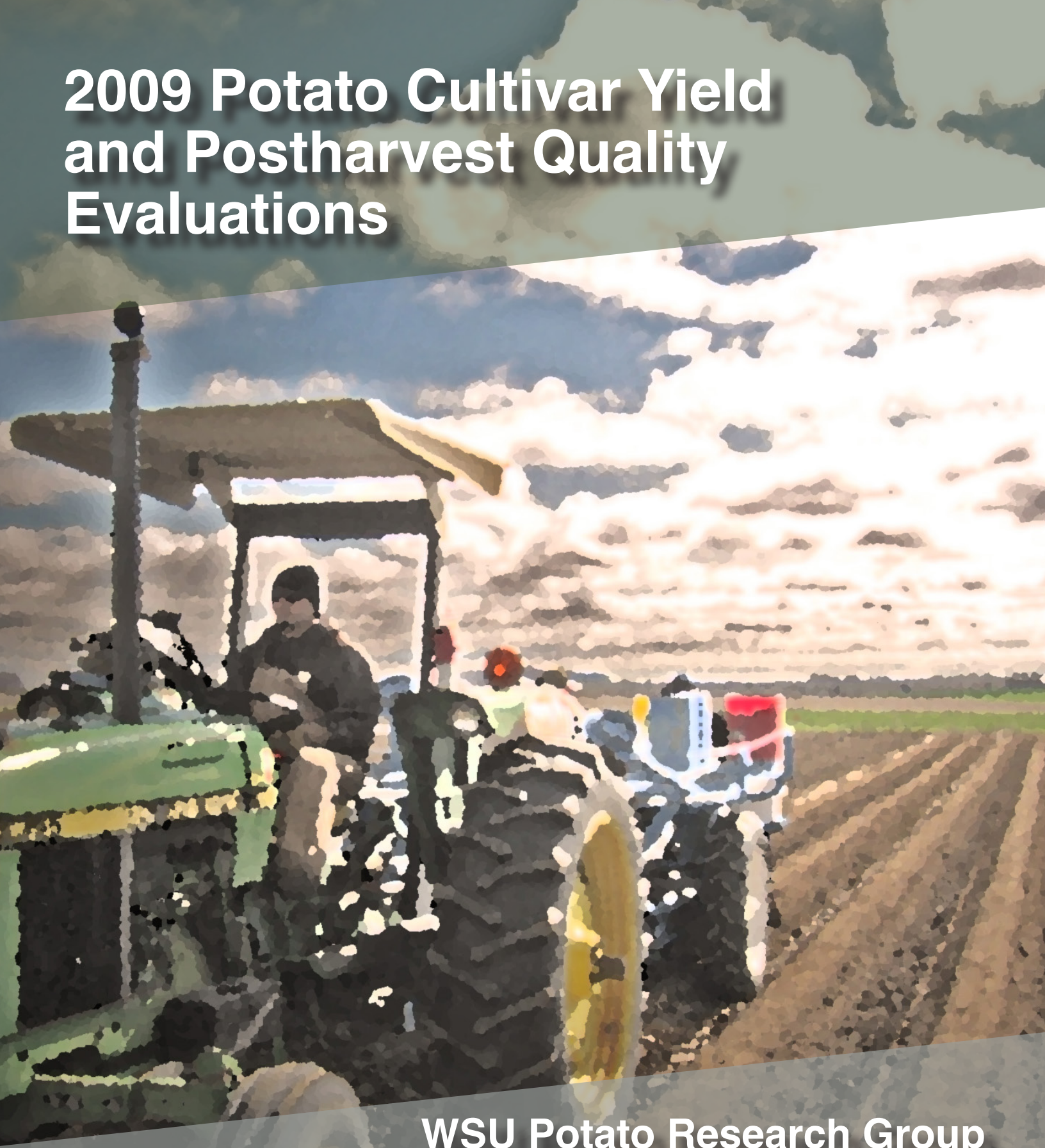
2009 Potato Cultivar Yield and Postharvest Quality Evaluations



WSU Potato Research Group

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2009 Potato Cultivar Yield and Postharvest Quality Evaluations

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On the cover: Raul (Rudy) Garza Jr. drives the John Deere tractor during a 2009 planting at the Othello Research Center.

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INTRODUCTION

The 2009 Washington "Potato Cultivar Yield and Postharvest Quality Evaluations" annual report provides detailed information about promising new potato clones and cultivars 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 potato clone and cultivar performance within five research 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. Our goal is to provide meaningful information that can be used by growers, processors, fresh-pack sheds, researchers, and other industry personnel.

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 University, 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. In 2005 the state potato commissions of Washington, Oregon, and Idaho launched a nonprofit corporation called the Potato Variety Management Institute (PVMI) to handle the licensing and royalty collection on Tri-State potato varieties. PVMI's main mission is to promote new varieties of potatoes and insure that the funds generated are returned to the Tri- State potato breeding program. Information on Tri-State released varieties can be found at www.pvmi.org.

Recent Accomplishments: The effect of the Tri-State Potato Variety Development Program on the Northwest potato industry has been substantial. The fresh market industry, french fry processors and chippers have incorporated many varieties developed through the Tri-State variety development program into their businesses. Ranger Russet, Premier Russet, Western Russet, Umatilla Russet, and Alturas are examples of russet cultivars released from the Tri-State program that have greatly benefited the Northwest potato industry, being the 2nd, 4th, 5th, 6th, and 8th most widely grown cultivars in Idaho in 2009, respectively (NASS, Crop Production, November, 2009), and accounting for 23% of the planted acreage in Idaho in 2009. Ranger, Umatilla, Alturas, and Premier Russet were the 3rd, 4th, 5th, and 7th most widely grown cultivars in WA in 2009, respectively, accounting for 37% of total acreage. In OR, these cultivars ranked 3rd, 8th, 5th, and 4th, respectively, and accounted for 35% of total acreage. Ranger Russet, Umatilla Russet, Alturas, Premier Russet, and Western Russet were also the 3rd, 5th, 7th, 10th, and 11th most widely grown potato varieties in the United States in 2008, with Tri-State varieties representing about 20% of the fall crop nationally. Varieties recently released by the Tri-State program are now produced on over 140,000 acres in the Pacific Northwest with value to growers estimated at approximately $505 million.

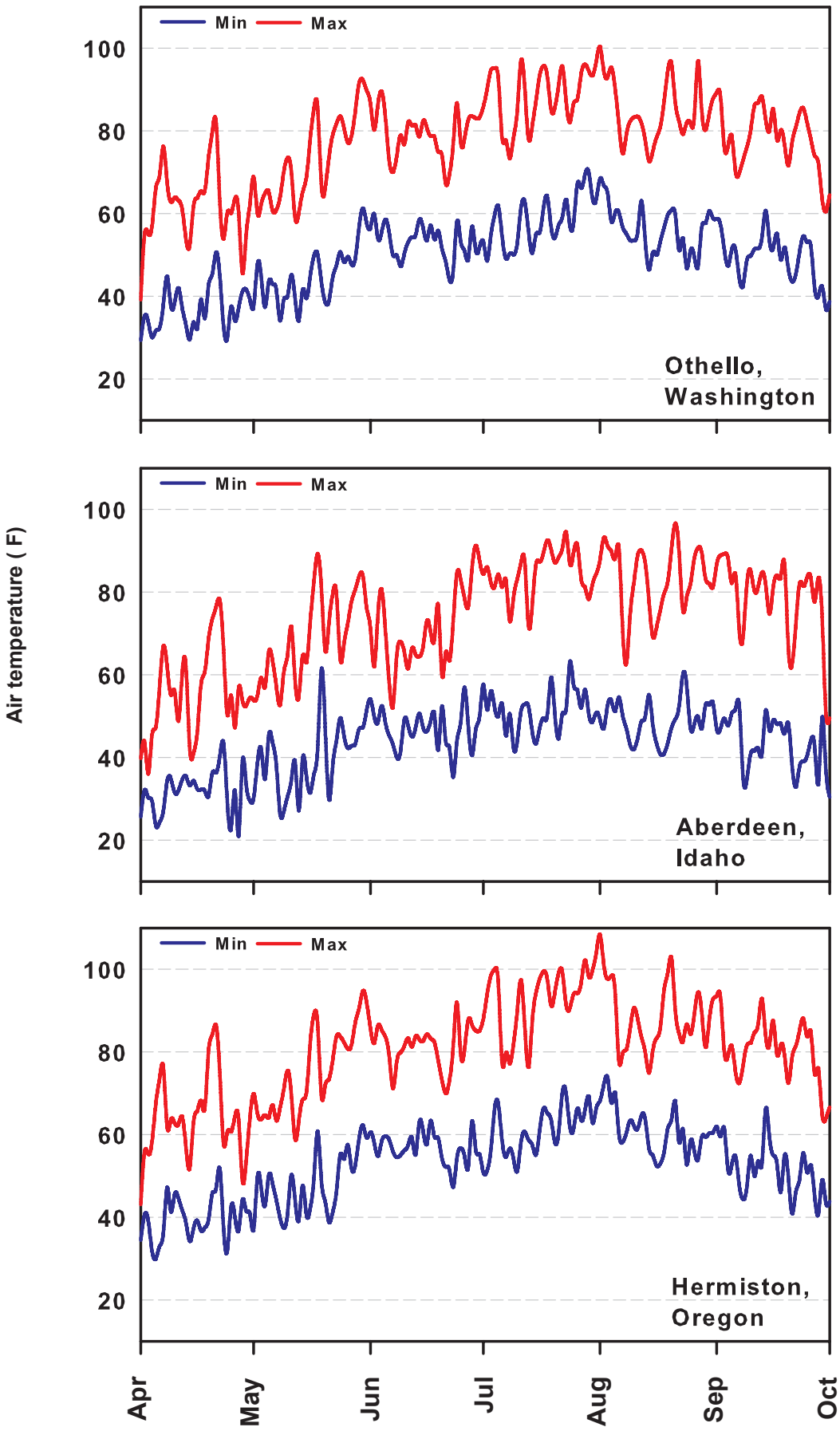
Cultural Information

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	Wheat	Small Grains	Small Grains
Planting date	April 20	May 7	April 4
Vine kill date	September 17	September 3	September 4
Soil moisture at harvest	Moist-Dry	65%-70%	N/A
Temperature at harvest	76°F	70°F-75°F	N/A
Harvest date	September 21	September 17	September 18
Storage temperature	48°F	60°F-65°F	Ambient
Date received at Pullman	September 22	September 20	September 23

Regional Trial	Othello, WA	Aberdeen, ID	Hermiston, OR
Soil type	Shano silt loam	Silt loam	Loamy fine sand
Previous crop	Wheat	Small Grains	Small Grains
Planting date	April 20	May 7	April 4
Vine kill date	September 17	September 3	September 4
Soil moisture at harvest	Moist-Dry	65%-70%	N/A
Temperature at harvest	76°F	70°F-75°F	N/A
Harvest date	September 21	September 17	September 18
Storage temperature	48°F	60°F-65°F	Ambient
Date received at Pullman	September 22	September 20	September 23

2009 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

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
AC9923**PW/Y**	**PW/Y**	=	**P**urple skin with **W**hite eyes/ **Y**ellow flesh
AC9653**P/Y**	**P/Y**	=	**P**urple skin/**Y**ellow flesh
CO977-2**P/PW**	**P/PW**	=	**P**urple skin/**P**urple & **W**hite flesh

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 on pages 14 (Fresh) and 15 (Process).

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:

For the late process market, a merit score is listed for both field and post-harvest performance.

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

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

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

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	Russet Norkotah	4.2	1	A0008-1TE	3.2
2	A0008-1TE	4.0	2	AO96365-2	3.1
3	PA99N2-1	3.7	3	PA00N14-2	3.0
4	**CO99100-1Ru**	**3.2**	4	AO96305-3	2.9
5	PA00N14-2	3.1	5	PA99N2-1	2.9
6	AO96305-3	3.0	6	Russet Norkotah	2.7
7	AO96365-2	3.0	7	CO98067-7Ru	2.7
8	Ranger Russet	3.0	8	A98345-1	2.6
9	CO97087-2Ru	2.9	9	A96814-65LB	2.6
10	**CO99053-4Ru**	**2.4**	**10**	**CO99100-1Ru**	**2.3**
11	A96814-65LB	2.3	**11**	**AC99375-1Ru**	**2.3**
12	PA99N82-4	2.3	12	CO97087-2Ru	2.3
13	**CO99053-3Ru**	**2.3**	13	Ranger Russet	2.2
14	A98345-1	2.2	14	A97066-42LB	2.1
15	CO98067-7Ru	2.2	**15**	**CO99053-3Ru**	**2.0**
16	CO98368-2Ru	2.1	**16**	**CO99053-4Ru**	**2.0**
17	Russet Burbank	2.1	17	Russet Burbank	1.8
18	**AC99375-1Ru**	**2.0**	18	CO98368-2Ru	1.4
19	A97066-42LB	1.3	19	PA99N82-4	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 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	Russet Norkotah	4.2	1	**AO02183-2**	**4.8**
2	AO00057-2	3.6	2	Russet Norkotah	2.7
3	Ranger Russet	3.0	3	**A01010-1**	**2.3**
4	**A00727-1**	2.6	4	Ranger Russet	2.2
5	Russet Burbank	2.1	5	AO00057-2	1.9
6	**AO02183-2**	1.9	6	Russet Burbank	1.8
7	**A01010-1**	1.3	7	A00324-1	1.5
8	A00324-1	1.2	8	**A00727-1**	**1.3**

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 field 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 (3-State)
1	PA00N14-2	4.4	A98345-1* (read below)	4.2	4.4*
2	A96814-65LB	3.4	**CO99053-3Ru**	**3.6**	**3.4**
3	AO96305-3	3.4	Ranger Russet	3.5	3.5
4	A0008-1TE	3.3	PA99N2-1	3.4	3.8
5	Ranger Russet	3.3	AO96305-3	3.4	4.5
6	CO97087-2Ru	3.3	AO96365-2	3.4	3.6
7	Russet Norkotah	3.3	**AC99375-1Ru**	**3.2**	**4.6**
8	A98345-1	3.2	CO97087-2Ru	3.1	4.3
9	PA99N2-1	3.2	PA00N14-2	2.9	3.6
10	**CO99100-1Ru**	**3.0**	A97066-42LB	2.9	3.6
11	Russet Burbank	2.9	A0008-1TE	2.7	3.4
12	**AC99375-1Ru**	**2.9**	Russet Burbank	2.5	2.5
13	AO96365-2	2.8	PA99N82-4	2.4	4.1
14	A97066-42LB	2.8	A96814-65LB	2.4	4.0
15	CO98368-2Ru	2.8	CO98067-7Ru	1.9	2.4
16	**CO99053-4Ru**	**2.5**	CO98368-2Ru	1.8	fresh only
17	CO98067-7Ru	2.5	Russet Norkotah	1.5	fresh only
18	PA99N82-4	2.4	**CO99053-4Ru**	**1.1**	**3.2**
19	**CO99053-3Ru**	**1.7**	**CO99100-1Ru**	**1.0**	**2.8**

For more information on these cultivars, see the Early and Late Harvest Regional Trial Sections in This Book. *In Columbia Basin, severely mottles after 44 days in storage.

NEWEST ENTRIES - TRI-STATE TRIAL

Process Market Merit Scores - Washington

(Entries ranked according to WA field 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 (3-State)
1	AO00057-2	3.4	**AO02183-2**	**4.4**	**4.4**
2	Ranger Russet	3.3	**A01010-1**	**3.9**	**3.4**
3	Russet Norkotah	3.3	A00324-1	3.7	3.6
4	**A00727-1**	**2.9**	Ranger Russet	3.5	3.5
5	Russet Burbank	2.9	AO00057-2	2.5	4.2
6	A00324-1	2.5	Russet Burbank	2.5	2.5
7	**AO02183-2**	**2.0**	**A00727-1**	**2.0**	**2.2**
8	**A01010-1**	**1.2**	Russet Norkotah	1.5	fresh only

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

2009 Red & Specialty Potato Clones - Washington State University

RANKED ACCORDING TO 2009 US #1 Yield

	US #1 Yield 2009			US #1 Yield 2008	(See also Red & Specialty Section near end of book)
	US#1 Yield CWT/A	0-6 oz -----%	6-10oz -----	US#1 Yield CWT/A	Comments
Red Skin/White Flesh*					
Dark Red Norland	296	35	32	486	Pink, large, deep eyes.
Red LaSoda	387	13	29	485	Deep eyes, rough, some growth cracks.
ATTX98453-6R	296	50	36		Red, large, rough, sticky stolons**.
BTX2332-1R	392	37	44		Shallow eyes, nice deep red.
COTX94216-1R	229	87	13		Dark red, nice, sticky stolons**, medium to small.
COTX94218-1R	218	78	20		Nice red color, sticky stolons**, typy.
NDTX4784-7R	329	36	41		Dark red, severe growth cracks, discard!
Red or Purple Skin/Yellow Flesh					
A99326-1PY	335	22	36		Purple, large, deep eyes, rough.
AC99329-7PW/Y	297	57	33	427	Sticky stolons**, some pointy ends.
AC99330-1P/Y	344	90	10	322	Nice dark purple, smaller, many tubers, standout
POR01PG45-5	246	87	12	457	Small, purple, pointy ends, sticky stolons**.
POR03PG80-2	317	33	48		Large, looks like a purple baker, oblong.
Red Skin/Red Flesh					
PA96RR1-193	381	93	7	475	Deep eyes, nice, dark red, sticky stolons**.
POR03PG23-1	226	88	11	291	Attractive red and yellow, has some rot issues.
Purple Skin/Purple Flesh					
Purple Majesty	380	86	13	385	Nice size and shape, deep purple.
OR00068-11	359	94	5	431	Purple, nice, uniform size, standout.
Yellow Flesh - Skin Color/Type Vary					
Yukon Gold	380	12	28	322	Large, yellow, a bit rough shaped.
A00286-3Y	320	77	22	335	Smaller, oblong to round, standout.
A00293-2Y	319	73	22		Pointy, some nice, small, smooth.
CO00412-5W/Y	293	61	31		Nice size and shape, but flakey skin.
CO99045-1W/Y	329	42	35	426	Oblong, yellow, skin not smooth.
POR02PG37-2	421	51	36	429	Nice, typy, looks like a smaller version of Yukon Gold.

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

** The term "sticky stolons" refers to tubers that stay attached to the plant during harvest. This may not be a problem if plants are vine killed or fully matured prior to harvest, however, it generally indicates late maturation.

At-Harvest Grading Comments & Fresh Market Appearance

Newest Lines - 2009 Tri-State Trials		
Clone	Fresh Market Appearance 1-5 (5 = best)	Comments
Early Harvest Tri- State		
Ranger Russet	3.0	Very large, blocky, mostly typy.
Russet Burbank	3.0	Mostly typy, a bit rough.
Russet Norkotah	4.0	Mostly typy, eyes somewhat deep, a bit flat.
A00324-1	2.0	Large, rough shape, some pointy ends.
A00727-1	3.0	Somewhat pear-shaped, some pointy ones.
A01010-1	3.5	Small, skinny, eyes a bit deep, typy.
AO00057-2	4.0	Large, blocky, nice dark russeting, typy.
AO02183-2	3.3	Typy, but many prominent eyes; some dumbbells, poor skin set.
Late Harvest Tri- State		
Ranger Russet	3.0	Mostly typy, some large, some irregular shapes.
Russet Burbank	2.8	Mostly typy, some irregular shapes, a few rough ones.
Russet Norkotah	4.0	Nice, typy, uniform, baker size.
A00324-1	2.3	Very large tubers (too large), some rough; ugly skin, deep eyes.
A00727-1	3.3	Many undersized tubers, some typy.
A01010-1	4.0	Nice, uniform baker size, but puffed wheat skin, mostly typy.
AO00057-2	3.5	Mostly typy, plump girth, very dark skin.
AO02183-2	3.8	Eyes a bit deep; otherwise, uniform shape; fresh pack potential.

Ranger Russet

AO02183-2

A00324-1

A00727-1

A01010-1

AO00057-2

At-Harvest Grading Comments & Fresh Market Appearance

Advanced Lines - 2009 Regional Trials		
Clone	Fresh Market Appearance 1-5 (5 = best)	Comments
Early Harvest Regional		
Ranger Russet	3.0	Very large, blocky, mostly typy.
Russet Burbank	3.0	Mostly typy, a bit rough.
Russet Norkotah	4.0	Mostly typy, eyes somewhat deep, a bit flat.
A96814-65LB	1.0	Large, ugly skin, spotty russeting, a bit rough.
A97066-42LB	1.0	Ugly skin, spotty russeting, a bit pointy.
A98345-1	1.0	Large, ugly skin, rough, light russeting.
A0008-1TE	4.0	Large, blocky, typy, light russeting, some cracks and knobs.
AC99375-1Ru	3.7	Large, nice russet skin, a bit rough, mostly typy.
AO96305-3	2.7	Long, skinny, spotty russeting, ugly skin, poor skin set.
AO96365-2	4.0	Nice russet skin, blocky, somewhat round.
CO97087-2Ru	2.0	Irregular shape, a bit rough, looks like a rough Norkotah.
CO98067-7Ru	2.7	Rough, non-uniform shape, some typy ones.
CO98368-2Ru	2.7	Small, irregular shape, pointy ends, somewhat typy.
CO99053-3Ru	3.0	Mostly typy, some curves, long.
CO99053-4Ru	3.0	Mostly typy, some curves, pointy, light russeting.
CO99100-1Ru	3.5	Large, blocky, irregular shape, a few cracks, typy.
PA00N14-2	2.3	Long, skinny; light, feathery skin, flakey russeting, uniform.
PA99N2-1	3.3	Round, mostly typy.
PA99N82-4	1.3	Large, round, irregular shape, growth cracks - discard.
Late Harvest Regional		
Ranger Russet	3.0	Mostly typy, some large, some irregular shapes.
Russet Burbank	2.8	Mostly typy, some irregular shapes, a few rough ones.
Russet Norkotah	4.0	Nice, typy, uniform, baker size.
A96814-65LB	2.3	Large, plump girth, a bit round, ugly skin, a lot of green.
A97066-42LB	2.0	Large, some irregular shapes, ugly skin, some shatter.
A98345-1	2.5	Large, plump; ugly, light skin; a lot of shatter.
A0008-1TE	3.7	Mostly typy, light russet skin, uniform size and shape.
AC99375-1Ru	2.3	Small, irregular shape, puffed wheat skin.
AO96305-3	4.0	Typy, smaller, uniform size and shape, spotty russeting.
AO96365-2	2.5	Large size range, a bit round/plump, some puffed wheat skin.
CO97087-2Ru	1.5	Small; rough, irregular shape - discard.
CO98067-7Ru	2.0	Small, flat, many round and pear-shaped.
CO98368-2Ru	2.8	Some typy, but many flat or pear-shaped - discard.
CO99053-3Ru	2.8	Mostly typy, very large, flat; puffed wheat skin.
CO99053-4Ru	2.3	Small, flat, many pear-shaped.
CO99100-1Ru	2.3	Many pear-shaped, some very large, knobs on ends.
PA00N14-2	4.0	Long, skinny, smooth, yellow tint to skin, mostly typy.
PA99N2-1	2.5	Plump, mostly round; light skin.
PA99N82-4	1.0	Very large (football-sized), growth cracks, ugly - discard.

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 $4.00 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		$13.54	$4.00	$9.54
90 Count	8.5 to 9.5		$14.71	$4.00	$10.71
80 Count	9.5 to 10.5		$17.02	$4.00	$13.02
70 Count	10.5 to 12.5		$17.62	$4.00	$13.62
60 Count	12.5 to 14		$17.61	$4.00	$13.61
50 Count	14 to 18		$17.06	$4.00	$13.06
10 lb Film Bags					
Non-size A	4 to 7		$9.15	$4.00	$5.15
100 lb Burlap Sacks					
10 oz Min. Size U.S. No. 2		10 to 20	$8.60	$4.00	$4.60
10 oz Min. Size U.S. No. 2	18 to 20		$8.60	$4.00	$4.60
Bulk					
Process-Culls	< 4	< 10	$4.00	$4.00	$0.00
Process-Culls	> 20	> 20	$4.00	$4.00	$0.00

[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 2004-2007 (USDA Federal-State Market News Service 2004-2007). 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 $156/ton.
   a. Base price is an average of early-harvest Ranger Russet contracts from Washington processors based on a July 22, 2009 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 $60/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 Washington potato processors. Production costs per acre were not applied. Direct delivery contract assumptions are listed below.

Contract Assumptions:

1. ***Base price:*** $133/ton for market (U.S. #1 & 2) grade tubers.
2. ***Six oz clause:*** Premiums for 6 oz and larger market grade tubers of $1.00/ton for each percentage point >56% they contribute to the total tuber yield composite, up to 66%, with a maximum of $11.00/ton. Premiums were $11.00/ton for >6 oz percentages above 66% (see also oversize clause). Penalties were $1.00/ton for each percentage point below 56%. Below 46%, penalties were $20/ton. (e.g. 60% of total yield >6 oz; 60%-56% = 4 x $1.00 = $4.00 x Mkt yield >4 oz + Base Price).
3. ***Oversize clause:*** If total yield has more than 30% >12 oz market grade tubers, penalty of $0.40/ton for each percentage point greater than 30%. (e.g. 40% of total yield >12 oz; 40%-30% = 10 x $0.40 = $4.00 x Mkt yield >4 oz subtracted from Base Price).
4. ***Undersized clause:*** Market grade potatoes <4 oz (process culls) were valued at $60.00/ton.
5. ***Specific Gravity clause:*** Premium per ton is $1.00 at 1.077, $4.00 at 1.078, $6.00 at 1.079, $8.00 at 1.080, $10.00 at 1.081, $12.00 at 1.082, $14.00 at 1.083, with a maximum of $14.00 for 1.084 through 1.088. Above 1.088 the premiums drop: $13.00 at 1.089, $12.00 at 1.090, $11.00 at 1.091, $9.00 at 1.092, $7.00 at 1.093, $5.00 at 1.094, $3.00 at 1.095. Between 1.096 and 1.098 no premium or penalty. Penalty of $1.00/ton at 1.099; >1.099 penalty of $3.00/ton. No premium or penalty for 1.076, $10.00 penalty at 1.075. Below 1.075, lots were penalized $20.00/ton with no rejection minimum.
6. No premiums or penalties were applied for bruise, tuber fry color, sugar content, or internal defects.

2009 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 are shown 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. 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 60 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 twentyfive 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
	1.50	82.6	64.1
Blocky	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 and elongated tubers result in high French fry yield with less waste.

Long-term Storage Characteristics of Clones in the 2008 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.

2009 Early Harvest Tri-State Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 7 Vine Kill Date: July 30
Harvest Date: August 11 Days Grown: 114
Fertility: 210-225-180 In-Row Spacing: 12 in.

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). The 2009 trial compared 3 local reference varieties to 5 new clones. Despite a cooler spring, the consistently mild weather mid July was ideal growing conditions, and thus yields and mean tuber weight were above average. In addition, tuber number per plant was below average. The following is a summary of the Washington field and post-harvest results. See also: grading comments and merit scores near front of book

Fresh Market Standout(s): AO00057-2.
Process Market Standout(s): AO00057-2.

Standcounts

- **40 Day**
  Fast emergence: Russet Norkotah (91%).
  Slow emergence: AO00057-2 (18%), all other entries above 62% at 40 DAP.

- **50 Day**
  Full emergence: A00324-1 and Ranger Russet (100%).
  Poor emergence: A01010-1 (87%). All of the other entries had more than 90% emergence at 50 days.

Plant and Tuber Growth & Development

- **Stem Number Per Plant – Above Ground**
  Most: A00324-1 (2.2) and A01010-1 (2.1).
  Least: AO00057-2 (1.2); Ranger Russet and Russet Burbank (1.5).

- **Average Tuber Number Per Plant**
  Most: A00727-1 (8.0) and AO02183-2 (7.0).
  Least: A00324-1 (4.2) and Ranger Russet (4.6).

- **Average Tuber Size (oz)**
  Largest: A00324-1 (12.5), AO00057-2 (10.9), and Ranger Russet (10.7).
  Smallest: A01010-1 (6.7), A00727-1 (6.9), and AO02183-2 (1.7).

- **Undersized Tubers (< 4 oz)**
  Most: A00727-1 (60 CWT/A), A01010-1 and AO02183-2 (36 CWT/A).
  Fewest: AO00057-2 (10 CWT/A) and Ranger Russet (12 CWT/A).

Yield and Economic Data

- **Total Yield**
  Highest: A00727-1 (530 CWT/A), Russet Norkotah (518 CWT/A), and A00324-1 (501 CWT/A).
  Lowest: A01010-1 and Russet Burbank.

- **% U.S. #1's (>4 oz)**
  Highest: Ranger Russet (96%) and AO00057-2 (95%).
  Lowest: Russet Burbank and A00727-1 (86%).

- **Carton Yield (100 to 50 Count (7 to 18 oz U.S.#1 Tubers))**
  Highest: Russet Norkotah (401 CWT/A).
  Lowest: A00324-1 (275 CWT/A) and A01010-1 (281 CWT/A).

- **Specific Gravity**
  Highest: Russet Burbank (1.079).
  Lowest: A01010-1 (1.067), Russet Norkotah and A00324-1 (1.070).

- **Gross Return ($/acre)**
  Fresh Market Highest: Russet Norkotah, AO00057-2, and A00727-1
  Fresh Market Lowest: A01010-1 and A000324-1.
  Process Market Highest: Russet Norkotah, AO00057-2, and A00727-1.
  Process Market Lowest: Russet Burbank and A01010-1.

Tuber Defects (30 tuber sample of 8-12 oz tubers)

- **External Defects**
  Notable Defects: Russet Burbank had the highest percentage of knobs (3%). AO02183-2 had the highest percentage of growth cracks (3%).

- **Internal Defects**
  Notable Defects: Russet Burbank and A01010-1 had 3% internal brown spot; all other entries were 0%.

- **Bruise**
  Highest Blackspot: A00324-1 (25%), A00727-1 (23%), Ranger Russet, Russet Burbank, and AO00057-2 (20%).
  Highest Shatter: Ranger Russet (32%) and AO00057-2 (27%).

2009 Early Harvest Tri-State Trial

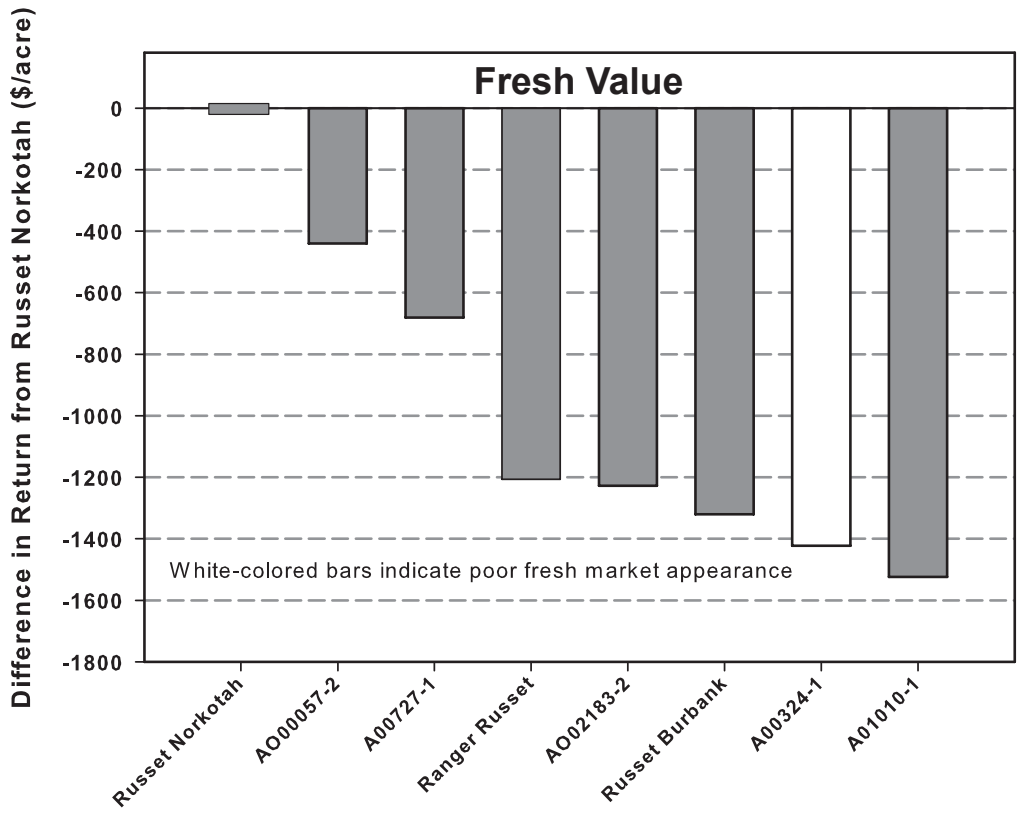
Summaries

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	475	AB	23.8	96	2	3	65	15.5	92	21.9
Russet Burbank	457	AB	22.9	86	2	12	68	15.5	76	17.3
Russet Norkotah	518	A	25.9	93	1	6	77	20.1	87	22.7
A00324-1	501	AB	25.1	88	6	6	55	13.8	90	22.6
A00727-1	530	A	26.5	86	2	12	64	16.9	75	19.9
A01010-1	445	AB	22.3	90	2	8	63	14.0	75	16.7
AO00057-2	496	AB	24.8	95	2	3	68	17.0	92	22.7
AO02183-2	480	AB	24.0	88	1	11	65	15.6	72	17.3

ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers)		
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	4-7 oz*	7-14 oz*	> 14 oz*		% HH	% BC	% IBS
				%						
Ranger Russet	456	AB	22.8	11	43	46	1.077	0	0	0
Russet Burbank	392	ABC	19.6	23	59	18	1.079	0	0	3
Russet Norkotah	482	AB	24.1	14	54	32	1.070	0	0	0
A00324-1	439	ABC	22.0	6	33	61	1.070	0	0	0
A00727-1	458	AB	22.9	25	58	17	1.076	0	0	0
A01010-1	399	ABC	20.0	31	68	2	1.067	0	0	3
AO00057-2	469	AB	23.4	10	49	41	1.077	0	0	0
AO02183-2	423	ABC	21.1	30	60	9	1.074	0	0	0

ENTRY	30 DAY STAND	40 DAY STAND	50 DAY STAND	STEMS PER PLANT	AVERAGE TUBER WEIGHT	AVERAGE TUBER NUMBER	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers)	
	% Emerged	% Emerged	% Emerged	Above Ground	Ounces	Tubers/Plant			BLACKSPOT	SHATTER
Ranger Russet	0	82	100	1.5	10.7	4.6	3	4	20	32
Russet Burbank	0	87	98	1.5	7.8	6.1	4	3	20	7
Russet Norkotah	0	91	98	1.9	9.6	5.6	4	3	3	10
A00324-1	0	80	100	2.2	12.5	4.2	4	3	25	10
A00727-1	0	71	96	1.8	6.9	8.0	4	3	23	20
A01010-1	0	67	87	2.1	6.7	6.9	4	3	13	13
AO00057-2	0	18	91	1.2	10.9	4.7	4	3	20	27
AO02183-2	0	62	98	1.7	7.2	7.0	4	3	3	17

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



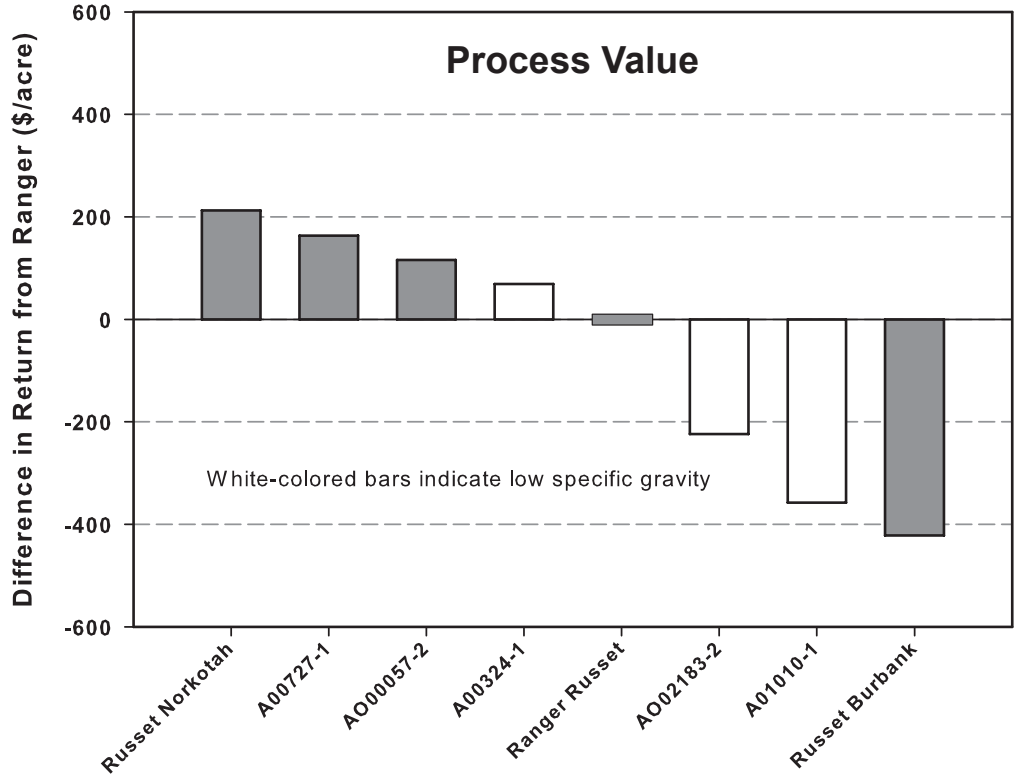
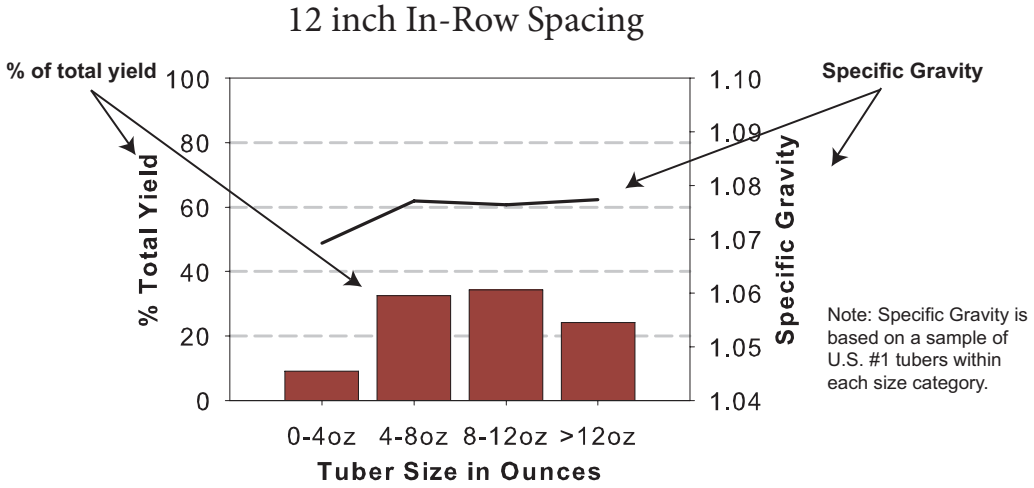
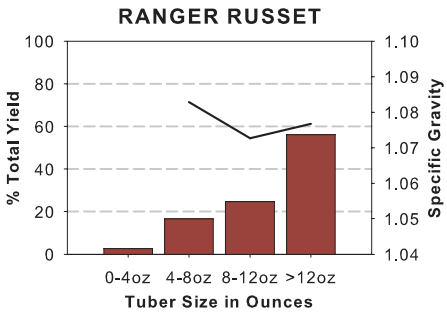


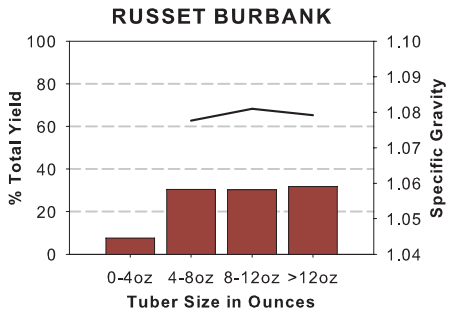
Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry.
Figure 2 (Bottom). Difference in gross return per acre (Process Market) from Ranger Russet calculated by subtracting the gross return of Ranger Russet from the gross return of the particular entry.

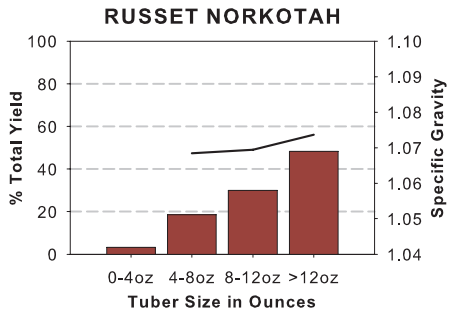
2009 Early Harvest Tri-State Trial

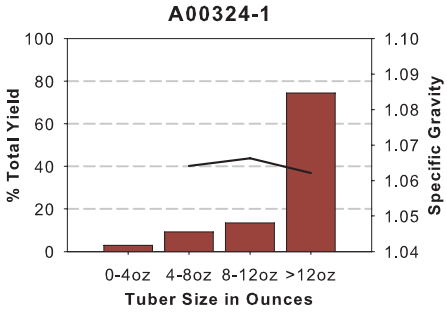
Tuber Yield and Specific Gravity Distributions

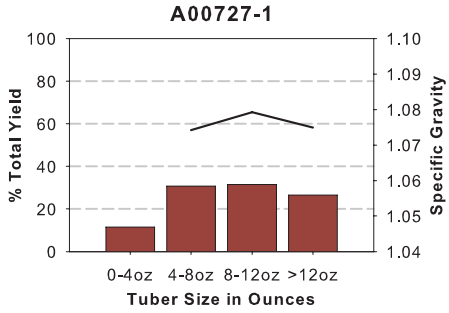


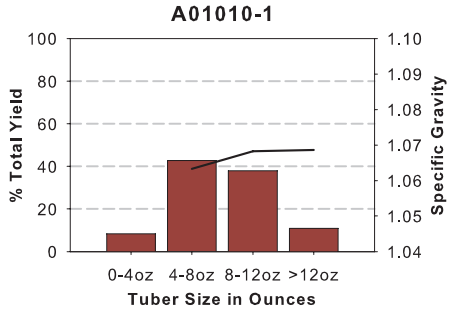


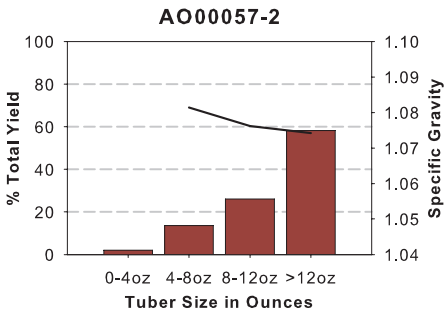


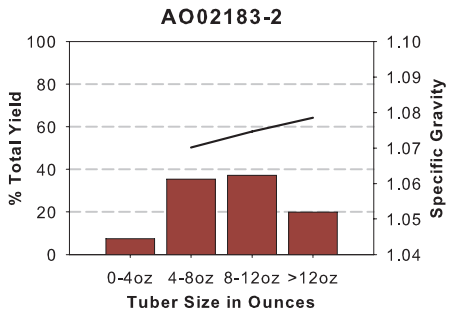


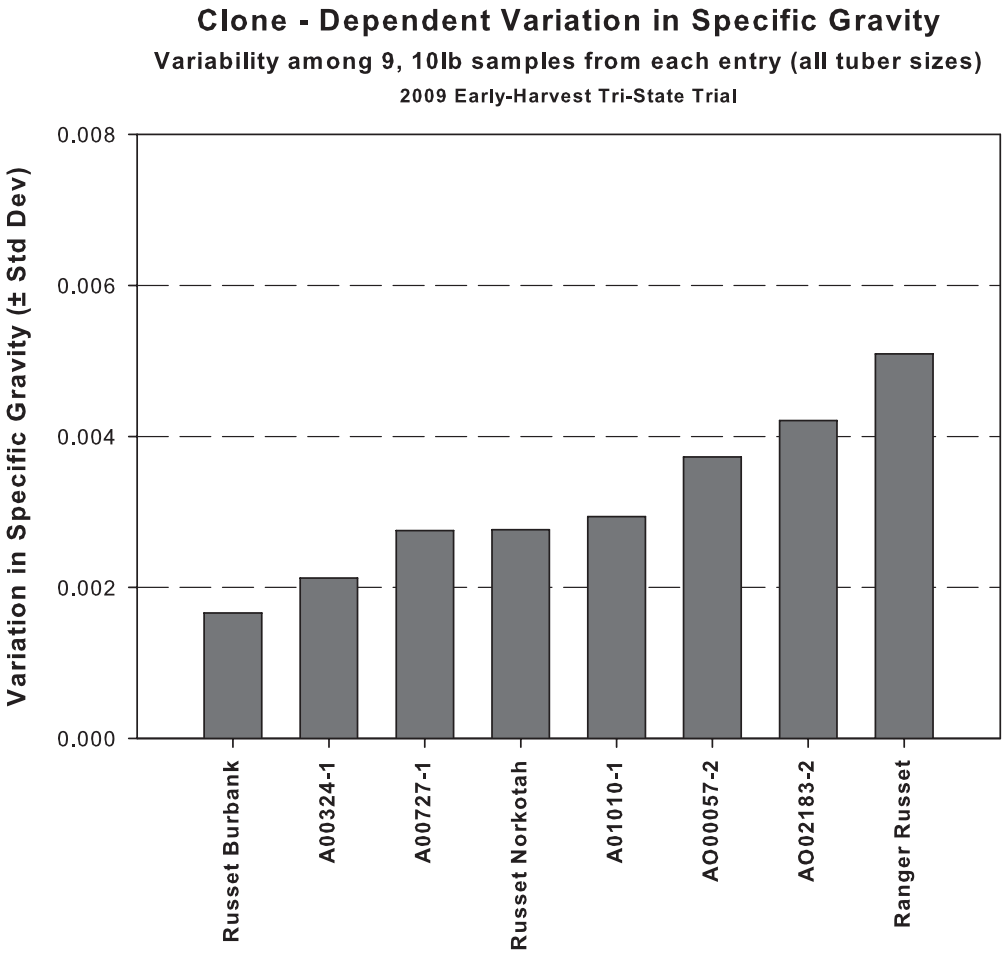












Zach Holden and Josh Rodriguez adjust equipment in the field.

Tubers	Fries	WA Early Harvest Tri-State Trial Comments
Ranger Russet		
		**Tubers:** Oblong to long tubers. Moderate russet with fair skin set; moderate eye depth. **Fry color:** Light, uniform.
Russet Burbank		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.
A00324-1		
		**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.
A00727-1		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
A01010-1		
		**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.

Tubers	Fries	WA Early Harvest Tri-State Trial Comments
AO00057-2		
		**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
AO02183-2		
		**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.

Postharvest Evaluation

The 2009 Early Tri-State Trial consisted of 2 cultivars and 5 numbered lines. All entries fried light with USDA ratings of "0". Fry color was acceptably uniform from bud to stem end.

	Clone	PHOTOVOLT Stem	Bud	Average	DIFFERENCE * STEM - BUD	USDA COLOR
1	Ranger Russet	48.8	47.9	48.4	3.0	0
2	Russet Burbank	47.1	43.7	45.4	4.4	0
3	A00324-1	40.2	38.0	39.1	4.4	0
4	A00727-1	36.2	31.5	33.8	5.6	0
5	A01010-1	54.2	54.6	54.4	1.9	0
6	AO00057-2	50.3	49.7	50.0	2.6	0
7	AO02183-2	45.6	39.4	42.5	6.7	0
			LSD 0.05	*2.5*	*2.5*	
	Average	46.1	43.5	44.8	4.1	0

* Average of 12 individual tuber absolute differences

Planting Date: April 7
Harvest date: Aug. 11
Fried on: Aug. 14

2009 Late Harvest Tri-State Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 20 Vine Kill Date: Sept 17
Harvest Date: Sept 21 Days Grown: 150
Fertility: 180-225-100 In-Row Spacing: 10 in.

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. Despite a cooler spring, the consistently mild weather mid-July was ideal for plant growth and yields were above average. In addition, tuber number per plant was below average. The following is a summary of the Washington field and post harvest results. See also: grading comments and merit scores near front of book.

Fresh Market Standout(s): AO02183-2 (one year's data only).
Process Market Standout(s): AO02183-2 and A01010-1 (both one year's data only).
Potential Discard(s): A00727-1

Standcounts

- **30 Day**
  Fast emergence: A01010-1 (67%), all other entries < 20%.
  Slow emergence: A00324-1, A00727-1, and AO00057-2 (all 0%).

- **50 Day**
  Full emergence: All entries > 95% emergence.

Plant and Tuber Growth & Development

- **50 Day Stem Number per Plant**
  Most: A00324-1 and AO02183-2 (2.1).
  Least: AO00057-2 (1.2) and Ranger Russet (1.5).

- **Average Tuber Number Per Plant**
  Most: A01010-1 (8.5), AO02183-2 and Russet Burbank (8.0).
  Least: AO00057-2 (5.2) and A00324-1 (5.8).

- **Average Tuber Size (oz)**
  Largest: A00324-1 (15.5) and AO00057-2 (11.4).
  Smallest: Russet Norkotah (7.4) and A00727-1 (8.3).

- **Undersized Tubers (< 4 oz)**
  Most: Russet Norkotah, A00727-1, and A01010-1 (all > 50 CWT/A).
  Least: A00324-1 and AO00057-2.

Yield and Economic Data

- **Total and Market Yield (US 1s & 2s > 4oz)**
  Highest: A00324-1 had the highest total and market yields (1029 CWT/A and 986 CWT/A, respectively). AO02183-2 had the second highest total and market yields.
  Lowest: Russet Norkotah and A00727-1 had the lowest total and market yields.

- **% Market Yield Greater Than 6 oz.**
  Highest: A00324-1 (95%) and AO00057-2 (91%).
  Lowest: Russet Norkotah (77%) and A00727-1 (80%).

- **Carton Yield (100 to 50 Count, 7 to 18 oz US#1 Tubers)**
  Highest: A01010-1, AO02183-2, and Russet Burbank (all > 495 CWT/A).
  Lowest: A00727-1, A00324-1, and AO00057-2 (all < 350 CWT/A).

- **Gross Return ($/acre)**
  Fresh Market Highest: A01010-1 and AO02183-2.
  Fresh Market Lowest: A00727-1 and A00324-1.
  Process Market Highest: A000324-1 and AO02183-2.
  Process Market Lowest: Russet Norkotah and AO00057-2.

Tuber Defects (40 tuber sample of 8-12 oz tubers.)

- **External Defects**
  Notable Defects: All entries had very few external defects. All entries had < 2% external defects.

- **Internal Defects**
  Notable Defects: Russet Burbank had 3% hollow heart. There was no internal brown spot or brown center detected in the other entries.

- **Bruise**
  Highest Blackspot: A00324-1 (26%), Russet Burbank and A00727-1 (25%).
  Highest Shatter: A00727-1 (70%), AO00057-2 (59%), and A00324-1 (56%).

2009 Late Harvest Tri-State Trial

Postharvest Information

- **Overall Postharvest Rating**
  Highest scoring clones: AO02183-2, AO00057-2, RR
  Lowest scoring clones: A00727-1, RB, and A00324-1

- **Low Temperature Sweetening**
  Most resistant: AO02183-2, AO00057-2
  Most susceptible: A00727-1, RB, A00324-1

- **Taste Panel**
  Highest rated: AO00057-2, AO02183-2
  Lowest rated: A00727-1, RB

- **Blackspot Bruise Susceptibility**
  Most resistant: A01010-1, AO00057-2
  Most susceptible: A00727-1, RR

- **Variability in Tuber Shape & Fry Yield (8- to 10-oz tubers)**
  Lowest L/W: AO00057-2, A00727-1, A00324-1
  Highest L/W: RR, A01010-1, RB
  Least variable: RB, A00324-1, A01010-1
  Most variable: A002183-2

Details

- When averaged across states, all entries except A00727-1 received higher overall postharvest scores than Russet Burbank.

- AO02183-2, AO00057-2, and RR were the highest rated entries, scoring 33.5, 31.6, and 29.4 out of 38 points, respectively. AO02183-2, and AO00057-2 showed resistance to low temperature sweetening, with WA- and ID-grown samples producing USDA 0-2 fries when stored at 40°F (60 days). Processing quality of the OR-grown samples was acceptable for AO00057-2 (USDA 1) but unacceptable for AO02183-2 (USDA 3) after 60 days at 40°F. Both entries produced acceptable USDA 0-1 fry color following 60 days storage at 44°F.

- A00727-1, RB, and A00324-1 received the lowest overall postharvest scores (17.0/38, 18.7/38 and 24.6/38, respectively).

- The average gravities of RB and A00727-1 were 1.073 and 1.078, respectively; too low for most processing contracts. In contrast, AO02183-2 and AO0057-2 averaged 1.083, which is ideal for most contracts.

- AO0057-2 and AO02183-2 were the favorites in the taste panels, averaging ratings of 3.6 and 3.5, respectively, across growing locations (5 is best). A00727-1 had the lowest average taste panel score of 3.0 among numbered entries, which was equal to that of RB.

- In addition to rating overall bruise susceptibility, blackspot bruise severity was rated from 1 to 5 (max. bruise) based on color intensity and percentage of the 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). A00727-1 and RR were the most susceptible, scoring 78% and 76% bruise (stem end), respectively, in the controlled impact study. These clones also had the highest bruise severity, averaging 3.3/5. In contrast, A01010-1 was the most resistant, averaging only 7% bruise (stem end) and a 1.1 severity rating.

- The 8- to 10-oz tubers of AO00057-2, A00727-1, and A00324-1 had low length to width ratios (avg. L/W=1.65), resulting in yields of 3-inch or longer fries averaging only 68% by number. AO02183-2 had the greatest variation in L/W ratio, resulting in usable fry yields ranging from 63 to 77%, depending on production area. The relatively low average L/W ratio of A00324-1 was fairly consistent across states. The L/W ratio of tubers of A01010-1was statistically equal to Ranger (1.96) with relatively low variation across production sites.

- On average, reconditioning (60°F, 21 days) tubers of A00324-1, AO22183-2, RR, and A01010-1 that had been previously stored at 40°F for 60 days resulted in the greatest improvement in stem end fry color compared with the other clones. In contrast, A00727-1 showed less reconditioning potential.

- Length of dormancy of A01010-1 and A00324-1 was relatively short and on par with RR; 86% of tubers had sprouts of 0.25 to 0.38 inches following 60 days storage at 48°F. In contrast, AO00057-2 tubers from ID and OR did not sprout under these conditions (WA-grown tubers had 1/8-inch sprouts). RB did not sprout during the 60-day interval regardless of production site.

Overall Tri-State Postharvest Merit Scores

	Postharvest Merit Scores			3 state
Clone	WA	ID	OR	Average
7 AO02183-2	3.6	4.8	4.8	4.4
6 AO00057-2	4.7	4.7	3.1	4.2
1 Ranger Russet	4.3	4.4	2.9	3.9
5 A01010-1	4.1	3.7	2.4	3.4
3 A00324-1	4.3	3.6	1.9	3.2
2 Russet Burbank	3.8	2.1	1.6	2.5
4 A00727-1	2.5	2.3	1.9	2.2

2009 Late Harvest Tri-State Trial

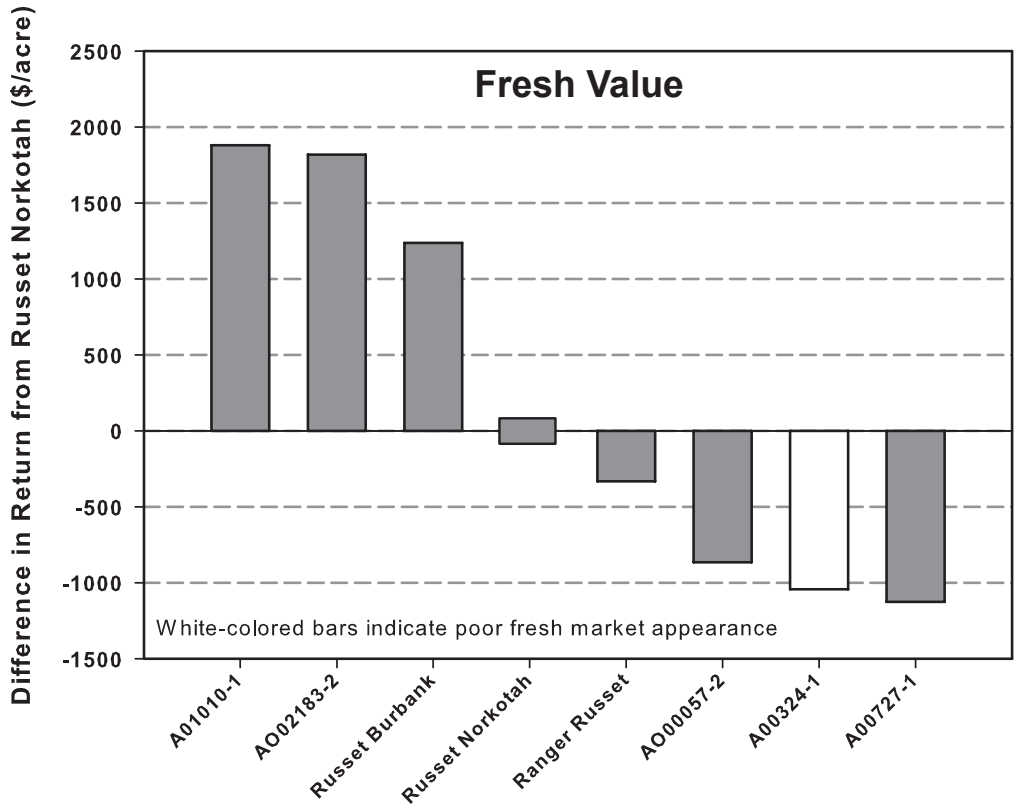
Summaries

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	814	ABCD	40.7	89	4	7	48	19.6	87	35.4
Russet Burbank	852	ABCD	42.6	88	5	8	59	25.0	85	36.1
Russet Norkotah	663	CD	33.1	91	0	9	65	21.6	77	25.5
A00324-1	1029	AB	51.4	96	1	3	32	16.4	95	48.8
A00727-1	663	CD	33.2	89	1	10	52	17.1	80	26.7
A01010-1	832	ABCD	41.6	93	1	7	69	28.6	84	34.9
AO00057-2	678	CD	33.9	96	0	4	48	16.2	91	30.7
AO02183-2	864	ABCD	43.2	94	1	5	64	27.6	87	37.5

ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers)		
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	4-7 oz*	7-14 oz*	> 14 oz*		% HH	% BC	% IBS
				%						
Ranger Russet	725	BCDE	36.2	11	34	56	1.081	0	0	0
Russet Burbank	748	ABCDE	37.4	17	47	37	1.080	3	0	0
Russet Norkotah	604	CDE	30.2	24	62	14	1.065	0	0	0
A00324-1	986	AB	49.3	4	20	75	1.082	0	0	0
A00727-1	588	CDE	29.4	17	39	44	1.080	0	0	0
A01010-1	772	ABCDE	38.6	16	56	28	1.082	0	0	0
AO00057-2	648	CDE	32.4	8	30	61	1.077	0	0	0
AO02183-2	812	ABCDE	40.6	15	48	37	1.089	0	0	0

ENTRY	30 DAY STAND	40 DAY STAND	50 DAY STAND	STEMS PER PLANT	AVERAGE TUBER WEIGHT	AVERAGE TUBER NUMBER	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers)	
	% Emerged	% Emerged	% Emerged	Above Ground	Ounces	Tubers/Plant			BLACKSPOT	SHATTER
Ranger Russet	13	98	100	1.5	10.9	6.5	4	4	20	50
Russet Burbank	19	97	100	1.6	9.3	8.0	4	3	25	55
Russet Norkotah	10	93	97	1.9	7.4	7.8	4	3	15	23
A00324-1	0	91	100	2.1	15.5	5.8	3	3	26	56
A00727-1	0	75	95	1.7	8.3	6.9	3	3	25	70
A01010-1	67	93	99	2.0	8.6	8.5	4	3	13	53
AO00057-2	0	93	98	1.2	11.4	5.2	4	3	15	59
AO02183-2	1	91	100	2.1	9.3	8.0	4	3	5	50

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



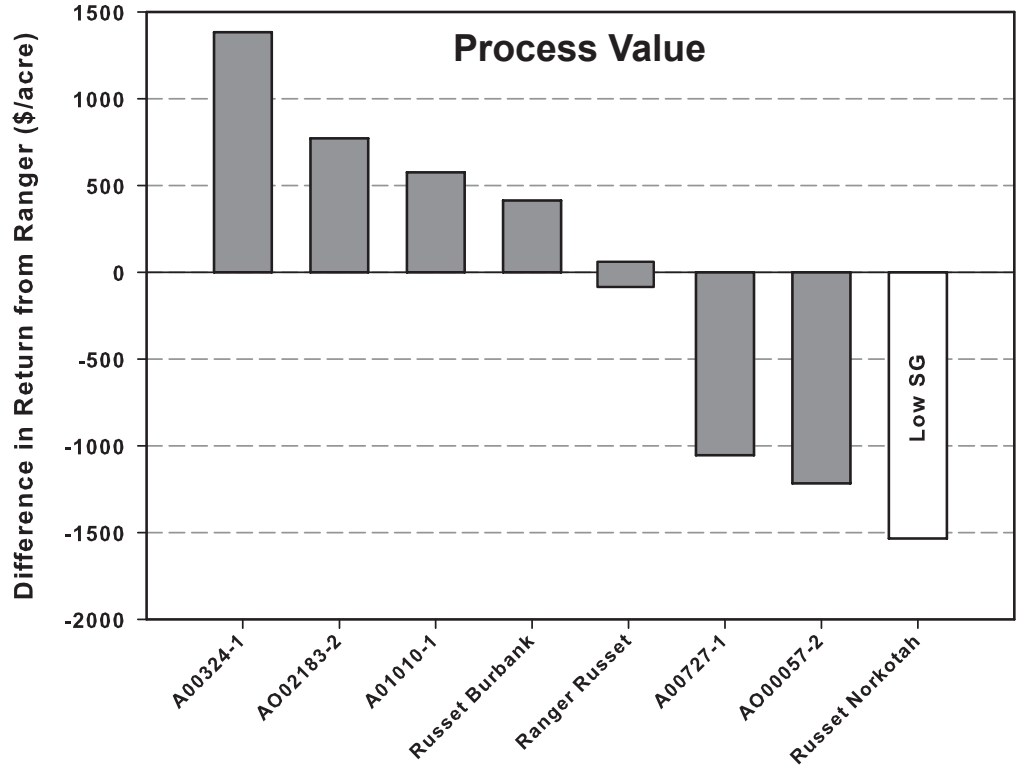
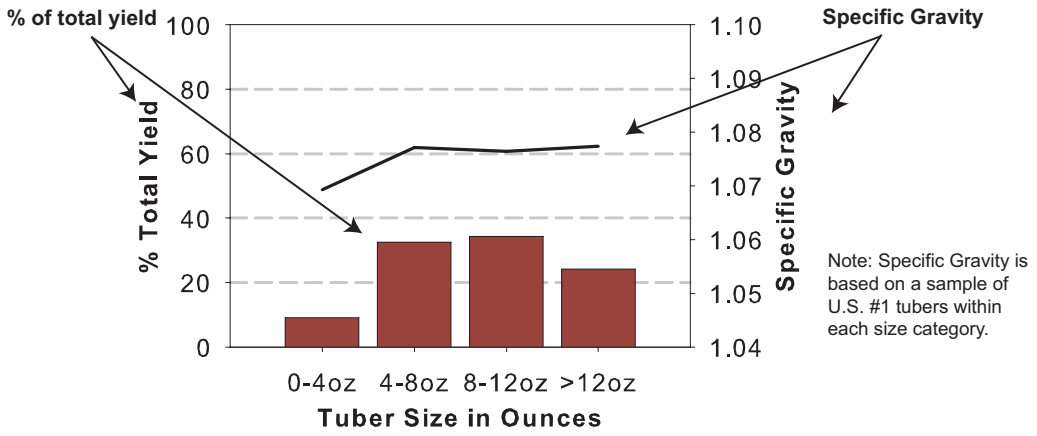


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to undesirable shape or appearance. **Figure 2 (Bottom)** Difference in gross return per acre (Process Market) from Ranger Russet calculated by subtracting the gross return of Ranger Russet from the gross return of the particular entry. Entries with the white-colored bars would be penalized (under the mock contract parameters) due to a specific gravity less than 1.075.

2009 Late Harvest Tri-State Trial

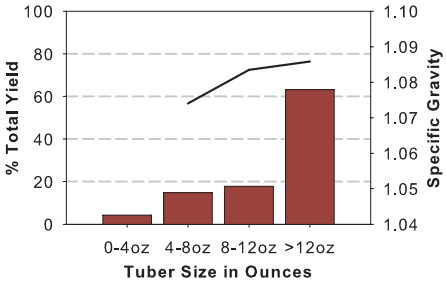
Tuber Yield and Specific Gravity Distributions

10 inch In-Row Spacing

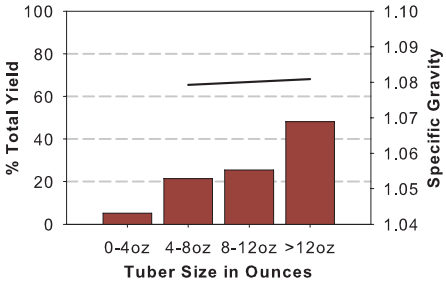


Note: Specific Gravity is based on a sample of U.S. #1 tubers within each size category.

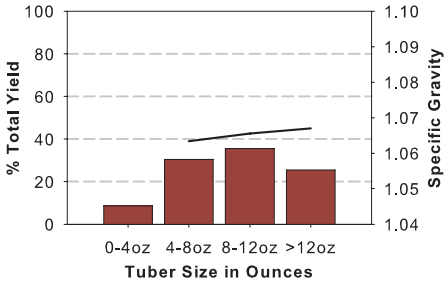
RANGER RUSSET



RUSSET BURBANK



RUSSET NORKOTAH



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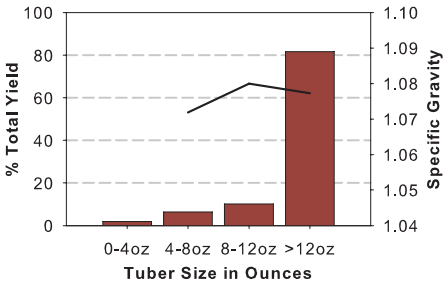

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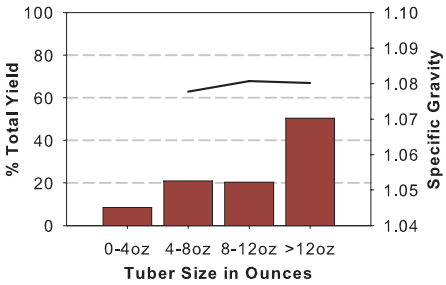

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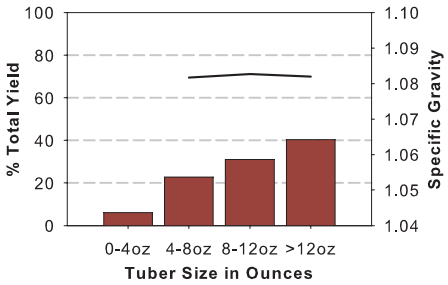
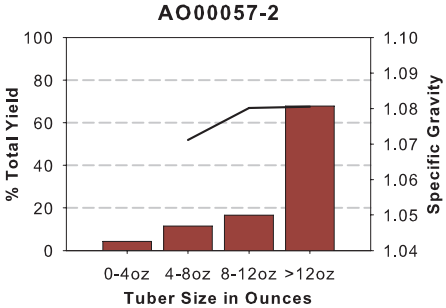
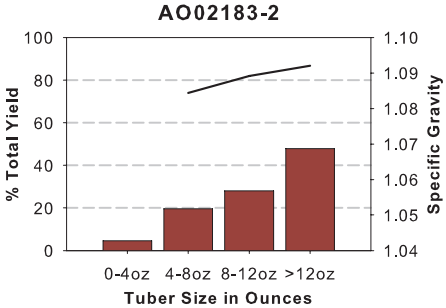
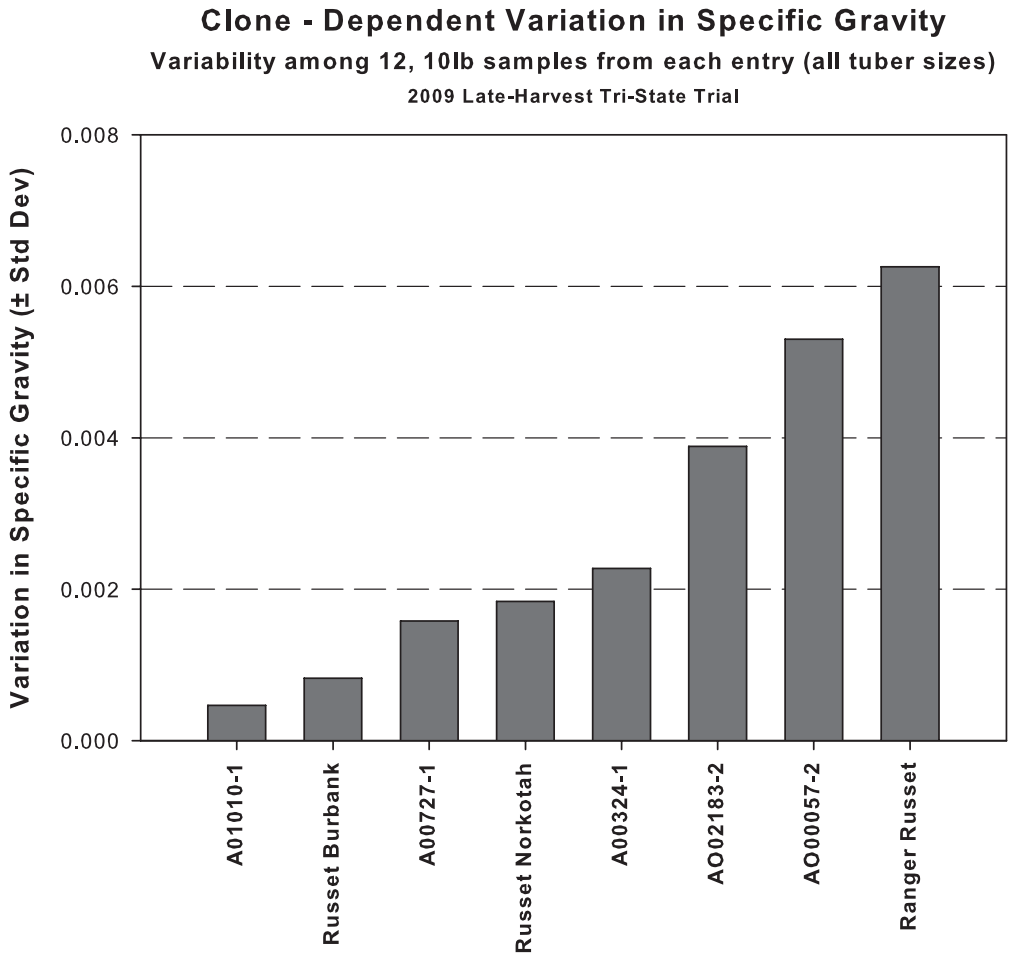


AO00057-2



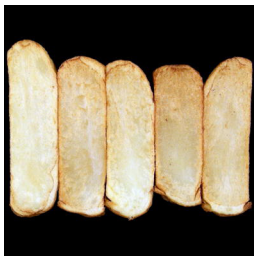
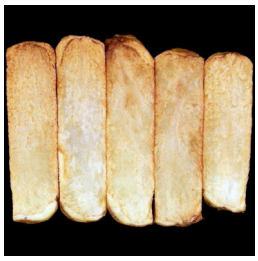
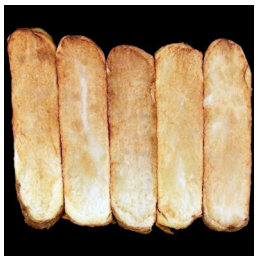
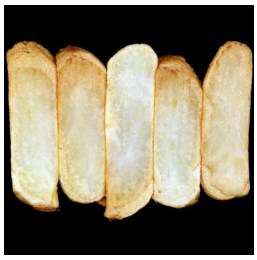
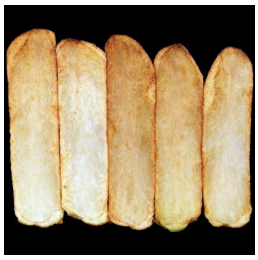
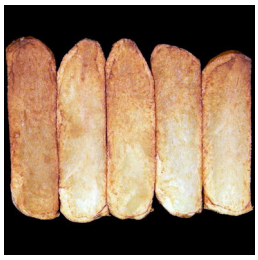
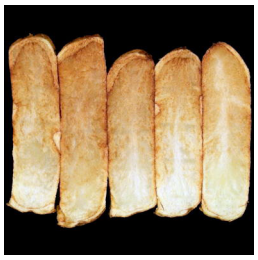
AO02183-2





Knowles and team harvesting a round white cultivar.

Tubers	WA Late Harvest Tri-state Trial Comments
Ranger Russet	
	**Tubers:** Oblong to long tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, non-uniform; 40°F=relatively dark, uniform; reconditioned=light, non-uniform.
Russet Burbank	
	**Tubers:** Oblong tubers. Moderate russet with good skin set; moderate eye depth. **Fry color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=relatively dark, non-uniform; reconditioned=light, non-uniform.
A00324-1	
	**Tubers:** Oblong tubers. Light russet with fair skin set; moderate eye depth. **Fry color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=relatively dark, non-uniform; reconditioned=light, uniform.
A00727-1	
	**Tubers:** Oblong tubers. Moderate russet with fair skin set; shallow eyes. **Fry color:** At harvest=light, uniform; after approximately two 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.
A01010-1	
	**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, non-uniform; 44°F=light, non-uniform; 40°F=relatively dark, uniform; reconditioned=light, uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
Ranger Russet				
				
Russet Burbank				
				
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	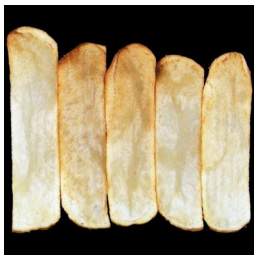	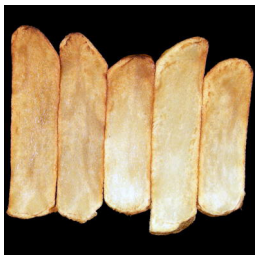		
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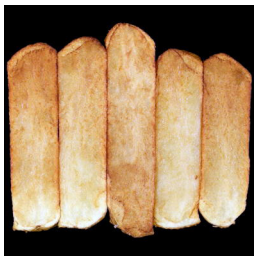
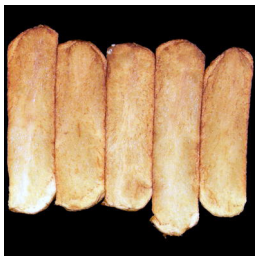
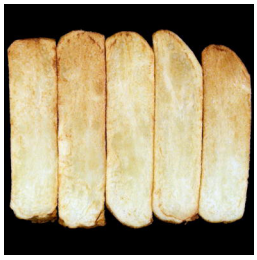
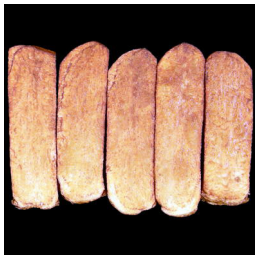
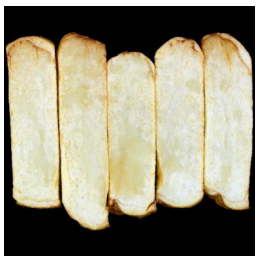
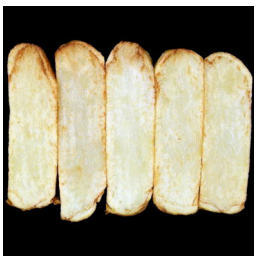
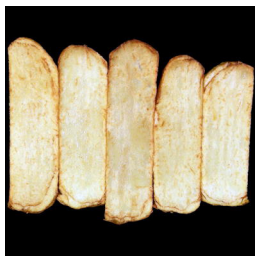
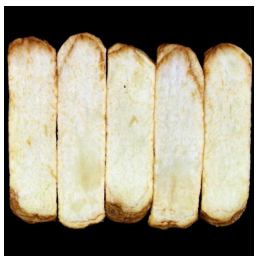
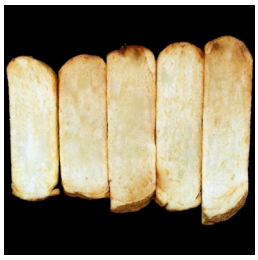
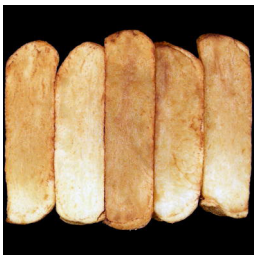
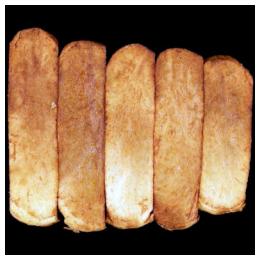
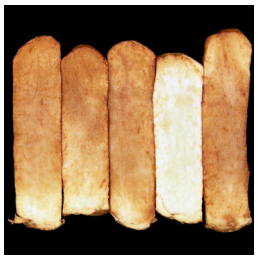
				
A01010-1				
				

Tubers	WA Late Harvest Tri-state Trial Comments
AO00057-2	
	**Tubers:** Oblong tubers. Heavy russet with good skin set; shallow eyes. **Fry color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=light, uniform; reconditioned=light, uniform.
AO02183-2	
	**Tubers:** Oblong tubers. Moderate russet with good skin set; moderate eye depth. **Fry color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, non-uniform; 40°F=relatively dark, non-uniform; reconditioned=light, non-uniform.

Tom Cummings (Plant Pathology) captivates the audience as he discusses potato disease management at the 2009 WSU Potato Field Day in Othello.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
AO00057-2				
				
AO02183-2				
				

Mark Pavek ensures participants of the 2009 Potato Field Day are buckled in as they transition from one trial to the next.

2009 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
7 AO02183-2	27.6		36.6		36.3		33.5
6 AO00057-2	35.9		35.5		23.4		31.6
1 Ranger Russet	32.6		33.2		22.3		29.4
5 A01010-1	31.4		28.4		18.5	Sp. Gr.	26.1
3 A00324-1	32.5		27.2		14.1		24.6
2 Russet Burbank	28.5		15.7	Sp. Gr.	11.9	Sp. Gr.	18.7
4 A00727-1	19.2		17.6		14.2	Sp. Gr.	17.0
Average	29.7		27.7		20.1		25.8

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

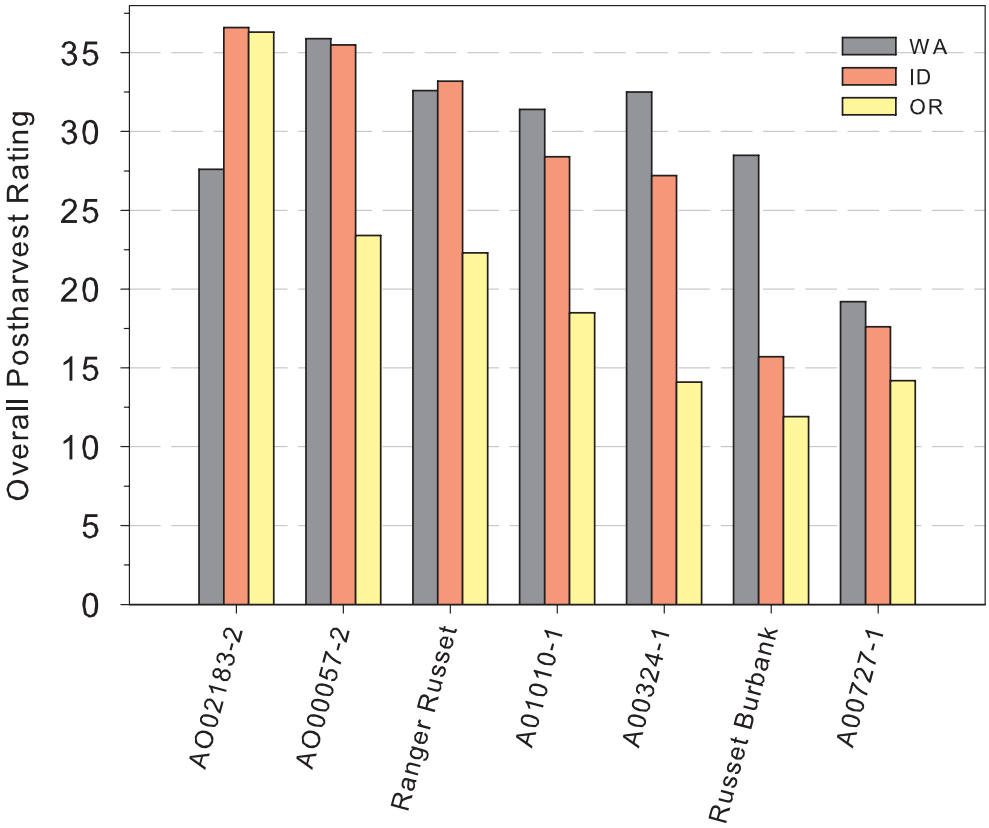
Overall Postharvest Performance of Clones Compared to Russet Burbank

Clone	WA	ID	OR	Average
1 Ranger Russet	**H**	**H**	**H**	**H**
3 A00324-1	**H**	**H**	**H**	**H**
4 A00727-1	**L**	**H**	**H**	**L**
5 A01010-1	**H**	**H**	**H**	**H**
6 AO00057-2	**H**	**H**	**H**	**H**
7 AO02183-2	**L**	**H**	**H**	**H**

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

2009 Late Harvest Tri-State Trial

Late Harvest Tri-State Postharvest Ratings



Chuck Brown enlightens a group at the 2009 Potato Field Day.

Two rows down, eighty more to go; Rick and Lisa Knowles and crew plant a trial in the early spring.

The Knowles planting “A Team” including (from left to right) Rick Knowles, Jacob Blauer, and Josh Rodriguez.

2009 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	40.2	44.2	42.2	**5+**	5.4	0	1.085	**5**
2 Russet Burbank	36.4	42.6	39.5	**4+**	6.4	0	1.079	**2**
3 A00324-1	36.2	40.8	38.5	**4+**	4.9	0	1.085	**5**
4 A00727-1	30.5	35.4	33.0	**3+**	5.9	0	1.078	**2**
5 A01010-1	38.7	47.6	43.2	**5+**	8.9	0	1.085	**5**
6 AO00057-2	49.4	51.7	50.6	**5+**	4.4	0	1.089	**4**
7 AO02183-2	40.9	50.5	45.7	**5-**	9.6	0	1.080	**3**
		LSD 0.05	*3.5*		*3.5*		*0.007*	
Average	38.9	44.7	41.8		6.5	0	1.083	
Idaho								
1 Ranger Russet	39.4	42.8	41.1	**5+**	4.6	0	1.080	**3**
2 Russet Burbank	31.4	39.5	35.5	**4-**	9.0	0	1.072	**0**
3 A00324-1	38.9	40.7	39.8	**4+**	6.7	0	1.080	**3**
4 A00727-1	24.3	30.3	27.3	**2-**	9.0	2	1.084	**5**
5 A01010-1	44.1	51.4	47.7	**5+**	8.1	0	1.079	**2**
6 AO00057-2	44.1	46.2	45.2	**5+**	4.2	0	1.081	**4**
7 AO02183-2	55.0	54.2	54.6	**5+**	2.3	0	1.085	**5**
		LSD 0.05	*3.0*		*3.2*		*0.004*	
Average	39.6	43.6	41.6		6.3	0	1.080	
Oregon								
1 Ranger Russet	26.9	38.9	32.9	**3-**	12.0	1	1.086	**5**
2 Russet Burbank	19.3	36.5	27.9	**2-**	17.2	3	1.068	**0**
3 A00324-1	22.8	35.3	29.0	**2-**	12.4	2	1.077	**1**
4 A00727-1	23.4	36.4	29.9	**2-**	13.0	2	1.072	**0**
5 A01010-1	27.9	45.7	36.8	**4-**	17.8	1	1.073	**0**
6 AO00057-2	36.8	47.7	42.2	**5-**	10.9	0	1.077	**1**
7 AO02183-2	45.6	48.5	47.1	**5+**	4.4	0	1.084	**5**
		LSD 0.05	*3.1*		*4.5*			
Average	29.0	41.3	35.1		12.5	1	1.077	

Date test performed:

Washington	Oct. 9	Sept. 29
Idaho	Oct. 9	Sept. 29
Oregon	Oct. 9	Sept. 30

§ 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.

2009 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	**3.6**	88	17	3.5	1.4	13	17
2 Russet Burbank	**3.5**	54	33	2.3	1.7	23	19
3 A00324-1	**3.5**	80	20	3.2	1.4	8	11
4 A00727-1	**3.2**	75	42	3.1	1.9	20	24
5 A01010-1	**3.4**	9	5	1.2	1.1	No Sample	
6 AO00057-2	**3.9**	54	8	2.5	1.2	9	10
7 AO02183-2	**3.6**	30	15	1.7	1.3	11	10
LSD 0.05	*0.3*	*25*	*21*			*7*	*7*
Average	3.5	55.7	19.9	2.5	1.4	14.2	15.1
Idaho							
1 Ranger Russet	**3.2**	42	0	2.0	1.0	9	9
2 Russet Burbank	**2.7**	25	21	1.5	1.5	10	10
3 A00324-1	**3.2**	17	8	1.4	1.2	6	4
4 A00727-1	**2.6**	71	8	3.0	1.2	8	9
5 A01010-1	**3.4**	0	0	1.0	1.0	4	4
6 AO00057-2	**3.5**	4	0	1.1	1.0	7	9
7 AO02183-2	**3.6**	0	4	1.0	1.1	5	6
LSD 0.05	*0.4*	*21*	*15*			*3*	*3*
Average	3.2	22.6	1.1	1.6	1.1	6.9	7.4
Oregon							
1 Ranger Russet	**3.3**	100	33	4.9	1.7	7	10
2 Russet Burbank	**2.9**	67	50	2.7	2.1	8	11
3 A00324-1	**3.1**	42	13	2.4	1.3	6	7
4 A00727-1	**3.2**	88	50	3.2	2.0	9	12
5 A01010-1	**3.5**	13	4	1.3	1.1	5	7
6 AO00057-2	**3.4**	29	21	1.5	1.3	8	8
7 AO02183-2	**3.3**	67	4	2.5	1.1	4	5
LSD 0.05	*0.4*	*25*	*25*			*3*	*4*
Average	3.2	57.7	1.5	2.6	1.5	6.5	8.7

Date test performed:

Washington	Oct. 20	Oct. 28	Nov. 6
Idaho	Oct. 21	Oct. 28	Nov. 13
Oregon	Oct. 21	Oct. 28	Nov. 18

2009 Late Harvest Tri-State Trial

Stored at 48°F for 60 Days

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg	SPROUTING (%)	length (in)
Washington											
1 Ranger Russet	39.8	44.9	42.4	**5+**	6.3	0	0.7	0.6	**5**	60	1/8"
2 Russet Burbank	36.1	43.2	39.6	**4+**	8.5	0	0.9	0.6	**5**	0	
3 A00324-1	37.5	43.9	40.7	**5+**	7.0	0	0.9	0.6	**5**	60	1/4"
4 A00727-1	28.9	37.1	33.0	**3-**	9.4	1	1.5	0.9	**4**	20	1/4"
5 A01010-1	37.8	52.7	45.3	**5-**	15.1	0	0.8	0.5	**5**	67	1/8"
6 AO00057-2	52.5	53.7	53.1	**5+**	3.2	0	0.5	0.5	**5**	93	1/8"
7 AO02183-2	47.2	53.4	50.3	**5+**	6.6	0	0.5	0.6	**5**		
		LSD 0.05	*3.5*		*4.2*					*22*	
Average	40.0	47.0	43.5		8.0	0	0.8	0.6		43	
Idaho											
1 Ranger Russet	43.0	45.0	44.0	**5+**	5.1	0	0.6	0.6	**5**	87	1/4"
2 Russet Burbank	27.7	41.8	34.7	**3-**	14.1	1	1.6	0.7	**4**	0	
3 A00324-1	39.2	41.1	40.2	**4+**	4.0	0	0.8	0.7	**5**	100	1/4"
4 A00727-1	25.1	27.2	26.2	**2+**	4.9	1	1.9	1.7	**3**	27	1/4"
5 A01010-1	42.3	51.4	46.8	**5-**	9.9	0	0.6	0.5	**5**	100	1/4"
6 AO00057-2	53.9	53.6	53.7	**5+**	3.5	0	0.5	0.6	**5**	0	
7 AO02183-2	54.2	53.9	54.1	**5+**	2.3	0	0.5	0.5	**5**	100	1/2"
		LSD 0.05	*3.1*		*2.6*					*15*	
Average	40.8	44.9	42.8		6.2	0	1.0	0.7		59	
Oregon											
1 Ranger Russet	27.9	41.3	34.6	**3-**	13.4	1	1.6	0.7	**4**	100	3/4"
2 Russet Burbank	17.9	38.3	28.1	**2-**	20.4	3	3.0	0.8	**3**	0	
3 A00324-1	23.8	40.3	32.1	**3-**	16.5	2	2.1	0.7	**4**	100	1/4"
4 A00727-1	27.2	37.0	32.1	**3-**	10.2	1	1.7	0.9	**4**	80	1/4"
5 A01010-1	28.6	50.3	39.4	**4-**	21.7	1	1.5	0.5	**4**	100	1/2"
6 AO00057-2	32.4	51.0	41.7	**5-**	18.6	0	1.2	0.5	**5**	0	
7 AO02183-2	48.4	50.4	49.4	**5+**	3.9	0	0.5	0.5	**5**	100	3/4"
		LSD 0.05	*2.6*		*4.4*					*11*	
Average	29.4	44.1	36.8		15.0	1	1.7	0.7		69	

Date test performed:

Washington	Dec. 6	Dec. 22
Idaho	Nov. 30	Dec. 22
Oregon	Dec. 12	Dec. 22

§ 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.

2009 Late Harvest Tri-State Trial

Stored at 44°F for 60 Days

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg
Washington									
1 Ranger Russet	31.1	41.1	36.1	**4-**	10.0	0	1.3	0.7	**4**
2 Russet Burbank	28.7	36.9	32.8	**3+**	8.2	1	1.5	0.9	**4**
3 A00324-1	28.9	36.3	32.6	**3+**	7.4	1	1.5	0.9	**4**
4 A00727-1	23.2	33.5	28.3	**2-**	10.3	2	2.2	1.1	**3**
5 A01010-1	33.6	44.8	39.2	**4-**	11.5	0	1.1	0.6	**5**
6 AO00057-2	49.3	50.9	50.1	**5+**	2.8	0	0.5	0.5	**5**
7 AO02183-2	28.6	40.4	34.5	**3-**	14.0	1	1.5	0.7	**4**
		LSD 0.05	*3.4*		*4.1*				
Average	31.9	40.6	36.2		9.2	1	1.4	0.8	
Idaho									
1 Ranger Russet	37.4	41.5	39.5	**4+**	5.4	0	0.9	0.7	**5**
2 Russet Burbank	22.8	36.4	29.6	**2-**	13.6	2	2.2	0.9	**3**
3 A00324-1	24.2	32.9	28.6	**2+**	8.9	2	2.1	1.1	**3**
4 A00727-1	18.6	24.4	21.5	**1+**	6.8	3	2.9	2.0	**1**
5 A01010-1	31.3	36.7	34.0	**3+**	7.9	0	1.3	0.9	**4**
6 AO00057-2	37.6	44.0	40.8	**5+**	7.3	0	0.8	0.6	**5**
7 AO02183-2	53.0	51.8	52.4	**5+**	3.3	0	0.5	0.5	**5**
		LSD 0.05	*2.1*		*3.6*				
Average	32.1	38.3	35.2		7.6	1	1.5	1.0	
Oregon									
1 Ranger Russet	28.6	39.5	34.0	**3-**	10.9	1	1.5	0.8	**4**
2 Russet Burbank	18.6	37.7	28.1	**2-**	19.1	3	2.9	0.8	**3**
3 A00324-1	18.2	33.7	26.0	**2-**	15.5	3	3.0	1.1	**2**
4 A00727-1	20.0	35.3	27.7	**2-**	15.4	2	2.7	1.0	**3**
5 A01010-1	21.4	40.6	31.0	**3-**	19.2	2	2.5	0.7	**3**
6 AO00057-2	26.0	42.1	34.0	**3-**	16.1	1	1.8	0.7	**4**
7 AO02183-2	44.4	47.9	46.2	**5+**	4.7	0	0.6	0.5	**5**
		LSD 0.05	*2.5*		*3.5*				
Average	25.3	39.5	32.4		14.4	2	2.1	0.8	

Date test performed:

Washington	Dec. 7
Idaho	Dec. 1
Oregon	Dec. 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.

2009 Late Harvest Tri-State Trial

Stored at 40°F for 60 Days and Reconditioned

Clone	SPROUTING (%)	PHOTOVOLT (60 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	None	19.1	26.2	22.7	7.0	3	33.0	44.8	38.9	11.8	0
2 Russet Burbank	None	18.3	27.7	23.0	9.4	3	26.8	40.7	33.8	14.0	1
3 A00324-1	0	13.8	25.5	19.6	11.7	4	30.4	37.3	33.9	8.6	1
4 A00727-1	0	16.2	18.7	17.5	3.1	3	23.2	35.4	29.3	12.1	2
5 A01010-1	None	17.6	25.3	21.4	7.6	3	29.9	38.0	33.9	8.2	1
6 AO00057-2	0	43.3	44.7	44.0	2.8	0	49.0	55.0	52.0	6.0	0
7 AO02183-2	0	22.1	32.7	27.4	11.6	2	30.6	42.1	36.4	11.6	0
LSD 0.05	*ns*			*2.9*	*3.7*				*4.4*	*4.9*	
Average	0	21.5	28.7	25.1	7.6	3	31.9	41.9	36.9	10.3	1
Idaho											
1 Ranger Russet	0	18.2	27.0	22.6	8.8	3	35.5	45.2	40.4	11.0	0
2 Russet Burbank	0	11.8	16.1	13.9	4.3	4	23.6	36.2	29.9	12.6	2
3 A00324-1	0	13.9	18.6	16.3	4.7	4	29.5	33.7	31.6	5.3	1
4 A00727-1	0	10.5	12.0	11.2	2.1	4	20.3	24.6	22.5	5.5	2
5 A01010-1	0	14.8	17.1	15.9	3.1	3	30.8	36.9	33.8	7.4	0
6 AO00057-2	0	21.3	29.7	25.5	10.1	2	31.7	42.3	37.0	10.6	0
7 AO02183-2	0	36.3	40.5	38.4	6.1	0	54.6	56.0	55.3	2.7	0
LSD 0.05	*ns*			*2.0*	*3.4*				*2.5*	*3.4*	
Average	0	18.1	23.0	20.6	5.6	3	32.3	39.3	35.8	7.9	1
Oregon											
1 Ranger Russet	0	14.7	24.9	19.8	10.3	3	27.5	42.6	35.0	15.2	1
2 Russet Burbank	0	11.3	23.5	17.4	12.3	4	19.3	39.1	29.2	19.8	3
3 A00324-1	0	11.4	19.1	15.2	7.7	4	26.2	37.5	31.9	11.3	1
4 A00727-1	0	13.8	17.6	15.7	4.1	4	21.2	30.1	25.7	8.9	2
5 A01010-1	0	13.1	23.0	18.1	9.9	4	20.0	43.1	31.5	23.1	2
6 AO00057-2	0	15.2	28.7	22.0	13.5	3	21.6	37.5	29.5	15.9	2
7 AO02183-2	0	29.4	35.1	32.2	6.9	1	47.8	50.0	48.9	4.4	0
LSD 0.05	*ns*			*2.0*	*3.1*				*3.1*	*4.2*	
Average	0	15.6	24.6	20.1	9.2	3	26.2	40.0	33.1	14.1	2

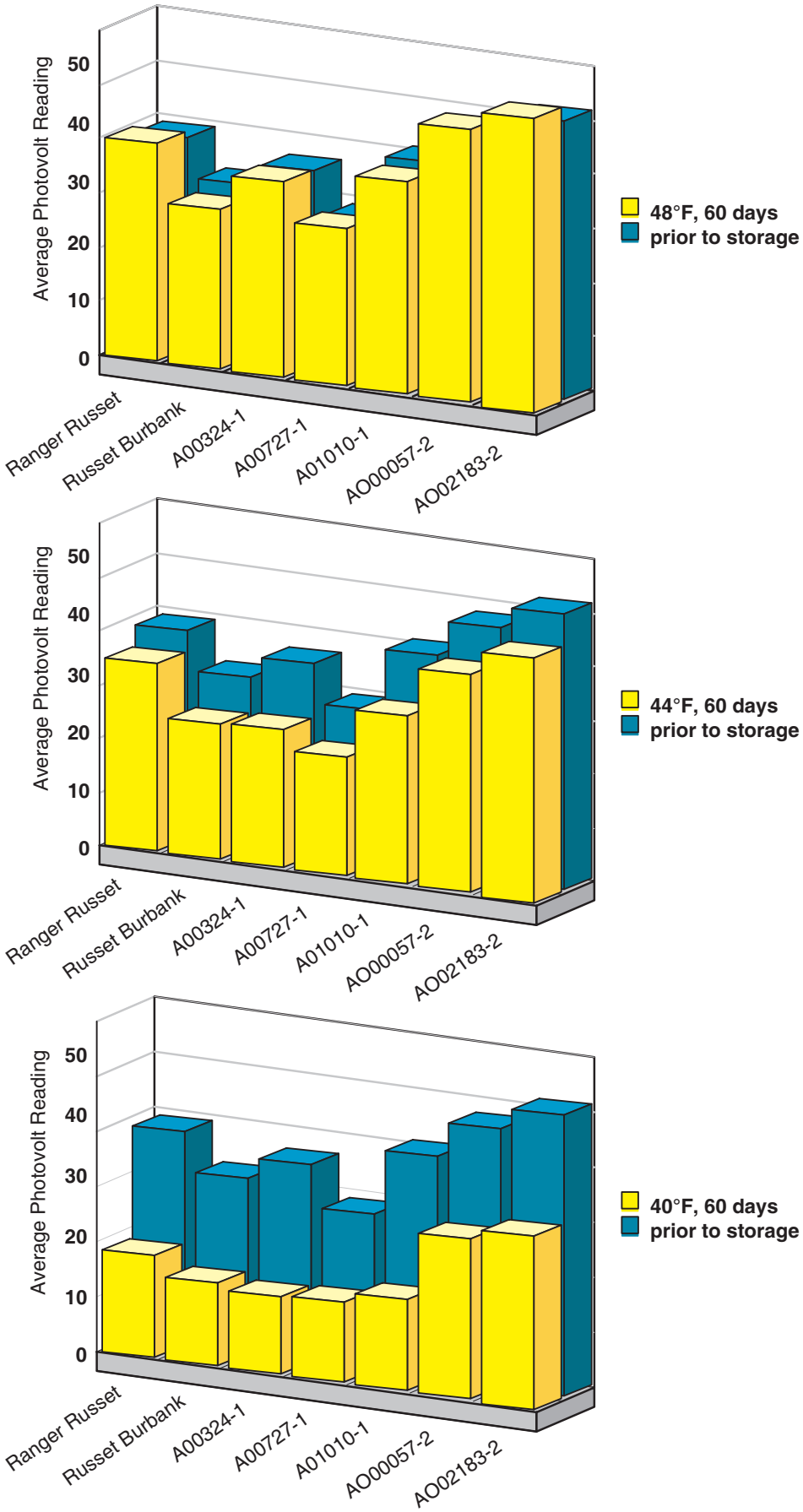
Date test performed:

Washington	Dec. 23	Dec. 8	Dec. 19
Idaho	Dec. 23	Dec. 2	Dec. 18
Oregon	Dec. 23	Dec. 14	Dec. 20

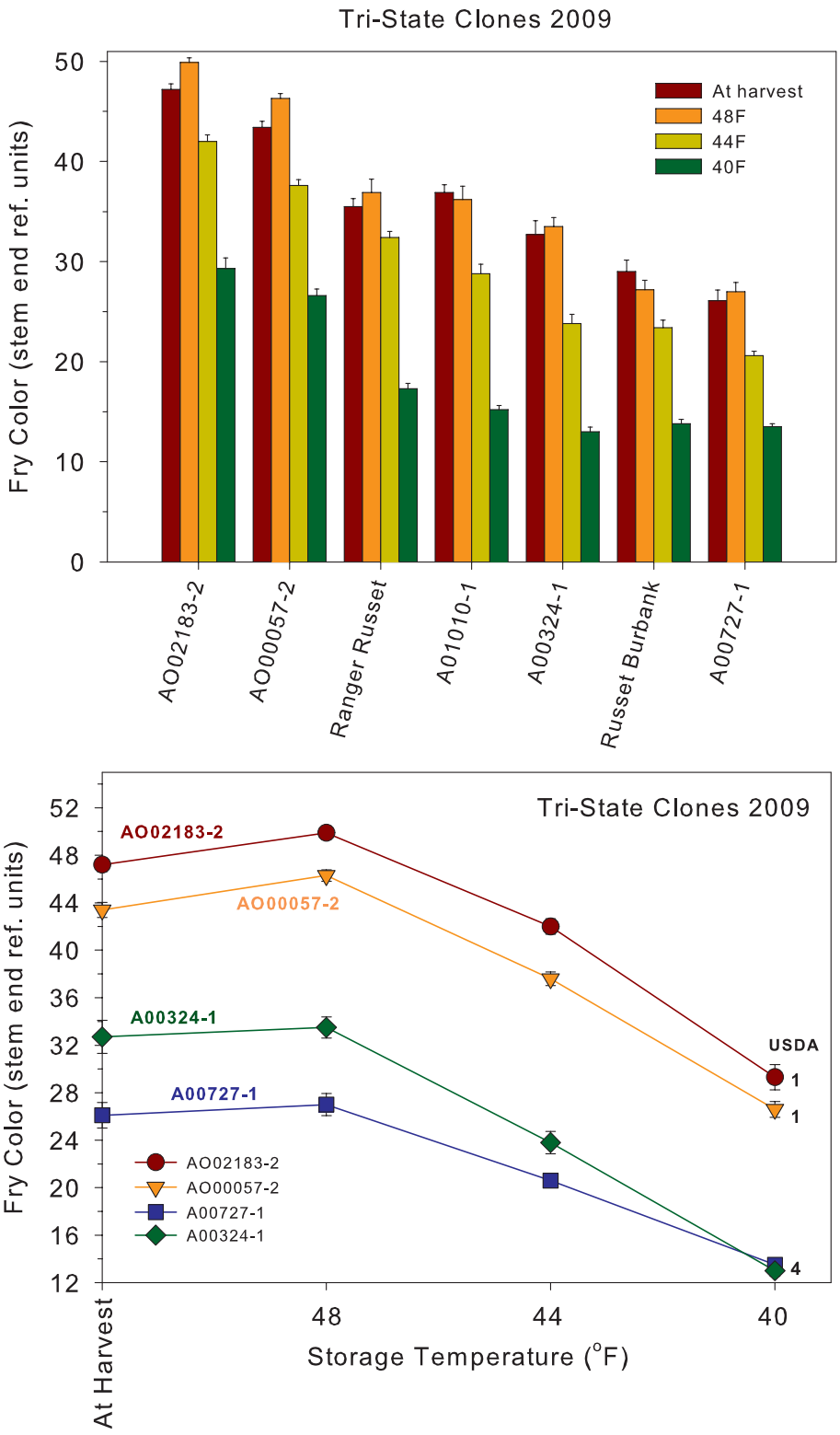
DIFF = Absolute difference between bud and stem Photovolt reading.

2009 Late Harvest Tri-State Trial

Tri-State Trial - 3 State Average of Stem End



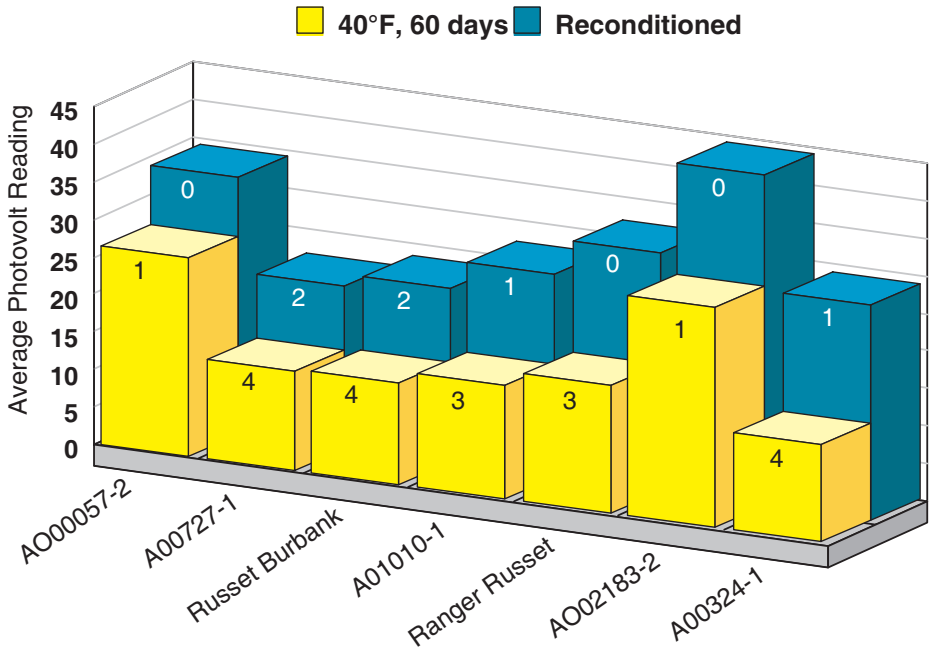
2009 Late Harvest Tri-State Trial

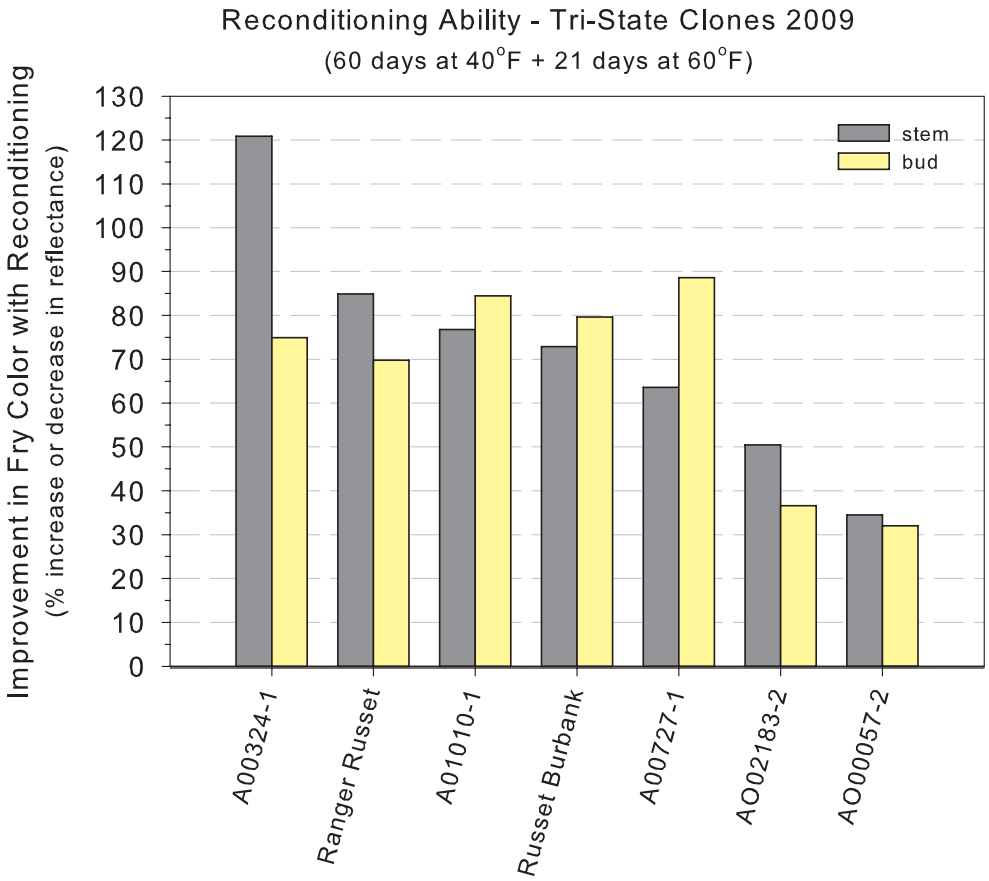


Top: At-harvest and after-storage French fry colors (stem end) of clones in the Tri-State Trial. Tubers were stored for 60 days at 48, 44, and 40°F. The clones are ranked from best to worst on fry color of the 44°F-stored tubers. High reflectance values indicate light colored fries.

Bottom: Line graph depicting the effects of storage temperature on the change in French fry processing quality (stem end fry color) of the best (AO02183-2 and AO00057-2) and worst (A00324-1 and A00727-1) performing clones in the Tri-State Trial. *Indicates similar performance of the clones last year.

2009 Late Harvest Tri-State Trial





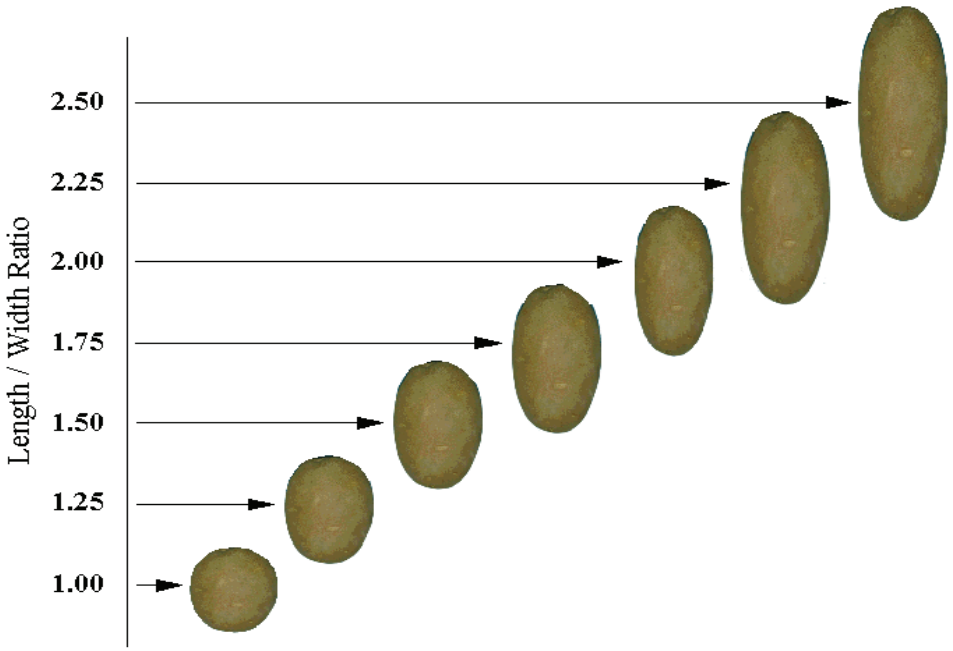
Reconditioning abilities of clones in the 2009 Tri-State Trial (3-state averages). Clones were stored at 40°F for 60 days after harvest and then reconditioned at 60°F for 21 days. **Top:** Stem end fry color before and after reconditioning. Numbers in bars indicate the USDA color rating of the stem end. **Bottom:** Percent improvement of stem and bud end fry color with reconditioning.

2009 Late Harvest Tri-State Trial

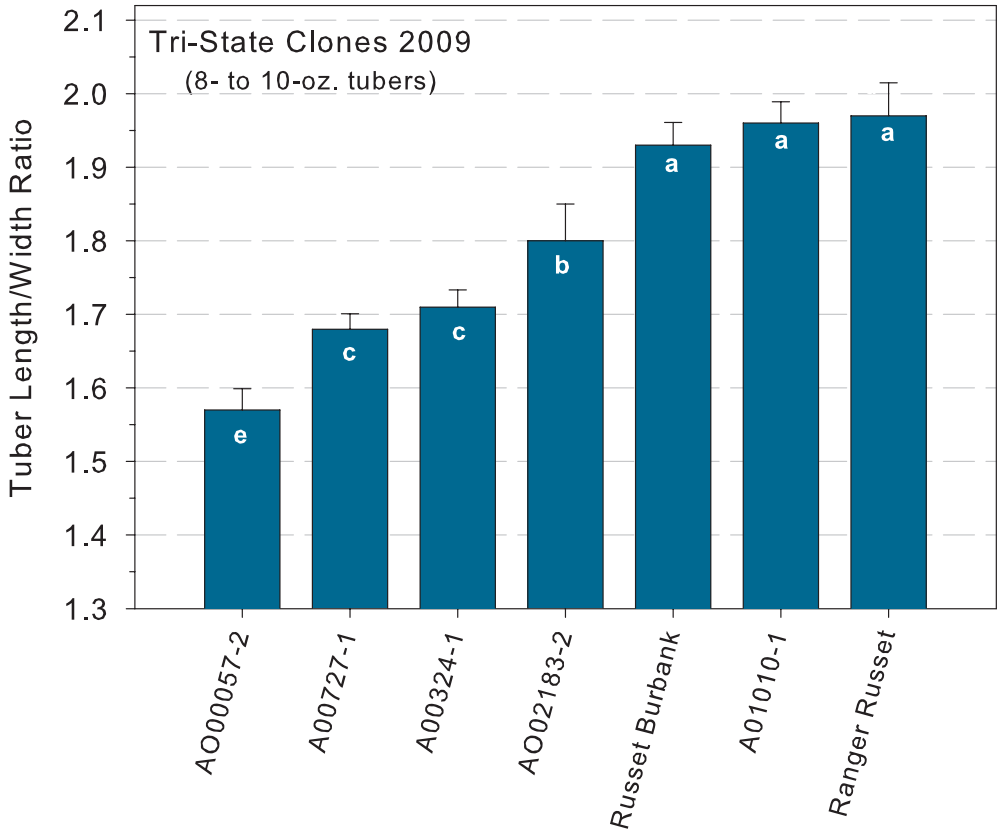
Tuber Shape and Associated French Fry Yields

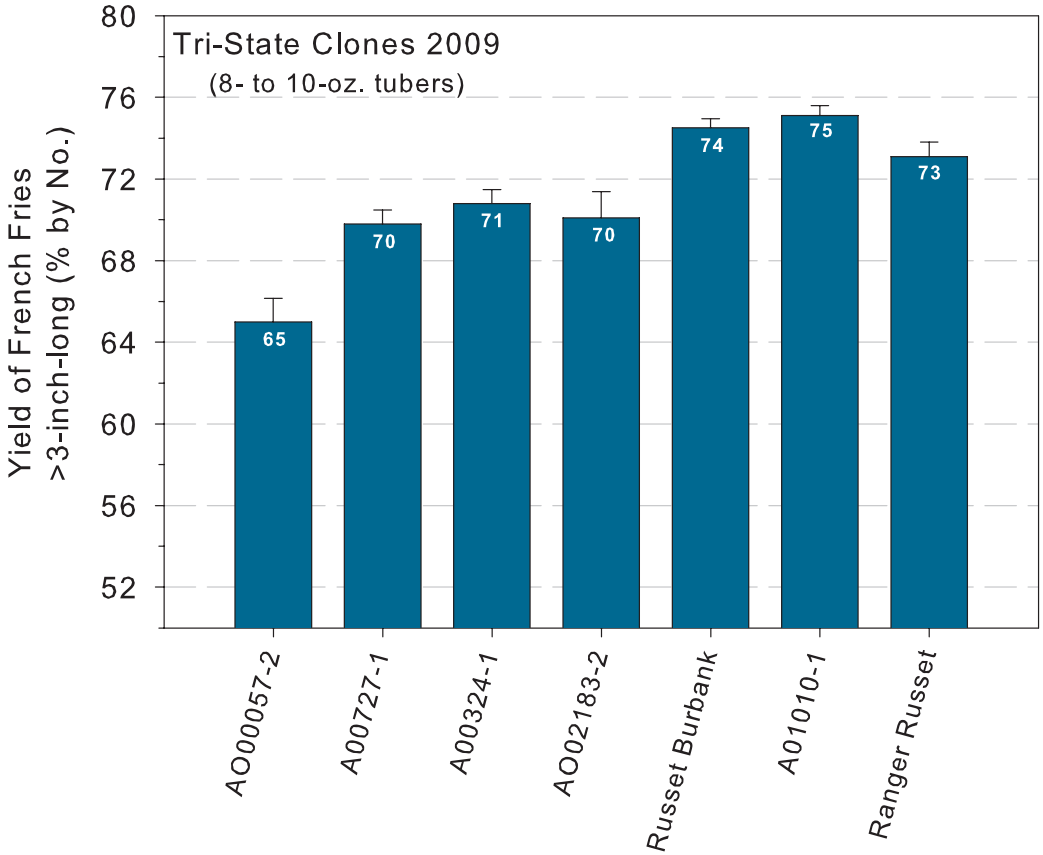
(8- to 10-oz Tubers)

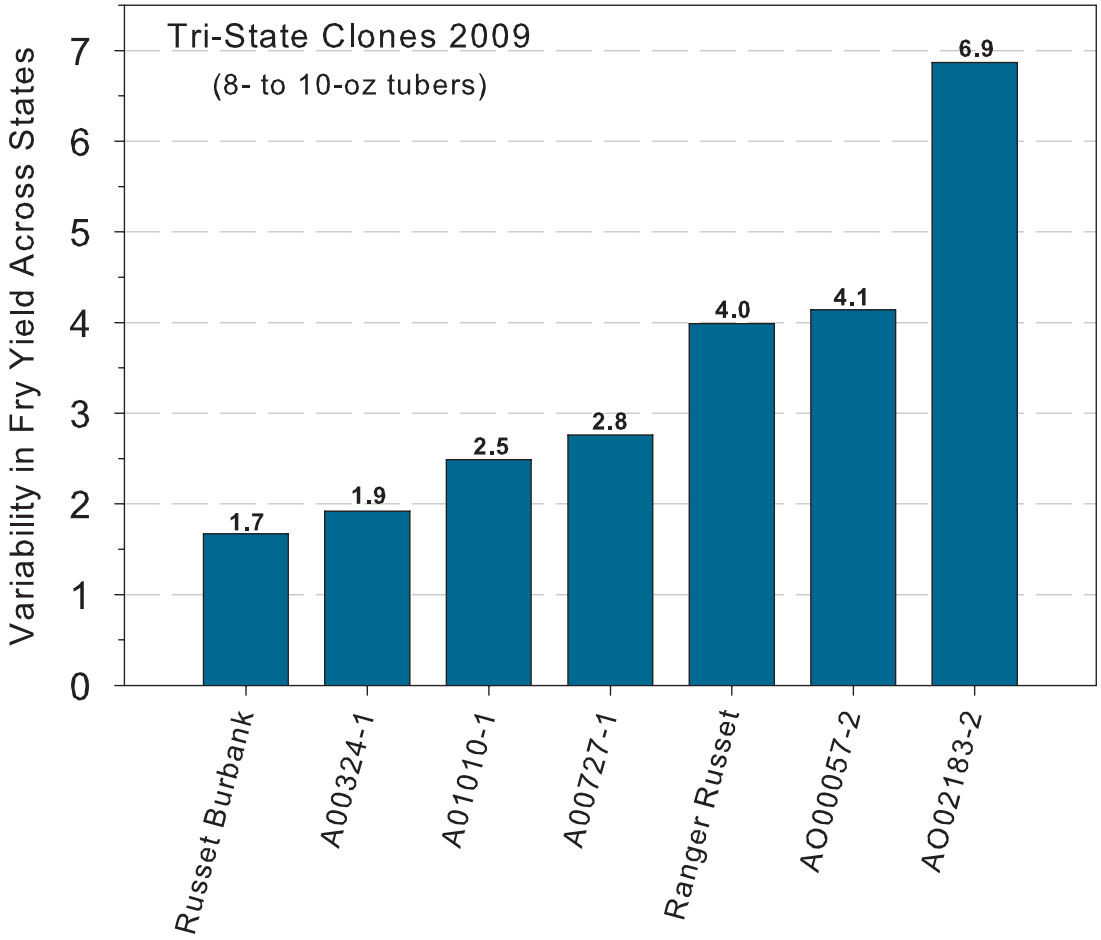
Clone	Length to width ratio			Yield of 3" or longer fries (% by number)		
	WA	ID	OR	WA	ID	OR
1 Ranger Russet	1.62	2.29	2.01	68	77	76
2 Russet Burbank	1.77	1.92	2.09	72	74	76
3 A00324-1	1.65	1.74	1.81	69	72	74
4 A00727-1	1.58	1.77	1.69	66	73	70
5 A01010-1	1.75	2.10	2.04	72	78	76
6 AO00057-2	1.52	1.71	1.47	62	71	62
7 AO02183-2	1.46	2.14	1.75	62	78	72
Average	1.62	1.95	1.84	67	75	72



2009 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, AO02183-2 had a length to width ratio of 1.80 (see previous page), resulting in 71% 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 64.1% to 77.9% (71±6.9%).

Previous page: Tuber length to width ratios and the associated percent yield of fries.
Left (top): Bars with same letter are not significantly different (P≤0.01).

2009 Late Harvest Tri-State Trial

Entries Retained from the 2008 Trials Currently in the Tri-State Trial

Harvested fall of 2008
Held at 48° F until December 23, 2008
Stored at 44° F until analysis

Two entries, A00324-1 and AO00057-2 were retained from the 2008 Tri-State Trial. The Oregon grown samples produced fries with a USDA rating of "2". The Washington and Idaho grown samples rated a highly acceptable USDA "0". All entries had sprout lengths ranging between 2 and 6 inches.

	PHOTOVOLT READING				USDA	% REDUCING SUGAR			Sprouting	
Clone	stem	bud	avg	DIFF	COLOR	stem	bud	avg	percent	length
Washington										
1 Ranger Russet	34.0	37.6	35.8	4.4	0	1.1	0.8	1.0	100	6"
2 Russet Burbank	32.6	42.9	37.7	11.2	0	1.2	0.6	0.9	100	4"
3 A00324-1	32.6	37.5	35.0	5.3	0	1.2	0.9	1.0	100	4"
4 AO00057-2	50.1	56.8	53.4	6.9	0	0.5	0.4	0.5	100	3.5"
		LSD 0.05	*2.9*	*4.3*						
Average	37.3	43.7	40.5	6.9	0.0	1.0	0.7	0.8	100	
Idaho										
1 Ranger Russet	32.3	40.2	36.2	8.2	0	1.2	0.7	1.0	100	5"
2 Russet Burbank	32.1	45.6	38.9	13.6	0	1.2	0.6	0.9	100	4"
3 A00324-1	33.4	32.8	33.1	5.8	0	1.1	1.2	1.1	100	3"
4 AO00057-2	37.7	49.3	43.5	11.6	0	0.8	0.5	0.7	100	2"
		LSD 0.05	*3.7*	*5.5*						
Average	33.9	42.0	37.9	9.8	0.0	1.1	0.7	0.9	100	
Oregon										
1 Ranger Russet	22.0	37.7	29.8	15.8	2	2.4	0.8	1.6	100	4"
2 Russet Burbank	22.2	40.7	31.5	18.5	2	2.3	0.7	1.5	100	4"
3 A00324-1	21.9	35.2	28.5	13.3	2	2.4	1.0	1.7	100	4"
4 AO00057-2	23.5	34.9	29.2	11.3	2	2.1	1.0	1.6	100	5"
		LSD 0.05	*ns*	*5.0*						
Average	22.4	37.1	29.8	14.7	2.0	2.3	0.9	1.6	100	

Date test performed:

Washington	April 27
Idaho	April 27
Oregon	April 27

ALL IN A DAY'S WORK...














2009 Early Harvest Regional Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 7 Vine Kill Date: July 30
Harvest Date: August 11 Days Grown: 114
Fertility: 210-225-180 In-Row Spacing: 12 in.

Regional trials are conducted throughout the western region of the United States, including Washington. Entries in the Regional Trial are chosen by a coordinating committee and are grown for both early (Early Regional) and full (Late Regional) season harvest. The 2009 early harvest trial compared 3 local reference varieties to 16 new clones on the WSU Othello Research Station. Despite a cooler spring, the consistently mild weather mid-July was ideal for plant growth and yields were above average. In addition, tuber number per plant was below average. The following is a summary of the Washington field and post-harvest results. See also: grading comments and merit scores near front of book.

Fresh Market Standout(s): A0008-1TE and PA99N2-1.
Process Market Standout(s): PA00N14-2, AO96305-3, A96814-65LB, and A0008-1TE.

Standcounts

- **40 Day**
  Fast emergence: A98345-1 and CO98067-7Ru (100%), CO98368-2Ru (96%).
  Slow emergence: A97066-42LB (22%) and PA00N14-2 (27%), all other entries were > 47% emerged.

- **50 Day**
  Full emergence: A98345-1, CO98067-7Ru, CO99053-4Ru, CO99100-1Ru, Ranger Russet, PA99N82-4, and PA00N14-2 (100%).
  Poor emergence: A96814-65LB (87%) and CO97087-2Ru (89%), all other entries were > 90% emerged.

Plant and Tuber Growth & Development

- **Above Ground Stem Number Per Plant**
  Most: CO98067-7Ru (3.2), CO97087-2Ru and CO99100-1Ru (2.7).
  Least: A97066-42LB (1.2).

- **Average Tuber Number Per Plant**
  Most: CO98368-2Ru (9.5), CO99053-4Ru (8.3), and CO98067-7Ru (8.1).
  Least: A0008-1TE, Ranger Russet, and A98345-1 (4.6)

- **Average Tuber Size (oz)**
  Largest: A0008-1TE (10.8), Ranger Russet (10.7), A96814-65LB (10.5), and PA99N82-4 (10.0).
  Smallest: CO98368-2Ru (5.6), A977066-42LB (5.9), and AC99375-1Ru (6.1).

- **Undersized Tubers (< 4 oz)**
  Most: CO98368-2Ru, AC99375-1Ru, and CO98067-7Ru.
  Fewest: AO96305-3, Ranger Russet, and A96814-65LB.

Yield and Economic Data

- **Total Yield and U.S. #1 Yield**
  Highest: CO99053-4Ru, highest total (577 CWT/A) and U.S. #1 yield (512 CWT/A). Russet Norkotah had the second highest U.S. #1 yield with 482 CWT/A.
  Lowest: A97066-42LB, lowest total and U.S. #1 yield (313 CWT and 256 CWT). AC99375-1Ru had the second lowest U.S. #1 yield with 307 CWT/A.

- **% U.S. #1's (greater than 4 oz)**
  Highest: AO96305-3 and Ranger Russet (96%).
  Lowest: PA99N82-4 (78%) and AC99375-1Ru (79%).

- **Carton Yield (100 to 50 Count (7 to 18 oz U.S. #1 Tubers))**
  Highest: Russet Norkotah (401 CWT/A) and PA00N14-2 (363 CWT/A).
  Lowest: A97066-42LB (156 CWT/A) and AC99375-1Ru (192 CWT/A).

- **Gross Return ($/acre)**
  Fresh Market Highest: Russet Norkotah, CO99053-4Ru, and PA00N14-2.
  Fresh Market Lowest: A97066-42LB, AC99375-1Ru, and A98345-1.
  Process Market Highest: CO99053-4Ru, Russet Norkotah, and PA00N14-2.
  Process Market Lowest: A97066-42LB, AC99375-1Ru, and CO99053-3Ru.

Tuber Defects (30 tuber sample of 8-12 oz tubers)

- **External Defects**
  Notable Defects: PA99N82-4 had the highest percentage of growth cracks (15%), followed by A0008-1TE (6%). All other entries had little to no external defects.

- **Internal Defects**
  Notable Defects: Russet Burbank and A96814-65LB had the only occurrences of internal brown center (3%). All other entries had 0% occurrence of hollow heart, brown center, and internal brown spot.

- **Bruise**
  Highest Blackspot: Ranger Russet, PA99N82-4, PA00N14-2, Russet Burbank, and CO97087-2Ru (20%), A96814-65LB (17%), CO99053-3Ru (14%), and CO98368-2Ru (13%). All other entries had 10% or less.
  Highest Shatter: PA99N82-4 (63%), A0008-1TE (47%), and Ranger Russet (32%).

2009 Early 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	475	AB	23.8	96	2	3	65	15.5	92	21.9
Russet Burbank	457	AB	22.9	86	2	12	68	15.5	76	17.3
Russet Norkotah	518	A	25.9	93	1	6	77	20.1	87	22.7
A96814-65LB	473	AB	23.6	93	2	5	62	14.8	88	20.8
A97066-42LB	313	B	15.7	82	0	18	50	7.8	62	9.8
A98345-1	442	AB	22.1	86	4	11	46	10.2	84	18.5
A0008-1TE	473	AB	23.6	86	4	10	60	14.3	85	20.2
AC99375-1Ru	389	AB	19.4	79	4	17	50	9.6	62	12.0
AO96305-3	483	AB	24.1	96	0	4	73	17.6	84	20.4
AO96365-2	420	AB	21.0	85	4	12	51	10.7	67	14.2
CO97087-2Ru	486	AB	24.3	80	7	12	57	13.8	75	18.3
CO98067-7Ru	497	AB	24.9	84	4	12	53	13.3	68	16.9
CO98368-2Ru	514	AB	25.7	80	2	18	44	11.3	57	14.6
CO99053-3Ru	414	AB	20.7	83	8	9	62	12.9	78	16.1
CO99053-4Ru	577	A	28.8	89	4	8	61	17.6	75	21.7
CO99100-1Ru	497	AB	24.8	94	1	5	66	16.4	87	21.5
PA00N14-2	504	AB	25.2	93	0	6	72	18.2	81	20.5
PA99N2-1	499	AB	24.9	90	2	9	72	18.0	80	20.0
PA99N82-4	484	AB	24.2	78	7	15	51	12.4	78	18.8

ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers)		
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	4-7 oz*	7-14 oz*	> 14 oz*		% HH	% BC	% IBS
				%						
Ranger Russet	456	AB	22.8	11	43	46	1.077	0	0	0
Russet Burbank	392	ABC	19.6	23	59	18	1.079	0	0	3
Russet Norkotah	482	AB	24.1	14	54	32	1.070	0	0	0
A96814-65LB	438	ABC	21.9	12	41	47	1.085	0	0	3
A97066-42LB	256	C	12.8	42	55	3	1.082	0	0	0
A98345-1	379	ABC	19.0	12	37	52	1.077	0	0	0
A0008-1TE	408	ABC	20.4	10	41	49	1.076	0	0	0
AC99375-1Ru	307	BC	15.4	38	46	17	1.081	0	0	0
AO96305-3	465	AB	23.2	17	54	29	1.075	0	0	0
AO96365-2	356	ABC	17.8	40	46	14	1.074	0	0	0
CO97087-2Ru	391	ABC	19.6	23	48	29	1.072	0	0	0
CO98067-7Ru	418	ABC	20.9	38	53	9	1.066	0	0	0
CO98368-2Ru	411	ABC	20.6	46	51	3	1.070	0	0	0
CO99053-3Ru	343	ABC	17.2	25	48	27	1.072	0	0	0
CO99053-4Ru	512	ABC	25.6	30	58	12	1.072	0	0	0
CO99100-1Ru	465	AB	23.3	14	50	36	1.070	0	0	0
PA00N14-2	470	AB	23.5	24	65	12	1.079	0	0	0
PA99N2-1	447	AB	22.4	20	63	17	1.069	0	0	0
PA99N82-4	377	ABC	18.8	17	41	42	1.064	0	0	0

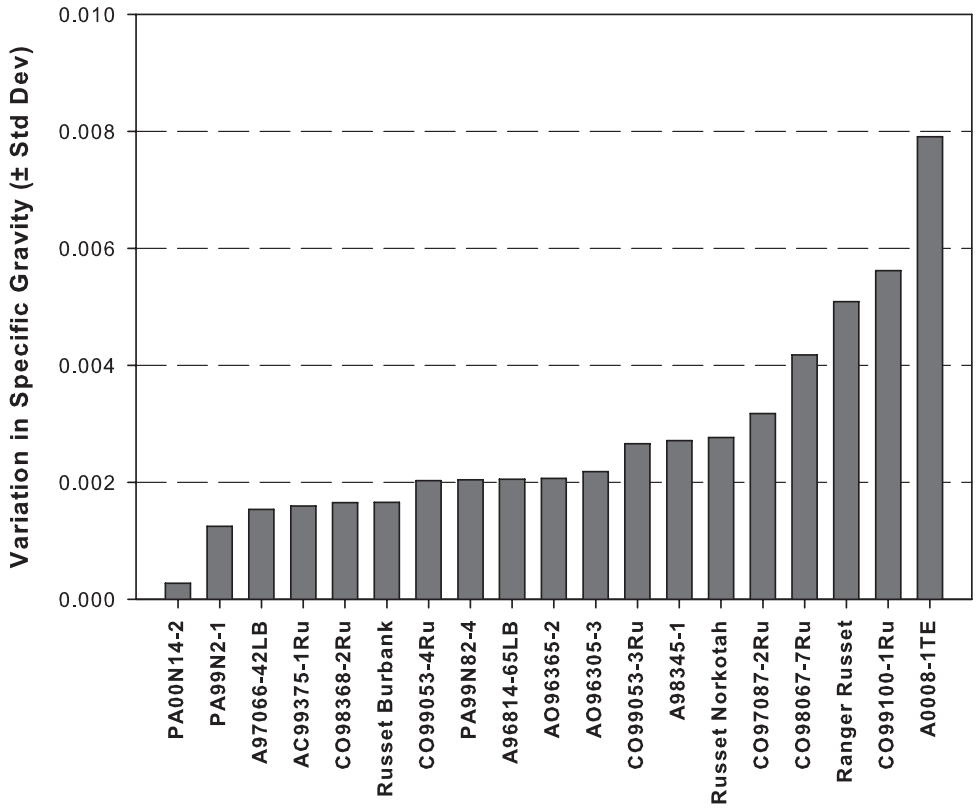
* Percent values may not total 100% due to rounding
**Numbers followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

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	82	100	1.5	10.7	4.6	3	4	20	32
Russet Burbank	0	87	98	1.5	7.8	6.1	4	3	20	7
Russet Norkotah	0	91	98	1.9	9.6	5.6	4	3	3	10
A96814-65LB	0	51	87	1.5	10.5	4.7	4	3	17	20
A97066-42LB	0	22	98	1.2	5.9	5.6	3	3	10	23
A98345-1	0	100	100	1.8	9.9	4.6	3	3	10	7
A0008-1TE	0	53	96	1.5	10.8	4.6	4	3	10	47
AC99375-1Ru	0	84	96	1.9	6.1	6.7	4	3	0	7
AO96305-3	0	47	93	1.9	9.2	5.4	3	4	0	10
AO96365-2	0	89	96	1.7	6.4	6.9	4	3	3	0
CO97087-2Ru	0	84	89	2.7	7.7	6.5	4	3	20	10
CO98067-7Ru	0	100	100	3.2	6.4	8.1	4	3	7	0
CO98368-2Ru	0	96	98	2.2	5.6	9.5	4	3	13	3
CO99053-3Ru	0	69	98	2.2	7.8	5.6	3	4	14	2
CO99053-4Ru	0	89	100	2.5	7.2	8.3	4	4	7	7
CO99100-1Ru	0	87	100	2.7	9.5	5.5	4	3	0	10
PA00N14-2	0	27	100	1.6	8.1	6.5	4	5	20	17
PA99N2-1	0	47	93	2.1	8.0	6.4	3	2	3	30
PA99N82-4	0	73	100	1.7	10.0	5.2	4	2	20	63

Clone - Dependent Variation in Specific Gravity

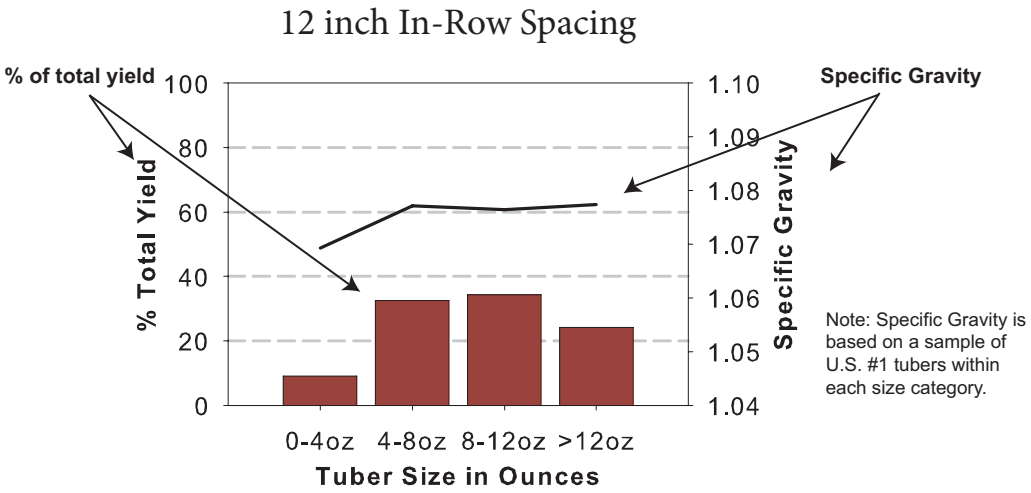
Variability among 9, 10lb samples from each entry (all tuber sizes)

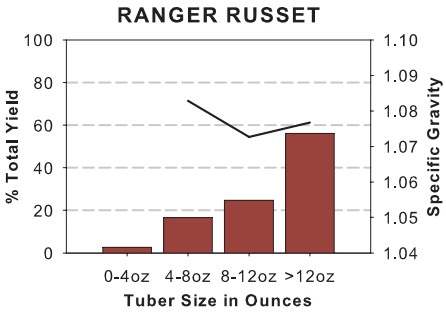
2009 Early-Harvest Regional Trial

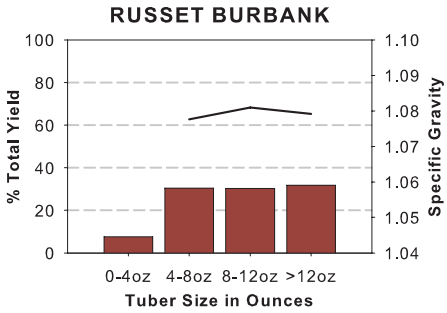


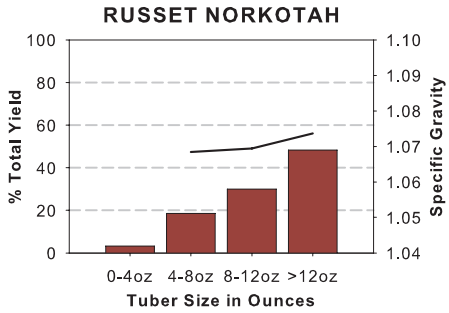
2009 Early Harvest Regional Trial

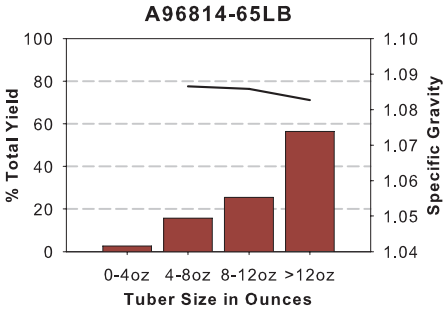
Tuber Yield and Specific Gravity Distributions

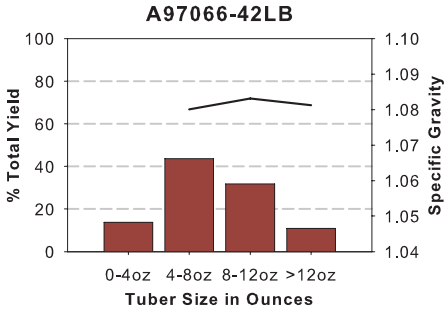


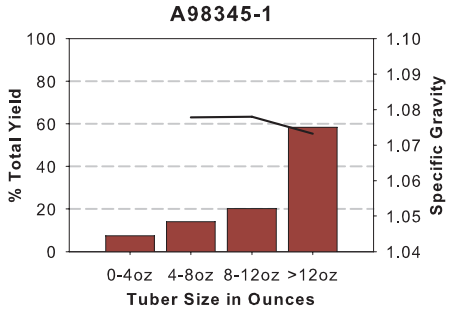


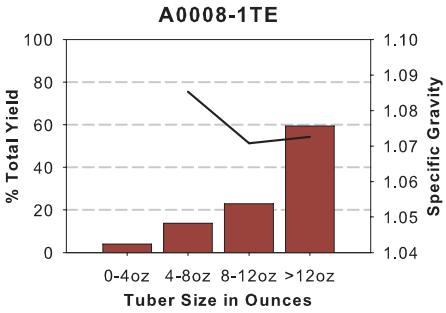


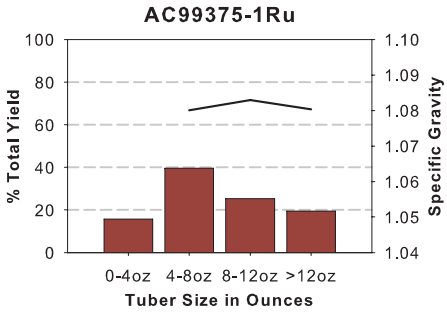


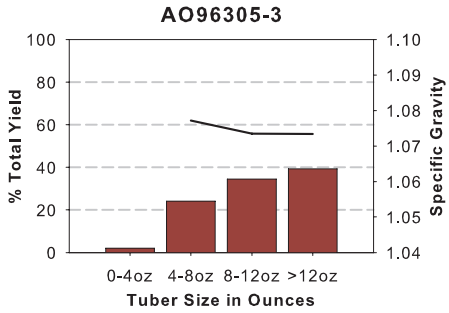












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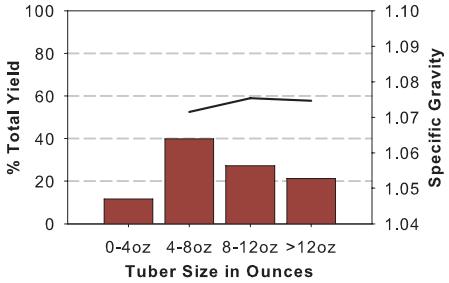
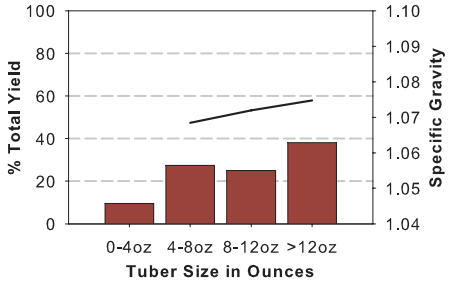


CO97087-2Ru



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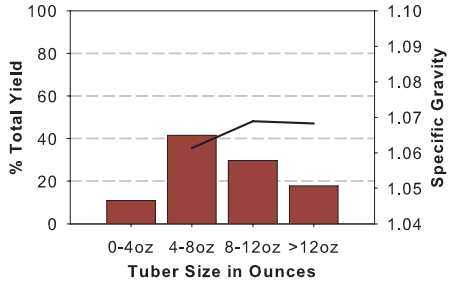

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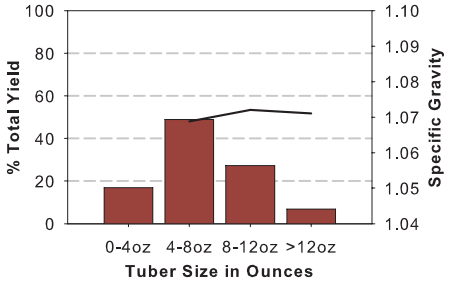
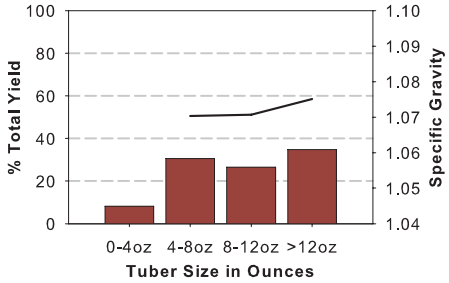
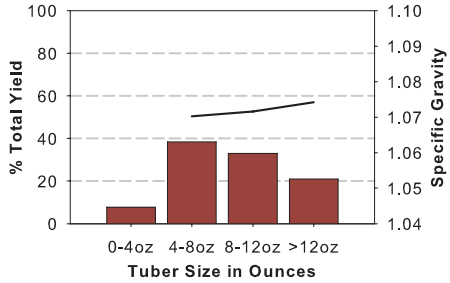


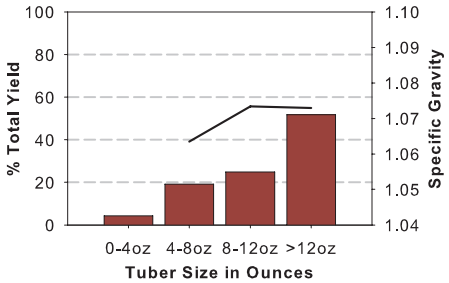
CO99053-3Ru



CO99053-4Ru



CO99100-1Ru



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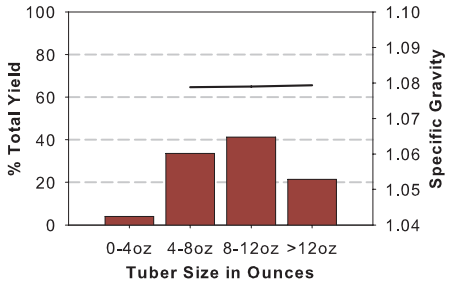

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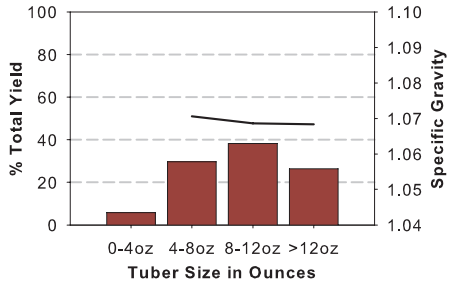

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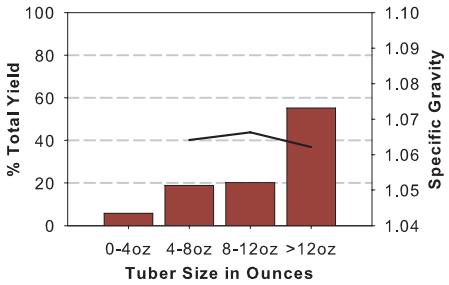
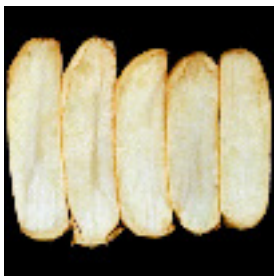


Tubers	Fries	WA Early Harvest Regional Trial Comments
Ranger Russet		
		**Tubers:** Oblong to long tubers. Moderate russet with fair skin set; moderate eye depth. **Fry color:** Light, uniform.
Russet Burbank		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.
A96814-65LB		
		**Tubers:** Oblong tubers. Light russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
A97066-42LB		
		**Tubers:** Oblong tubers. Light russet with fair skin set; shallow eyes. **Fry color:** Light, uniform.
A98345-1		
		**Tubers:** Oblong tubers. Light russet with fair skin set; shallow eyes. **Fry color:** Light, uniform.

Tubers	Fries	WA Early Harvest Regional Trial Comments
A0008-1TE		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
AC99375-1Ru		
		**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
AO96305-3		
		**Tubers:** Oblong to long tubers. Moderate russet with fair skin set; shallow eyes. **Fry color:** Light, uniform.
AO96365-2		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
CO97087-2Ru		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.

Tubers	Fries	WA Early Harvest Regional Trial Comments
CO98067-7Ru		
		**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
CO98368-2Ru		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
CO99053-3Ru		
		**Tubers:** Oblong to long tubers. Moderate russet with fair skin set; shallow eyes. **Fry color:** Light, uniform.
CO99053-4Ru		
		Tubers: Oblong to long tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
CO99100-1Ru		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.

Tubers	Fries	WA Early Harvest Regional Trial Comments
PA00N14-2		
		**Tubers:** Long tubers Light russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
PA99N2-1		
		**Tubers:** Round to oblong tubers. Moderate russet with fair skin set; shallow eyes. **Fry color:** Light, uniform.
PA99N82-4		
		**Tubers:** Round to oblong tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.

Chris Hiles, WSU Grad student, auctions off a lovely poster that was used at the 2009 Potato Field Day. Going once, twice, sold!

2009 Early Harvest Regional Trial

Postharvest Evaluation

The 2009 Early Regional Trial consisted of 3 cultivars and 16 numbered lines. All entries fried light with USDA ratings of “0”. Fry color was acceptably uniform from bud to stem end. A96814-65LB, A0008-1TE and AC99375-1Ru showed excessive after-cooking darkening.

	Clone	PHOTOVOLT Stem	PHOTOVOLT Bud	Average	DIFFERENCE* STEM - BUD	USDA COLOR
1	Ranger Russet	48.8	47.9	48.4	3.0	0
2	Russet Burbank	47.1	43.7	45.4	4.4	0
3	Russet Norkotah	46.8	47.0	46.9	2.0	0
4	A96814-65LB	52.7	50.5	51.6	2.5	0
5	A97066-42LB	52.0	47.5	49.8	4.9	0
6	A98345-1	43.5	45.5	44.5	3.2	0
7	A0008-1TE	51.1	46.0	48.6	5.1	0
8	AC99375-1Ru	48.4	45.1	46.8	4.2	0
9	AO96305-3	55.0	54.2	54.6	2.7	0
10	AO96365-2	46.3	48.4	47.3	3.0	0
11	CO97087-2Ru	55.5	47.6	51.5	7.9	0
12	CO98067-7Ru	43.6	44.2	43.9	3.4	0
13	CO98368-2Ru	49.6	48.9	49.2	3.4	0
14	CO99053-3Ru	45.3	48.1	46.7	4.8	0
15	CO99053-4Ru	51.5	51.5	51.5	2.1	0
16	CO99100-1Ru	46.2	48.8	47.5	3.6	0
17	PA00N14-2	50.0	47.8	48.9	4.3	0
18	PA99N2-1	46.1	45.5	45.8	3.2	0
19	PA99N82-4	50.2	47.5	48.9	3.9	0
			LSD 0.05	*2.4*	*2.4*	
	Average	48.9	47.7	48.3	3.8	0

* Average of 12 individual tuber absolute differences

Planting date: April 7
Harvest date: Aug. 11
Fried on: Aug. 14

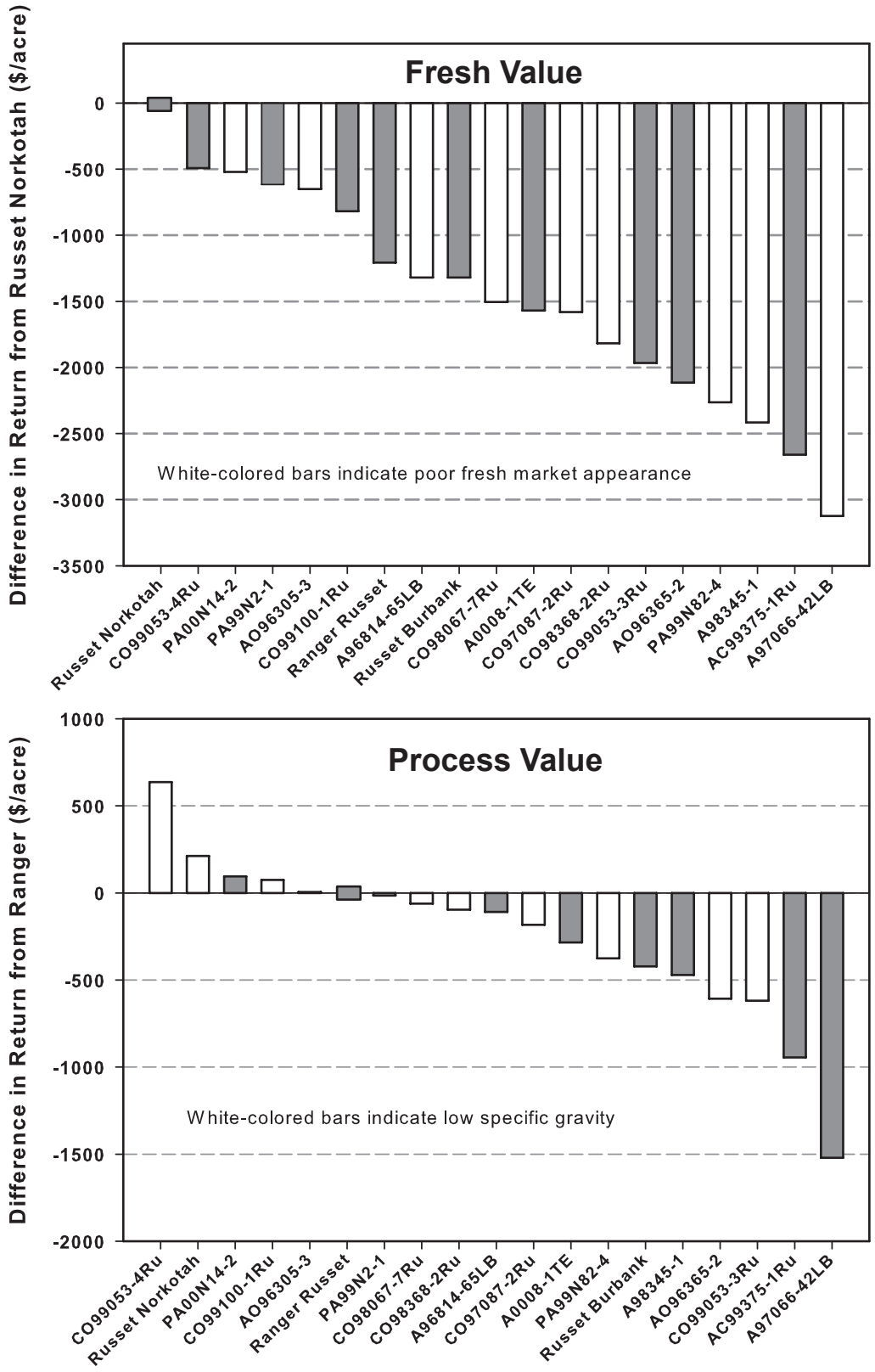


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape or appearance. **Figure 2 (Bottom).** Difference in gross return per acre (Process Market) from Ranger Russet calculated by subtracting the gross return of Ranger Russet from the gross return of the particular entry. Entries with white-colored bars would be penalized (under the mock contract parameters) due to a specific gravity less than 1.075.

2009 Late Harvest Regional Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 20 Vine Kill Date: Sept 17
Harvest Date: Sept 21 Days Grown: 150
Fertility: 180-225-100 In-Row Spacing: 10 in.

Regional trials are conducted throughout the western region of the United States, including Washington. Entries in the Regional Trial are chosen by a coordinating committee and are grown for both early (Early Regional) and full (Late Regional) season harvest. This year's trial included 3 local reference varieties and 16 new clones. Despite a cooler spring, the consistently mild weather mid-July was ideal for plant growth and yields were above average. In addition, tuber number per plant was below average. The following is a summary of the Washington field and post harvest results. For additional information, see the grading comments and merit scores near front of book.

Fresh market standouts: A0008-TE, AO96365-2, PA00N14-2, and AO96305-3.
Process Market Standout(s): AO96305-3, AO96365-2, and PA99N2-1 (round).
Potential Discard(s): CO98067-7Ru (2 years in a row), CO99053-4Ru, CO99100-1Ru, and A98345-1 (after 44 days in storage, french fries mottle severely from Columbia Basin).

Standcounts

- **30 Day**
  Fast emergence: CO98067-7Ru (55%), A98345-1 (42%), all other entries < 35%.
  Slow emergence: A97066-42LB, AO96305-3, PA00N14-2, and PA99N2-1 (0%).

- **50 Day**
  Full emergence: Russet Burbank, Ranger Russet, and A96814-65LB were each 100% emerged.
  Worst emergence: PA99N2-1 (89%), CO98368-2Ru and CO99053-4Ru (91%) .

Plant and Tuber Growth & Development

- **Above Ground Stem Number Per Plant**
  Most: CO98067-7Ru (3.0) and CO99100-1Ru (2.4).
  Least: A97066-42LB (1.1) and A96814-65LB (1.3).

- **Average Tuber Number Per Plant**
  Most: CO98067-7Ru (10.1), AC99375-1Ru (9.5), and AO96365-2 (8.9).
  Least: PA99N82-4 (5.3), CO99053-3Ru (5.8), and A0008-1TE (5.9).

- **Average Tuber Size (oz)**
  Largest: PA99N82-4 (15.1), A98345-1 (12.8), and A96814-65LB (12.6).
  Smallest: CO98368-2Ru (6.9), Russet Norkotah (7.4), and CO9067-7Ru (7.5).

- **Undersized Tubers (< 4 oz)**
  Most: CO98067-7Ru (80 CWT/A) and CO98368-2Ru (76 CWT/A).
  Least: PA99N82-4 (18 CWT/A) and A96814-65LB (20 CWT/A).

Yield and Economic Data

- **Total and Market Yield**
  Highest: A98345-1 had the highest total and market yields (1130 CWT/A and 1074 CWT/A, respectively). AC99375-1Ru had the second highest total yield, but PA99N2-1 had the second highest market yield (909 CWT/A).
  Lowest: CO98368-2Ru had the lowest total and market yield (606 CWT/A and 520 CWT/A, respectively).

- **% Market Yield Greater Than 6 oz.**
  Highest: A98345-1, A96814-65LB, CO99053-3Ru and PA99N2-1 (all > 90%).
  Lowest: CO98368-2Ru, and CO97087-2Ru (all 75% or less).

- **Carton Yield (100 to 50 Count (7 to 18 oz US#1 Tubers))**
  Highest: AC99375-1Ru, A98345-1, PA99N2-1, and A96814-65LB (all > 500 CWT/A).
  Lowest: PA99N82-4 (283 CWT/A) and CO97087-2Ru (314 CWT/A).

- **Gross Return ($/acre)**
  Fresh Market Highest: AC99375-1Ru, AO96365-2, and A98345-1.
  Fresh Market Lowest: PA99N82-4, CO98067-7Ru, and CO98368-2Ru.
  Process Market Highest: A98345-1, AC99375-1Ru, and PA99N2-1.
  Process Market Lowest: CO98368-2Ru, CO99100-1Ru, and Russet Norkotah.

Tuber Defects (40 tuber sample of 8-12 oz tubers)

- **External Defects**
  Notable Defects: PA99N82-4 had 17% tubers with growth cracks. Most entries were free of external defects. The next highest occurrence of any defect was 3% of the tubers sampled.

- **Internal Defects**
  Notable Defects: PA99N82-4 had 10% hollow heart, while Russet Burbank had 3%. PA99N2-1 had 3% internal brown spot.

- **Bruise**
  Highest Blackspot: PA99N2-1 (23%) and Russet Burbank (25%).
  Lowest Blackspot: A96814-65LB (0%) and A0008-1TE (5%).
  Highest Shatter: PA99N82-4 (88%) and A0008-1TE (73%).
  Lowest Shatter: CO99053-3Ru, PA00N14-2, and CO99053-4Ru (all < 22%).

2009 Late Harvest Regional Trial

Postharvest Information

- **Overall Postharvest Rating**
  Highest scoring: AO96305-3*, AC99375-1Ru, A96814-65LB, CO97087-2Ru*, A98345-1*
  Lowest scoring: CO98067-7Ru*, RB, CO99100-1Ru

- **Low temperature Sweetening**
  Most resistant: AO96305-3, A96814-65LB, AC99375-1Ru, CO97087-2Ru*, A98345-1
  Most susceptible: RB, CO98067-7Ru*, CO99100-1Ru, A0008-1TE.

- **Taste Panel**
  Highest rated: AO96305-3, PA99N82-4*, RR, A98345-1
  Lowest rated: CO98067-7Ru*, RB, A97066-42LB, CO99053-3Ru.

- **Blackspot Bruise Susceptibility**
  Most resistant: AO96305-3, CO99100-1Ru, CO98067-7Ru*
  Most susceptible: A96814-65LB, RR, A98345-1.

- **Variability in Tuber Shape & Fry Yield (8- to 10-oz tubers)**
  Lowest L/W: PA99N82-4*, PA99N2-1*, A96814-65LB, A97066-42LB, A98345-1
  Highest L/W: PA00N14-2, AO96305-3, RB, CO99053-4Ru, RR*
  Least variable L/W: PA00N14-2, A0008-1TE*, A96814-65LB, AC99375-1Ru, A97066-42LB
  Most variable L/W: AO96365-2, CO97087-2Ru*, A98345-1

Details (*similar performance and/or ranking in trials from previous years)

- AO96305-3, AC99375-1Ru, A96814-65LB, CO97087-2Ru*, and A98345-1 were the highest rated entries, accumulating an average of 35.7, 35.0, 33.0, 32.5, and 32.2 of 38 possible points, respectively. A98345-1* and AO96305-3* were the top two scoring clones in the 2008 Tri-State trial and CO97087-2Ru* was among the top three in the 2007 and 2008 Regional trial. All five clones had significant resistance to low temperature sweetening, producing USDA 0-2 fries (stem end) when stored for 60 days at 40°F from all locations (except A98345-1 from OR).

- CO98067-7Ru*, RB, CO99100-1Ru were the lowest scoring clones, receiving overall scores of 17.9/38, 19.4/38, and 21.5/38, respectively. All three clones produced relatively dark fries at harvest and after 60 days storage at all storage temperatures.

- The specific gravities of CO99053-4Ru, A0008-1TE, RB, CO99100-1Ru, and CO98067-7Ru were 1.076, 1.076, 1.074, 1.073, and 1.068, respectively; too low for processing contracts. The gravity of CO98067-7Ru was also low (1.073) in 2008. Two of these entries, CO98067-7Ru and RB, received the lowest taste panel ratings (avg. 2.6/5). CO99053-3Ru and A97066-42LB also had low taste panel ratings, averaging 2.9/5.

- Fry colors were non-uniform from bud to stem end for many of the OR-grown clones at harvest and after 60 days of storage, regardless of storage temperature. CO99100-1Ru and PA00N14-2 produced non-uniform fry color when stored at 44°F, regardless of production site. A97066-42LB and AC99375-1Ru varied the most in their ability to retain processing quality during storage for 60 days at 44°F across production sites.

- A96814-65LB and A97066-42LB had the highest average gravities (1.097 and 1.094); too high for frozen processing contracts. Consistent with last year, A96814-65LB had extreme after cooking darkening and negative comments about dry texture. AO96305-3, RR, CO97087-2Ru, and A98345-1 had the most favorable gravities for processing (ranging from 1.086-1.083). Three of these entries (AO96305-3, RR , A98345-1), along with PA99N82-4, received the highest taste panel ratings, scoring 3.5/5 and up. PA99N82-4 ranked second in the 2008 taste panel evaluations and was highly ranked in the 2007 evaluations.

- On average, ID- and WA-grown tubers produced the lightest fry colors at harvest. When stored at 48°F for 60 days, the processing quality of tubers from all states improved, with OR-grown tubers improving the most. Averaged across the three production sites, the Regional entries retained 111% and 93% of their processing quality (stem end) when stored at 48 and 44°F for 60 days, respectively.

- PA99N82-4, RR, PA99N2-1, CO98067-7Ru, and CO99100-1Ru reconditioned well at 60°F following storage for 60 days at 40°F. Reconditioning CO97087-2Ru, A96814-65LB, A0008-1TE, and A97066-42LB had the least effect on change in stem end fry color. The latter two entries also showed minimal reconditioning ability in last year's trial. CO97087-2Ru and A96814-65LB were relatively resistant to sweetening at 40°F and therefore had little sugar to recondition.

- CO98067-7Ru*, CO99100-1Ru, and AO96305-3 were highly resistant to blackspot, with only 12.5, 6.9, and 5.7% of impacts (stem end) showing bruise (3-state average). CO99053-3Ru, PA99N82-4, AC99375-1Ru, and A0008-1TE were moderately resistant with 25 to 36% bruise in the controlled impact study. In contrast, A96814-65LB, RR, and A98345-1 had 96, 94 and 83% of impacts developing bruise, respectively. Bruise severity was greatest in A96814-65LB (4.1/5), RR (4.0/5), and A98345-1 (3.4/5) and least in A0008-1TE (1.5/5), CO98067-7Ru (1.3/5), CO99100-1Ru (1.2/5), and AO96305-3 (1.1/5) (1= no bruise; 5= 100% of impact area is dark).

- On average, ID-grown tubers had the highest L/W ratios (1.8) compared with those grown in WA (1.6) and OR (1.7). Similar to their performance last year, the 8- to 10-oz tubers of PA99N82-4 and PA99N2-1 had the lowest L/W ratios (avg. = 1.35), reflecting round tubers. Length to width ratio was also an issue with A96814-65LB, A97066-42LB, and A98345-1 (avg = 1.47). PA00N14-2, AO96305-3, RB, CO99053-4Ru, and RR* had the highest L/W ratios (avg = 1.97). AO96365-2, CO97087-2Ru*, and A98345-1 had the greatest variation in L/W ratio of 8- to 10-oz tubers across states. CO97087-2Ru was also highly variable last year (Regional trial). In contrast, the L/W ratios of PA00N14-2, A0008-1TE*, A96814-65LB, AC99375-1Ru, and A97066-42LB were least affected by growing location. The results are consistent with last year for A0008-1TE.

- On average, A98345-1, CO98067-7Ru, and PA99N82-4 produced 9-inch sprouts after 7 months of storage, considerably longer (by 5 inches) than either check (RR or RB), indicating relatively short dormancy. In contrast, A96814-65LB produced sprouts that were shorter than RB and RR, suggesting a similar or slightly longer length of dormancy. A98345-1 and CO98067-7Ru produced the longest sprouts (from all production sites) after 60 days at 48°F. All entries fried acceptably light after 7 months of storage; however, uniformity of fry color was an issue with many of the entries grown in OR.

Overall Regional Postharvest Merit Scores

Clone	Postharvest Merit Scores WA	ID	OR	3 state Average
8 AO96305-3	4.5	4.7	4.8	4.7
7 AC99375-1Ru	4.4	4.8	4.6	4.6
3 A96814-65LB	4.3	4.2	4.5	4.3
10 CO97087-2Ru	4.6	4.2	4.0	4.3
5 A98345-1	4.7	4.7	3.3	4.2
17 PA99N82-4	4.0	4.2	3.5	3.9
1 Ranger Russet	4.3	4.3	3.0	3.8
16 PA99N2-1	3.9	3.7	3.8	3.8
4 A97066-42LB	3.6	4.2	2.9	3.5
15 PA00N14-2	3.1	4.3	3.1	3.5
12 CO99053-3Ru	3.8	4.4	2.1	3.4
6 A0008-1TE	3.6	3.6	2.8	3.3
9 AO96365-2	3.6	4.3	2.1	3.3
13 CO99053-4Ru	2.9	4.5	2.2	3.2
14 CO99100-1Ru	2.8	3.8	2.0	2.9
2 Russet Burbank	3.7	2.4	1.5	2.6
11 CO98067-7Ru	2.4	2.8	1.9	2.4

We appreciate all the support we are shown during our field day every year. If you are not in this picture, you can redeem yourself by participating in 2010!

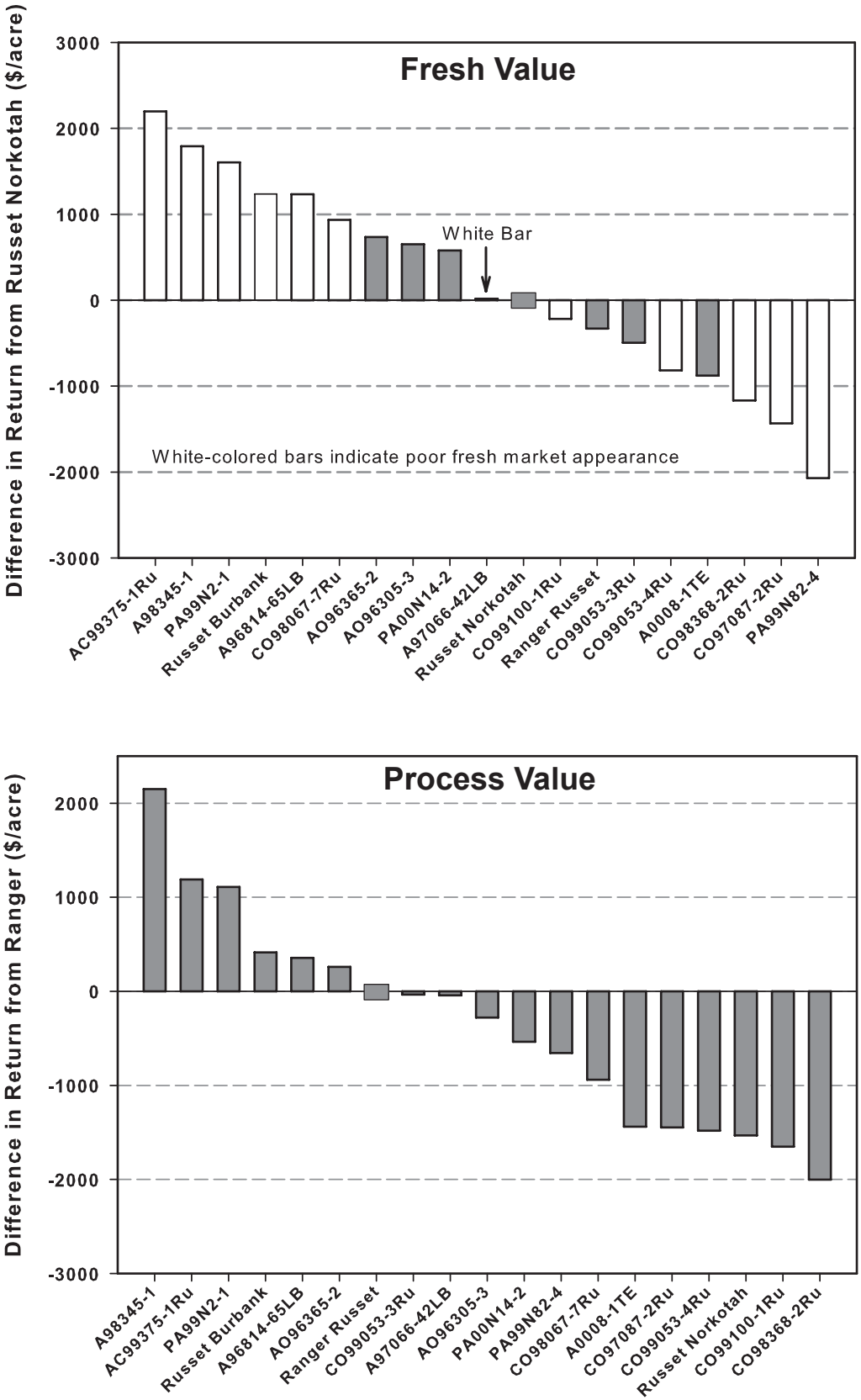


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape or appearance. **Figure 2 (Bottom).** Difference in gross return per acre (Process Market) from Ranger Russet calculated by subtracting the gross return of Ranger Russet from the gross return of the particular entry.

2009 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	814	ABCD	40.7	89	4	7	48	19.6	87	35.4
Russet Burbank	852	ABCD	42.6	88	5	8	59	25.0	85	36.1
Russet Norkotah	663	CD	33.1	91	0	9	65	21.6	77	25.5
A96814-65LB	946	ABCD	47.3	94	1	5	55	26.1	92	43.4
A97066-42LB	871	ABCD	43.5	92	1	7	49	21.2	89	38.5
A98345-1	1130	A	56.5	95	1	4	47	26.6	92	52.0
A0008-1TE	653	CD	32.7	92	1	7	65	21.1	86	28.2
AC99375-1Ru	975	ABC	48.8	88	4	8	58	28.1	81	39.6
AO96305-3	739	BCD	36.9	94	0	6	66	24.5	86	31.7
AO96365-2	857	ABCD	42.8	90	2	8	54	23.3	81	34.6
CO97087-2Ru	607	D	30.4	86	2	11	52	15.7	77	23.4
CO98067-7Ru	880	ABCD	44.0	87	2	11	53	23.1	75	33.2
CO98368-2Ru	606	D	30.3	86	1	13	57	17.2	72	21.9
CO99053-3Ru	824	ABCD	41.2	91	5	4	46	18.8	91	37.6
CO99053-4Ru	650	CD	32.5	88	2	11	55	17.9	77	25.1
CO99100-1Ru	672	CD	33.6	90	1	9	61	20.6	83	27.8
PA00N14-2	679	CD	33.9	94	0	6	73	24.8	83	28.2
PA99N2-1	950	ABCD	47.5	96	1	4	55	26.2	90	42.8
PA99N82-4	918	ABCD	45.9	80	1	19	31	14.2	78	35.9

ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers)		
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	4-7 oz*	7-14 oz*	> 14 oz*		% HH	% BC	% IBS
				%						
Ranger Russet	725	BCDE	36.2	11	34	56	1.081	0	0	0
Russet Burbank	748	ABCDE	37.4	17	47	37	1.080	3	0	0
Russet Norkotah	604	CDE	30.2	24	62	14	1.065	0	0	0
A96814-65LB	887	ABCD	44.3	6	33	61	1.099	0	0	0
A97066-42LB	798	ABCDE	39.9	8	33	59	1.096	0	0	0
A98345-1	1074	A	53.7	6	27	66	1.086	0	0	0
A0008-1TE	599	CDE	29.9	12	50	38	1.075	0	0	0
AC99375-1Ru	861	ABCD	43.1	17	45	38	1.093	0	0	0
AO96305-3	693	BCDE	34.7	15	53	32	1.081	0	0	0
AO96365-2	769	ABCDE	38.5	20	45	35	1.078	0	0	0
CO97087-2Ru	524	E	26.2	20	44	37	1.077	0	0	0
CO98067-7Ru	767	ABCDE	38.3	25	47	29	1.068	0	0	0
CO98368-2Ru	520	E	26.0	28	51	21	1.072	0	0	0
CO99053-3Ru	747	ABCDE	37.3	7	33	60	1.081	0	0	0
CO99053-4Ru	570	DE	28.5	22	51	27	1.072	0	0	0
CO99100-1Ru	607	CDE	30.3	16	51	33	1.073	0	0	0
PA00N14-2	638	CDE	31.9	21	69	11	1.079	0	0	0
PA99N2-1	909	ABC	45.5	11	39	51	1.080	0	0	3
PA99N82-4	733	BCDE	36.6	5	24	71	1.076	10	0	0

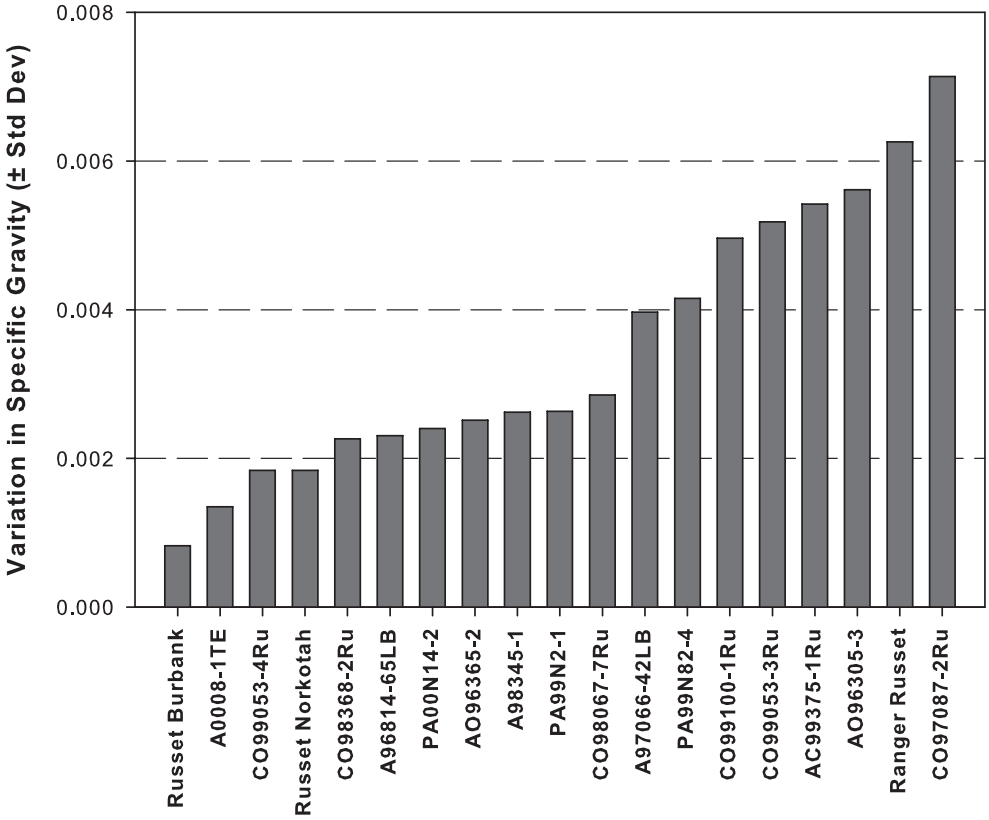
* Percent values may not total 100% due to rounding
**Numbers followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

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	13	98	100	1.5	10.9	6.5	4	4	20	50
Russet Burbank	19	97	100	1.6	9.3	8.0	4	3	25	55
Russet Norkotah	10	93	97	1.9	7.4	7.8	4	3	15	23
A96814-65LB	7	95	100	1.3	12.6	6.6	3	2	0	62
A97066-42LB	0	68	96	1.1	12.1	6.3	4	3	18	68
A98345-1	42	97	99	1.7	12.8	7.7	4	3	13	58
A0008-1TE	2	76	95	1.7	9.7	5.9	4	3	5	73
AC99375-1Ru	10	70	90	1.7	9.0	9.5	3	3	20	25
AO96305-3	0	97	99	1.9	8.9	7.2	4	4	8	37
AO96365-2	5	91	97	1.5	8.4	8.9	4	2	8	43
CO97087-2Ru	22	95	98	2.2	8.1	6.6	4	3	11	38
CO98067-7Ru	55	96	99	3.0	7.5	10.1	4	2	6	22
CO98368-2Ru	32	80	91	2.0	6.9	7.7	4	3	13	50
CO99053-3Ru	6	85	93	2.2	12.3	5.8	3	3	6	14
CO99053-4Ru	11	84	91	2.1	7.6	7.5	4	3	10	20
CO99100-1Ru	28	85	96	2.4	9.0	6.5	4	3	15	48
PA00N14-2	0	88	95	1.5	7.8	7.5	4	4	8	20
PA99N2-1	0	71	89	2.2	10.9	7.6	4	2	28	60
PA99N82-4	1	89	98	1.6	15.1	5.3	4	2	15	88

Clone - Dependent Variation in Specific Gravity

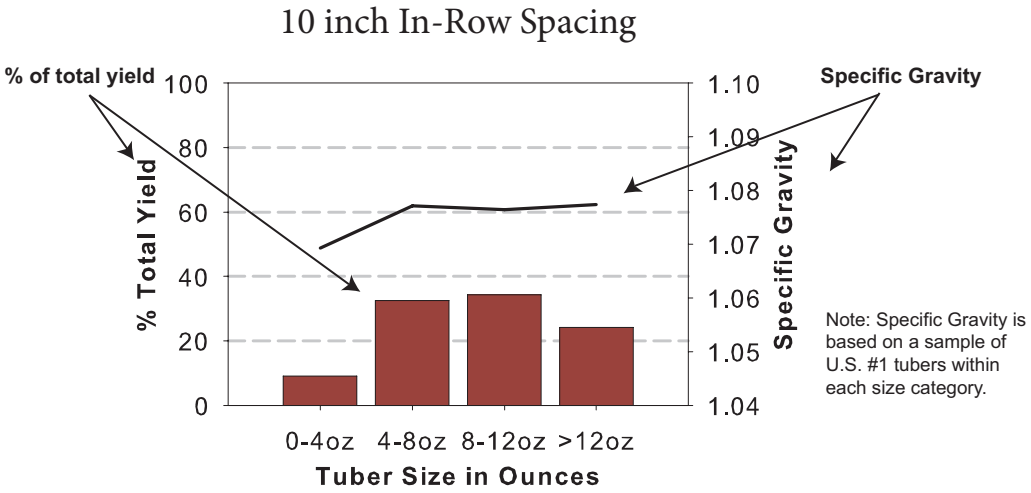
Variability among 12, 10lb samples from each entry (all tuber sizes)

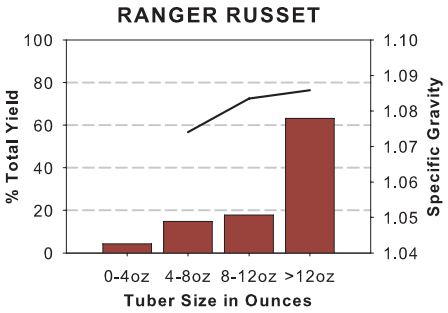
2009 Late-Harvest Regional Trial

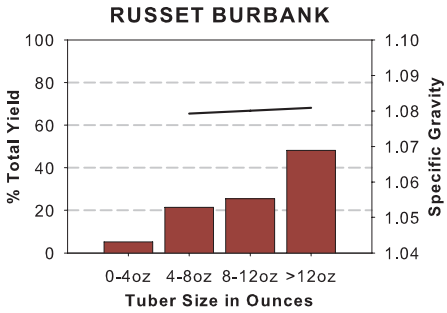


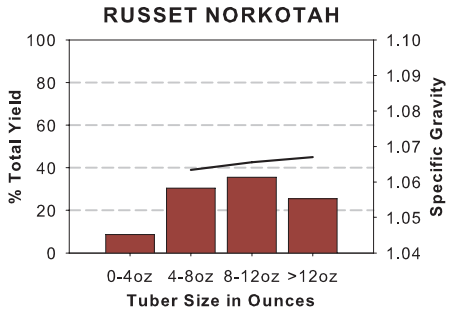
2009 Late Harvest Regional Trial

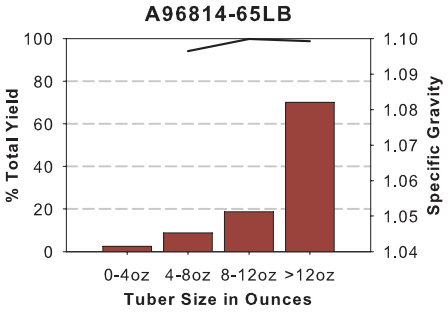
Tuber Yield and Specific Gravity Distributions

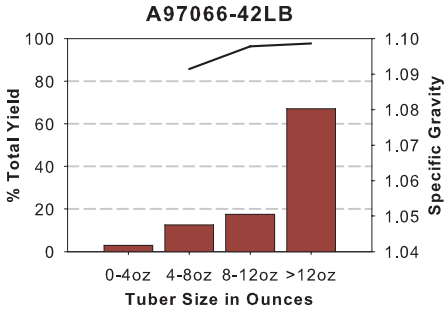


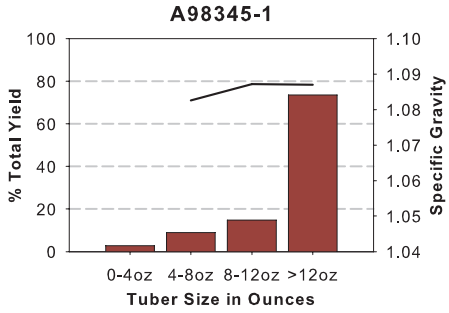


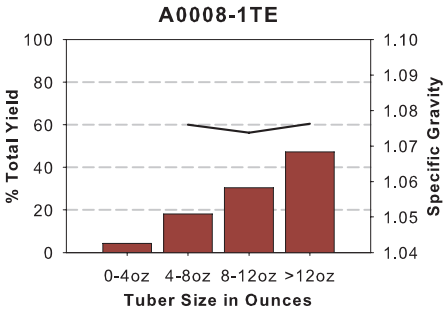


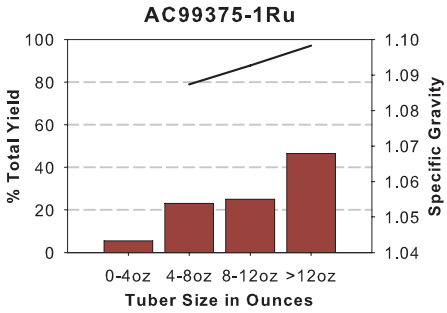


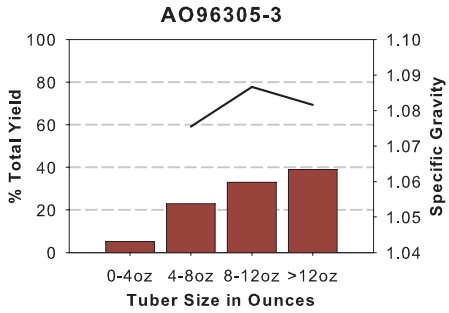












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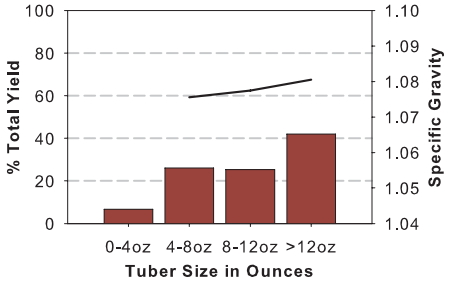

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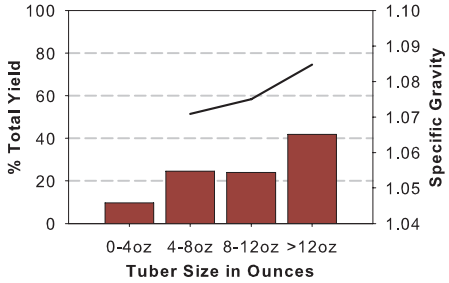

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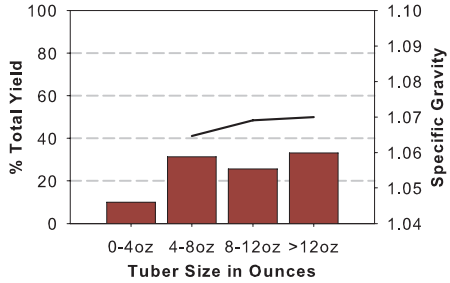

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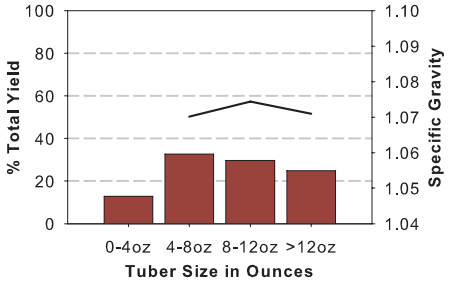

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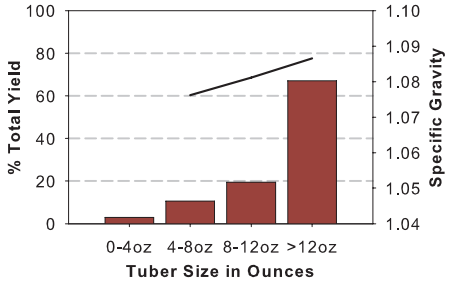

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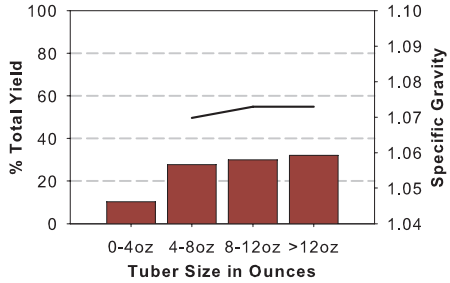

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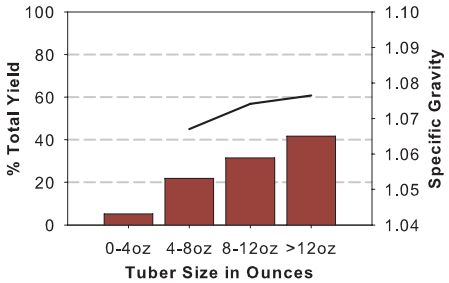

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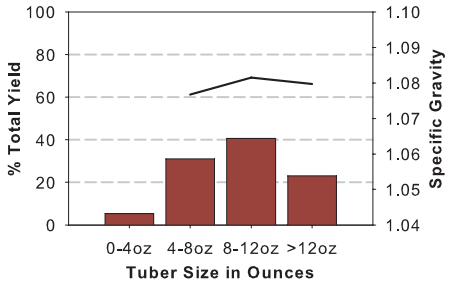

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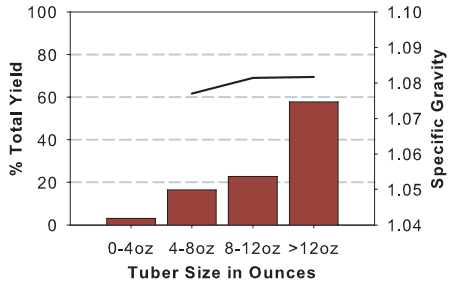

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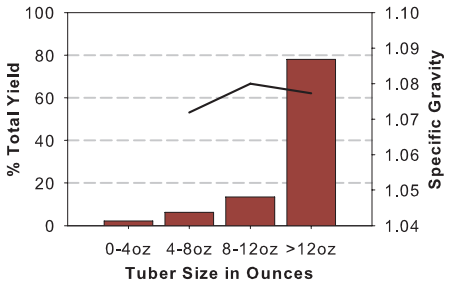
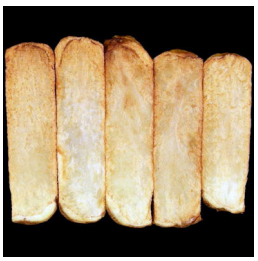
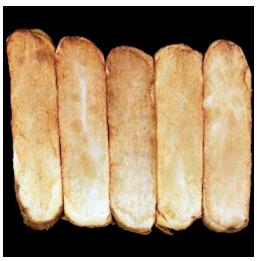


Tubers	WA Late Harvest Regional Trial Comments
Ranger Russet	
	**Tubers:** Oblong to long tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry Color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, non-uniform; 40°F=unacceptably dark, uniform; reconditioned=light, non-uniform.
Russet Burbank	
	**Tubers:** Oblong tubers. Moderate russet with good skin set; moderate eye depth. **Fry Color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=unacceptably dark, non-uniform; reconditioned=light, non-uniform.
A96814-65LB	
	**Tubers:** Round to oblong tubers. Light russet with fair skin set; shallow eyes. **Fry Color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=relatively dark, non-uniform; reconditioned=light, non-uniform.
A97066-42LB	
	**Tubers:** Oblong tubers. Light russet with good skin set; shallow eyes. **Fry Color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=unacceptably dark, uniform; reconditioned=relatively dark, non-uniform.
A98345-1	
	**Tubers:** Oblong tubers. Light russet with good skin set; shallow eyes. **Fry Color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, 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				
				
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	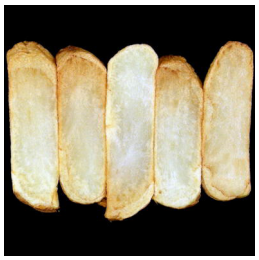	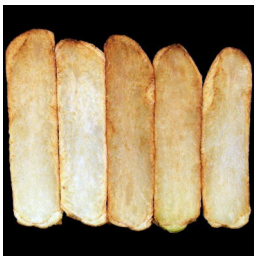	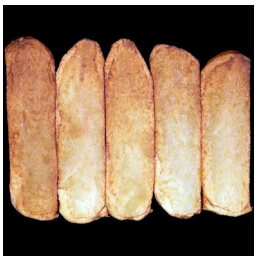	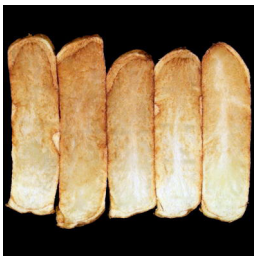
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		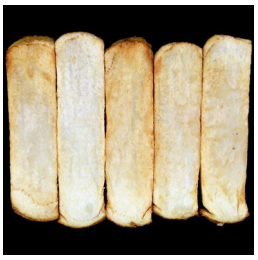		
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	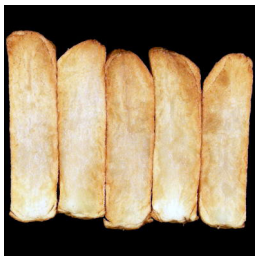			
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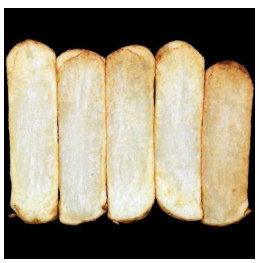
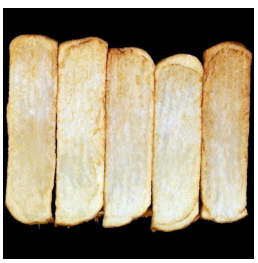
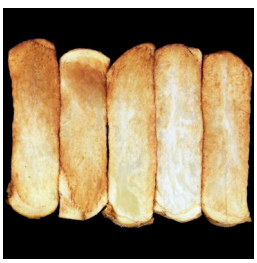
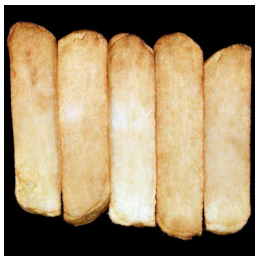
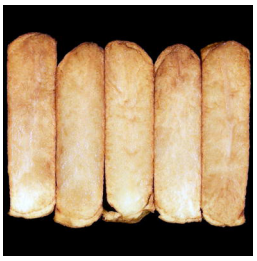
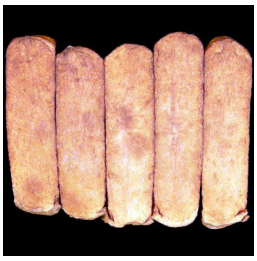
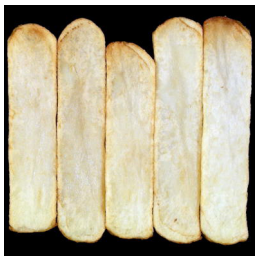
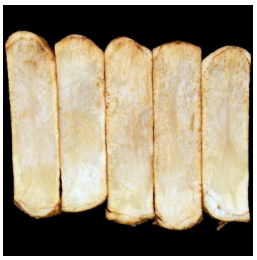
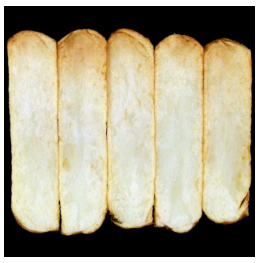
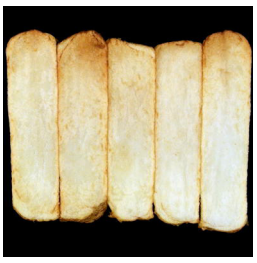
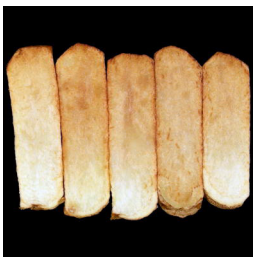
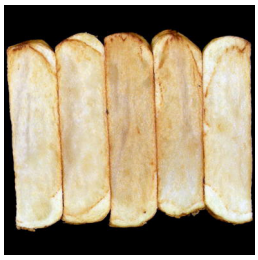
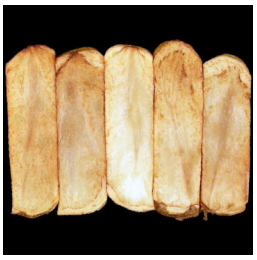
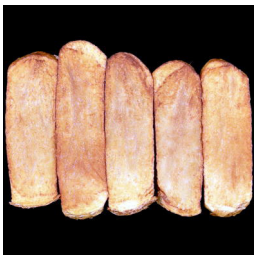
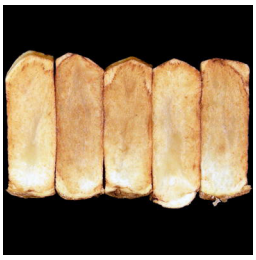
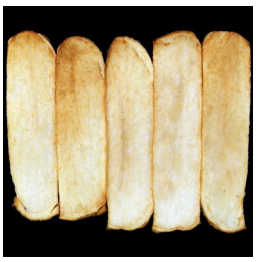
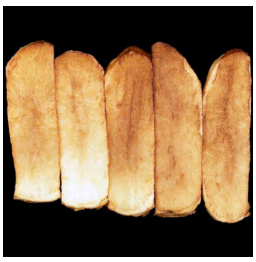
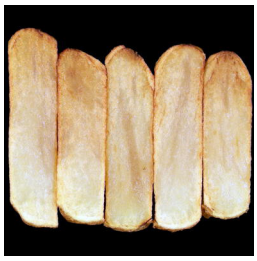
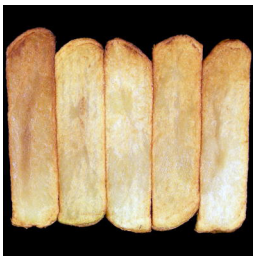
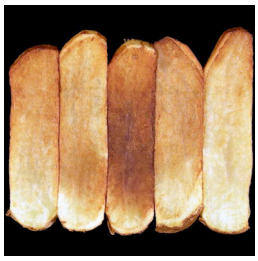
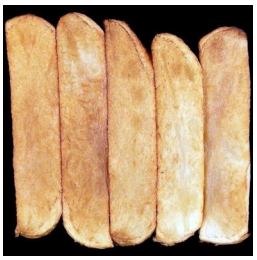
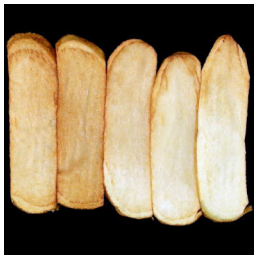
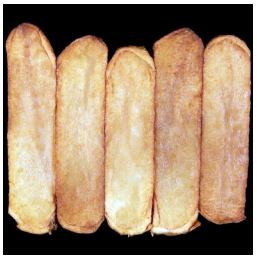
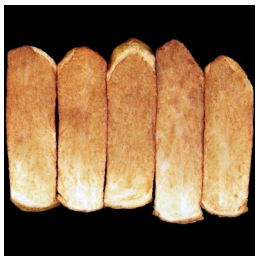
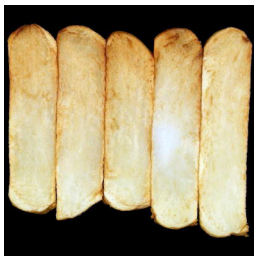
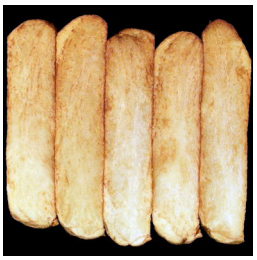
				

Tubers	WA Late Harvest Regional Trial Comments
A0008-1TE	
	**Tubers:** Oblong tubers. Light russet with good skin set; shallow eyes. **Fry Color:** At harvest=light, non-uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=unacceptably dark, uniform; reconditioned=relatively dark, uniform.
AC99375-1Ru	
	**Tubers:** Oblong tubers. Moderately heavy russet with fair skin set; shallow eyes. **Fry Color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=relatively dark, non-uniform; reconditioned=relatively dark, non-uniform.
AO96305-3	
	**Tubers:** Oblong to long tubers. Moderate russet with good skin set; shallow eyes. **Fry Color:** At harvest=light, non-uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=relatively dark, non-uniform; reconditioned=light, non-uniform.
AO96365-2	
	**Tubers:** Round to oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry Color:** At harvest=light, non-uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=unacceptably dark, uniform; reconditioned=light, non-uniform.
CO97087-2Ru	
	**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry Color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=relatively dark, non-uniform; reconditioned=light, non-uniform.

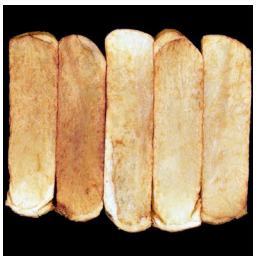
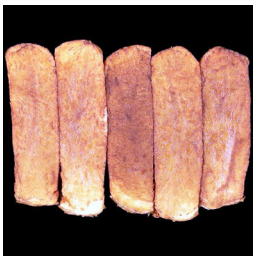
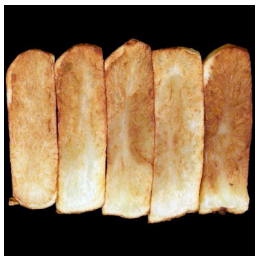
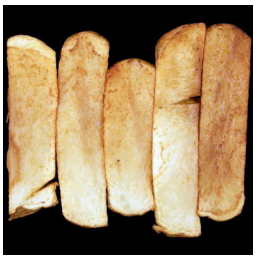
Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
A0008-1TE				
				
AC99375-1Ru				
				
AO96305-3				
				
AO96365-2				
				
CO97087-2Ru				
				

Tubers	WA Late Harvest Regional Trial Comments
CO98067-7Ru	
	**Tubers:** Round to oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry Color:** At harvest=relatively dark, non-uniform; after approximately two months of storage at 48°F=light, non-uniform; 44°F=relatively dark, uniform; 40°F=unacceptably dark, uniform; reconditioned=light, non-uniform.
CO99053-3Ru	
	**Tubers:** Oblong tubers. Moderate russet with fair skin set; shallow eyes. **Fry Color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=relatively dark, uniform; 40°F=unacceptably dark, uniform; reconditioned=light, uniform.
CO99053-4Ru	
	**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry Color:** At harvest=light, non-uniform; after approximately two months of storage at 48°F=light, non-uniform; 44°F=relatively dark, uniform; 40°F=unacceptably dark, uniform; reconditioned=light, non-uniform.
CO99100-1Ru	
	**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry Color:** At harvest=light, non-uniform; after approximately two months of storage at 48°F=light, non-uniform; 44°F=light, non-uniform; 40°F=unacceptably dark, uniform; reconditioned=light, non-uniform.
PA00N14-2	
	**Tubers:** Oblong to long tubers. Light russet with good skin set; shallow eyes. **Fry Color:** At harvest=light, non-uniform; after approximately two months of storage at 48°F=light, non-uniform; 44°F=light, non-uniform; 40°F=unacceptably dark, uniform; reconditioned=relatively dark, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
CO98067-7Ru				
				
CO99053-3Ru				
				
CO99053-4Ru				
				
CO99100-1Ru				
				
PA00N14-2				
				

Tubers	WA Late Harvest Regional Trial Comments
PA99N2-1	
	**Tubers:** Round to oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry Color:** At harvest=light, non-uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=unacceptably dark, uniform; reconditioned=relatively dark, non-uniform.
PA99N82-4	
	**Tubers:** Round to oblong tubers. Heavy russet with good skin set; moderate eye depth. **Fry Color:** At harvest=light, uniform; after approximately two months of storage at 48°F=light, uniform; 44°F=light, uniform; 40°F=relatively dark, uniform; reconditioned=NA.

When asked to predict how the Cougar football team would be this year, Zach Holden gave a bold prediction...

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
PA99N2-1				
				
PA99N82-4				
				**N/A**

As if on cue, the wind picked up just as we started to plant.

2009 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
8 AO96305-3	34.4		35.9		36.8		35.7
7 AC99375-1Ru	33.1		36.6		35.3		35.0
3 A96814-65LB	32.4		32.1		34.4		33.0
10 CO97087-2Ru	35.3		31.9		30.3		32.5
5 A98345-1	35.5		35.9		25.2		32.2
17 PA99N82-4	30.4		31.7		26.7		29.6
1 Ranger Russet	32.4		32.6		22.6		29.2
16 PA99N2-1	30.0		28.2		29.1		29.1
4 A97066-42LB	27.0		31.9		21.8		26.9
15 PA00N14-2	23.4		32.3		23.3		26.3
12 CO99053-3Ru	28.8		33.3		15.6		25.9
6 A0008-1TE	27.3		27.7		21.1	Sp. Gr.	25.4
9 AO96365-2	27.4		32.6		16.1	Sp. Gr.	25.4
13 CO99053-4Ru	22.2	Sp. Gr.	34.5		16.5		24.4
14 CO99100-1Ru	21.2	Sp. Gr.	28.5		14.9	Sp. Gr.	21.5
2 Russet Burbank	27.9		18.6	Sp. Gr.	11.7	Sp. Gr.	19.4
11 CO98067-7Ru	18.4	Sp. Gr.	21.0	Sp. Gr.	14.3		17.9
Average	28.7		30.9		23.3		27.6

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

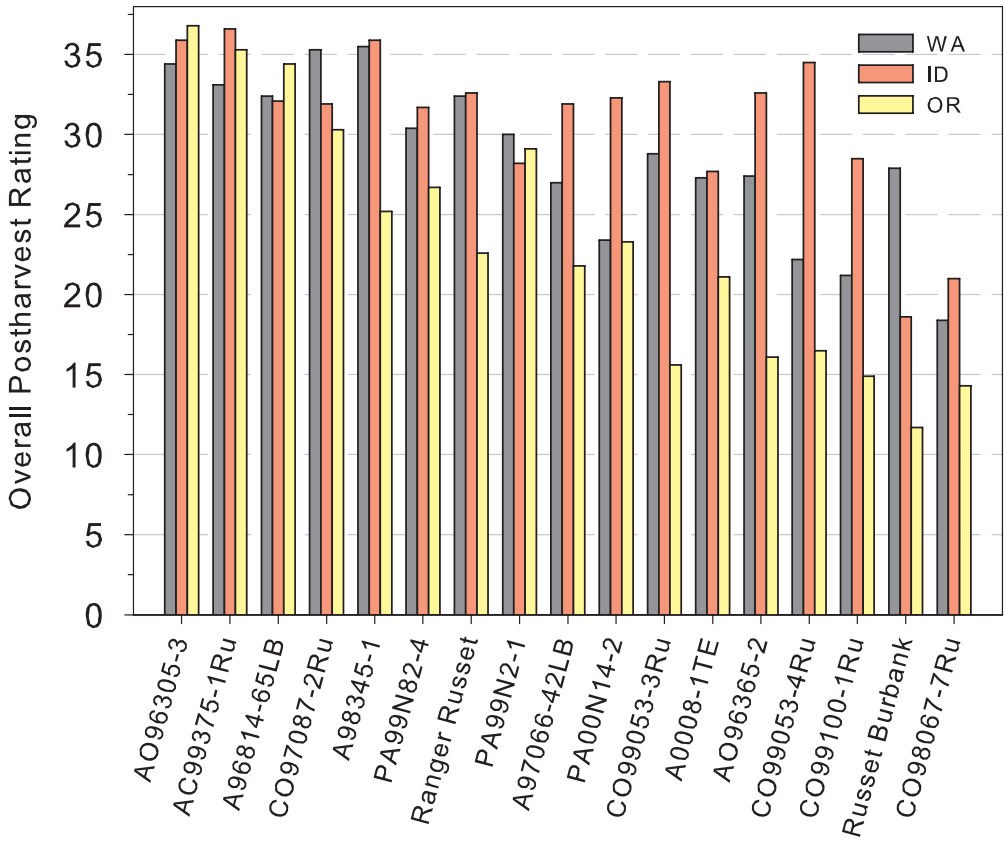
Overall Postharvest Performance of Clones Compared to Russet Burbank.

Clone	WA	ID	OR	Average
1 Ranger Russet	**H**	**H**	**H**	**H**
3 A96814-65LB	**H**	**H**	**H**	**H**
4 A97066-42LB	**L**	**H**	**H**	**H**
5 A98345-1	**H**	**H**	**H**	**H**
6 A0008-1TE	**L**	**H**	**H**	**H**
7 AC99375-1Ru	**H**	**H**	**H**	**H**
8 AO96305-3	**H**	**H**	**H**	**H**
9 AO96365-2	**L**	**H**	**H**	**H**
10 CO97087-2Ru	**H**	**H**	**H**	**H**
11 CO98067-7Ru	**L**	**H**	**H**	**L**
12 CO99053-3Ru	**H**	**H**	**H**	**H**
13 CO99053-4Ru	**L**	**H**	**H**	**H**
14 CO99100-1Ru	**L**	**H**	**H**	**H**
15 PA00N14-2	**L**	**H**	**H**	**H**
16 PA99N2-1	**L**	**H**	**H**	**H**
17 PA99N82-4	**L**	**H**	**H**	**H**

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

2009 Late Harvest Regional Trial

Late Harvest Regional Postharvest Ratings



Daniel Zommick, WSU Grad student, tries to make sure that every seed piece is in it's proper place.

2009 Late Harvest Regional Trial

Prior to Storage

Clone	PHOTOVOLT READING stem	bud	av	rtg §	DIFF	USDA COLOR	SPECIFIC GRAVITY	rtg
Washington								
1 Ranger Russet	40.2	44.2	42.2	**5+**	5.4	0	1.085	**5**
2 Russet Burbank	36.4	42.6	39.5	**4+**	6.4	0	1.079	**2**
3 A96814-65LB	43.8	46.7	45.2	**5+**	6.4	0	1.101	**1**
4 A97066-42LB	36.4	40.1	38.3	**4+**	5.2	0	1.103	**1**
5 A98345-1	40.2	41.7	40.9	**5+**	4.5	0	1.087	**5**
6 A0008-1TE	37.9	47.4	42.6	**5-**	9.9	0	1.077	**1**
7 AC99375-1Ru	42.6	46.2	44.4	**5+**	4.4	0	1.095	**2**
8 AO96305-3	41.8	51.9	46.9	**5-**	10.1	0	1.084	**5**
9 AO96365-2	28.7	42.1	35.4	**3-**	13.5	1	1.081	**4**
10 CO97087-2Ru	41.0	47.7	44.4	**5+**	7.8	0	1.083	**5**
11 CO98067-7Ru	23.0	34.7	28.9	**5-**	11.7	2	1.067	**0**
12 CO99053-3Ru	36.4	40.1	38.2	**4+**	6.1	0	1.081	**4**
13 CO99053-4Ru	32.9	39.5	36.2	**4-**	9.1	0	1.070	**0**
14 CO99100-1Ru	29.7	46.8	38.3	**4-**	17.2	1	1.070	**0**
15 PA00N14-2	35.0	45.7	40.4	**4-**	10.7	0	1.079	**2**
16 PA99N2-1	37.1	46.7	41.9	**5-**	9.6	0	1.081	**4**
17 PA99N82-4	38.0	44.2	41.1	**5+**	6.2	0	1.079	**2**
		LSD 0.05	*3.2*		*3.6*		*0.005*	
Average	36.5	44.0	40.3		8.5	0	1.082	
Idaho								
1 Ranger Russet	34.3	43.3	38.8	**4-**	9.0	0	1.083	**5**
2 Russet Burbank	32.2	42.1	37.1	**4-**	9.9	0	1.074	**0**
3 A96814-65LB	47.2	46.6	46.9	**5+**	2.8	0	1.100	**1**
4 A97066-42LB	37.2	36.3	36.7	**4+**	5.6	0	1.089	**4**
5 A98345-1	48.3	47.3	47.8	**5+**	6.1	0	1.082	**4**
6 A0008-1TE	41.6	48.1	44.9	**5+**	7.9	0	1.082	**4**
7 AC99375-1Ru	43.2	43.5	43.3	**5+**	5.7	0	1.086	**5**
8 AO96305-3	44.6	49.7	47.1	**5+**	5.1	0	1.089	**4**
9 AO96365-2	40.1	45.8	43.0	**5+**	6.8	0	1.078	**2**
10 CO97087-2Ru	44.4	51.7	48.0	**5+**	7.4	0	1.086	**1**
11 CO98067-7Ru	32.4	37.5	35.0	**3+**	5.2	0	1.071	**0**
12 CO99053-3Ru	41.3	42.5	41.9	**5+**	3.6	0	1.082	**4**
13 CO99053-4Ru	40.7	48.6	44.6	**5+**	8.1	0	1.082	**4**
14 CO99100-1Ru	42.3	46.3	44.3	**5+**	4.9	0	1.077	**1**
15 PA00N14-2	40.3	46.6	43.4	**5+**	8.3	0	1.085	**5**
16 PA99N2-1	41.1	44.8	42.9	**5+**	4.1	0	1.079	**2**
17 PA99N82-4	41.4	42.4	41.9	**5+**	2.6	0	1.080	**3**
		LSD 0.05	*3.1*		*3.7*			
Average	40.7	44.9	42.8		6.1	0	1.083	
Oregon								
1 Ranger Russet	26.9	38.9	32.9	**3-**	12.0	1	1.086	**5**
2 Russet Burbank	19.3	36.5	27.9	**2-**	17.2	3	1.068	**0**
3 A96814-65LB	38.2	45.2	41.7	**5+**	7.1	0	1.092	**3**
4 A97066-42LB	21.0	36.2	28.6	**2-**	15.2	2	1.090	**4**
5 A98345-1	27.6	39.8	33.7	**3-**	12.1	1	1.081	**4**
6 A0008-1TE	28.8	42.7	35.7	**4-**	13.9	1	1.068	**0**
7 AC99375-1Ru	33.0	41.7	37.3	**4+**	8.9	0	1.085	**5**
8 AO96305-3	43.3	51.2	47.2	**5+**	7.9	0	1.084	**5**
9 AO96365-2	27.7	41.1	34.4	**3-**	13.4	1	1.072	**0**
10 CO97087-2Ru	36.6	48.5	42.5	**5-**	12.0	0	1.084	**5**
11 CO98067-7Ru	24.4	37.3	30.8	**3-**	13.8	2	1.065	**0**
12 CO99053-3Ru	20.8	38.0	29.4	**2-**	17.2	2	1.078	**2**
13 CO99053-4Ru	20.7	37.4	29.0	**2-**	16.8	2	1.077	**1**
14 CO99100-1Ru	19.4	38.6	29.0	**2-**	19.2	3	1.072	**0**
15 PA00N14-2	34.4	45.0	39.7	**4-**	10.7	0	1.078	**2**
16 PA99N2-1	32.0	40.2	36.1	**4+**	8.5	0	1.081	**4**
17 PA99N82-4	37.1	44.8	40.9	**5+**	8.7	0	1.079	**2**
		LSD 0.05	*3.1*		*4.8*		*0.005*	
Average	28.9	41.4	35.1		12.6	1	1.079	

Date test performed:

Washington	Oct. 6	Oct. 5
Idaho	Oct. 8	Oct. 1
Oregon	Oct. 7	Oct. 2

§ 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.

2009 Late Harvest Regional 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	**3.4**	88	17	3.5	1.4	13	17
2 Russet Burbank	**2.9**	54	33	2.3	1.7	23	19
3 A96814-65LB	**3.4**	100	25	4.3	1.5	6	6
4 A97066-42LB	**3.0**	77	32	2.9	1.4	8	9
5 A98345-1	**3.5**	92	25	4.1	1.5	8	12
6 A0008-1TE	**3.3**	13	21	1.3	1.3	8	11
7 AC99375-1Ru	**3.1**	29	8	1.8	1.2	4	5
8 AO96305-3	**3.4**	4	8	1.1	1.2	9	11
9 AO96365-2	**3.4**	63	4	2.5	1.1	6	8
10 CO97087-2Ru	**3.3**	8	4	1.1	1.0	6	9
11 CO98067-7Ru	**2.4**	0	8	1.0	1.1	12	12
12 CO99053-3Ru	**2.8**	29	13	1.8	1.3	12	11
13 CO99053-4Ru	**3.2**	50	13	2.0	1.1	7	9
14 CO99100-1Ru	**3.2**	13	0	1.3	1.0	17	16
15 PA00N14-2	**3.4**	67	8	3.1	1.2	8	9
16 PA99N2-1	**3.0**	83	29	3.5	1.7	9	7
17 PA99N82-4	**3.4**	46	33	2.2	1.8	No Sample	
LSD 0.05	*0.4*	*26*	*22*			*5*	*5*
Average	3.2	47.9	16.6	2.3	1.3	9.8	10.6
Idaho							
1 Ranger Russet	**3.6**	96	0	3.7	1.0	8	9
2 Russet Burbank	**2.6**	46	8	2.1	1.2	8	8
3 A96814-65LB	**3.1**	100	83	4.0	3.3	4	4
4 A97066-42LB	**2.9**	50	29	2.1	1.6	8	5
5 A98345-1	**3.9**	63	38	2.3	1.8	6	4
6 A0008-1TE	**3.7**	18	0	1.4	1.0	6	6
7 AC99375-1Ru	**3.6**	17	25	1.4	1.6	4	3
8 AO96305-3	**3.9**	5	0	1.1	1.0	8	8
9 AO96365-2	**3.6**	25	4	1.5	1.1	6	6
10 CO97087-2Ru	**2.9**	21	0	1.5	1.0	5	9
11 CO98067-7Ru	**3.0**	0	0	1.0	1.0	9	8
12 CO99053-3Ru	**3.3**	8	0	1.2	1.0	7	7
13 CO99053-4Ru	**3.5**	13	0	1.3	1.0	10	10
14 CO99100-1Ru	**3.5**	0	0	1.0	1.0	11	10
15 PA00N14-2	**3.3**	58	0	2.4	1.0	7	8
16 PA99N2-1	**3.2**	8	8	1.2	1.2	10	8
17 PA99N82-4	**3.7**	9	0	1.2	1.0	9	8
LSD 0.05	*0.5*	*22*	*15*			*3*	*2*
Average	3.4	31.5	11.5	1.8	1.3	7.5	7.1
Oregon							
1 Ranger Russet	**3.6**	100	33	4.9	1.7	7	10
2 Russet Burbank	**2.7**	67	50	2.7	2.1	8	11
3 A96814-65LB	**3.4**	88	42	3.9	1.7	3	3
4 A97066-42LB	**2.8**	96	13	3.7	1.3	7	6
5 A98345-1	**3.2**	96	63	3.8	2.6	10	8
6 A0008-1TE	**3.1**	46	4	2.0	1.1	9	7
7 AC99375-1Ru	**3.3**	33	17	1.8	1.4	3	5
8 AO96305-3	**3.8**	8	33	1.3	1.5	8	12
9 AO96365-2	**3.1**	38	4	1.8	1.1	6	5
10 CO97087-2Ru	**3.3**	96	4	4.3	1.1	7	5
11 CO98067-7Ru	**2.3**	38	25	2.0	1.5	15	9
12 CO99053-3Ru	**2.6**	71	8	3.1	1.1	7	6
13 CO99053-4Ru	**2.5**	58	4	2.9	1.5	10	8
14 CO99100-1Ru	**2.9**	8	13	1.2	1.3	9	10
15 PA00N14-2	**3.3**	83	4	3.3	1.1	7	8
16 PA99N2-1	**3.1**	25	8	1.7	1.2	7	5
17 PA99N82-4	**3.7**	33	13	1.7	1.2	7	6
LSD 0.05	*0.4*	*28*	*22*			*4*	*3*
Average	3.1	57.8	19.9	2.7	1	7.7	7.4

Date test performed:

Washington	Oct. 22	Nov. 3	Nov. 10
Idaho	Oct. 23	Nov. 4	Nov. 17
Oregon	Oct. 26	Nov. 5	Nov. 19

2009 Late Harvest Regional Trial

Stored at 48°F for 60 Days

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg	SPROUTING (%)	length (in)
Washington											
1 Ranger Russet	39.8	44.9	42.4	**5+**	6.3	0	0.7	0.6	**5**	60	1/8"
2 Russet Burbank	36.1	43.2	39.6	**4+**	8.5	0	0.9	0.6	**5**	0	
3 A96814-65LB	47.1	50.4	48.7	**5+**	4.1	0	0.5	0.5	**5**	73	1/4"
4 A97066-42LB	34.2	37.9	36.0	**4+**	5.0	0	1.0	0.8	**5**	0	
5 A98345-1	41.7	43.0	42.3	**5+**	5.8	0	0.7	0.6	**5**	100	1"
6 A0008-1TE	38.3	45.2	41.8	**5+**	7.8	0	0.8	0.6	**5**	27	1/8"
7 AC99375-1Ru	43.3	45.2	44.3	**5+**	2.7	0	0.6	0.6	**5**	73	1/2"
8 AO96305-3	51.9	55.7	53.8	**5+**	4.9	0	0.5	0.5	**5**	60	1/8"
9 AO96365-2	36.8	38.1	37.4	**4+**	3.0	0	0.9	0.8	**5**	80	1/4"
10 CO97087-2Ru	46.3	51.9	49.1	**5+**	7.7	0	0.5	0.5	**5**	0	
11 CO98067-7Ru	26.4	36.4	31.4	**3-**	10.0	1	1.8	0.9	**4**	87	3/4"
12 CO99053-3Ru	35.3	42.1	38.7	**4+**	6.9	0	1.0	0.6	**5**	87	1/4"
13 CO99053-4Ru	38.9	46.4	42.6	**5-**	9.3	0	0.8	0.5	**5**	100	1/2"
14 CO99100-1Ru	33.9	48.1	41.0	**5-**	14.3	0	1.1	0.5	**5**	93	1/2"
15 PA00N14-2	37.9	47.8	42.9	**5-**	10.0	0	0.8	0.5	**5**	7	1/8"
16 PA99N2-1	42.2	48.3	45.3	**5+**	6.7	0	0.6	0.5	**5**	80	1/4"
17 PA99N82-4	39.5	46.9	43.2	**5+**	8.5	0	0.8	0.5	**5**	No Sample	
		LSD 0.05	*3.3*		*3.4*					*20*	
Average	39.4	45.4	42.4		7.1	0	0.8	0.6		58	
Idaho											
1 Ranger Russet	41.5	45.7	43.6	**5+**	5.0	0	0.7	0.6	**5**	87	1/4"
2 Russet Burbank	32.7	44.0	38.4	**3-**	11.4	0	1.2	0.6	**5**	0	
3 A96814-65LB	52.8	52.7	52.8	**5+**	2.2	0	0.5	0.5	**5**	73	1/4"
4 A97066-42LB	39.3	41.0	40.2	**4+**	5.7	0	0.8	0.7	**5**	7	1/8"
5 A98345-1	50.4	49.8	50.1	**5+**	2.7	0	0.5	0.5	**5**	100	1"
6 A0008-1TE	36.1	41.1	38.6	**4-**	10.5	0	0.9	0.7	**5**	47	1/8"
7 AC99375-1Ru	48.2	50.2	49.2	**5+**	4.1	0	0.5	0.5	**5**	80	1/4"
8 AO96305-3	49.0	53.3	51.1	**5+**	5.8	0	0.5	0.6	**5**	40	1/8"
9 AO96365-2	43.1	47.8	45.4	**5+**	5.3	0	0.6	0.5	**5**	87	1/8"
10 CO97087-2Ru	51.1	53.5	52.3	**5+**	3.8	0	0.5	0.6	**5**	0	
11 CO98067-7Ru	33.1	36.7	34.9	**3+**	4.4	0	1.1	0.9	**4**	100	1
12 CO99053-3Ru	40.1	42.0	41.1	**4+**	5.8	0	0.7	0.7	**5**	87	1/4"
13 CO99053-4Ru	41.5	45.7	43.6	**5+**	5.2	0	0.7	0.6	**5**	100	1"
14 CO99100-1Ru	45.9	49.9	47.9	**5+**	5.3	0	0.5	0.5	**5**	93	1/2"
15 PA00N14-2	43.6	51.3	47.5	**5+**	7.7	0	0.6	0.5	**5**	0	
16 PA99N2-1	44.1	47.0	45.6	**5+**	5.5	0	0.6	0.5	**5**	87	1/4"
17 PA99N82-4	45.1	45.5	45.3	**5+**	4.5	0	0.6	0.6	**5**	80	1/4"
		LSD 0.05	*2.7*		*3.2*					*18*	
Average	43.4	46.9	45.1		5.6	0	0.7	0.6		63	
Oregon											
1 Ranger Russet	27.9	41.3	34.6	**3-**	13.4	1	1.6	0.7	**4**	100	3/4"
2 Russet Burbank	17.9	38.3	28.1	**2-**	20.4	3	3.0	0.8	**3**	0	
3 A96814-65LB	50.3	53.6	52.0	**5+**	3.3	0	0.5	0.6	**5**	93	1/2"
4 A97066-42LB	33.9	46.1	40.0	**4-**	12.2	0	1.1	0.5	**5**	0	
5 A98345-1	35.1	45.6	40.3	**4-**	13.6	0	1.0	0.6	**5**	100	2"
6 A0008-1TE	32.5	44.8	38.7	**4-**	12.6	0	1.2	0.6	**5**	100	1/4"
7 AC99375-1Ru	41.5	43.9	42.7	**5+**	5.4	0	0.7	0.6	**5**	67	1"
8 AO96305-3	48.3	56.3	52.3	**5+**	8.0	0	0.5	0.5	**5**	73	1/8"
9 AO96365-2	28.7	39.1	33.9	**3-**	10.4	1	1.5	0.8	**4**	100	1"
10 CO97087-2Ru	40.7	51.9	46.3	**5-**	11.3	0	0.7	0.5	**5**	60	1/8"
11 CO98067-7Ru	25.6	39.3	32.4	**3-**	13.6	1	1.9	0.8	**4**	100	1 1/2"
12 CO99053-3Ru	27.4	38.3	32.9	**3-**	11.0	1	1.7	0.8	**4**	100	1 1/4"
13 CO99053-4Ru	31.0	46.3	38.7	**4-**	15.3	0	1.3	0.5	**5**	100	1"
14 CO99100-1Ru	24.6	42.8	33.7	**3-**	18.3	1	2.0	0.6	**4**	100	1"
15 PA00N14-2	36.5	47.5	42.0	**5-**	11.1	0	0.9	0.5	**5**	43	1/8"
16 PA99N2-1	36.8	46.2	41.5	**5-**	9.8	0	0.9	0.5	**5**	100	1/2"
17 PA99N82-4	37.7	51.4	44.5	**5-**	14.3	0	0.8	0.5	**5**	100	1/2"
		LSD 0.05	*2.6*		*4.6*					*16*	
Average	33.9	45.5	39.7		12.0	0	1.3	0.6		79	

Date test performed:

Washington	Dec. 9	Dec. 9	Dec. 22
Idaho	Dec. 3	Dec. 3	Dec. 22
Oregon	Dec. 15	Dec. 15	Dec. 22

§ 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.

2009 Late Harvest Regional Trial

Stored at 44°F for 60 Days

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg
Washington									
1 Ranger Russet	31.1	41.1	36.1	**4-**	10.0	0	1.3	0.7	**4**
2 Russet Burbank	28.7	36.9	32.8	**3+**	8.2	1	1.5	0.9	**4**
3 A96814-65LB	43.1	48.2	45.6	**5+**	6.3	0	0.6	0.5	**5**
4 A97066-42LB	29.6	37.5	33.5	**3+**	8.5	1	1.4	0.9	**4**
5 A98345-1	35.7	42.5	39.1	**4+**	7.6	0	1.0	0.6	**5**
6 A0008-1TE	29.8	37.0	33.4	**3+**	7.8	1	1.4	0.9	**4**
7 AC99375-1Ru	39.8	42.8	41.3	**5+**	5.9	0	0.7	0.6	**5**
8 AO96305-3	47.0	52.8	49.9	**5+**	6.9	0	0.5	0.5	**5**
9 AO96365-2	31.8	38.5	35.2	**3+**	7.4	0	1.2	0.8	**4**
10 CO97087-2Ru	39.5	45.9	42.7	**5+**	7.6	0	0.8	0.5	**5**
11 CO98067-7Ru	27.3	30.7	29.0	**2+**	4.8	1	1.7	1.3	**3**
12 CO99053-3Ru	28.8	30.7	29.7	**2+**	5.2	1	1.5	1.3	**4**
13 CO99053-4Ru	28.5	30.5	29.5	**2+**	8.8	1	1.5	1.3	**4**
14 CO99100-1Ru	25.4	39.1	32.3	**3-**	13.9	1	1.9	0.8	**4**
15 PA00N14-2	28.9	39.5	34.2	**3-**	10.7	1	1.5	0.8	**4**
16 PA99N2-1	31.3	37.0	34.1	**3+**	7.0	0	1.3	0.9	**4**
17 PA99N82-4	33.3	36.1	34.7	**3+**	3.9	0	1.1	0.9	**4**
		LSD 0.05	*3.4*		*3.7*				
Average	32.9	39.2	36.1		7.7	0	1.2	0.8	
Idaho									
1 Ranger Russet	36.7	41.2	38.9	**4+**	5.0	0	0.9	0.7	**5**
2 Russet Burbank	26.4	35.7	31.0	**3-**	9.3	1	1.8	1.0	**4**
3 A96814-65LB	47.8	50.9	49.4	**5+**	3.5	0	0.5	0.5	**5**
4 A97066-42LB	35.7	36.8	36.3	**4+**	3.5	0	1.0	0.9	**5**
5 A98345-1	40.9	42.5	41.7	**5+**	2.9	0	0.7	0.6	**5**
6 A0008-1TE	22.5	30.4	26.4	**2+**	8.9	2	2.3	1.4	**3**
7 AC99375-1Ru	43.4	42.1	42.7	**5+**	3.5	0	0.6	0.7	**5**
8 AO96305-3	44.8	48.3	46.6	**5+**	4.6	0	0.6	0.5	**5**
9 AO96365-2	34.7	41.8	38.2	**4+**	7.1	0	1.0	0.7	**5**
10 CO97087-2Ru	42.5	47.7	45.1	**5+**	6.7	0	0.6	0.5	**5**
11 CO98067-7Ru	25.9	29.1	27.5	**2+**	3.5	1	1.8	1.5	**3**
12 CO99053-3Ru	36.4	38.8	37.6	**4+**	5.5	0	0.9	0.8	**5**
13 CO99053-4Ru	34.3	38.2	36.3	**4+**	5.6	0	1.0	0.8	**5**
14 CO99100-1Ru	30.2	44.3	37.3	**4-**	14.1	1	1.4	0.6	**4**
15 PA00N14-2	30.9	41.5	36.2	**4-**	10.7	0	1.3	0.7	**4**
16 PA99N2-1	26.3	28.1	27.2	**2+**	5.7	1	1.8	1.6	**3**
17 PA99N82-4	30.3	35.9	33.1	**3+**	6.4	1	1.4	0.9	**4**
		LSD 0.05	*3.1*		*3.2*				
Average	34.7	39.6	37.1		6.3	0	1.2	0.8	
Oregon									
1 Ranger Russet	28.6	39.5	34.0	**3-**	10.9	1	1.5	0.8	**4**
2 Russet Burbank	18.6	37.7	28.1	**2-**	19.1	3	2.9	0.8	**3**
3 A96814-65LB	43.9	51.7	47.8	**5+**	7.8	0	0.6	0.5	**5**
4 A97066-42LB	29.4	39.5	34.4	**3-**	10.1	1	1.5	0.8	**4**
5 A98345-1	32.4	43.6	38.0	**4-**	11.2	0	1.2	0.6	**5**
6 A0008-1TE	26.9	32.8	29.8	**2+**	6.6	1	1.7	1.2	**4**
7 AC99375-1Ru	44.1	47.1	45.6	**5+**	4.7	0	0.6	0.5	**5**
8 AO96305-3	48.5	51.8	50.1	**5+**	3.8	0	0.5	0.5	**5**
9 AO96365-2	25.4	35.3	30.4	**2-**	9.9	1	1.9	1.0	**4**
10 CO97087-2Ru	34.3	50.8	42.6	**5-**	16.5	0	1.0	0.5	**5**
11 CO98067-7Ru	21.7	33.6	27.6	**2-**	11.9	2	2.4	1.1	**3**
12 CO99053-3Ru	24.1	35.1	29.6	**2-**	11.0	2	2.1	1.0	**3**
13 CO99053-4Ru	24.3	34.9	29.6	**2-**	10.5	2	2.0	1.0	**3**
14 CO99100-1Ru	21.5	44.0	32.7	**3-**	22.6	2	2.5	0.6	**3**
15 PA00N14-2	28.4	40.7	34.6	**3-**	12.3	1	1.5	0.7	**4**
16 PA99N2-1	29.8	37.3	33.6	**3+**	7.5	1	1.4	0.9	**4**
17 PA99N82-4	24.4	38.9	31.7	**3-**	14.6	2	2.0	0.8	**4**
		LSD 0.05	*2.6*		*4.3*				
Average	29.8	40.8	35.3		11.2	1	1.6	0.8	

Date test performed:

Washington	Dec. 10	Dec. 10
Idaho	Dec. 4	Dec. 4
Oregon	Dec. 16	Dec. 16

§ 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.

2009 Late Harvest Regional Trial

Stored at 40°F for 60 Days and Reconditioned

		PHOTOVOLT (60 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	19.1	26.2	22.7	7.0	3	33.0	44.8	38.9	11.8	0
2 Russet Burbank	0	18.3	27.7	23.0	9.4	3	26.8	40.7	33.8	14.0	1
3 A96814-65LB	0	25.5	35.3	30.4	9.8	1	26.1	39.9	33.0	13.8	1
4 A97066-42LB	0	15.9	18.0	17.0	2.6	3	21.2	30.6	25.9	9.5	2
5 A98345-1	0	22.2	31.9	27.0	9.8	2	33.1	43.0	38.0	10.4	0
6 A0008-1TE	0	15.7	20.0	17.9	4.3	3	19.2	27.1	23.2	7.9	3
7 AC99375-1Ru	0	21.9	31.6	26.7	9.7	2	24.6	34.6	29.6	10.3	1
8 AO96305-3	0	28.8	38.7	33.7	9.9	1	37.3	51.4	44.3	14.1	0
9 AO96365-2	0	19.1	22.1	20.6	4.4	3	28.1	40.0	34.1	11.9	1
10 CO97087-2Ru	0	22.5	33.3	27.9	11.4	2	27.2	36.3	31.8	9.1	1
11 CO98067-7Ru	0	13.8	13.8	13.8	1.6	4	26.5	37.0	31.7	10.9	1
12 CO99053-3Ru	0	17.0	19.0	18.0	3.5	3	29.9	35.3	32.6	7.0	1
13 CO99053-4Ru	0	15.8	19.2	17.5	6.3	3	24.1	38.2	31.1	15.1	2
14 CO99100-1Ru	0	12.4	19.5	16.0	7.0	4	26.7	42.0	34.3	15.9	1
15 PA00N14-2	0	14.1	18.8	16.4	5.2	4	20.6	33.0	26.8	12.5	2
16 PA99N2-1	0	15.1	17.0	16.0	2.5	3	25.1	35.4	30.2	10.7	1
17 PA99N82-4	NONE	21.1	29.3	25.2	8.2	2			No Sample		
LSD 0.05	*ns*			*2.6*	*3.2*				*4.4*	*5.3*	
Average	0	18.7	24.8	21.8	6.6	3	26.8	38.1	32.5	11.6	1
Idaho											
1 Ranger Russet	0	17.6	28.8	23.2	11.2	3	29.5	44.6	37.0	15.1	1
2 Russet Burbank	0	17.9	25.0	21.4	7.5	3	25.3	39.8	32.5	14.7	1
3 A96814-65LB	0	38.7	45.5	42.1	7.0	0	37.4	48.9	43.2	11.6	0
4 A97066-42LB	0	20.3	24.4	22.3	4.4	2	25.2	36.8	31.0	11.9	1
5 A98345-1	0	31.1	37.7	34.4	7.5	0	39.9	45.8	42.8	6.7	0
6 A0008-1TE	0	14.1	18.1	16.1	4.9	4	16.8	25.2	21.0	8.5	3
7 AC99375-1Ru	0	21.7	34.8	28.3	13.2	2	31.4	38.0	34.7	6.6	0
8 AO96305-3	0	34.4	41.6	38.0	7.2	0	41.3	50.9	46.1	10.8	0
9 AO96365-2	0	21.4	26.9	24.2	5.6	2	33.6	42.7	38.2	9.1	0
10 CO97087-2Ru	0	25.5	40.1	32.8	14.6	1	25.8	38.6	32.2	12.8	1
11 CO98067-7Ru	0	15.2	16.1	15.6	2.2	3	27.9	35.2	31.5	7.6	1
12 CO99053-3Ru	0	22.4	24.1	23.2	4.8	2	28.4	38.7	33.6	10.5	1
13 CO99053-4Ru	0	18.1	27.1	22.6	9.6	3	26.6	39.1	32.9	12.4	1
14 CO99100-1Ru	0	18.4	28.1	23.2	9.8	3	25.9	37.8	31.8	12.3	1
15 PA00N14-2	0	17.8	28.4	23.1	10.9	3	23.8	35.8	29.8	12.0	2
16 PA99N2-1	0	12.8	14.5	13.6	2.4	4	28.6	34.1	31.4	6.8	1
17 PA99N82-4	0	21.9	25.8	23.8	4.3	2	33.0	39.1	36.0	6.2	0
LSD 0.05	*ns*			*3.1*	*3.9*				*3.7*	*4.9*	
Average	0	21.7	28.6	25.2	7.5	2	29.4	39.5	34.5	10.3	1
Oregon											
1 Ranger Russet	0	14.7	24.9	19.8	10.3	3	27.5	42.6	35.0	15.2	1
2 Russet Burbank	0	11.3	23.5	17.4	12.3	4	19.3	39.1	29.2	19.8	3
3 A96814-65LB	0	27.9	40.3	34.1	12.4	1	33.7	48.1	40.9	14.4	0
4 A97066-42LB	0	17.2	26.2	21.7	8.9	3	19.6	36.9	28.3	17.3	2
5 A98345-1	0	17.8	32.6	25.2	14.8	3	29.5	43.7	36.6	14.2	1
6 A0008-1TE	0	15.5	19.4	17.5	4.5	3	14.7	25.2	20.0	10.5	3
7 AC99375-1Ru	0	24.9	30.8	27.9	6.0	1	28.2	40.4	34.3	12.2	1
8 AO96305-3	0	35.2	48.8	42.0	13.6	0	34.8	51.3	43.0	16.5	0
9 AO96365-2	0	14.7	22.0	18.4	7.3	3	22.8	40.5	31.6	17.7	2
10 CO97087-2Ru	0	23.3	38.7	31.0	15.4	2	21.0	40.3	30.6	19.4	2
11 CO98067-7Ru	0	11.8	13.2	12.5	2.5	4	21.1	32.4	26.8	11.3	2
12 CO99053-3Ru	0	14.6	21.5	18.1	7.1	3	17.1	28.7	22.9	11.6	3
13 CO99053-4Ru	0	11.9	19.7	15.8	8.0	4	18.1	30.8	24.5	12.7	3
14 CO99100-1Ru	0	11.5	22.3	16.9	10.8	4	22.2	43.6	32.9	21.4	2
15 PA00N14-2	0	14.3	20.0	17.1	5.8	4	18.3	30.7	24.5	12.4	3
16 PA99N2-1	0	13.9	16.9	15.4	3.1	4	23.5	34.5	29.0	11.2	2
17 PA99N82-4	0	16.5	26.4	21.5	9.9	3	33.6	47.3	40.4	14.0	0
LSD 0.05	*ns*			*2.5*	*3.7*				*3.0*	*4.97*	
Average	0	17.5	26.3	21.9	9.0	3	23.8	38.6	31.2	14.8	2

Date test performed:

Washington	Dec. 23	Dec. 11	Dec. 19
Idaho	Dec. 23	Dec. 5	Dec. 18
Oregon	Dec. 23	Dec. 17	Dec. 20

DIFF=Absolute difference between bud and stem photovolt reading.

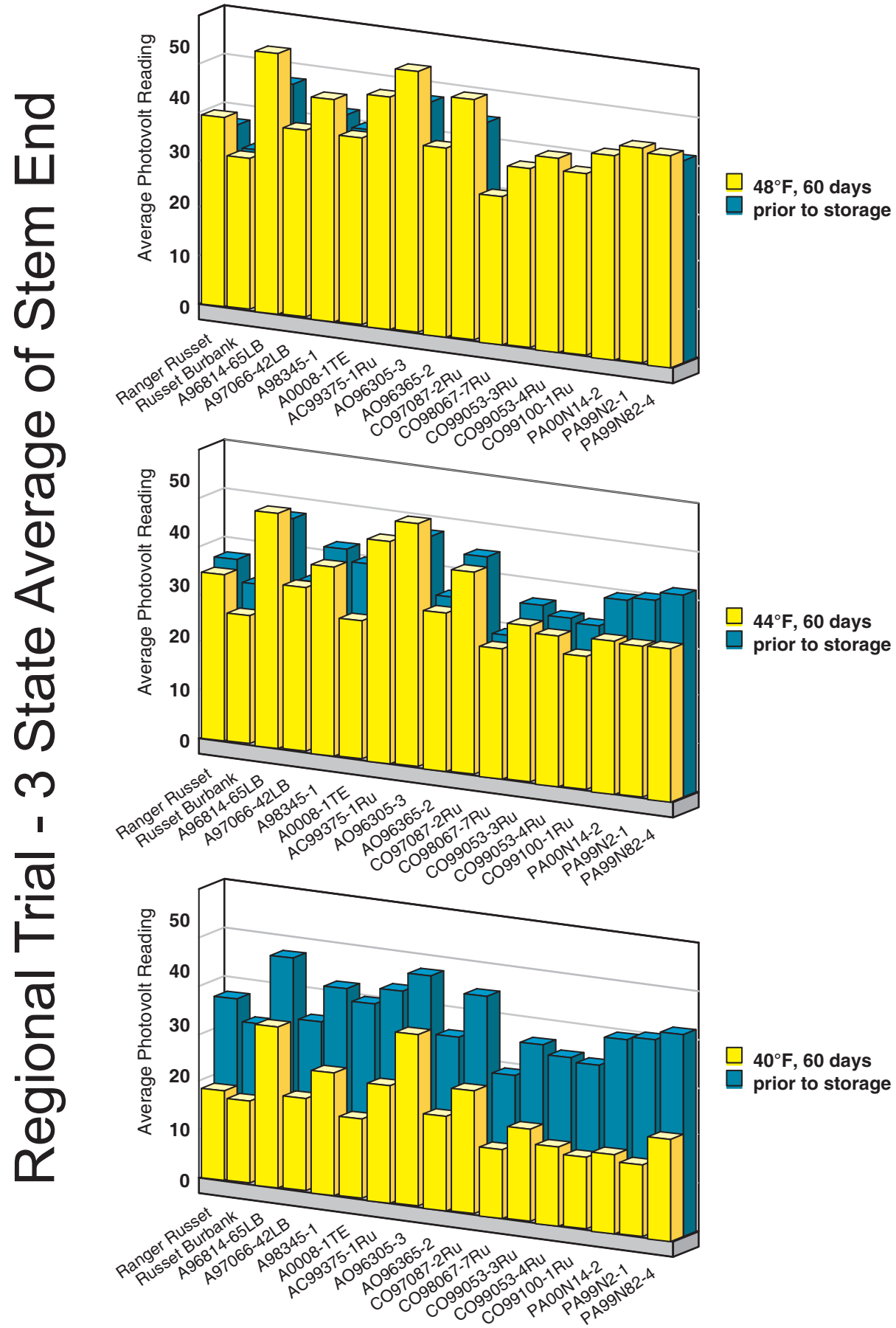
Above: Hand planting in the field is not always the easiest way to plant a trial, but it is the most accurate way to do certain types of research.

Below: Mel Martin (Simplot) aids in hand-planting done at the Othello Research Station this spring.

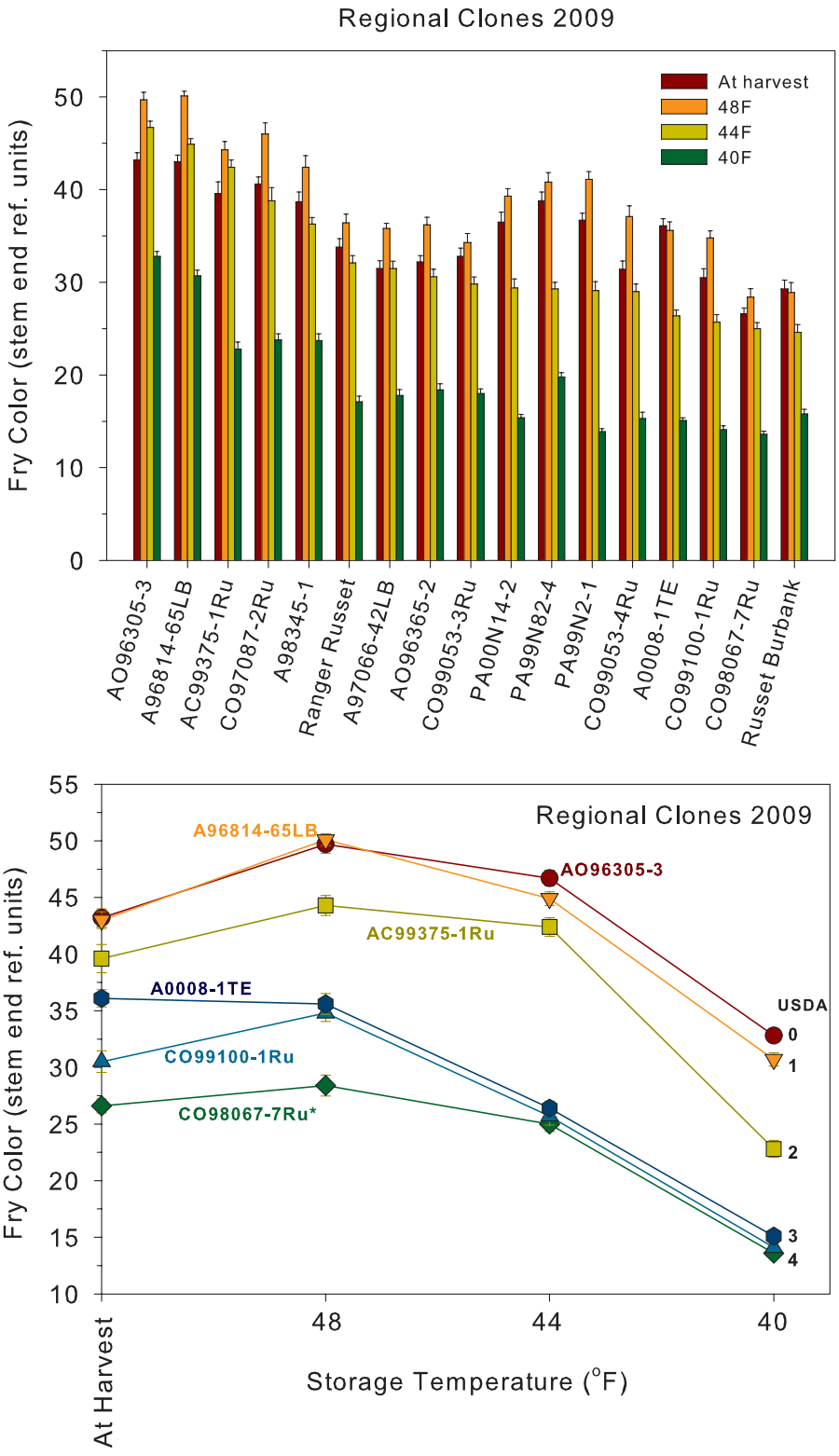
Every year we start off by planting seed lots from near and far. It's a great beginning to every planting season, and we look forward to it, except when the wind is howling.

2009 Late Harvest Regional Trial

Regional Trial - 3 State Average of Stem End



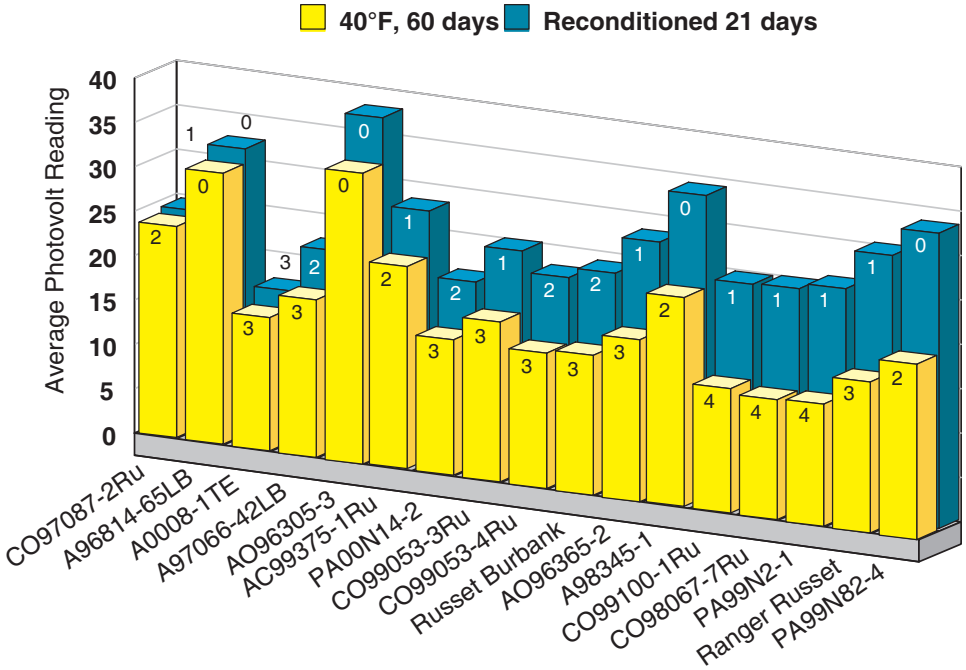
2009 Late Harvest Regional Trial

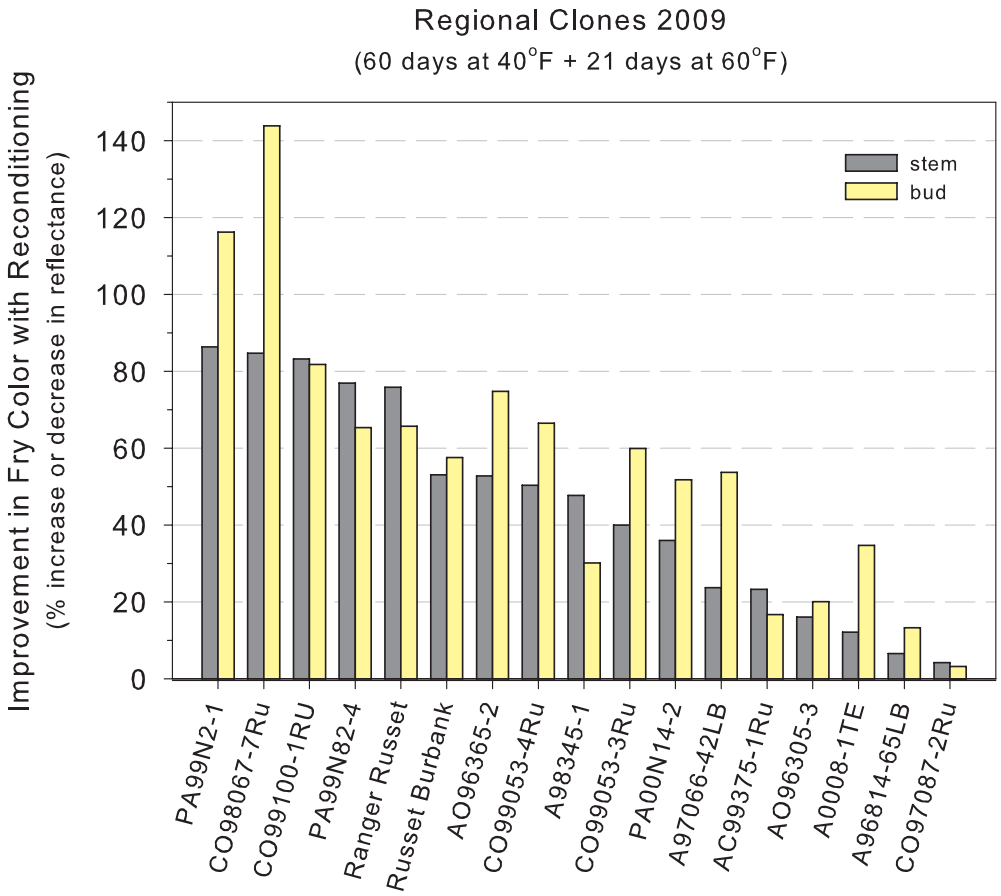


Top: At-harvest and after-storage French fry colors (stem end) of clones in the Regional Trial. Tubers were stored for 60 days at 48, 44 and 40°F. The clones are ranked from best to worst based on fry color of the 44°F-stored tubers. High reflectance values indicate light colored fries.

B**ottom:** Line graph depicting the effects of storage temperature on the change in French fry processing quality (stem end fry color) of the best (A96814-65LB, AO96305-3, and AC99375-1Ru) and worst (A0008-1TE, CO99100-1Ru, and CO98067-7Ru*) performing clones in the Regional Trial. *Indicates similar performance of the clones last year.

2009 Late Harvest Regional Trial





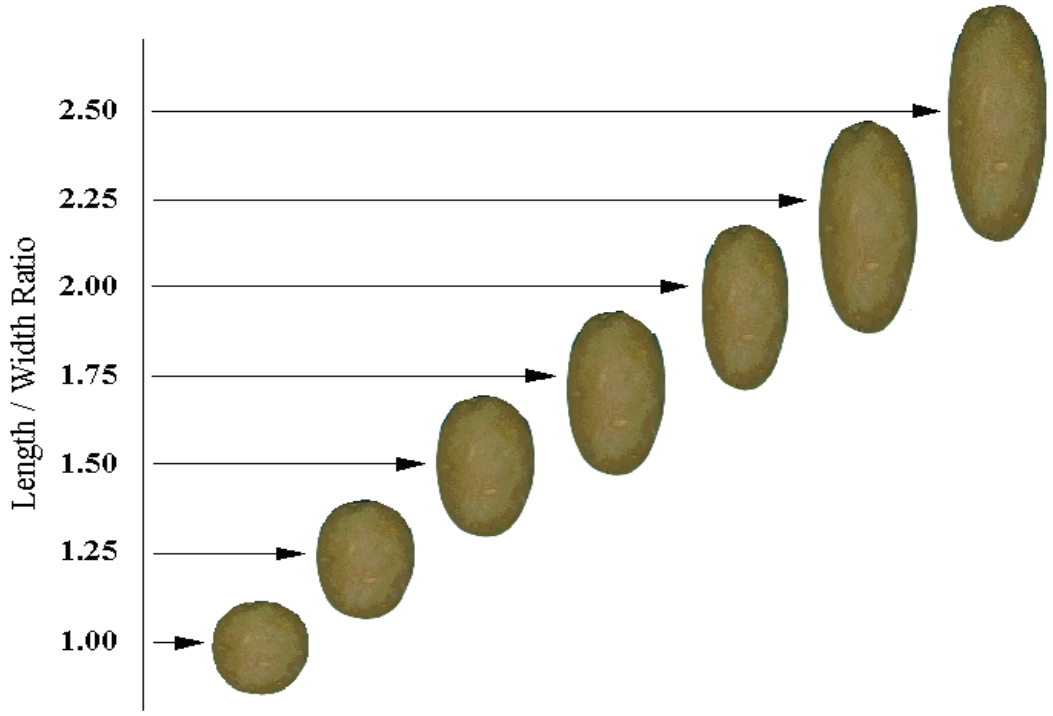
Reconditioning abilities of clones in the 2009 Regional Trial (3-state averages). Clones were stored at 40°F for 60 days after harvest and then reconditioned at 60°F for 21 days. **Top:** Stem end fry color before and after reconditioning. Numbers in bars indicate the USDA color rating of the stem end. **Bottom:** Percent improvement of stem and bud end fry color with reconditioning.

2009 Late Harvest Regional Trial

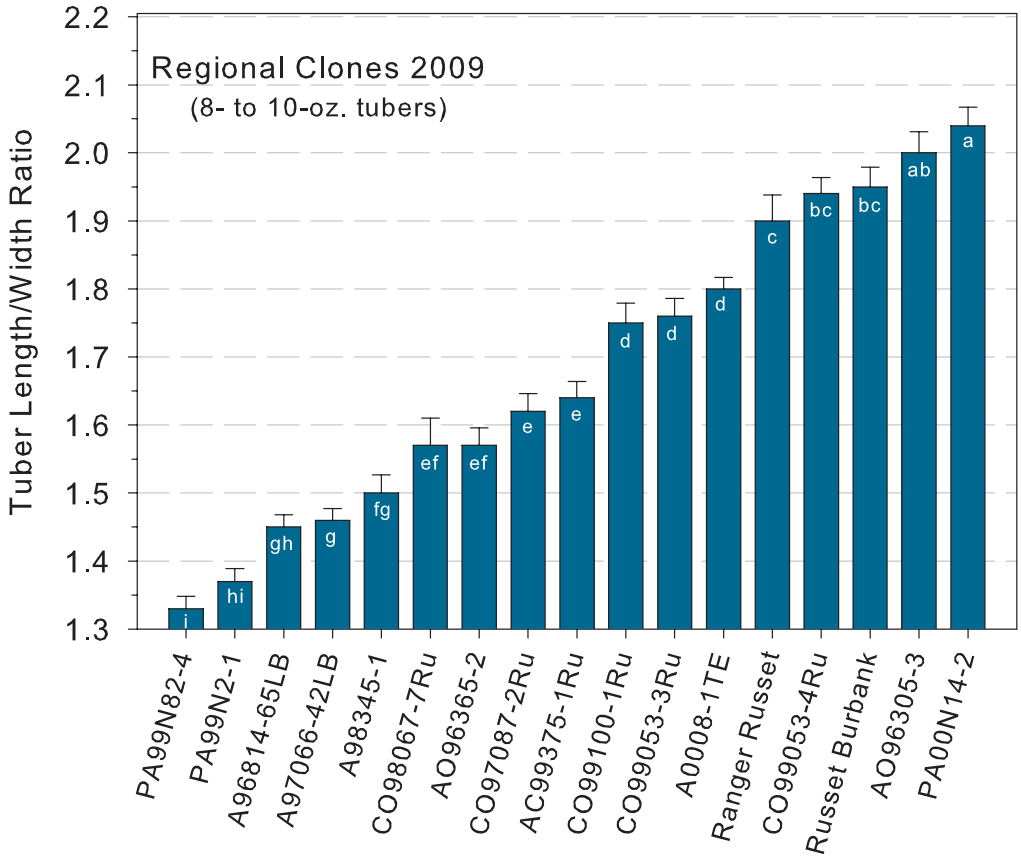
Tuber Shape and Associated French Fry Yields

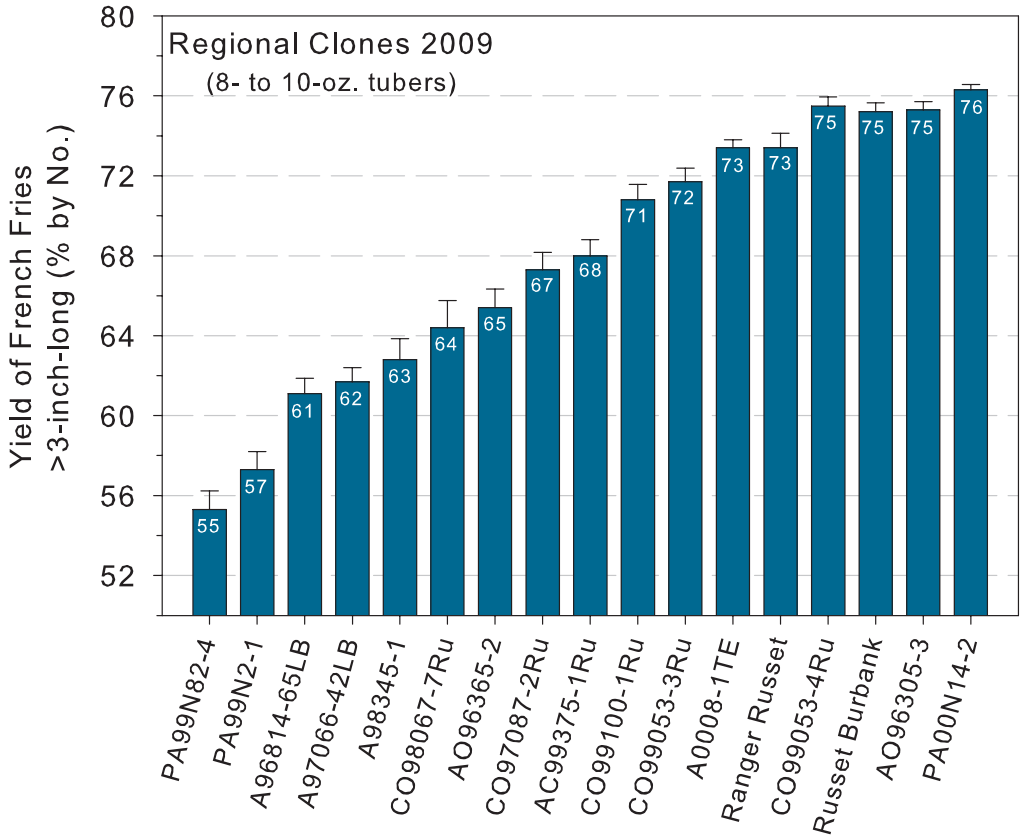
(8- to 10-oz Tubers)

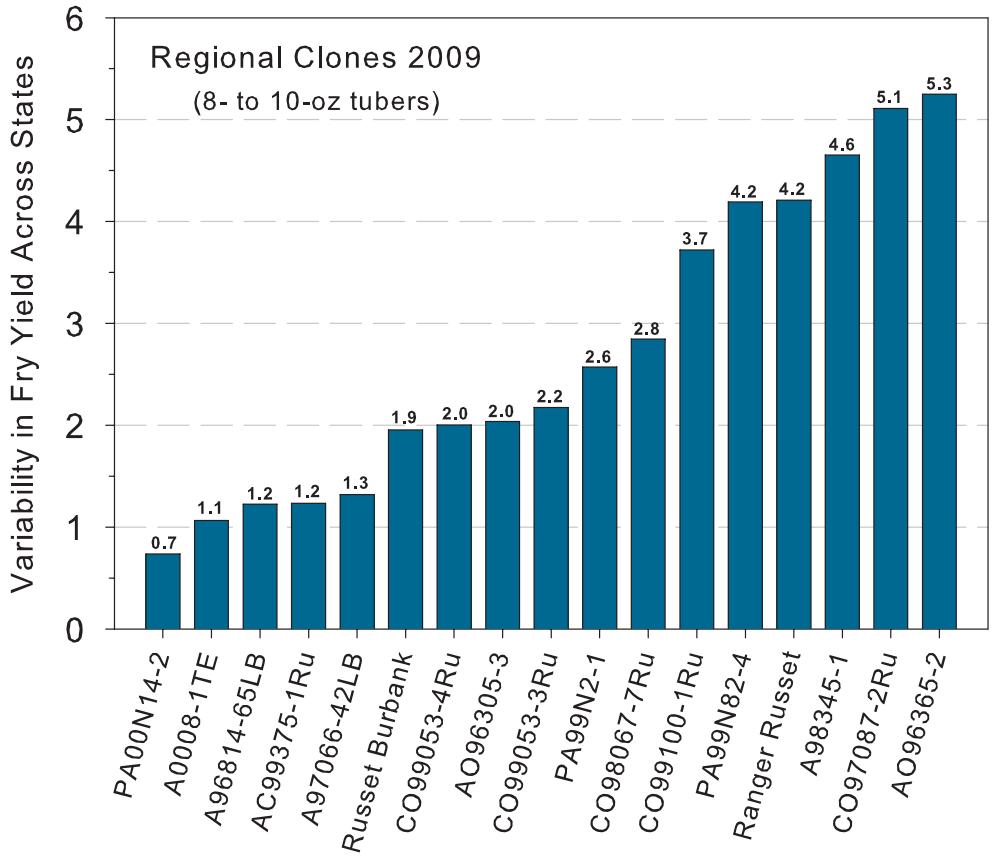
Clone	Length to width ratio			Yield of 3" or longer fries (% by number)		
	WA	ID	OR	WA	ID	OR
1 Ranger Russet	1.62	2.12	2.01	68	78	76
2 Russet Burbank	1.77	2.00	2.09	72	77	76
3 A96814-65LB	1.42	1.49	1.44	60	63	61
4 A97066-42LB	1.45	1.49	1.44	61	63	60
5 A98345-1	1.38	1.58	1.65	58	66	69
6 A0008-1TE	1.75	1.87	1.78	73	75	73
7 AC99375-1RU	1.61	1.69	1.60	67	70	67
8 AO96305-3	1.77	2.24	1.98	73	78	76
9 AO96365-2	1.41	1.78	1.52	60	72	64
10 CO97087-2RU	1.52	1.84	1.50	64	75	63
11 CO98067-7RU	1.47	No sample	1.67	62	No Sample	67
12 CO99053-3RU	1.67	1.78	1.87	69	73	74
13 CO99053-4RU	1.78	2.05	2.00	73	77	77
14 CO99100-1RU	1.58	1.95	1.72	67	76	70
15 PA00N14-2	1.92	2.19	1.99	75	77	77
16 PA99N2-1	1.34	1.44	1.34	56	61	55
17 PA99N82-4	1.26	1.45	1.29	52	61	53
Average	1.57	1.81	1.70	65	71	68



2009 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, A98345-1 had a length to width ratio of 1.50 (see previous page), resulting in 63% 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 58.4% to 67.6% (63 ±4.6%).

Previous page: Tuber length to width ratios and the associated percentage yield of fries.
Left (top): Bars with same letter are not significantly different (P≤0.01).

We told Mark not to put his hand in there while the machine was moving, but did he listen to us??

How many potato researchers does it take to...???

Entries Retained from the 2008 Trials Currently in the Regional Trial

Harvested fall of 2008 Held at 48°F until December 23 Stored at 44°F until analysis

Five clones were advanced from the Tri-State Trial into the 2009 Regional Trial - A96814-65LB, A98345-1, AO96305-3, AO96365-2 and PA00N14-2. Seven clones were retained in the Regional Trial - A97066-42LB, A0008-1TE, CO97087-2Ru, CO98067-7Ru, CO98368-2Ru, PA99N2-1 and PA99N82-4. When averaged across states, AO96305-3, A96814-65LB and CO97087-2Ru produced the lightest fries. CO98067-7Ru and PA99N2-1 had the shortest dormancy with the longest sprouts.

	PHOTOVOLT READING				USDA	% REDUCING SUGAR			Sprouting	
Clone	stem	bud	avg	DIFF	COLOR	stem	bud	avg	percent	length
Washington										
1 Ranger Russet	31.2	40.9	36.1	10.4	0	1.3	0.7	1.0	100	4"
2 Russet Burbank	32.6	41.3	36.9	8.6	0	1.2	0.7	0.9	100	4"
3 A96814-65LB §	47.6	49.5	48.5	4.3	0	0.5	0.5	0.5	100	3"
4 A97066-42LB	42.8	44.4	43.6	5.1	0	0.6	0.6	0.6	100	5"
5 A98345-1 §	46.5	47.1	46.8	3.0	0	0.5	0.5	0.5	100	8"
6 A0008-1TE	35.7	38.8	37.3	5.7	0	1.0	0.8	0.9	100	9"
7 AO96305-3 §	53.1	56.6	54.8	4.0	0	0.6	0.4	0.5	100	5"
8 AO96365-2 §	42.9	45.0	43.9	4.3	0	0.6	0.6	0.6	100	4"
9 CO97087-2Ru	52.1	55.6	53.8	3.5	0	0.5	0.5	0.5	100	5"
10 CO98067-7Ru	29.1	34.5	31.8	6.9	1	1.5	1.0	1.3	100	9"
11 CO98368-2Ru	35.1	40.4	37.8	5.3	0	1.0	0.7	0.9	100	6"
12 PA00N14-2 §	45.8	49.9	47.9	5.0	0	0.6	0.5	0.5	100	3"
13 PA99N2-1	31.4	37.4	34.4	7.8	0	1.3	0.9	1.1	100	9"
14 PA99N82-4	38.8	42.1	40.5	4.2	0	0.8	0.6	0.7	100	6"
		LSD 0.05	*3.7*	*3.6*						
Average	40.3	44.5	42.4	5.6	0	0.9	0.7	0.7	100	
Idaho										
1 Ranger Russet	38.8	41.7	40.2	7.2	0	0.8	0.7	0.7	100	4"
2 Russet Burbank	34.8	41.1	38.0	8.8	0	1.0	0.7	0.8	100	4"
3 A96814-65LB §	53.9	55.1	54.5	2.6	0	0.5	0.5	0.5	100	3"
4 A97066-42LB	41.7	42.5	42.1	4.3	0	0.7	0.6	0.6	100	5"
5 A98345-1 §	51.4	47.6	49.5	4.7	0	0.5	0.5	0.5	100	8"
6 A0008-1TE	33.7	34.4	34.0	9.0	0	1.1	1.0	1.1	100	6"
7 AO96305-3 §	45.0	54.5	49.8	9.8	0	0.6	0.5	0.6	100	3"
8 AO96365-2 §	43.3	47.7	45.5	5.6	0	0.6	0.5	0.6	100	3.5"
9 CO97087-2Ru	46.1	50.3	48.2	7.9	0	0.5	0.5	0.5	100	5"
10 CO98067-7Ru	30.5	31.1	30.8	6.3	0	1.3	1.3	1.3	100	10"
11 CO98368-2Ru	28.3	41.0	34.7	14.6	1	1.6	0.7	1.1	100	6"
12 PA00N14-2 §	38.3	45.8	42.0	7.8	0	0.8	0.6	0.7	100	3"
13 PA99N2-1	33.1	39.8	36.5	9.0	0	1.1	0.7	0.9	100	8"
14 PA99N82-4	42.7	44.8	43.7	6.6	0	0.6	0.6	0.6	100	8"
		LSD 0.05	*3.6*	*3.9*						
Average	40.1	44.1	42.1	7.4	0	0.8	0.7	0.8	100	
Oregon										
1 Ranger Russet	22.0	37.7	29.8	15.8	2	2.4	0.8	1.6	100	4"
2 Russet Burbank	22.2	40.7	31.5	18.5	2	2.3	0.7	1.5	100	4"
3 A96814-65LB §	39.5	50.9	45.2	11.3	0	0.8	0.5	0.6	100	4"
4 A97066-42LB	33.2	39.8	36.5	8.1	0	1.1	0.7	0.9	100	8"
5 A98345-1 §	36.4	36.5	36.4	3.4	0	0.9	0.9	0.9	100	10"
6 A0008-1TE	22.3	32.0	27.2	10.6	2	2.3	1.2	1.8	100	6"
7 AO96305-3 §	31.3	51.1	41.2	19.9	0	1.3	0.5	0.9	100	5"
8 AO96365-2 §	28.8	34.3	31.5	6.9	1	1.5	1.0	1.3	100	4"
9 CO97087-2Ru	45.6	52.4	49.0	7.7	0	0.6	0.5	0.6	100	3"
10 CO98067-7Ru	27.0	38.0	32.5	11.0	1	1.7	0.8	1.3	100	10"
11 CO98368-2Ru	21.0	41.3	31.1	20.3	2	2.5	0.7	1.6	100	8"
12 PA00N14-2 §	25.4	43.1	34.2	17.7	1	1.9	0.6	1.3	100	6"
13 PA99N2-1	21.0	33.2	27.1	12.7	2	2.5	1.1	1.8	100	10"
14 PA99N82-4	29.4	41.4	35.4	12.2	1	1.5	0.7	1.1	100	10"
		LSD 0.05	*2.8*	*4.8*						
Average	28.9	40.9	34.9	12.6	1	1.7	0.8	1.2	100	

§ Advanced from 2008 Tri-State Trial

Date test performed:

Washington April 28
Idaho May 1
Oregon May 3

2009 Red and Specialty Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 1
Harvest Date: August 11
In-Row Spacing: 10 inch
Vine Kill Date: July 22
Days Grown: 143

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 18 new clones and was grown on station at Othello,WA. The following is a summary of the Washington field and postharvest results.

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

(See also: grading comments and US #1 yield ranking near front of book)

Red/White flesh: BTX2332-1R
Red/Yellow flesh: AC99329-7PW/Y, AC99330-1P/Y
Red/Red flesh: POR03PG23-1
Purple/Purple flesh: OR00068-11
Yellow flesh: POR02PG37-2 (Potential Yukon Replacement?)

Suggested Discards: NDTX4784-7R

Standcounts

- **40 Day** *(cool spring delayed emergence)*
  Fast emergence: OR00068-11 (72%), PA96RR1-93 (61%), BTX2332-1R and A00286-3Y (56%).
  Slow emergence: ATTX98453-6R (0%), Yukon Gold (1%), and COTX94216-1R (3%).

- **50 Day**
  Full emergence: PA96RR-193 and AC99329-7PW/Y (100%)
  Poor emergence: ATTX98453-6R only had 40% emergence at 50 Days after planting.

Plant and Tuber Growth & Development

- **50 Day Stems per plant**
  Most: AC99330-1P/Y (3.2), COTX94218-1R and COTX94216-1R (3.0).
  Fewest: Yukon Gold (1.2) and POR03PG80-2 (1.3); all other entries averaged 1.6 stems per plant or greater.

- **Average Tuber Number Per Plant**
  Most: PA96RR1-193 (11.2), AC99330-1P/Y (10.1), and Purple Majesty (9.9).
  Fewest: Red LaSoda (3.9), Yukon Gold (4.0), and A99326-1PY (4.1).

- **Average Tuber Size (oz)**
  Largest: Yukon Gold (12.2), Red LaSoda (11.7), and A99326-1PY (9.3).
  Smallest: POR03PG23-1, PA96RR1-193, and AC99330-1P/Y (3.8) each.

Yield Data

- **Total Yield and U.S. #1 Yield**
  Highest: Yukon Gold had the highest total yield with 442 CWT/A, while POR02PG37-2 had the highest #1 yield with 421 CWT/A.
  Lowest: COTX94218-1R had the lowest total (219 CWT/A) and U.S. #1 yield (218 CWT/A).

- **% U.S. #1's**
  Highest: A00286-3Y and A00293-2Y each were 100%.
  Lowest: Yukon Gold (86%), NDTX4784-7R (88%), and Dark Red Norland (89%); all other entries were 89% or greater.

Tuber Defects

- **External Defects**
  NDTX4784-7R had 10% growth cracks, Red LaSoda and ATTX98453-6R each had 5% growth cracks. Dark Red Norland had 8% green tubers.

- **Internal Defects**
  Notable defects: Most entries were free of internal defects. AC99329-7PW/Y had 14% internal brown spot. Red LaSoda had 8% brown center and 8% internal brown spot. POR02PG37-2 had 5% hollow heart.

- **Bruise**
  Highest Blackspot: Purple Majesty (67%), ATTX98453-6R (18%), and POR03PG80-2 (12%). Nine entries had no blackspot.
  Highest Shatter: CO99045-1W/Y (69%), NDTX4784-7R (57%), BTX2332-1R (38%), and ATTX98453-6R (36%).

Postharvest Analysis

- The highest scoring clones were CO00412-5W/Y, POR03PG80-2, POR02PG37-2, A00293-2Y, and PA96RR1-193. These entries averaged 58.9 out of 75 total points in the culinary evaluations this year. Two of these clones have yellow flesh (CO00412-5W/Y, A00293-2Y). POR03PG80-2 is a purple skin clone with yellow flesh. POR02PG37-2 and PA96RR1-193 are specialty clones with yellow skin/yellow flesh and red skin/red flesh, respectively.

- Two purple flesh and two red flesh entries were included in the 2009 trial. The purple fleshed entries (OR00068-11 and the check cultivar, Purple Majesty) were holdovers from the 2008 trial. Of the red flesh clones, PA96RR1-193 was in the 2008 trial while POR03PG23-1 is a new entry. Colored flesh clones are not considered in the statistical analysis of fry color with the white and yellow flesh entries. All white and yellow flesh entries produced acceptably light colored French fries (USDA 2) except ATTX98453-6R, which fried dark (USDA 3). All entries except Yukon Gold produced fries uniform in color from stem to bud end (difference in reflectance ≤9 reflectance units).

- A00293-2Y received the lightest SFA chip rating of 3.3 from the four-member taste panel. Red LaSoda and ATTX98453-6R produced the darkest chips with a SFA score of 5. All entries as a group seemed to fry darker than in previous years.

- The samples in this year's trial rated very closely when oven baked (ratings ranged from 17.7 to 21.3). With the exception of OR00068-11, which had moderate after cooking darkening, all entries produced slight or no after cooking darkening when oven baked. The texture of baked samples was favorably rated as "creamy" or 'fluffy' for all entries except POR03PG23-1 and CO99045-1W/Y, which were rated as "pasty". The flavor of baked samples of all entries was rated as either "good" or "bland". Tuber centers of baked samples were given acceptable ratings of "mushy" or "fully cooked" for all entries. The skins of baked samples were also rated as acceptable ("steamy" or "fully cooked") for all entries.

- Yukon Gold sloughed severely when boiled; sloughing of the other entries ranged from slight to none. All entries had slight to no after cooking darkening. Yukon Gold's texture was rated as "mealy". The textures of Dark Red Norland, Red LaSoda, BTX2332-1R, NDTX4784-7R and POR03PG23-1 were rated as "pasty", while the texture of boiled samples of all other entries was favorably rated as "creamy" or "fluffy". The flavor of boiled samples of Yukon Gold was rated unacceptable; however, all other entries were rated as either "good" or "bland". Tuber centers were rated as either "fully cooked" or "mushy" after boiling for all clones.

- Microwaving produced "moderate" after cooking darkening in POR01PG45-5; all other entries were rated as "slight" or "none". The texture of all microwaved samples was favorably rated as "creamy" or "fluffy" and flavor ratings ranged from "bland" to "good". Microwaving resulted in tuber centers that were rated "mushy" or "fully cooked" for all entries except Yukon Gold (not fully cooked) and skins that were "steamy" or "fully cooked", which are desirable ratings.

Promising new varieties await inspection near Hermiston following a season of intense management by potato expert Dan Hane.

Upper and Lower Left: Rudy Garza and Anthony Cortez demonstrate what **NOT** to do during safety training. Later they demonstrated unsafe forklift activities.

Above: Mark Pavek assesses the lightning risk prior to the 2009 Potato Field Day.

2009 Regional Red and Specialty Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's* > 0 oz	US # 2's* > 0 oz	Culls* > 0 oz	EXTERNAL DEFECTS (%)				SPECIFIC GRAVITY
	CWT/A	STATS**	Tons/A	% of Total Yield			Knobs	Malformed	Growth Cracks	Green	
Red Skin/White Flesh											
Dark Red Norland	331	AB	16.6	89	1	9	0	0	2	8	1.060
Red LaSoda	421	A	21.1	92	1	7	1	0	5	1	1.059
ATTX98453-6R	322	AB	16.1	92	2	6	0	0	5	1	1.067
BTX2332-1R	402	A	20.1	98	0	2	0	0	2	0	1.064
COTX94216-1R	235	BC	11.8	97	2	0	0	0	0	0	1.060
COTX94218-1R	219	C	11.0	99	0	0	0	0	0	0	1.066
NDTX4784-7R	372	A	18.6	88	0	12	0	0	10	2	1.058
Red-Purple Skin/Yellow Flesh											
A99326-1PY	353	A	17.7	95	5	0	0	0	0	0	1.067
AC99329-7PW/Y	312	AB	15.6	95	0	5	0	2	1	2	1.071
AC99330-1P/Y	351	A	17.6	98	1	1	0	1	0	0	1.064
POR01PG45-5	257	B	12.8	96	4	0	0	0	0	0	1.079
POR03PG80-2	322	AB	16.1	98	1	0	0	0	0	0	1.063
Red Skin/Red Flesh											
PA96RR1-193	390	A	19.5	98	2	1	0	1	0	0	1.072
POR03PG23-1	229	B	11.4	99	1	1	1	0	0	0	1.060
Purple Skin/Purple Flesh											
Purple Majesty	385	A	19.3	99	1	0	0	0	0	0	1.069
OR00068-11	362	A	18.1	99	1	0	0	0	0	0	1.082
Yellow Flesh											
Yukon Gold	442	A	22.1	86	7	7	0	0	6	1	1.081
A00286-3Y	320	C	16.0	100	0	0	0	0	0	0	1.060
A00293-2Y	320	C	16.0	100	0	0	0	0	0	0	1.066
CO00412-5W/Y	303	C	15.1	97	1	2	0	0	0	2	1.083
CO99045-1W/Y	340	ABC	17.0	97	1	2	1	0	0	1	1.069
POR02PG37-2	433	AB	21.7	97	1	2	0	0	0	2	1.077

ENTRY	US # 1 YIELD			0-2 oz*	2-4 oz*	4-6 oz*	6-10 oz*	> 10 oz*	INTERNAL DEFECTS (%) (6-10 oz tubers)		
	CWT/A	STATS**	Tons/A	%					% HH	% BC	% IBS
Red Skin/White Flesh											
Dark Red Norland	296	AB	14.8	2	12	20	32	33	0	4	4
Red LaSoda	387	A	19.4	1	4	9	29	58	0	8	8
ATTX98453-6R	296	AB	14.8	5	19	26	36	14	4	0	4
BTX2332-1R	392	A	19.6	2	12	23	44	19	0	3	3
COTX94216-1R	229	B	11.4	11	52	24	13	0	0	0	0
COTX94218-1R	218	B	10.9	10	41	27	20	2	0	0	0
NDTX4784-7R	329	AB	16.4	2	13	21	41	23	0	0	0
Red-Purple Skin/Yellow Flesh											
A99326-1PY	335	A	16.7	1	8	13	36	42	0	0	4
AC99329-7PW/Y	297	A	14.9	7	22	29	33	10	0	0	14
AC99330-1P/Y	344	A	17.2	13	52	25	10	0	0	0	0
POR01PG45-5	246	A	12.3	8	46	33	12	1	0	0	0
POR03PG80-2	317	A	15.8	1	8	24	48	18	0	0	0
Red Skin/Red Flesh											
PA96RR1-193	381	A	19.1	13	51	28	7	0	0	0	0
POR03PG23-1	226	B	11.3	15	44	29	11	1	0	0	0
Purple Skin/Purple Flesh											
Purple Majesty	380	A	19.0	8	48	30	13	1	0	0	0
OR00068-11	359	A	18.0	8	49	37	5	1	0	0	0
Yellow Flesh											
Yukon Gold	380	AB	19.0	1	5	6	28	60	0	0	4
A00286-3Y	320	AB	16.0	8	40	29	22	2	0	0	0
A00293-2Y	319	AB	15.9	7	34	32	22	5	0	0	0
CO00412-5W/Y	293	B	14.6	5	27	30	31	7	0	0	0
CO99045-1W/Y	329	B	16.4	2	17	23	35	23	0	0	0
POR02PG37-2	421	A	21.0	4	22	26	36	12	5	0	0

* Percent values may not total 100% due to rounding
**Numbers w/in each color/entry category followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

ENTRY	% Dead Vines prior to Vine Kill	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 (%) (6-10 oz tubers) BLACKSPOT	BRUISE (%) (6-10 oz tubers) SHATTER	Length to Width Ratio 1 = Round 2 = Oblong
Red Skin/White Flesh											
Dark Red Norland	2	47	97	1.8	7.4	4.8	4	1	8	21	1.2
Red LaSoda	5	4	99	1.6	11.7	3.9	3	1	4	12	1.2
ATTX98453-6R	4	0	40	2.1	6.2	5.6	3	1	18	36	1.0
BTX2332-1R	2	56	81	2.7	7.2	6.0	3	1	3	38	1.0
COTX94216-1R	0	3	63	3.0	3.9	6.6	3	1	0	10	1.1
COTX94218-1R	1	8	75	3.0	4.3	5.6	3	1	0	26	1.0
NDTX4784-7R	2	4	74	1.9	7.2	5.6	4	1	10	57	1.1
Red-Purple Skin/Yellow Flesh											
A99326-1PY	1	13	96	1.7	9.3	4.1	4	1	4	11	1.1
AC99329-7PW/Y	2	53	100	2.7	5.4	6.3	4	1	0	0	1.0
AC99330-1P/Y	0	31	96	3.2	3.8	10.1	4	1	0	10	1.1
POR01PG45-5	0	7	97	1.6	4.2	6.5	3	3	4	0	1.4
POR03PG80-2	0	4	86	1.3	7.8	4.4	4	3	12	32	1.6
Red Skin/Red Flesh											
PA96RR1-193	3	61	100	2.2	3.8	11.2	4	1	0	0	1.1
POR03PG23-1	2	32	97	2.4	3.8	6.6	4	2	0	4	1.2
Purple Skin/Purple Flesh											
Purple Majesty	3	50	99	2.2	4.3	9.9	4	4	67	17	1.4
OR00068-11	2	72	94	2.2	4.2	9.4	4	1	3	13	1.1
Yellow Flesh											
Yukon Gold	3	1	86	1.2	12.2	4.0	4	3	4	21	1.2
A00286-3Y	0	56	96	2.1	4.4	7.9	4	2	0	0	1.3
A00293-2Y	2	4	81	2.0	4.9	7.1	4	2	0	0	1.3
CO00412-5W/Y	4	4	89	2.8	5.5	5.9	4	1	3	14	1.2
CO99045-1W/Y	2	15	79	2.6	7.0	5.3	4	3	4	69	1.7
POR02PG37-2	2	38	99	2.4	6.1	7.7	4	2	0	0	1.1

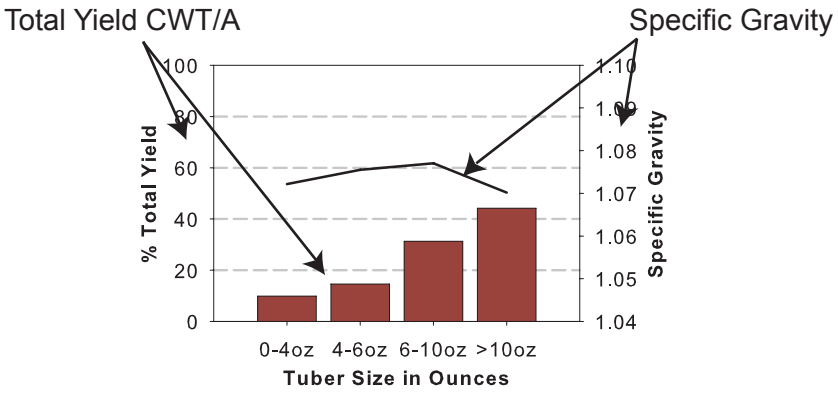
Seeking their 15 minutes of fame, the seedlot trial proof-readers smile and pose for the camera. From left to right: Oscar Gutbrod, Dan Hane, and Mark Pavek.

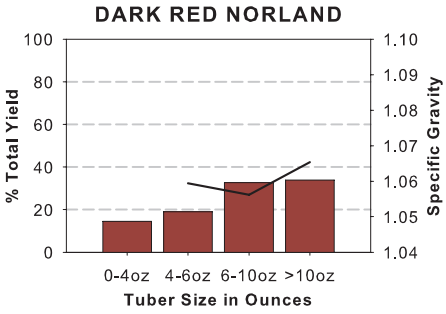
2009 Regional Red and Specialty Trial

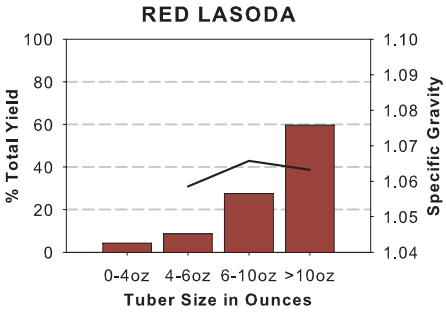
Tuber Yield and Specific Gravity Distributions

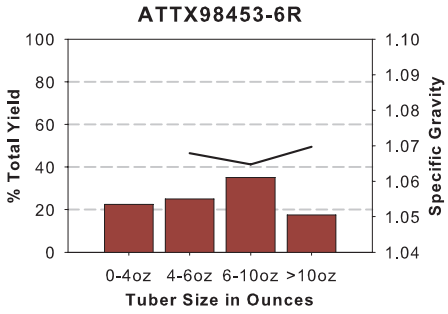
Note: Specific Gravity is based on a sample of U.S. #1 tubers within each size category

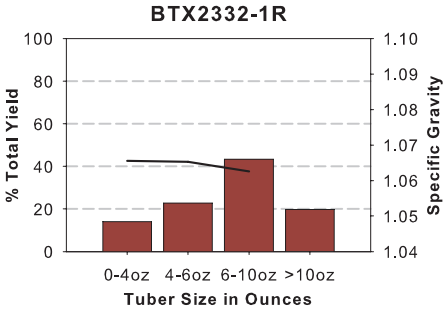
10 inch In-Row Spacing

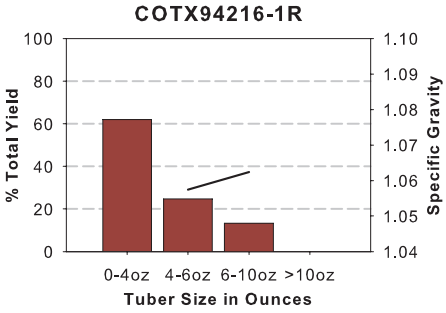


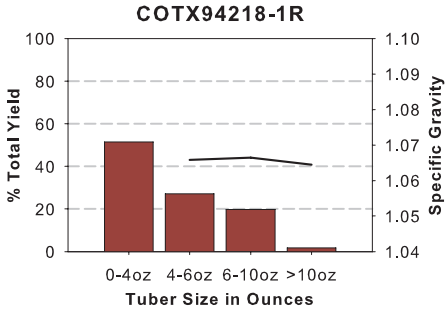


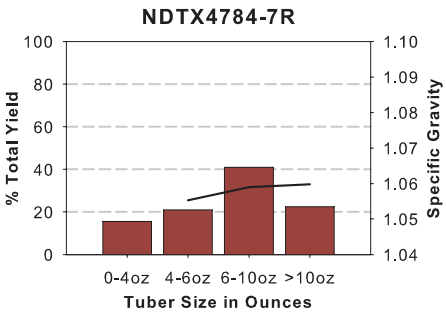


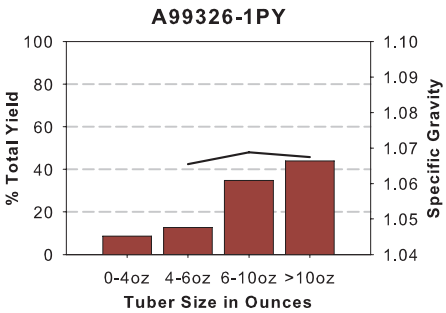


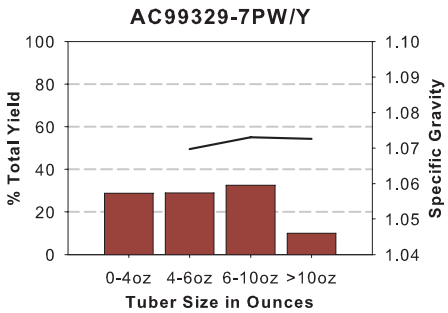




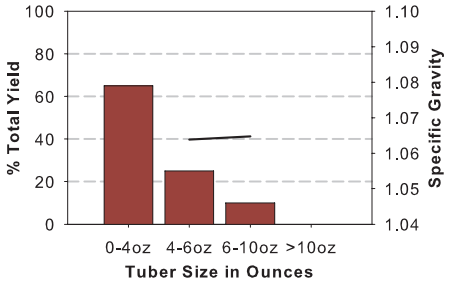








AC99330-1P/Y



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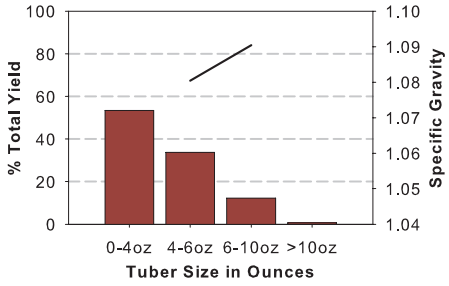

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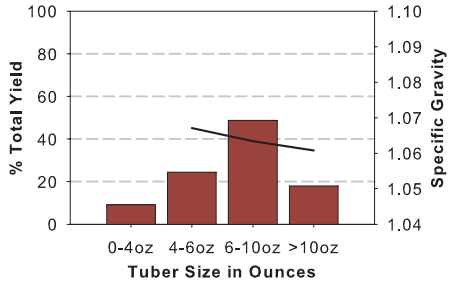

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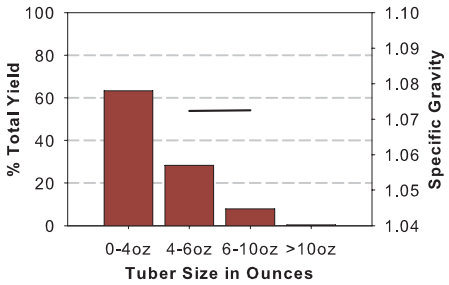

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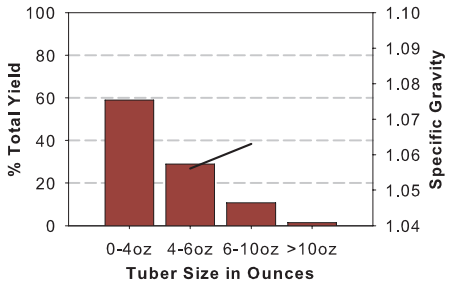
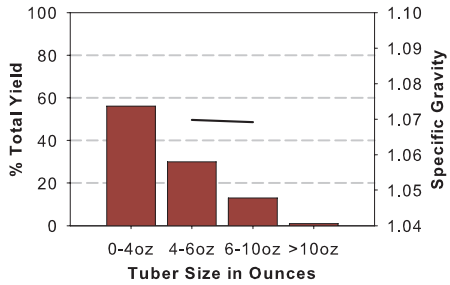


PURPLE MAJESTY



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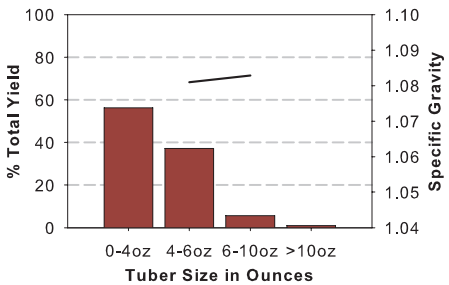
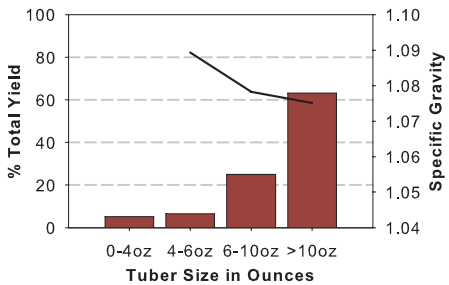
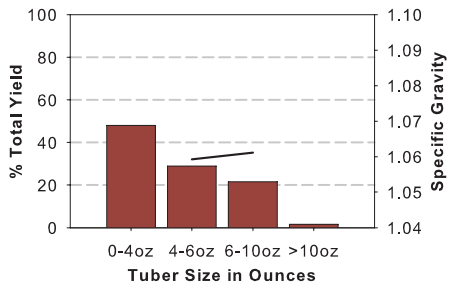


YUKON GOLD



A00286-3Y



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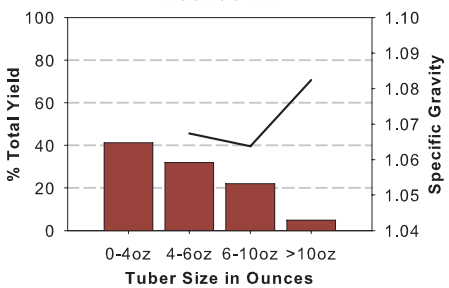
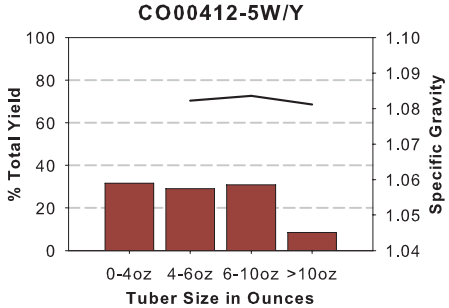
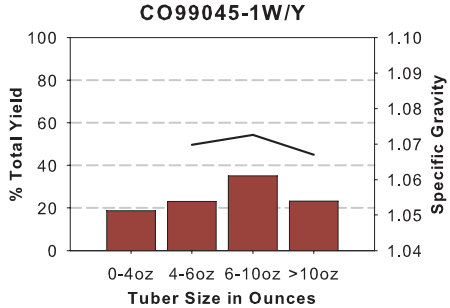


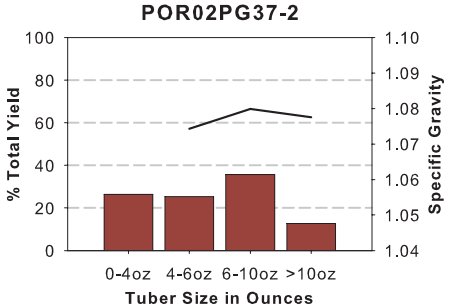
CO00412-5W/Y



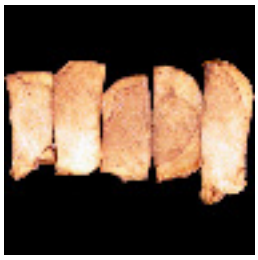
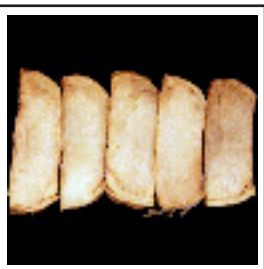
CO99045-1W/Y



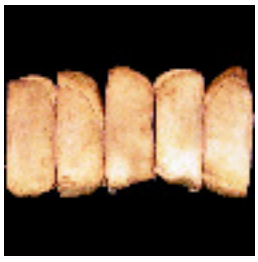
POR02PG37-2



Tubers	WA Red and Specialty Regional Trial Comments
Dark Red Norland	
	**Tubers:** Round tubers. Good skin set; deep eyes. **Fry color:** Light, uniform. **Boiled:** No after cooking darkening, creamy texture, good flavor, fully cooked tuber center, steamy skin. **Baked:** Slight sloughing, no after cooking darkening, pasty texture, good flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.
Red LaSoda	
	**Tubers:** Round tubers. Fair skin set; deep eyes. **Fry color:** Relatively dark, uniform. **Boiled:** No after cooking darkening, creamy texture, bland flavor, mushy tuber center, skin not fully cooked. **Baked:** Slight sloughing, slight after cooking darkening, pasty texture, good flavor, mushy tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.
ATTX98453-6R	
	**Tubers:** Round tubers. Fair skin set; moderately deep eyes. **Fry color:** Unacceptably dark, uniform. **Boiled:** No after cooking darkening, creamy texture, bland flavor, mushy tuber center, skin not fully cooked. **Baked:** No sloughing, no after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** No after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.
BTX2332-1R	
	**Tubers:** Round tubers. Fair skin set; shallow eyes. **Fry color:** Light, uniform. **Boiled:** Slight after cooking darkening, creamy texture, bland flavor, fully cooked tuber center, steamy skin. **Baked:** Slight sloughing, slight after cooking darkening, pasty texture, bland flavor, mushy tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
COTX94216-1R	
	**Tubers:** Round tubers. Fair skin set; moderate eye depth. **Fry color:** Light, uniform. **Boiled:** No after cooking darkening, creamy texture, bland flavor, fully cooked tuber center, skin not fully cooked. **Baked:** Slight sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.

Chips	Fries	Baked	Boiled	Microwaved
Dark Red Norland				
				
Red LaSoda				
				
ATTX98453-6R				
				
BTX2332-1R				
				
COTX94216-1R				
				

Tubers	WA Red and Specialty Regional Trial Comments
COTX94218-1R	
	**Tubers:** Round tubers. Fair skin set; moderate eye depth. **Fry color:** Light, uniform. **Boiled:** Slight after cooking darkening, creamy texture, bland flavor, fully cooked tuber center, skin not fully cooked. **Baked:** Slight sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.
NDTX4784-7R	
	**Tubers:** Round tubers. Good skin set; moderate eye depth. **Fry color:** Relatively dark, uniform. **Boiled:** No after cooking darkening, creamy texture, bland flavor, mushy tuber center, skin not fully cooked. **Baked:** Slight sloughing, no after cooking darkening, pasty texture, bland flavor, mushy tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.
A99326-1PY	
	**Tubers:** Round tubers. Good skin set; moderate eye depth. **Fry color:** Relatively dark, uniform. **Boiled:** Slight after cooking darkening, creamy texture, bland flavor, fully cooked tuber center, skin not fully cooked. **Baked:** Slight sloughing, no after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
AC99329-7PW/Y	
	**Tubers:** Round tubers. Good skin set; moderate eye depth. **Fry color:** Light, uniform. **Boiled:** No after cooking darkening, creamy texture, bland flavor, fully cooked tuber center, steamy skin. **Baked:** Slight sloughing, slight after cooking darkening, fluffy texture, good flavor, mushy tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.
AC99330-1P/Y	
	**Tubers:** Round tubers. Good skin set; moderate eye depth. **Fry color:** Light, uniform. **Boiled:** Slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin. **Baked:** Slight sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, fully cooked tuber center, steamy skin.

Chips	Fries	Baked	Boiled	Microwaved
COTX94218-1R				
				
NDTX4784-7R				
				
A99326-1PY				
				
AC99329-7PW/Y				
				
AC99330-1P/Y				
				

Tubers	WA Red and Specialty Regional Trial Comments
POR01PG45-5	
	**Tubers:** Oblong tubers. Fair skin set; shallow eyes. **Fry color:** Light, uniform. **Boiled:** No after cooking darkening, fluffy texture, bland flavor, fully cooked tuber center, steamy skin. **Baked:** Slight sloughing, no after cooking darkening, creamy texture, bland flavor, fully cooked tuber center. **Microwaved:** Moderate after cooking darkening, creamy texture, bland flavor, mushy tuber center, skin not fully cooked.
POR03PG80-2	
	**Tubers:** Oblong tubers. Good skin set; moderate eye depth. **Fry color:** Relatively dark, uniform. **Boiled:** Slight after cooking darkening, fluffy texture, bland flavor, fully cooked tuber center, steamy skin. **Baked:** No sloughing, slight after cooking darkening, creamy texture, bland flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, fully cooked tuber center, skin not fully cooked.
PA96RR1-193	
	**Tubers:** Round tubers. Good skin set; moderate eye depth. **Fry color:** Relatively dark, uniform. **Boiled:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin. **Baked:** Slight sloughing, no after cooking darkening, creamy texture, good flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, fully cooked tuber center, skin not fully cooked.
POR03PG23-1	
	**Tubers:** Round to oblong tubers. Good skin set; shallow eyes. **Fry color:** Unacceptably dark, uniform. **Boiled:** Slight after cooking darkening, pasty texture, good flavor, fully cooked tuber center, steamy skin. **Baked:** Slight sloughing, slight after cooking darkening, pasty texture, bland flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, pasty texture, bland flavor, mushy tuber center, steamy skin.
Purple Majesty	
	**Tubers:** Oblong to long tubers. Good skin set; shallow eyes. **Fry color:** Unacceptably dark, uniform. **Boiled:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin. **Baked:** Slight sloughing, slight after cooking darkening, creamy texture, bland flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, fluffy texture, good flavor, mushy tuber center, steamy skin.

Chips	Fries	Baked	Boiled	Microwaved
POR01PG45-5				
				
POR03PG80-2				
				
PA96RR1-193				
				
POR03PG23-1				
				
Purple Majesty				
				

Tubers	WA Red and Specialty Regional Trial Comments
OR00068-11	
	**Tubers:** Round tubers. Good skin set; shallow eyes. **Fry color:** Unacceptably dark, uniform. **Boiled:** Moderate after cooking darkening, creamy texture, good flavor, fully cooked tuber center, steamy skin. **Baked:** Slight sloughing, slight after cooking darkening, fluffy texture, bland flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
Yukon Gold	
	**Tubers:** Oblong tubers. Good skin set; moderate eye depth. **Fry color:** Light, non-uniform. **Boiled:** Slight after cooking darkening, fluffy texture, good flavor, mushy tuber center, steamy skin. **Baked:** Severe sloughing, slight after cooking darkening, mealy texture, acceptable flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, fluffy texture, good flavor, tuber center not fully cooked, steamy skin.
A00286-3Y	
	**Tubers:** Round to oblong tubers. Good skin set; shallow eyes. **Fry color:** Light, uniform. **Boiled:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin. **Baked:** No sloughing, no after cooking darkening, creamy texture, bland flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.
A00293-2Y	
	**Tubers:** Round to oblong tubers. Good skin set; shallow eyes. **Fry color:** Light, uniform. **Boiled:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin. **Baked:** No sloughing, no after cooking darkening, creamy texture, good flavor, fully cooked tuber center. **Microwaved:** No after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
CO00412-5W/Y	
	**Tubers:** Round tubers. Good skin set; shallow eyes. **Fry color:** Light, uniform. **Boiled:** Slight after cooking darkening, fluffy texture, good flavor, fully cooked tuber center, skin not fully cooked. **Baked:** Slight sloughing, slight after cooking darkening, fluffy texture, good flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.

Chips	Fries	Baked	Boiled	Microwaved
OR00068-11				
				
Yukon Gold				
				
A00286-3Y				
				
A00293-2Y				
				
CO00412-5W/Y				
				

Tubers	WA Red and Specialty Regional Trial Comments
CO99045-1W/Y	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** Relatively dark, uniform. **Boiled:** Slight after cooking darkening, pasty texture, bland flavor, mushy tuber center, steamy skin. **Baked:** Slight sloughing, no after cooking darkening, creamy texture, good flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
POR02PG37-2	
	**Tubers:** Round to oblong tubers. Good skin set; shallow eyes. **Fry color:** Light, uniform. **Boiled:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin. **Baked:** Slight sloughing, no after cooking darkening, creamy texture, good flavor, fully cooked tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.

Chris Voigt from the WSPC (Washington State Potato Commission) pictured far right, takes a look at a plant from this year's Seed Lot trial marked as having mosaic.

Chips	Fries	Baked	Boiled	Microwaved
CO99045-1W/Y				
				
POR02PG37-2				
				

Roy Navarre from the USDA (middle) talks about the significance of phytonutrients in potatoes.

2009 Washington Regional Red and Specialty Trial

Postharvest Evaluation

Fried (3/8 x 1 1/8" slices) **(Chips)**

Clone	Raw				After Frying					Av of 4 raters
	Stem	Bud	Average	Difference	Stem	Bud	Average	Difference	USDA	SFA
1 Dk Red Norland	55.7	55.2	55.4	1.6	34.3	33.5	33.9	4.1	0	4.0
2 Red LaSoda	58.2	56.6	57.4	2.4	21.6	23.4	22.5	3.6	2	5.0
3 ATTX98453-6R	55.7	56.2	56.0	1.7	18.6	17.8	18.2	1.7	3	5.0
4 BTX2332-1R	53.4	53.1	53.3	1.9	30.3	37.4	33.8	8.1	1	4.0
5 COTX94216-1R	54.7	53.8	54.2	1.5	32.0	32.5	32.3	2.7	0	3.8
6 COTX94218-1R	54.3	52.6	53.4	2.8	34.0	35.8	34.9	4.1	0	4.0
7 NDTX4784-7R	50.4	50.8	50.6	1.7	26.0	24.1	25.0	3.8	2	4.1
8 A99326-1PY	55.9	57.1	56.5	1.7	27.3	31.8	29.5	4.9	1	4.0
9 AC99329-7PW/Y	55.4	55.2	55.3	1.5	29.1	32.0	30.6	3.9	1	4.1
10 AC99330-1P/Y	52.3	51.0	51.6	1.6	32.2	33.5	32.8	2.7	0	3.8
11 POR01PG45-5	56.1	55.4	55.7	1.9	36.9	42.0	39.4	5.4	0	3.9
12 POR03PG80-2	53.4	54.6	54.0	2.5	20.4	27.6	24.0	7.2	2	4.5
13 PA96RR1-193	22.3	26.7	24.5	5.1	23.6	27.8	25.7	5.0	2	3.6
14 POR03PG23-1	9.9	11.3	10.6	1.6	10.8	12.5	11.6	1.8	4	4.5
15 Purple Majesty	4.7	4.3	4.5	0.7	11.7	11.0	11.3	1.3	4	4.4
16 OR00068-11	6.6	8.6	7.6	2.0	15.2	17.9	16.5	2.7	3	4.3
17 Yukon Gold	53.7	53.5	53.6	2.4	27.8	39.7	33.7	11.9	1	4.0
18 A00286-3Y	52.7	51.7	52.2	1.5	30.6	34.2	32.4	4.6	0	4.1
19 A00293-2Y	53.3	51.3	52.3	2.7	27.6	34.1	30.9	6.8	1	3.3
20 CO00412-5W/Y	46.7	48.4	47.5	2.5	35.6	39.5	37.5	4.5	0	3.5
21 CO99045-1W/Y	52.2	51.7	52.0	2.0	27.4	27.8	27.6	3.1	1	4.8
22 POR02PG37-2	51.5	51.5	51.5	1.3	40.5	45.0	42.8	4.6	0	3.4
*LSD 0.05 **			*1.8*	*1.3*			*3.7*	*2.8*		
Average	45.9	45.9	45.9	2.0	27.0	30.0	28.5	4.5	1	4.1

*Differences between clones equal to or greater than the LSD 0.05 are significant. Entries with red (PA96RR1-193 & POR03PG23-1) or purple (Purple Majesty & OR00068-11) flesh were not included in the ANOVA. All other entries have white or yellow flesh. SFA 1 (lightest) to 5 (darkest)

En route to the Othello research farm we knew it was going to be one of those days after this plane missed the Colfax runway.

2009 Washington Regional Red and Specialty Trial

Postharvest Evaluation Summary

	Clone	Boiled (25 max)	Baked (25 max)	Microwaved (25 max)	Total (75 max)
20	CO00412-5W/Y	20.2	21.3	17.7	59.1
12	POR03PG80-2	19.6	19.0	20.3	59.0
22	POR02PG37-2	20.7	19.7	18.6	58.9
19	A00293-2Y	20.7	19.2	18.8	58.6
13	PA96RR1-193	19.7	19.2	19.4	58.3
11	POR01PG45-5	18.7	20.7	18.6	57.9
15	Purple Majesty	19.2	19.5	19.2	57.9
1	Dk Red Norland	18.9	20.7	18.1	57.7
16	OR00068-11	20.0	19.7	17.8	57.5
7	NDTX4784-7R	19.0	18.8	19.4	57.3
9	AC99329-7PW/Y	18.8	19.7	18.8	57.2
2	Red LaSoda	19.6	19.0	18.4	57.0
18	A00286-3Y	20.3	18.1	18.2	56.7
5	COTX94216-1R	18.2	19.5	18.8	56.4
3	ATTX98453-6R	19.8	18.8	17.7	56.3
17	Yukon Gold	18.3	20.0	17.9	56.2
8	A99326-1PY	18.4	19.5	18.3	56.2
6	COTX94218-1R	17.8	19.3	18.9	56.0
21	CO99045-1W/Y	19.7	18.4	17.4	55.5
10	AC99330-1P/Y	18.4	17.7	19.3	55.4
4	BTX2332-1R	17.1	19.2	17.9	54.1
14	POR03PG23-1	17.3	19.0	16.9	53.3

French Fried:	Aug. 26
Chipped:	Aug. 26
Boiled:	Aug. 24 & 25
Microwaved:	Aug. 17 & 20
Baked:	Aug. 18 & 19

2009 Washington Regional Red and Specialty Trial

Red Clone Postharvest Evaluation

Boiled

	Clone	After Cooking Sloughing	Darkening	Texture	Flavor	Tuber Center	Total Rating
1	Dk Red Norland	3.8	4.6	2.3	3.6	4.6	18.9
2	Red LaSoda	4.4	4.0	3.0	4.0	4.2	19.6
3	ATTX98453-6R	4.8	4.8	2.5	3.4	4.4	19.8
4	BTX2332-1R	4.3	3.5	2.1	3.1	4.0	17.1
5	COTX94216-1R	3.5	4.4	3.1	2.8	4.4	18.2
6	COTX94218-1R	3.8	3.8	2.9	3.4	4.0	17.8
7	NDTX4784-7R	4.4	4.5	2.4	3.4	4.4	19.0
8	A99326-1PY	3.9	4.5	2.5	3.3	4.2	18.4
9	AC99329-7PW/Y	4.0	4.1	3.5	3.8	3.4	18.8
10	AC99330-1P/Y	4.1	3.6	3.1	3.1	4.4	18.4
11	POR01PG45-5	3.9	4.6	2.8	2.9	4.6	18.7
12	POR03PG80-2	4.5	4.3	2.8	3.4	4.8	19.6
	LSD 0.05	*0.6*	*0.5*	*0.9*	*1.0*	*0.8*	*2.4*
	Average	4.1	4.2	2.7	3.3	4.3	18.7

Oven Baked

	Clone	After cooking Darkening	Texture	Flavor	Tuber Center	Skin Rating	Total Rating
1	Dk Red Norland	4.8	3.3	3.7	4.5	4.3	20.7
2	Red LaSoda	4.5	3.2	3.0	3.8	4.5	19.0
3	ATTX98453-6R	4.8	2.5	3.3	3.5	4.7	18.8
4	BTX2332-1R	4.3	2.7	3.2	4.7	4.3	19.2
5	COTX94216-1R	4.5	2.8	3.2	4.5	4.5	19.5
6	COTX94218-1R	4.0	2.8	3.3	4.7	4.5	19.3
7	NDTX4784-7R	4.7	2.5	2.8	4.3	4.5	18.8
8	A99326-1PY	4.3	3.0	3.0	4.7	4.5	19.5
9	AC99329-7PW/Y	4.7	3.0	3.3	4.5	4.2	19.7
10	AC99330-1P/Y	4.0	2.5	2.7	4.3	4.2	17.7
11	POR01PG45-5	4.7	3.7	3.2	4.8	4.3	20.7
12	POR03PG80-2	4.2	3.5	2.8	4.5	4.0	19.0
	LSD 0.05	*0.7*	*1.0*	*ns*	*0.9*	*ns*	*2.0*
	Average	4.5	3.0	3.1	4.4	4.4	19.3

Microwaved

	Clone	After cooking Darkening	Texture	Flavor	Tuber Center	Skin Rating	Total Rating
1	Dk Red Norland	4.4	3.1	3.6	3.1	3.9	18.1
2	Red LaSoda	4.4	3.0	3.9	3.2	3.9	18.4
3	ATTX98453-6R	4.9	2.9	3.6	2.7	3.7	17.7
4	BTX2332-1R	4.1	3.2	3.4	3.3	3.8	17.9
5	COTX94216-1R	4.4	2.8	3.8	4.0	3.8	18.8
6	COTX94218-1R	4.0	3.3	3.8	3.8	4.0	18.9
7	NDTX4784-7R	4.3	3.2	4.2	3.7	4.0	19.4
8	A99326-1PY	4.4	2.8	3.2	3.9	4.0	18.3
9	AC99329-7PW/Y	4.2	3.1	3.9	3.3	4.2	18.8
10	AC99330-1P/Y	3.7	2.8	4.1	4.6	4.2	19.3
11	POR01PG45-5	3.4	2.9	3.3	4.3	4.6	18.6
12	POR03PG80-2	4.2	3.2	3.7	4.6	4.7	20.3
	LSD 0.05	*0.6*	*ns*	*0.8*	*1.1*	*0.5*	*2.5*
	Average	4.2	3.0	3.7	3.7	4.1	18.7

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

2009 Washington Regional Red and Specialty Trial

Specialty Clone Postharvest Evaluation

Boiled

Clone	After Cooking Sloughing	Darkening	Texture	Flavor	Tuber Center	Total Rating
13 PA96RR1-193	3.7	4.5	3.0	3.8	4.7	19.7
14 POR03PG23-1	3.5	4.0	2.3	3.0	4.5	17.3
15 Purple Majesty	3.7	4.3	3.2	3.2	4.8	19.2
16 OR00068-11	3.7	4.3	4.0	3.0	5.0	20.0
17 Yukon Gold	2.2	4.3	4.5	2.3	5.0	18.3
18 A00286-3Y	4.5	4.5	3.2	3.2	5.0	20.3
19 A00293-2Y	4.5	4.5	3.2	3.7	4.8	20.7
20 CO00412-5W/Y	3.5	4.3	3.8	3.5	5.0	20.2
21 CO99045-1W/Y	4.3	4.7	2.5	3.7	4.5	19.7
22 POR02PG37-2	3.8	4.8	3.2	4.0	4.8	20.7
LSD 0.05	*0.7*	*ns*	*1.1*	*0.8*	*ns*	*3.2*
Average	3.7	4.4	3.3	3.3	4.8	19.6

Oven Baked

Clone	After cooking Darkening	Texture	Flavor	Tuber Center	Skin Rating	Total Rating
13 PA96RR1-193	3.9	3.0	3.6	4.4	4.3	19.2
14 POR03PG23-1	4.0	2.4	3.6	4.6	4.4	19.0
15 Purple Majesty	3.9	3.4	3.6	4.1	4.4	19.5
16 OR00068-11	3.4	3.4	3.6	4.6	4.7	19.7
17 Yukon Gold	4.3	3.6	3.6	4.3	4.3	20.0
18 A00286-3Y	4.1	2.6	3.6	4.0	3.9	18.1
19 A00293-2Y	4.4	2.9	3.6	3.9	4.4	19.2
20 CO00412-5W/Y	4.0	4.1	3.7	4.9	4.6	21.3
21 CO99045-1W/Y	4.4	2.4	3.3	4.3	4.0	18.4
22 POR02PG37-2	4.4	2.7	4.0	4.4	4.1	19.7
	1.0	*1.0*	*ns*	*0.8*	*0.8*	*2.2*
Average	4.1	3.1	3.6	4.3	4.3	19.4

Microwaved

Clone	After cooking Darkening	Texture	Flavor	Tuber Center	Skin Rating	Total Rating
13 PA96RR1-193	3.8	2.7	3.9	4.6	4.6	19.4
14 POR03PG23-1	4.0	2.0	2.8	4.1	4.0	16.9
15 Purple Majesty	4.1	3.7	3.6	3.9	4.0	19.2
16 OR00068-11	3.9	3.4	3.4	3.4	3.6	17.8
17 Yukon Gold	4.3	3.9	3.8	2.3	3.6	17.9
18 A00286-3Y	4.2	2.7	3.6	3.9	3.9	18.2
19 A00293-2Y	4.6	3.3	3.2	3.6	4.1	18.8
20 CO00412-5W/Y	3.6	3.4	3.2	3.7	3.8	17.7
21 CO99045-1W/Y	4.2	2.8	3.1	3.7	3.7	17.4
22 POR02PG37-2	4.1	3.1	3.7	3.6	4.1	18.6
LSD 0.05	*0.8*	*0.9*	*ns*	*1.2*	*0.7*	*ns*
Average	4.1	3.1	3.4	3.7	3.9	18.2

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

Index of Clones and Cultivars