2.1
13 AOTX95265-2ARu	2.0	2.3	1.6	2.0
14 AOTX95265-4Ru	1.7	1.9	1.5	1.7

2006 Late Harvest Regional Trial

Summaries

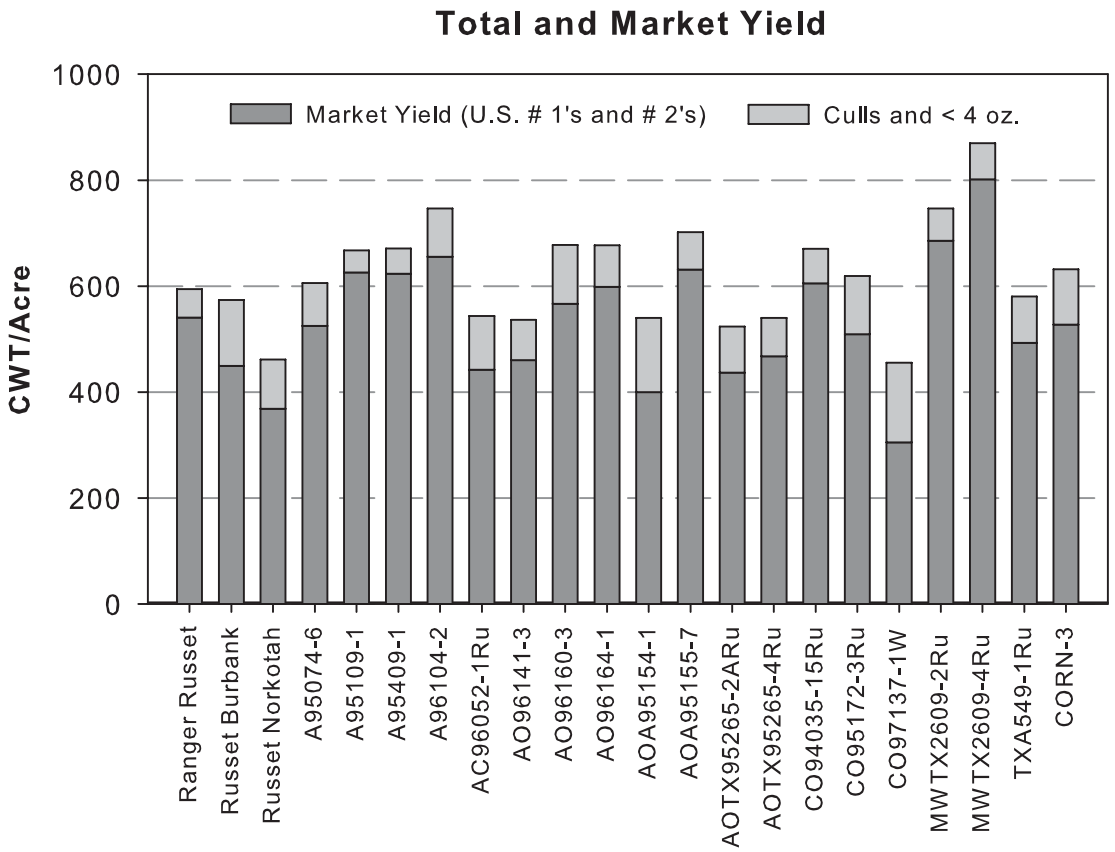
ENTRY	TOTAL YIELD			US # 1's* > 4 oz	US # 2's* > 4 oz	Culls* & < 4 oz	CARTON YIELD 100-50 count (US 1's 7-18 oz)		PROCESS YIELD US 1's and 2's > 6 oz	
	(CWT/A)	STATS**	(Tons/A)	% of Total Yield			% of Total Yield	(Tons/A)	% of Total Yield	(Tons/A)
Ranger Russet	594	*DEFG*	29.7	80	11	9	57	17.0	75	22.4
Russet Burbank	574	*EFG*	28.7	70	8	22	33	9.5	54	15.4
Russet Norkotah	461	*H*	23.1	77	3	20	41	9.5	57	13.0
A95074-6	606	*CDEFG*	30.3	74	13	13	45	13.8	67	20.3
A95109-1	667	*BCDE*	33.4	92	2	6	64	21.4	77	25.6
A95409-1	671	*BCDE*	33.6	92	1	7	63	21.2	75	25.0
A96104-2	747	*B*	37.3	85	3	12	57	21.4	70	26.2
AC96052-1Ru	544	*FG*	27.2	80	1	19	36	9.8	49	13.4
AO96141-3	537	*FGH*	26.8	77	9	14	48	12.8	65	17.4
AO96160-3	678	*BCD*	33.9	82	1	17	44	14.9	57	19.5
AO96164-1	677	*BCD*	33.9	84	4	12	56	18.9	69	23.3
AOA95154-1	540	*FGH*	27.0	72	2	26	30	8.0	45	12.0
AOA95155-7	702	*BC*	35.1	86	4	10	58	20.2	71	24.8
AOTX95265-2ARu	523	*GH*	26.2	82	2	16	44	11.5	59	15.5
AOTX95265-4Ru	540	*FGH*	27.0	85	2	13	53	14.4	67	18.0
CO94035-15Ru	670	*BCDE*	33.5	89	1	10	61	20.5	74	24.9
CO95172-3Ru	619	*CDEFG*	31.0	81	1	18	46	14.3	60	18.5
CO97137-1W	455	*H*	22.8	64	3	33	21	4.9	35	8.0
MWTX2609-2Ru	747	*B*	37.3	89	3	8	52	19.5	67	25.0
MWTX2609-4Ru	870	*A*	43.5	89	3	8	53	23.3	68	29.7
TXA549-1Ru	580	*DEFG*	29.0	83	2	15	49	14.3	61	17.7
CORN-3	632	*CDEF*	31.6	79	4	17	44	13.9	59	18.6

ENTRY	US # 1 YIELD > 4 oz			4-7 oz*	7-14 oz*	> 14 oz*	> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers)		
	(CWT/A)	STATS**	(Tons/A)	%				% HH	% BC	% IBS
Ranger Russet	478	*EFGHI*	23.9	22	56	22	1.095	0	0	0
Russet Burbank	403	*HIJ*	20.1	50	43	7	1.081	3	38	5
Russet Norkotah	356	*JK*	17.8	45	47	8	1.072	3	0	0
A95074-6	448	*GHIJ*	22.4	35	56	9	1.094	3	0	0
A95109-1	616	*BC*	30.8	23	57	20	1.080	0	0	0
A95409-1	620	*BC*	31.0	15	46	39	1.090	0	0	3
A96104-2	635	*BC*	31.7	27	55	18	1.087	0	0	0
AC96052-1Ru	439	*GHIJ*	22.0	54	41	5	1.093	0	0	10
AO96141-3	414	*GHIJ*	20.7	36	55	9	1.090	0	0	0
AO96160-3	557	*CDEF*	27.9	41	49	10	1.090	0	0	0
AO96164-1	573	*BCDE*	28.7	22	49	29	1.085	0	0	0
AOA95154-1	391	*IJK*	19.6	59	38	3	1.102	0	0	0
AOA95155-7	605	*BC*	30.3	29	58	13	1.085	0	0	5
AOTX95265-2ARu	428	*GHIJ*	21.4	43	46	11	1.070	0	0	0
AOTX95265-4Ru	458	*FGHI*	22.9	34	53	13	1.074	0	0	3
CO94035-15Ru	596	*BCD*	29.8	27	60	13	1.085	0	0	0
CO95172-3Ru	505	*DEFG*	25.2	39	50	11	1.089	3	0	3
CO97137-1W	292	*K*	14.6	67	31	2	1.076	0	0	0
MWTX2609-2Ru	661	*B*	33.1	16	43	41	1.086	3	0	0
MWTX2609-4Ru	773	*A*	38.7	15	39	46	1.086	0	0	0
TXA549-1Ru	484	*EFGHI*	24.2	35	49	16	1.079	3	0	0
CORN-3	499	*DEFGH*	25.0	42	48	10	1.085	0	0	3

* Percent values may not total 100% due to rounding
**Numbers followed by the same letter are not significantly different at the 5 % level using Fisher's LSD Test

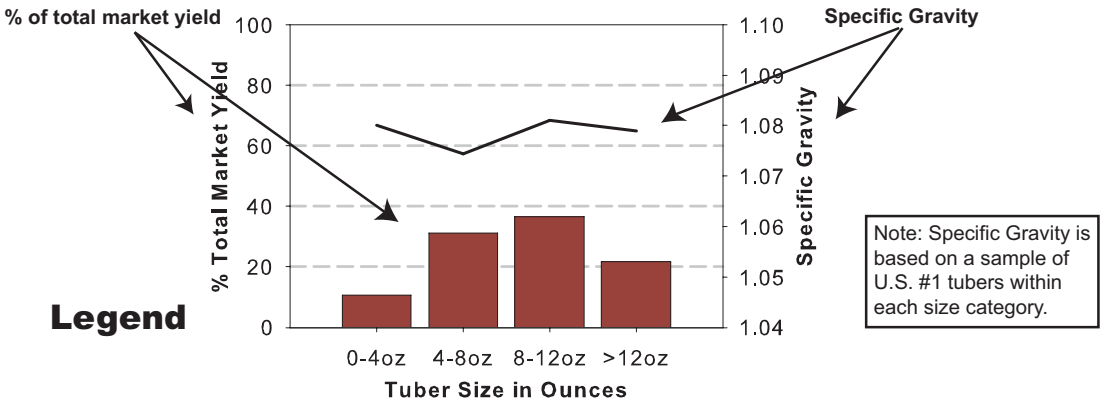
ENTRY	30 DAY STAND (% Emerged)	40 DAY STAND (% Emerged)	50 DAY STAND (% Emerged)	STEMS PER PLANT (Above Ground)	AVERAGE TUBER WEIGHT (Ounces)	AVERAGE TUBER NUMBER (Tubers/Plant)	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers) BLACKSPOT	BRUISE (%) (8-12 oz tubers) SHATTER
Ranger Russet	91	97	98	2.5	8.6	6.1	4	4	83	15
Russet Burbank	67	99	99	2.2	6.0	8.2	4	4	38	40
Russet Norkotah	74	95	98	2.3	6.0	6.8	5	4	38	13
A95074-6	44	94	94	2.6	6.6	8.0	4	3	15	38
A95109-1	24	91	96	2.2	8.2	7.1	4	3	20	65
A95409-1	78	100	100	1.5	9.3	6.3	4	3	48	55
A96104-2	73	97	99	2.4	7.1	9.1	4	3	23	60
AC96052-1Ru	38	99	99	2.2	5.3	8.9	4	3	35	75
AO96141-3	40	98	98	3.0	6.5	7.2	3	5	25	18
AO96160-3	42	99	100	2.0	5.9	9.9	4	3	25	73
AO96164-1	55	98	98	1.9	7.7	7.7	4	3	35	70
AOA95154-1	22	96	98	2.4	4.9	9.7	4	3	13	23
AOA95155-7	10	96	97	2.1	7.0	8.7	2	3	0	73
AOTX95265-2ARu	84	99	99	2.6	5.9	7.7	4	4	28	5
AOTX95265-4Ru	83	98	100	2.7	6.4	7.4	4	4	18	8
CO94035-15Ru	32	96	98	2.5	7.1	8.2	4	3	13	78
CO95172-3Ru	39	98	98	2.4	6.0	9.0	4	3	15	95
CO97137-1W	91	100	100	3.4	4.5	8.8	4	5	29	89
MWTX2609-2Ru	35	97	98	2.2	9.0	7.2	3	3	50	58
MWTX2609-4Ru	86	99	99	2.1	10.0	7.6	4	4	65	33
TXA549-1Ru	52	94	97	2.7	6.5	7.9	4	4	30	75
CORN-3	67	99	100	2.4	5.9	9.3	4	4	23	13

* Percent values may not total 100% due to rounding
**Numbers followed by the same letter are not significantly different at the 5 % level using Fisher's LSD Test

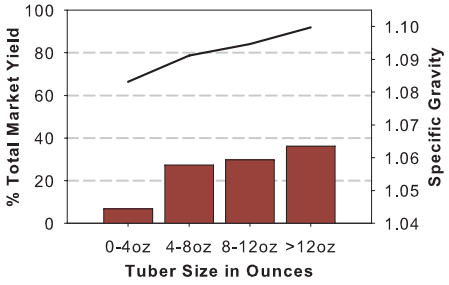


2006 Late Harvest Regional Trial

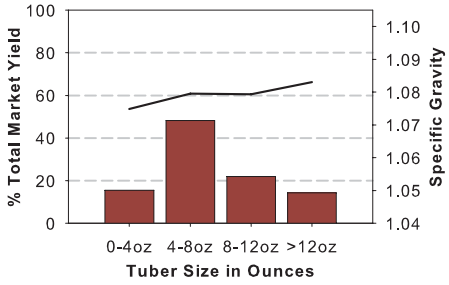
Tuber Yield and Specific Gravity Distributions



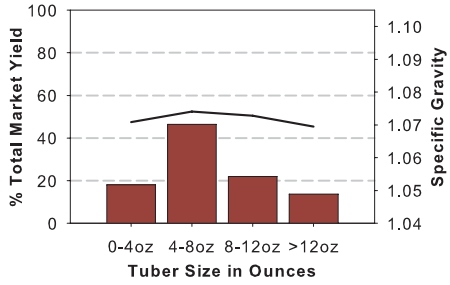
RANGER RUSSET



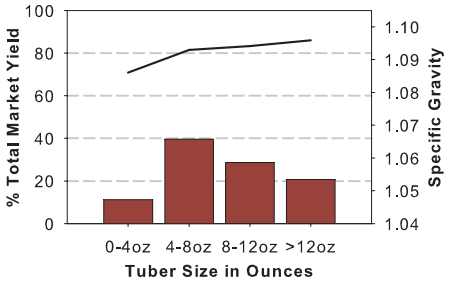
RUSSET BURBANK



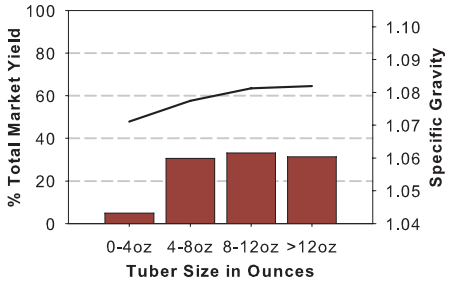
RUSSET NORKOTAH



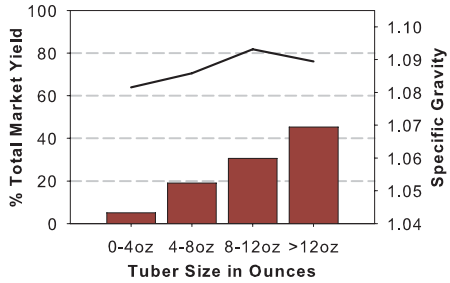
A95074-6



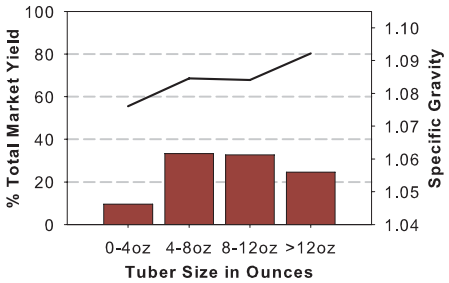
A95109-1



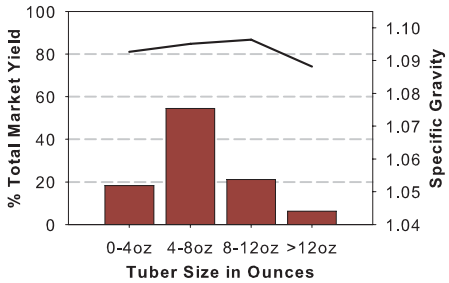
A95409-1



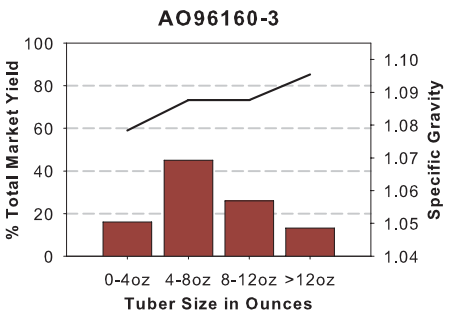
A96104-2

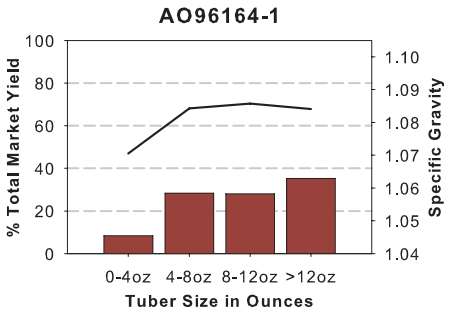


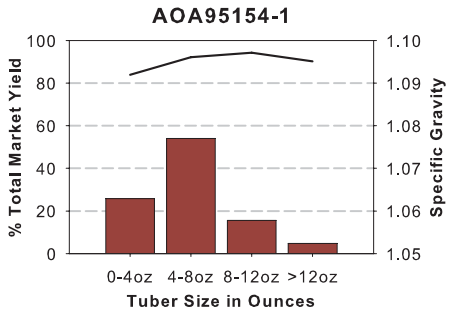
AC96052-1Ru

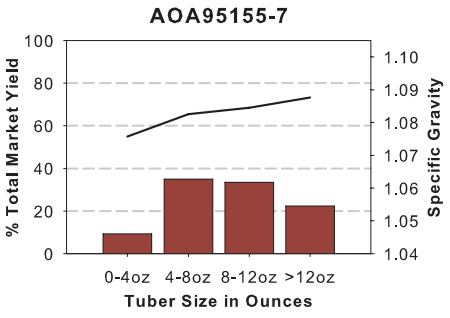


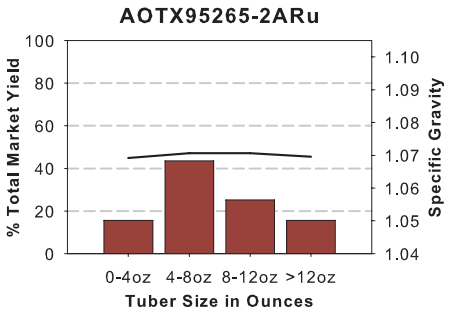
AO96141-3

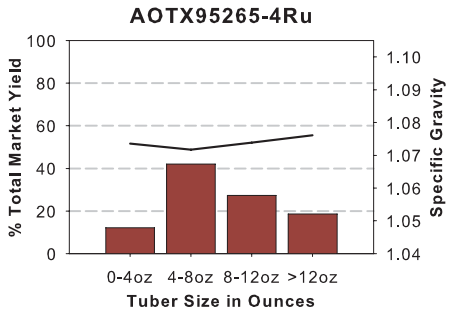

AO96160-3
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

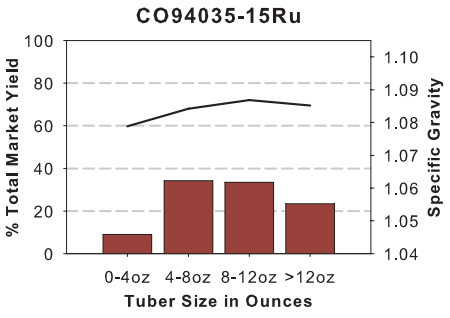

AO96164-1
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

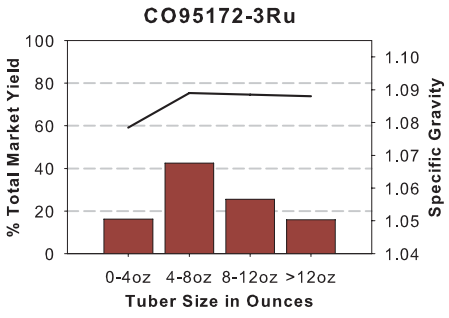

AOA95154-1
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

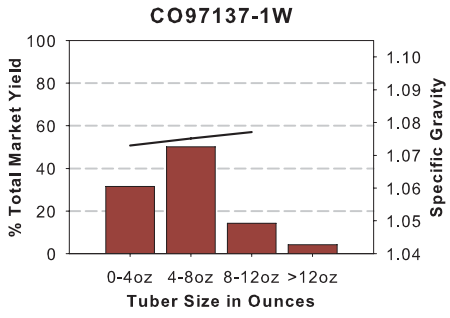

AOA95155-7
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

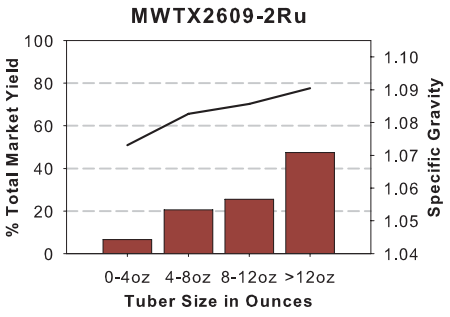

AOTX95265-2ARu
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

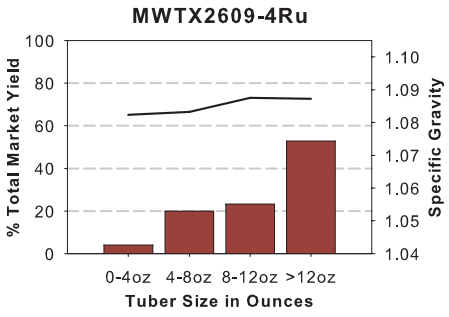

AOTX95265-4Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

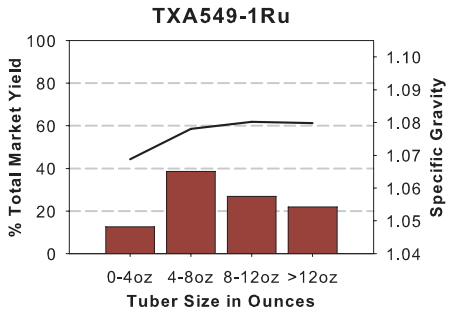

CO94035-15Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

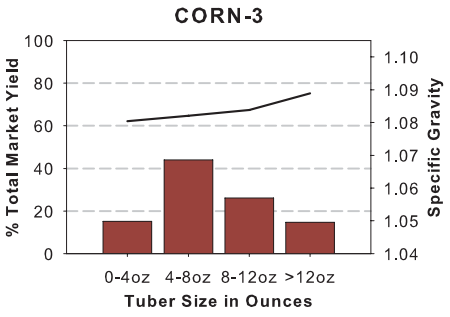

CO95172-3Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


CO97137-1W
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


MWTX2609-2Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


MWTX2609-4Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


TXA549-1Ru
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


CORN-3
% Total Market Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

2006 Late Harvest Regional Trial

Fresh Value

Economic Potential

The gross return in U.S. dollars per acre for each trial entry was calculated using WA (Columbia Basin) four-year average fresh potatoes prices. Production costs per acre were not applied. All assumptions are listed at the front of the book under “Fresh Market Value-Methods”. Assessing the fresh value of a given lot of potatoes is difficult because the actual market allows fresh-pack sheds to utilize a mix of tuber sizes and packaging to meet demand changes in an effort to maximize income potential. Following discussions with actual pack-sheds and complying with USDA standards, the packaging and size ranges used to produce the Fresh values below (figure 1) provide a good base for variety comparison. A packaging and handling fee (pack-shed operating fee) of $3.50 was assessed on each CWT of potatoes. This economic evaluation does not fully account for consumer preferences for each trial entry. Figure 1, below, shows the difference in gross value from CORN-3 for all trial entries.

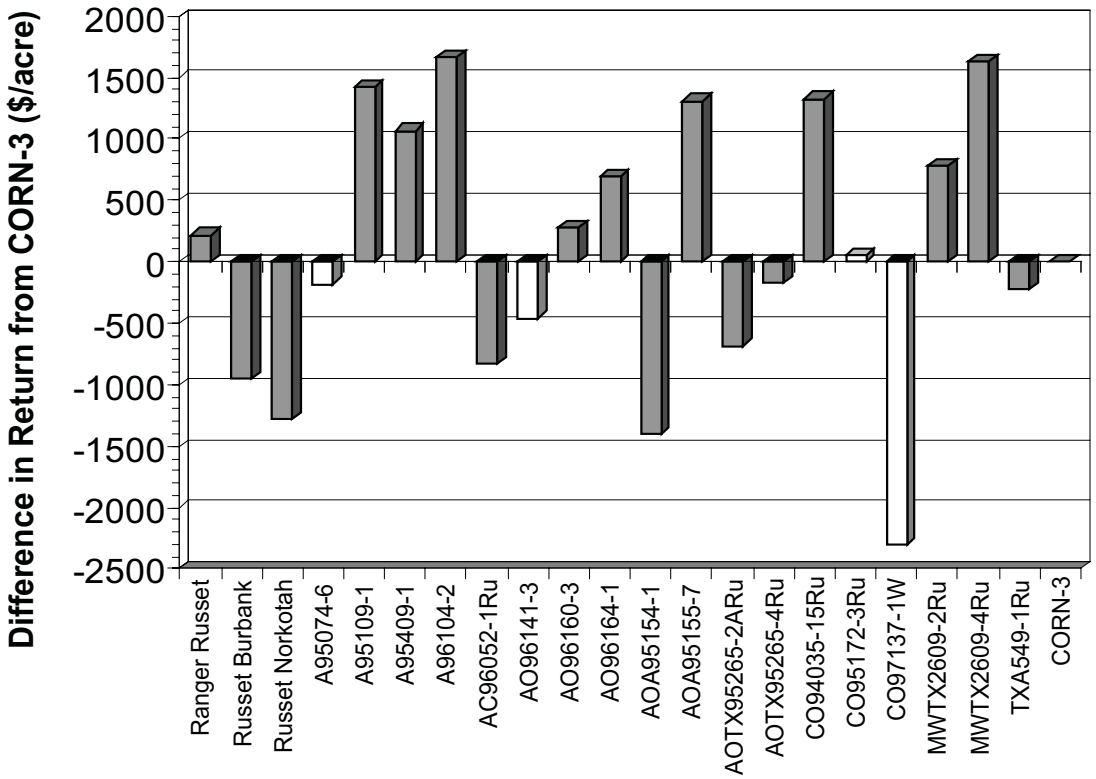


Figure 1. Difference in gross return per acre (Fresh Market) from Colorado R. Norkotah Strain 3 (CORN-3) calculated by subtracting the gross return of CORN-3 $4166 from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to undesirable shape or appearance.

2006 Late Harvest Regional Trial

Process Value

Economic Potential

The gross return in U.S. dollars per acre for each trial entry was calculated using a late-harvest mock processing contract. Process-market values are based on criteria and assumptions similar to that used by WA potato processors (see “Process Market Value-Methods” in front of book). Production costs per acre were not applied. Contract assumptions are listed at front of book under “Process Market Value - Methods.” Figure 1, below, shows the gross value of all trial entries when compared against a standard reference variety.

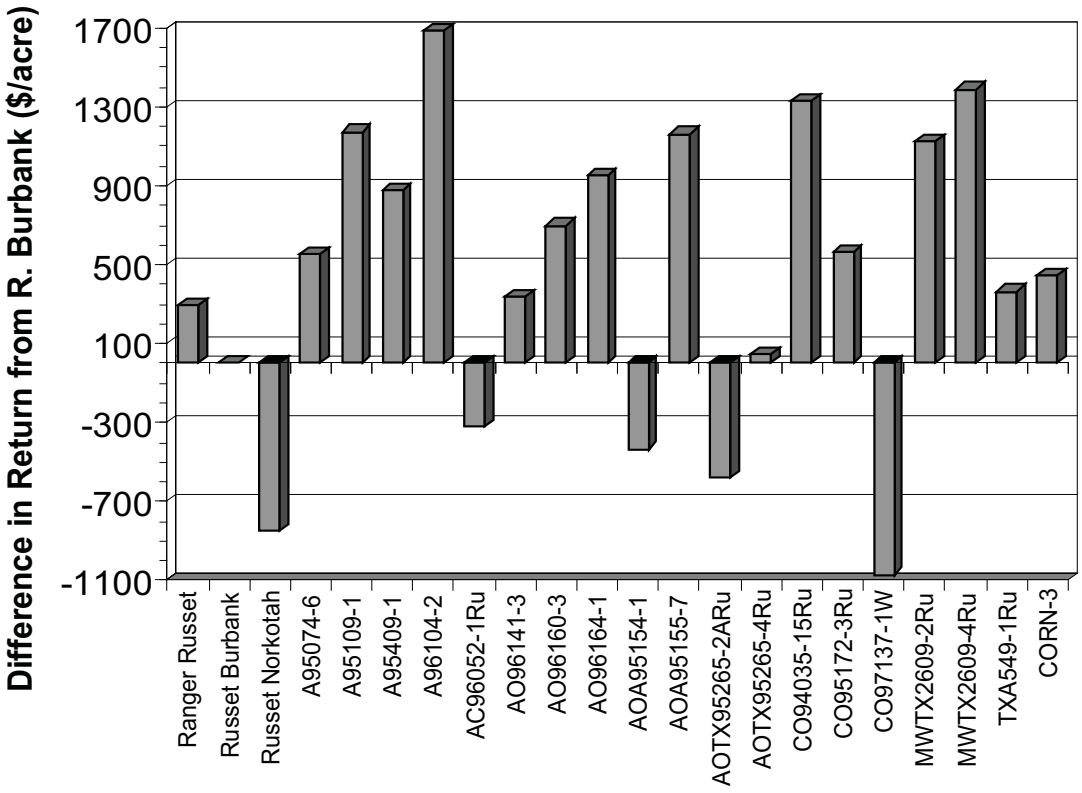
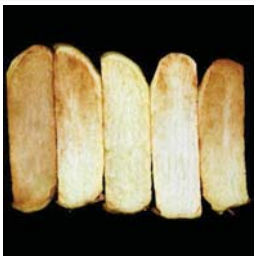
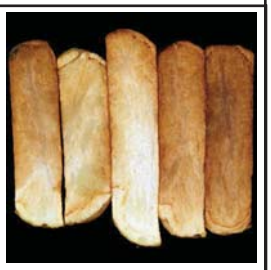
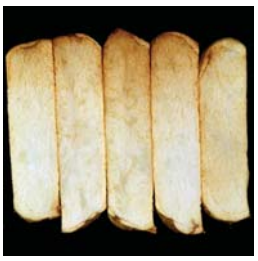
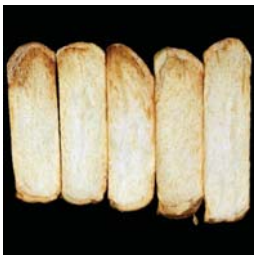
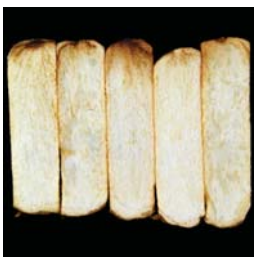


Figure 1. Difference in gross return per acre (Process Market) from Russet Burbank calculated by subtracting the gross return of Ranger Burbank ($2183) from the gross return of the particular entry.

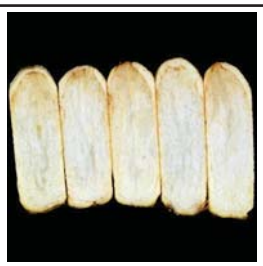
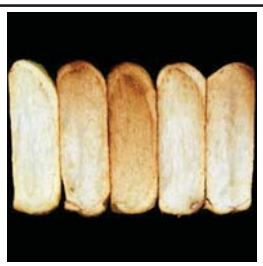
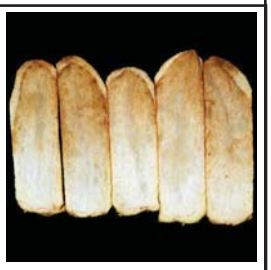
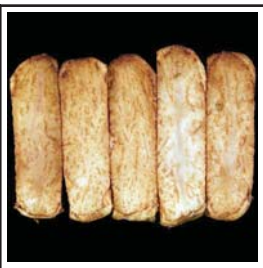
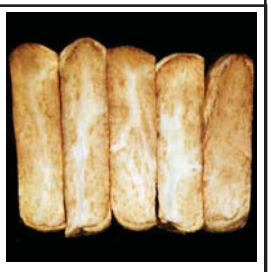
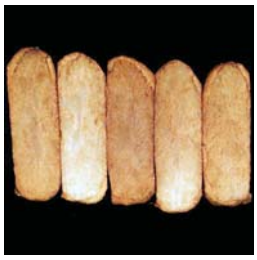
Tubers	WA Late Harvest Regional Trial Comments
Ranger Russet	
	**Tubers:** Oblong to long tubers, moderately heavy russet, good skin set; moderate eye depth. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.
Russet Burbank	
	**Tubers:** Oblong to long tubers, moderate russet, good skin set; moderate eye depth. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40°F = unacceptably dark, non-uniform; reconditioned = light, non-uniform.
A95074-6	
	**Tubers:** Oblong tubers, moderate russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, uniform; 44°F = light, uniform; 40°F = relatively dark, non-uniform; reconditioned = light, uniform.
A95109-1	
	**Tubers:** Oblong tubers, moderate russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40°F = relatively dark, uniform; reconditioned = relatively dark, non-uniform.
A95409-1	
	**Tubers:** Oblong tubers, moderate russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.

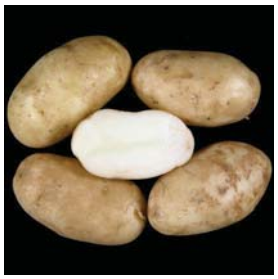
Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
Ranger Russet				
				
Russet Burbank				
				
A95074-6				
				
A95109-1				
				
A95409-1				
				

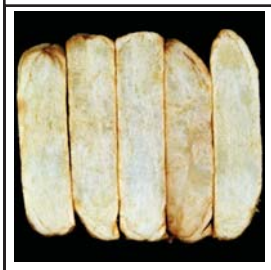
Tubers	WA Late Harvest Regional Trial Comments
A96104-2	
	**Tubers:** Oblong tubers, moderate russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.
AC96052-1Ru	
	**Tubers:** Oblong tubers, heavy russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, uniform; after approximately 2 months of storage at 48°F = light, uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, uniform.
AO96141-3	
	**Tubers:** Long tubers, moderate russet, fair skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.
AO96160-3	
	**Tubers:** Oblong tubers, moderately heavy russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, uniform; after approximately 2 months of storage at 48°F = light, uniform; 44°F = light, non-uniform; 40°F = light, non-uniform; reconditioned = light, non-uniform.
AO96164-1	
	**Tubers:** Oblong tubers, moderate russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, uniform; after approximately 2 months of storage at 48°F = light, uniform; 44°F = light, non-uniform; 40°F = light, non-uniform; reconditioned = light, uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
A96104-2				
				
AC96052-1Ru				
				
AO96141-3				
				
AO96160-3				
				
AO96164-1				
				

Tubers	WA Late Harvest Regional Trial Comments
AOA95154-1	
	**Tubers:** Oblong tubers, moderately heavy russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.
AOA95155-7	
	**Tubers:** Oblong tubers, moderate russet, poor skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = light, uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.
AOTX95265-2ARu	
	**Tubers:** Oblong to long tubers, heavy russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = relatively dark, uniform; 40°F = unacceptably dark, non-uniform; reconditioned = relatively dark, non-uniform.
AOTX95265-4Ru	
	**Tubers:** Oblong to long tubers, heavy russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40°F = unacceptably dark, uniform; reconditioned = relatively dark, non-uniform.
CO94035-15Ru	
	**Tubers:** Oblong tubers, moderate russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
AOA95154-1				
				
AOA95155-7				
				
AOTX95265-2ARu				
				
AOTX95265-4Ru				
				
CO94035-15Ru				
				

Tubers	WA Late Harvest Regional Trial Comments
CO95172-3Ru	
	**Tubers:** Oblong tubers, moderate russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, uniform.
CO97137-1W	
	**Tubers:** Long tubers, no russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, uniform.
MWTX2609-2Ru	
	**Tubers:** Oblong tubers, light russet, fair skin set; shallow eyes. **Fry Color:** at harvest = light, uniform.
MWTX2609-4Ru	
	**Tubers:** Oblong to long tubers, light russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = relatively dark, uniform; 44°F = relatively dark, non-uniform; 40°F = unacceptably dark, non-uniform; reconditioned = relatively, non-uniform.
TXA549-1Ru	
	**Tubers:** Oblong tubers, moderately heavy russet, good skin set; shallow eyes. **Fry Color:** at harvest = light, non-uniform; after approximately 2 months of storage at 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; reconditioned = light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
CO95172-3Ru				
	Not Stored - Fresh Processing Only			
CO97137-1W				
	Not Stored - Fresh Processing Only			
MWTX2609-2Ru				
	Not Stored - Fresh Processing Only			
MWTX2609-4Ru				
				
TXA549-1Ru				
				

2006 Late Harvest Regional Trial

Accumulated Total Postharvest Rating of Clones

Clone	WA Rating Total §	WA Discard §§	ID Rating Total §	ID Discard §§	OR Rating Total §	OR Discard §§	3 State av. Rating Total
9 AO96160-3	31.4		28.7		36.1		32.1
10 AO96164-1	34.3		30.4		31.0	Sp. Gr.	31.9
3 A95074-6	30.5		28.1		37.0		31.9
7 AC96052-1Ru	32.5		26.5		29.2		29.4
11 AOA95154-1	26.1		35.6		25.9		29.2
12 AOA95155-7	31.0		31.1		19.6	Sp. Gr.	27.2
6 A96104-2	26.3		30.5		24.3		27.0
8 AO96141-3	23.0		29.1		23.1		25.1
15 CO94035-15Ru	25.2		28.0	Sp. Gr.	17.6	Sp. Gr.	23.6
1 Ranger Russet	21.6		28.0		20.9		23.5
17 TXA549-1Ru	22.1		30.3		17.9	Sp. Gr.	23.4
5 A95409-1	22.6		24.1		23.4		23.4
4 A95109-1	23.2		19.7	Sp. Gr.	23.3		22.1
2 Russet Burbank	20.2		16.3		16.1		17.5
16 MWTX2609-4Ru	15.8		20.5		11.2	Sp. Gr.	15.8
13 AOTX95265-2ARu	15.4	Sp. Gr.	17.5		12.0	Sp. Gr.	15.0
14 AOTX95265-4Ru	13.1	Sp. Gr.	14.7	Sp. Gr.	11.3	Sp. Gr.	13.0
Average	24.4		25.8		22.3		

§ maximum rating possible = 38

§§ Values for the indicated evaluation are lower than the rejection level.

Overall Postharvest Performance of Clones Compared to Russet Burbank.

Clone	WA	ID	OR	Average
1 Ranger Russet	**H**	**H**	**H**	**H**
3 A95074-6	**H**	**H**	**H**	**H**
4 A95109-1	**H**	**H**	**H**	**H**
5 A95409-1	**H**	**H**	**H**	**H**
6 A96104-2	**H**	**H**	**H**	**H**
7 AC96052-1Ru	**H**	**H**	**H**	**H**
8 AO96141-3	**H**	**H**	**H**	**H**
9 AO96160-3	**H**	**H**	**H**	**H**
10 AO96164-1	**H**	**H**	**H**	**H**
11 AOA95154-1	**H**	**H**	**H**	**H**
12 AOA95155-7	**H**	**H**	**H**	**H**
13 AOTX95265-2ARu	**L**	**H**	**L**	**L**
14 AOTX95265-4Ru	**L**	**L**	**L**	**L**
15 CO94035-15Ru	**H**	**H**	**H**	**H**
16 MWTX2609-4Ru	**L**	**H**	**L**	**L**
17 TXA549-1Ru	**H**	**H**	**H**	**H**

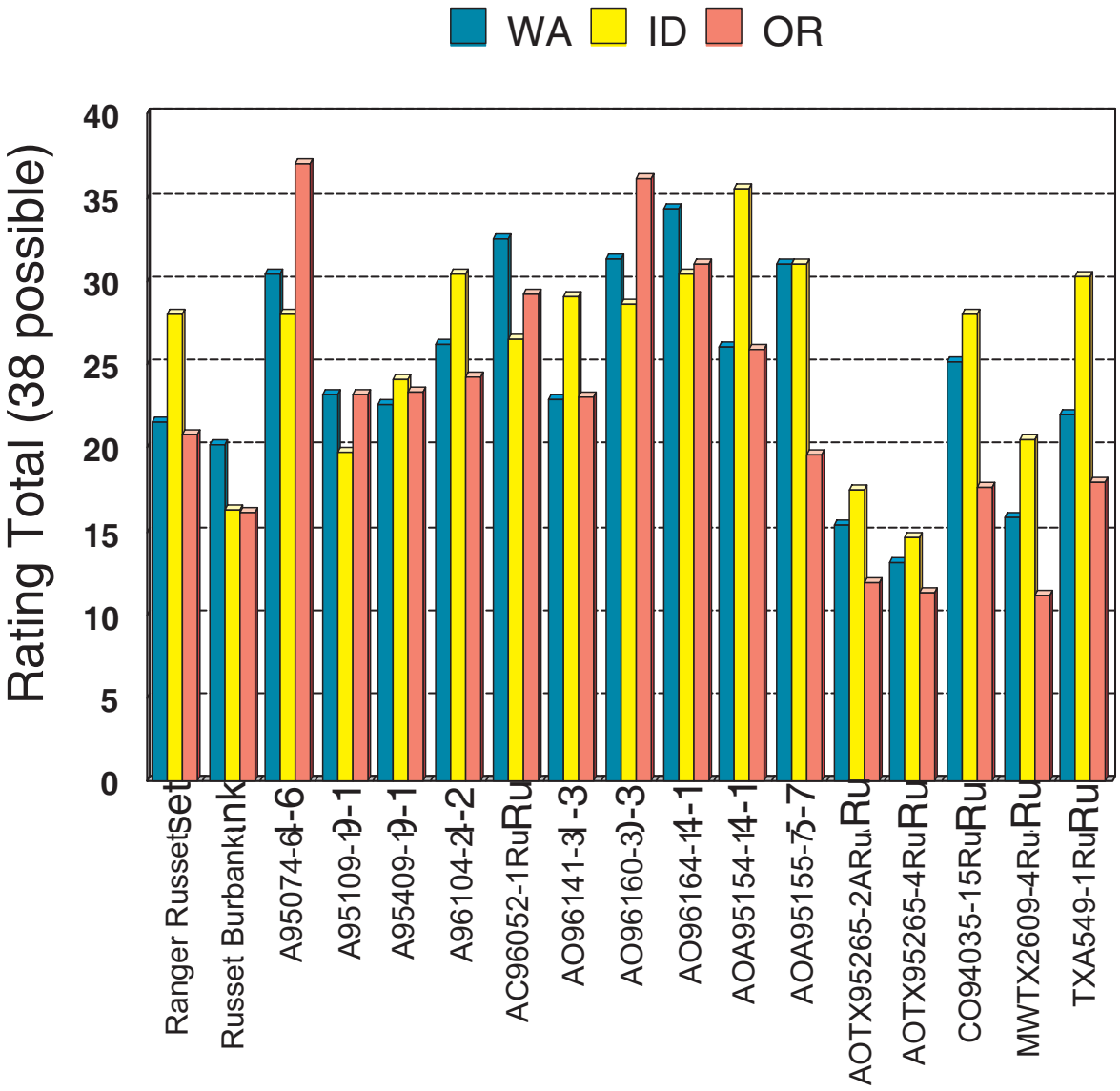
H= Higher than Russet Burbank

L= Lower than Russet Burbank

S = Same as Russet Burbank

2006 Late Harvest Regional Trial

Late Harvest Regional Postharvest Ratings



2006 Late Harvest Regional Trial

Prior to Storage

Clone	PHOTOVOLT READING stem	bud	av	rtg §	DIFF	USDA COLOR	SPECIFIC GRAVITY	rtg
Washington								
1 Ranger Russet	33.2	47.2	40.2	**4-**	14.0	0	1.099	**1**
2 Russet Burbank	28.9	51.1	40.0	**4-**	22.2	1	1.082	**4**
3 A95074-6	44.3	48.2	46.3	**5-**	9.1	0	1.094	**2**
4 A95109-1	32.4	46.5	39.5	**4-**	14.1	0	1.085	**5**
5 A95409-1	37.0	47.5	42.3	**5-**	10.5	0	1.095	**2**
6 A96104-2	41.7	51.1	46.4	**5-**	10.8	0	1.089	**4**
7 AC96052-1Ru	43.7	52.3	48.0	**5+**	8.8	0	1.093	**3**
8 AO96141-3	29.8	51.5	40.6	**5-**	21.7	1	1.089	**4**
9 AO96160-3	45.8	52.2	49.0	**5+**	8.5	0	1.091	**4**
10 AO96164-1	44.5	51.3	47.9	**5+**	7.3	0	1.086	**5**
11 AOA95154-1	38.4	50.2	44.3	**5-**	11.8	0	1.097	**1**
12 AOA95155-7	43.2	47.9	45.6	**5-**	9.9	0	1.087	**5**
13 AOTX95265-2ARu	27.8	42.4	35.1	**3-**	14.6	1	1.069	**0**
14 AOTX95265-4Ru	25.5	39.9	32.7	**3-**	14.4	1	1.070	**0**
15 CO94035-15Ru	40.8	50.9	45.9	**5-**	10.7	0	1.083	**5**
16 MWTX2609-4Ru	28.8	36.5	32.7	**3-**	13.5	1	1.090	**4**
17 TXA549-1Ru	36.8	47.4	42.1	**5-**	10.7	0	1.076	**1**
		LSD 0.05	*3.6*		*5.4*		*0.005*	
Average	36.6	47.9	42.3		12.5	0	1.087	
Idaho								
1 Ranger Russet	33.5	41.0	37.3	**4+**	8.2	0	1.089	**4**
2 Russet Burbank	32.3	37.9	35.1	**3-**	9.0	0	1.078	**2**
3 A95074-6	36.5	37.2	36.8	**4+**	8.4	0	1.079	**2**
4 A95109-1	30.7	39.3	35.0	**3+**	8.5	0	1.073	**0**
5 A95409-1	34.5	34.5	34.5	**3+**	8.1	0	1.083	**5**
6 A96104-2	41.6	48.8	45.2	**5+**	7.7	0	1.076	**1**
7 AC96052-1Ru	38.9	44.2	41.5	**5+**	7.2	0	1.076	**1**
8 AO96141-3	45.3	51.9	48.6	**5+**	7.0	0	1.090	**4**
9 AO96160-3	38.0	36.8	37.4	**4-**	10.2	0	1.083	**5**
10 AO96164-1	35.2	38.5	36.9	**4+**	7.8	0	1.081	**4**
11 AOA95154-1	43.7	39.6	41.6	**5+**	4.2	0	1.083	**5**
12 AOA95155-7	49.7	46.4	48.1	**5+**	4.2	0	1.076	**1**
13 AOTX95265-2ARu	26.3	33.8	30.0	**2+**	7.8	1	1.076	**1**
14 AOTX95265-4Ru	30.5	36.9	33.7	**3+**	7.3	0	1.072	**0**
15 CO94035-15Ru	43.0	39.4	41.2	**5-**	12.0	0	1.074	**0**
16 MWTX2609-4Ru	29.5	28.4	28.9	**2+**	5.3	1	1.085	**5**
17 TXA549-1Ru	36.0	47.8	41.9	**5-**	12.0	0	1.087	**5**
		LSD 0.05	*4.6*		*4.9*		*0.006*	
Average	36.8	40.1	38.5		7.9	0	1.080	
Oregon								
1 Ranger Russet	27.0	37.7	32.4	**3-**	10.8	1	1.086	**5**
2 Russet Burbank	26.5	43.9	35.2	**3-**	17.4	1	1.077	**1**
3 A95074-6	46.0	46.3	46.1	**5+**	3.8	0	1.085	**5**
4 A95109-1	29.9	39.4	34.6	**3-**	9.5	1	1.078	**2**
5 A95409-1	31.9	41.1	36.5	**4-**	9.3	0	1.080	**3**
6 A96104-2	37.4	45.8	41.6	**5-**	9.9	0	1.076	**1**
7 AC96052-1Ru	45.9	51.0	48.5	**5+**	5.8	0	1.078	**2**
8 AO96141-3	50.1	52.6	51.4	**5+**	5.6	0	1.085	**5**
9 AO96160-3	41.4	48.1	44.7	**5+**	7.7	0	1.084	**5**
10 AO96164-1	43.8	49.4	46.6	**5+**	5.8	0	1.075	**0**
11 AOA95154-1	34.2	50.1	42.2	**5-**	16.0	0	1.083	**5**
12 AOA95155-7	25.5	46.7	36.1	**4-**	21.3	1	1.073	**0**
13 AOTX95265-2ARu	24.3	37.1	30.7	**3-**	12.7	2	1.067	**0**
14 AOTX95265-4Ru	25.8	35.0	30.4	**2-**	9.1	1	1.070	**0**
15 CO94035-15Ru	32.3	46.6	39.4	**4-**	14.4	0	1.072	**0**
16 MWTX2609-4Ru	23.1	34.3	28.7	**2-**	11.2	2	1.074	**0**
17 TXA549-1Ru	32.6	41.8	37.2	**4-**	10.9	0	1.071	**0**
		LSD 0.05	*3.3*		*4.5*		*0.006*	
Average	34.0	43.9	39.0		10.6	1	1.077	

Date test performed:

Washington	October 10	October 2
Idaho	October 16	October 10
Oregon	October 18	October 13

§ rtg = rating (1-5, 5 is best); av = average Photovolt reading; Diff = Absolute difference between stem and bud Photovolt reading. Stem to bud differences of nine or greater (-) lose one point and differences of less than nine (+) gain one point in the accumulated total postharvest rating.

2006 Late Harvest Regional Trial

Stored at 48°F

Clone	FRENCH FRY TASTE PANEL rating	BRUISE POTENTIAL (percent) stem	bud	[color 5=darkest] stem	bud	SOFT ROT INDEX (percent) stem	bud
Washington							
1 Ranger Russet	**3.6**	100	63	4.6	2.3	5	7
2 Russet Burbank	**3.2**	58	21	2.4	1.4	7	9
3 A95074-6	**3.5**	29	25	1.6	1.5	6	8
4 A95109-1	**3.2**	79	29	2.8	1.7	6	6
5 A95409-1	**3.6**	83	33	2.9	1.7	5	7
6 A96104-2	**3.3**	83	63	3.3	2.3	5	6
7 AC96052-1Ru	**3.5**	96	25	3.7	1.5	5	9
8 AO96141-3	**3.0**	63	0	2.5	1.0	3	5
9 AO96160-3	**3.4**	67	25	2.3	1.5	3	9
10 AO96164-1	**3.3**	63	13	2.8	1.3	5	6
11 AOA95154-1	**3.1**	75	67	3.0	2.6	5	7
12 AOA95155-7	**3.0**	4	8	1.1	1.3	7	6
13 AOTX95265-2ARu	**2.4**	29	4	1.6	1.1	7	5
14 AOTX95265-4Ru	**2.1**	13	0	1.3	1.0	5	5
15 CO94035-15Ru	**3.2**	42	75	2.0	3.0	7	13
16 MWTX2609-4Ru	**2.8**	100	29	4.2	1.6	6	9
17 TXA549-1Ru	**3.1**	79	63	3.3	2.7	7	7
LSD 0.05	*0.5*	*27*	*27*			*3*	*4*
Average	3.1	62.5	31.9	2.7	1.7	5.6	7.3
Idaho							
1 Ranger Russet	**3.0**	67	17	2.7	1.4	5	5
2 Russet Burbank	**2.3**	8	4	1.2	1.1	10	9
3 A95074-6	**3.1**	50	13	2.0	1.3	10	8
4 A95109-1	**2.7**	67	0	2.4	1.0	7	8
5 A95409-1	**3.1**	17	13	1.3	1.3	6	5
6 A96104-2	**3.5**	17	13	1.3	1.3	8	7
7 AC96052-1Ru	**3.5**	33	13	1.8	1.3	7	7
8 AO96141-3	**4.1**	13	0	1.3	1.0	6	6
9 AO96160-3	**3.7**	29	17	1.6	1.3	5	5
10 AO96164-1	**3.4**	13	4	1.3	1.1	7	6
11 AOA95154-1	**3.6**	8	4	1.2	1.1	7	10
12 AOA95155-7	**3.1**	4	4	1.1	1.1	9	10
13 AOTX95265-2ARu	**2.5**	13	0	1.3	1.0	8	9
14 AOTX95265-4Ru	**2.7**	4	0	1.1	1.0	6	8
15 CO94035-15Ru	**3.0**	13	8	1.3	1.2	7	7
16 MWTX2609-4Ru	**2.5**	8	8	1.2	1.2	6	8
17 TXA549-1Ru	**3.3**	83	54	3.3	2.1	8	8
LSD 0.05	*0.5*	*24*	*18*			*3*	*3*
Average	3.1	26.2	10.0	1.6	1.2	7.2	7.3
Oregon							
1 Ranger Russet	**3.9**	100	25	4.3	1.5	8	9
2 Russet Burbank	**3.1**	63	54	2.8	2.5	6	9
3 A95074-6	**4.0**	42	29	2.0	1.7	8	12
4 A95109-1	**3.3**	54	25	2.4	1.7	4	8
5 A95409-1	**3.4**	67	29	2.8	1.6	5	7
6 A96104-2	**3.3**	54	25	2.4	1.5	5	7
7 AC96052-1Ru	**3.2**	58	29	2.3	1.8	7	7
8 AO96141-3	**4.1**	0	8	1.0	1.2	5	9
9 AO96160-3	**3.1**	50	0	2.3	1.0	4	10
10 AO96164-1	**3.0**	29	4	1.7	1.1	7	7
11 AOA95154-1	**2.9**	25	25	1.5	1.5	6	7
12 AOA95155-7	**3.6**	8	4	1.1	1.2	7	8
13 AOTX95265-2ARu	**2.0**	33	25	2.0	1.6	5	8
14 AOTX95265-4Ru	**2.3**	38	46	2.3	2.2	5	7
15 CO94035-15Ru	**2.6**	58	71	2.4	3.1	8	8
16 MWTX2609-4Ru	**2.2**	83	29	3.6	1.7	5	6
17 TXA549-1Ru	**2.9**	92	75	3.8	3.0	8	8
LSD 0.05	*0.6*	*31*	*27*			*2*	*4*
Average	3.1	50.2	29.7	2.4	2	6.0	7.9

Date test performed:

Washington	November 2	October 20	November 15
Idaho	November 9	October 27	November 22
Oregon	November 16	November 3	November 30

2006 Late Harvest Regional Trial

Stored at 48°F for 54 Days

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg	SPROUTING (%)	length (in)
Washington											
1 Ranger Russet	30.1	43.9	37.0	**4-**	13.8	1	1.4	0.6	**4**	93	1/2"
2 Russet Burbank	23.7	41.3	32.5	**3-**	17.5	2	2.1	0.7	**4**	0	
3 A95074-6	49.6	50.7	50.2	**5+**	2.8	0	0.5	0.5	**5**	0	
4 A95109-1	31.1	43.5	37.3	**4-**	12.4	0	1.3	0.6	**5**	0	
5 A95409-1	32.9	48.0	40.5	**5-**	15.2	0	1.1	0.5	**5**	67	1/2"
6 A96104-2	37.2	48.3	42.8	**5-**	11.1	0	0.9	0.5	**5**	100	1/4"
7 AC96052-1Ru	43.4	51.6	47.5	**5+**	8.6	0	0.6	0.5	**5**	27	1/8"
8 AO96141-3	29.3	47.8	38.6	**4-**	18.5	1	1.5	0.5	**4**	100	3/4"
9 AO96160-3	45.6	51.2	48.4	**5+**	7.8	0	0.6	0.5	**5**	60	1/4"
10 AO96164-1	43.2	50.2	46.7	**5+**	7.3	0	0.6	0.5	**5**	47	1/2"
11 AOA95154-1	41.6	50.6	46.1	**5-**	10.6	0	0.7	0.5	**5**	100	1/4"
12 AOA95155-7	39.9	46.8	43.3	**5-**	7.6	0	0.7	0.5	**5**	93	1/8"
13 AOTX95265-2ARu	22.6	39.2	30.9	**3-**	16.5	2	2.3	0.8	**3**	0	
14 AOTX95265-4Ru	22.5	38.7	30.6	**3-**	16.1	2	2.3	0.8	**3**	20	1/8"
15 CO94035-15Ru	33.7	48.5	41.1	**5-**	14.8	0	1.1	0.5	**5**	60	1/4"
16 MWTX2609-4Ru	20.4	28.9	24.7	**2+**	8.7	2	2.6	1.5	**2**	80	1/2"
17 TXA549-1Ru	32.0	44.6	38.3	**4-**	12.6	0	1.2	0.6	**5**	87	1/8"
		LSD 0.05	*3.7*		*5.2*					*20*	
Average	34.1	45.5	39.8		11.9	1	1.3	0.6		55	
Idaho											
1 Ranger Russet	36.0	44.5	40.3	**4-**	11.0	0	0.9	0.6	**5**	67	1/8"
2 Russet Burbank	26.4	38.9	32.6	**3-**	12.7	1	1.8	0.8	**4**	7	1/8"
3 A95074-6	40.9	38.9	39.9	**4+**	6.8	0	0.7	0.8	**5**	0	
4 A95109-1	27.5	33.7	30.6	**3+**	7.7	1	1.6	1.1	**4**	0	
5 A95409-1	31.9	33.7	32.8	**3+**	8.5	0	1.2	1.1	**4**	0	
6 A96104-2	37.2	40.3	38.8	**4+**	4.3	0	0.9	0.7	**5**	60	1/8"
7 AC96052-1Ru	39.0	43.6	41.3	**5-**	10.0	0	0.8	0.6	**5**	0	
8 AO96141-3	37.2	48.8	43.0	**5-**	11.9	0	0.9	0.5	**5**	47	1/4"
9 AO96160-3	42.2	40.3	41.2	**5+**	5.7	0	0.6	0.7	**5**	0	
10 AO96164-1	36.9	36.9	36.9	**4+**	3.9	0	0.9	0.9	**5**	0	
11 AOA95154-1	45.5	47.2	46.3	**5+**	4.7	0	0.6	0.5	**5**	27	1/8"
12 AOA95155-7	49.0	48.1	48.6	**5+**	3.7	0	0.5	0.5	**5**	13	1/4"
13 AOTX95265-2ARu	27.1	34.0	30.5	**3-**	9.5	1	1.7	1.1	**4**	0	
14 AOTX95265-4Ru	23.8	36.5	30.2	**2-**	12.7	2	2.1	0.9	**3**	0	
15 CO94035-15Ru	43.9	43.3	43.6	**5+**	7.9	0	0.6	0.6	**5**	No Sample	
16 MWTX2609-4Ru	26.0	27.5	26.8	**2+**	6.1	1	1.8	1.6	**3**	0	
17 TXA549-1Ru	36.8	39.9	38.3	**4+**	5.5	0	0.9	0.7	**5**	27	1/8"
		LSD 0.05	*4.2*		*4.8*					*19*	
Average	35.7	39.8	37.7		7.8	0	1.1	0.8		15	
Oregon											
1 Ranger Russet	27.0	37.3	32.1	**3-**	10.3	1	1.7	0.9	**4**	87	3/4"
2 Russet Burbank	24.5	39.6	32.0	**3-**	15.1	1	2.0	0.8	**4**	0	
3 A95074-6	48.8	48.5	48.6	**5+**	3.4	0	0.5	0.5	**5**	0	
4 A95109-1	34.4	37.4	35.9	**4+**	6.1	0	1.0	0.9	**5**	0	
5 A95409-1	35.4	43.6	39.5	**4+**	8.3	0	1.0	0.6	**5**	73	1/8"
6 A96104-2	35.2	43.0	39.1	**4+**	8.0	0	1.0	0.6	**5**	87	1/2"
7 AC96052-1Ru	41.8	51.5	46.6	**5-**	9.7	0	0.7	0.5	**5**	0	
8 AO96141-3	43.6	51.5	47.6	**5-**	9.0	0	0.6	0.5	**5**	87	3/4"
9 AO96160-3	40.0	48.1	44.0	**5+**	8.3	0	0.7	0.5	**5**	80	1/4"
10 AO96164-1	40.4	47.3	43.8	**5+**	8.0	0	0.7	0.5	**5**	87	1/4"
11 AOA95154-1	28.5	48.7	38.6	**4-**	20.2	1	1.5	0.5	**4**	87	1/4"
12 AOA95155-7	27.8	49.2	38.5	**4-**	21.4	1	1.6	0.5	**4**	87	1/4"
13 AOTX95265-2ARu	21.8	35.7	28.7	**2-**	13.9	2	2.4	1.0	**3**	27	1/8"
14 AOTX95265-4Ru	23.2	35.4	29.3	**2-**	12.2	2	2.2	1.0	**3**	27	1/8"
15 CO94035-15Ru	30.1	40.6	35.4	**3-**	11.0	1	1.4	0.7	**4**	73	1/8"
16 MWTX2609-4Ru	22.6	33.4	28.0	**2-**	11.1	2	2.3	1.1	**3**	27	1/8"
17 TXA549-1Ru	26.4	39.0	32.7	**3-**	12.6	1	1.8	0.8	**4**	100	1/4"
		LSD 0.05	*2.7*		*4.7*					*19*	
Average	32.4	42.9	37.7		11.1	1	1.4	0.7		55	

Date test performed:

Washington	December 5	December 5	December 28
Idaho	December 11	December 11	December 28
Oregon	December 17	December 17	December 28

§ rtg = rating (1-5, 5 is best); av = average Photovolt reading; Diff = Absolute difference between stem and bud Photovolt reading. Stem to bud differences of nine or greater (-) lose one point and differences of less than nine (+) gain one point in the accumulated total postharvest rating.

2006 Late Harvest Regional Trial

Stored at 44°F for 54 Days

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg
Washington									
1 Ranger Russet	29.2	45.1	37.1	**4-**	15.9	1	1.5	0.6	**4**
2 Russet Burbank	20.1	38.2	29.2	**2-**	18.1	2	2.7	0.8	**3**
3 A95074-6	37.0	43.1	40.0	**4+**	6.2	0	0.9	0.6	**5**
4 A95109-1	22.1	32.5	27.3	**2-**	10.5	2	2.4	1.2	**3**
5 A95409-1	22.0	36.3	29.1	**2-**	14.4	2	2.4	0.9	**3**
6 A96104-2	26.6	41.5	34.0	**3-**	14.9	1	1.8	0.7	**4**
7 AC96052-1Ru	36.2	48.9	42.5	**5-**	12.7	0	0.9	0.5	**5**
8 AO96141-3	20.9	40.4	30.7	**3-**	19.6	2	2.5	0.7	**3**
9 AO96160-3	27.9	44.6	36.3	**4-**	16.7	1	1.6	0.6	**4**
10 AO96164-1	36.5	46.3	41.4	**5-**	9.8	0	0.9	0.5	**5**
11 AOA95154-1	35.4	47.9	41.6	**5-**	13.1	0	1.0	0.5	**5**
12 AOA95155-7	33.3	39.4	36.3	**4+**	6.5	0	1.1	0.8	**5**
13 AOTX95265-2ARu	21.5	30.0	25.8	**2+**	8.5	2	2.4	1.4	**3**
14 AOTX95265-4Ru	23.2	32.5	27.9	**2-**	9.5	2	2.2	1.2	**3**
15 CO94035-15Ru	21.1	37.7	29.4	**2-**	16.6	2	2.5	0.8	**3**
16 MWTX2609-4Ru	18.7	27.8	23.3	**1-**	9.1	3	2.9	1.6	**2**
17 TXA549-1Ru	25.2	39.2	32.2	**3-**	14.0	1	1.9	0.8	**4**
		LSD 0.05	*3.2*		*4.5*				
Average	26.9	39.5	33.2		12.7	1	1.9	0.8	
Idaho									
1 Ranger Russet	31.6	38.1	34.8	**3+**	7.7	0	1.2	0.8	**4**
2 Russet Burbank	19.7	33.6	26.7	**2-**	14.1	2	2.7	1.1	**3**
3 A95074-6	32.3	30.0	31.2	**3+**	3.2	0	1.2	1.4	**4**
4 A95109-1	26.8	22.3	24.6	**2+**	6.3	1	1.7	2.3	**2**
5 A95409-1	28.6	25.9	27.2	**2-**	9.4	1	1.5	1.8	**3**
6 A96104-2	40.8	35.1	37.9	**4+**	7.0	0	0.7	1.0	**5**
7 AC96052-1Ru	38.8	33.1	36.0	**4-**	9.0	0	0.8	1.1	**4**
8 AO96141-3	42.2	25.8	34.0	**3-**	18.6	1	0.6	1.9	**4**
9 AO96160-3	27.6	28.5	28.0	**2+**	5.0	1	1.6	1.5	**3**
10 AO96164-1	36.5	31.3	33.9	**3+**	7.7	0	0.9	1.3	**4**
11 AOA95154-1	39.9	39.4	39.7	**4+**	6.8	0	0.7	0.8	**5**
12 AOA95155-7	41.2	38.3	39.8	**4+**	5.4	0	0.7	0.8	**5**
13 AOTX95265-2ARu	27.7	21.5	24.6	**2+**	7.9	2	1.6	2.4	**2**
14 AOTX95265-4Ru	33.0	23.1	28.1	**2-**	9.9	2	1.1	2.2	**3**
15 CO94035-15Ru	39.0	35.1	37.0	**4+**	7.5	0	0.8	1.0	**5**
16 MWTX2609-4Ru	21.9	21.4	21.7	**1+**	4.8	2	2.4	2.5	**2**
17 TXA549-1Ru	44.0	30.9	37.5	**4-**	13.0	0	0.6	1.3	**5**
		LSD 0.05	*3.9*		*4.4*				
Average	33.6	30.2	31.9		8.4	1	1.2	1.5	
Oregon									
1 Ranger Russet	20.5	35.5	28.0	**2-**	15.0	2	2.6	1.0	**3**
2 Russet Burbank	19.5	35.8	27.6	**2-**	16.3	2	2.8	0.9	**3**
3 A95074-6	43.7	46.1	44.9	**5+**	3.8	0	0.6	0.5	**5**
4 A95109-1	24.1	29.4	26.7	**2+**	5.6	2	2.1	1.4	**3**
5 A95409-1	24.7	35.5	30.1	**2-**	12.8	1	2.0	1.0	**3**
6 A96104-2	26.7	37.5	32.1	**3-**	10.8	1	1.7	0.9	**4**
7 AC96052-1Ru	38.7	51.2	45.0	**5-**	12.5	0	0.8	0.5	**5**
8 AO96141-3	37.2	46.1	41.6	**5-**	9.0	0	0.9	0.5	**5**
9 AO96160-3	37.6	44.9	41.3	**5+**	7.5	0	0.8	0.6	**5**
10 AO96164-1	37.8	44.3	41.0	**5+**	7.1	0	0.8	0.6	**5**
11 AOA95154-1	28.0	47.4	37.7	**4-**	19.5	1	1.6	0.5	**4**
12 AOA95155-7	24.7	44.2	34.4	**3-**	19.5	1	2.0	0.6	**4**
13 AOTX95265-2ARu	20.8	30.6	25.7	**2-**	9.8	2	2.5	1.3	**3**
14 AOTX95265-4Ru	20.3	31.4	25.9	**2-**	11.2	2	2.6	1.3	**3**
15 CO94035-15Ru	25.1	36.6	30.9	**3-**	11.6	1	1.9	0.9	**4**
16 MWTX2609-4Ru	20.3	28.3	24.3	**1+**	8.3	2	2.6	1.6	**2**
17 TXA549-1Ru	27.1	39.5	33.3	**3-**	12.4	1	1.7	0.8	**4**
		LSD 0.05	*3.0*		*4.3*				
Average	28.0	39.1	33.6		11.3	1	1.8	0.9	

Date test performed:

Washington	December 6
Idaho	December 12
Oregon	December 18

§ rtg = rating (1-5, 5 is best); av = average Photovolt reading; Diff = Absolute difference between stem and bud Photovolt reading. Stem to bud differences of nine or greater (-) lose one point and differences of less than nine (+) gain one point in the accumulated total postharvest rating.

2006 Late Harvest Regional Trial

Stored at 40°F for 54 Days and Reconditioned

		PHOTOVOLT (54 Days at 40°F)					PHOTOVOLT AFTER RECONDITIONING (21 days at 60°F)				
Clone	SPROUTING (%)	stem	bud	average	DIFF	USDA COLOR	stem	bud	average	DIFF	USDA COLOR
Washington											
1 Ranger Russet	0	20.0	38.7	29.3	18.7	2	25.7	43.6	34.6	17.9	1
2 Russet Burbank	0	16.4	31.7	24.0	16.1	3	22.8	43.1	32.9	20.2	2
3 A95074-6	0	29.9	40.3	35.1	10.4	1	39.9	45.9	42.9	8.1	0
4 A95109-1	0	22.0	28.8	25.4	7.4	2	23.6	32.7	28.2	9.1	2
5 A95409-1	0	21.5	33.4	27.4	11.8	2	26.1	42.0	34.0	16.0	1
6 A96104-2	0	19.7	35.9	27.8	16.2	2	27.7	43.6	35.6	15.9	1
7 AC96052-1Ru	0	29.5	44.3	36.9	14.8	1	43.3	49.9	46.6	7.0	0
8 AO96141-3	0	19.5	37.5	28.5	18.3	2	21.8	39.3	30.5	17.5	2
9 AO96160-3	0	30.9	42.0	36.4	11.1	0	37.7	48.7	43.2	13.4	0
10 AO96164-1	0	35.3	46.5	40.9	11.3	0	44.7	51.7	48.2	7.1	0
11 AOA95154-1	0	28.8	44.0	36.4	15.7	1	41.9	55.4	48.6	13.4	0
12 AOA95155-7	0	25.5	36.1	30.8	10.6	1	34.9	42.1	38.5	9.1	0
13 AOTX95265-2ARu	0	13.9	23.3	18.6	9.4	4	22.9	32.3	27.6	10.0	2
14 AOTX95265-4Ru	0	16.9	22.6	19.8	5.8	3	24.1	34.0	29.0	9.9	2
15 CO94035-15Ru	0	21.1	32.6	26.9	11.5	2	26.2	39.0	32.6	12.9	1
16 MWTX2609-4Ru	0	17.9	23.0	20.4	6.8	3	21.2	32.6	26.9	11.4	2
17 TXA549-1Ru	0	23.1	34.8	28.9	11.7	2	28.4	43.9	36.1	15.6	1
LSD 0.05	*ns*			*3.4*	*4.8*				*3.9*	*5.1*	
Average	0	23.0	35.0	29.0	12.2	2	30.2	42.3	36.2	12.6	1
Idaho											
1 Ranger Russet	0	26.9	39.4	33.2	13.1	1	41.8	43.5	42.6	11.3	0
2 Russet Burbank	0	26.1	24.9	25.5	12.9	1	28.4	40.6	34.5	13.8	1
3 A95074-6	0	27.8	26.8	27.3	5.1	1	26.2	33.5	29.9	9.1	1
4 A95109-1	0	29.8	20.6	25.2	10.6	2	19.2	29.1	24.2	10.0	3
5 A95409-1	0	25.2	23.8	24.5	6.6	2	33.3	29.2	31.2	7.0	1
6 A96104-2	0	35.7	28.9	32.3	6.8	1	36.2	43.8	40.0	11.9	0
7 AC96052-1Ru	0	37.6	22.6	30.1	15.0	2	37.9	44.5	41.2	7.3	0
8 AO96141-3	0	39.9	25.2	32.5	16.1	1	32.0	35.1	33.5	11.3	0
9 AO96160-3	0	34.2	32.6	33.4	2.6	0	29.3	28.7	29.0	8.3	1
10 AO96164-1	0	39.6	32.1	35.9	9.5	0	38.5	44.2	41.4	6.6	0
11 AOA95154-1	0	41.5	39.0	40.2	5.3	0	42.2	45.8	44.0	6.4	0
12 AOA95155-7	0	37.2	33.8	35.5	5.9	0	41.0	41.1	41.0	6.5	0
13 AOTX95265-2ARu	0	25.0	17.2	21.1	8.8	3	32.7	38.0	35.3	10.6	0
14 AOTX95265-4Ru	0	34.5	22.9	28.7	11.6	2	31.6	39.2	35.4	9.6	0
15 CO94035-15Ru	0	34.0	33.6	33.8	4.1	0	34.8	37.5	36.2	9.9	0
16 MWTX2609-4Ru	0	25.4	18.1	21.8	8.0	3	21.3	26.5	23.9	6.0	2
17 TXA549-1Ru	0	43.4	30.8	37.1	14.0	0	34.7	44.6	39.6	9.9	0
LSD 0.05	*ns*			*4.1*	*4.6*				*4.4*	*4.9*	
Average	0	33.2	27.8	30.5	9.2	1	33.0	37.9	35.5	9.1	1
Oregon											
1 Ranger Russet	0	22.8	36.7	29.8	13.9	2	25.4	41.3	33.4	18.4	1
2 Russet Burbank	0	19.4	31.6	25.5	12.2	3	17.3	34.3	25.8	17.0	3
3 A95074-6	0	29.4	33.7	31.5	6.7	1	32.1	45.8	38.9	13.9	0
4 A95109-1	0	17.5	21.1	19.3	4.9	3	17.4	25.1	21.2	8.1	3
5 A95409-1	0	20.4	27.0	23.7	7.3	2	18.9	34.6	26.8	15.8	3
6 A96104-2	0	18.2	26.3	22.3	8.1	3	25.9	37.6	31.8	11.7	1
7 AC96052-1Ru	0	25.0	37.7	31.3	12.7	1	33.2	49.4	41.3	16.2	0
8 AO96141-3	0	29.8	37.8	33.8	11.2	1	32.7	38.1	35.4	7.3	0
9 AO96160-3	0	26.7	36.1	31.4	9.8	1	32.9	45.4	39.1	12.6	0
10 AO96164-1	0	30.3	42.5	36.4	12.1	1	34.2	46.1	40.2	13.4	0
11 AOA95154-1	0	25.7	44.7	35.2	18.9	1	31.9	49.4	40.6	17.4	0
12 AOA95155-7	0	21.1	39.8	30.5	18.8	2	23.5	46.6	35.0	23.1	2
13 AOTX95265-2ARu	0	16.5	23.9	20.2	7.9	3	21.0	31.3	26.2	10.8	2
14 AOTX95265-4Ru	0	18.2	23.4	20.8	6.1	3	20.8	40.2	30.5	19.5	2
15 CO94035-15Ru	0	21.1	25.3	23.2	4.9	2	20.4	27.7	24.1	7.4	2
16 MWTX2609-4Ru	0	16.8	20.7	18.7	6.0	3	15.9	22.4	19.2	6.5	3
17 TXA549-1Ru	0	24.0	29.7	26.8	10.4	2	24.7	40.0	32.3	15.3	1
LSD 0.05	*ns*			*2.9*	*4.3*				*3.4*	*5.2*	
Average	0	22.5	31.6	27.1	10.1	2	25.2	38.6	31.9	13.8	1

Date test performed:

Washington	December 27	December 7	December 20
Idaho	December 27	December 13	December 21
Oregon	December 27	December 19	December 22

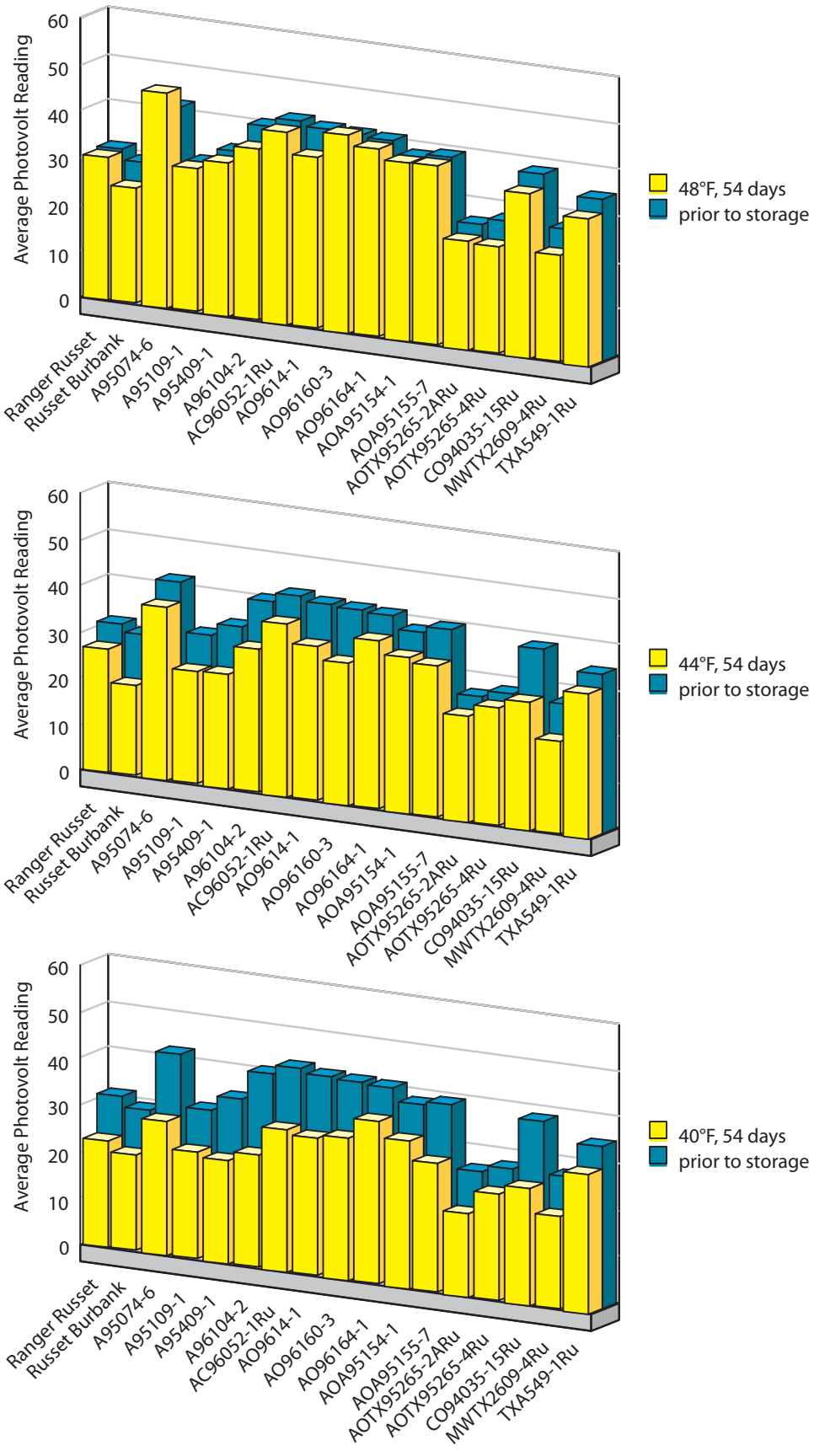
DIFF=Absolute difference between bud and stem photovolt reading.

Rick Knowles examines a plot located on the Othello Research Center.

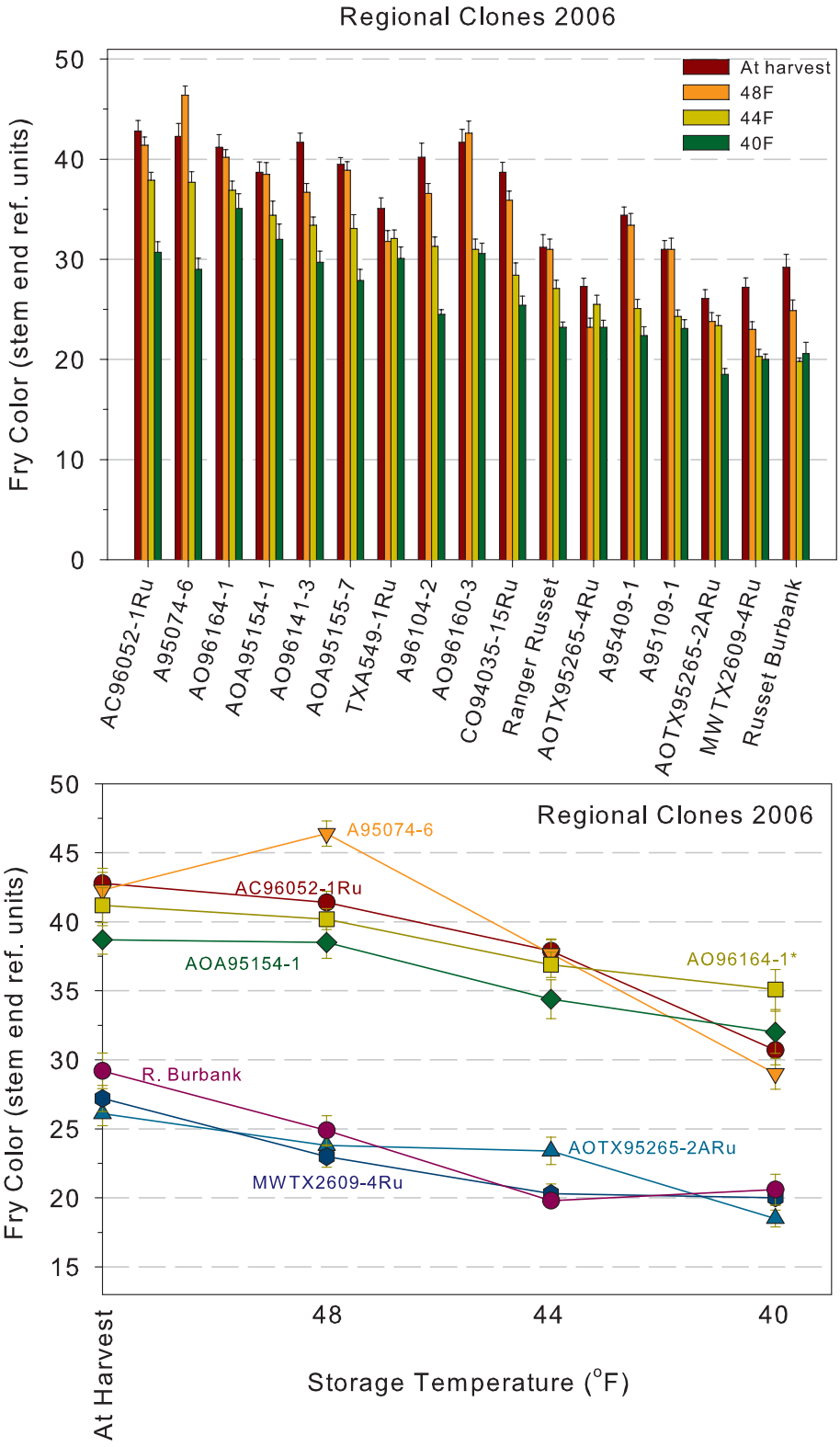
Raul Garza, who recently retired from Washingtion State University, awaits instruction during planting.

2006 Late Harvest Regional Trial

Regional Trial - 3 State Average of Stem End



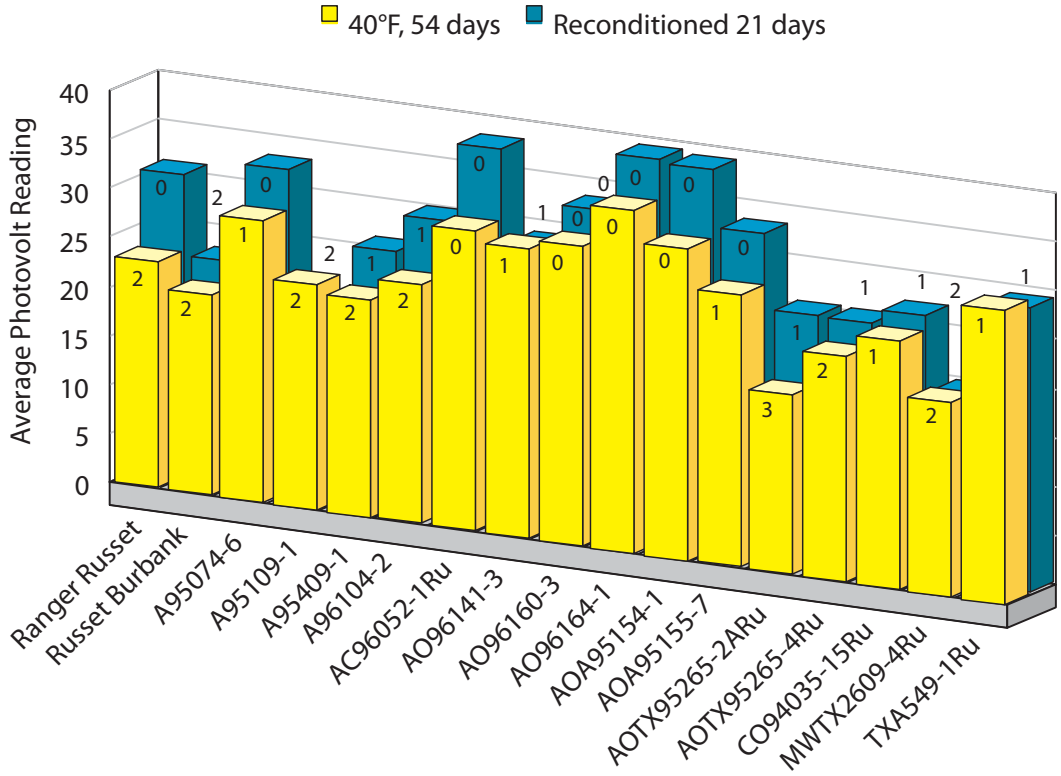
2006 Late Harvest Regional Trial

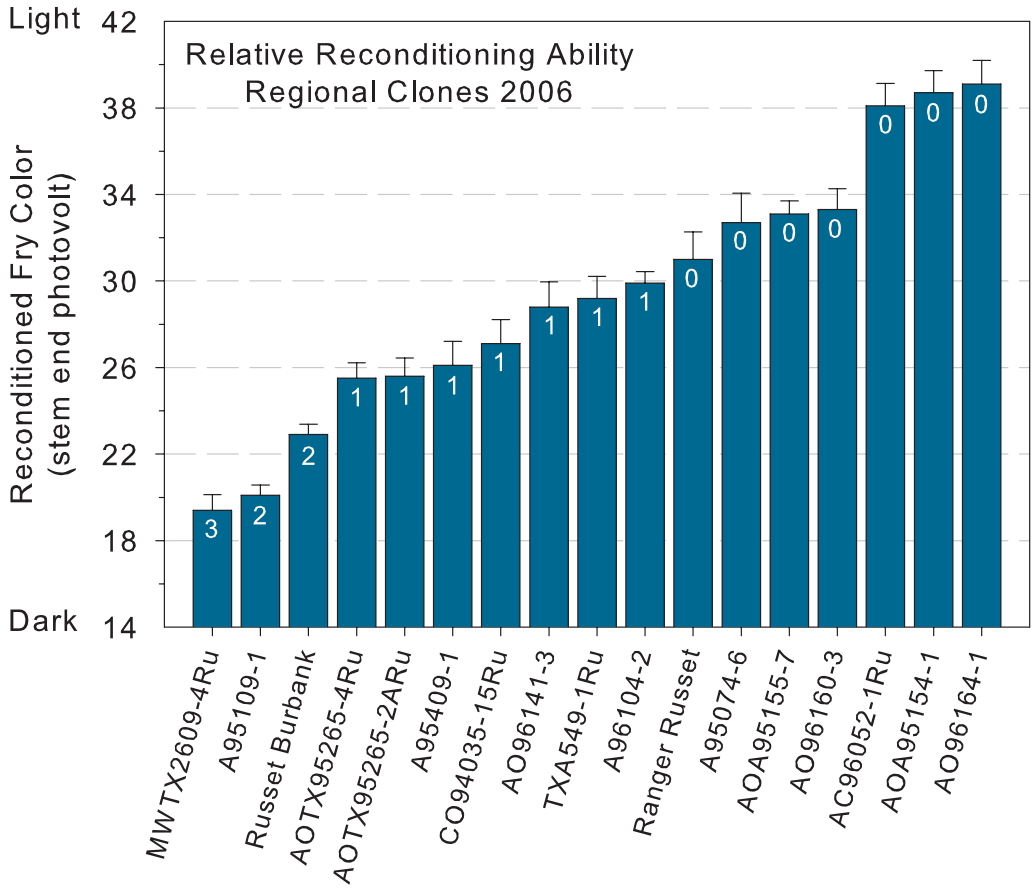


Top: At-harvest and after-storage French fry colors (stem end) of clones in the Regional Trial. Tubers were stored for 54 days at 48, 44 and 40°F. The clones are ranked from best to worst based on fry color of the 44°F-stored tubers. High reflectance values indicate light colored fries.

Bottom: Line graph depicting the effects of storage temperature on the change in French fry processing quality (stem end fry color) of the best (A95074-6, AC96052-1Ru, AO96164-1, AOA95154-1) and worst (AOTX95265-2ARu, MWTX2609-4Ru, Russet Burbank) performing clones in the Regional Trial. *Indicates similar performance of the clones last year.

2006 Late Harvest Regional Trial





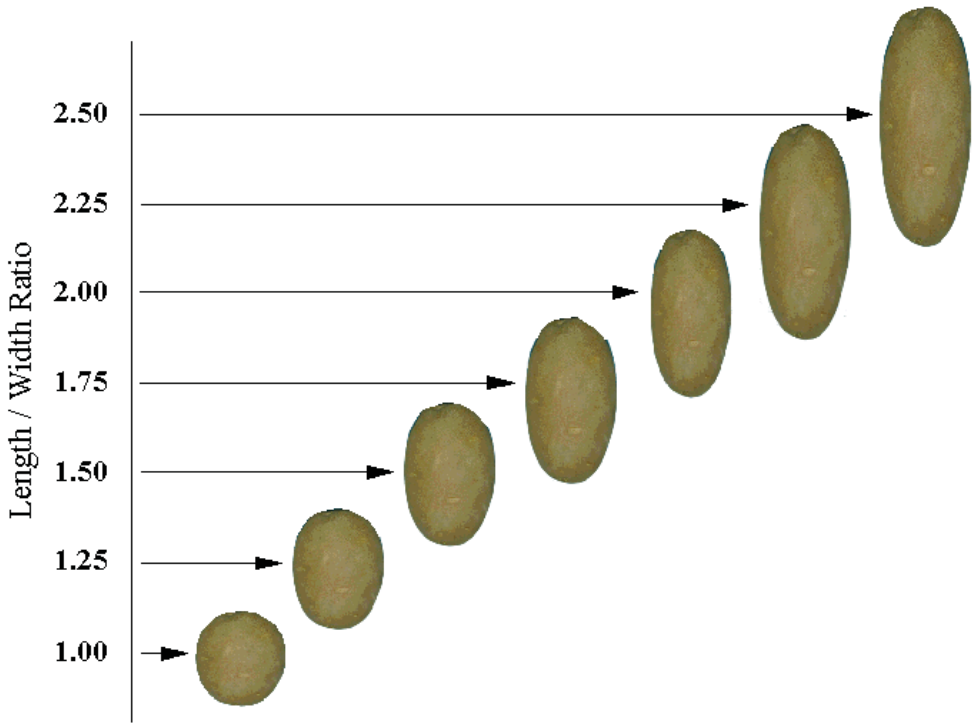
Reconditioning abilities of clones in the 2006 Regional Trial (3-state averages). Clones were stored at 40°F for 54 days after harvest and then reconditioned at 60°F for 21 days. Color of the stem ends of French fries was measured with a Photovolt reflectance meter. Numbers in bars indicate the USDA color rating of the stem end.

2006 Late Harvest Regional Trial

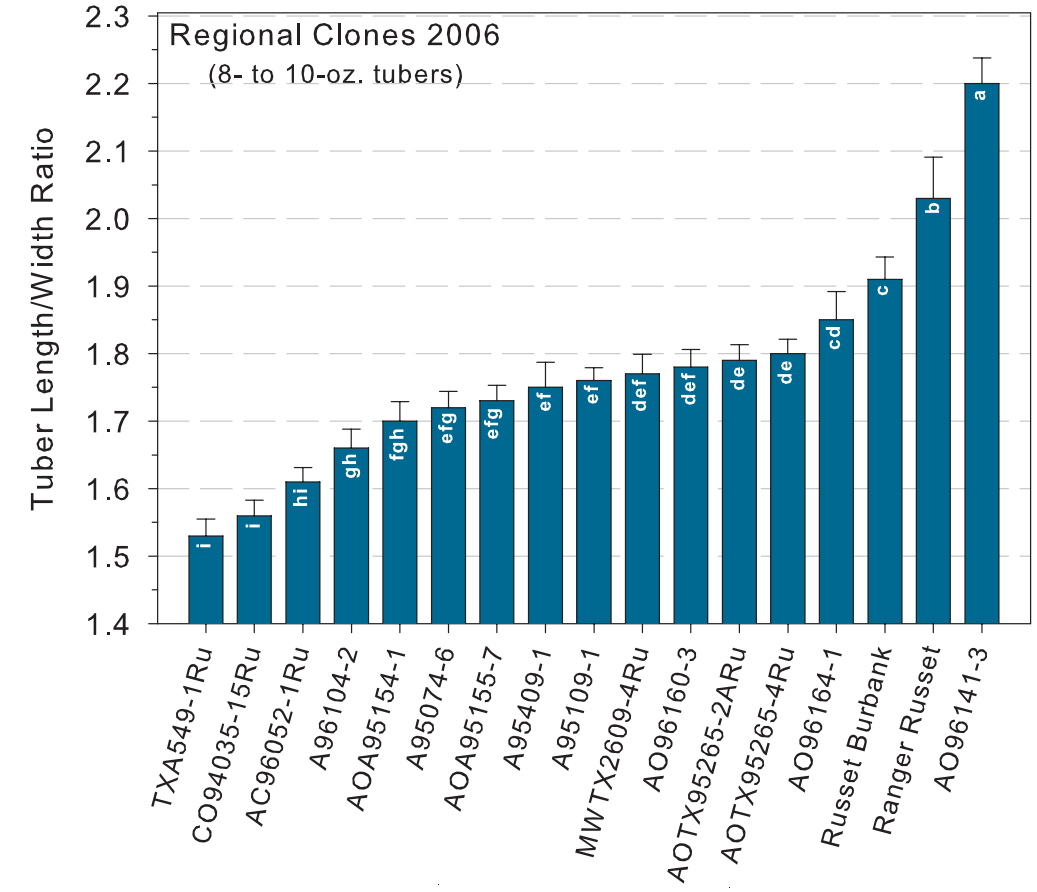
Tuber Shape and Associated French Fry Yields

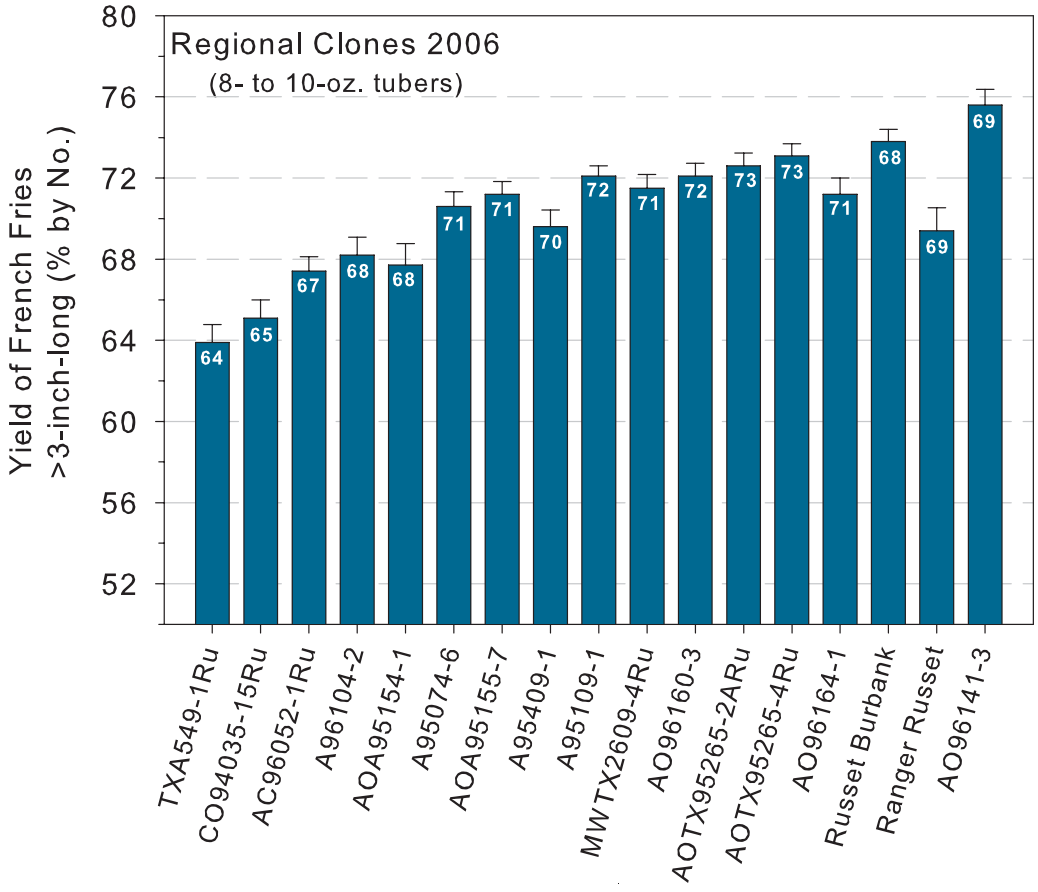
(8- to 10-oz Tubers)

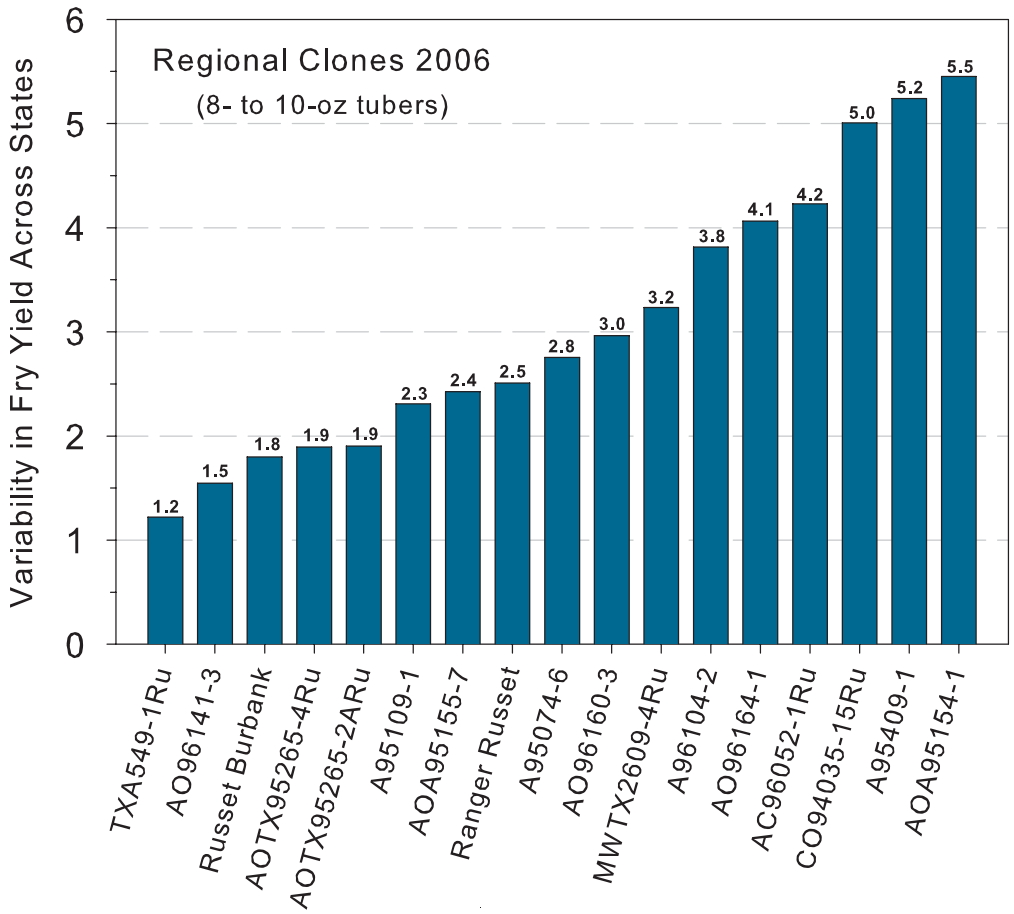
Clone	Length to width ratio			Yield of 3" or longer fries (% by number)		
	WA	ID	OR	WA	ID	OR
1 Ranger Russet	1.77	2.63	1.73	71	66	71
2 Russet Burbank	1.93	2.03	1.77	75	75	71
3 A95074-6	1.78	1.79	1.59	73	72	67
4 A95109-1	1.69	1.89	1.69	71	75	70
5 A95409-1	1.65	2.09	1.49	69	76	63
6 A96104-2	1.55	1.83	1.58	65	74	66
7 AC96052-1Ru	1.56	1.79	1.48	66	73	63
8 AO96141-3	2.38	2.20	2.00	73	77	76
9 AO96160-3	1.67	1.98	1.69	70	76	70
10 AO96164-1	1.69	2.26	1.61	70	77	67
11 AOA95154-1	1.47	1.81	1.66	60	73	70
12 AOA95155-7	1.63	1.86	1.71	68	74	71
13 AOTX95265-2ARu	1.79	1.89	1.69	73	74	70
14 AOTX95265-4Ru	1.73	1.92	1.76	72	76	72
15 CO94035-15Ru	1.59	1.69	1.38	67	70	58
16 MWTX2609-4Ru	1.66	1.98	1.67	69	76	69
17 TXA549-1Ru	1.59	1.49	1.50	65	62	64
Average	1.71	1.95	1.65	69	73	68



2006 Late Harvest Regional Trial







Relative ranking of clones in the Late Season Regional Trial for variability in yield of French fries from 8- to 10-oz tubers. Variability is expressed as the standard deviation (calculated across ID, WA and OR production sites) for the yield of fries ≥3 inches in length (% by number) from 8- to 10-oz tubers. High values reflect more variation in tuber shape and thus fry yield from state to state. For example, AOA95154-1 had a length to width ratio of 1.7 (see previous page), resulting in 68% of the tuber yielding French fries that were ≥3 inches in length. However, tuber shape varied across production regions (above), resulting in fry yields ranging from 62.5% to 73.5% (68 ±5.5%). Tuber length to width ratios and the associated percentage yield of fries are shown on the previous page. Bars with same letter are not significantly different (P≤0.01).

Late Harvest Fresh-Processing Postharvest Evaluation of Entries From Regional Trial

Three entries in the late-season trial were designated as 'fresh processing' and thus were french fried as soon as possible following harvest. The numbered clones and the Russet Norkotah checks produced fries with a USDA color rating of zero, indicating excellent processing quality from both production sites.

	Clone	PHOTOVOLT Stem	Bud	Average	DIFFERENCE STEM - BUD	USDA COLOR
	Washington					
1	Russet Norkotah	45.2	48.3	46.8	4.8	0
2	CORN-3	47.5	51.3	49.4	6.2	0
3	CO95172-3Ru	52.2	47.7	50.0	6.5	0
4	CO97137-1W	48.2	48.9	48.5	3.8	0
5	MWTX2609-2Ru	49.6	45.7	47.6	6.5	0
			LSD 0.05	*1.9*	*ns*	
	Average	48.6	48.4	48.5	5.6	0
	Oregon					
1	CO95172-3Ru	43.7	44.1	43.9	5.7	0
2	CO97137-1W	47.4	46.5	47.0	3.8	0
3	MWTX2609-2Ru	37.7	40.8	39.2	5.8	0
			LSD 0.05	*3.1*	*ns*	
	Average	42.9	43.8	43.4	5.1	0

* Average of 12 individual tuber absolute differences

	Washington	Oregon
Harvest date:	September 25	October 2
Fried on:	September 27	October 9

Lisa Knowles holds a poster during the Potato Field Day at the Othello Research Station (June 2005).

Entries Retained from the 2005 Trials Currently in the Regional Trial

Harvested fall of 2005 Held at 48° F until December 18 Stored at 44° F until analysis

AO96141-3 was advanced from the 2005 Tri-State Trial. After 7 months of storage, AO96141-3, AO96160-3 & AOA95154-1 produced light fries with a USDA "0" rating. A95409-1 had the darkest stem end fry color, averaging USDA "3" across states. Russet Burbank produced the shortest sprouts. A95409-1 & TXA549-1Ru produced the longest sprouts, considerably longer than either check (Ranger or Russet Burbank).

	PHOTOVOLT READING				USDA	% REDUCING SUGAR			Sprouting	
Clone	stem	bud	avg	DIFF	COLOR	stem	bud	avg	percent	length
Washington										
1 Ranger Russet	19.4	29.1	24.2	10.5	3	2.8	1.5	2.1	100	2"
2 Russet Burbank	26.2	38.9	32.5	13.4	1	1.8	0.8	1.3	100	1/4"
3 A95109-1	23.2	26.4	24.8	5.0	2	2.2	1.8	2.0	100	2"
4 A95409-1	13.2	22.7	17.9	9.5	4	4.1	2.3	3.2	100	3 1/2"
5 A96104-2	23.1	35.2	29.2	12.1	2	2.2	1.0	1.6	100	2"
6 AO96141-3 §	34.1	44.7	39.4	10.7	0	1.1	0.6	0.8	100	2 1/2"
7 AO96160-3	31.7	43.6	37.7	11.9	0	1.2	0.6	0.9	100	2"
8 AOA95154-1	34.1	50.4	42.2	16.3	0	1.1	0.5	0.8	100	1"
9 AOA95155-7	36.2	46.1	41.2	10.1	0	0.9	0.5	0.7	100	2"
10 CO94035-15Ru	25.8	27.5	26.7	3.5	1	1.8	1.6	1.7	100	1 1/2"
11 TXA549-1Ru	24.5	37.7	31.1	13.2	1	2.0	0.8	1.4	100	2 1/2"
		LSD 0.05	*3.4*	*4.8*						
Average	24.4	34.4	29.4	10.4	2	1.8	1.0	1.7	100	
Idaho										
1 Ranger Russet	31.2	41.4	36.3	10.6	0	1.3	0.7	1.0	100	1 1/2"
2 Russet Burbank	35.2	41.4	38.3	8.3	0	1.0	0.7	0.8	100	1/4"
3 A95109-1	30.0	36.9	33.4	9.1	0	1.4	0.9	1.1	100	1"
4 A95409-1	27.2	37.6	32.4	10.9	1	1.7	0.8	1.3	100	1 1/2"
5 A96104-2	36.7	42.9	39.8	6.9	0	0.9	0.6	0.8	100	1 1/2"
6 AO96141-3 §	39.8	48.6	44.2	8.8	0	0.7	0.5	0.6	100	3"
7 AO96160-3	48.1	50.3	49.2	4.0	0	0.5	0.5	0.5	100	2 1/2"
8 AOA95154-1	33.0	38.2	35.6	7.4	0	1.1	0.8	1.0	100	1 1/2"
9 AOA95155-7	47.6	50.3	49.0	3.8	0	0.5	0.5	0.5	100	1"
10 CO94035-15Ru	40.8	36.3	38.5	5.2	0	0.7	0.9	0.8	100	1 1/2"
11 TXA549-1Ru	45.5	45.2	45.3	4.0	0	0.6	0.6	0.6	100	3"
		LSD 0.05	*3.9*	*4.1*						
Average	35.4	42.7	39.1	8.4	0	1.1	0.7	0.9	100	
Oregon										
1 Ranger Russet	26.6	40.8	33.7	14.2	1	1.8	0.7	1.2	100	2"
2 Russet Burbank	27.1	42.3	34.7	15.2	1	1.7	0.6	1.2	100	1/4"
3 A95109-1	30.9	38.0	34.5	7.4	0	1.3	0.8	1.1	100	1"
4 A95409-1	19.1	37.2	28.2	18.2	3	2.8	0.9	1.8	100	2"
5 A96104-2	34.3	44.6	39.4	10.4	0	1.0	0.6	0.8	100	2 1/2"
6 AO96141-3 §	45.7	48.0	46.9	5.0	0	0.6	0.5	0.5	100	4"
7 AO96160-3	41.3	51.4	46.3	10.1	0	0.7	0.5	0.6	100	2 1/2"
8 AOA95154-1	36.9	49.1	43.0	13.3	0	0.9	0.5	0.7	100	1"
9 AOA95155-7	26.2	43.6	34.9	17.4	1	1.8	0.6	1.2	100	1 1/2"
10 CO94035-15Ru	20.2	31.2	25.7	11.0	2	2.6	1.3	2.0	100	1 1/2"
11 TXA549-1Ru	36.4	40.7	38.6	7.7	0	0.9	0.7	0.8	100	2"
		LSD 0.05	*2.9*	*4.7*						
Average	32.1	43.2	37.7	11.5	1	1.4	0.7	1.0	100	

§ Advanced from 2005 Tri-State Trial

Date test performed:

Washington May 1
Idaho May 3
Oregon May 4

2006 Red and Specialty Trial

Location: Commercial field near Mt. Vernon, WA
Planting Date: April 24 Vine Kill Date: August 2
Harvest Date: August 22 Days Grown: 101
Fertility: 53-156-246

The Regional Red and Specialty trial is a part of the overall western regional trial effort. This trial consists of clones with unique color and attributes which are primarily evaluated for fresh market suitability. This year's trial compared 4 local reference varieties to 12 new clones and was grown in a commercial field near Mt. Vernon, WA. Many entries had extremely small tubers due to a cold spring, narrow in-row spacing, and early vine kill. Overall, there was very little skin bronzing on the tubers. The following is a summary of the Washington field and postharvest results.

Visual Standouts (nice color, skin, size distribution, & shape):

Reds: CO97226-2R/R: nice uniform shape and size, but some tuber bronzing; PORO1PG20-12: Nice color, but irregular shape ; POR01PG22-1: (fingerling).
Red/Yellow flesh: CO97233-3R/Y: nice color and shape, wide range of tubers sizes.

Standcounts

- **40 Day**
  Fast emergence: Most entries were > 95% emerged at 40 DAP.
  Slow emergence: CO97233-3R/Y (92%).

- **50 Day**
  Full emergence: Most entries were > 97% emerged at 50DAP.
  Poor emergence: CO97232-2R/Y (95%).

Plant and Tuber Growth & Development

- **Above Ground Stem Number Per Plant**
  Most: PORO1PG16-1 (4.6) and CO97226-2R/R (4.0).
  Fewest: A96510-4Y (1.7), Yukon Gold (1.9), and POR01PG20-12 (2.0); all other entries averaged over 2.4 stems or greater.

- **Average Tuber Number Per Plant**
  Most: PA99P11-2 and CO97226-2R/R (11.1), All Blue (10.5), VC1009-1W/Y (10.4).
  Fewest: A96510-4Y (5.0), Yukon Gold (5.7), and PORO1PG16-1 (6.2).

- **Average Tuber Size (oz)**
  Largest: A96510-4Y (6.8), Yukon Gold (6.6), and Red LaSoda (5.8).
  Smallest: PORO1PG22-1 (2.0), three other entries had (2.5); PA99P11-2, PORO1PG16-1, CO97226-2R/R.

Yield Data

- **Total Yield and U.S. #1 Yield**
  Highest: VC1009-1W/Y was highest with 457 CWT/A total and 448 CWT/A US#1 yield.
  Lowest: PORO1PG16-1 had the lowest total (184 CWT/A) and US#1 yield (180 CWT/A).

- **% U.S. #1's.**
  Highest: CO97226-2R/R, All Blue, and VC1123-2W/Y all were 100%.
  Lowest: PORO1PG22-1 (92%); all other entries were 95% or greater.

Tuber Defects (all defects on a 40 tuber sample of < 10 oz.)

- **External Defects**
  Knobs: All entries had less than (1%) knobs.
  Notable Defects: POR01PG22-1 had the highest percent of malformed tubers (8%). PA99P11-2 had the most green tubers (4%), while CO97233-3R/Y had (3%).

- **Internal Defects**
  Red LaSoda was the only entry that had hollow heart (8%).
  Notable Defects: Brown Center: Red LaSoda (25%), Dark Red Norland (15%), and POR01PG16-1 (5%).

- **Bruise**
  Highest Blackspot: CO97232-2R/Y (17%), CO97233-3R/Y and Dark Red Norland each had 13%. Eight entries had no blackspot.
  Highest Shatter: Red LaSoda (42%), CO97232-1R/Y (33%), A96510-4Y (29%), and AC97521-1R/Y (26%).

Postharvest Analysis

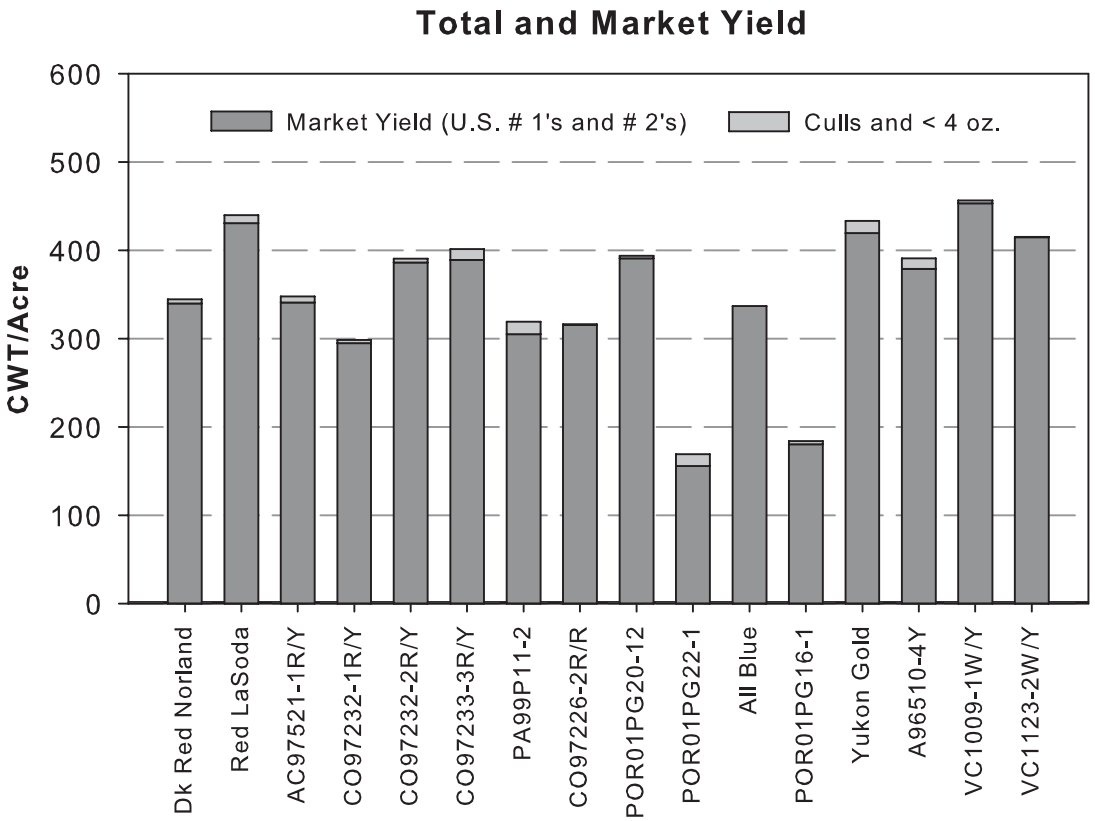
- AC97521-1R/Y and Yukon Gold were the highest scoring clones in this year's cooking-and-culinary-evaluation trials, accumulating 62.0 and 61.6 out of 75 total points, respectively. POR00PG20-12 and VC1123-2W/Y ranked second, with average scores of 60. The two lowest scoring entries were POR01PG16-1 (51.1) with purple flesh and POR01PG22-1 (52) with pink flesh.

- When boiled, PA99P11-2, a first year entry, was the only clone to slough severely. All entries showed slight after-cooking-darkening, with PA99P11-2 showing the most. The texture of the boiled samples of all entries except VC1009-1W/Y was favorably rated as "creamy" or 'fluffy'. VC1009-1W/Y received an unfavorable texture rating of "pasty". The flavor of all entries was rated as either "good" or "bland", and all tuber centers were either "fully cooked" or "mushy".

- Baked samples of all entries showed slight after-cooking-darkening. The texture of baked samples of POR01PG22-1 was unfavorably rated as "pasty"; all others were favorably rated as "creamy" or 'fluffy'. The flavor of POR01PG16-1 was "unacceptable" compared with "good" or "bland" ratings for the other clones. Tuber centers were either "mushy" or "fully cooked". The skins of POR01PG16-1 and POR01PG22-1 were rated as slightly "burnt" and "crispy", respectively. Skins of the other clones were favorably rated as "steamy" or "fully cooked".

- Microwaving produced moderate after-cooking-darkening in POR01PG16-1. The other entries were rated as having “slight” after-cooking-darkening. POR01PG22-1 and POR01PG16-1 had a “pasty” texture; all others were “mushy”. The flavor of A96510-4Y was “unacceptable” compared to all other entries, which ranged from “bland” to “good”. Microwaving resulted in tuber centers that were “mushy” or “fully cooked” and skins that were “steamy” or “fully cooked”, all of which are desirable ratings. Overall, a very uniform group when microwaved.

- Three entries had red flesh this year (CO97226-2R/R, POR01PG20-12, POR01PG22-1) and two had purple flesh (All Blue, POR01PG16-1). These clones were not considered in the statistical analysis of fry color with the remaining white- and yellow-fleshed entries. PA99P11-2 produced tubers that averaged 1-inch in diameter and therefore the Photovolt reading could only be taken from the center of each fry. Red La Soda and A96510-4Y were the only entries to have non-uniform fry color. CO97232-1R/Y, VC1009-1W/Y, CO97232-2R/Y, and VC1123-2W/Y produced the lightest chips, with a six-member panel-rating ranging from 1.2 to 1.8. The darkest chip ratings went to AC97521-1R/Y (4.7) and Red LaSoda (4.2).



2006 Regional Red and Specialty Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's*	US # 2's*	Culls*	EXTERNAL DEFECTS (%)				SPECIFIC GRAVITY
				> 0 oz	> 0 oz	> 0 oz			Growh		
	CWT/A	STATS**	Tons/A	% of Total Yield			Knobs	Malformed	Cracks	Green	
Dk Red Norland	345	*DE*	17.2	99	0	1	0	0	0	1	1.075
Red LaSoda	440	*EF*	22.0	98	0	2	0	0	0	2	1.080
AC97521-1R/Y	348	*C*	17.4	98	0	2	0	1	0	1	1.086
CO97232-1R/Y	299	*DE*	14.9	98	1	1	0	1	0	0	1.084
CO97232-2R/Y	391	*D*	19.5	98	1	1	0	0	0	1	1.078
CO97233-3R/Y	401	*DEF*	20.1	97	0	3	0	0	0	3	1.083
PA99P11-2	319	*A*	16.0	95	0	5	0	0	0	4	1.080
CO97226-2R/R	316	*A*	15.8	100	0	0	0	0	0	0	1.089
POR01PG20-12	394	*DE*	19.7	99	0	1	0	0	0	1	1.085
POR01PG22-1	169	*B*	8.4	92	0	8	0	8	0	0	1.083
All Blue	337	*B*	16.9	100	0	0	0	0	0	0	1.082
POR01PG16-1	184	*C*	9.2	98	0	2	0	2	0	0	1.080
Yukon Gold	433	*F*	21.7	96	1	3	0	1	0	2	1.081
A96510-4Y	391	*F*	19.5	95	2	3	1	0	2	1	1.078
VC1009-1W/Y	457	*CD*	22.8	98	1	1	0	0	0	0	1.075
VC1123-2W/Y	415	*EF*	20.8	100	0	0	0	0	0	0	1.081

ENTRY	US # 1 YIELD								INTERNAL DEFECTS (%) (6-10 oz tubers)		
				0-2 oz*	2-4 oz*	4-6 oz*	6-10 oz*	> 10 oz*			
	CWT/A	STATS**	Tons/A	%					% HH	% BC	% IBS
Dk Red Norland	340	*CD*	17.0	6	36	32	21	6	0	15	0
Red LaSoda	429	*A*	21.4	2	12	26	38	22	6	25	0
AC97521-1R/Y	340	*DE*	17.0	11	40	27	18	4	0	0	0
CO97232-1R/Y	293	*DE*	14.7	7	42	33	16	2	0	0	0
CO97232-2R/Y	384	*BCD*	19.2	6	29	33	29	4	0	0	0
CO97233-3R/Y	389	*ABC*	19.4	4	21	30	33	13	0	0	0
PA99P11-2	304	*EF*	15.2	28	44	15	10	3	0	0	0
CO97226-2R/R	315	*EF*	15.8	24	55	19	2	0	0	0	0
POR01PG20-12	389	*BCD*	19.5	5	31	40	22	2	0	0	0
POR01PG22-1	156	*F*	7.8	39	55	4	2	0	0	0	0
All Blue	337	*EF*	16.9	16	56	20	6	1	0	0	0
POR01PG16-1	180	*F*	9.0	20	60	20	1	0	0	5	0
Yukon Gold	417	*A*	20.8	1	9	18	42	30	0	0	0
A96510-4Y	371	*AB*	18.6	1	9	16	36	37	0	0	0
VC1009-1W/Y	448	*BCD*	22.4	6	39	31	20	3	0	0	0
VC1123-2W/Y	415	*AB*	20.7	2	23	36	31	8	0	0	0

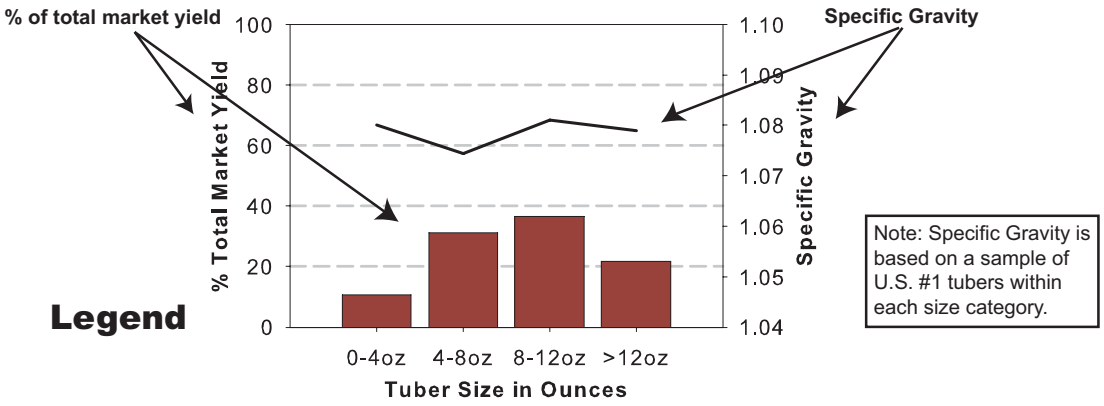
ENTRY	Percent Dead	40 DAY STAND	50 DAY STAND	STEMS PER PLANT	AVERAGE TUBER WEIGHT	AVERAGE TUBER NUMBER	SKIN SET	TUBER SHAPE	BRUISE (%) (6-10 oz tubers)		Length to Width Ratio
	at vine kill	% Emerged	% Emerged	Above Ground	Ounces	Tubers/Plant	1 = Poor 5 = Good	1 = Round 5 = Long	BLACKSPOT	SHATTER	1 = Round 2 = Oblong
Dk Red Norland	70	99	99	3.3	3.9	7.6	3	2	13	5	1.1
Red LaSoda	10	100	100	2.4	5.8	6.5	4	1	0	42	1.0
AC97521-1R/Y	8	100	100	3.5	3.4	8.8	4	1	3	26	1.3
CO97232-1R/Y	71	94	97	3.9	3.6	7.2	4	4	3	33	1.5
CO97232-2R/Y	51	93	95	3.5	4.0	8.2	4	2	17	11	1.2
CO97233-3R/Y	13	92	96	3.6	4.7	7.3	4	3	14	21	1.6
PA99P11-2	21	100	100	3.3	2.5	11.1	4	1	0	0	1.1
CO97226-2R/R	15	100	100	4.0	2.5	11.1	5	1	0	6	1.1
POR01PG20-12	4	99	99	2.0	4.0	8.6	4	3	0	0	1.6
POR01PG22-1	9	100	100	3.9	2.0	7.1	5	4	0	5	2.4
All Blue	20	100	100	3.5	2.8	10.5	4	2	0	6	1.3
POR01PG16-1	31	99	99	4.6	2.5	6.2	4	4	3	5	1.8
Yukon Gold	13	96	97	1.9	6.6	5.7	4	2	1	11	1.2
A96510-4Y	1	96	97	1.7	6.8	5.0	2	3	0	29	1.3
VC1009-1W/Y	6	99	100	2.9	3.8	10.4	3	2	8	13	1.2
VC1123-2W/Y	5	95	98	2.6	4.8	7.6	4	2	0	0	1.4

* Percent values may not total 100% due to rounding

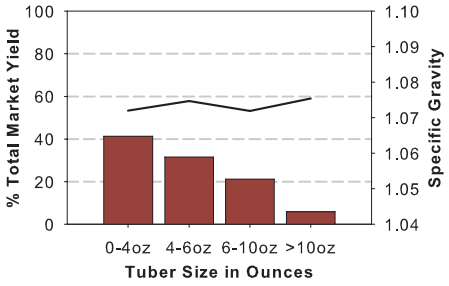
**Numbers followed by the same letter are not significantly different at the 5 % level using Fisher's LSD Test

2006 Regional Red and Specialty Trial

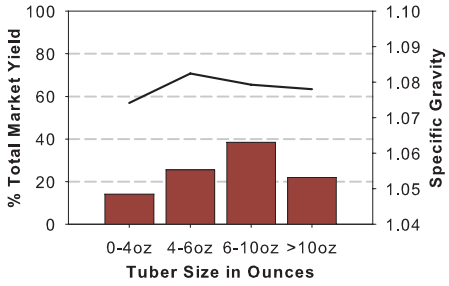
Tuber Yield and Specific Gravity Distributions



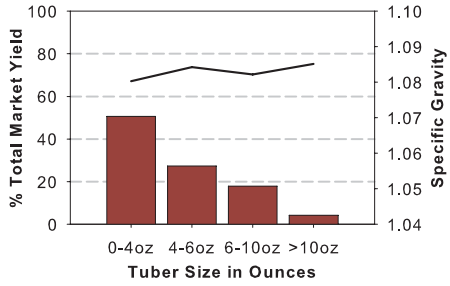
DARK RED NORLAND



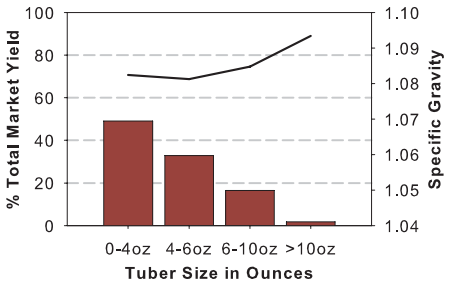
RED LASODA



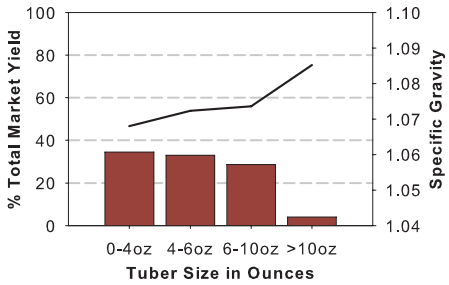
AC97521-1R/Y



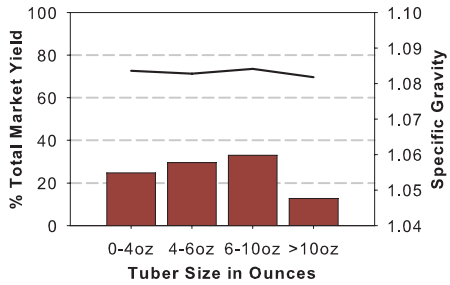
CO97232-1R/Y



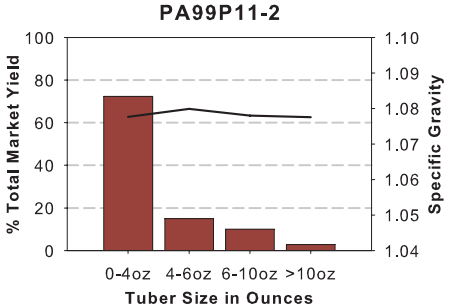
CO97232-2R/Y



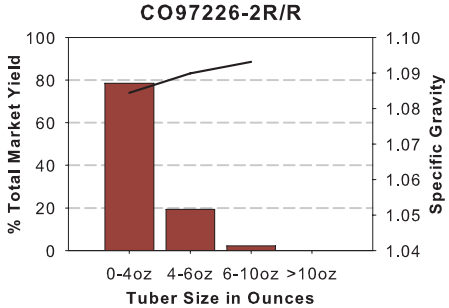
CO97233-3R/Y



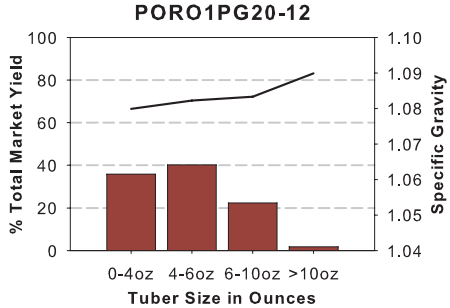
PA99P11-2

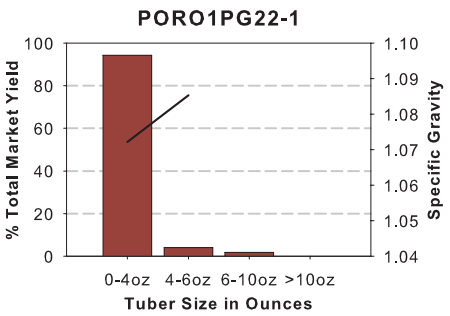


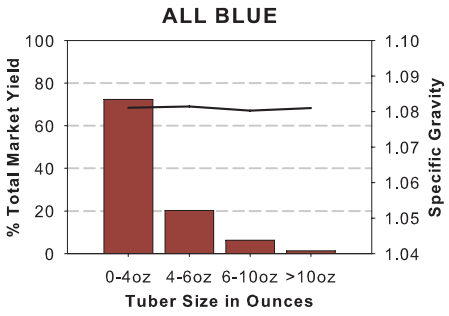
CO97226-2R/R

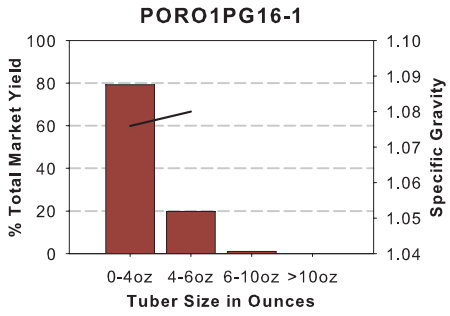


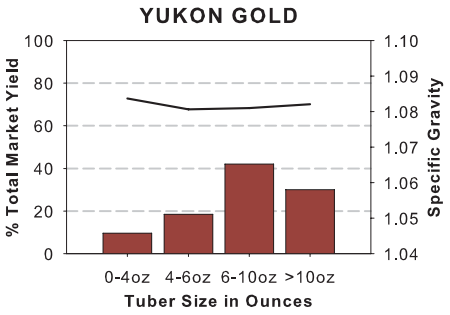
PORO1PG20-12

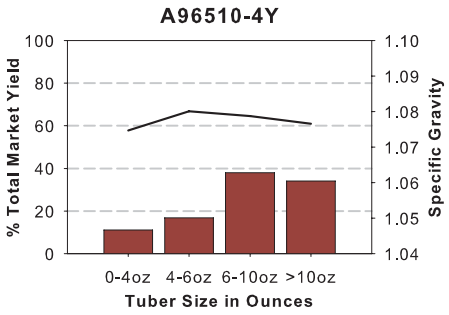


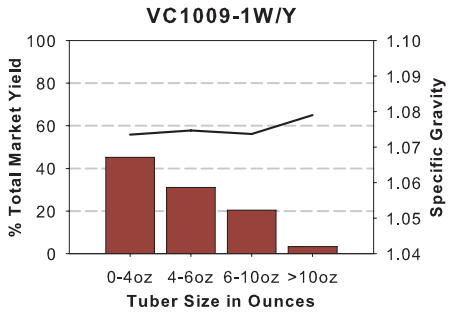


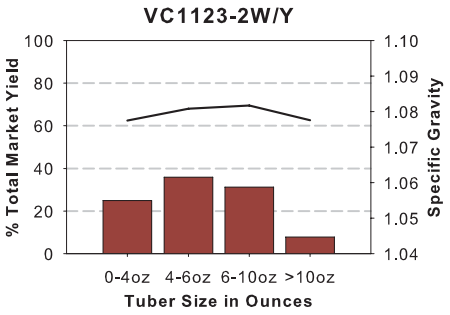




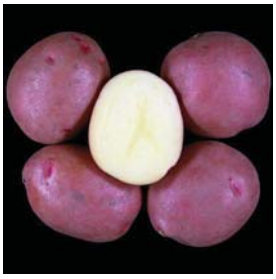


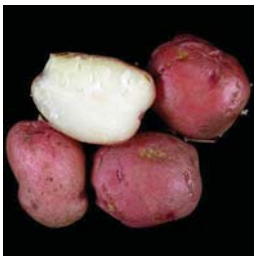
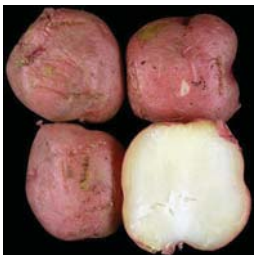
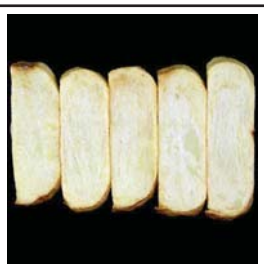
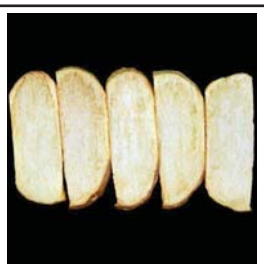


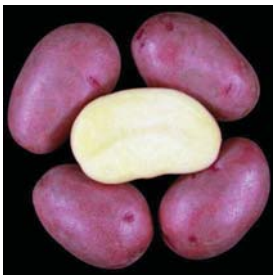


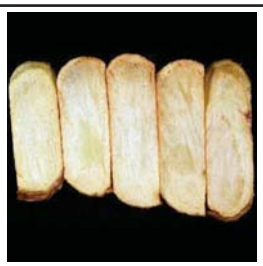
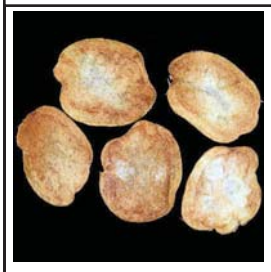
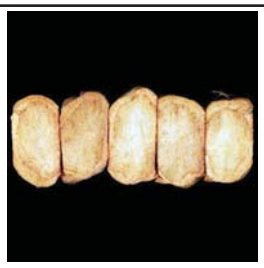
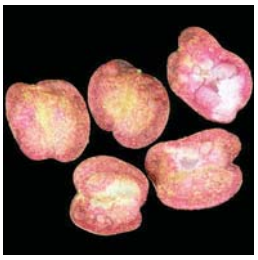
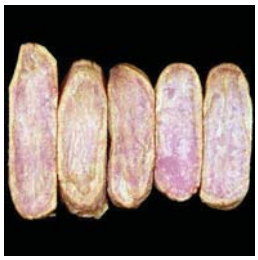


Planting the Regional Red and Specialty Trial in a commercial field near Mt. Vernon, WA.

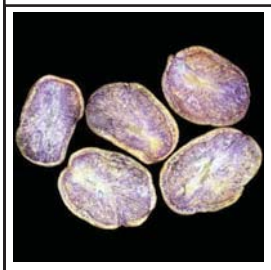
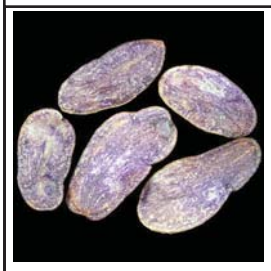
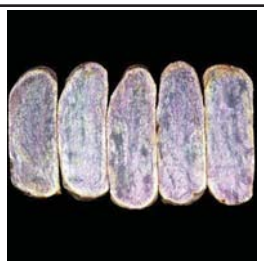
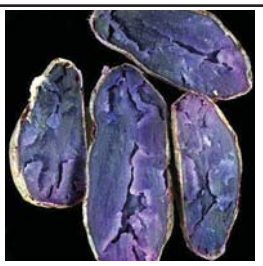
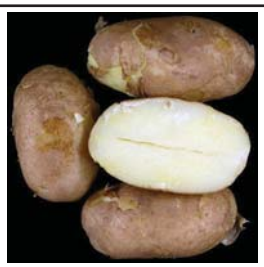
Tubers	WA Red and Specialty Regional Trial Comments
Dark Red Norland	
	**Foliage:** Medium vine. **Tubers:** Round to oblong, red to pink skin color, fair skin set; moderate eye depth. **Fry Color:** Light, uniform. **Boiled:** No sloughing, slight after-cooking-darkening, creamy texture, good flavor, fully cooked center. **Baked:** Slight after-cooking-darkening, creamy texture, good flavor, fully cooked tuber center, steamy skin. **Microwaved:** Slight after-cooking-darkening, creamy texture, good flavor, mushy tuber center, fully cooked skin.
Red LaSoda	
	**Foliage:** Large vine. **Tubers:** Round tubers, red to pink skin color, good skin set; deep eyes. **Fry Color:** Light, uniform. **Boiled:** Moderate sloughing, slight after-cooking-darkening, creamy texture, bland flavor, fully cooked center. **Baked:** Slight after-cooking-darkening, fluffy texture, bland flavor, fully cooked tuber center, fully cooked skin. **Microwaved:** Slight after-cooking-darkening, fluffy texture, good flavor, mushy tuber center, steamy skin.
AC97521-1R/Y	
	**Foliage:** Very large vine. **Tubers:** Round tubers, deep red skin color, good skin set; shallow eyes. **Fry Color:** Light, uniform. **Boiled:** Moderate sloughing, no after-cooking-darkening, fluffy texture, good flavor, fully cooked center. **Baked:** No after-cooking-darkening, fluffy texture, good flavor, fully cooked tuber center, fully cooked skin. **Microwaved:** Slight after-cooking-darkening, fluffy texture, good flavor, mushy tuber center, fully cooked skin.
CO97232-1R/Y	
	**Foliage:** Medium vine. **Tubers:** Oblong to long, red to dark red color, good skin set; shallow eyes. **Fry Color:** Light, uniform. **Boiled:** Moderate sloughing, slight after-cooking-darkening, creamy texture, bland flavor, mushy tuber center. **Baked:** No after-cooking-darkening, creamy texture, good flavor, fully cooked tuber center, fully cooked skin. **Microwaved:** Slight after-cooking-darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
CO97232-2R/Y	
	**Foliage:** Medium vine. **Tubers:** Oblong to long, red to dark red color, good skin set; shallow eyes. **Fry Color:** Light, uniform. **Boiled:** Moderate sloughing, slight after-cooking-darkening, creamy texture, bland flavor, mushy tuber center. **Baked:** Slight after-cooking-darkening, creamy texture, bland flavor, fully cooked tuber center, steamy skin. **Microwaved:** Slight after-cooking-darkening, creamy texture, good flavor, mushy tuber center, steamy skin.

Chips	Fries	Baked	Boiled	Microwaved
Dark Red Norland				
				
Red LaSoda				
				
AC97521-1R/Y				
				
CO97232-1R/Y				
				
CO97232-2R/Y				
				

Tubers	WA Red and Specialty Regional Trial Comments
CO97233-3R/Y	
	**Foliage:** Medium vine. **Tubers:** Oblong tubers, light pink skin color, good skin set; shallow eyes. **Fry Color:** Light, uniform. **Boiled:** Moderate sloughing, slight-after-cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin. **Baked:** Slight after-cooking-darkening, creamy texture, bland flavor, fully cooked tuber center, steamy skin. **Microwaved:** Slight-after-cooking darkening, creamy texture, good flavor, mushy tuber center.
PA99P11-2	
	**Foliage:** Small to medium upright vine. **Tubers:** Round tubers, light pink skin color, good skin set; moderately deep eyes. **Fry Color:** Light, uniform. **Boiled:** Severe sloughing, slight-after-cooking darkening, creamy texture, bland flavor, fully cooked tuber center, steamy skin. **Baked:** Slight after-cooking-darkening, creamy texture, good flavor, mushy tuber center, fully cooked skin. **Microwaved:** Slight-after-cooking darkening, creamy texture, good flavor, mushy tuber center.
CO97226-2R/R	
	**Foliage:** Medium vine. **Tubers:** Round tubers, deep red color, very good skin set; moderate eye depth. **Fry Color:** Very bright pink. **Boiled:** Moderate sloughing, slight-after-cooking darkening, fluffy texture, bland flavor, fully cooked tuber center, steamy skin. **Baked:** No after-cooking-darkening, fluffy texture, bland flavor, fully cooked tuber center, steamy skin. **Microwaved:** Slight-after-cooking darkening, fluffy texture, bland flavor, mushy tuber center.
PORO1PG20-12	
	**Foliage:** Large vine. **Tubers:** Oblong tubers, deep red color, good skin set; moderate eye depth. **Fry Color:** Brownish pink. **Boiled:** Slight sloughing, slight after-cooking-darkening, creamy texture, good flavor, fully cooked tuber center, fully cooked skin. **Baked:** No after-cooking-darkening, fluffy texture, bland flavor, fully cooked tuber center, steamy skin. **Microwaved:** Slight after-cooking-darkening, fluffy texture, bland flavor, mushy tuber center.
PORO1PG22-1	
	**Foliage:** Medium vine. **Tubers:** Oblong to long, deep red color, very good skin set; shallow eyes. **Fry Color:** Bright pink. **Boiled:** Moderate sloughing, no after-cooking-darkening, creamy texture, bland flavor, fully cooked tuber center, steamy skin. **Baked:** No after-cooking-darkening, pasty texture, bland flavor, mushy tuber center, crispy skin. **Microwaved:** Slight after-cooking-darkening, pasty texture, good flavor, fully cooked tuber center.

Chips	Fries	Baked	Boiled	Microwaved
CO97233-3R/Y				
				
PA99P11-2				
				
CO97226-2R/R				
				
PORO1PG20-12				
				
PORO1PG22-1				
				

Tubers	WA Red and Specialty Regional Trial Comments
All Blue	
	**Foliage:** Medium vine. **Tubers:** Round to oblong, deep purple color, good skin set; moderate eye depth. **Fry Color:** Blue grey **Boiled:** Moderate sloughing, slight after-cooking-darkening, creamy texture, bland flavor, mushy tuber center, steamy skin. **Baked:** Slight after-cooking-darkening, creamy texture, good flavor, fully cooked tuber center, steamy skin. **Microwaved:** Slight after-cooking-darkening, creamy texture, good flavor, mushy tuber center.
PORO1PG16-1	
	**Foliage:** Small to medium upright vine. **Tubers:** Oblong to long, deep purple color, good skin set; shallow eyes. **Fry Color:** Very dark deep purple. **Boiled:** Moderate sloughing, slight after-cooking-darkening, creamy texture, bland flavor, mushy tuber center, steamy skin. **Baked:** Slight after-cooking-darkening, creamy texture, unacceptable flavor, mushy tuber center, slightly burnt. **Microwaved:** Moderate after-cooking-darkening, pasty texture, bland flavor, mushy tuber center.
Yukon Gold	
	**Foliage:** Large vine. **Tubers:** Round to oblong, yellow to white skin color, good skin set; shallow eyes. **Fry Color:** Light, uniform. **Boiled:** Slight sloughing, no after-cooking-darkening, fluffy texture, good flavor, fully cooked tuber center, steamy skin. **Baked:** Slight after-cooking-darkening, fluffy texture, good flavor, fully cooked tuber center, fully cooked skin. **Microwaved:** Slight after-cooking-darkening, creamy texture, good flavor, mushy tuber center.
A96510-4Y	
	**Foliage:** Very large vine. **Tubers:** Oblong tubers, Russet to white skin color, poor skin set; shallow eyes. **Fry Color:** Light, uniform. **Boiled:** No sloughing, no after-cooking-darkening, fluffy texture, bland flavor, mushy tuber center, steamy skin. **Baked:** Slight after-cooking-darkening, fluffy texture, bland flavor, fully cooked tuber center, steamy skin. **Microwaved:** No after-cooking-darkening, fluffy texture, unacceptable flavor, mushy tuber center.
VC1009-1W/Y	
	**Foliage:** Very large vine. **Tubers:** Round to oblong, yellow to white skin color, fair skin set; shallow eyes. **Fry Color:** Light, uniform. **Boiled:** Slight sloughing, no after-cooking-darkening, pasty texture, bland flavor, fully cooked tuber center, steamy skin. **Baked:** No after-cooking-darkening, creamy texture, good flavor, mushy tuber center, steamy skin. **Microwaved:** Slight after-cooking-darkening, creamy texture, good flavor, mushy tuber center.

Chips	Fries	Baked	Boiled	Microwaved
All Blue				
				
PORO1PG16-1				
				
Yukon Gold				
				
A96510-4Y				
				
VC1009-1W/Y				
				

Tubers	WA Red and Specialty Regional Trial Comments
VC1123-2W/Y	
	**Foliage:** Large vine. **Tubers:** Round to oblong, white skin color, good skin set; shallow eyes. **Fry Color:** Light, uniform. **Boiled:** Moderate sloughing, no after-cooking-darkening, creamy texture, good flavor, fully cooked tuber center, fully cooked skin. **Baked:** No after-cooking-darkening, creamy texture, good flavor, mushy tuber center, steamy skin. **Microwaved:** Slight after-cooking-darkening, creamy texture, good flavor, mushy tuber center.

The WSU Potato Research Team works together collecting data on the Othello Research Farm. (From left to right): Chris Hiles, Zach Holden, Josh Rodriguez, Rudy Garza, and Ed Driskill

Chips	Fries	Baked	Boiled	Microwaved
VC1123-2W/Y				
				

A recently harvested trial waiting to be hand-loaded onto a truck.

2006 Washington Regional Red and Specialty Trial

Postharvest Evaluation

Frying (3/8 x 1 1/8" slices) (Chips)

Clone	Raw				After Frying					Avg of 6 raters
	Stem	Bud	Average	Difference	Stem	Bud	Average	Difference	USDA	SFA
1 Dark Red Norland	59.1	60.3	59.7	1.3	49.1	48.4	48.8	1.4	0	2.7
2 Red LaSoda	64.0	61.5	62.7	2.6	32.8	41.0	36.9	10.5	0	4.2
3 AC97521-1R/Y	58.3	54.1	56.2	4.1	29.7	35.7	32.7	8.7	1	4.7
4 CO97232-1R/Y	54.4	53.3	53.8	2.3	50.3	53.2	51.7	5.4	0	1.2
5 CO97232-2R/Y	53.5	49.7	51.6	3.9	47.5	51.4	49.5	4.0	0	1.8
6 CO97233-3R/Y	56.8	55.2	56.0	2.5	40.5	47.5	44.0	7.1	0	3.0
7 PA99P11-2 §			56.5				37.8			3.8
8 CO97226-2R/R	10.3	11.8	11.0	2.0	13.3	18.0	15.6	4.7	4	3.5
9 POR00PG20-12	22.4	20.3	21.4	4.2	23.9	23.2	23.5	3.2	2	3.5
10 POR01PG22-1	17.9	16.5	17.2	2.5	18.5	18.9	18.7	2.6	3	3.3
11 All Blue	10.6	9.5	10.0	3.5	19.8	19.7	19.7	2.8	2	3.3
12 POR01PG16-1	4.8	4.8	4.8	0.7	9.5	13.1	11.3	3.6	4	3.8
13 Yukon Gold	58.4	56.8	57.6	2.2	48.4	54.0	51.2	6.4	0	2.3
14 A96510-4Y	58.6	60.8	59.7	3.0	36.8	47.4	42.1	10.7	0	3.7
15 VC1009-1W/Y	59.3	57.4	58.4	2.1	50.1	52.3	51.2	2.6	0	1.7
16 VC1123-2W/Y	59.0	54.6	56.8	4.4	45.7	53.7	49.7	7.9	0	1.8
*LSD 0.05 **			*1.6*	*1.5*			*3.0*	*3.3*		
Average	43.2	41.8	43.3	2.8	34.4	38.5	36.5	5.4	1	3.0

Differences between clones that are equal to or greater than the LSD 0.05 are considered significant
SFA 1 (lightest) to 5 (darkest).

§ Quarter sized tubers.

* Entries with red (CO97226-2R/R, PORO1PG20-12, & POR01PG22-1) or purple (All Blue & POR01PG16-1) flesh or tiny tubers (PA9911-2) were not used in the statistical calculation. All other entries have white or yellow flesh.

The race is on! Spring planting at its finest.

2006 Washington Regional Red and Specialty Trial

Postharvest Evaluation Summary

	Clone	Boiling (25 max)	Baking (25 max)	Microwave (25 max)	Total (75 max)
3	AC97521-1R/Y	20.2	22.5	19.3	62.0
13	Yukon Gold	22.3	21.8	17.5	61.6
9	POR00PG20-12	20.0	20.4	19.7	60.1
16	VC1123-2W/Y	20.0	20.2	19.8	60.0
14	A96510-4Y	20.8	20.1	17.8	58.6
1	Dark Red Norland	19.5	19.5	18.7	57.7
2	Red LaSoda	18.8	20.3	18.3	57.5
15	VC1009-1W/Y	18.8	21.1	16.9	56.8
6	CO97233-3R/Y	17.2	19.7	19.8	56.7
8	CO97226-2R/R	19.0	19.1	17.6	55.7
5	CO97232-2R/Y	18.0	20.8	16.7	55.5
4	CO97232-1R/Y	17.6	21.0	16.8	55.4
11	All Blue	17.2	19.3	18.3	54.8
7	PA99P11-2	17.4	19.3	17.3	54.1
10	POR01PG22-1	17.6	15.9	18.5	52.0
12	POR01PG16-1	18.5	15.0	17.6	51.1

Planted:	April 25
Harvested:	August 22
Baked:	August 29
Boiled:	August 30
Microwaved:	September 6
French Fried:	August 31
Chipped:	August 31

2006 Washington Regional Red and Specialty Trial

Red Clone Postharvest Evaluation

Boiling

	Clone	After cooking Sloughing	Darkening	Texture	Flavor	Tuber Center	Total Rating
1	Dark Red Norland	4.5	3.8	2.6	4.0	4.6	19.5
2	Red LaSoda	3.4	4.4	3.4	3.0	4.6	18.8
3	AC97521-1R/Y	3.4	4.8	3.6	3.8	4.6	20.2
4	CO97232-1R/Y	2.8	4.4	2.8	3.2	4.4	17.6
5	CO97232-2R/Y	3.2	4.4	3.0	2.8	4.6	18.0
6	CO97233-3R/Y	3.4	3.8	3.0	2.6	4.4	17.2
7	PA99P11-2	2.4	3.6	3.4	3.4	4.6	17.4
	LSD 0.05	*0.8*	*0.8*	*ns*	*ns*	*ns*	*ns*
	Average	3.3	4.2	3.1	3.3	4.5	18.4

Oven Baking

	Clone	After cooking Darkening	Texture	Flavor	Tuber Center	Skin Rating	Total Rating
1	Dark Red Norland	4.0	3.0	3.7	4.5	4.3	19.5
2	Red LaSoda	4.0	3.8	3.2	4.8	4.5	20.3
3	AC97521-1R/Y	4.5	4.3	3.8	5.0	4.8	22.5
4	CO97232-1R/Y	4.7	3.3	3.8	4.7	4.5	21.0
5	CO97232-2R/Y	4.5	3.0	4.0	4.7	4.7	20.8
6	CO97233-3R/Y	4.3	3.3	3.0	4.7	4.3	19.7
7	PA99P11-2	4.0	3.0	3.8	4.0	4.5	19.3
	LSD 0.05	*ns*	*0.9*	*ns*	*0.7*	*ns*	*2.4*
	Average	4.3	3.4	3.6	4.6	4.5	20.5

Microwaved

	Clone	After cooking Darkening	Texture	Flavor	Tuber Center	Skin Rating	Total Rating
1	Dark Red Norland	3.5	3.2	3.7	3.8	4.5	18.7
2	Red LaSoda	3.8	4.0	3.7	2.5	4.3	18.3
3	AC97521-1R/Y	4.2	3.5	4.3	2.8	4.5	19.3
4	CO97232-1R/Y	3.8	2.7	3.3	3.0	4.0	16.8
5	CO97232-2R/Y	4.3	2.7	2.8	2.5	4.3	16.7
6	CO97233-3R/Y	4.0	3.2	4.3	4.0	4.3	19.8
7	PA99P11-2	3.5	2.8	3.7	3.0	4.3	17.3
	LSD 0.05	*ns*	*1.1*	*1.3*	*1.3*	*ns*	*3.0*
	Average	3.9	3.1	3.7	3.1	4.3	18.1

Differences between clones that are equal to or greater than the LSD 0.05 are considered significant.

2006 Washington Regional Red and Specialty Trial

Specialty Clone Postharvest Evaluation

Boiling

Clone	After cooking Sloughing	Darkening	Texture	Flavor	Tuber Center	Total Rating
8 CO97226-2R/R	2.6	4.0	4.0	3.4	5.0	19.0
9 POR00PG20-12	4.2	4.2	3.0	3.8	4.8	20.0
10 POR01PG22-1	3.2	4.6	2.6	2.6	4.6	17.6
11 All Blue	3.4	4.2	2.6	2.8	4.2	17.2
12 POR01PG16-1	3.3	4.4	3.4	3.0	4.4	18.5
13 Yukon Gold	4.3	4.6	3.6	4.8	5.0	22.3
14 A96510-4Y	4.6	4.8	3.6	3.4	4.4	20.8
15 VC1009-1W/Y	4.0	4.6	2.4	3.2	4.6	18.8
16 VC1123-2W/Y	3.0	4.8	3.4	4.0	4.8	20.0
LSD 0.05	*0.7*	*0.8*	*1.2*	*1.1*	*ns*	*2.0*
Average	3.6	4.5	3.2	3.4	4.6	19.4

Oven Baking

Clone	After cooking Darkening	Texture	Flavor	Tuber Center	Skin Rating	Total Rating
8 CO97226-2R/R	4.5	3.4	2.6	4.6	4.0	19.1
9 POR00PG20-12	4.8	4.0	3.0	4.8	3.8	20.4
10 POR01PG22-1	4.5	2.2	2.6	3.2	3.4	15.9
11 All Blue	4.3	3.2	3.6	4.6	3.6	19.3
12 POR01PG16-1	4.0	2.8	2.2	4.0	2.0	15.0
13 Yukon Gold	4.0	4.0	4.0	5.0	4.8	21.8
14 A96510-4Y	4.3	3.6	3.2	4.8	4.2	20.1
15 VC1009-1W/Y	4.5	3.4	4.4	4.4	4.4	21.1
16 VC1123-2W/Y	4.8	3.4	4.0	4.2	3.8	20.2
LSD 0.05	*0.5*	*1.0*	*1.8*	*0.9*	*1.3*	*2.5*
Average	4.4	3.3	3.3	4.4	3.8	19.2

Microwaved

Clone	After cooking Darkening	Texture	Flavor	Tuber Center	Skin Rating	Total Rating
8 CO97226-2R/R	3.8	3.2	2.7	3.8	4.2	17.6
9 POR00PG20-12	4.4	3.5	3.3	4.0	4.5	19.7
10 POR01PG22-1	3.8	2.0	3.8	4.5	4.3	18.5
11 All Blue	3.8	2.8	3.8	3.7	4.2	18.3
12 POR01PG16-1	3.4	2.3	3.3	4.3	4.2	17.6
13 Yukon Gold	4.2	2.7	3.5	2.8	4.3	17.5
14 A96510-4Y	4.6	3.5	2.3	3.2	4.2	17.8
15 VC1009-1W/Y	3.6	2.7	3.5	3.0	4.2	16.9
16 VC1123-2W/Y	4.0	3.2	3.7	4.3	4.7	19.8
LSD 0.05	*0.8*	*1.1*	*1.1*	*1.2*	*ns*	*2.9*
Average	4.0	2.9	3.3	3.7	4.3	18.2

Differences between clones that are equal to or greater than the LSD 0.05 are considered significant.

Index of Clones and Cultivars