2010 Potato Cultivar Yield and Post-harvest Quality Evaluations

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WSU Potato Research Group

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On the cover: A retrospect of a tuber’s life. Pictured left to right: Planting, Midseason, and eventually harvested.

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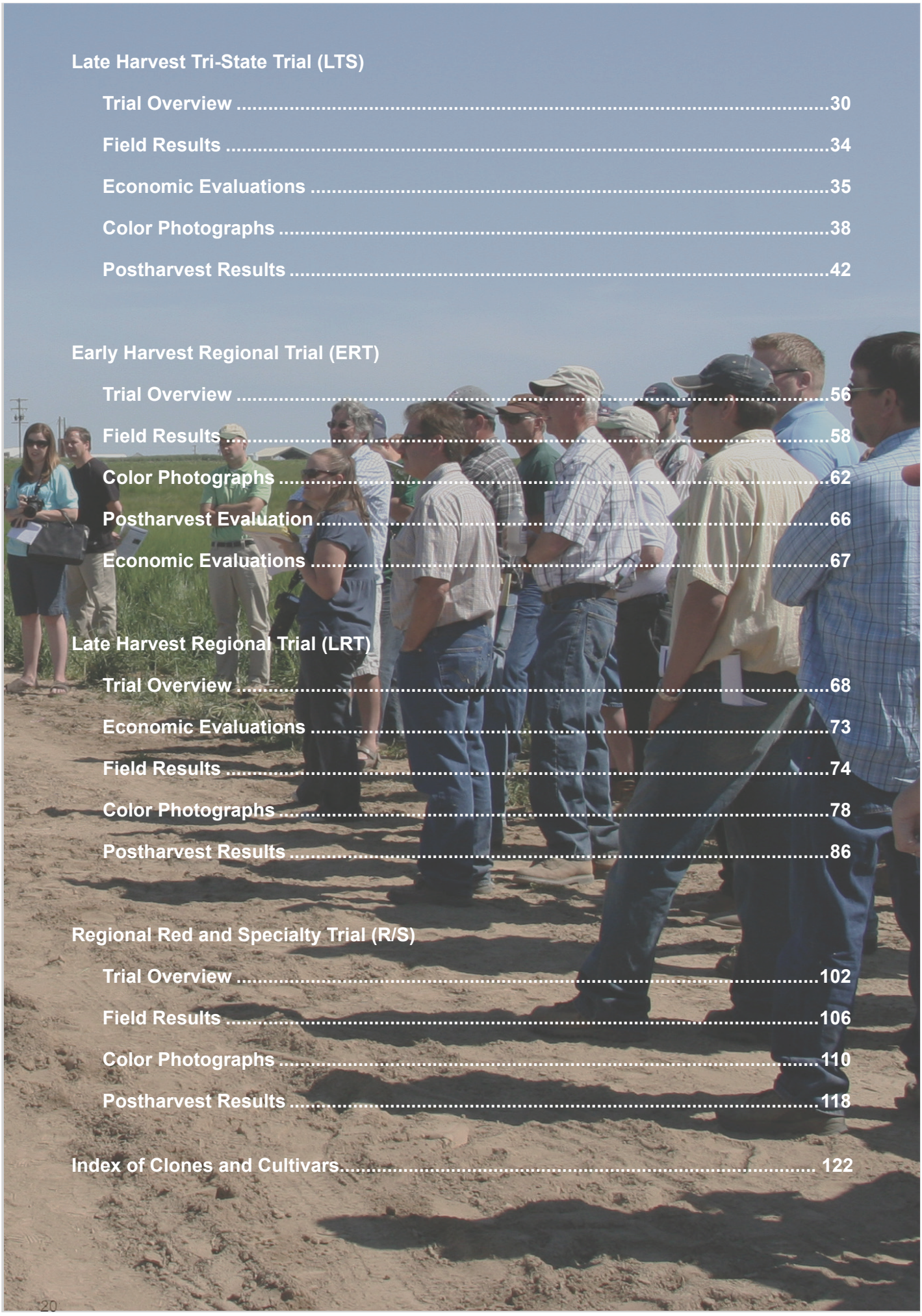


INTRODUCTION

The 2010 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, 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: Since its inception, the Tri-State Program and PVMI have released 35 new potato varieties. 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, Alturas, Western Russet, Premier Russet, and Umatilla Russet are examples of russet cultivars released from the Tri-State program that have greatly benefited the Northwest potato industry, being the 3rd, 4th, 6th, 7th and 8th most widely grown cultivars in Idaho in 2010, respectively (NASS, Crop Production, December, 2010), and accounting for 18% of the planted acreage in Idaho in 2010. Umatilla Russet, Ranger Russet, Alturas, and Premier Russet were the 2nd, 4th, 5th, and 7th most widely grown cultivars in WA in 2010, respectively, accounting for 38% of total acreage. In OR, these cultivars ranked 5th, 2nd, 7th, and 11th, respectively, and accounted for 31% of total acreage. Ranger Russet, Umatilla Russet, Alturas, Premier Russet, and Western Russet were also the 3rd, 5th, 7th, 9th, and 17th most widely grown potato varieties in the United States in 2010, 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 115,000 acres in the Pacific Northwest with value to growers estimated at approximately $415 million.

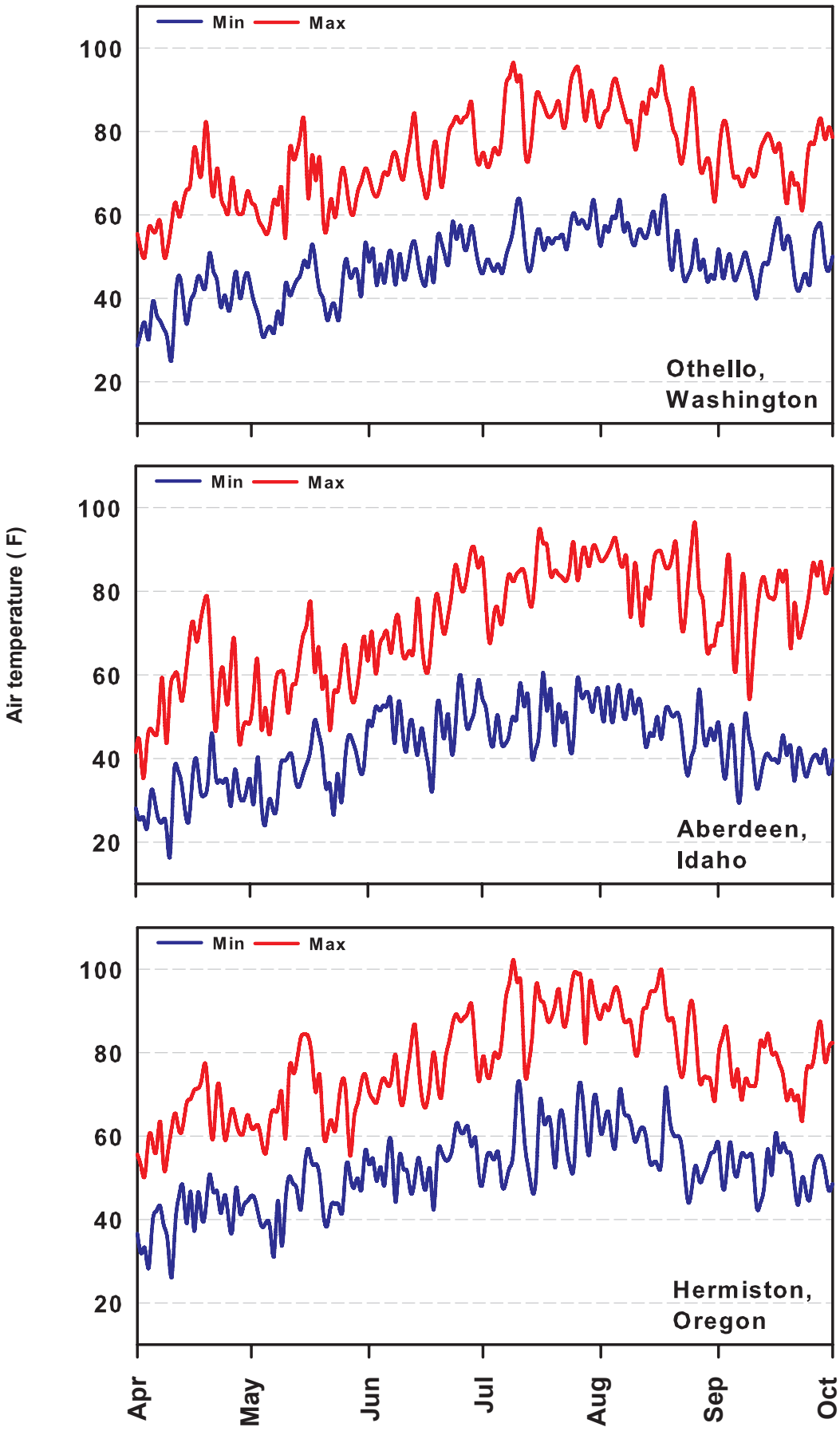
Cultural Information

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	Triticale
Planting date	April 15	May 5	April 5
Vine kill date	September 18	September 3	September 2
Soil moisture at harvest	Moist-Dry	N/A	N/A
Temperature at harvest	72°F	N/A	N/A
Harvest date	September 21	September 12	September 16
Storage temperature	48°F	60°F-65°F	45°F
Date received at Pullman	September 21	September 15	September 17

Regional Trial	**Othello, WA**	**Aberdeen, ID**	**Hermiston, OR**
Soil type	Shano silt loam	Silt loam	Loamy fine sand
Previous crop	Wheat	Small Grains	Triticale
Planting date	April 15	May 5	April 5
Vine kill date	September 18	September 3	September 2
Soil moisture at harvest	Moist-Dry	N/A	N/A
Temperature at harvest	72°F	N/A	N/A
Harvest date	September 21	September 12	September 16
Storage temperature	48°F	60°F-65°F	45°F
Date received at Pullman	September 21	September 15	September 23

2010 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	A0008-1TE	4.0	1	A0008-1TE	3.1
2	Russet Norkotah	3.6	2	**AOTX95265-1Ru**	**3.0**
3	PA99N2-1	3.5	3	PA99N2-1	3.0
4	AO00057-2	3.4	4	PA00N14-2	3.0
5	CO99100-1Ru	3.3	5	A01010-1	3.0
6	AO96305-3	3.2	6	**AOTX96265-2Ru**	**2.9**
7	PA00N14-2	3.0	7	AO96305-3	2.7
8	CO99053-3Ru	2.9	8	CO99053-3Ru	2.7
9	Ranger Russet	2.8	9	Russet Norkotah	2.5
10	A98345-1	2.5	10	CO98067-7Ru	2.5
11	PA99N82-4	2.5	11	Ranger Russet	2.4
12	**AOTX96265-2Ru**	**2.4**	12	A98345-1	2.4
13	**AOTX95265-1Ru**	**2.4**	13	AC99375-1Ru	2.3
14	CO99053-4Ru	2.2	14	Russet Burbank	2.0
15	A00324-1	2.1	15	A97066-42LB	2.0
16	CO98067-7Ru	2.1	16	A00324-1	2.0
17	Russet Burbank	2.1	17	CO99100-1Ru	1.9
18	**AOTX96216-2Ru**	**2.1**	18	AO00057-2	1.8
19	AC99375-1Ru	2.1	19	PA99N82-4	1.6
20	A01010-1	1.9	20	CO99053-4Ru	1.5
21	A97066-42LB	1.3	21	**AOTX96216-2Ru**	**0.8**

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	3.6	1	AO02183-2	4.7
2	**A02060-3TE**	**3.1**	2	**AO01114-1**	**3.5**
3	**AO02060-3**	**3.1**	3	**A98134-2**	**3.1**
4	Ranger Russet	2.8	4	**A01025-4**	**3.1**
5	AO02183-2	2.6	5	**A01124-3**	**2.8**
6	Russet Burbank	2.1	6	**A02062-1TE**	**2.8**
7	**A01025-4**	**2.1**	7	**AO02060-3**	**2.8**
8	**A02062-1TE**	**1.9**	8	Russet Norkotah	2.5
9	**A98134-2**	**1.5**	9	Ranger Russet	2.4
10	**AO01114-1**	**1.4**	10	**PA03NM5-1**	**2.3**
11	**A01124-3**	**1.3**	11	**A02060-3TE**	**2.3**
12	**PA03NM5-1**	**1.0**	12	Russet Burbank	2.0

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	4.3	A01010-1	4.1	3.3
2	**AOTX96265-2Ru**	**3.7**	CO99053-3Ru	3.8	3.3
3	AO96305-3	3.6	A00324-1	3.7	3.4
4	**AOTX96216-2Ru**	**3.5**	Ranger Russet	3.6	3.5
5	CO99100-1Ru	3.5	PA99N2-1	3.5	3.6
6	AO00057-2	3.4	AC99375-1Ru	3.5	4.4
7	Ranger Russet	3.3	AO96305-3	3.3	4.4
8	AC99375-1Ru	3.3	AO00057-2	3.1	4.1
9	A0008-1TE	3.3	PA00N14-2	3.0	3.6
10	PA99N2-1	3.1	**AOTX96265-2Ru**	**3.0**	fresh only
11	Russet Norkotah	3.0	A97066-42LB	3.0	3.5
12	Russet Burbank	3.0	Russet Burbank	2.6	2.5
13	A97066-42LB	2.9	PA99N82-4	2.6	4.0
14	CO99053-3Ru	2.9	A0008-1TE	2.6	3.3
15	**AOTX95265-1Ru**	**2.7**	CO98067-7Ru	1.8	2.1
16	A01010-1	2.6	**AOTX96216-2Ru**	**1.8**	fresh only
17	CO99053-4Ru	2.6	Russet Norkotah	1.4	fresh only
18	A00324-1	2.6	CO99053-4Ru	1.3	3.8
19	PA99N82-4	2.6	**AOTX95265-1Ru**	**1.2**	fresh only
20	CO98067-7Ru	2.5	CO99100-1Ru	1.2	2.8
21	*A98345-1	0.0	*A98345-1	see below	

For more information on these cultivars, see the Early and Late Harvest Regional Trial Sections in This Book. **We cannot recommend A98345-1 due to mottling issues*

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	**AO02060-3**	**4.4**	**A02060-3TE**	**4.7**	**3.0**
2	**AO01114-1**	**4.2**	AO02183-2	4.2	4.5
3	Ranger Russet	3.3	**A01025-4**	**3.7**	**3.0**
4	**A02060-3TE**	**3.1**	**AO02060-3**	**3.7**	**4.0**
5	Russet Norkotah	3.0	Ranger Russet	3.6	3.5
6	AO02183-2	3.0	**PA03NM5-1**	**3.1**	**2.7**
7	Russet Burbank	3.0	**A01124-3**	**3.0**	**2.4**
8	**A01025-4**	**2.5**	**A02062-1TE**	**2.9**	**3.3**
9	**PA03NM5-1**	**2.4**	**AO01114-1**	**2.9**	**3.9**
10	**A02062-1TE**	**2.0**	Russet Burbank	2.6	2.5
11	**A98134-2**	**1.8**	**A98134-2**	**2.3**	**1.6**
12	**A01124-3**	**1.2**	Russet Norkotah	1.4	fresh only

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

2010 Red & Specialty Potato Clones - Washington State University

RANKED ACCORDING TO 2009 US #1 Yield

	US #1 Yield 2010			US #1 Yield 2009	(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	415	50	39	296	Large, pink, irregular shape.
Red LaSoda	426	38	43	387	Very deep eyes with marginal skin set.
BTX2332-1R	325	69	24	392	Bronzing, inconsistent color, some rhizoc.
CO99076-6R	258	74	26	-	Nice shape, bright red.
CO99256-2R	318	88	12	-	Poor skin set, nice otherwise.
COTX94216-1R	279	82	18	229	Irregular shape, poor skin set.
COTX94218-1R	276	89	11	218	Nice color and shape, some with late season cracks.
Red or Purple Skin/Yellow Flesh					
A99326-1PY	433	46	37	335	Nice purple, a bit of bronzing.
A99331-2RY	255	89	11	-	Sticky stolons** and small.
POR03PG80-2	321	52	36	317	Large, looks like a purple baker.
Purple Skin/Purple Flesh					
Purple Majesty	254	95	5	380	Very small, lots of bronzing.
Yellow Flesh					
Yukon Gold	256	44	35	380	Dirty colored skin, a bit irregular shape.
A00293-2Y	321	62	24	319	Irregular shapes.
A99433-5Y	279	76	18	-	Light russet, shape a bit irregular.
ATC00293 -1W/Y	416	53	39	-	Attractive purple eyes, dirty colored skin, and oblong.
CO00412-5W/Y	306	86	14	-	Oblong, light russet, shape a bit irregular

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 remain 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 - 2010 Tri-State Trials		
Clone	Fresh Market Appearance 1-5 (5 = best)	Tuber Appearance Comments
Early Harvest Tri-State		
Ranger Russet	3.3	Large, mostly typy, some with irreg. shape
Russet Burbank	2.7	Shape a bit irregular
Russet Norkotah	4.0	typy, nice.
AO02183-2	4.0	Typy, smaller, deep eyes.
A01124-3	3.0	Pointy, smaller, a bit flat.
A02060-3TE	3.0	Large, mostly typy, some with irreg. shape
A02062-1TE	3.3	Looks like skinny Norkotah with pointy ends.
A98134-2	3.3	Variation in size, irregular shape.
A01025-4	2.0	Large, ugly skin, irregular shape.
PA03NM5-1	2.3	Irregular shape.
AO01114-1	4.0	Many small, typy, fresh standout.
AO02060-3	4.0	Typy, a bit round.
Late Harvest Tri-State		
Ranger Russet	3.7	Typy, small for Ranger.
Russet Burbank	3.0	Typy, a bit rough, irregular shapes.
Russet Norkotah	4.0	Typy, small.
AO02183-2	3.0	Deep eyes, blocky, some irregular shapes.
A01124-3	2.7	Folded ends, deep eyes on bud ends
A02060-3TE	2.0	Bumpy tubers, shatter, irregular shape.
A02062-1TE	3.7	Looks like a skinny Norkotah, dark russeting, typy.
A98134-2	4.0	Typy, plump, a few round ones.
A01025-4	2.7	Large, non-uniform shape, spotty russeting.
PA03NM5-1	2.3	Irregular shape, bumpy tubers, deep eyes.
AO01114-1	4.0	Typy, nice, looks like R. Norkotah.
AO02060-3	4.0	Smaller round tubers.

Ranger Russet

AO01114-1

AO02183-2

A98134-2

At-Harvest Grading Comments & Fresh Market Appearance

Advanced Lines - 2010 Regional Trials		
Clone	Fresh Market Appearance 1-5 (5 = best)	Tuber Appearance Comments
Early Harvest Regional		
Ranger Russet	3.7	Mostly typy, bit flat, deep eyes.
Russet Burbank	2.7	Mostly typy, irregular skin and shape.
Russet Norkotah	4.0	Small and typy.
A97066-42LB	2.0	Large, typy, leopard skin, ugly.
A98345-1	2.0	Large, light skin, some round.
A0008-1TE	4.0	Typy, plump, light russet, a few growth cracks.
A00324-1	3.0	Mostly typy but many with irreg. shape
A01010-1	3.0	Small, typy, puffed wheat type skin.
AC99375-1Ru	2.5	Lots of small tubers, some irregular shapes.
AO00057-2	4.0	Typy, dark russet, a bit flat.
AO96305-3	3.0	Typy, skinny with ugly skin.
AOTX95265-1Ru	4.0	Typy, looks like R. Nork.
AOTX96216-2Ru	2.3	Flat footballs (size and shape), heavy, thick dark skin.
AOTX96265-2Ru	3.0	Typy and round.
CO98067-7Ru	3.0	Typy and small.
CO99053-3Ru	4.0	Typy, flat, light skin, appears to have mild scab
CO99053-4Ru	4.0	Typy, but some pointy, some flat.
CO99100-1Ru	4.0	Typy, flat, light russet, some growth cracks.
PA00N14-2	3.0	Typy, skinny, yellowish tint, feathery skin, Banana Russet
PA99N2-1	4.0	Typy, many round.
PA99N82-4	3.0	Softballs, baseballs, with dark, non-uniform russeting.
Late Harvest Regional		
Ranger Russet	4.0	Mostly typy.
Russet Burbank	2.7	Mostly typy, skin russeting a bit irregular.
Russet Norkotah	4.0	Lots of smalls, typy.
A97066-42LB	2.0	Spotty russeting, large size range.
A98345-1	1.3	Bad shatter! DISCARD
A0008-1TE	4.0	Smaller, typy, light russet, plump.
A00324-1	3.3	Light russet, blocky, bad shatter.
A01010-1	3.0	Heavy russet, typy.
AC99375-1Ru	1.3	Puffed wheat skin, irregular shape, lot of green tubers.
AO00057-2	2.7	Large, bit flat.
AO96305-3	3.5	Very typy, nice size profile.
AOTX95265-1Ru	4.0	Looks like R. Norkotah.
AOTX96216-2Ru	1.3	Flat footballs (size and shape) with dark russet.
AOTX96265-2Ru	3.0	Mostly round, deep eyes.
CO98067-7Ru	3.0	Small, flat, shape a bit irregular.
CO99053-3Ru	4.0	Typy, light russet.
CO99053-4Ru	1.7	small, pointy, light russet, DISCARD!
CO99100-1Ru	4.0	smaller, typy, flat, light russet.
PA00N14-2	4.0	Smaller, typy, yellowish, light russet.
PA99N2-1	3.0	Bit round, light russet.
PA99N82-4	3.0	Very round!

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 an August 1 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.

2010 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:	
48°F fry color (0-5)	5**
48°F Reducing sugars (1-5)	5
44°F fry color (0-5)	5**
44°F 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 *Pectobacterium carotovorum subsp. carotovorum*, 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 of each clone from each state 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 2009 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.

2010 Early Harvest Tri-State Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 7 Vine Kill Date: August 4
Harvest Date: August 23 Days Grown: 119
Fertility: 165-110-450 In-Row Spacing: 12 inch

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 2010 trial compared 3 local reference varieties to 9 new clones. Despite a cooler spring, the consistently mild weather mid July provided ideal growing conditions for large yields across all cultivars. 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): AO02060-3, A02060-3TE, and AO02183-2.
Process Market Standout(s): AO02060-3.

Standcounts

- **40 Day**
  Fast emergence: Russet Burbank (87%).
  Slow emergence: A01124-3 (2%), A02062-1TE (2%), A98134-2 (4%), PA03NM5-1 (4%), A02060-3TE (7%), A01025-4 (20%), and AO01114-1 (29%). All other entries were above 48% emergence at 40 DAP.

- **50 Day**
  Full emergence: Ranger Russet, Russet Burbank, and Russet Norkotah.
  Poor emergence: A98134-2 (38%), A01124-3 (40%), PA03NM5-1 (42%), and A02060-3TE (44%). All other entries had 58% or greater emergence at 50 days.

Plant and Tuber Growth & Development

- **Stem Number Per Plant – Above Ground**
  Most: AO02060-3 (4.8), A01124-3 (3.3).
  Least: Ranger Russet (1.4), PA03NM5-1 (1.6), A02062-1TE (1.8).

- **Average Tuber Number Per Plant**
  Most: AO02183-2 (11.8), Russet Burbank (10.8), AO01114-1 (10.8), AO02060-3 (10.1).
  Least: PA03NM5-1 (5.2), A02060-3TE (5.8).

- **Average Tuber Size (oz)**
  Largest: A02060-3TE (9.3), Ranger Russet (8.7), A01025-4 (8.5).
  Smallest: AO01114-1 (5.6) AO02183-2 (5.9).

- **Undersized Tubers (< 4 oz)**
  Most: AO02183-2 (95 CWT/A), AO01114-1 (88 CWT/A), Russet Burbank (73 CWT/A).
  Fewest: A02060-3TE (28 CWT/A), Ranger Russet (29 CWT/A).

Yield and Economic Data

- **Total Yield**
  Highest: Russet Burbank (676 CWT/A), AO02183-2 (673 CWT/A), Ranger Russet (630 CWT/A).
  Lowest: PA03NM5-1 (389 CWT/A), A01124-3 (415 CWT/A).

- **% U.S. #1's (>4 oz)**
  Highest: Ranger Russet (94%), A01124-3 (92%).
  Lowest: AO01114-1 (83%), Russet Burbank (86%), AO02183-2 (86%).

- **Carton Yield (100 to 50 Count (7 to 18 oz U.S.#1 Tubers))**
  Highest: Ranger Russet (436 CWT/A).
  Lowest: A02062-1TE and AO01114-1 (both 226 CWT/A).

- **Specific Gravity**
  Highest: AO01114-1 (1.086).
  Lowest: A98134-2 (1.071), A01124-3 (1.072), A02062-1TE (1.073).

- **Gross Return ($/acre)**
  Fresh Market Highest: Ranger Russet, Russet Burbank, A01025-4.
  Fresh Market Lowest: A01124-3, and PA03NM5-1.
  Process Market Highest : AO02183-2, Russet Burbank, Ranger Russet.
  Process Market Lowest: PA03NM5-1 and A01124-3.

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

- **External Defects**
  Notable Defects: Russet Burbank had the highest percentage of growth cracks (13%). A98134-2 and AO01114-1 had the second most growth cracks (8% and 5% respectively).

- **Internal Defects**
  Notable Defects: Russet Burbank had a high incidence of hollow heart (35%), brown center (12%), and internal brown spot (12%). Other entries with hollow heart were A02060-3TE and A98134-2 (each 4%). Brown center was also evident in PA03NM5-1 (11%), A98134-2 (8%), and A02060-3TE (4%). All other entries had no internal defects.

- **Bruise**
  Highest Blackspot: Russet Norkotah (57%), A01025-4 (48%), A01124-3 (39%), Ranger Russet (36%).
  Highest Shatter: A01124-3 (65%), A01025-4 (61%), AO01114-1 (56%).

2010 Early Harvest Tri-State Trial

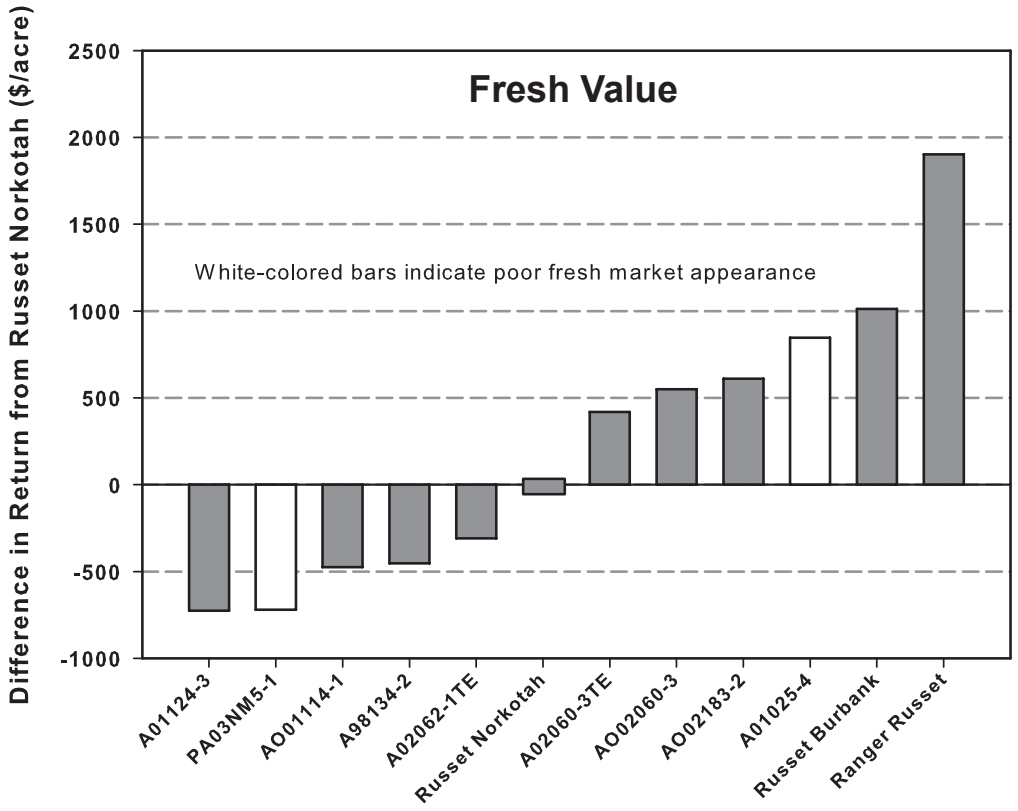
Summaries

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	630	*AB*	31.5	94	0	6	69	21.8	83	26.2
Russet Burbank	676	*A*	33.8	86	0	14	54	18.3	68	23.0
Russet Norkotah	568	*BC*	28.4	88	1	11	51	14.3	67	19.1
AO02183-2	673	*A*	33.6	86	0	14	39	13.2	62	21.1
A01124-3	415	*DE*	20.8	92	0	8	88	18.4	73	15.0
A02060-3TE	518	*ABCDE*	25.9	91	4	5	49	12.6	87	22.6
A02062-1TE	440	*CDE*	22.0	90	1	9	52	11.3	78	17.1
A98134-2	455	*DE*	22.7	89	2	10	58	13.2	74	16.9
A01025-4	591	*ABC*	29.6	88	4	8	62	18.4	83	24.6
PA03NM5-1	389	*E*	19.5	91	0	9	65	12.6	76	14.9
AO01114-1	581	*ABCD*	29.1	83	0	15	39	11.3	52	15.1
AO02060-3	615	*ABC*	30.7	89	0	11	51	15.8	69	21.1

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	591	*A*	29.5	18	55	27	1.077	0	0	0
Russet Burbank	581	*AB*	29.1	35	56	9	1.080	35	12	12
Russet Norkotah	499	*ABCD*	25.0	42	56	3	1.075	0	0	0
AO02183-2	577	*AB*	28.9	21	39	9	1.080	0	0	0
A01124-3	381	*CD*	19.1	24	71	42	1.072	0	0	0
A02060-3TE	472	*ABCD*	23.6	17	41	17	1.080	4	4	0
A02062-1TE	397	*CD*	19.8	65	53	4	1.073	0	0	0
A98134-2	404	*ABCD*	20.2	31	56	13	1.071	4	8	0
A01025-4	522	*ABCD*	26.1	17	52	31	1.077	0	0	0
PA03NM5-1	354	*D*	17.7	23	54	23	1.082	0	11	0
AO01114-1	485	*ABCD*	24.2	53	43	4	1.086	0	0	0
AO02060-3	545	*ABC*	27.3	42	54	4	1.083	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	67	100	1.4	8.7	7.5	4	4	36	14
Russet Burbank	0	87	100	2.0	6.5	10.8	4	3	23	19
Russet Norkotah	0	73	100	2.1	6.4	9.4	4	3	57	21
AO02183-2	0	60	98	2.2	5.9	11.8	4	3	20	27
A01124-3	0	2	40	3.3	7.1	6.2	4	3	39	65
A02060-3TE	0	7	44	3.1	9.3	5.8	4	3	20	28
A02062-1TE	0	2	58	1.8	7.2	6.4	4	4	15	8
A98134-2	0	4	38	2.5	7.3	6.5	4	3	16	0
A01025-4	0	20	62	2.3	8.5	7.3	4	4	48	61
PA03NM5-1	0	4	42	1.6	7.7	5.2	4	3	0	6
AO01114-1	0	29	96	2.4	5.6	10.8	4	3	0	56
AO02060-3	0	49	73	4.8	6.3	10.1	4	2	23	27

* 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



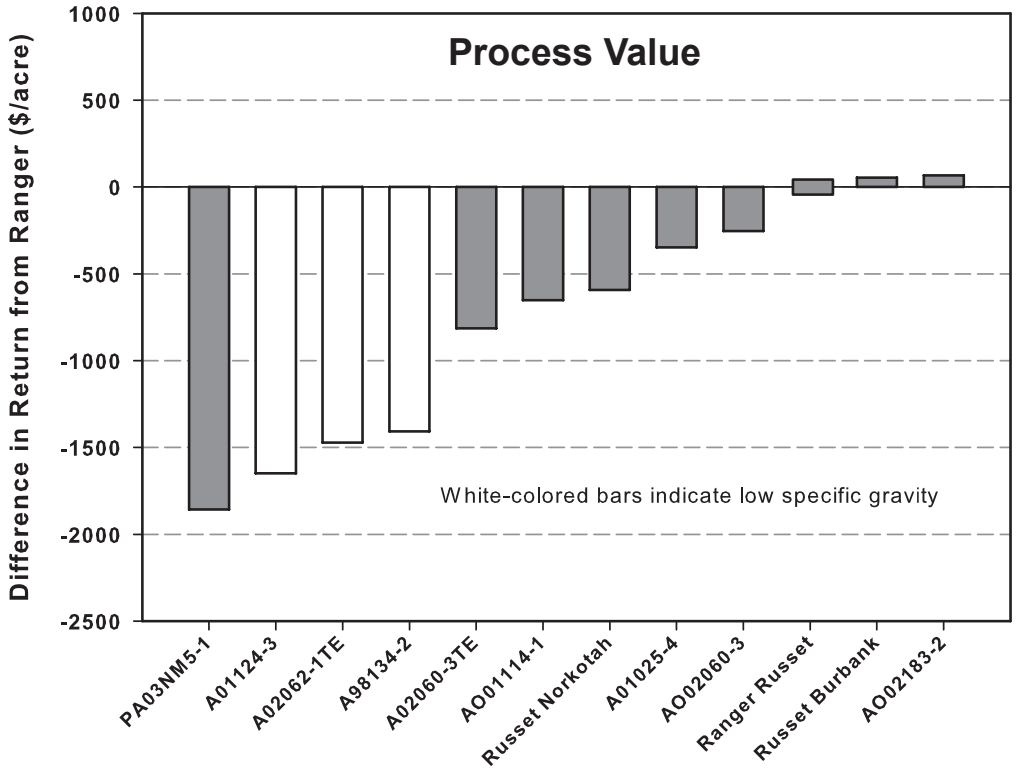
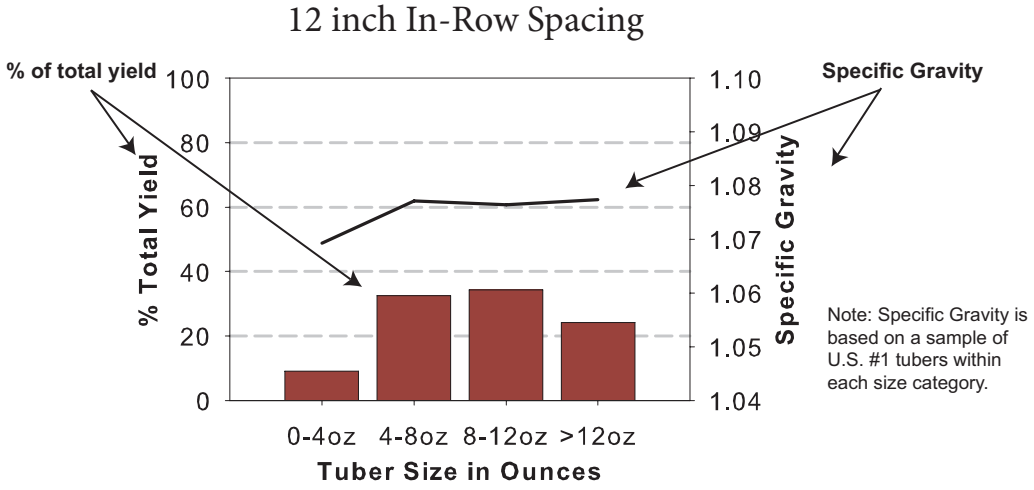
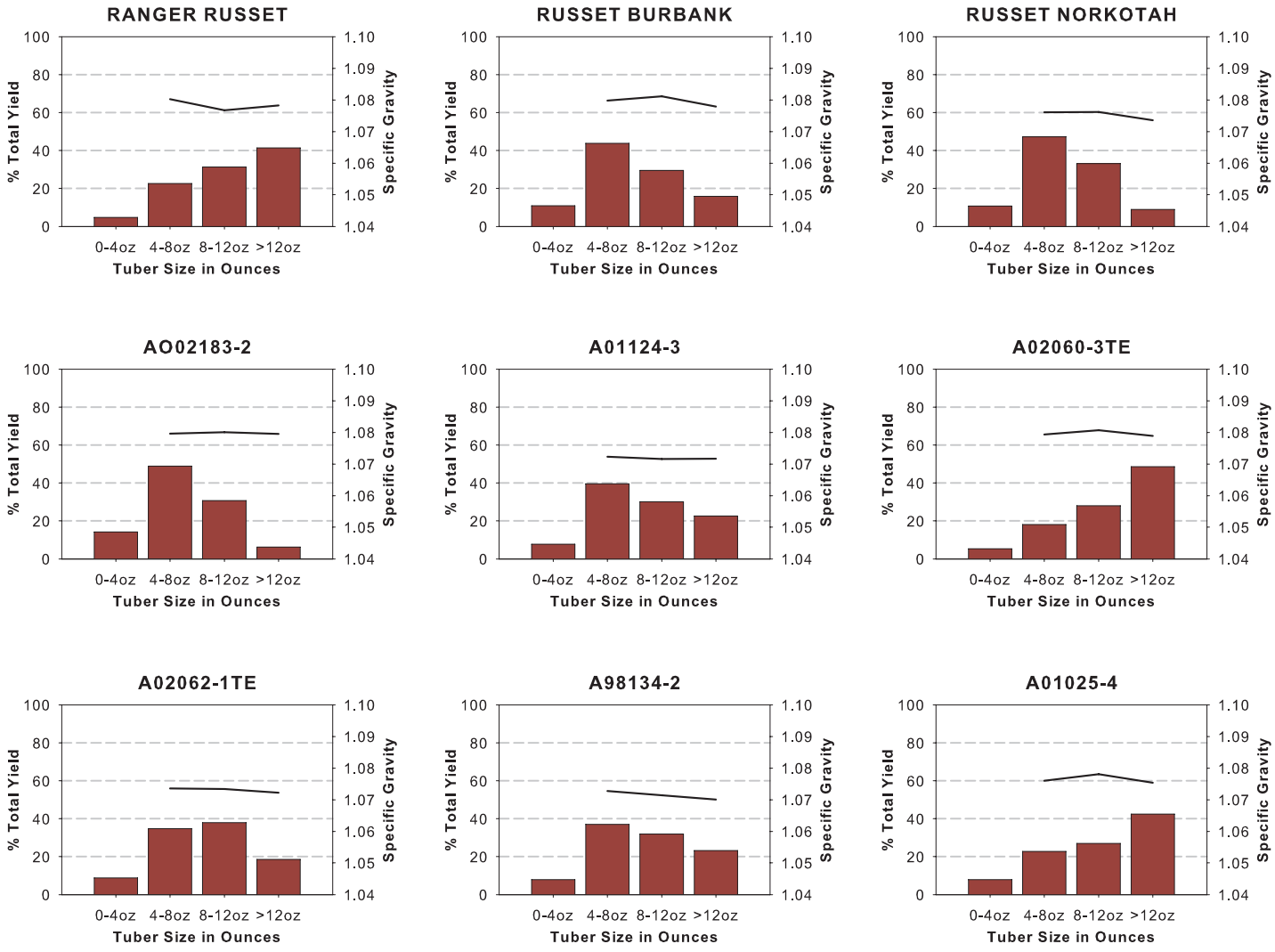


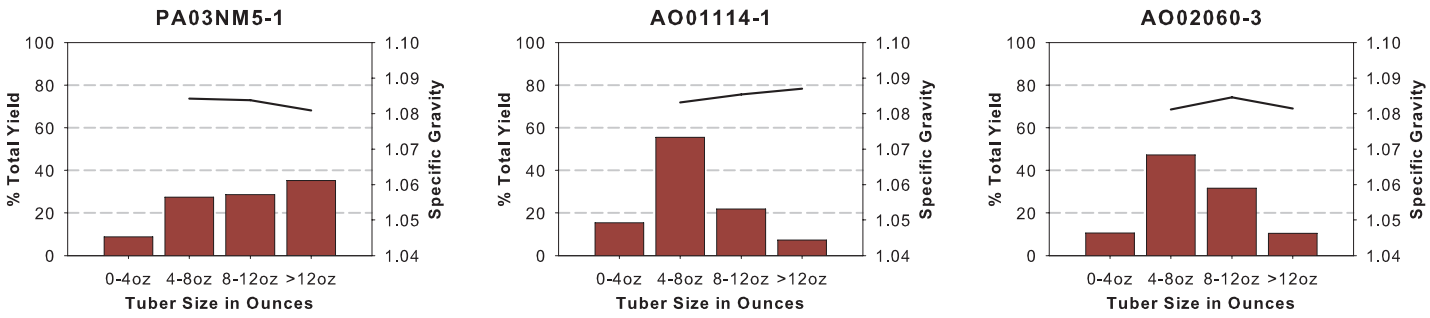
Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. **Figure 2 (Bottom).** Difference in gross return per acre (Process Market) from Ranger Russet calculated by subtracting the gross return of Ranger Russet from the gross return of the particular entry. Entries with the white-colored bars would be penalized (under the mock contract parameters) due to a specific gravity less than 1.075.

2010 Early Harvest Tri-State Trial

Tuber Yield and Specific Gravity Distributions



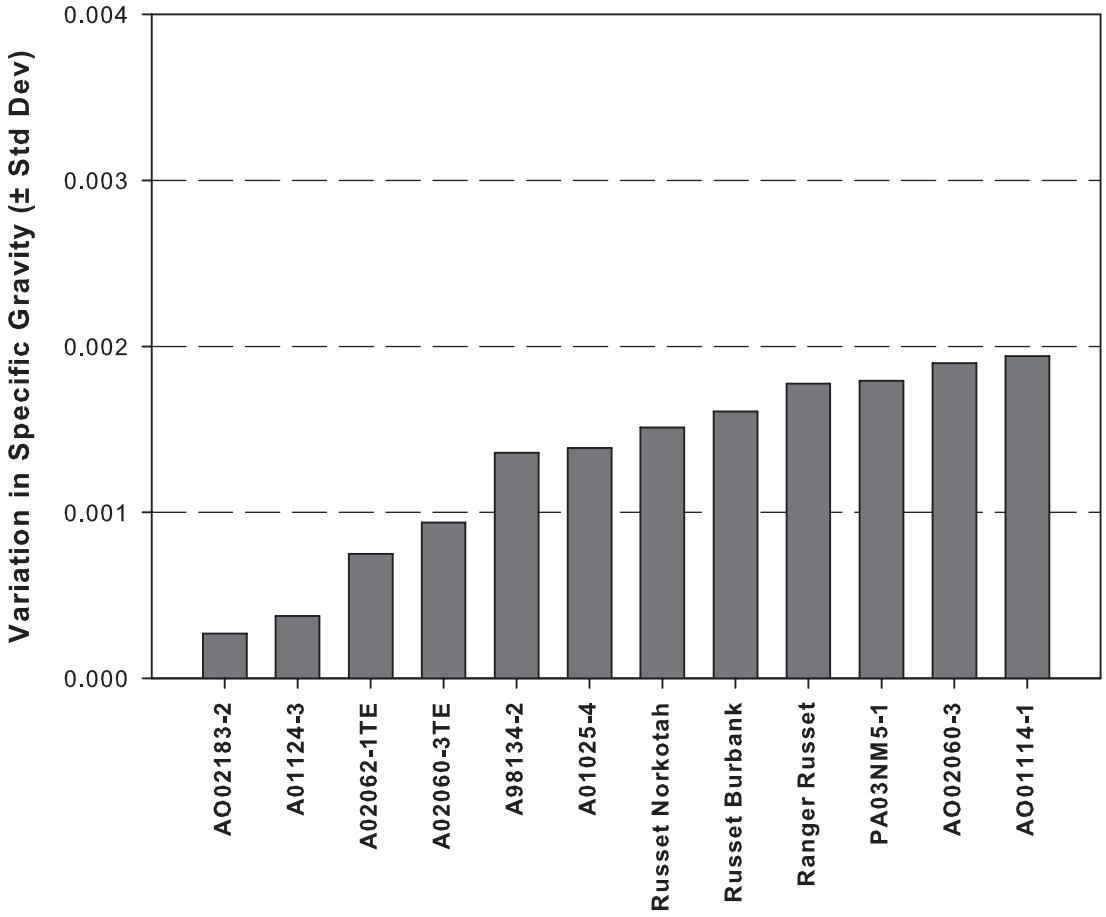


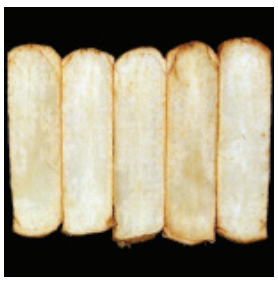


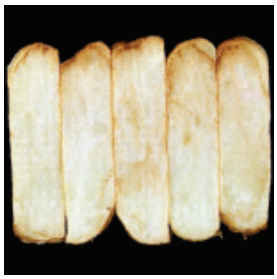
Clone - Dependent Variation in Specific Gravity

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

2010 Early-Harvest Tri-State Trial



Tubers	Fries	WA Early Harvest Tri-State Trial Comments
Ranger Russet		
		**Tubers:** Oblong to long tubers. Moderately heavy russet with good 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.
AO02183-2		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
A01124-3		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
A02060-3TE		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.

Tubers	Fries	WA Early Harvest Tri-State Trial Comments
A02062-1TE		
		**Tubers:** Oblong to long tubers. Heavy russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.
A98134-2		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.
A01025-4		
		**Tubers:** Oblong to long tubers. Light russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
PA03NM5-1		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.
AO01114-1		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.

Tubers	Fries	WA Early Harvest Tri-State Trial Comments
AO02060-3		
		**Tubers:** Round to oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.

Postharvest Evaluation

The 2010 Early Tri-State trial consisted of 3 cultivars and 9 numbered clones. All entries fried light and uniform from bud to stem end. Photovolt readings ranged from 42 to 56, resulting in a highly desirable USDA 0 rating for all clones.

Clone	PHOTOVOLT Stem	PHOTOVOLT Bud	PHOTOVOLT Average	DIFFERENCE * STEM - BUD	USDA COLOR
1 Ranger Russet	46.6	45.8	46.2	2.8	0
2 Russet Burbank	42.4	42.1	42.3	2.2	0
3 Russet Norkotah	41.5	42.2	41.8	2.2	0
4 A01025-4	42.6	42.7	42.7	4.4	0
5 A01124-3	49.0	45.5	47.2	4.5	0
6 A02060-3TE	47.7	45.9	46.8	2.7	0
7 A02062-1TE	57.5	54.1	55.8	3.5	0
8 A98134-2	49.5	50.4	49.9	3.5	0
9 AO01114-4	51.8	52.2	52.0	1.3	0
10 AO02060-3	51.4	50.0	50.7	2.0	0
11 AO02183-2	51.5	51.0	51.2	2.0	0
12 PA03NM5-1	47.8	48.4	48.1	2.2	0
		LSD 0.05	*1.8*	*1.7*	
Average	48.3	47.5	47.9	2.8	0

* Average of 12 individual tuber absolute differences

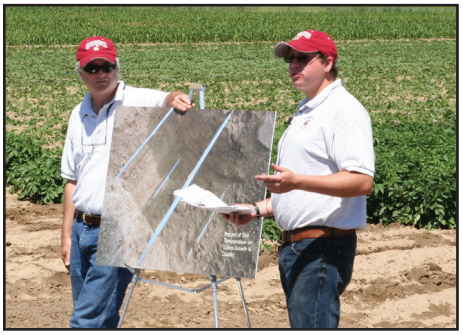
Planting date: Apr. 7
Harvest date: Aug. 23
Fried on: Aug. 25

ALL IN A DAY'S WORK...














2010 Late Harvest Tri-State Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 15
Harvest Date: Sept 21
Fertility: 290-160-550
Vine Kill Date: Sept 18
Days Grown: 156
In-Row Spacing: 10 inches

The Tri-State trial is a part of the cooperative cultivar development program conducted at locations in Washington, Oregon, and Idaho. The Tri-State committee selects all official entries in this trial. All entries are grown for full-season, late harvest in each of the three states to determine how they perform when grown under different management and climatic conditions. The 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): AO01114-1, AO02183-2, and A98134-2.
Process Market Standout(s): AO02060-3, A02060-3TE, and AO02183-2.

Standcounts

- **30 Day**
  Slow emergence: No entries had emerged at 30 days.

- **50 Day**
  Full emergence: All entries except PA03NM5-1, A02062-1TE, and A02060-3TE were > 96% emerged.

Plant and Tuber Growth & Development

- **50 Day Stem Number per Plant**
  Most: A01025-4 (3.2), A02060-3TE (3.1).
  Least: A01124-3 (1.7); Ranger Russet, Russet Burbank, A02062-1TE (each 1.9).

- **Average Tuber Number Per Plant**
  Most: A98134-2 (11.8); AO02183-2, A01025-4 (each 10.8).
  Least: A01124-3 (7.5), A02062-1TE (8.0).

- **Average Tuber Size (oz)**
  Largest: A02060-3TE (9.9); AO02183-2 and A01025-4, (each 8.0).
  Smallest: Russet Norkotah (4.7), A98134-2 (5.9), AO02060-3 (6.0).

  Undersized Tubers (< 4 oz)
  Most: Russet Norkotah and AO02060-3 (each > 100 CWT/A).
  Least: A01124-3 and A02060-3TE.

Yield and Economic Data

- **Total and Market Yield (US 1s & 2s > 4oz)**
  Highest: A02060-3TE had the highest total and market yields (1012 CWT/A and 955 CWT/A, respectively). A01025-4 had the second highest total yield; AO02183-2 had the second highest market yield.
  Lowest: Russet Norkotah had the lowest total and market yields.

- **% Market Yield Greater Than 6 oz.**
  Highest: A02060-3TE (88%), AO02183-2 (82%), AO1124-3 (82%).
  Lowest: Russet Norkotah (41%) and A98134-2 (63%).

- **Carton Yield (100 to 50 Count, 7 to 18 oz US#1 Tubers)**
  Highest: AO02183-2, A02060-3TE, and A01025-4 (all > 537 CWT/A).
  Lowest: Russet Norkotah (152 CWT/A).

- **Gross Return ($/acre)**
  Fresh Market Highest: AO02183-2 and A02060-3TE.
  Fresh Market Lowest: Russet Norkotah and A02062-1TE.
  Process Market Highest: A02060-3TE and AO02183-2.
  Process Market Lowest: Russet Norkotah and A02062-1TE.

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

- **External Defects**
  Notable Defects: Russet Burbank had 6% growth cracks and 3% knobs. All other entries had < 3% external defects.

- **Internal Defects**
  Notable Defects: Russet Burbank had 17% brown center. All other entries were free of internal defects.

- **Bruise**
  Highest Blackspot: Russet Norkotah (38%); A01025-4 and AO01114-1 (each 29%).
  Highest/Lowest Shatter: A01025-4 (100%), AO02060-3 (88%), A01124-3 (78%), A02060-3TE (75%). A02062-1TE (10%) had the lowest shatter.

2010 Late Harvest Tri-State Trial

Postharvest Information

- **Overall Postharvest Rating**
  Highest scoring clones: AO02183-2*, AO02060-3, AO01114-4
  Lowest scoring clones: A98134-2, A01124-3, RB

- **Low Temperature Sweetening**
  Most resistant: AO02183-2*, AO02060-3
  Most susceptible: A98134-2, A01124-3

- **Taste Panel**
  Highest rated: AO02183-2*, AO02060-3, RR
  Lowest rated: A98134-2

- **Blackspot Bruise Susceptibility**
  Most resistant: A02062-1TE, A98134-2, AO02060-3
  Most susceptible: RR, PA03NM5-1

- **Variability in Tuber Shape & Fry Yield (8- to 10-oz tubers)**
  Lowest L/W: A98134-2, AO01114-4, A02060-3TE
  Highest L/W: A02062-1TE, AO02183-2, RR
  Least variable: A02062-1TE, PA03NM5-1
  Most variable: RR, A01124-3

***similar performance in previous years trials**

Details

- When averaged across states, all entries except A01124-3 and A98134-2 received higher overall postharvest scores than Russet Burbank.

- AO02183-2*, AO02060-3, and AO01114-4 were the highest rated entries, scoring 33.9, 30.1, and 30.0 out of 38 points, respectively. AO02183-2*, and AO02060-3 showed resistance to low temperature sweetening, with WA- and OR-grown samples producing USDA 0-2 fries when stored at 40°F (60 days). Processing quality of the ID-grown samples was acceptable for AO02183-2 (USDA 1) but unacceptable for AO02060-3 (USDA 3) after 60 days at 40°F. Both entries produced acceptable USDA 0 fry color following 60 days storage at 44°F regardless of state.

- A98134-2, A01124-3, and RB received the lowest overall postharvest scores (12.1/38, 17.9/38 and 19.9/38, respectively).

- The average gravities of A02062-1TE and A98134-2 were 1.075 and 1.076, respectively; too low for most processing contracts. In contrast, AO001114-4, RR, AO02060-3, and A02060-3TE averaged 1.089, 1.086, 1.084 and 1.083, respectively, which is ideal for most contracts.

- AO02183-2*, AO02060-3, and RR were the favorites in taste panel evaluations, averaging ratings of 3.6, 3.4 and 3.4, respectively, across growing locations (5 is best). A98134-2 had the lowest average taste panel score of 2.8.

- 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). RR and PA03NM5-1 were the most susceptible, scoring 82% and 76% bruise (stem end), respectively, in the controlled impact study. These clones also had the highest bruise severity, averaging 3.5/5. In contrast, A02062-1TE, A98134-2, and AO02060-3 were the most resistant, averaging only 13.4% bruise (stem end) and a 1.3 severity rating.

- The 8- to 10-oz tubers of A98134-2, AO01114-4, and A02060-3TE had low length to width ratios (avg. L/W=1.55), resulting in yields of 3-inch or longer fries averaging only 65% by number. RR and A01124-3 had the greatest variation in L/W ratio, resulting in usable fry yields ranging from 61 to 77%, depending on production area. The relatively high average L/W ratio of A02062-1TE was consistent across states, resulting in 77% yield of French fries by number.

- On average, reconditioning (60°F, 21 days) RR, RB, AO02060-3, and AO02183-2*, which 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, AO01025, A01124-3, and A02062-1TE showed little reconditioning potential. A98134-2, A02060-3TE, and A01124-3 appeared more susceptible to sugar end development.

- Length of dormancy of AO02183-2 and A98134-2 was relatively short and equivalent to RR; 74% of tubers had 0.2-inch-long sprouts following 60 days storage at 48°F. In contrast, AO01114-4 and RB tubers did not sprout under these conditions regardless of production site.

Overall Tri-State Postharvest Merit Scores

		Postharvest Merit Scores			3 state
	Clone	WA	ID	OR	Average
10	AO02183-2	4.3	4.4	4.7	4.5
9	AO02060-3	4.1	4.5	3.2	4.0
8	AO01114-4	3.5	3.8	4.5	3.9
6	A02062-1TE	3.9	3.0	2.8	3.3
1	Ranger Russet	3.2	3.6	2.6	3.1
3	A01025-4	3.2	4.1	1.7	3.0
5	A02060-3TE	3.1	2.8	3.1	3.0
11	PA03NM5-1	2.9	2.7	2.4	2.7
2	Russet Burbank	3.2	2.8	1.9	2.6
4	A01124-3	2.9	2.5	1.6	2.4
7	A98134-2	1.5	2.1	1.2	1.6

2010 Late Harvest Tri-State Trial

Summaries

ENTRY	TOTAL YIELD CWT/A	STATS**	TOTAL YIELD Tons/A	US # 1's* > 4 oz % of Total Yield	US # 2's* > 4 oz % of Total Yield	Culls* & < 4 oz % of Total Yield	CARTON YIELD 100-50 count (US 1's 7-18 oz) % of Total Yield	CARTON YIELD Tons/A	PROCESS YIELD US 1's and 2's > 6 oz % of Total Yield	PROCESS YIELD Tons/A
Ranger Russet	802	*ABCD*	40.1	90	1	9	64	25.5	79	31.8
Russet Burbank	882	*ABC*	44.1	82	2	15	54	24.1	71	31.7
Russet Norkotah	537	*D*	26.9	74	0	26	27	7.6	41	11.4
AO02183-2	996	*AB*	49.8	91	2	7	62	31.0	82	40.9
A01124-3	673	*CD*	33.7	92	0	8	71	23.9	82	27.4
A02060-3TE	1012	*A*	50.6	94	0	5	59	29.6	88	44.8
A02062-1TE	608	*CD*	30.4	87	1	12	61	18.6	70	21.3
A98134-2	809	*ABCD*	40.5	86	0	14	50	20.4	63	25.4
A01025-4	999	*AB*	49.9	87	3	9	54	26.9	80	39.9
PA03NM5-1	692	*BCD*	34.6	87	0	13	56	19.4	70	24.5
AO01114-1	673	*CD*	33.6	84	0	16	53	18.4	67	23.2
AO02060-3	721	*ABCD*	36.1	85	0	15	55	19.7	67	24.2

ENTRY	US # 1 YIELD > 4 oz CWT/A	STATS**	US # 1 YIELD > 4 oz Tons/A	4-7 oz* %	7-14 oz* %	> 14 oz* %	> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers) % HH	% BC	% IBS
Ranger Russet	719	*ABCD*	36.0	19.98	50.34	29.69	1.088	0	0	0
Russet Burbank	725	*ABCD*	36.2	26.61	53.62	19.76	1.082	0	17	0
Russet Norkotah	400	*E*	20.0	63.39	35.64	0.97	1.067	0	0	0
AO02183-2	903	*AB*	45.1	19.79	56.19	24.02	1.095	0	0	0
A01124-3	619	*BCDE*	31.0	20.16	67.74	12.10	1.081	0	0	0
A02060-3TE	955	*A*	47.8	11.70	44.88	43.42	1.089	0	0	0
A02062-1TE	526	*DE*	26.3	27.36	59.29	13.34	1.080	0	0	0
A98134-2	694	*ABCDE*	34.7	40.31	52.51	7.18	1.076	0	0	0
A01025-4	874	*ABC*	43.7	20.06	45.29	34.65	1.080	0	0	0
PA03NM5-1	600	*CDE*	30.0	31.42	59.04	9.54	1.095	0	0	0
AO01114-1	570	*DE*	28.5	28.68	49.34	21.99	1.095	0	0	0
AO02060-3	615	*BCDE*	30.8	34.04	58.16	7.80	1.089	0	0	0

ENTRY	30 DAY STAND % Emerged	40 DAY STAND % Emerged	50 DAY STAND % Emerged	STEMS PER PLANT Above Ground	AVERAGE TUBER WEIGHT Ounces	AVERAGE TUBER NUMBER Tubers/Plant	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers) BLACKSPOT	BRUISE (%) SHATTER
Ranger Russet	0	98	98	1.9	7.8	9.0	4	4	21	46
Russet Burbank	0	97	97	1.9	7.6	10.2	4	3	22	67
Russet Norkotah	0	85	99	2.1	4.7	9.8	4	3	38	31
AO02183-2	0	88	97	2.8	8.0	10.8	3	3	20	20
A01124-3	0	85	98	1.7	7.8	7.5	3	3	6	78
A02060-3TE	0	83	94	3.1	9.9	8.9	3	3	5	75
A02062-1TE	0	75	89	1.9	6.6	8.0	4	5	10	10
A98134-2	0	88	99	2.8	5.9	11.8	4	3	17	48
A01025-4	0	97	100	3.2	8.0	10.8	4	3	29	100
PA03NM5-1	0	77	89	2.2	6.3	9.5	4	2	19	33
AO01114-1	0	89	99	2.2	6.8	8.6	4	4	29	67
AO02060-3	0	94	99	2.8	6.0	10.4	4	2	6	88

* 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

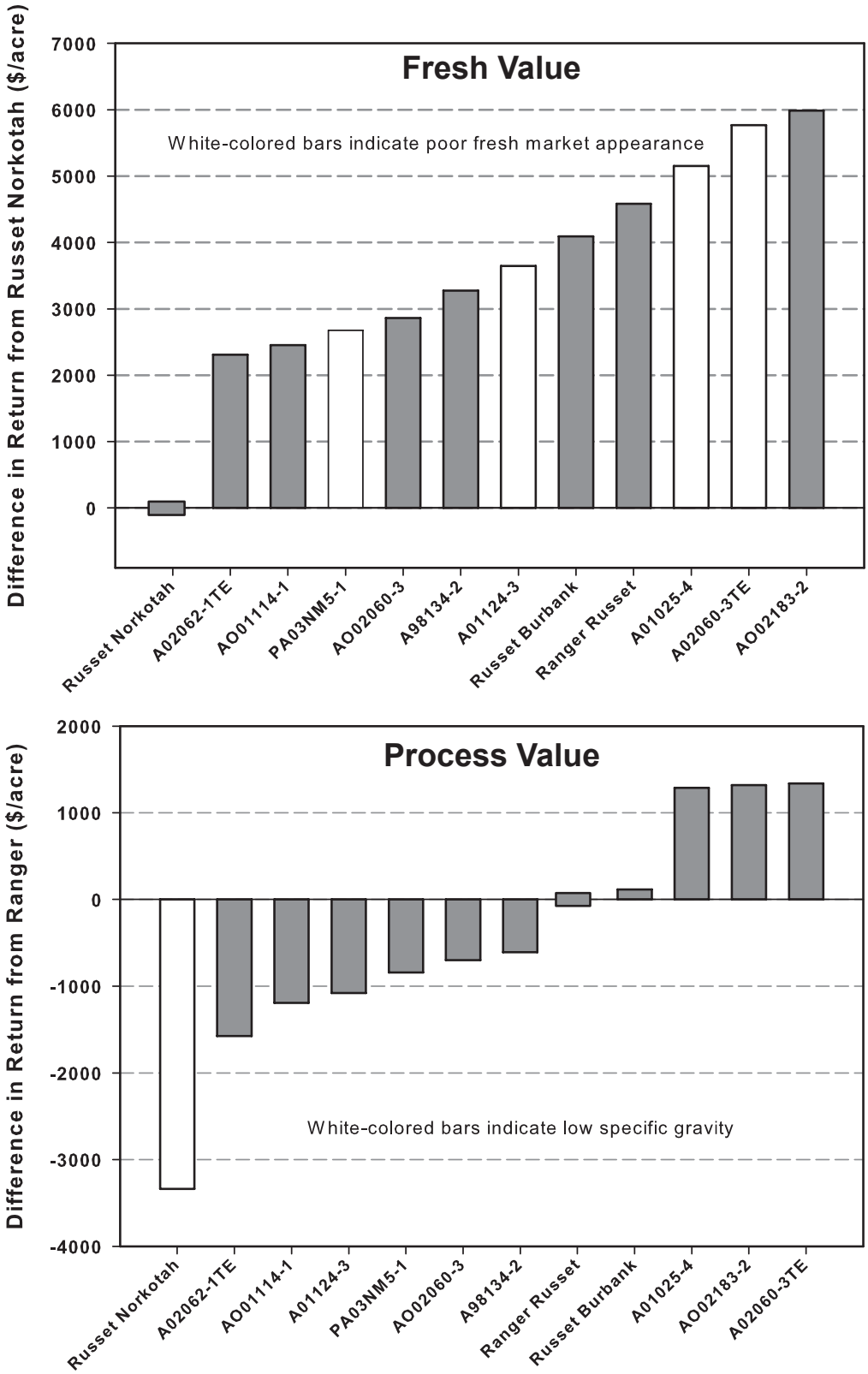
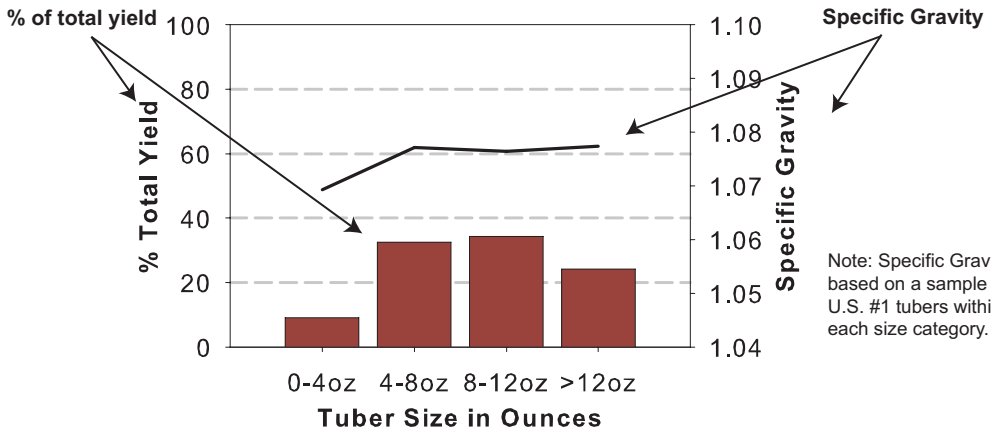


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to undesirable shape or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

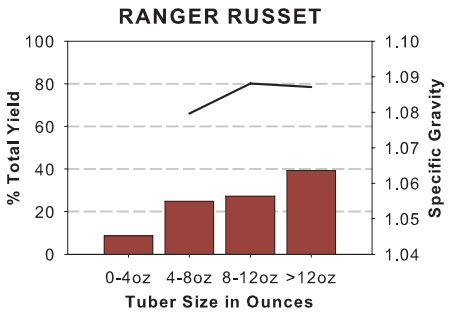
2010 Late Harvest Tri-State Trial

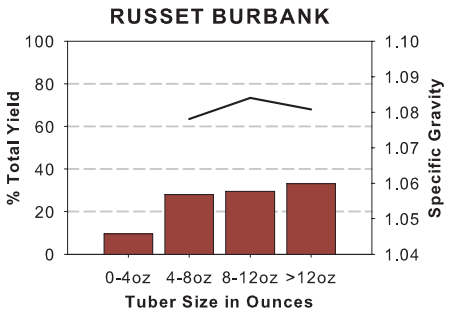
Tuber Yield and Specific Gravity Distributions

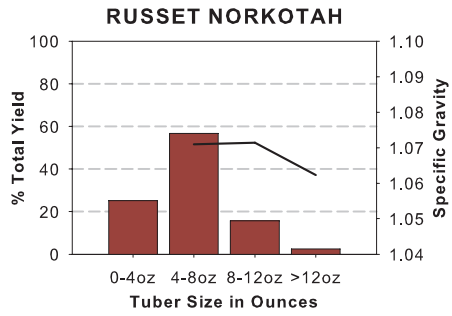
10 inch In-Row Spacing

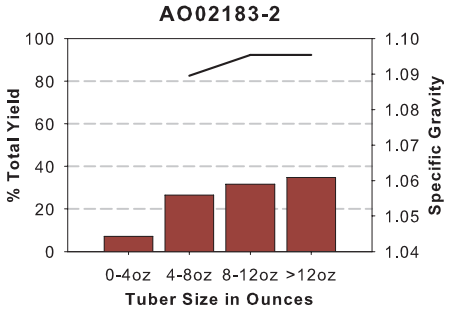


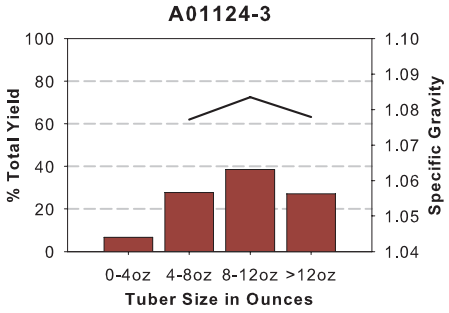
Note: Specific Gravity is based on a sample of U.S. #1 tubers within each size category.

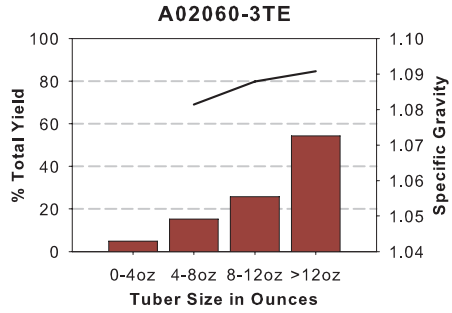


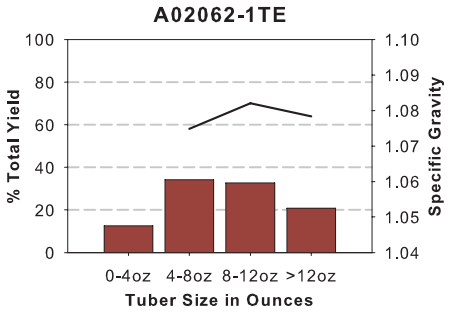


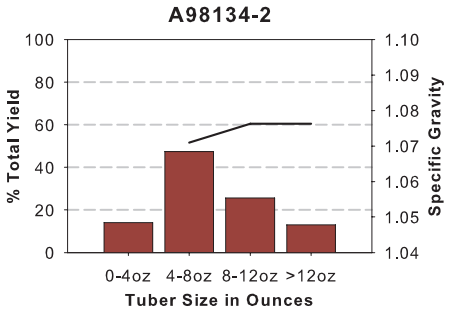


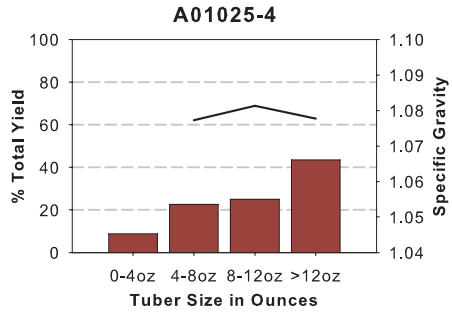


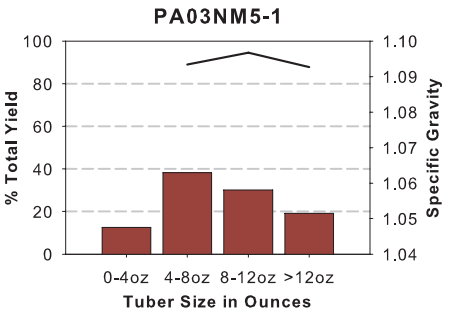


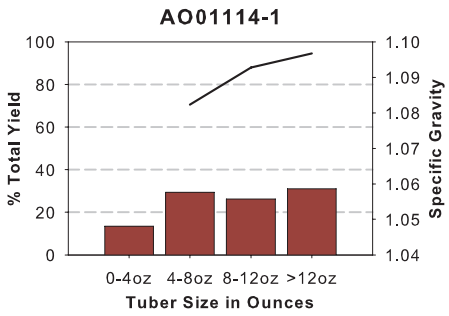


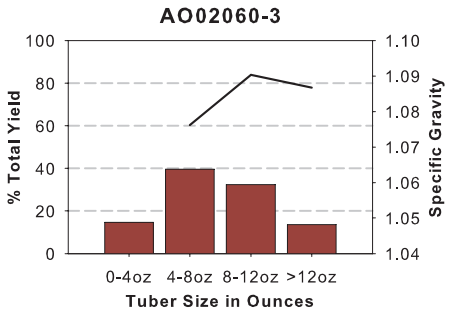


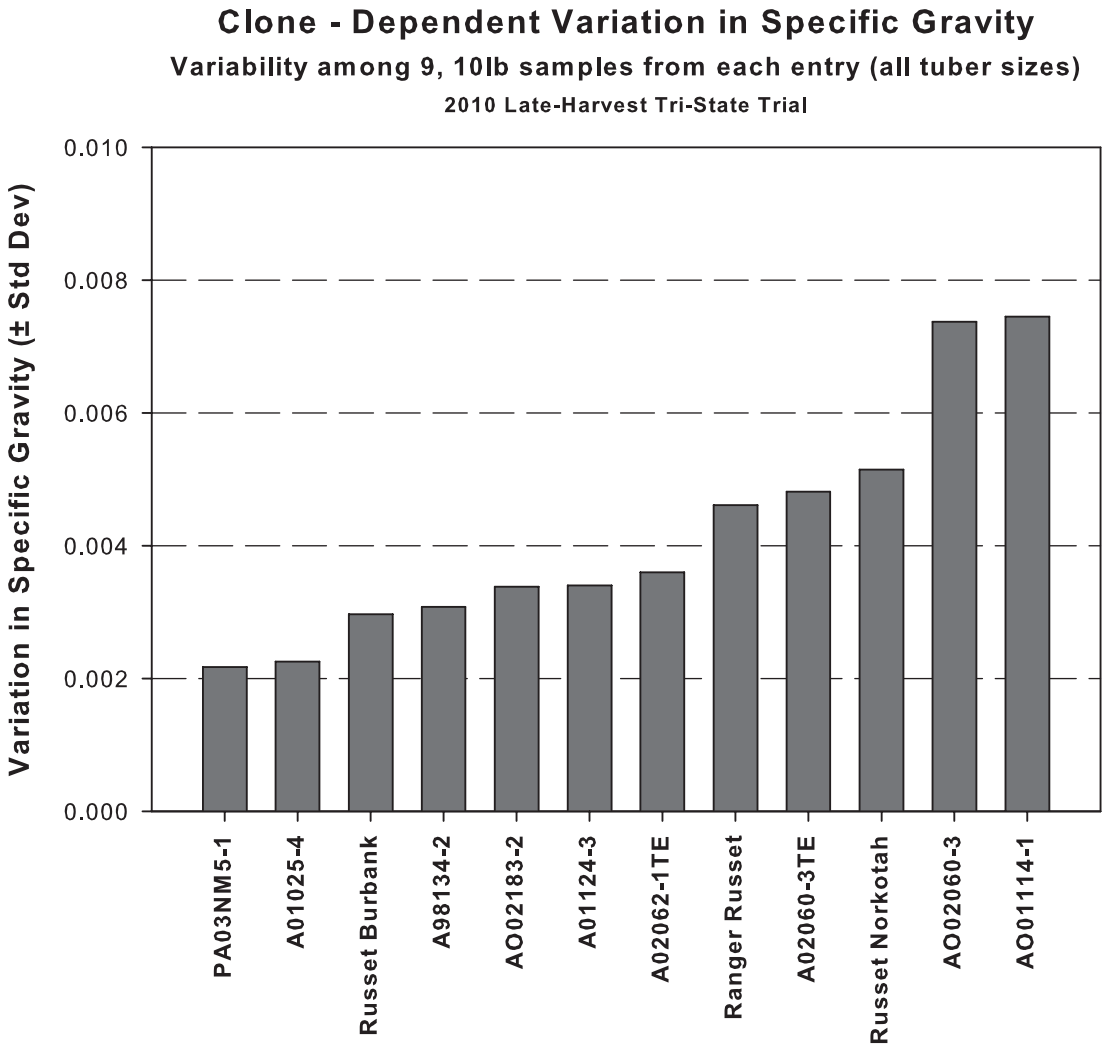




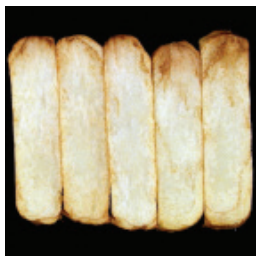
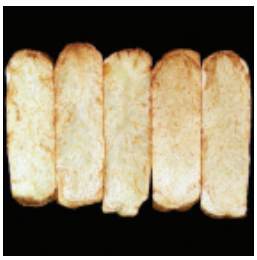
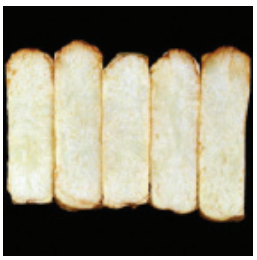

PA03NM5-1
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


AO01114-1
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

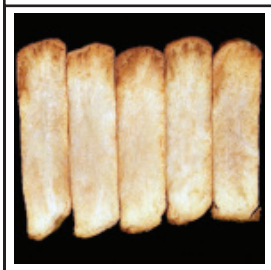

AO02060-3
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


Clone - Dependent Variation in Specific Gravity
Variability among 9, 10lb samples from each entry (all tuber sizes)
2010 Late-Harvest Tri-State Trial
Variation in Specific Gravity (± Std Dev)
PA03NM5-1
A01025-4
Russet Burbank
A98134-2
AO02183-2
A01124-3
A02062-1TE
Ranger Russet
A02060-3TE
Russet Norkotah
AO02060-3
AO01114-1

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, non-uniform; after approximately two months of storage at 48°F= light, non-uniform; 44°F= light, non-uniform; 40°F= relatively dark, non-uniform; reconditioned= light, non-uniform.
Russet Burbank	
	**Tubers:** Oblong tubers. Moderate russet with good skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; after approximately two months of storage at 48°F= light, non-uniform; 44°F= light, uniform; 40°F= relatively dark, non-uniform; reconditioned= light, non-uniform.
AO02183-2	
	**Tubers:** Oblong tubers. Moderate 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= light, uniform; reconditioned= light, uniform.
A01124-3	
	**Tubers:** Oblong tubers. Moderate russet with fair skin set; moderate eye depth. **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= relatively dark, non-uniform; reconditioned= relatively dark, non-uniform.
A02060-3TE	
	**Tubers:** Oblong tubers. Moderate russet with fair 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= relatively dark, uniform; 40°F= relatively dark, uniform; reconditioned= light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
Ranger Russet				
				
Russet Burbank				
				
AO02183-2				
				
A01124-3				
				
A02060-3TE				
				

Tubers	WA Late Harvest Tri-state Trial Comments
A02062-1TE	
	**Tubers:** Long 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, non-uniform; 44°F= light, non-uniform; 40°F= light, uniform; reconditioned= light, non-uniform.
A98134-2	
	**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; after approximately two months of storage at 48°F= relatively dark, non-uniform; 44°F= relatively dark, non-uniform; 40°F= relatively dark, uniform; reconditioned= relatively dark, non-uniform.
A01025-4	
	**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, non-uniform; 44°F= light, non-uniform; 40°F= relatively dark, non-uniform; reconditioned= light, non-uniform.
PA03NM5-1	
	**Tubers:** Round to oblong tubers. Moderately heavy russet with good skin set; shallow eyes. **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= relatively dark, uniform.
AO01114-1	
	**Tubers:** Oblong to long 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, uniform; reconditioned= light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
A02062-1TE				
				
A98134-2				
				
A01025-4				
				
PA03NM5-1				
				
AO01114-1				
				

Tubers	WA Late Harvest Tri-state Trial Comments
AO02060-3	
	**Tubers:** Round to oblong tubers. Moderately heavy russet with good skin set; shallow eyes. **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= light, uniform; reconditioned= light, non-uniform.

2010 Late Harvest Tri-State Trial

Accumulated Total Postharvest Rating of Clones

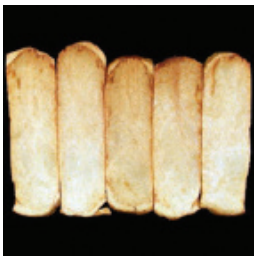
Clone	WA Rating Total §	WA Discard §§	ID Rating Total §	ID Discard §§	OR Rating Total §	OR Discard §§	3 State av. Rating Total
10 AO02183-2	32.7		33.5		35.6		33.9
9 AO02060-3	31.5		34.2		24.5		30.1
8 AO01114-4	26.3		29.2		34.5		30.0
6 A02062-1TE	29.8		23.0		21.4	Sp. Gr.	24.7
1 Ranger Russet	24.5		27.2		19.5		23.7
3 A01025-4	24.4		31.2		13.2	Sp. Gr.	22.9
5 A02060-3TE	23.3		21.0		23.5		22.6
11 PA03NM5-1	22.4		20.3		18.4		20.4
2 Russet Burbank	24.4		21.1		14.1		19.9
4 A01124-3	22.2		19.1		12.3	Sp. Gr.	17.9
7 A98134-2	11.7	Sp. Gr.	15.8		8.9	Sp. Gr.	12.1
	24.8		25.1		20.5		23.5

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

Overall Postharvest Performance of Clones Compared to Russet Burbank.

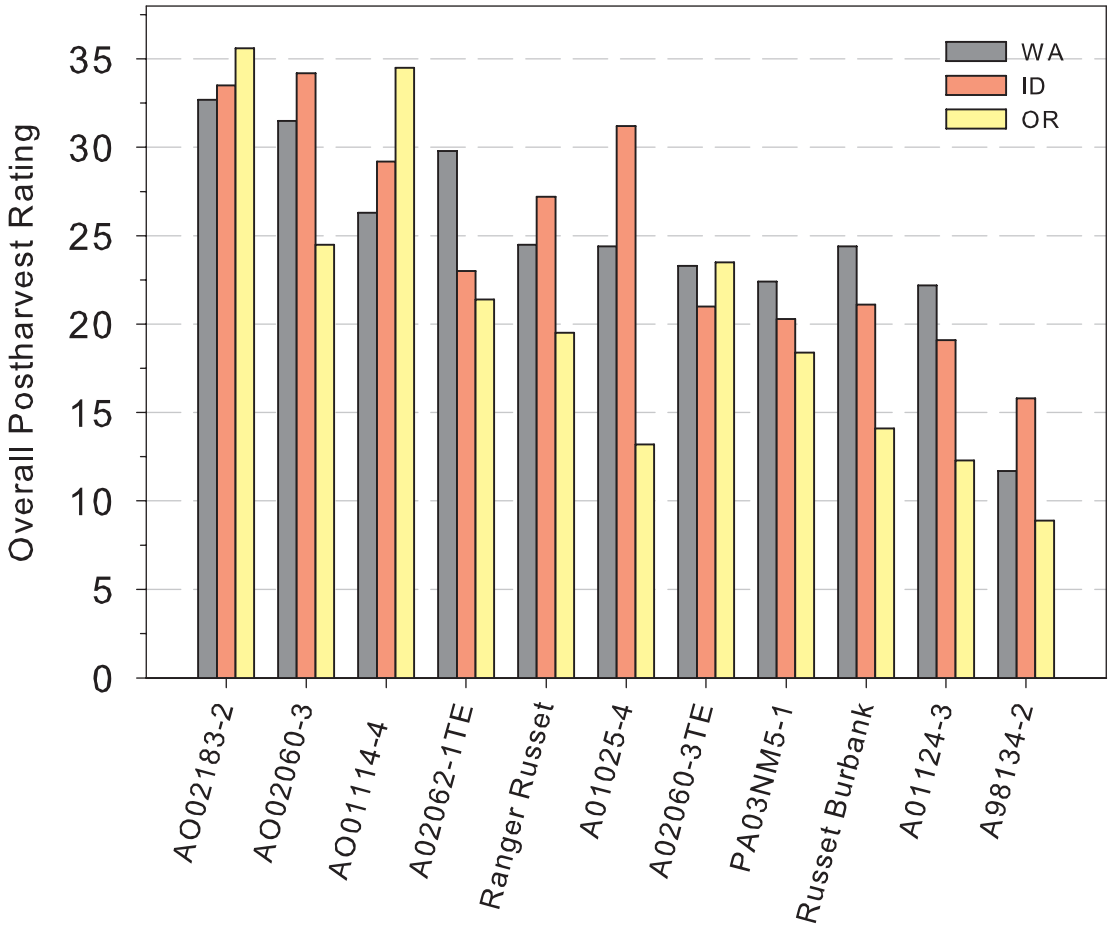
Clone	WA	ID	OR	Average
1 Ranger Russet	**H**	**H**	**H**	**H**
3 A01025-4	**S**	**H**	**L**	**H**
4 A01124-3	**L**	**L**	**L**	**L**
5 A02060-3TE	**L**	**L**	**H**	**H**
6 A02062-1TE	**H**	**H**	**H**	**H**
7 A98134-2	**L**	**L**	**L**	**L**
8 AO01114-4	**H**	**H**	**H**	**H**
9 AO02060-3	**H**	**H**	**H**	**H**
10 AO02183-2	**H**	**H**	**H**	**H**
11 PA03NM5-1	**L**	**L**	**H**	**H**

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

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
AO02060-3				
				

2010 Late Harvest Tri-State Trial

Late Harvest Tri-State Postharvest Ratings



2010 Late Harvest Tri-State Trial

Entries Retained from the 2009 Trials Currently in the Tri-State Trial

Harvested fall of 2009
Held at 48° F until December 22, 2009
Stored at 44° F until analysis

AO02183-2 was retained from the 2009 Tri-State Trial. Ranger Russet and AO02183-2 produced light colored USDA 0 fries regardless of growing location. Russet Burbank tubers grown in Idaho and Oregon produced USDA 1 and 2 colored fries, respectively. Sprout lengths ranged from 2 to 4.5 inches following storage for 7 months.

	PHOTOVOLT READING				USDA	% REDUCING SUGAR			Sprouting	
Clone	stem	bud	avg	DIFF	COLOR	stem	bud	avg	percent	length
Washington										
1 Ranger Russet	38.7	44.4	41.6	5.7	0	0.8	0.6	0.7	100	4"
2 Russet Burbank	38.6	42.6	40.6	4.5	0	0.8	0.6	0.7	100	2 1/2"
3 AO02183-2	39.2	50.5	44.8	11.3	0	0.8	0.5	0.7	100	2"
		LSD 0.05	*3.5*	*4.4*						
Average	38.8	45.8	42.3	7.2	0.0	0.8	0.6	0.7	100	
Idaho										
1 Ranger Russet	35.2	40.8	38.0	7.8	0	1.0	0.7	0.8	100	4 1/2"
2 Russet Burbank	29.6	42.8	36.2	13.1	1	1.4	0.6	1.0	100	3"
3 AO02183-2	53.7	50.0	51.8	4.3	0	0.5	0.5	0.5	100	4"
		LSD 0.05	*3.2*	*4.2*						
Average	39.5	44.5	42.0	8.4	0.3	1.0	0.6	0.8	100	
Oregon										
1 Ranger Russet	32.4	42.8	37.6	10.5	0	1.2	0.6	0.9	100	2"
2 Russet Burbank	20.2	40.6	30.4	20.4	2	2.7	0.7	1.7	100	3"
3 AO02183-2	47.3	48.4	47.9	3.7	0	0.5	0.5	0.5	100	4"
		LSD 0.05	*2.8*	*4.1*						
Average	33.3	43.9	38.6	11.5	0.7	1.5	0.6	1.0	100	

Date test performed:

Washington	April 26
Idaho	April 26
Oregon	April 26

2010 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	26.2	37.6	31.9	**3-**	11.3	1	1.085	**5**
2 Russet Burbank	29.2	39.7	34.4	**3-**	10.5	1	1.082	**4**
3 A01025-4	29.6	37.9	33.8	**3+**	8.2	1	1.081	**4**
4 A01124-3	31.0	44.6	37.8	**4-**	13.6	0	1.085	**5**
5 A02060-3TE	31.0	36.7	33.8	**3+**	8.7	0	1.089	**4**
6 A02062-1TE	44.9	50.9	47.9	**5+**	6.1	0	1.080	**3**
7 A98134-2	24.7	42.4	33.5	**3-**	17.7	1	1.074	**0**
8 AO01114-4	37.7	37.1	37.4	**4+**	3.2	0	1.093	**3**
9 AO02060-3	43.9	45.7	44.8	**5+**	3.8	0	1.089	**4**
10 AO02183-2	47.3	48.0	47.7	**5+**	5.5	0	1.096	**1**
11 PA03NM5-1	29.9	34.8	32.3	**3+**	5.8	1	1.094	**2**
		LSD 0.05	*3.1*		*7.1*		*0.004*	
Average	34.1	41.4	37.8		8.6	0	1.086	
Idaho								
1 Ranger Russet	24.2	27.5	25.9	**2+**	5.3	2	1.083	**5**
2 Russet Burbank	27.8	35.5	31.6	**3+**	7.8	1	1.081	**4**
3 A01025-4	34.1	38.4	36.3	**4+**	5.3	0	1.086	**5**
4 A01124-3	31.6	41.0	36.3	**4-**	9.8	0	1.081	**4**
5 A02060-3TE	28.0	31.1	29.5	**2+**	6.0	1	1.086	**5**
6 A02062-1TE	41.6	44.3	42.9	**5+**	3.1	0	1.081	**4**
7 A98134-2	24.4	31.9	28.1	**2-**	9.3	2	1.081	**4**
8 AO01114-4	37.7	37.1	37.4	**4+**	4.0	0	1.091	**4**
9 AO02060-3	43.9	45.3	44.6	**5+**	3.6	0	1.084	**5**
10 AO02183-2	45.6	45.8	45.7	**5+**	4.1	0	1.085	**5**
11 PA03NM5-1	23.1	26.0	24.5	**2+**	4.3	2	1.092	**3**
		LSD 0.05	*3.5*		*3.2*		*0.005*	
Average	32.9	36.7	34.8		5.7	1	1.085	
Oregon								
1 Ranger Russet	29.0	40.2	34.6	**3-**	11.3	1	1.090	**4**
2 Russet Burbank	19.4	39.2	29.3	**2-**	19.8	3	1.082	**4**
3 A01025-4	29.2	39.7	34.4	**3-**	11.0	1	1.069	**0**
4 A01124-3	29.8	40.4	35.1	**3-**	10.5	1	1.072	**0**
5 A02060-3TE	35.6	35.6	35.6	**4+**	6.8	0	1.076	**1**
6 A02062-1TE	41.5	48.8	45.2	**5-**	9.1	0	1.065	**0**
7 A98134-2	19.3	39.6	29.4	**2-**	20.3	3	1.073	**0**
8 AO01114-4	43.2	44.4	43.8	**5+**	1.9	0	1.084	**5**
9 AO02060-3	42.1	46.0	44.1	**5+**	4.9	0	1.080	**3**
10 AO02183-2	48.0	50.6	49.3	**5+**	3.0	0	1.088	**5**
11 PA03NM5-1	31.7	41.3	36.5	**4-**	9.7	0	1.093	**3**
		LSD 0.05	*3.7*		*4.3*		*0.006*	
Average	33.5	42.3	37.9		9.8	1	1.079	

Date test performed:

Washington	Oct. 4	Sept. 30
Idaho	Oct. 1	Sept. 22
Oregon	Oct. 1	Sept. 24

§ 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.

2010 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	**3.5**	100	54	4.6	2.2	13	13
2 Russet Burbank	**3.4**	71	21	2.8	1.5	16	27
3 A01025-4	**3.4**	92	42	3.4	2.0	16	17
4 A01124-3	**3.2**	46	50	2.0	2.2	12	18
5 A02060-3TE	**3.3**	58	13	2.5	1.3	14	11
6 A02062-1TE	**3.8**	13	46	1.2	1.7	12	14
7 A98134-2	**2.7**	0	0	1.0	1.0	9	11
8 AO01114-4	**3.3**	21	13	1.5	1.1	8	9
9 AO02060-3	**3.5**	21	4	1.5	1.1	10	13
10 AO02183-2	**3.7**	25	21	1.6	1.5	8	8
11 PA03NM5-1	**3.4**	88	63	3.5	2.4	8	8
LSD 0.05	*0.4*	*22*	*27*			*4*	*5*
Average	3.4	48.5	29.5	2.3	1.6	11.5	13.4
Idaho							
1 Ranger Russet	**3.2**	46	13	2.0	1.3	10	9
2 Russet Burbank	**3.1**	17	4	1.4	1.1	7	11
3 A01025-4	**3.2**	21	17	1.5	1.4	11	9
4 A01124-3	**3.1**	25	8	1.5	1.2	13	13
5 A02060-3TE	**3.0**	no sample		no sample		no sample	
6 A02062-1TE	**3.0**	17	8	1.4	1.1	8	9
7 A98134-2	**2.8**	13	4	1.3	1.1	12	8
8 AO01114-4	**3.2**	4	8	1.1	1.2	8	11
9 AO02060-3	**3.2**	4	0	1.1	1.0	14	16
10 AO02183-2	**3.5**	0	4	1.0	1.1	8	12
11 PA03NM5-1	**3.3**	63	46	2.7	2.1	7	11
LSD 0.05	*0.3*	*21*	*19*			*4*	*6*
Average	3.1	20.8	11.3	1.5	1.3	10.0	10.9
Oregon							
1 Ranger Russet	**3.5**	100	63	4.7	2.5	6	9
2 Russet Burbank	**3.1**	79	33	3.4	1.7	12	15
3 A01025-4	**3.2**	46	0	2.1	1.0	17	12
4 A01124-3	**3.3**	42	25	2.0	1.5	11	10
5 A02060-3TE	**3.5**	13	8	1.3	1.2	11	11
6 A02062-1TE	**3.4**	4	17	1.1	1.4	13	14
7 A98134-2	**2.9**	25	0	1.5	1.0	8	7
8 AO01114-4	**3.5**	29	13	1.6	1.2	9	7
9 AO02060-3	**3.5**	25	4	1.6	1.1	10	9
10 AO02183-2	**3.6**	42	29	1.8	1.5	4	4
11 PA03NM5-1	**3.4**	79	67	3.2	2.7	8	7
LSD 0.05	*0.3*	*27*	*25*			*4*	*5*
Average	3.3	43.9	1.5	2.2	1.5	10.0	9.7

Date test performed:

Washington	Oct. 20	Oct. 26	Nov. 10
Idaho	Oct. 18	Oct. 24	Nov. 5
Oregon	Oct. 19	Oct. 24	Nov. 9

2010 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	30.8	45.4	38.1	**4-**	14.6	0	1.3	0.6	**5**	87	1/4"
2 Russet Burbank	28.9	42.0	35.5	**4-**	13.0	1	1.5	0.7	**4**	0	
3 A01025-4	31.3	41.5	36.4	**4-**	11.0	0	1.3	0.7	**4**	93	1/8"
4 A01124-3	23.9	42.5	33.2	**3-**	18.6	2	2.1	0.6	**4**	50	1/8"
5 A02060-3TE	29.1	40.8	35.0	**3-**	12.6	1	1.5	0.7	**4**	100	1/4"
6 A02062-1TE	33.8	50.1	41.9	**5-**	16.3	0	1.1	0.5	**5**	40	1/8"
7 A98134-2	19.6	38.0	28.8	**2-**	18.4	2	2.7	0.8	**3**	100	1/2"
8 AO01114-4	32.4	39.4	35.9	**4+**	7.3	0	1.2	0.8	**4**	0	
9 AO02060-3	40.8	49.8	45.3	**5-**	10.1	0	0.7	0.5	**5**	87	1/8"
10 AO02183-2	46.3	52.6	49.4	**5+**	7.7	0	0.5	0.5	**5**	87	1/8"
11 PA03NM5-1	30.5	41.2	35.9	**4-**	11.3	0	1.3	0.7	**4**	15	1/8"
		LSD 0.05	*3.0*		*4.6*					*20*	
Average	31.6	43.9	37.8		12.8	1	1.4	0.6		60	
Idaho											
1 Ranger Russet	29.6	33.8	31.7	**3+**	5.0	1	1.4	1.1	**4**	80	1/8"
2 Russet Burbank	24.9	35.2	30.0	**2-**	10.4	1	2.0	1.0	**3**	0	
3 A01025-4	36.2	40.2	38.2	**4+**	6.1	0	0.9	0.7	**5**	20	1/8"
4 A01124-3	23.4	38.7	31.0	**3-**	15.4	2	2.2	0.8	**3**	0	
5 A02060-3TE	28.7	30.2	29.5	**2+**	4.6	1	1.5	1.4	**4**	No Sample	
6 A02062-1TE	24.6	34.0	29.3	**2-**	9.5	1	2.0	1.1	**3**	0	
7 A98134-2	19.2	27.5	23.3	**1+**	8.2	3	2.8	1.7	**2**	100	1/8"
8 AO01114-4	28.7	35.6	32.1	**3+**	8.0	1	1.5	1.0	**5**	0	
9 AO02060-3	36.2	40.4	38.3	**4+**	5.9	0	0.9	0.7	**5**	20	1/8"
10 AO02183-2	37.7	49.0	43.4	**5-**	11.4	0	0.8	0.5	**5**	0	
11 PA03NM5-1	29.1	33.2	31.2	**3+**	4.5	1	1.5	1.1	**4**	13	1/8"
		LSD 0.05	*3.0*		*3.7*					*16*	
Average	28.9	36.2	32.5		8.1	1	1.6	1.0		23	
Oregon											
1 Ranger Russet	27.4	42.7	35.0	**3-**	15.3	1	1.7	0.6	**4**	93	1/2"
2 Russet Burbank	17.0	38.5	27.7	**2-**	21.6	3	3.2	0.8	**2**	0	
3 A01025-4	19.1	35.4	27.3	**2-**	16.3	3	2.8	1.0	**3**	100	1/4"
4 A01124-3	17.5	35.7	26.6	**2-**	18.2	3	3.1	1.0	**2**	60	1/8"
5 A02060-3TE	29.4	34.2	31.8	**3+**	6.3	1	1.4	1.1	**4**	100	1/4"
6 A02062-1TE	32.7	41.8	37.2	**4-**	10.3	0	1.2	0.7	**5**	73	1/8"
7 A98134-2	16.4	36.1	26.2	**2-**	19.7	3	3.3	0.9	**2**	100	1/2"
8 AO01114-4	35.6	40.6	38.1	**4+**	6.1	0	1.0	0.7	**5**	0	
9 AO02060-3	30.6	39.8	35.2	**3-**	9.1	0	1.3	0.7	**4**	100	1"
10 AO02183-2	43.6	47.6	45.6	**5+**	5.1	0	0.6	0.5	**5**	100	1/2"
11 PA03NM5-1	22.7	41.8	32.2	**3-**	19.1	2	2.3	0.7	**3**	20	1/8"
		LSD 0.05	*2.6*		*4.0*					*17*	
Average	26.5	39.5	33.0		13.4	1	2.0	0.8		68	

Date test performed:

Washington	Dec. 14	Dec. 14	Dec. 20
Idaho	Dec. 2	Dec. 2	Dec. 21
Oregon	Dec. 8	Dec. 8	Dec. 21

§ 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.

2010 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	27.0	39.5	33.3	**3-**	12.4	1	1.7	0.8	**4**
2 Russet Burbank	26.9	34.9	30.9	**3+**	8.1	1	1.7	1.0	**4**
3 A01025-4	27.4	40.1	33.7	**3-**	12.7	1	1.7	0.7	**4**
4 A01124-3	23.1	38.7	30.9	**3-**	15.6	2	2.2	0.8	**3**
5 A02060-3TE	24.1	31.7	27.9	**2+**	7.5	2	2.1	1.2	**3**
6 A02062-1TE	32.8	42.9	37.8	**4-**	11.5	0	1.1	0.6	**5**
7 A98134-2	18.1	33.4	25.7	**2-**	15.3	3	3.0	1.1	**2**
8 AO01114-4	27.0	37.4	32.2	**3-**	10.3	1	1.7	0.9	**4**
9 AO02060-3	33.7	47.2	40.5	**5-**	13.5	0	1.1	0.5	**5**
10 AO02183-2	41.9	47.9	44.9	**5+**	6.4	0	0.7	0.5	**5**
11 PA03NM5-1	26.9	36.8	31.8	**3-**	10.3	1	1.7	0.9	**4**
		LSD 0.05	*2.7*		*4.2*				
Average	28.1	39.1	33.6		11.2	1	1.7	0.8	
Idaho									
1 Ranger Russet	30.6	34.4	32.5	**3+**	4.4	0	1.3	1.0	**4**
2 Russet Burbank	24.8	32.6	28.7	**2+**	7.8	1	2.0	1.2	**3**
3 A01025-4	30.5	36.4	33.4	**3+**	6.6	0	1.3	0.9	**4**
4 A01124-3	22.4	35.3	28.8	**2-**	13.2	2	2.3	1.0	**3**
5 A02060-3TE	19.0	23.5	21.3	**1+**	6.1	3	2.8	2.2	**1**
6 A02062-1TE	27.0	36.7	31.9	**3-**	10.6	1	1.7	0.9	**4**
7 A98134-2	19.9	24.7	22.3	**1+**	5.2	2	2.7	2.0	**2**
8 AO01114-4	28.8	33.2	31.0	**3+**	5.8	1	1.5	1.1	**4**
9 AO02060-3	36.1	40.3	38.2	**4+**	6.7	0	0.9	0.7	**5**
10 AO02183-2	35.7	38.5	37.1	**4+**	7.2	0	1.0	0.8	**5**
11 PA03NM5-1	20.8	22.0	21.4	**1+**	3.3	2	2.5	2.4	**1**
		LSD 0.05	*2.6*		*4.3*				
Average	26.9	32.5	29.7		7.0	1	1.8	1.3	
Oregon									
1 Ranger Russet	22.9	37.6	30.2	**2-**	14.7	2	2.2	0.8	**3**
2 Russet Burbank	17.2	36.1	26.6	**2-**	18.9	3	3.2	0.9	**2**
3 A01025-4	21.1	33.4	27.2	**2-**	12.3	2	2.5	1.1	**3**
4 A01124-3	20.9	33.6	27.3	**2-**	12.6	2	2.5	1.1	**3**
5 A02060-3TE	25.0	29.9	27.5	**2+**	7.0	1	1.9	1.4	**3**
6 A02062-1TE	28.6	39.7	34.1	**3-**	12.9	1	1.5	0.7	**4**
7 A98134-2	16.9	28.7	22.8	**1-**	11.8	3	3.2	1.5	**2**
8 AO01114-4	34.6	37.7	36.2	**4+**	3.5	0	1.0	0.8	**5**
9 AO02060-3	31.0	39.8	35.4	**3-**	9.9	0	1.3	0.7	**4**
10 AO02183-2	38.0	42.3	40.2	**4+**	5.3	0	0.8	0.6	**5**
11 PA03NM5-1	21.8	35.1	28.4	**2-**	13.3	2	2.4	1.0	**3**
		LSD 0.05	*2.9*		*4.5*				
Average	25.3	35.8	30.5		11.1	1	2.1	1.0	

Date test performed:

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

§ 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.

2010 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	0	21.0	32.4	26.7	11.4	2	35.4	46.5	41.0	11.0	0
2 Russet Burbank	0	16.8	26.6	21.7	9.8	3	26.7	40.6	33.6	13.9	1
3 A01025-4	0	21.4	32.4	26.9	11.0	2	24.4	38.2	31.3	13.8	2
4 A01124-3	0	18.2	29.7	23.9	11.6	3	21.4	37.7	29.6	16.3	2
5 A02060-3TE	0	18.4	20.4	19.4	3.3	3	28.1	35.2	31.6	9.3	1
6 A02062-1TE	0	27.6	34.5	31.1	7.6	1	30.6	42.0	36.3	11.5	0
7 A98134-2	0	12.0	15.9	14.0	4.0	4	20.5	38.6	29.5	18.1	2
8 AO01114-4	0	22.5	26.7	24.6	4.8	2	29.9	40.4	35.2	11.4	1
9 AO02060-3	0	29.7	36.4	33.0	6.7	1	37.8	51.9	44.8	14.1	0
10 AO02183-2	0	42.7	48.0	45.3	5.4	0	51.1	53.8	52.4	3.6	0
11 PA03NM5-1	0	22.6	28.8	25.7	6.3	2	25.4	34.2	29.8	8.9	1
LSD 0.05	*ns*			*2.5*	*3.4*				*3.7*	*4.4*	
Average	0	23.0	30.2	26.6	7.4	2	30.1	41.7	35.9	12.0	1
Idaho											
1 Ranger Russet	0	18.3	19.7	19.0	3.5	3	23.5	32.6	28.0	11.5	2
2 Russet Burbank	0	13.1	17.0	15.1	4.1	4	23.4	37.8	30.6	14.4	2
3 A01025-4	0	23.7	27.9	25.8	4.3	2	23.8	36.7	30.2	16.7	2
4 A01124-3	0	17.0	23.9	20.5	8.2	3	18.0	40.8	29.4	22.8	3
5 A02060-3TE	no sample	16.7	14.5	15.6	3.8	3	19.6	22.3	21.0	3.8	2
6 A02062-1TE	0	18.1	21.4	19.8	4.2	3	20.9	20.1	20.5	3.3	2
7 A98134-2	0	15.2	13.9	14.6	2.0	4	17.7	22.9	20.3	6.2	3
8 AO01114-4	0	19.7	24.1	21.9	5.2	2	28.0	35.3	31.7	7.7	1
9 AO02060-3	0	17.6	19.0	18.3	2.9	3	32.5	44.3	38.4	11.8	0
10 AO02183-2	0	24.9	28.2	26.5	4.5	1	42.0	50.0	46.0	8.4	0
11 PA03NM5-1	0	15.3	16.5	15.9	3.0	3	22.2	21.5	21.8	2.0	2
LSD 0.05	*ns*			*1.7*	*2.7*				*2.8*	*4.6*	
Average	0	18.1	20.6	19.3	4.1	3	24.7	33.1	28.9	9.9	2
Oregon											
1 Ranger Russet	0	17.1	34.7	25.9	17.6	3	24.3	41.0	32.6	16.7	2
2 Russet Burbank	0	12.5	28.5	20.5	16.0	4	19.4	40.2	29.8	20.8	3
3 A01025-4	0	18.5	31.5	25.0	13.3	3	20.2	39.1	29.6	18.9	2
4 A01124-3	0	15.6	27.6	21.6	11.9	3	17.1	35.5	26.3	18.4	3
5 A02060-3TE	0	17.7	19.9	18.8	3.1	3	22.0	34.9	28.5	12.9	2
6 A02062-1TE	0	16.4	21.7	19.1	6.4	3	23.6	38.6	31.1	15.0	2
7 A98134-2	0	12.5	17.1	14.8	4.7	4	17.1	30.3	23.7	13.3	3
8 AO01114-4	0	22.4	26.7	24.5	4.3	2	31.6	43.3	37.5	11.8	0
9 AO02060-3	0	21.6	27.7	24.6	7.1	2	33.0	45.9	39.5	12.9	0
10 AO02183-2	0	27.3	33.1	30.2	6.3	1	48.2	53.0	50.6	6.1	0
11 PA03NM5-1	0	17.1	22.0	19.5	5.0	3	21.2	33.0	27.1	11.8	2
LSD 0.05	*ns*			*3.0*	*4.0*				*3.5*	*5.7*	
Average	0	18.1	26.4	22.2	8.7	3	25.2	39.5	32.4	14.4	2

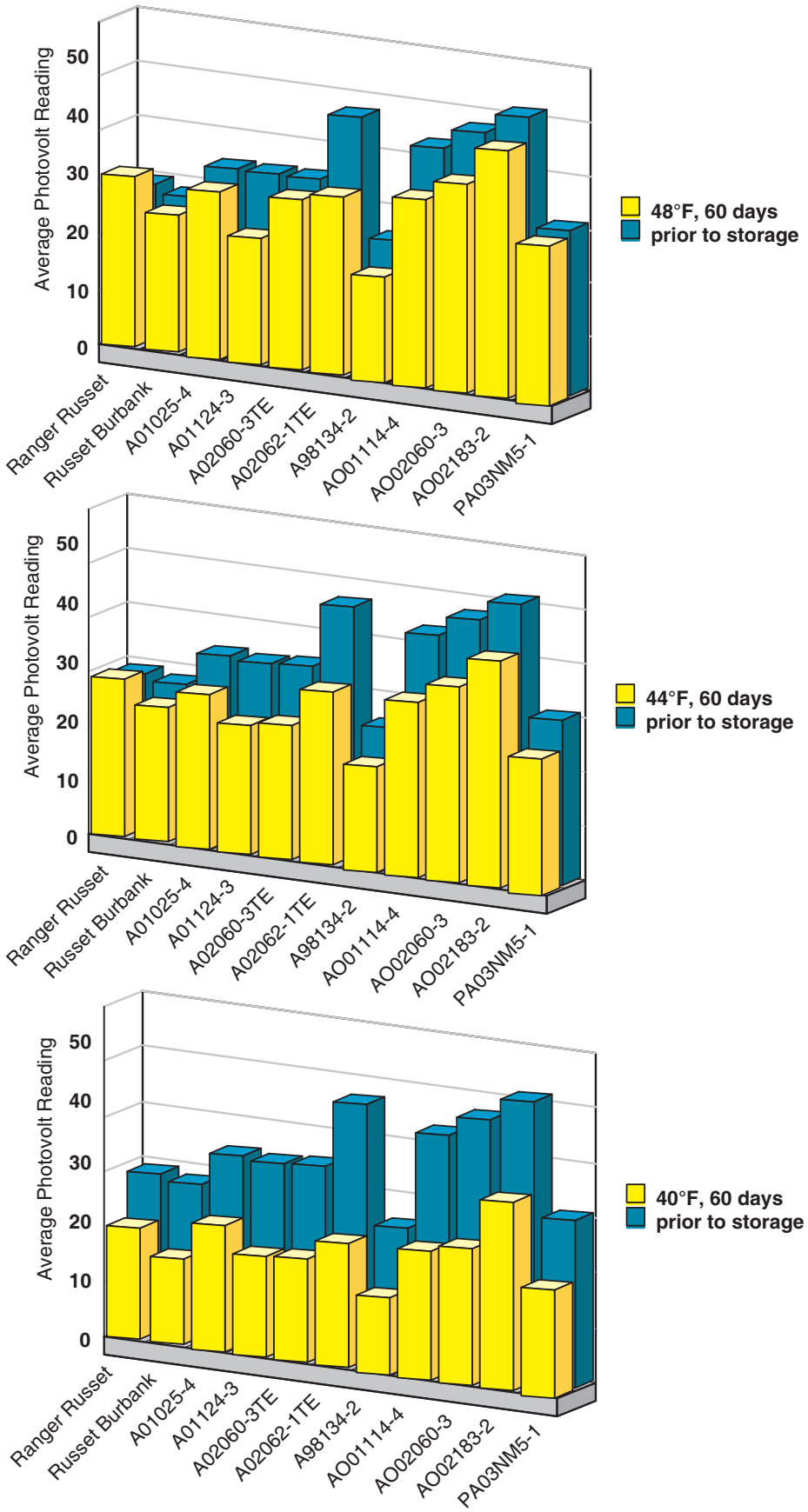
Date test performed:

Washington	Dec. 21	Dec. 16	Dec. 19
Idaho	Dec. 21	Dec. 3	Dec. 17
Oregon	Dec. 21	Dec. 10	Dec. 18

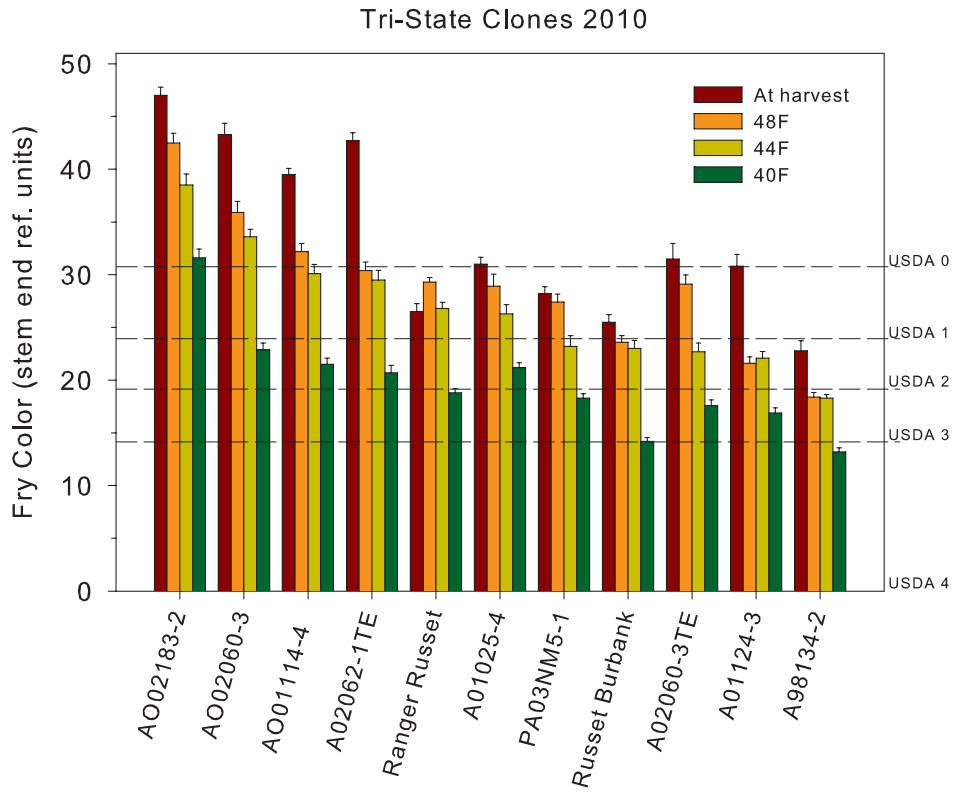
DIFF = Absolute difference between bud and stem Photovolt reading.

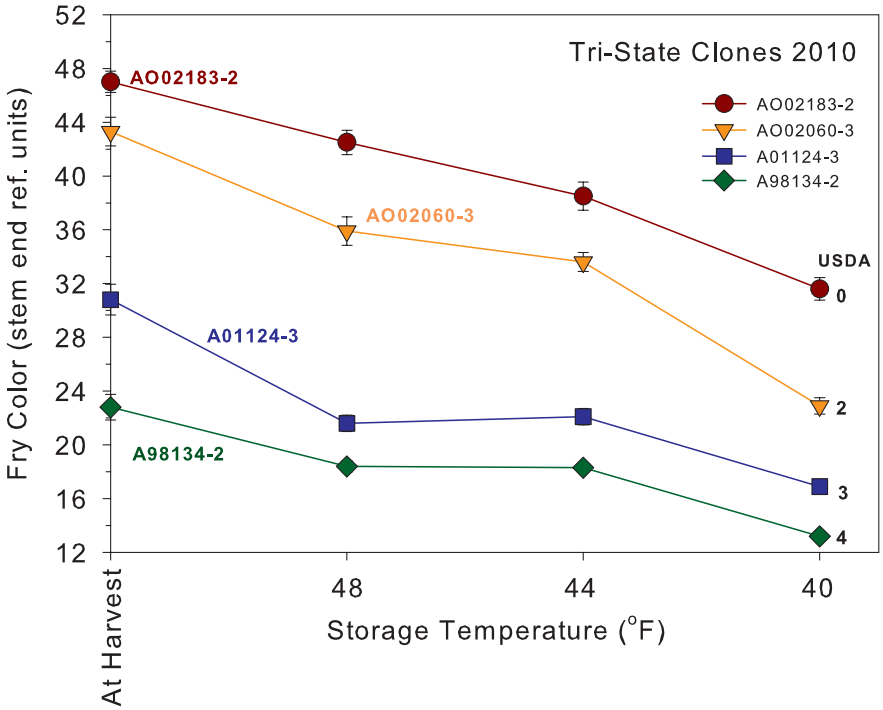
2010 Late Harvest Tri-State Trial

Tri-State Trial - 3 State Average of Stem End



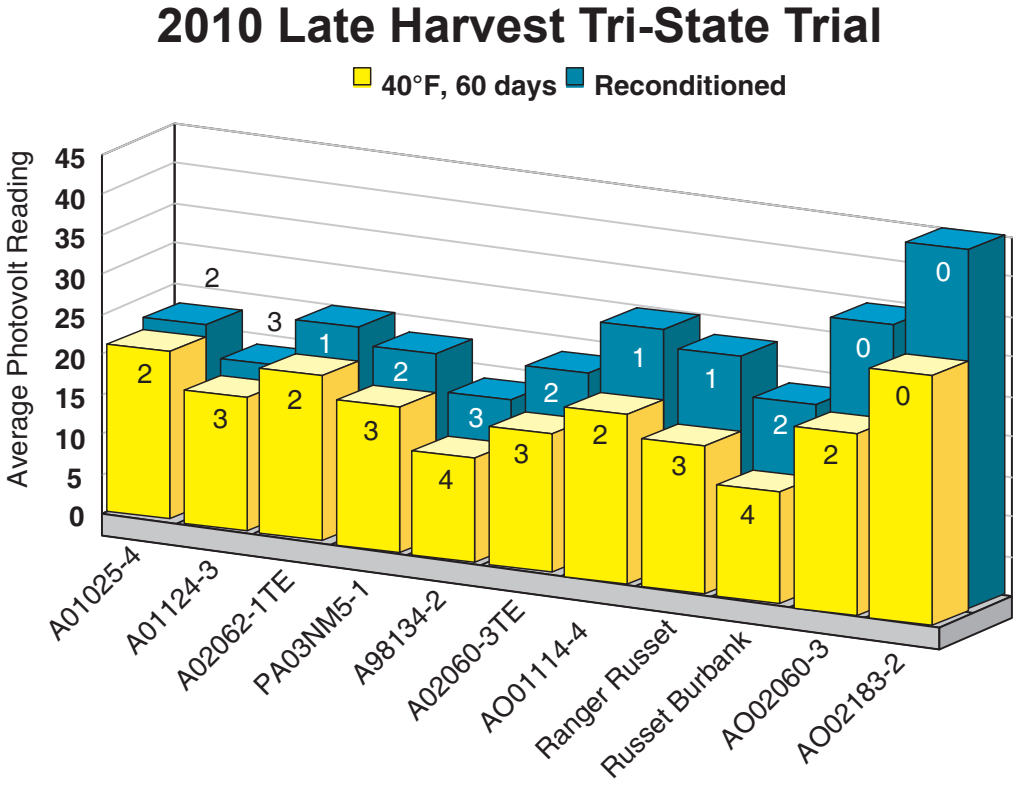
2010 Late Harvest Tri-State Trial

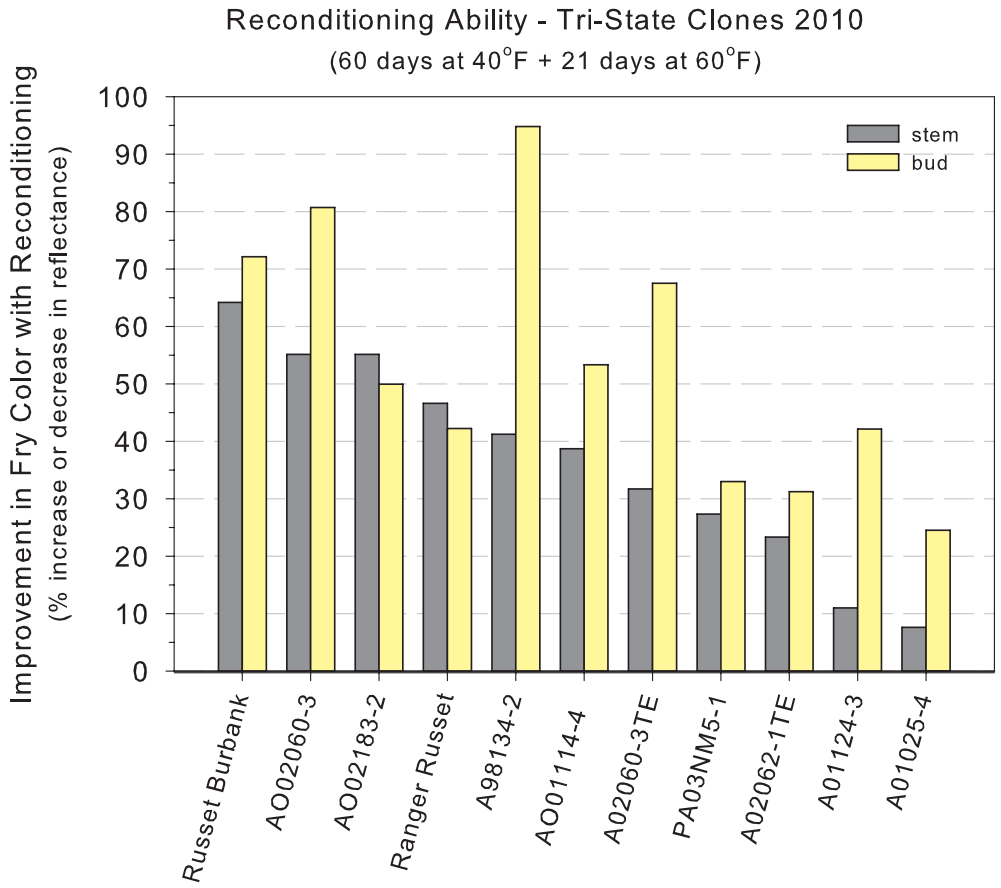




Top: At-harvest and after-storage French fry colors (stem end) of clones in the Tri-State Trial. Tubers were stored for 60 days at 48, 44, and 40°F. The clones are ranked from best to worst on fry color of the 44°F-stored tubers. High reflectance values indicate light colored fries.

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 AO02060-3) and worst (A01124-3 and A98134-2) performing clones in the Tri-State Trial. *Indicates similar performance of the clones last year.





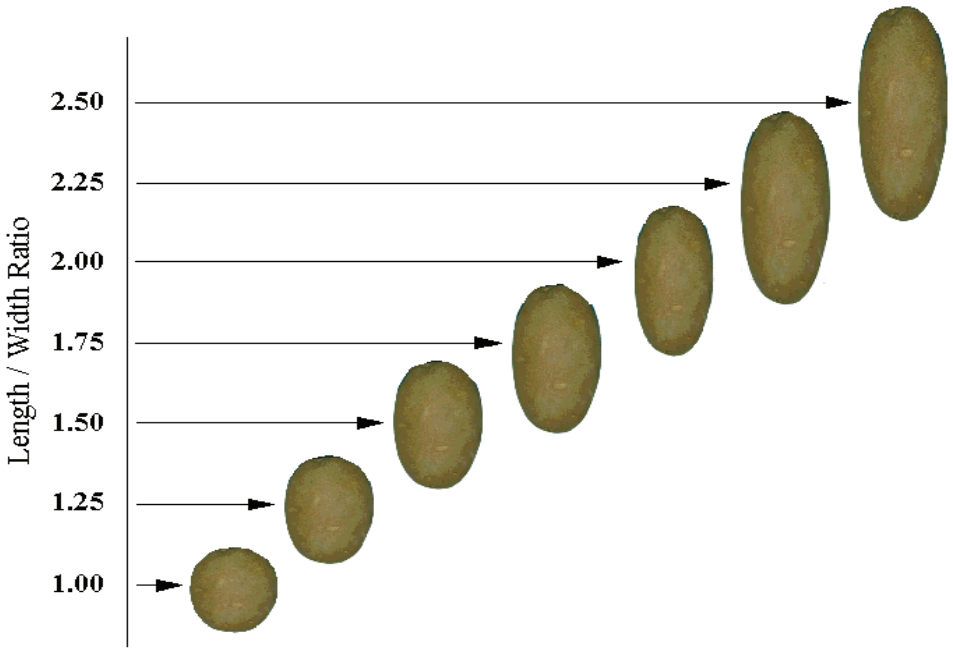
Reconditioning abilities of clones in the 2010 Tri-State Trial (3-state averages). Clones were stored at 40°F for 60 days after harvest and then reconditioned at 60°F for 21 days. **Top:** Stem end fry color before and after reconditioning. Numbers in bars indicate the USDA color rating of the stem end. **Bottom:** Percent improvement of stem and bud end fry color with reconditioning.

2010 Late Harvest Tri-State Trial

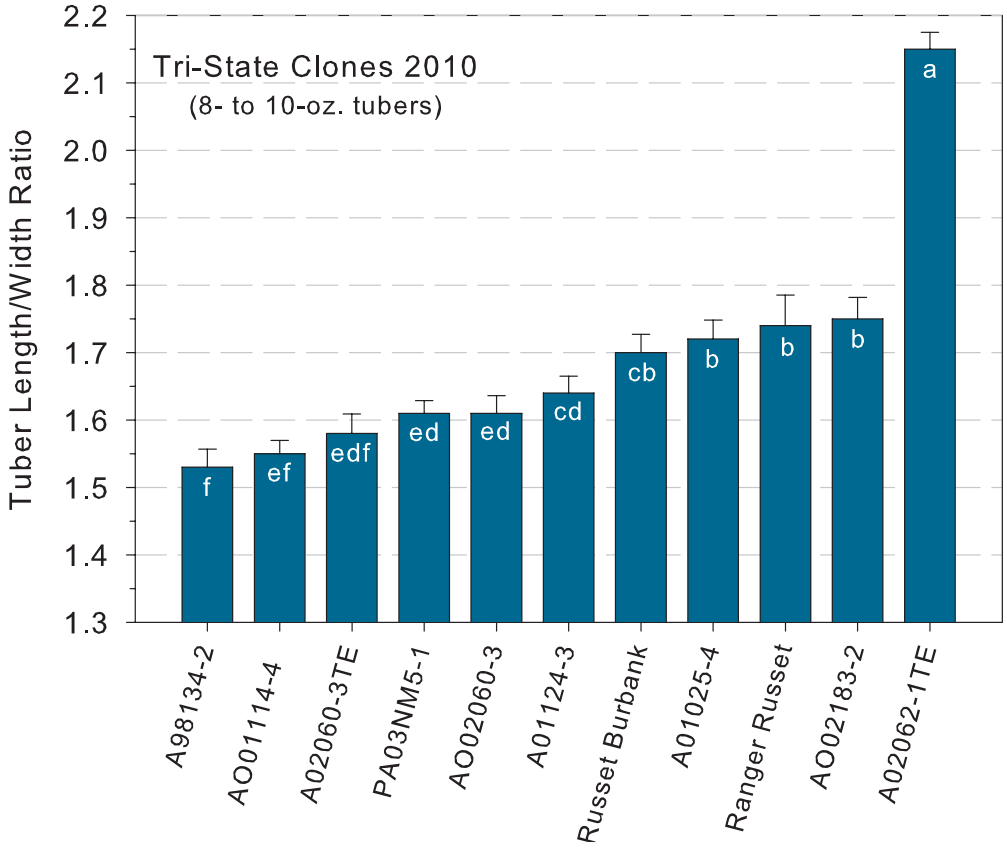
Tuber Shape and Associated French Fry Yields

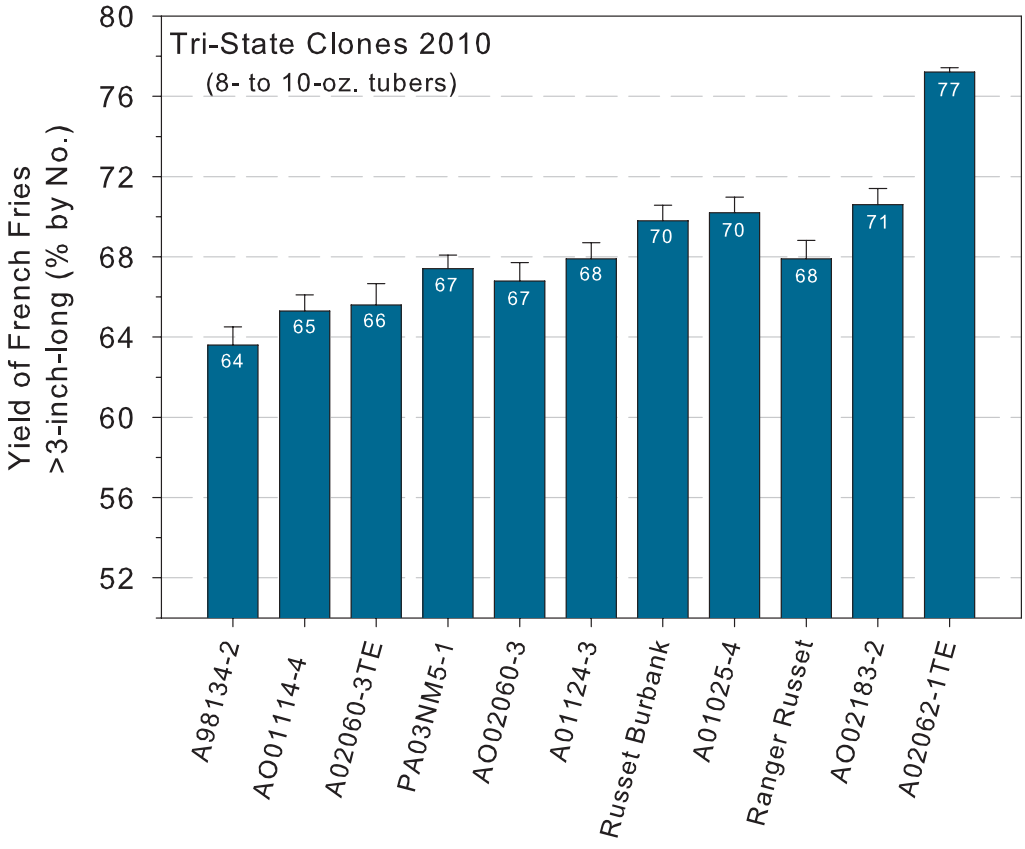
(8- to 10-oz Tubers)

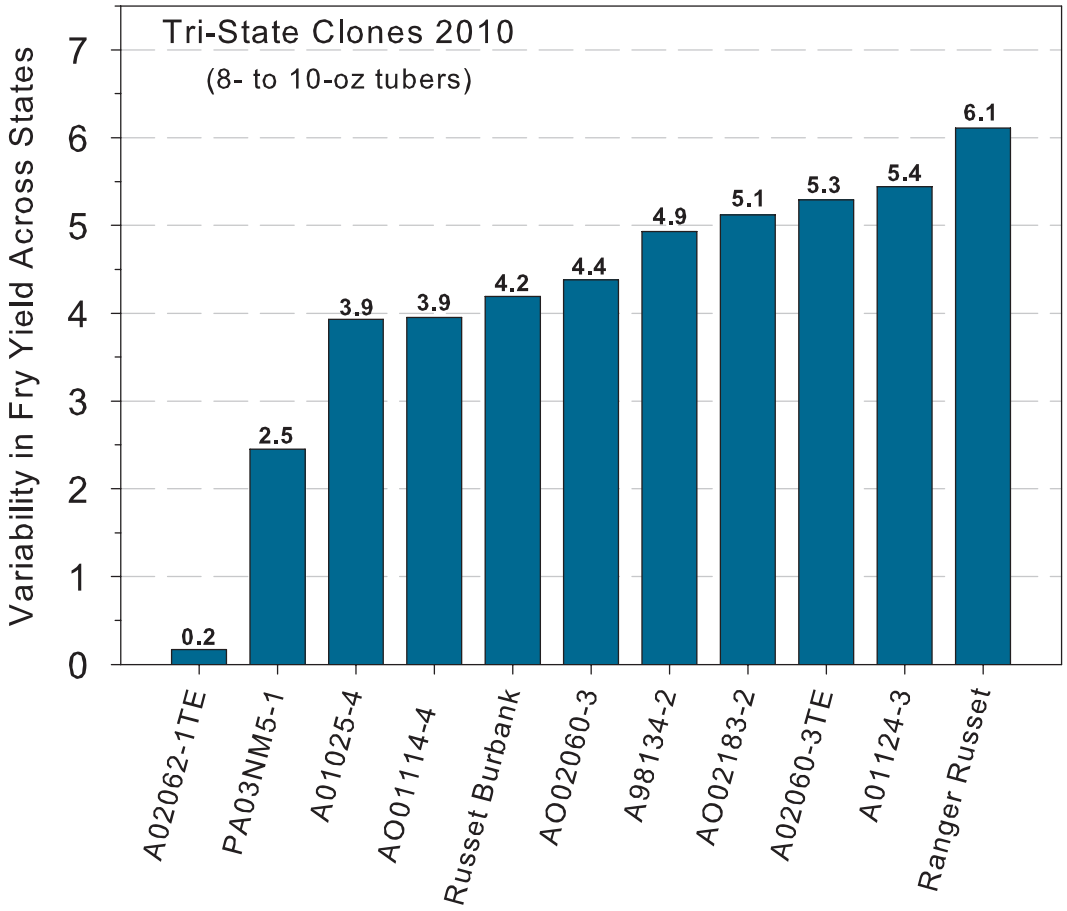
Clone	Length to width ratio			Yield of 3" or longer fries (% by number)		
	WA	ID	OR	WA	ID	OR
1 Ranger Russet	1.50	2.23	1.50	64	77	64
2 Russet Burbank	1.63	1.92	1.56	68	76	66
3 A01025-4	1.62	1.93	1.61	68	76	67
4 A01124-3	1.59	1.87	1.45	67	75	61
5 A02060-3TE	1.44	1.83	1.60	61	74	67
6 A02062-1TE	2.04	2.30	2.12	77	77	77
7 A98134-2	1.44	1.73	1.40	61	70	59
8 AO01114-4	1.52	1.70	1.44	64	70	61
9 AO02060-3	1.46	1.78	1.59	62	73	66
10 AO02183-2	1.58	2.08	1.60	67	78	67
11 PA03NM5-1	1.52	1.70	1.60	65	71	67
Average	1.58	1.91	1.59	66	74	66



2010 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 1.75 (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 65.9% to 76.1% (71±5.1%).

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

2010 Early Harvest Regional Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 7 Vine Kill Date: August 4
Harvest Date: August 23 Days Grown: 119
Fertility: 165-110-450 In-Row Spacing: 12 inches

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 2010 early harvest trial compared 3 local reference varieties to 18 new clones on the WSU Othello Research Station. 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, PA99N2-1, and AO00057-2.
Process Market Standout(s): PA00N14-2, AOTX96265-2Ru, and AO96305-3.

Standcounts

- **40 Day**
  Fast emergence: A0TX96265-2Ru (89%), CO99100-1Ru (89%), A98345-1 (84%).
  Slow emergence: A97066-42LB (4%), PA99N2-1 (4%), PA00N14-2 (13%), AO00057-2 (16%), A00324-1 (18%).

- **50 Day**
  Full emergence: AC99375-1Ru and CO98067-7Ru.
  Poor emergence: CO99053-3Ru (82%), A00324-1 (84%), A0TX96216-2Ru (84%), and A97066-42LB (87%). All other entries were > 90% emerged.

Plant and Tuber Growth & Development

- **Above Ground Stem Number Per Plant**
  Most: CO98067-7Ru (3.2), CO99053-4Ru (3.1), A01010-1 (3.0).
  Least: AO00057-2 (1.2).

- **Average Tuber Number Per Plant**
  Most: A01010-1 (12.3), CO98067-7Ru (12.2), AC99375-1Ru (11.3).
  Least: AOTX96216-2Ru (4.1).

- **Average Tuber Size (oz)**
  Largest: AOTX96216-2Ru (16.0), A00324-1 (8.5).
  Smallest: CO98067-7Ru (5.2), A01010-1 (5.5), A97066-42LB (5.6), CO99053-4Ru (5.6).

- **Undersized Tubers (< 4 oz)**
  Most: CO98067-7Ru (117 CWT/A), A01010-1 (95 CWT/A), AC99375-1Ru (91 CWT/A).
  Fewest: AOTX96216-2Ru (5 CWT/A), AO96305-3 (32 CWT/A).

Yield and Economic Data

- **Total Yield and U.S. #1 Yield**
  Highest: A98345-1 (663 CWT/A) and AC99375-1Ru (662 CWT/A) had the highest total yield. AOTX96216-2Ru had the highest U.S. #1 yield (619 CWT/A); A98345-1 had the second highest U.S #1 yield (593 CWT/A).
  Lowest: A97066-42LB had the lowest total yield (443 CWT/A) and U.S. #1 yield (350 CWT/A). CO99053-4Ru had the second lowest total yield (453 CWT/A) and U.S. #1 yield (369 CWT/A).

- **% U.S. #1's (greater than 4 oz)**
  Highest: AOTX96216-2Ru (98%), AOTX96265-2Ru (94%).
  Lowest: A97066-42LB (79%), CO98067-7Ru (80%).

- **Carton Yield (100 to 50 Count (7 to 18 oz U.S. #1 Tubers)**
  Highest: A98345-1 (422 CWT/A), A0008-1TE (410 CWT/A).
  Lowest: A97066-42LB (198 CWT/A), CO99053-4Ru (200 CWT/A).

- **Gross Return ($/acre)**
  Fresh Market Highest: A98345-1, AOTX96265-2Ru, A0008-1TE.
  Fresh Market Lowest: A97066-42LB, CO99053-4Ru, Russet Norkotah.
  Process Market Highest: A98345-1, AOTX96216-2Ru, AC99375-1Ru.
  Process Market Lowest: A97066-42LB, CO99053-4Ru, Russet Norkotah.

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

- **External Defects**
  Notable Defects: All entries had little to no external defects.

- **Internal Defects**
  Notable Defects: Russet Burbank had the highest occurrence of brown center (31%) and hollow heart (38%). AC99375-1Ru (5%) was the only other entry with brown center. Hollow heart also was observed in AOTX96216-2Ru (5%) and AO00057-2 (4%). CO99100-1Ru had the only occurrence of internal brown spot (4%). All other entries had no internal defects.

- **Bruise**
  Highest Blackspot: CO98067-7Ru (33%), A00324-1 (32%), A98345-1 (25%), Russet Norkotah (23%).
  Highest Shatter: PA99N82-4 (100%), PA99N2-1 (86%), A0008-1TE (78%), AO00057-2 (54%), CO99100-1Ru (50%).

2010 Early Harvest Regional Trial

Summaries

ENTRY	TOTAL YIELD CWT/A	STATS**	TOTAL YIELD Tons/A	US # 1's* > 4 oz % of Total Yield	US # 2's* > 4 oz % of Total Yield	Culls* & < 4 oz % of Total Yield	CARTON YIELD 100-50 count (US 1's 7-18 oz) % of Total Yield	CARTON YIELD Tons/A	PROCESS YIELD US 1's and 2's > 6 oz % of Total Yield	PROCESS YIELD Tons/A
Ranger Russet	578	*ABC*	28.9	92	0	8	68	19.8	80	23.0
Russet Burbank	636	*A*	31.8	82	1	17	46	14.6	59	18.7
Russet Norkotah	498	*ABC*	24.9	84	1	14	45	11.2	58	14.4
A97066-42LB	443	*C*	22.1	79	0	21	45	9.9	58	12.8
A98345-1	663	*A*	33.1	90	1	9	64	21.1	76	25.2
A0008-1TE	584	*ABC*	29.2	91	1	8	70	20.5	82	23.9
A00324-1	587	*ABC*	29.4	90	2	9	67	19.8	83	24.4
A01010-1	653	*A*	32.6	85	0	15	37	12.2	52	17.0
AC99375-1Ru	662	*A*	33.1	85	0	15	51	17.0	61	20.2
AO00057-2	527	*ABC*	26.4	91	0	9	63	16.6	77	20.3
AO96305-3	571	*ABC*	28.5	91	0	9	69	19.7	86	24.4
AOTX95265-1Ru	550	*ABC*	27.5	83	1	17	44	12.0	60	16.6
AOTX96216-2Ru	631	*A*	31.5	98	0	2	41	12.9	96	30.3
AOTX96265-2Ru	615	*AB*	30.8	94	0	6	64	19.8	81	24.8
CO98067-7Ru	617	*AB*	30.9	80	0	19	36	11.0	52	16.0
CO99053-3Ru	520	*ABC*	26.0	90	0	10	60	15.5	73	18.9
CO99053-4Ru	453	*BC*	22.6	81	0	19	44	10.0	56	12.8
CO99100-1Ru	574	*ABC*	28.7	92	0	8	67	19.3	76	21.8
PA00N14-2	553	*ABC*	27.7	87	0	13	45	12.4	63	17.4
PA99N2-1	593	*ABC*	29.6	93	0	7	60	17.7	72	21.4
PA99N82-4	639	*A*	32.0	88	1	11	56	18.0	69	22.1

ENTRY	US # 1 YIELD > 4 oz CWT/A	STATS**	US # 1 YIELD > 4 oz Tons/A	4-7 oz* %	7-14 oz* %	> 14 oz* %	> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers) % HH	% BC	% IBS
Ranger Russet	532	*ABCD*	26.6	25	65	10	1.081	0	0	0
Russet Burbank	520	*ABCD*	26.0	42	50	8	1.080	38	31	0
Russet Norkotah	421	*CDE*	21.0	47	50	3	1.077	0	0	0
A97066-42LB	350	*D*	17.5	42	57	1	1.085	0	0	0
A98345-1	593	*AB*	29.7	23	60	16	1.087	0	0	0
A0008-1TE	532	*ABCD*	26.6	22	64	14	1.080	0	0	0
A00324-1	527	*ABCD*	26.3	18	64	18	1.078	0	0	0
A01010-1	556	*AB*	27.8	56	43	1	1.081	0	0	0
AC99375-1Ru	562	*AB*	28.1	39	51	10	1.089	0	5	0
AO00057-2	481	*ABCD*	24.1	28	60	12	1.082	4	0	0
AO96305-3	517	*ABCD*	25.9	21	67	13	1.086	0	0	0
AOTX95265-1Ru	454	*ABCD*	22.7	46	52	2	1.077	0	0	0
AOTX96216-2Ru	619	*A*	31.0	3	22	75	1.082	5	0	0
AOTX96265-2Ru	579	*AB*	28.9	26	63	10	1.085	0	0	0
CO98067-7Ru	495	*ABCD*	24.7	56	44	1	1.074	0	0	0
CO99053-3Ru	470	*ABCD*	23.5	30	59	11	1.084	0	0	0
CO99053-4Ru	369	*CD*	18.4	45	51	5	1.083	0	0	0
CO99100-1Ru	530	*ABCD*	26.5	26	69	4	1.085	0	0	4
PA00N14-2	480	*ABCD*	24.0	47	50	3	1.087	0	0	0
PA99N2-1	553	*ABC*	27.7	36	62	2	1.078	0	0	0
PA99N82-4	561	*AB*	28.0	33	60	7	1.082	0	0	0

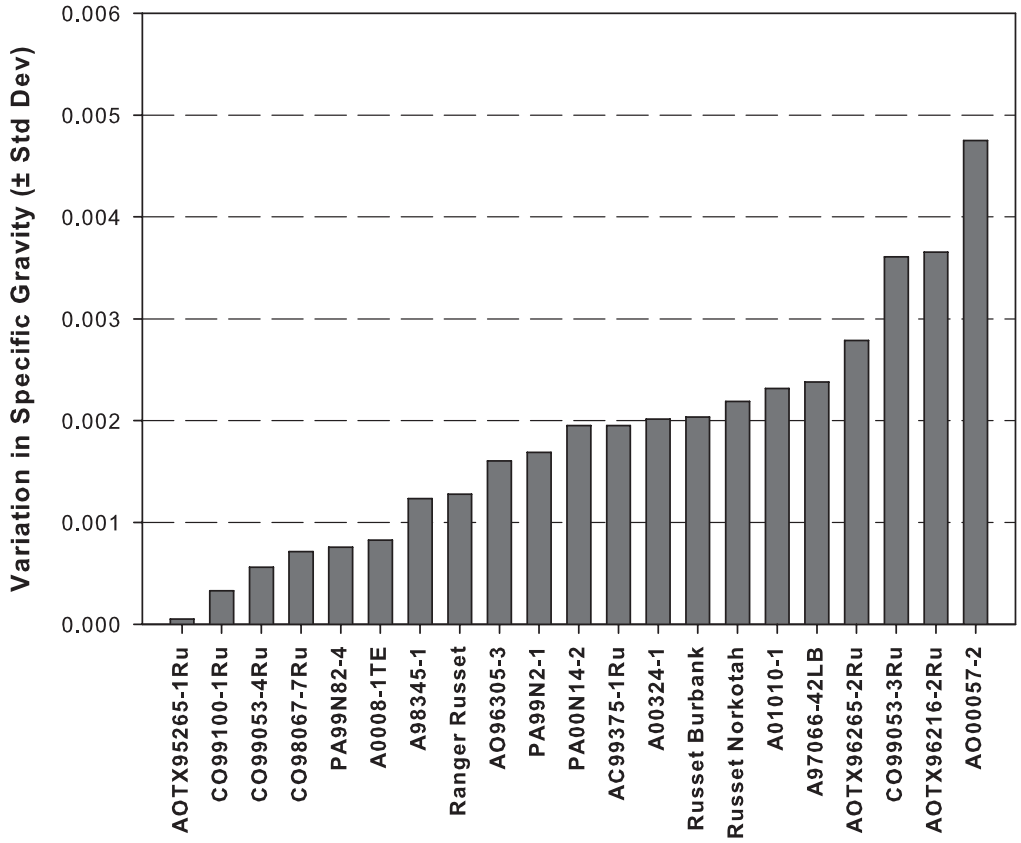
* Percent values may not total 100% due to rounding
**Numbers followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

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	60	98	1.8	7.6	7.9	4	4	15	4
Russet Burbank	0	44	93	2.3	6.2	10.6	4	3	8	15
Russet Norkotah	0	67	98	2.0	5.8	9.0	4	3	23	15
A97066-42LB	0	4	87	1.7	5.6	8.3	4	3	8	8
A98345-1	0	84	93	1.9	7.5	9.3	4	3	25	45
A0008-1TE	0	36	91	1.9	7.7	7.9	4	3	0	78
A00324-1	0	18	84	2.5	8.5	7.3	3	3	32	32
A01010-1	0	80	98	3.0	5.5	12.3	4	3	0	17
AC99375-1Ru	0	71	100	2.5	6.1	11.3	4	3	5	0
AO00057-2	0	16	96	1.2	7.3	7.5	4	3	4	54
AO96305-3	0	38	96	2.0	7.9	7.5	4	4	14	43
AOTX95265-1Ru	0	62	96	2.8	5.8	9.9	4	3	14	14
AOTX96216-2Ru	0	56	84	1.6	16.0	4.1	5	3	5	5
AOTX96265-2Ru	0	89	98	2.1	7.5	8.6	4	3	11	14
CO98067-7Ru	0	80	100	3.2	5.2	12.2	4	3	33	0
CO99053-3Ru	0	33	82	2.4	6.8	7.9	3	3	5	14
CO99053-4Ru	0	71	98	3.1	5.6	8.4	4	3	0	30
CO99100-1Ru	0	89	98	2.3	7.3	8.0	4	3	4	50
PA00N14-2	0	13	91	2.0	5.9	8.2	4	4	0	0
PA99N2-1	0	4	96	2.3	6.7	9.2	4	3	0	86
PA99N82-4	0	49	96	2.4	6.6	10.1	4	1	17	100

Clone - Dependent Variation in Specific Gravity

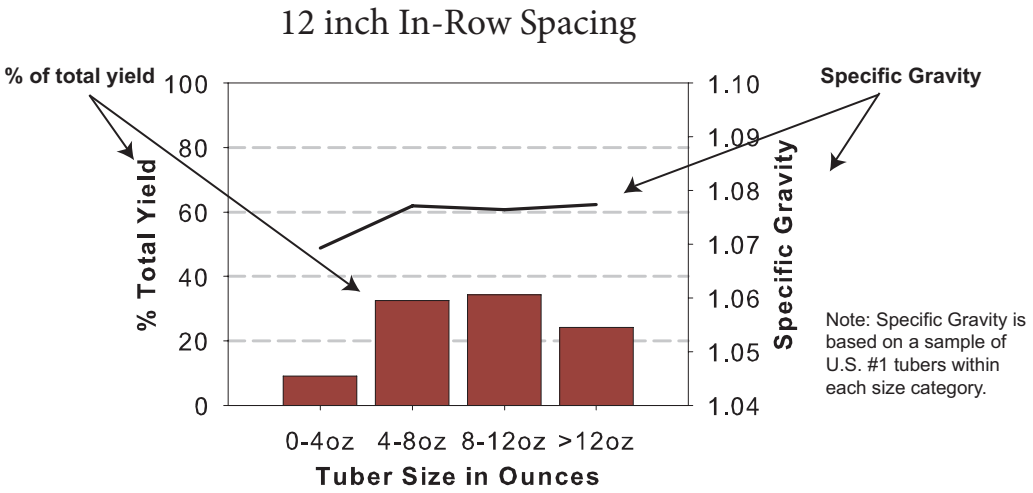
Variability among 9, 10lb samples from each entry (all tuber sizes)

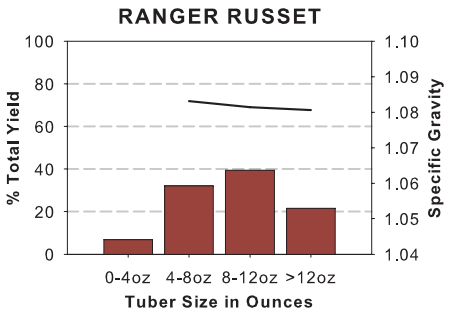
2010 Early-Harvest Regional Trial

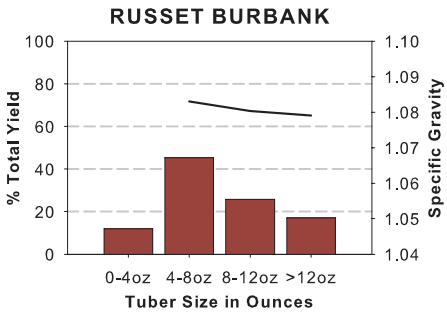


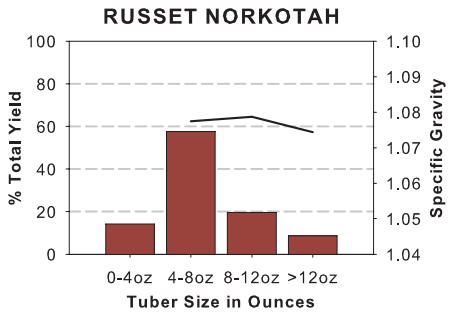
2010 Early Harvest Regional Trial

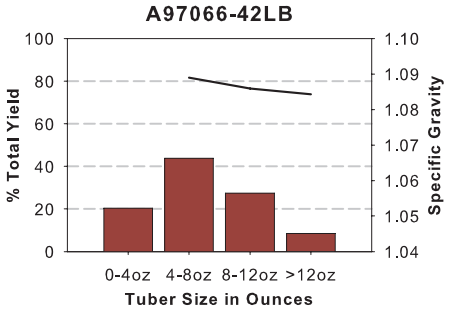
Tuber Yield and Specific Gravity Distributions

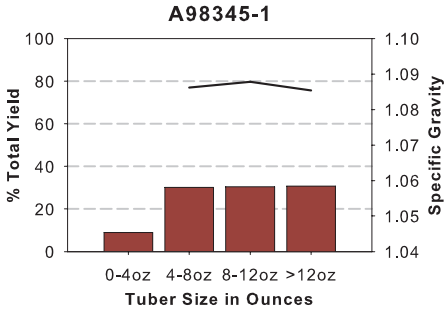


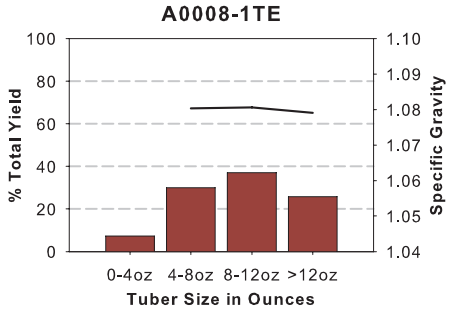


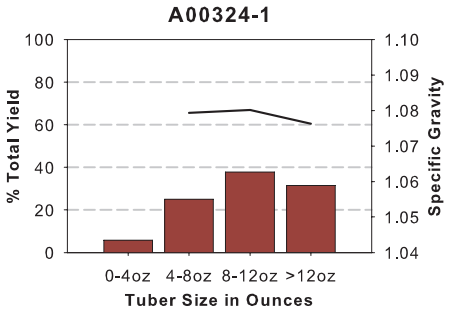


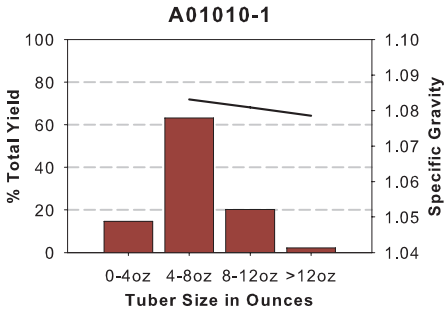


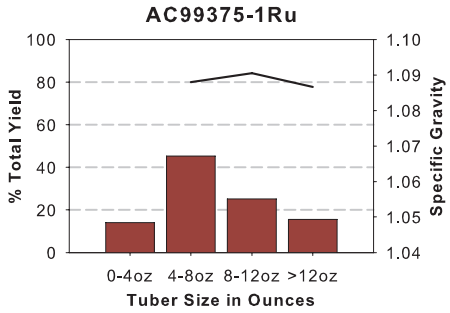




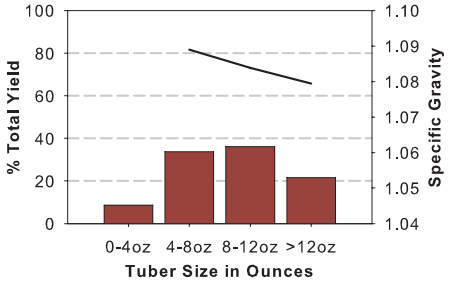




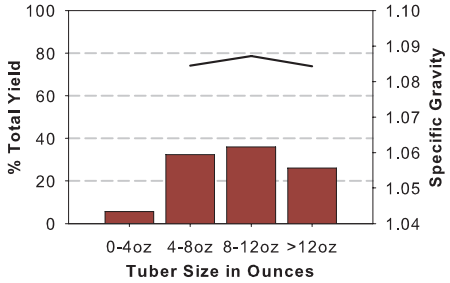




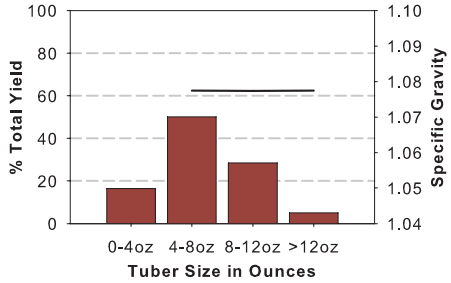
AO00057-2



AO96305-3

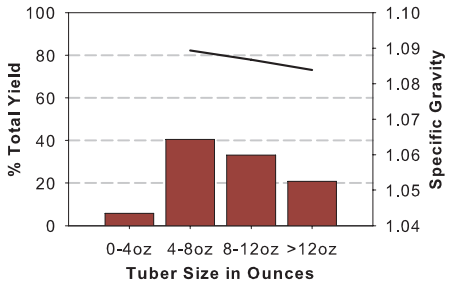


AOTX95265-1Ru

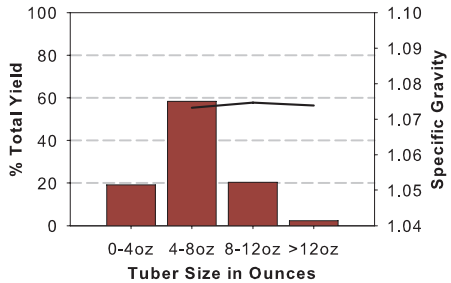


AOTX96216-2Ru

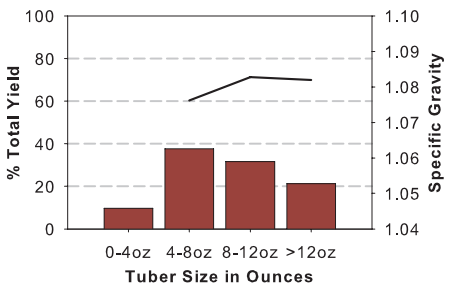
AOTX96265-2Ru



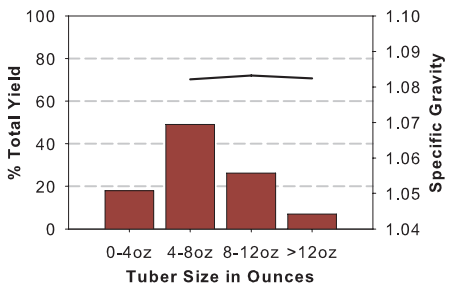
CO98067-7Ru



CO99053-3Ru

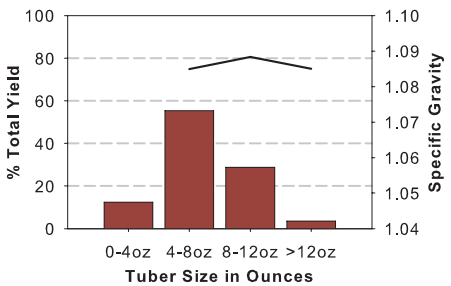


CO99053-4Ru

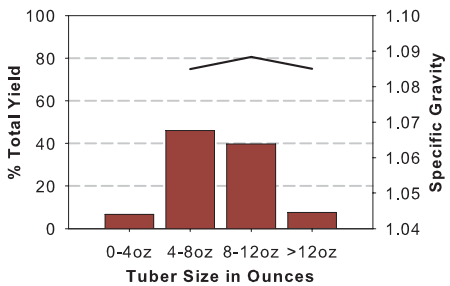


CO99100-1Ru

PA00N14-2



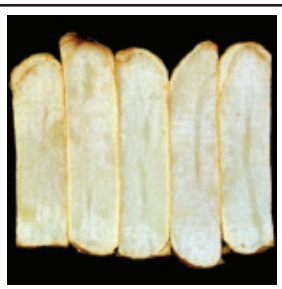
PA99N2-1



PA99N82-4

Tubers	Fries	WA Early Harvest Regional Trial Comments
Ranger Russet		
		**Tubers:** Oblong to long tubers. Moderate russet with good 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.
Russet Norkotah		
		**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.
A97066-42LB		
		**Tubers:** Oblong tubers. Light russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.
A98345-1		
		**Tubers:** Oblong tubers. Light russet with good skin set; moderate eye depth. **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.
A00324-1		
		**Tubers:** Oblong tubers. Moderate russet with fair skin set; moderate eye depth. **Fry color:** Light, uniform.
A01010-1		
		**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.
AC99375-1Ru		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; moderate eye depth. **Fry color:** Light, uniform.
AO00057-2		
		**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; shallow eyes. **Fry color:** Light, uniform.

Tubers	Fries	WA Early Harvest Regional Trial Comments
AO96305-3		
		**Tubers:** Oblong to long tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
AOTX95265-1Ru		
		**Tubers:** Oblong tubers. Heavy russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
AOTX96216-2Ru		
		**Tubers:** Oblong tubers. Heavy russet with very good skin set; shallow eyes. **Fry color:** Light, uniform.
AOTX96265-2Ru		
		**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
CO98067-7Ru		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.

Tubers	Fries	WA Early Harvest Regional Trial Comments
CO99053-3Ru		
		**Tubers:** Oblong tubers. Moderate russet with fair skin set; shallow eyes. **Fry color:** Light, uniform.
CO99053-4Ru		
		**Tubers:** Oblong 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.
PA00N14-2		
		**Tubers:** Oblong to long tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.
PA99N2-1		
		**Tubers:** Oblong tubers. Moderate russet with good skin set; shallow eyes. **Fry color:** Light, uniform.

Tubers	Fries	WA Early Harvest Regional Trial Comments
PA99N82-4		
		**Tubers:** Round tubers. Heavy russet with good skin set; shallow eyes. **Fry color:** Light, uniform.

Postharvest Evaluation

Three cultivars and 18 numbered clones were entered into the 2010 Early Regional Trial. All entries fried light and uniform with an average Photovolt reading of 49.4, resulting in USDA ratings of "0". AC99375-1Ru showed considerable after cooking darkening.

		PHOTOVOLT			DIFFERENCE*	USDA
	Clone	Stem	Bud	Average	STEM - BUD	COLOR
1	Ranger Russet	44.3	44.5	44.4	4.2	0
2	Russet Burbank	43.4	42.4	42.9	5.2	0
3	Russet Norkotah	48.7	45.0	46.9	3.7	0
4	A97066-42LB	51.2	52.2	51.7	2.2	0
5	A98345-1	49.6	45.5	47.5	4.1	0
6	A0008-1TE	55.9	52.2	54.0	3.7	0
7	A00324-1	49.1	46.8	48.0	4.7	0
8	A01010-1	55.3	57.0	56.1	2.1	0
9	AC99375-1Ru	49.8	46.5	48.1	3.5	0
10	AO00057-2	53.7	52.0	52.9	2.5	0
11	AO96305-3	56.5	54.7	55.6	2.5	0
12	AOTX95265-1Ru	47.4	43.8	45.6	3.9	0
13	AOTX96216-2Ru	50.3	44.3	47.3	6.4	0
14	AOTX96265-2Ru	56.2	53.7	55.0	2.5	0
15	CO98067-7Ru	45.6	41.9	43.7	3.7	0
16	CO99053-3Ru	47.0	46.8	46.9	2.6	0
17	CO99053-4Ru	50.5	49.7	50.1	2.7	0
18	CO99100-1Ru	52.8	51.1	52.0	2.0	0
19	PA00N14-2	48.4	49.4	48.9	1.3	0
20	PA99N2-1	48.7	49.7	49.2	2.6	0
21	PA99N82-4	53.3	48.9	51.1	4.4	0
			LSD 0.05	*1.5*	*2.0*	
	Average	50.4	48.5	49.4	3.4	0

* Average of 12 individual tuber absolute differences

Planted date: April 7
Harvest date: April 23
Fried on: April 24

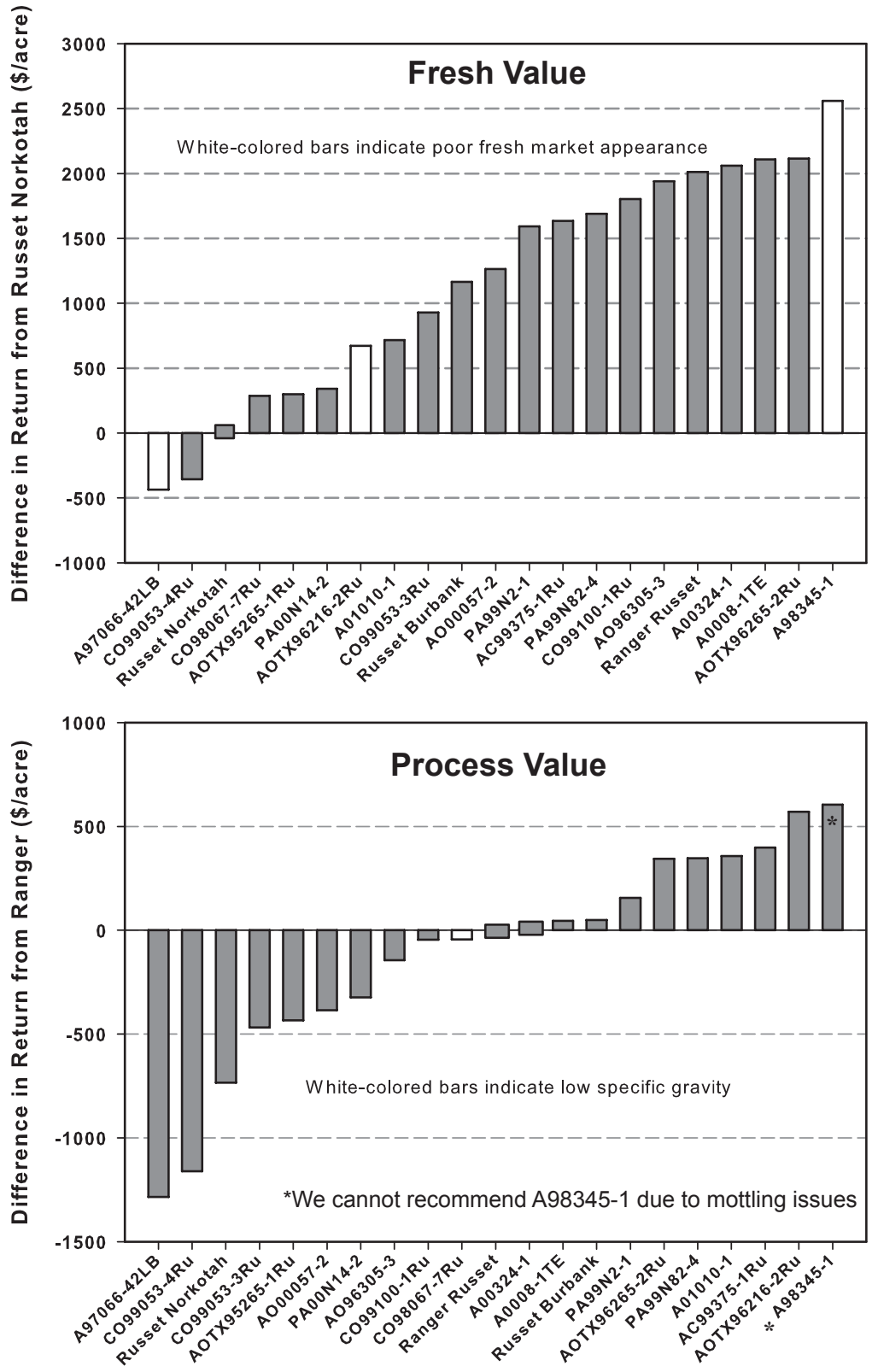


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape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

2010 Late Harvest Regional Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 15
Harvest Date: Sept 21
Fertility: 290-160-550
Vine Kill Date: Sept 18
Days Grown: 156
In-Row Spacing: 10 inches

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 18 new clones. Overall, this year's growing conditions started out cool and wet, delaying growth. Mild conditions throughout the remainder of the year were conducive for high yields. 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 Standout(s): A0008-1TE, AOTX95265-1Ru, PA99N2-1, PA00N14-2, and A01010-1.
Process Market Standout(s): A01010-1, CO99053-3Ru, A00324-1, PA99N2-1, AC99375-1Ru, and AO96305-3.
Suggested Discard(s): A98345-1 (serious mottling issue in French fries 40 to 60 days after harvest).

Standcounts

- **30 Day**
  Slow emergence: No entries had emerged at 30 days.

- **50 Day**
  Full emergence: Ranger Russet, A98345-1, A0008-1TE, A00324-1, A01010-1, AC99375-1Ru, AOTX96265-2Ru, CO98067-7Ru, CO99053-3Ru, C099100-1Ru, and PA99N2-1 were 100% emerged.
  Worst emergence: A0TX96216-2Ru (89%), A97066-42LB (92%).

Plant and Tuber Growth & Development

- **Above Ground Stem Number Per Plant**
  Most: CO98067-7Ru (3.0), AOTX95265-1Ru (2.7).
  Least: A97066-42LB and AO00057-2 (each 1.2).

- **Average Tuber Number Per Plant**
  Most: A01010-1 (12.7), CO98067-7Ru (12.1), AC99375-1Ru (11.5).
  Least: AOTX96216-2Ru (4.0), AO00057-2 (6.7).

- **Average Tuber Size (oz)**
  Largest: AOTX96216-2Ru (16.7), AO00057-2 (11.2).
  Smallest: Russet Norkotah (4.9), CO98067-7Ru (5.0), CO99053-4Ru (5.1), AOTX95265-1Ru (5.5).

- **Undersized Tubers (< 4 oz)**
  Most: CO99053-4Ru, AOTX95265-1Ru, Russet Norkotah, and A01010-1 (all >100 CWT/A)
  Least: AOTX96216-2Ru (9 CWT/A) and AO00057-2 (30 CWT/A).

Yield and Economic Data

- **Total and Market Yield**
  Highest: AC99375-1Ru had the highest total (1148 CWT/A) and market yields (1013 CWT/A). A98345-1 had the second highest total (1010 CWT/A) and market yields (951 CWT/A).
  Lowest: CO99100-1Ru had the lowest total yield (518 CWT/A). Russet Norkotah had the lowest market yield (393 CWT/A).

- **% Market Yield Greater Than 6 oz.**
  Highest: AO00057-2 and AOTX96216-2Ru (both > 88%).
  Lowest: CO99053-4Ru, CO98067-7Ru, Russet Norkotah (all 52% or less).

- **Carton Yield (100 to 50 Count (7 to 18 oz US #1 Tubers)**
  Highest: AC99375-1Ru, PA99N82-4, A98345-1, PA99N2-1, A01010-1, A00324-1 (all > 509 CWT/A).
  Lowest: Russet Norkotah (188 CWT/A), AOTX96216-2Ru (214 CWT/A), CO99053-4Ru (226 CWT/A).

- **Gross Return ($/acre)**
  Fresh Market Highest: AC99375-1Ru, PA99N82-4, A98345-1.
  Fresh Market Lowest: Russet Norkotah, AOTX96216-2Ru, CO99053-4Ru.
  Process Market Highest: AC99375-1Ru, A98345-1, PA99N82-4.
  Process Market Lowest: Russet Norkotah, CO99100-1Ru, CO99053-4Ru.

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

- **External Defects**
  Notable Defects: Most entries were free of external defects. The highest occurrence of any defect was 3% of the tubers sampled.

- **Internal Defects**
  Notable Defects: Most entries were free of internal defects. Russet Burbank had 10% hollow heart and 19% brown center. PA99N82-4 had 5% hollow heart; A97066-42LB had 4% internal black spot.

- **Bruise**
  Highest Blackspot: Ranger Russet (29%), AOTX95265-1Ru (25%).
  Lowest Blackspot: A01010-1, AOTX96265-2Ru, CO98067-7Ru, and CO99100-1Ru were free of brownspot.
  Highest Shatter: A01010-1 and PA99N82-4 (both 100%).
  Lowest Shatter: CO98067-7Ru (6%), CO99053-3Ru (18%).

2010 Late Harvest Regional Trial

Postharvest Information

- **Overall Postharvest Rating**

  Highest scoring: A98345-1*, AC99375-1Ru*, AO96305-3*, AO00057-2, PA99N82-4
  Lowest scoring: CO98067-7Ru*, RB*, CO99100-1Ru*
  * A98345-1 has a tendency to mottle severely within 40-60 days of storage.

- **Low temperature Sweetening**

  Most resistant: A98345-1*, AO96305-3*, AC99375-1Ru*
  Most susceptible: CO98067-7Ru*, PA99N2-1, A0008-1TE*, RB*

- **Taste Panel**

  Highest rated: PA99N82-4*, AO96305-3*, AO00057-2, RR*, A98345-1*
  Lowest rated: PA99N2-1, A97066-42LB, CO99100-1Ru, CO98067-7Ru*

- **Blackspot Bruise Susceptibility**

  Most resistant: A01010-1, CO99053-4Ru, CO98067-7Ru*, A0008-1TE, AO96305-3
  Most susceptible: RR, A98345-1*, A97066-42LB

- **Variability in Tuber Shape & Fry Yield (8- to 10-oz tubers)**

  Lowest L/W: PA99N82-4*, PA99N2-1*, A98345-1*, AC99375
  Highest L/W: PA00N14-2*, AO96305-3*, CO99053-4Ru*, RB*
  Least variable L/W: A0008-1TE*, A97066-42LB*, PA00N14-2*, CO99053-3Ru
  Most variable L/W: AO00057-2, RR, A98345-1*

***similar performance in previous years trials**

Details

- A98345-1*, AC99375-1Ru*, AO96305-3*, AO00057-2, and PA99N82-4 were the highest rated entries, accumulating an average of 32.5, 31.4, 30.3, 29.5, and 28.3 of 38 possible points, respectively. A98345-1 and AO96305-3 were among the top scoring clones in the 2008 Tri-State and 2009 Regional trials and AO96305-3 ranked number one in the 2009 Regional trial. A98345-1*, AO96305-3*, and AC99375-1Ru* were resistant to low temperature sweetening, producing USDA 1-2 fries (stem end) when stored for 60 days at 40°F from most locations. However, **A98345-1** has a tendency to mottle severely within 40-50 days of storage (OR- and WA-grown tubers).

- Similar to last year, CO98067-7Ru*, RB, and CO99100-1Ru were the lowest scoring clones, receiving overall scores of 12.4/38, 17.1/38 and 17.3/38, respectively. All three clones produced relatively dark fries at harvest and after 60 days storage at 48, 44 and 40°F.

- Consistent with last year's trial, the specific gravities of A0008-1TE, CO99053-4Ru, CO99100-1Ru, and CO98067-7Ru were 1.078, 1.078, 1.074, and 1.070, respectively; too low for processing contracts. The gravity of CO98067-7Ru was also low (1.073) in 2008. CO99100-1Ru, and CO98067-7Ru received the lowest taste panel ratings (avg. 2.7/5); CO98067-7Ru also had the lowest taste panel rating in 2009 (2.6/5).

- A97066-42LB had the highest average gravity (1.094 in 2010 and 2009); too high for frozen processing contracts. RR, AC99375-1Ru, A98345-1, AO96305-3, CO99053-3Ru, AO00057-2, A01010-1, and PA99N2-1 had the most favorable gravities for processing (ranging from 1.088-1.083). Four of these entries (AO96305-3, AO00057-2, 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 2009 and 2008 taste panel evaluations and was highly ranked in the 2007 evaluations. A00324-1 was somewhat mottled from ID. CO98067-7Ru was difficult to peel.

- On average, WA- and ID-grown tubers produced the lightest fry colors at harvest. Averaged across the three production sites, the Regional entries retained 88% and 77% of their at-harvest processing quality (stem end) when stored at 48 and 44°F for 60 days, respectively.

- 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. Many WA- and ID-grown entries produced non-uniform fry color following storage at 48 and 44°F. CO99100-1Ru, PA00N14-2, and AO96305-3 produced non-uniform fry color when stored at 48 and 44°F, regardless of production site. The former two clones also had post storage fry color uniformity issues in 2009. CO99053-3Ru and CO98067-7Ru varied the most in their ability to retain processing quality during storage for 60 days at 44°F across production sites.

- CO99100-1Ru, A00324-1, and CO99053-4Ru reconditioned well at 60°F after storage for 60 days at 40°F. Reconditioning AC99375-1Ru, A0008-1TE, A97066-42LB, and AO96305-3 had the least effect on change in stem end fry color. Consistent with previous years, A0008-1TE was susceptible to LTS and also showed minimal reconditioning ability (2010, 2009, 2008 trials). AC99375-1Ru and AO96305-3 were relatively resistant to sweetening at 40°F and therefore had little sugar to recondition. CO98067-7Ru, PA99N2-1, PA00N14-2 and A97066-42LB may be inherently more susceptible than the other entries to sugar ends.

- CO98067-7Ru*, CO99053-4Ru, CO99100-1Ru*, and A01010-1 were highly resistant to blackspot, with only 15.6, 12.5, 12.5, and 12.5% of impacts (stem end) showing bruise (3-state average). A0008-1TE*, AO96305-3, AO00057-2, and PA99N82-4* were moderately resistant with 21 to 36% bruise in the controlled impact study. In contrast, RR, A97066-42LB, and A98345-1* had 89, 76 and 74% of impacts developing bruise, respectively. Bruise severity was greatest in RR (3.9/5), A97066-42LB (3.3/5), and A98345-1*(2.9/5), and least in CO99100-1Ru (1.3/5), CO99053-4Ru (1.3/5), A01010-1 (1.3/5) (1= no bruise; 5= 100% of impact area is dark).

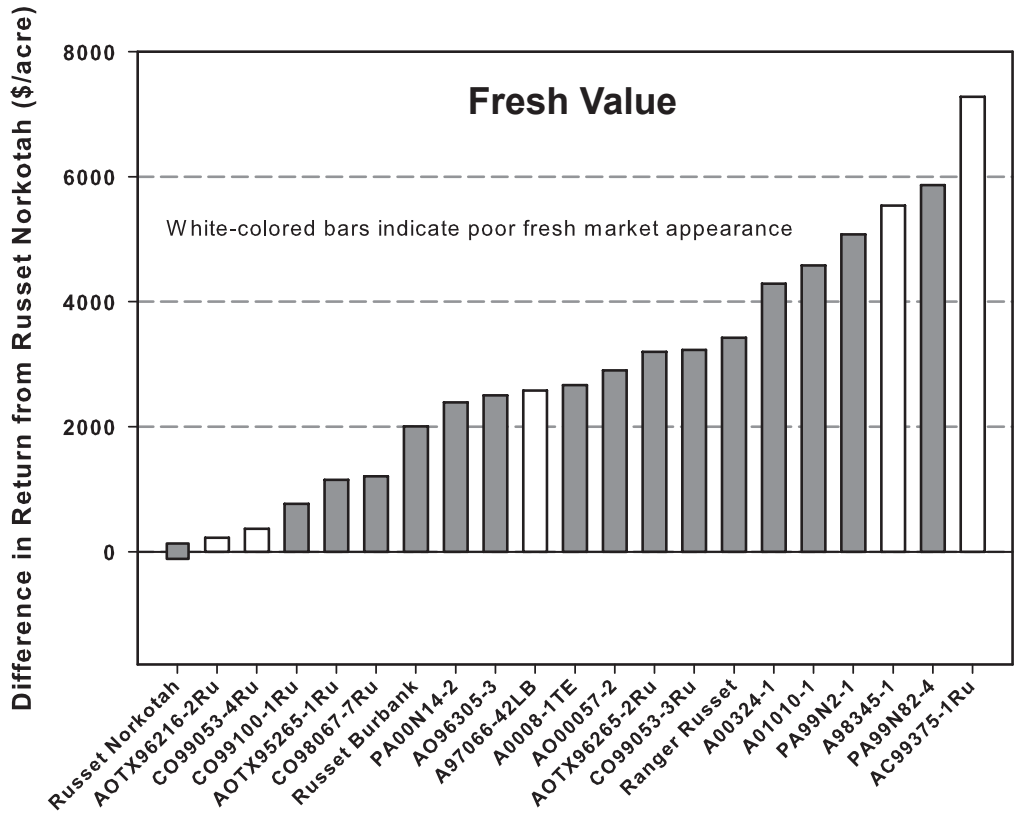
- On average, ID-grown tubers had the highest L/W ratios (1.8) compared with those grown in WA (1.6) and OR (1.6). Similar to their performance in 2009 and 2008, the 8- to 10-oz tubers of PA99N82-4 and PA99N2-1 had the lowest L/W ratios (avg. 1.35), indicating round tubers. Length to width ratio was also an issue with AC99375-1Ru (avg = 1.46) and A98345-1 (avg = 1.45). PA00N14-2*, AO96305-3*, and CO99053-4Ru* had the highest L/W ratios (avg = 2.0). AO00057-2, RR, and A98345-1 had the greatest variation in L/W ratio of 8- to 10-oz tubers across states. A98345-1 was also highly variable last year (Regional trial). In contrast, the L/W ratios of A0008-1TE, A97066-42LB, PA00N14-2, CO99053-3Ru, AO96305-3, and A00324-1 were least affected by growing location. The results are consistent with last year for A97066-42LB, PA00N14-2, and A0008-1TE.

- On average, AC99375-1Ru, PA99N2-1, PA99N82-4*, A01010-1, and CO99053-4Ru produced 6.5-inch sprouts after 7 months of storage, considerably longer (by 3.3 inches) than the average of RR and RB, indicating relatively short dormancy. In contrast, A0008-1TE and CO99053-3Ru produced sprouts that were equal to those produced by RR and RB, respectively, suggesting similar lengths of dormancy. CO99100-1Ru, A98345-1*, and CO98067-7Ru produced the longest sprouts (1.6 inches across 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 most of the entries grown in OR.

Overall Regional Postharvest Merit Scores

	Postharvest Merit Scores			3 state
Clone	WA	ID	OR	Average
4 A98345-1	4.5	4.6	3.7	4.3*
8 AC99375-1Ru	3.7	4.3	4.4	4.1
10 AO96305-3	4.2	3.8	4.0	4.0
9 AO00057-2	4.4	3.4	3.8	3.9
17 PA99N82-4	4.7	4.1	2.3	3.7
12 CO99053-3Ru	3.5	3.0	3.0	3.2
7 A01010-1	3.0	3.9	2.4	3.1
1 Ranger	3.5	3.3	2.6	3.1
16 PA99N2-1	3.6	2.9	2.9	3.1
3 A97066-42LB	3.4	2.9	2.8	3.0
6 A00324-1	3.7	2.9	2.4	3.0
13 CO99053-4Ru	3.5	2.8	2.4	2.9
15 PA00N14-2	3.5	3.1	2.0	2.9
5 A0008-1TE	3.1	2.8	2.1	2.7
14 CO99100-1Ru	2.9	2.6	1.3	2.3
2 R. Burbank	2.4	2.5	1.9	2.3
11 CO98067-7Ru	2.4	1.7	0.8	1.6

*A98345-1 has a tendency to mottle severely within 40-60 days of storage



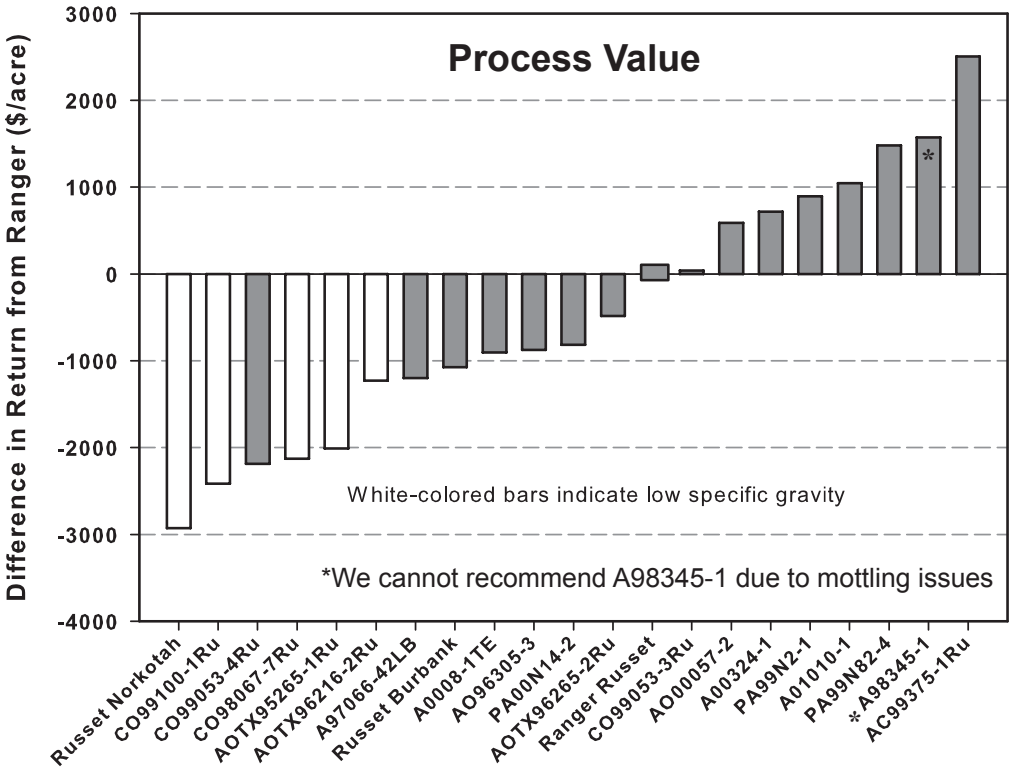


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape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

2010 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	782	*ABC*	39.1	86	3	12	59	23.1	78	30.6
Russet Burbank	683	*ABC*	34.2	79	6	15	50	17.3	70	24.3
Russet Norkotah	532	*BC*	26.6	72	1	27	32	9.4	45	12.6
A97066-42LB	696	*ABC*	34.8	89	1	10	56	19.7	81	28.3
A98345-1	1010	*AB*	50.5	94	0	5	58	29.3	85	43.3
A0008-1TE	671	*ABC*	33.5	88	1	10	60	20.0	73	24.5
A00324-1	889	*ABC*	44.5	92	2	6	58	25.5	87	38.7
A01010-1	931	*ABC*	46.6	87	0	13	55	26.9	67	32.0
AC99375-1Ru	1148	*A*	57.4	88	4	8	64	36.9	83	47.7
AO00057-2	863	*ABC*	43.2	94	2	4	46	19.6	89	38.6
AO96305-3	650	*BC*	32.5	90	0	9	56	18.7	74	24.7
AOTX95265-1Ru	637	*BC*	31.8	78	1	21	44	14.0	58	18.5
AOTX96216-2Ru	772	*ABC*	38.6	96	2	3	28	10.7	95	36.8
AOTX96265-2Ru	726	*ABC*	36.3	92	0	8	64	23.1	79	28.7
CO98067-7Ru	709	*ABC*	35.4	75	1	24	38	13.7	50	18.1
CO99053-3Ru	782	*ABC*	39.1	89	1	10	56	21.7	79	30.9
CO99053-4Ru	559	*BC*	27.9	79	0	21	40	11.3	52	14.8
CO99100-1Ru	518	*C*	25.9	86	0	14	47	12.3	62	16.1
PA00N14-2	665	*BC*	33.3	88	0	12	60	20.1	72	23.9
PA99N2-1	898	*ABC*	44.9	92	1	7	63	28.5	81	36.5
PA99N82-4	1004	*AB*	50.2	92	0	8	64	32.2	83	41.9

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	670	*ABC*	33.5	17	51	32	1.091	0	0	0
Russet Burbank	536	*BC*	26.8	29	54	17	1.079	10	19	0
Russet Norkotah	393	*C*	19.7	58	39	3	1.069	0	0	0
A97066-42LB	620	*ABC*	31.0	15	44	41	1.090	0	0	4
A98345-1	951	*AB*	47.6	15	46	39	1.092	0	0	0
A0008-1TE	593	*ABC*	29.6	29	57	14	1.078	0	0	0
A00324-1	823	*ABC*	41.2	14	45	41	1.083	0	0	0
A01010-1	817	*ABC*	40.9	36	60	4	1.085	0	0	0
AC99375-1Ru	1013	*A*	50.7	18	57	26	1.095	0	0	0
AO00057-2	813	*ABC*	40.7	11	31	58	1.088	0	0	0
AO96305-3	590	*ABC*	29.5	29	56	15	1.085	0	0	0
AOTX95265-1Ru	499	*BC*	25.0	42	51	6	1.072	0	0	0
AOTX96216-2Ru	739	*ABC*	36.9	4	16	80	1.070	0	0	0
AOTX96265-2Ru	669	*ABC*	33.5	21	57	21	1.089	0	0	0
CO98067-7Ru	533	*BC*	26.7	48	46	6	1.068	0	0	0
CO99053-3Ru	698	*ABC*	34.9	21	49	30	1.089	0	0	0
CO99053-4Ru	442	*C*	22.1	50	49	1	1.077	0	0	0
CO99100-1Ru	447	*C*	22.4	44	50	7	1.073	0	0	0
PA00N14-2	588	*ABC*	29.4	31	67	3	1.084	0	0	0
PA99N2-1	825	*ABC*	41.2	19	54	27	1.086	0	0	0
PA99N82-4	924	*AB*	46.2	15	47	38	1.087	5	0	0

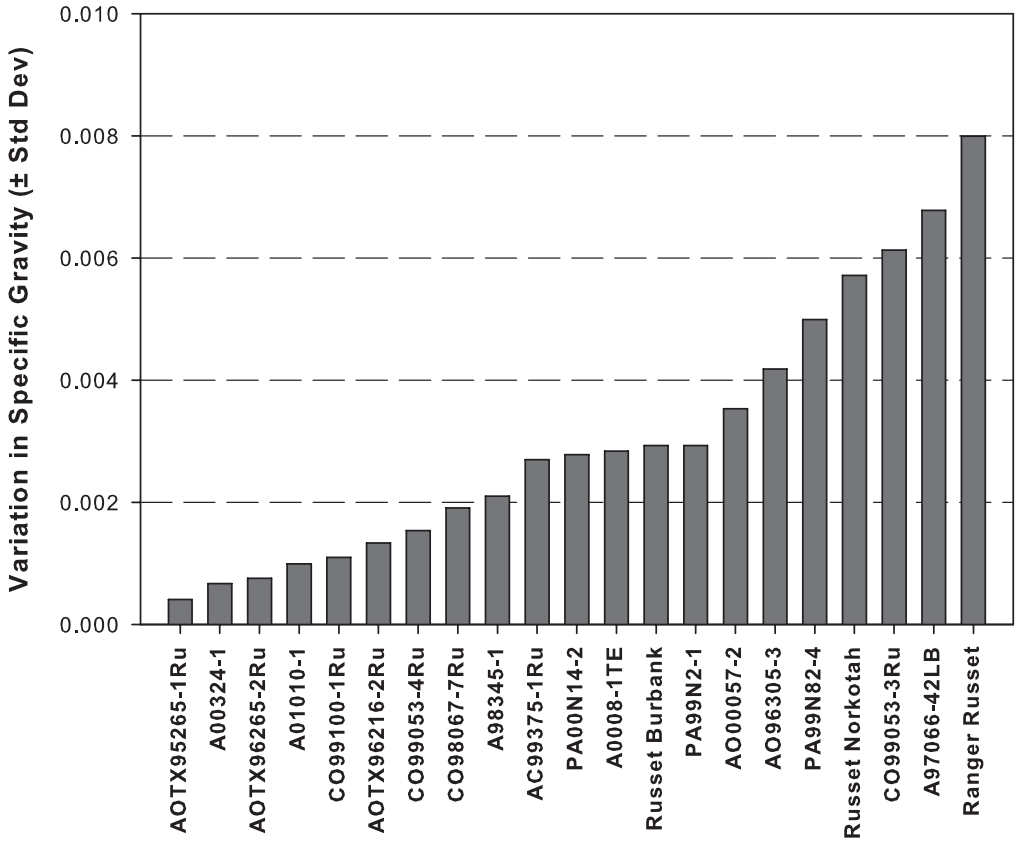
* Percent values may not total 100% due to rounding
**Numbers followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

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	97	100	1.8	7.6	9.0	4	4	29	52
Russet Burbank	0	92	98	1.8	7.1	8.2	4	3	19	62
Russet Norkotah	0	88	98	2.1	4.9	9.4	5	4	13	29
A97066-42LB	0	57	92	1.2	8.4	7.2	3	3	4	54
A98345-1	0	94	100	1.9	9.4	9.3	3	2	4	87
A0008-1TE	0	90	100	2.1	7.0	8.3	3	3	10	80
A00324-1	0	85	100	2.0	9.6	8.0	3	3	19	43
A01010-1	0	96	100	2.6	6.3	12.7	4	3	0	100
AC99375-1Ru	0	94	100	2.1	8.6	11.5	2	2	22	30
AO00057-2	0	73	97	1.2	11.2	6.7	4	3	7	60
AO96305-3	0	89	99	1.9	7.3	7.6	4	4	22	72
AOTX95265-1Ru	0	91	99	2.7	5.5	10.1	4	3	25	40
AOTX96216-2Ru	0	70	89	1.6	16.7	4.0	4	3	14	64
AOTX96265-2Ru	0	97	100	2.2	7.9	8.0	4	2	0	61
CO98067-7Ru	0	97	100	3.0	5.0	12.1	4	2	0	6
CO99053-3Ru	0	92	100	2.1	7.8	8.7	3	3	9	18
CO99053-4Ru	0	85	98	2.4	5.1	9.4	4	3	7	43
CO99100-1Ru	0	97	100	2.0	6.1	7.4	4	3	0	69
PA00N14-2	0	89	98	1.6	6.5	8.9	4	4	23	32
PA99N2-1	0	73	100	2.3	8.2	9.5	4	2	11	89
PA99N82-4	0	94	97	2.2	8.9	9.7	4	1	5	100

Clone - Dependent Variation in Specific Gravity

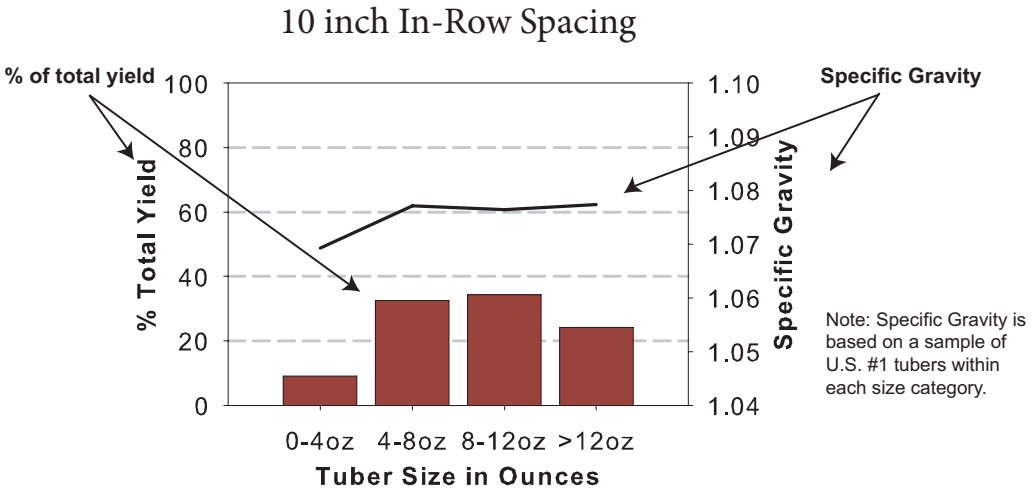
Variability among 9, 10lb samples from each entry (all tuber sizes)

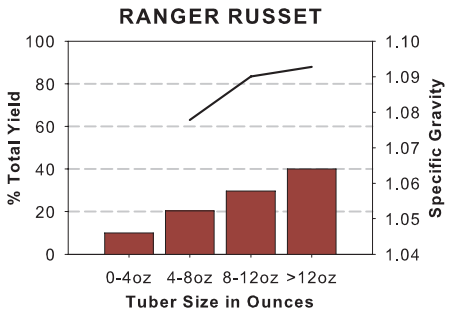
2010 Late-Harvest Regional Trial

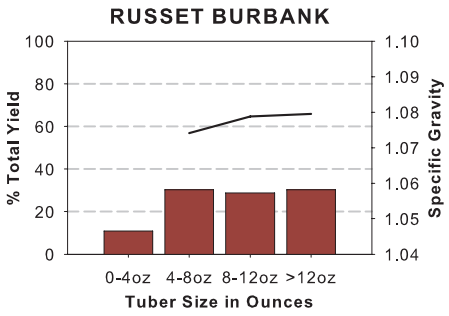


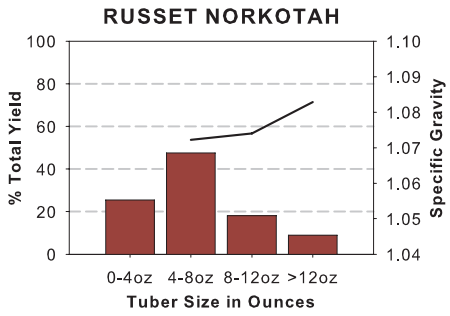
2010 Late Harvest Regional Trial

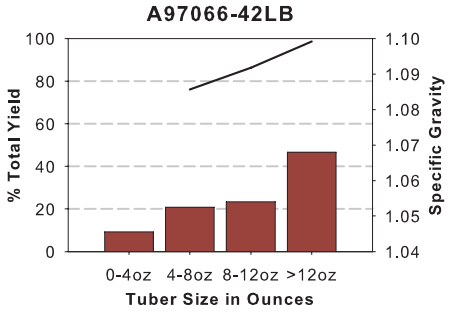
Tuber Yield and Specific Gravity Distributions

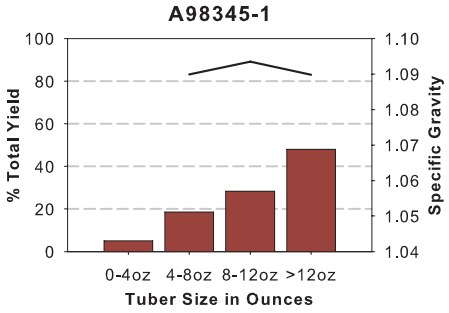


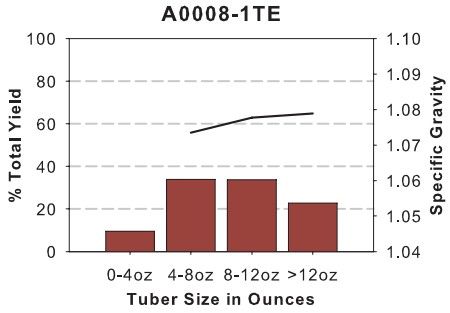


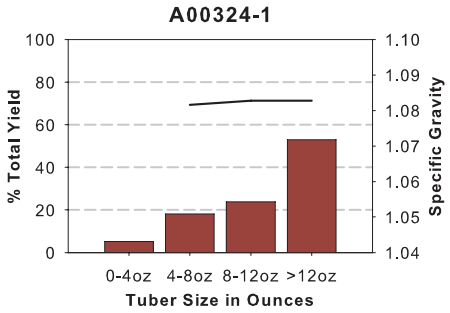


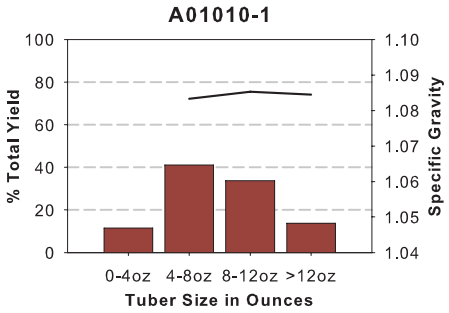


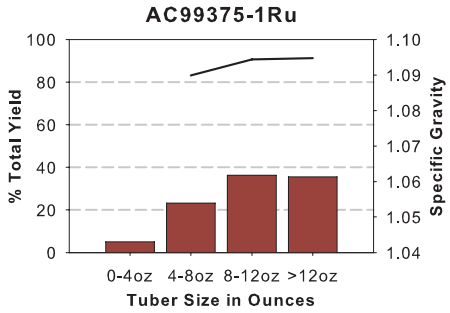












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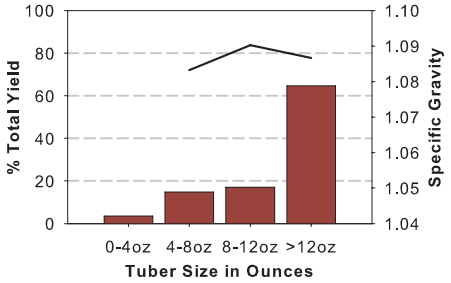

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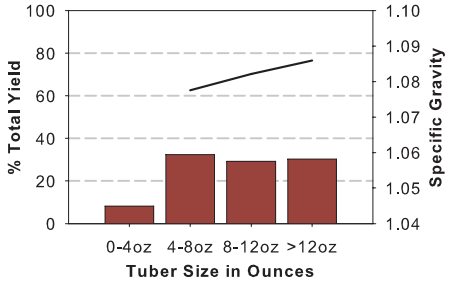

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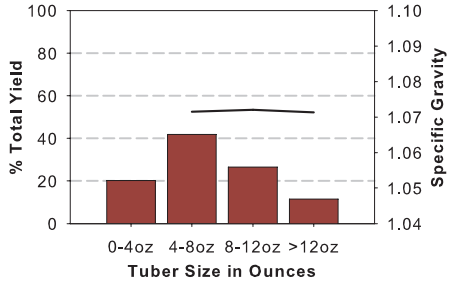
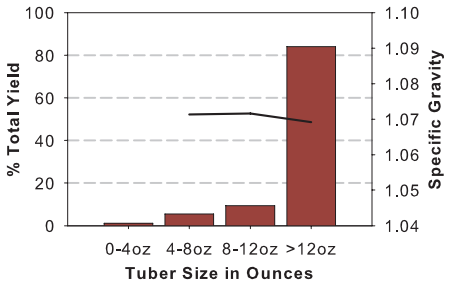


AOTX96216-2Ru



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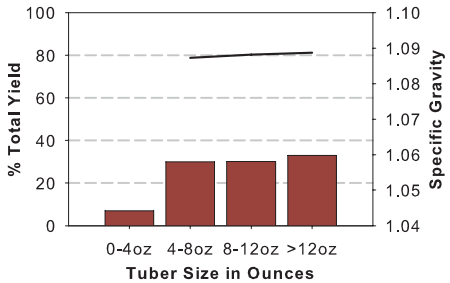
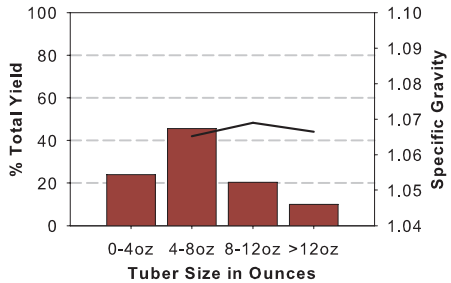
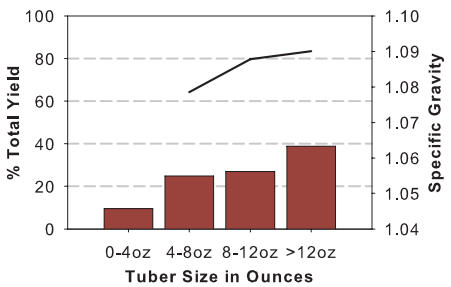


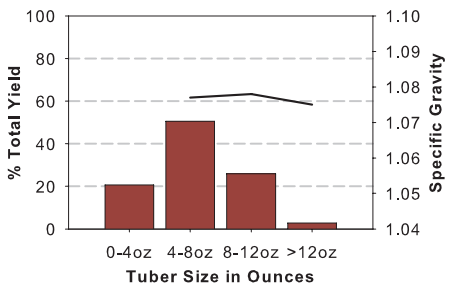
CO98067-7Ru



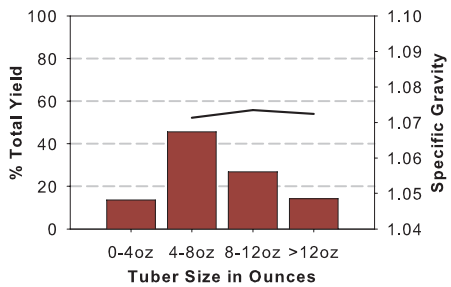
CO99053-3Ru



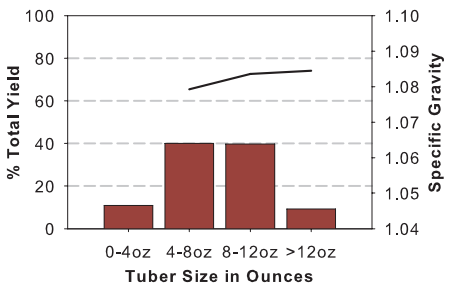
CO99053-4Ru



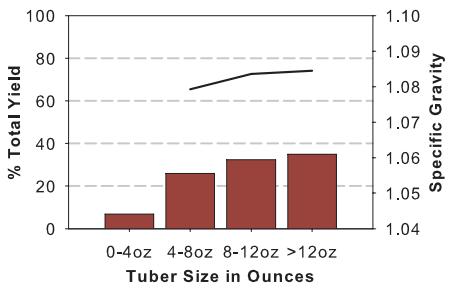
CO99100-1Ru



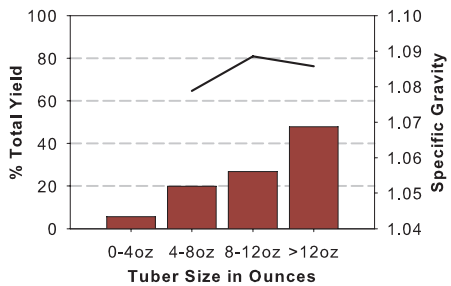
PA00N14-2



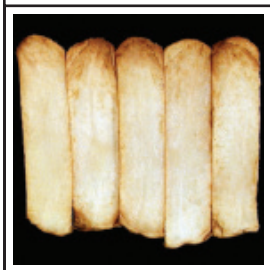
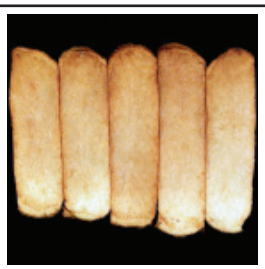
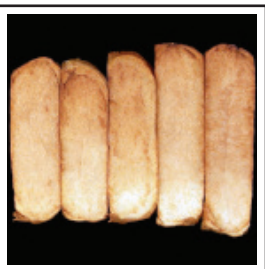
PA99N2-1



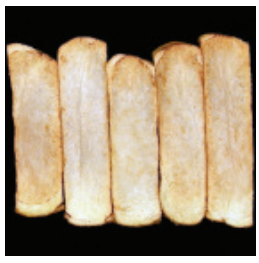
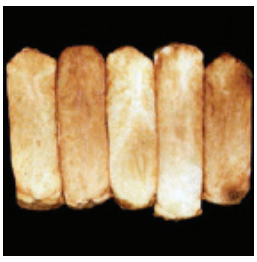
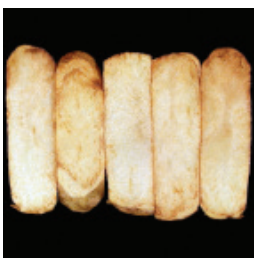
PA99N82-4



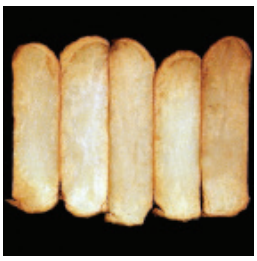
Tubers	WA Late Harvest Regional Trial Comments
Ranger Russet	
	**Tubers:** Oblong to long tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color:** At harvest= Light, uniform; after approximately two months of storage at 48°F= light, non-uniform; 44°F= light, non-uniform; 40°F= relatively dark, non-uniform; reconditioned= light, non-uniform.
Russet Burbank	
	**Tubers:** Oblong tubers. Moderate russet with good skin set; moderate eye depth. **Fry color:** At harvest= Light, non-uniform; after approximately two months of storage at 48°F= light, non-uniform; 44°F= relatively dark, non-uniform; 40°F= relatively dark, non-uniform; reconditioned= light, non-uniform.
A97066-42LB	
	**Tubers:** Oblong tubers. Moderate 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, uniform; reconditioned= relatively dark, non-uniform.
A98345-1	
	**Tubers:** Round to 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= light, uniform; reconditioned= light, uniform.
A0008-1TE	
	**Tubers:** 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, non-uniform; 44°F= relatively dark, 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.
Ranger Russet				
				
Russet Burbank				
				
A97066-42LB				
				
A98345-1				
				
A0008-1TE				
				

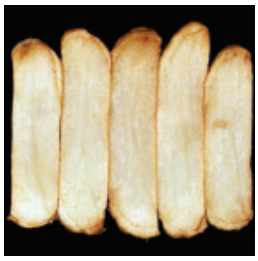
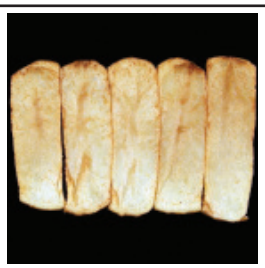
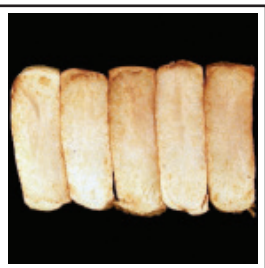
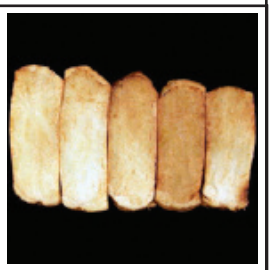
Tubers	WA Late Harvest Regional Trial Comments
A00324-1	
	**Tubers:** Oblong tubers. Light russet with fair skin set; moderate eye depth. **Fry color:** At harvest= Light, uniform; after approximately two months of storage at 48°F= light, non-uniform; 44°F= light, non-uniform; 40°F= relatively dark, non-uniform; reconditioned= light, uniform.
A01010-1	
	**Tubers:** Oblong tubers. Heavy 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= relatively dark, non-uniform; reconditioned= light, non-uniform.
AC99375-1Ru	
	**Tubers:** Round to oblong tubers. Moderately heavy russet with poor 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= relatively dark, uniform.
AO00057-2	
	**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, uniform; 44°F= light, non-uniform; 40°F= relatively dark, non-uniform; reconditioned= light, non-uniform.
AO96305-3	
	**Tubers:** Oblong to long 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, non-uniform; 44°F= light, non-uniform; 40°F= light, non-uniform; reconditioned= light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
A00324-1				
				
A01010-1				
				
AC99375-1Ru				
				
AO00057-2				
				
AO96305-3				
				

Tubers	WA Late Harvest Regional Trial Comments
AOTX95265-1Ru	
	**Tubers:** Oblong tubers. Moderately heavy russet with good skin set; shallow eyes. **Fry color:** At harvest= Light, uniform.
AOTX96216-2Ru	
	**Tubers**: Oblong tubers. Heavy russet with good skin set; moderate eye depth. **Fry color**: At harvest= Light, uniform.
AOTX96265-2Ru	
	**Tubers**: Round to oblong tubers. Moderately heavy russet with good skin set; moderate eye depth. **Fry color**: At harvest= Light, uniform.
CO98067-7Ru	
	**Tubers:** Round to 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= relatively dark, uniform; 44°F= relatively dark, uniform; 40°F= unacceptably dark, uniform; reconditioned= light, uniform.
CO99053-3Ru	
	**Tubers:** 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, non-uniform; 44°F= light, uniform; 40°F= relatively dark, uniform; reconditioned= light, uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
AOTX95265-1Ru				
		FRESH MARKET ONLY		
AOTX96216-2Ru				
		FRESH MARKET ONLY		
AOTX96265-2Ru				
		FRESH MARKET ONLY		
CO98067-7Ru				
				
CO99053-3Ru				
				

Tubers	WA Late Harvest Regional Trial Comments
CO99053-4Ru	
	**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, non-uniform; 44°F= light, non-uniform; 40°F= relatively dark, uniform; reconditioned= light, non-uniform.
CO99100-1Ru	
	**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, non-uniform; 44°F= light, non-uniform; 40°F= relatively dark, uniform; reconditioned= light, non-uniform.
PA00N14-2	
	**Tubers:** Oblong to long 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, non-uniform; 44°F= light, non-uniform; 40°F= unacceptably dark, uniform; reconditioned= relatively light, non-uniform.
PA99N2-1	
	**Tubers:** Round to 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, non-uniform; 44°F= relatively dark, non-uniform; 40°F= relatively dark, uniform; reconditioned= light, non-uniform.
PA99N82-4	
	**Tubers:** Round 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, uniform; 40°F= relatively dark, uniform; reconditioned= light, uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
CO99053-4Ru				
				
CO99100-1Ru				
				
PA00N14-2				
				
PA99N2-1				
				
PA99N82-4				
				

2010 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
4 A98345-1	34.5		34.6		28.3		32.5*
8 AC99375-1Ru	28.2		32.6		33.3		31.4
10 AO96305-3	31.7		28.7		30.6		30.3
9 AO00057-2	33.6		26.2		28.7		29.5
17 PA99N82-4	35.8		31.5		17.7		28.3
12 CO99053-3Ru	26.3		23.0		22.9		24.1
7 A01010-1	23.1		30.0		18.6	Sp. Gr.	23.9
1 Ranger Russet	26.4		25.3		19.7		23.8
16 PA99N2-1	27.0		22.2		21.8		23.7
3 A97066-42LB	25.8		22.0		21.3		23.0
6 A00324-1	28.0		21.9		18.4		22.8
13 CO99053-4Ru	26.3		21.1		18.0		21.8
15 PA00N14-2	26.9		23.4		14.9	Sp. Gr.	21.7
5 A0008-1TE	23.5		21.4		16.1	Sp. Gr.	20.3
14 CO99100-1Ru	22.2	Sp. Gr.	20.1		9.6	Sp. Gr.	17.3
2 Russet Burbank	18.2		18.7		14.4		17.1
11 CO98067-7Ru	18.1	Sp. Gr.	12.6	Sp. Gr.	6.4	Sp. Gr.	12.4
Average	26.8		24.4		20.0		

§ maximum rating possible = 38

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

*'A98345-1 has a tendency to mottle severely within 40-60 days of storage

Overall Postharvest Performance of Clones Compared to Russet Burbank

Clone	WA	ID	OR	Average
1 Ranger Russet	**H**	**H**	**H**	**H**
3 A97066-42LB	**H**	**H**	**H**	**H**
4 A98345-1	**H**	**H**	**H**	**H***
5 A0008-1TE	**H**	**H**	**H**	**H**
6 A00324-1	**H**	**H**	**H**	**H**
7 A01010-1	**H**	**H**	**H**	**H**
8 AC99375-1Ru	**H**	**H**	**H**	**H**
9 AO00057-2	**H**	**H**	**H**	**H**
10 AO96305-3	**H**	**H**	**H**	**H**
11 CO98067-7Ru	**L**	**L**	**L**	**L**
12 CO99053-3Ru	**H**	**H**	**H**	**H**
13 CO99053-4Ru	**H**	**H**	**H**	**H**
14 CO99100-1Ru	**H**	**H**	**L**	**H**
15 PA00N14-2	**H**	**H**	**H**	**H**
16 PA99N2-1	**H**	**H**	**H**	**H**
17 PA99N82-4	**H**	**H**	**H**	**H**

H= Higher than Russet Burbank

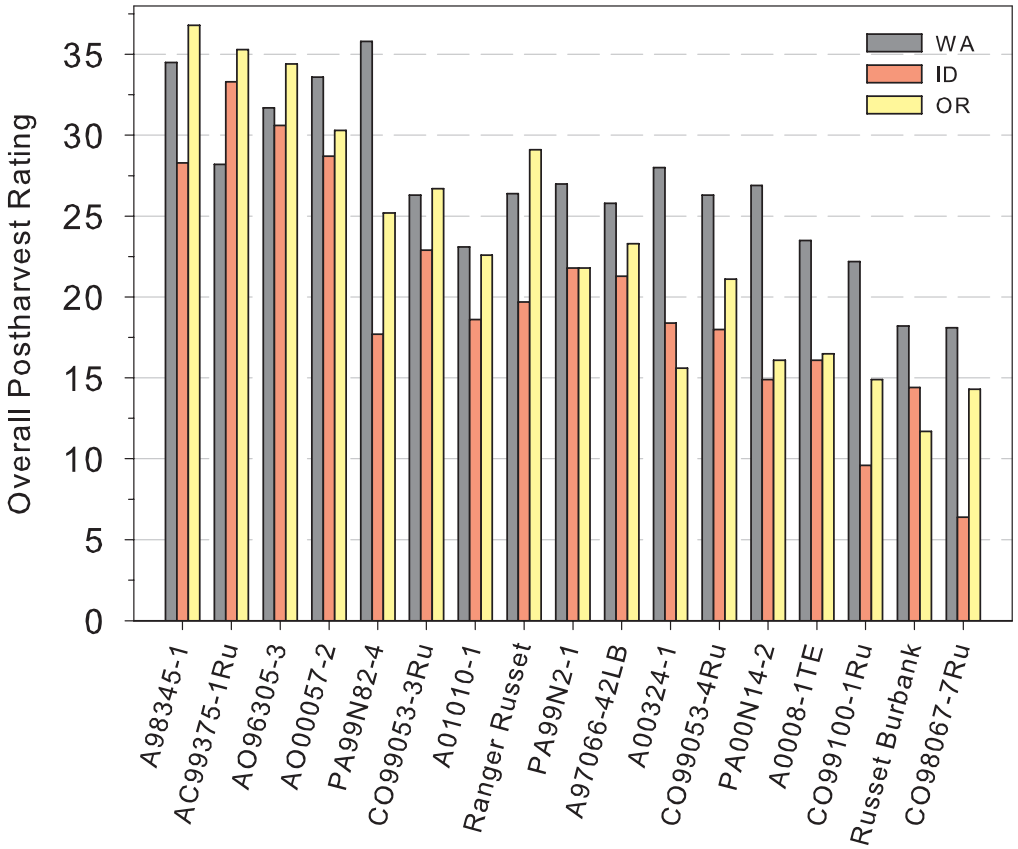
L= Lower than Russet Burbank

S = Same as Russet Burbank

* A98345-1 has a tendency to mottle severely within 40-60 days of storage

2010 Late Harvest Regional Trial

Late Harvest Regional Postharvest Ratings



The WSU Potato Group stands together proudly after a successful Field Day.

2010 Late Harvest Regional Trial

Prior to Storage

Clone	PHOTOVOLT READING stem	bud	av	rtg §	DIFF	USDA COLOR	SPECIFIC GRAVITY	rtg
Washington								
1 Ranger Russet	33.5	41.9	37.7	**4+**	8.4	0	1.090	**4**
2 Russet Burbank	30.5	40.3	35.4	**3-**	9.8	0	1.080	**3**
3 A97066-42LB	37.5	38.4	38.0	**4+**	4.0	0	1.101	**1**
4 A98345-1	44.7	43.7	44.2	**5+**	4.8	0	1.090	**4**
5 A0008-1TE	39.7	47.6	43.7	**5+**	8.4	0	1.080	**3**
6 A00324-1	38.8	45.3	42.1	**5+**	6.9	0	1.085	**5**
7 A01010-1	27.2	46.1	36.6	**4-**	18.9	1	1.087	**5**
8 AC99375-1Ru	38.3	39.8	39.0	**4+**	4.9	0	1.097	**1**
9 AO00057-2	49.3	51.5	50.4	**5+**	3.1	0	1.089	**4**
10 AO96305-3	45.5	50.2	47.9	**5+**	6.4	0	1.087	**5**
11 CO98067-7Ru	28.8	33.6	31.2	**3+**	5.2	1	1.070	**0**
12 CO99053-3Ru	34.2	38.9	36.5	**4+**	6.8	0	1.091	**4**
13 CO99053-4Ru	39.0	45.8	42.4	**5+**	7.4	0	1.077	**1**
14 CO99100-1Ru	43.2	46.4	44.8	**5+**	3.3	0	1.072	**0**
15 PA00N14-2	39.7	44.5	42.1	**5+**	6.6	0	1.083	**5**
16 PA99N2-1	38.7	45.9	42.3	**5+**	7.2	0	1.087	**5**
17 PA99N82-4	43.2	44.8	44.0	**5+**	2.4	0	1.084	**5**
		LSD 0.05	*2.8*		*3.7*		*0.004*	
Average	38.3	43.8	41.1		6.7	0	1.085	
Idaho								
1 Ranger Russet	28.4	28.7	28.6	**2+**	4.1	1	1.084	**5**
2 Russet Burbank	26.9	35.7	31.3	**3+**	8.7	1	1.079	**2**
3 A97066-42LB	31.1	27.8	29.5	**2+**	5.4	1	1.094	**2**
4 A98345-1	41.5	36.9	39.2	**4+**	5.2	0	1.084	**5**
5 A0008-1TE	39.0	45.6	42.3	**5-**	10.2	0	1.084	**5**
6 A00324-1	34.4	36.0	35.2	**3+**	3.3	0	1.080	**3**
7 A01010-1	39.2	40.9	40.1	**4+**	4.0	0	1.089	**4**
8 AC99375-1Ru	44.6	45.3	44.9	**5+**	3.1	0	1.083	**5**
9 AO00057-2	36.1	37.9	37.0	**4+**	6.4	0	1.078	**2**
10 AO96305-3	35.2	45.9	40.5	**5-**	10.8	0	1.082	**4**
11 CO98067-7Ru	18.7	21.7	20.2	**1+**	3.6	3	1.075	**0**
12 CO99053-3Ru	30.3	29.6	29.9	**2+**	3.4	1	1.080	**3**
13 CO99053-4Ru	31.6	41.1	36.3	**5-**	9.9	0	1.078	**2**
14 CO99100-1Ru	34.4	49.4	41.9	**5-**	15.0	0	1.076	**1**
15 PA00N14-2	38.9	40.2	39.6	**4+**	5.7	0	1.088	**5**
16 PA99N2-1	31.0	33.8	32.4	**3+**	6.4	0	1.084	**5**
17 PA99N82-4	34.0	39.3	36.7	**4+**	5.6	0	1.083	**5**
		LSD 0.05	*3.2*		*3.5*		*0.004*	
Average	33.8	37.4	35.6		6.5	0	1.082	
Oregon								
1 Ranger Russet	29.0	40.2	34.6	**3-**	11.3	1	1.090	**4**
2 Russet Burbank	19.4	39.2	29.3	**2-**	19.8	3	1.082	**4**
3 A97066-42LB	27.0	30.9	29.0	**2+**	5.8	1	1.088	**5**
4 A98345-1	31.2	36.1	33.7	**3+**	5.3	0	1.086	**5**
5 A0008-1TE	30.6	48.1	39.3	**4-**	17.5	0	1.071	**0**
6 A00324-1	37.0	44.8	40.9	**5+**	8.5	0	1.077	**1**
7 A01010-1	24.8	45.6	35.2	**3-**	20.9	1	1.075	**0**
8 AC99375-1Ru	34.8	42.0	38.4	**4+**	8.0	0	1.083	**5**
9 AO00057-2	43.1	50.2	46.6	**5+**	7.2	0	1.085	**5**
10 AO96305-3	42.5	51.8	47.1	**5-**	9.5	0	1.087	**5**
11 CO98067-7Ru	24.4	35.9	30.1	**2-**	11.5	2	1.066	**0**
12 CO99053-3Ru	33.0	39.7	36.3	**4+**	7.4	0	1.080	**3**
13 CO99053-4Ru	29.6	44.1	36.9	**4-**	14.5	1	1.080	**3**
14 CO99100-1Ru	24.8	47.0	35.9	**4-**	22.2	1	1.072	**0**
15 PA00N14-2	25.9	44.3	35.1	**3-**	18.4	1	1.073	**0**
16 PA99N2-1	39.3	45.3	42.3	**5+**	6.2	0	1.078	**2**
17 PA99N82-4	34.6	45.1	39.9	**4-**	10.5	0	1.077	**1**
		LSD 0.05	*3.8*		*4.6*		*0.006*	
Average	31.2	43.0	37.1		12.0	1	1.079	

Date test performed:

Washington	Oct. 4	Sept. 30
Idaho	Oct. 2	Sept. 22
Oregon	Oct. 2	Sept. 28

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

2010 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**	100	38	4.4	1.8	10	9
2 Russet Burbank	**3.2**	67	21	2.5	1.5	10	14
3 A97066-42LB	**2.8**	88	54	3.3	1.8	7	7
4 A98345-1	**3.5**	100	46	3.9	2.0	6	4
5 A0008-1TE	**3.5**	0	25	1.0	1.3	12	11
6 A00324-1	**3.0**	67	21	2.6	1.5	6	9
7 A01010-1	**3.1**	29	0	1.6	1.0	9	9
8 AC99375-1Ru	**3.2**	79	25	2.8	1.5	6	5
9 AO00057-2	**3.6**	63	8	2.1	1.1	5	6
10 AO96305-3	**3.7**	23	14	1.3	1.1	10	15
11 CO98067-7Ru	**2.1**	30	20	1.8	1.5	9	11
12 CO99053-3Ru	**3.3**	75	30	3.0	1.7	8	9
13 CO99053-4Ru	**3.3**	21	13	1.4	1.1	18	19
14 CO99100-1Ru	**3.2**	17	13	1.3	1.3	13	22
15 PA00N14-2	**2.9**	50	0	2.4	1.0	9	8
16 PA99N2-1	**3.0**	67	17	2.6	1.2	10	8
17 PA99N82-4	**3.8**	42	21	2.1	1.3	10	12
LSD 0.05	*0.3*	*26*	*24*			*4*	*5*
Average	3.2	53.8	21.4	2.4	1.4	9.2	10.4
Idaho							
1 Ranger Russet	**3.3**	67	13	2.7	1.2	7	5
2 Russet Burbank	**2.7**	29	21	1.7	1.4	8	6
3 A97066-42LB	**3.0**	46	17	1.9	1.4	9	8
4 A98345-1	**3.6**	21	4	1.5	1.1	7	7
5 A0008-1TE	**3.4**	25	0	1.5	1.0	11	7
6 A00324-1	**2.9**	0	0	1.0	1.0	5	6
7 A01010-1	**3.0**	4	8	1.1	1.2	6	8
8 AC99375-1Ru	**3.6**	4	0	1.1	1.0	5	8
9 AO00057-2	**3.2**	0	4	1.0	1.1	4	4
10 AO96305-3	**3.7**	8	0	1.2	1.0	10	10
11 CO98067-7Ru	**2.6**	0	0	1.0	1.0	9	5
12 CO99053-3Ru	**3.0**	25	8	1.5	1.2	10	7
13 CO99053-4Ru	**3.1**	8	4	1.2	1.1	15	11
14 CO99100-1Ru	**3.1**	13	25	1.3	1.6	17	15
15 PA00N14-2	**3.4**	21	4	1.3	1.1	9	8
16 PA99N2-1	**3.2**	21	0	1.5	1.0	8	8
17 PA99N82-4	**3.5**	8	4	1.2	1.1	10	18
LSD 0.05	*0.4*	*21*	*15*			*4*	*6*
Average	3.2	17.6	6.6	1.4	1.1	8.8	8.2
Oregon							
1 Ranger Russet	**3.7**	100	63	4.7	2.5	6	9
2 Russet Burbank	**3.4**	79	33	3.4	1.7	12	15
3 A97066-42LB	**3.3**	96	13	3.5	1.2	11	13
4 A98345-1	**3.3**	100	58	4.5	2.7	11	7
5 A0008-1TE	**3.1**	38	21	1.6	1.2	11	11
6 A00324-1	**3.4**	50	38	2.2	1.8	9	8
7 A01010-1	**3.6**	4	8	1.1	1.1	5	5
8 AC99375-1Ru	**3.3**	54	21	2.2	1.4	7	5
9 AO00057-2	**3.7**	17	8	1.3	1.2	8	9
10 AO96305-3	**3.6**	33	42	1.8	1.6	16	18
11 CO98067-7Ru	**2.4**	17	29	1.4	1.6	11	8
12 CO99053-3Ru	**2.9**	75	58	3.3	2.5	8	12
13 CO99053-4Ru	**3.0**	8	0	1.2	1.0	10	9
14 CO99100-1Ru	**2.6**	8	25	1.3	1.7	7	12
15 PA00N14-2	**2.9**	67	0	2.6	1.0	8	10
16 PA99N2-1	**2.8**	75	25	3.5	1.6	9	10
17 PA99N82-4	**3.7**	58	13	2.2	1.3	8	11
LSD 0.05	*0.3*	*26*	*26*			*3*	*4*
Average	3.2	51.7	26.7	2.5	2	9.3	10.2

Date test performed:

Washington	Oct. 25	Nov. 3	Nov. 19
Idaho	Oct. 21	Oct. 27	Nov. 16
Oregon	Oct. 22	Nov. 2	Nov. 18

2010 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	31.7	44.9	38.3	**4-**	13.2	0	1.2	0.6	**5**	93	1/2"
2 Russet Burbank	29.3	39.3	34.3	**3-**	10.0	1	1.5	0.8	**4**	0	
3 A97066-42LB	31.2	40.1	35.6	**4+**	8.9	0	1.3	0.7	**4**	33	1/8"
4 A98345-1	43.4	47.1	45.2	**5+**	5.1	0	0.6	0.5	**5**	100	1 1/2"
5 A0008-1TE	30.8	43.0	36.9	**4-**	12.2	0	1.3	0.6	**4**	100	1/4"
6 A00324-1	30.5	47.0	38.7	**4-**	16.5	0	1.3	0.5	**5**	100	1/2"
7 A01010-1	27.7	47.8	37.8	**4-**	20.1	1	1.6	0.5	**4**	100	1/4"
8 AC99375-1Ru	38.1	43.5	40.8	**5+**	6.0	0	0.8	0.6	**5**	100	1/2"
9 AO00057-2	47.5	52.9	50.2	**5+**	7.3	0	0.5	0.5	**5**	0	
10 AO96305-3	44.8	57.7	51.3	**5-**	13.3	0	0.6	0.3	**5**	87	1/2"
11 CO98067-7Ru	23.8	32.5	28.1	**2+**	8.9	2	2.1	1.2	**3**	100	1"
12 CO99053-3Ru	25.2	40.8	33.0	**3-**	16.0	1	1.9	0.7	**4**	100	1/2"
13 CO99053-4Ru	35.5	48.1	41.8	**5-**	12.6	0	1.0	0.5	**5**	100	1"
14 CO99100-1Ru	29.7	43.2	36.5	**4-**	13.5	1	1.4	0.6	**4**	100	2"
15 PA00N14-2	26.8	44.4	35.6	**4-**	17.6	1	1.7	0.6	**4**	0	
16 PA99N2-1	37.2	46.2	41.7	**5-**	9.0	0	0.9	0.5	**5**	87	1/8"
17 PA99N82-4	38.2	46.2	42.2	**5+**	8.0	0	0.8	0.5	**5**	100	1/2"
		LSD 0.05	*3.7*		*5.3*					*12*	
Average	33.6	45.0	39.3		11.7	0	1.2	0.6		75	
Idaho											
1 Ranger Russet	26.8	28.7	27.7	**2+**	5.3	1	1.7	1.5	**3**	80	1/8"
2 Russet Burbank	22.0	32.6	27.3	**2-**	10.6	2	2.4	1.2	**3**	0	
3 A97066-42LB	31.0	31.4	31.2	**3+**	4.2	0	1.3	1.3	**4**	0	
4 A98345-1	42.3	43.0	42.6	**5+**	3.6	0	0.6	0.6	**5**	100	1/2"
5 A0008-1TE	30.3	37.2	33.7	**3-**	11.3	1	1.4	0.9	**4**	60	1/4"
6 A00324-1	24.4	32.7	28.6	**2+**	8.8	2	2.0	1.2	**3**	93	1/8"
7 A01010-1	33.5	35.2	34.3	**3+**	4.0	0	1.1	1.0	**4**	60	1/8"
8 AC99375-1Ru	34.2	39.1	36.7	**4+**	6.9	0	1.1	0.8	**5**	0	
9 AO00057-2	33.7	39.0	36.3	**4+**	7.6	0	1.1	0.8	**5**	20	1/8"
10 AO96305-3	39.3	52.5	45.9	**5-**	13.2	0	0.8	0.5	**5**	53	1/8"
11 CO98067-7Ru	23.4	24.3	23.8	**1+**	3.5	2	2.2	2.0	**2**	100	1/2"
12 CO99053-3Ru	31.5	31.2	31.4	**3+**	4.8	0	1.3	1.3	**4**	87	1/4"
13 CO99053-4Ru	28.6	38.4	33.5	**3-**	10.6	1	1.5	0.8	**4**	93	1/2"
14 CO99100-1Ru	23.9	41.6	32.8	**3-**	17.8	2	2.1	0.7	**4**	100	1/2"
15 PA00N14-2	30.7	39.1	34.9	**3-**	9.1	0	1.3	0.8	**4**	0	
16 PA99N2-1	27.0	30.2	28.6	**2+**	5.4	1	1.7	1.4	**3**	73	1/4"
17 PA99N82-4	34.8	38.3	36.5	**4+**	4.9	0	1.0	0.8	**5**	100	1/4"
		LSD 0.05	*3.1*		*4.0*					*19*	
Average	30.4	36.1	33.3		7.7	1	1.4	1.0		60	
Oregon											
1 Ranger Russet	27.4	42.7	35.0	**3-**	15.3	1	1.7	0.6	**4**	93	1/2"
2 Russet Burbank	17.0	38.5	27.7	**2-**	21.6	3	3.2	0.8	**2**	0	
3 A97066-42LB	21.7	30.6	26.1	**2-**	9.5	2	2.4	1.3	**3**	47	1/4"
4 A98345-1	32.1	42.0	37.1	**4-**	9.9	0	1.2	0.7	**5**	100	1 1/2"
5 A0008-1TE	24.7	37.8	31.2	**3-**	13.3	1	2.0	0.8	**4**	87	1/2"
6 A00324-1	23.7	38.0	30.9	**3-**	14.3	2	2.1	0.8	**3**	87	1/2"
7 A01010-1	23.6	49.1	36.4	**4-**	25.5	2	2.1	0.5	**4**	67	1/4"
8 AC99375-1Ru	39.4	42.7	41.0	**5+**	5.0	0	0.8	0.6	**5**	93	1/2"
9 AO00057-2	30.7	46.9	38.8	**4-**	16.3	0	1.3	0.5	**5**	0	
10 AO96305-3	38.0	52.2	45.1	**5-**	14.2	0	0.8	0.5	**5**	100	1/4"
11 CO98067-7Ru	17.2	29.9	23.5	**1-**	12.8	3	3.2	1.4	**2**	87	1"
12 CO99053-3Ru	26.8	34.4	30.6	**3+**	8.1	1	1.7	1.0	**4**	100	1/2"
13 CO99053-4Ru	25.0	33.6	29.3	**2-**	10.2	1	2.0	1.1	**3**	100	3/4"
14 CO99100-1Ru	16.4	35.4	25.9	**2-**	19.0	3	3.3	1.0	**2**	100	1"
15 PA00N14-2	28.5	41.5	35.0	**3-**	13.0	1	1.5	0.7	**4**	13	1/8"
16 PA99N2-1	27.4	40.1	33.7	**3-**	12.6	1	1.7	0.7	**4**	67	1/4"
17 PA99N82-4	30.1	39.7	34.9	**3-**	9.6	1	1.4	0.7	**4**	100	1/2"
		LSD 0.05	*3.3*		*4.6*					*18*	
Average	26.5	39.7	33.1		13.5	1	1.9	0.8		73	

Date test performed:

Washington	Dec. 10		Dec. 10	Dec. 20
Idaho	Nov. 29		Nov. 29	Dec. 21
Oregon	Dec. 5		Dec. 5	Dec. 20

§ 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.

2010 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	26.8	39.3	33.0	**3-**	12.5	1	1.7	0.8	**4**
2 Russet Burbank	22.8	35.1	29.0	**2-**	12.7	2	2.3	1.0	**3**
3 A97066-42LB	27.7	34.7	31.2	**3+**	8.3	1	1.6	1.0	**4**
4 A98345-1	34.3	41.0	37.6	**4+**	6.7	0	1.0	0.7	**5**
5 A0008-1TE	25.1	33.0	29.1	**2-**	9.3	1	1.9	1.1	**3**
6 A00324-1	29.5	39.0	34.3	**3-**	9.5	1	1.4	0.8	**4**
7 A01010-1	20.6	40.6	30.6	**3-**	20.0	2	2.6	0.7	**3**
8 AC99375-1Ru	32.8	35.7	34.2	**3+**	5.9	0	1.1	1.0	**4**
9 AO00057-2	40.2	49.1	44.6	**5-**	9.0	0	0.7	0.5	**5**
10 AO96305-3	33.2	42.9	38.0	**4-**	9.7	0	1.1	0.6	**5**
11 CO98067-7Ru	23.5	28.0	25.7	**2+**	4.5	2	2.2	1.6	**3**
12 CO99053-3Ru	32.8	32.7	32.8	**3+**	5.3	0	1.1	1.2	**4**
13 CO99053-4Ru	30.3	41.8	36.0	**4-**	11.5	1	1.4	0.7	**4**
14 CO99100-1Ru	28.2	42.0	35.1	**3-**	13.8	1	1.6	0.7	**4**
15 PA00N14-2	25.4	40.9	33.1	**3-**	15.6	1	1.9	0.7	**4**
16 PA99N2-1	24.1	36.5	30.3	**2-**	12.4	1	2.1	0.9	**3**
17 PA99N82-4	34.6	40.8	37.7	**4+**	6.7	0	1.0	0.7	**5**
		LSD 0.05	*3.7*		*4.2*				
Average	28.9	38.4	33.7		10.2	1	1.6	0.9	
Idaho									
1 Ranger Russet	29.0	37.6	33.3	**3+**	8.6	1	1.5	0.8	**4**
2 Russet Burbank	25.8	31.4	28.6	**2+**	6.0	1	1.8	1.3	**3**
3 A97066-42LB	28.8	28.1	28.5	**2+**	2.5	1	1.5	1.6	**3**
4 A98345-1	35.0	40.6	37.8	**4+**	6.0	0	1.0	0.7	**5**
5 A0008-1TE	20.6	29.0	24.8	**2-**	9.9	2	2.6	1.5	**2**
6 A00324-1	24.7	29.1	26.9	**2+**	8.2	1	2.0	1.5	**3**
7 A01010-1	36.8	38.7	37.7	**4+**	6.7	0	0.9	0.8	**5**
8 AC99375-1Ru	29.1	33.5	31.3	**3+**	8.7	1	1.5	1.1	**4**
9 AO00057-2	23.3	27.7	25.5	**2+**	7.1	2	2.2	1.6	**3**
10 AO96305-3	32.1	44.4	38.2	**4-**	14.2	0	1.2	0.6	**5**
11 CO98067-7Ru	20.7	23.4	22.0	**1+**	3.2	2	2.6	2.2	**2**
12 CO99053-3Ru	27.7	27.1	27.4	**2+**	6.5	1	1.6	1.7	**3**
13 CO99053-4Ru	22.5	28.6	25.6	**2+**	7.9	2	2.3	1.5	**3**
14 CO99100-1Ru	24.0	39.3	31.6	**3-**	16.2	2	2.1	0.8	**4**
15 PA00N14-2	22.2	32.2	27.2	**2-**	10.2	2	2.3	1.2	**3**
16 PA99N2-1	20.9	22.4	21.6	**1+**	5.2	2	2.5	2.3	**2**
17 PA99N82-4	27.5	34.5	31.0	**3+**	7.3	1	1.7	1.0	**4**
		LSD 0.05	*3.0*		*4.0*				
Average	26.5	32.2	29.4		7.9	1	1.8	1.3	
Oregon									
1 Ranger Russet	22.9	37.6	30.2	**2-**	14.7	2	2.2	0.8	**3**
2 Russet Burbank	17.2	36.1	26.6	**2-**	18.9	3	3.2	0.9	**2**
3 A97066-42LB	22.7	30.6	26.6	**2+**	7.9	2	2.3	1.3	**3**
4 A98345-1	30.8	39.5	35.1	**3+**	8.6	0	1.3	0.8	**4**
5 A0008-1TE	20.0	32.8	26.4	**2-**	13.4	2	2.7	1.2	**3**
6 A00324-1	19.8	30.4	25.1	**2-**	10.6	2	2.7	1.4	**2**
7 A01010-1	25.2	43.5	34.4	**3-**	18.3	1	1.9	0.6	**4**
8 AC99375-1Ru	32.9	39.1	36.0	**4+**	6.4	0	1.1	0.8	**4**
9 AO00057-2	28.5	41.1	34.8	**3-**	12.6	1	1.5	0.7	**4**
10 AO96305-3	31.8	51.5	41.7	**5-**	19.8	0	1.2	0.5	**5**
11 CO98067-7Ru	17.0	26.0	21.5	**1-**	9.1	3	3.2	1.8	**1**
12 CO99053-3Ru	19.3	24.8	22.0	**1+**	6.1	3	2.8	2.0	**2**
13 CO99053-4Ru	21.5	28.8	25.1	**2+**	8.6	2	2.5	1.5	**2**
14 CO99100-1Ru	15.5	29.6	22.6	**1-**	14.1	3	3.5	1.4	**1**
15 PA00N14-2	22.3	35.2	28.8	**2-**	12.9	2	2.3	1.0	**3**
16 PA99N2-1	20.3	28.8	24.5	**2+**	8.5	2	2.6	1.5	**2**
17 PA99N82-4	21.7	33.2	27.4	**2-**	11.6	2	2.4	1.1	**3**
		LSD 0.05	*3.7*		*5.2*				
Average	22.9	34.6	28.8		11.9	2	2.3	1.1	

Date test performed:

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

§ 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.

2010 Late Harvest Regional 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	0	22.7	34.8	28.8	12.2	2	35.6	47.7	41.6	12.0	0
2 Russet Burbank	0	19.8	27.4	23.6	9.4	2	31.0	42.1	36.5	11.4	0
3 A97066-42LB	0	20.2	22.3	21.2	5.0	2	23.6	34.0	28.8	10.4	2
4 A98345-1	0	35.8	38.4	37.1	4.3	0	45.6	48.3	46.9	3.7	0
5 A0008-1TE	0	15.4	20.4	17.9	5.5	3	22.2	33.1	27.6	11.0	2
6 A00324-1	0	18.8	28.5	23.7	10.1	3	33.1	38.3	35.7	5.4	0
7 A01010-1	0	16.8	26.6	21.7	9.8	3	29.2	47.8	38.5	18.6	1
8 AC99375-1Ru	0	25.1	27.9	26.5	6.2	1	22.4	28.4	25.4	6.8	2
9 AO00057-2	0	21.4	34.1	27.7	12.7	2	35.5	44.3	39.9	9.5	0
10 AO96305-3	0	32.8	45.7	39.2	13.1	0	39.3	54.0	46.7	14.7	0
11 CO98067-7Ru	0	16.5	15.4	15.9	2.0	3	28.1	33.7	30.9	5.8	1
12 CO99053-3Ru	0	24.4	26.9	25.6	5.5	2	35.7	40.9	38.3	5.6	0
13 CO99053-4Ru	0	17.3	22.1	19.7	6.2	3	28.5	39.5	34.0	11.0	1
14 CO99100-1Ru	0	17.7	23.8	20.8	6.3	3	33.2	43.4	38.3	11.2	0
15 PA00N14-2	0	16.1	20.2	18.2	4.6	3	21.1	37.6	29.3	16.5	2
16 PA99N2-1	0	19.6	23.0	21.3	5.0	2	32.4	46.9	39.7	14.5	0
17 PA99N82-4	0	24.7	31.9	28.3	7.3	1	37.9	46.6	42.3	8.7	0
LSD 0.05	*ns*			*3.5*	*3.9*				*3.7*	*4.5*	
Average	0	21.5	27.6	24.5	7.4	2	31.0	41.2	36.1	10.5	1
Idaho											
1 Ranger Russet	0	15.3	18.9	17.1	5.0	3	28.2	33.2	30.7	7.8	1
2 Russet Burbank	0	14.2	18.0	16.1	4.3	4	23.9	35.9	29.9	12.1	2
3 A97066-42LB	0	19.0	19.3	19.1	2.7	3	25.6	32.3	28.9	8.9	1
4 A98345-1	0	25.6	30.6	28.1	6.6	1	40.0	46.3	43.1	7.2	0
5 A0008-1TE	0	16.8	16.8	16.8	3.2	3	15.5	20.5	18.0	6.2	3
6 A00324-1	0	13.1	14.1	13.6	2.3	4	31.1	34.5	32.8	8.5	0
7 A01010-1	0	22.8	21.9	22.4	3.3	2	29.8	31.2	30.5	4.7	1
8 AC99375-1Ru	0	17.2	22.5	19.8	6.1	3	25.4	29.1	27.3	5.0	1
9 AO00057-2	0	15.9	17.3	16.6	3.3	3	25.7	32.0	28.9	7.0	1
10 AO96305-3	0	20.4	28.0	24.2	8.0	2	31.1	47.0	39.0	16.6	0
11 CO98067-7Ru	0	12.9	11.7	12.3	1.9	4	30.2	34.9	32.5	8.0	1
12 CO99053-3Ru	0	19.2	16.5	17.9	4.2	3	32.9	26.2	29.5	7.4	1
13 CO99053-4Ru	0	12.2	18.9	15.6	7.5	4	30.3	34.6	32.4	11.9	1
14 CO99100-1Ru	0	13.0	20.4	16.7	7.4	4	27.9	40.7	34.3	13.6	1
15 PA00N14-2	0	13.5	18.8	16.2	5.3	4	22.9	27.6	25.2	6.4	2
16 PA99N2-1	0	11.1	13.3	12.2	2.2	4	20.4	27.6	24.0	8.6	2
17 PA99N82-4	0	21.5	22.7	22.1	3.8	2	30.5	32.7	31.6	5.8	0
LSD 0.05	*ns*			*2.0*	*3.0*				*3.2*	*4.8*	
Average	0	16.7	19.4	18.0	4.5	3	27.7	33.3	30.5	8.6	1
Oregon											
1 Ranger Russet	0	17.1	34.7	25.9	17.6	3	24.3	41.0	32.6	16.7	2
2 Russet Burbank	0	12.5	28.5	20.5	16.0	4	19.4	40.2	29.8	20.8	3
3 A97066-42LB	0	12.5	14.4	13.5	2.4	4	19.4	28.0	23.7	8.8	3
4 A98345-1	0	17.2	25.2	21.2	8.6	3	33.9	43.2	38.6	9.4	0
5 A0008-1TE	0	13.4	16.6	15.0	3.3	4	17.5	23.8	20.7	6.3	3
6 A00324-1	0	12.7	18.4	15.5	5.7	4	29.7	36.7	33.2	9.2	1
7 A01010-1	0	13.3	21.5	17.4	8.4	4	25.4	38.4	31.9	14.1	1
8 AC99375-1Ru	0	21.3	26.9	24.1	5.9	2	19.6	29.0	24.3	9.8	2
9 AO00057-2	0	11.9	23.2	17.6	11.3	4	21.9	30.5	26.2	9.0	2
10 AO96305-3	0	24.5	40.0	32.2	15.5	1	24.8	46.5	35.6	21.6	1
11 CO98067-7Ru	0	12.1	15.5	13.8	3.4	4	20.9	26.3	23.6	6.7	2
12 CO99053-3Ru	0	15.7	19.1	17.4	5.2	3	20.0	22.2	21.1	5.0	2
13 CO99053-4Ru	0	12.6	14.7	13.6	2.9	4	22.5	34.0	28.3	11.6	2
14 CO99100-1Ru	0	8.2	13.4	10.8	5.3	4	23.8	38.7	31.3	15.2	2
15 PA00N14-2	0	12.5	18.2	15.3	5.7	4	17.9	31.2	24.5	13.5	3
16 PA99N2-1	0	11.3	14.3	12.8	3.1	4	25.0	32.0	28.5	9.8	1
17 PA99N82-4	0	14.1	23.7	18.9	9.6	4	32.9	48.9	40.9	16.0	0
LSD 0.05	*ns*			*2.3*	*3.6*				*3.4*	*5.0*	
Average	0	14.3	21.7	18.0	7.6	4	23.5	34.7	29.1	12.0	2

Date test performed:

Washington	Dec. 21	Dec. 13	Dec. 19
Idaho	Dec. 21	Dec. 1	Dec. 17
Oregon	Dec. 21	Dec. 7	Dec. 18

A CHAIRMAN'S WORK IS NEVER OVER

Rick Knowles hard at work

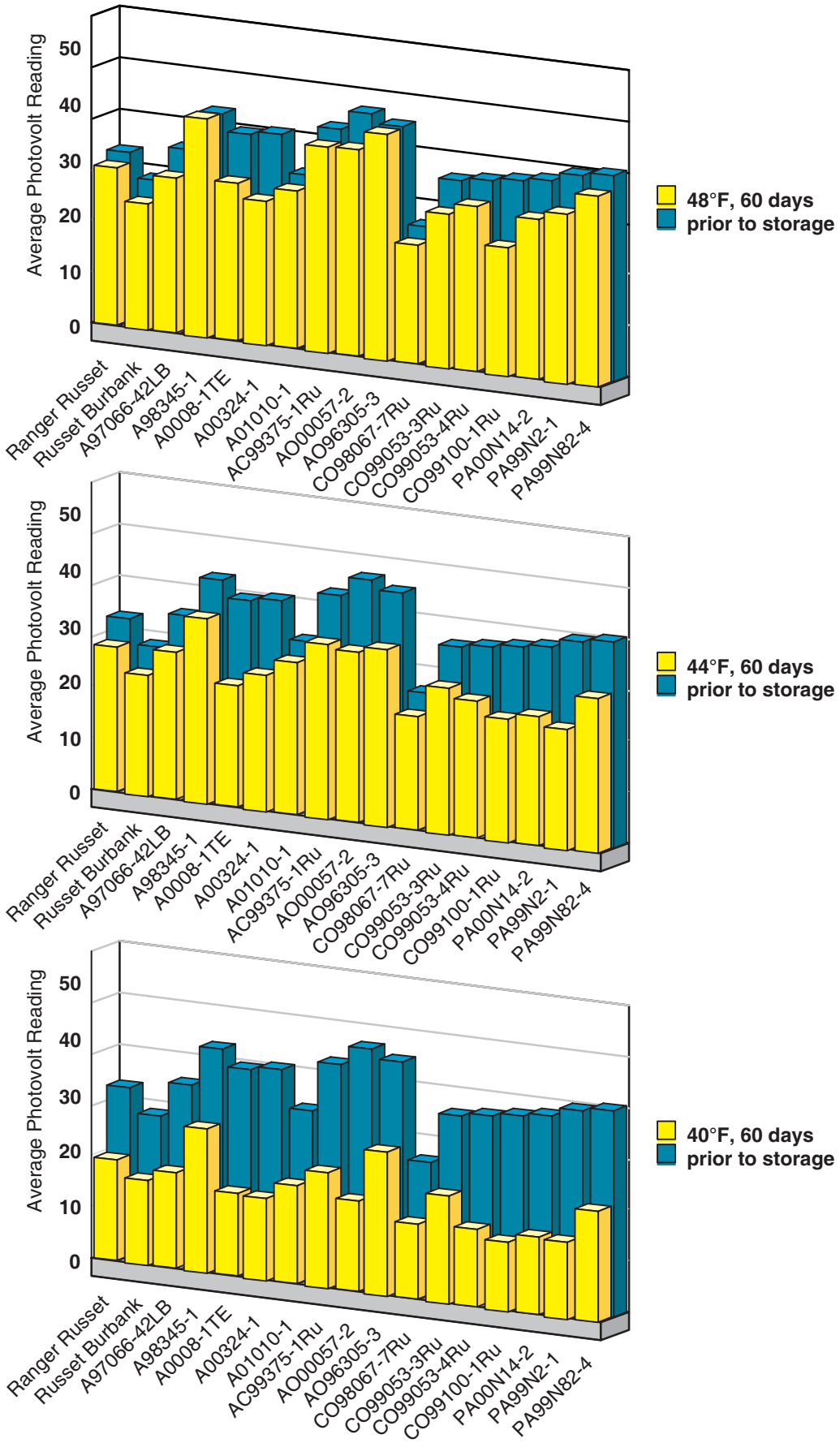
Above: Who is the strongest? A close competition between Rick Knowles (left) and Chris Hiles (right) to see who can hold the steel I-beam the longest.

Below: Rick Knowles fondly remembers the good ol' days prior to the invention of gas powered equipment.

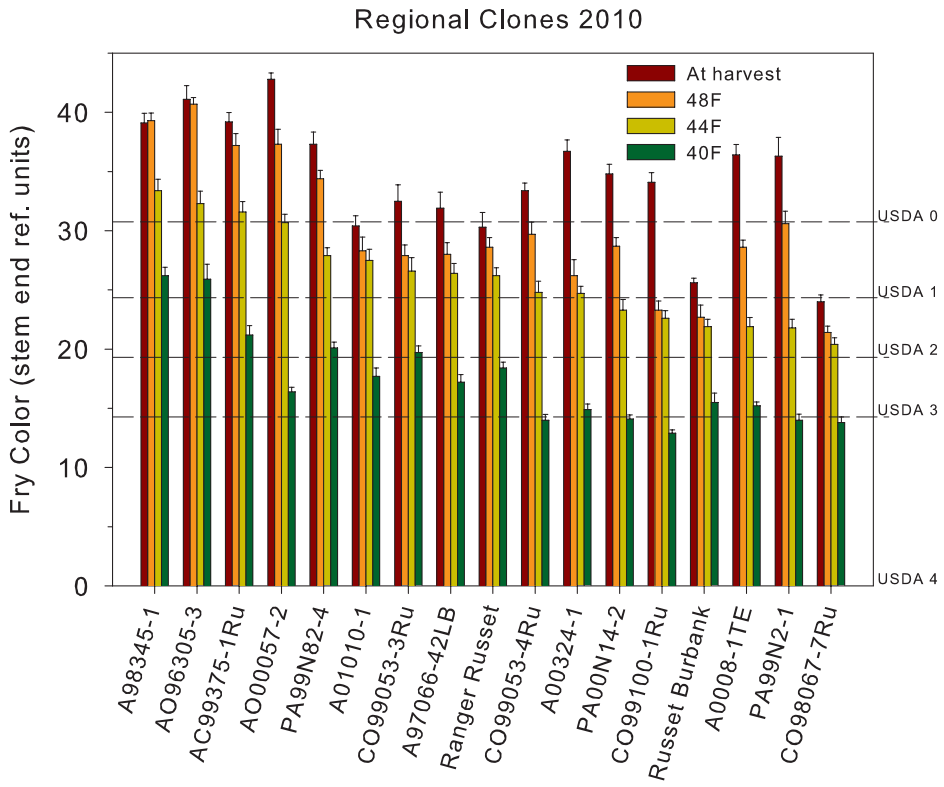
Rick makes sure to pet individual plants at least three times before tubers mature to gain maximum yield.

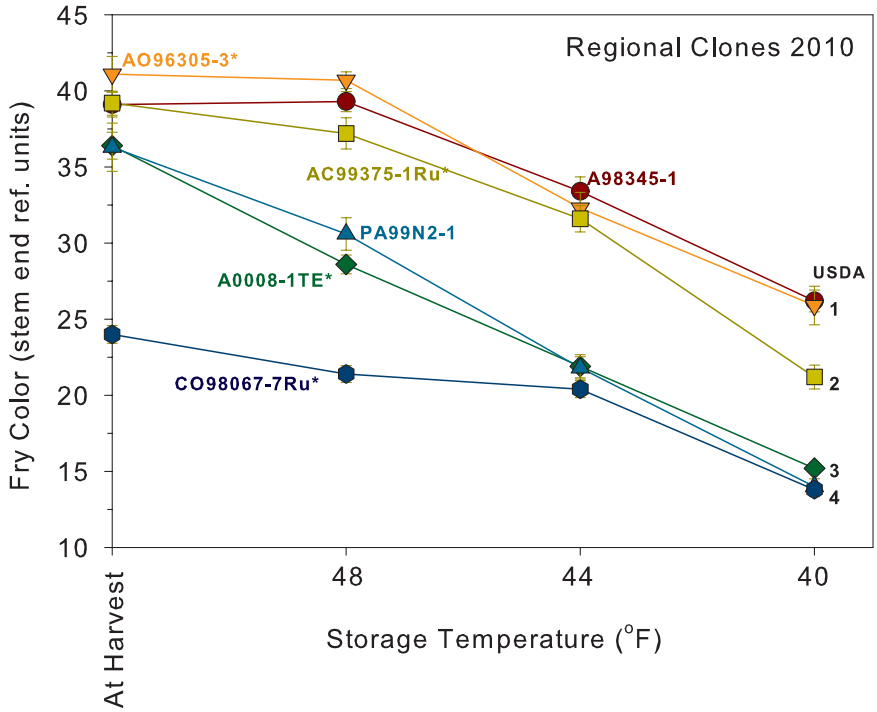
2010 Late Harvest Regional Trial

Regional Trial - 3 State Average of Stem End



2010 Late Harvest Regional Trial

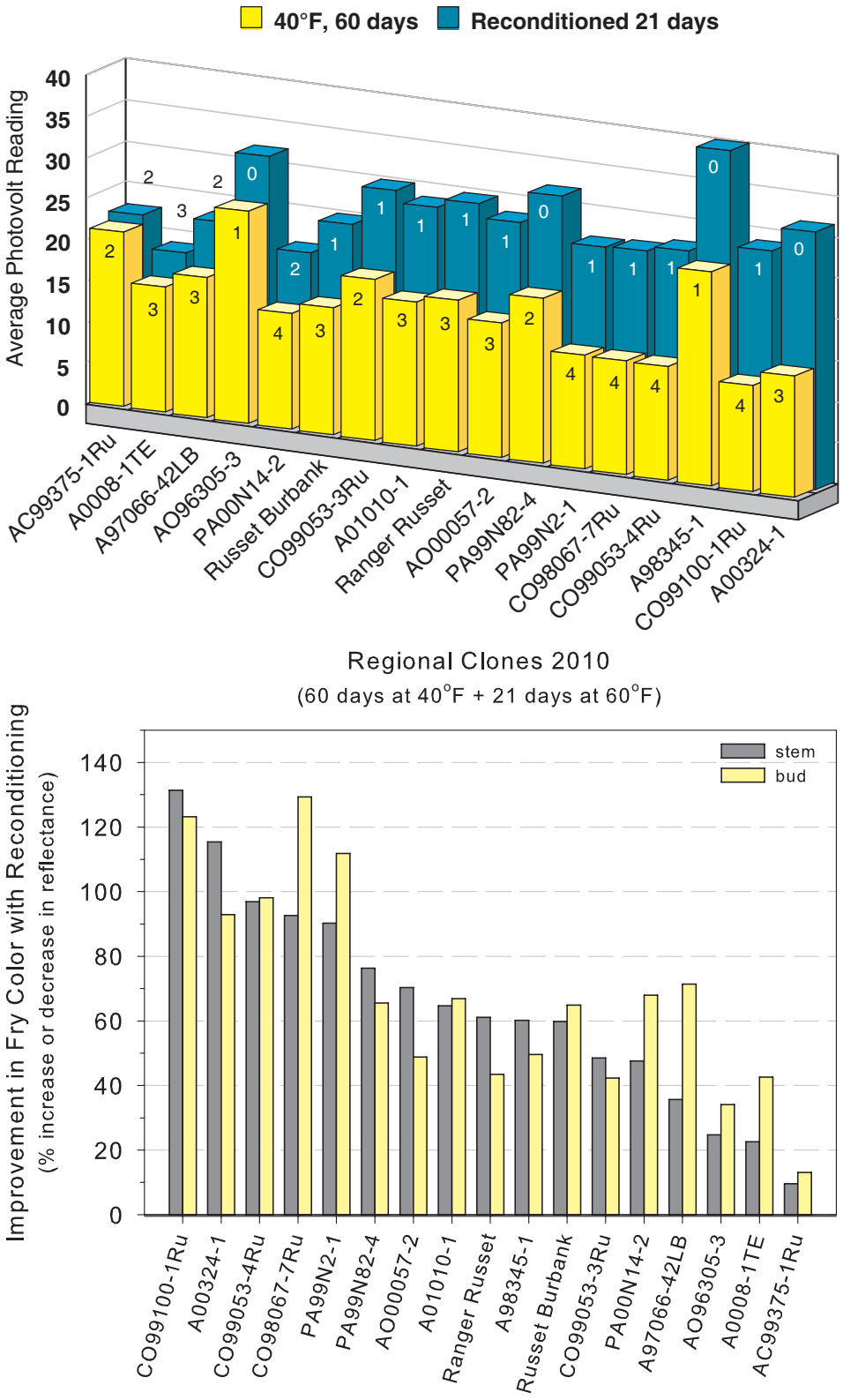




Top: At-harvest and after-storage French fry colors (stem end) of clones in the Regional Trial. Tubers were stored for 60 days at 48, 44 and 40°F. The clones are ranked from best to worst based on fry color of the 44°F-stored tubers. High reflectance values indicate light colored fries.

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 (A98345-1, AO96305-3, AC99375-1Ru) and worst (A0008-1TE, PA99N2-1, CO98067-7Ru*, based on storage at 44°F) performing clones in the Regional Trial. *Indicates similar performance of the clones last year.

2010 Late Harvest Regional Trial



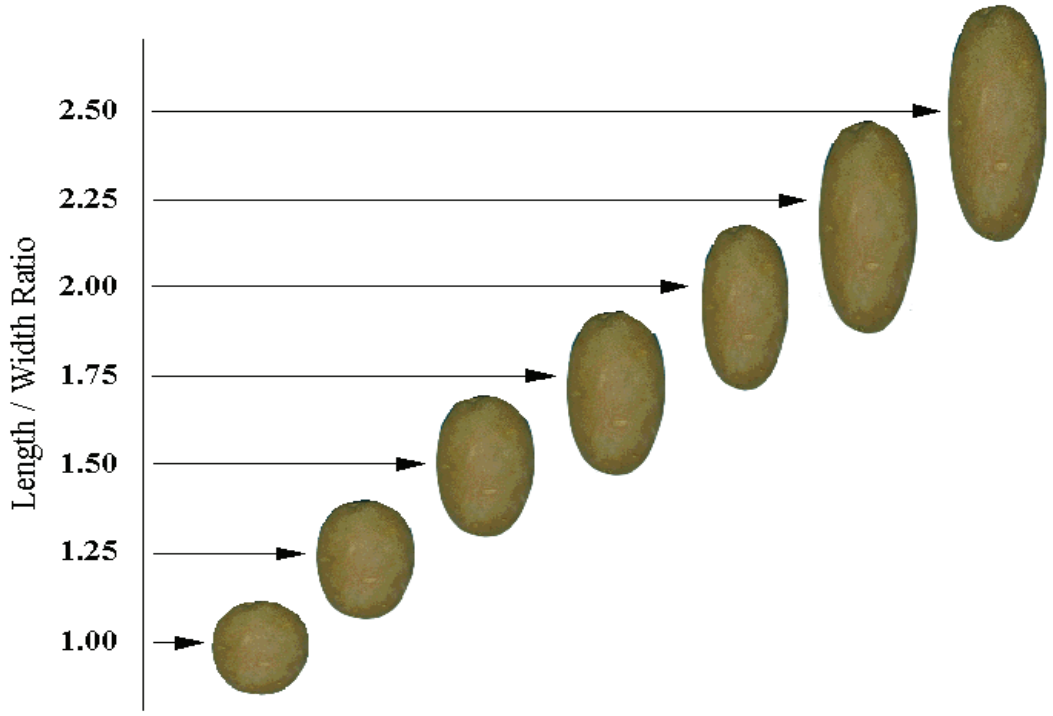
Reconditioning abilities of clones in the 2010 Regional Trial (3-state averages). Clones were stored at 40°F for 60 days after harvest and then reconditioned at 60°F for 21 days. **Top:** Stem end fry color before and after reconditioning. Numbers in bars indicate the USDA color rating of the stem end. **Bottom:** Percent improvement of stem and bud end fry color with reconditioning.

2010 Late Harvest Regional Trial

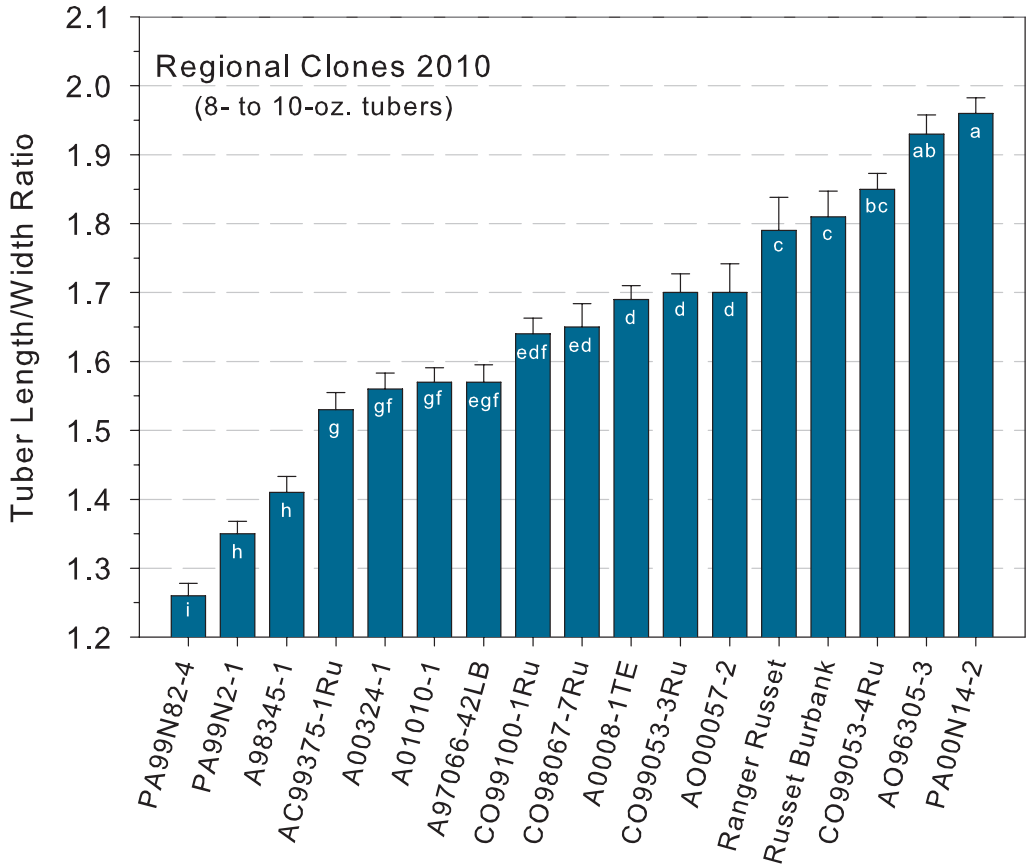
Tuber Shape and Associated French Fry Yields

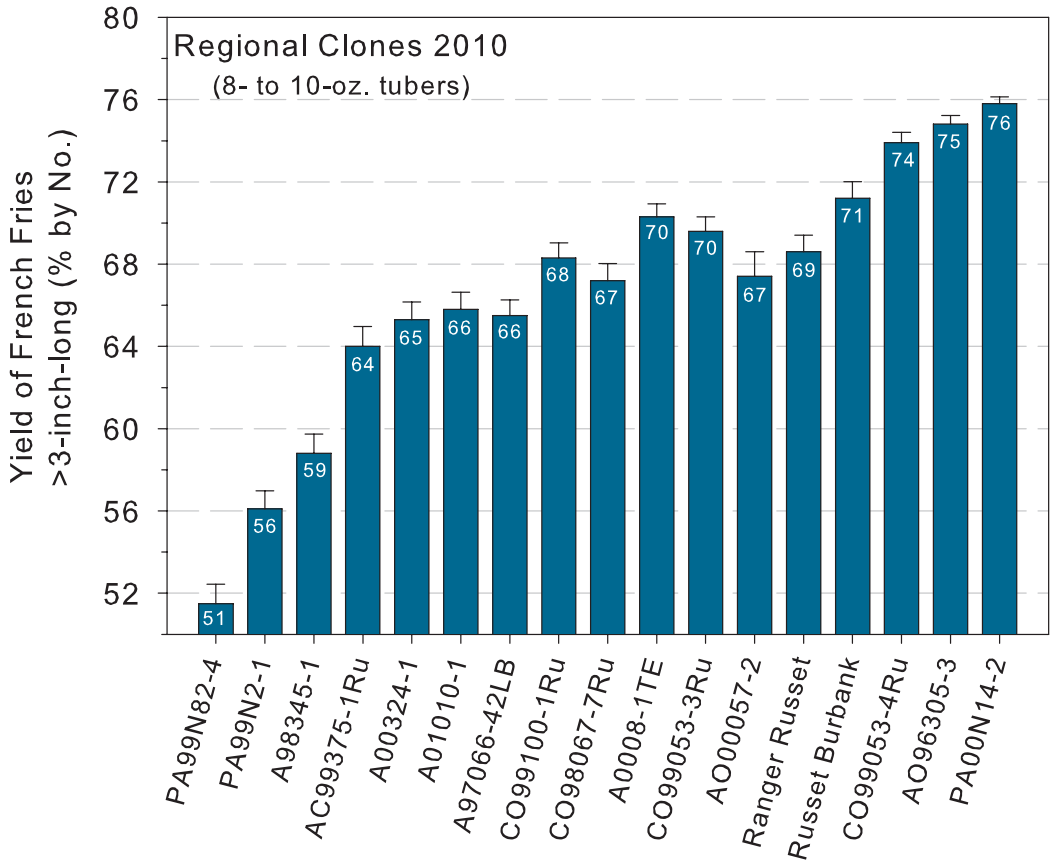
(8- to 10-oz Tubers)

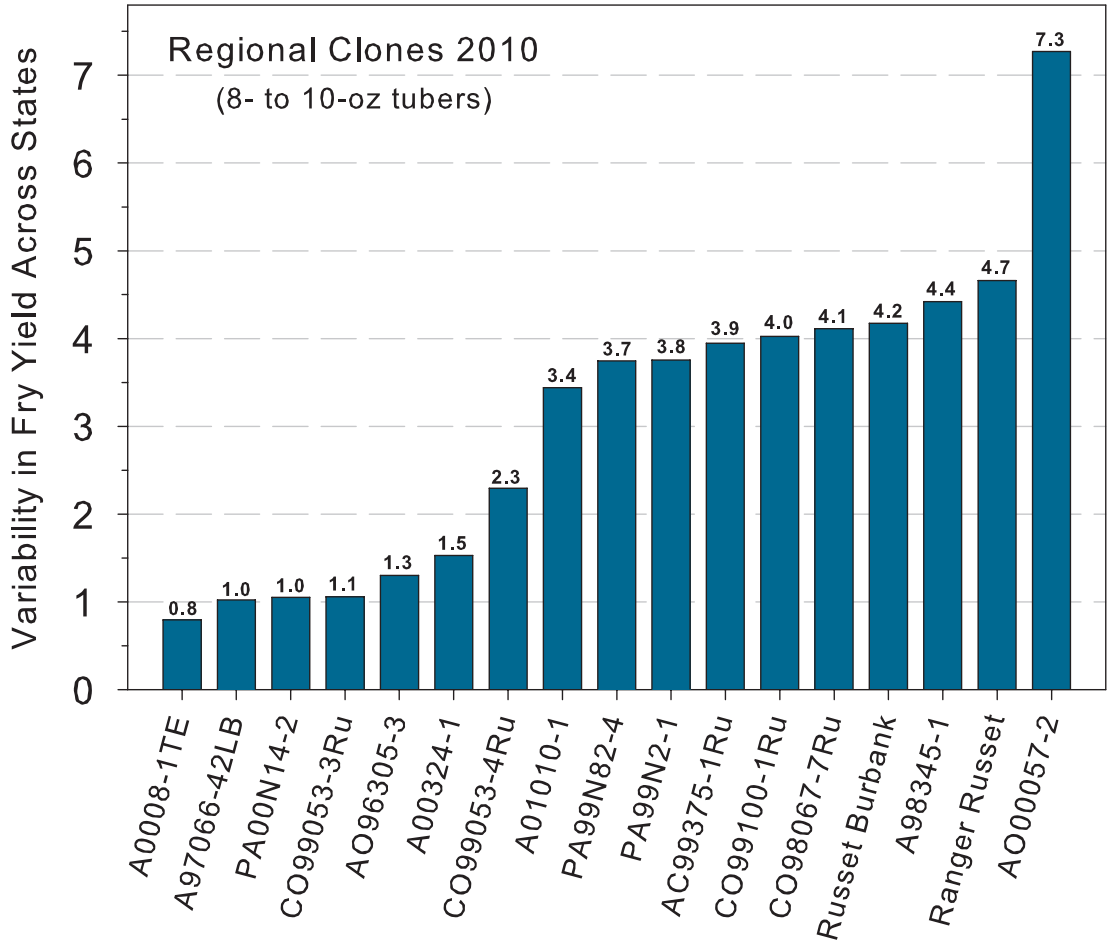
Clone	Length to width ratio			Yield of 3" or longer fries (% by number)		
	WA	ID	OR	WA	ID	OR
1 Ranger Russet	1.62	2.27	1.50	68	75	64
2 Russet Burbank	1.78	2.09	1.56	72	76	66
3 A97066-42LB	1.52	1.56	1.62	64	66	67
4 A98345-1	1.34	1.56	1.32	56	65	55
5 A0008-1TE	1.69	1.74	1.65	70	71	69
6 A00324-1	1.55	1.61	1.52	65	67	63
7 A01010-1	1.56	1.68	1.46	65	70	62
8 AC99375-1Ru	1.41	1.64	1.54	59	69	64
9 AO00057-2	1.61	2.09	1.41	67	77	59
10 AO96305-3	1.94	2.03	1.81	75	76	73
11 CO98067-7Ru	1.55	1.90	1.49	66	73	63
12 CO99053-3Ru	1.64	1.76	1.69	68	71	70
13 CO99053-4Ru	1.79	2.01	1.74	73	77	72
14 CO99100-1Ru	1.56	1.83	1.53	66	74	65
15 PA00N14-2	1.85	2.03	1.99	74	77	76
16 PA99N2-1	1.35	1.44	1.25	56	61	52
17 PA99N82-4	1.17	1.29	1.32	46	53	55
Average	1.58	1.79	1.55	65	70	64



2010 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, AO00057-2 had a length to width ratio of 1.70 (see previous page), resulting in 67% 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 59.7% to 74.3% (67 ±7.3%).

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

Bob Thornton (left) & Mike Thornton (right) make an appearance at the WSU Potato Field Day.

Working on a chain gain? All that's missing are the leg shackles! (From left to right: Chris Hiles, Josh Rodriguez, Rick Knowles, Rudy Garza, Daniel Zommick, and Mark Pavek).

Entries Retained from the 2009 Trials Currently in the Regional Trial

Harvested fall of 2008 Held at 48°F until December 22 Stored at 44°F until analysis

Three clones were advanced from the Tri-State Trial into the 2010 Regional Trial - A00324-1, A01010-1, and AO00057-2. Twelve clones were retained in the Regional Trial. When averaged across states, AO96305-3 produced the lightest fries. AC99375-1Ru had severe after cooking darkening from all 3 growing locations. A98345-1 produced mottled fries when grown in WA and OR. AC99375-1Ru had the shortest dormancy with the longest sprouts, while CO99053-3Ru had the shortest average sprout length.

	PHOTOVOLT READING				USDA	% REDUCING SUGAR			Sprouting	
Clone	stem	bud	avg	DIFF	COLOR	stem	bud	avg	percent	length
Washington										
1 Ranger Russet	38.7	44.4	41.6	5.7	0	0.8	0.6	0.7	100	4"
2 Russet Burbank	38.6	42.6	40.6	4.5	0	0.8	0.6	0.7	100	2 1/2"
3 A97066-42LB	35.4	38.9	37.2	4.5	0	1.0	0.8	0.9	100	4"
4 A98345-1	38.8	40.9	39.8	4.5	0	0.8	0.7	0.7	100	4"
5 A0008-1TE	29.3	34.9	32.1	7.7	1	1.5	1.0	1.2	100	5"
6 A00324-1 §	29.1	37.6	33.3	8.6	1	1.5	0.8	1.2	100	3"
7 A01010-1 §	41.8	50.2	46.0	9.0	0	0.7	0.5	0.6	100	5"
8 AC99375-1Ru	43.7	48.4	46.0	5.3	0	0.6	0.5	0.6	100	8"
9 AO00057-2 §	51.6	50.6	51.1	2.7	0	0.5	0.5	0.5	100	4"
10 AO96305-3	48.1	55.1	51.6	7.4	0	0.5	0.5	0.5	100	3"
11 CO98067-7Ru	29.6	38.5	34.1	8.9	1	1.4	0.8	1.1	100	3"
12 CO99053-3Ru	31.2	34.1	32.7	6.2	0	1.3	1.1	1.2	100	2 1/2"
13 CO99053-4Ru	32.6	43.0	37.8	11.3	0	1.2	0.6	0.9	100	5"
14 CO99100-1Ru	35.6	47.3	41.4	11.7	0	1.0	0.5	0.7	100	5"
15 PA00N14-2	40.6	48.0	44.3	7.5	0	0.7	0.5	0.6	100	4"
16 PA99N2-1	36.9	43.2	40.0	6.5	0	0.9	0.6	0.7	100	6"
17 PA99N82-4		No Sample								
		LSD 0.05	*3.5*	*4.2*						
Average	37.6	43.6	40.6	7.0	0	0.9	0.6	0.8	100	
Idaho										
1 Ranger Russet	32.5	42.5	37.5	10.5	0	1.2	0.6	0.9	100	5"
2 Russet Burbank	32.6	40.7	36.6	8.7	0	1.2	0.7	0.9	100	3"
3 A97066-42LB	44.4	46.2	45.3	3.0	0	0.6	0.5	0.6	100	5"
4 A98345-1	47.0	42.7	44.8	4.8	0	0.5	0.6	0.6	100	6"
5 A0008-1TE	32.3	32.9	32.6	5.8	0	1.2	1.1	1.2	100	3 1/2"
6 A00324-1 §	35.5	38.6	37.0	5.8	0	1.0	0.8	0.9	100	5"
7 A01010-1 §	41.9	48.2	45.0	8.0	0	0.7	0.5	0.6	100	5"
8 AC99375-1Ru	45.9	44.5	45.2	7.1	0	0.5	0.6	0.6	100	9"
9 AO00057-2 §	48.5	51.2	49.8	3.7	0	0.5	0.5	0.5	100	1 1/2"
10 AO96305-3	50.3	51.3	50.8	2.5	0	0.5	0.5	0.5	100	3"
11 CO98067-7Ru	31.6	31.8	31.7	2.9	0	1.2	1.2	1.2	100	8"
12 CO99053-3Ru	34.5	33.5	34.0	3.9	0	1.0	1.1	1.1	100	3 1/2"
13 CO99053-4Ru	39.7	41.7	40.7	6.7	0	0.7	0.7	0.7	100	7"
14 CO99100-1Ru	44.0	44.5	44.2	2.8	0	0.6	0.6	0.6	100	5"
15 PA00N14-2	44.6	49.5	47.1	5.6	0	0.6	0.5	0.6	100	2 1/2"
16 PA99N2-1	35.2	33.9	34.5	6.1	0	1.0	1.1	1.0	100	6"
17 PA99N82-4	49.7	48.9	49.3	2.8	0	0.5	0.5	0.5	100	5"
		LSD 0.05	*3.7*	*3.6*						
Average	40.6	42.5	41.5	5.3	0	0.8	0.7	0.8	100	
Oregon										
1 Ranger Russet	32.4	42.8	37.6	10.5	0	1.2	0.6	0.9	100	2"
2 Russet Burbank	20.2	40.6	30.4	20.4	2	2.7	0.7	1.7	100	3"
3 A97066-42LB	34.9	43.9	39.4	9.1	0	1.0	0.6	0.8	100	5"
4 A98345-1	26.2	38.6	32.4	13.6	1	1.8	0.8	1.3	100	5"
5 A0008-1TE	26.0	37.6	31.8	11.6	1	1.8	0.8	1.3	100	2 1/2"
6 A00324-1 §	24.6	34.3	29.5	9.8	1	2.0	1.0	1.5	100	3"
7 A01010-1 §	33.4	52.5	42.9	19.1	0	1.1	0.5	0.8	100	8"
8 AC99375-1Ru	40.9	45.5	43.2	9.1	0	0.7	0.6	0.6	100	8"
9 AO00057-2 §	32.8	50.5	41.6	17.7	0	1.2	0.5	0.8	100	4"
10 AO96305-3	49.8	54.1	52.0	4.6	0	0.5	0.5	0.5	100	3"
11 CO98067-7Ru	26.8	35.7	31.2	10.1	1	1.7	1.0	1.3	100	4"
12 CO99053-3Ru	24.1	41.8	32.9	17.7	2	2.1	0.7	1.4	100	2 1/2"
13 CO99053-4Ru	24.3	47.2	35.7	23.0	2	2.0	0.5	1.3	100	6"
14 CO99100-1Ru	27.4	44.9	36.1	17.5	1	1.7	0.6	1.1	100	5"
15 PA00N14-2	34.6	45.5	40.0	13.2	0	1.0	0.6	0.8	100	2 1/2"
16 PA99N2-1	25.2	39.8	32.5	14.6	1	1.9	0.7	1.3	100	7"
17 PA99N82-4	33.0	44.5	38.7	11.8	0	1.1	0.6	0.9	100	7"
		LSD 0.05	*2.9*	*5.5*						
Average	30.4	43.5	36.9	13.7	1	1.5	0.7	1.1	100	

§ Advanced from 2009 Tri-State Trial

Date test performed:

Washington	April 27
Idaho	April 28
Oregon	April 29

2010 Red and Specialty Trial

Location: Commercial Field near Mt. Vernon, WA
Planting Date: April 26 Vine Kill Date: August 17
Harvest Date: September 13 Days Grown: 113
In-Row Spacing: 8 Inch

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 5 local reference varieties to 12 new clones and was grown in a commercial field near Mt. Vernon. A wet and cool spring delayed growth and pushed the harvest date later than usual. 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: CO99076-6R, COTX94218-1R, and CO99256-2R
Purple/Yellow flesh: A99326-PY and POR03PG80-2
Yellow flesh: None recommended

Standcounts

- **50 Day**
  Full emergence: Dark Red Norland, CO99256-2R, COTX94218-1R, A99326-1PY (100%).
  Poor emergence: Chieftain had only 58% emergence at 50 days after planting.

Plant and Tuber Growth & Development

- **50 Day Stems per plant**
  Most: COTX94216-1R and COTX94218-1R (each 3.7); BTX2332-1R (3.6).
  Fewest: Red LaSoda and POR03PG80-2 (each 2.0); ATC00293-1W/Y (2.1), Yukon Gold (2.2).

- **Average Tuber Number Per Plant**
  Most: CO99256-2R (7.9), Purple Majesty (7.8), COTX94216-1R (7.5).
  Fewest: Yukon Gold (3.5), Chieftain (4.6), POR03PG80-2 (4.9).

- **Average Tuber Size (oz)**
  Largest: Red LaSoda (7.2), Yukon Gold (6.8), A99326-1PY and Dark Red Norland (each 6.3).
  Smallest: Purple Majesty (2.9), A99331-2RY (3.4), COTX94216-1R (3.5).

Yield Data

- **Total Yield and U.S. #1 Yield**
  Highest: A99326-1PY had the highest total (433 CWT/A) and U.S. #1 yield (433 CWT/A).
  Lowest: Purple Majesty and A99331-2RY had the lowest total yield (each 256 CWT/A). Purple Majesty had the lowest U.S. #1 yield (254 CWT/A).

- **% U.S. #1's**
  Highest: Chieftain, BTX2332-1R, A99326-1PY, A99331-2RY, and A00293-2Y each were 100%.
  Lowest: COTX94216-1R (96%), CO00412-5W/Y (97%); all other entries were 98% or greater.

Tuber Defects (percent out of 40, 6-10 oz tubers)

- **External Defects**
  There were little to no external defects.

- **Internal Defects**
  Notable defects: Most entries were free of internal defects. Red LaSoda had 17% brown center; A99433-5Y had 4% hollow heart.

- **Bruise**
  Highest Blackspot: Chieftain and Yukon Gold (each 8%), COTX94218-1R (7%), CO99076-6R (6%), Red LaSoda (3%). Twelve entries had no blackspot.
  Highest Shatter: COTX94216-1R (20%), Dark Red Norland and BTX2332-1R (each 14%), CO99256-2R (10%). The remaining entries exhibited no shatter.

Postharvest Analysis

- The highest scoring clones were Dk Red Norland, ATC00293-1W/Y, Yukon Gold, Red LaSoda, POR03PG80-2, and A99433-5Y. These entries averaged 58.3 out of 75 total points in the 2010 culinary evaluations. ATC00293-1W/Y, A99433-5Y, A00293-2Y, CO00412-5W/Y, and POR03PG80-2 have yellow flesh. ATC00293-1W/Y has white skin, A99433-5Y and A00293-2Y have yellow skin, and POR03PG80-2 has reddish-purple skin.

- The only purple flesh entry this year was the control cultivar, Purple Majesty. 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 0) that were uniform in color from stem to bud end (difference in reflectance <9 reflectance units).

- A00293-2Y received the lightest SFA chip rating for the 2nd year. Both A00293-2Y and Yukon Gold received an SFA rating of 1.6 from the five-member taste panel. Red LaSoda and COTX94216-1R produced the darkest chips with a SFA score of 4.0. Consistent with previous years, the red/specialty entries fried relatively light as a group.

- The range in ratings of baked samples in the 2010 trial was relatively narrow (from 16.8 to 20.5 out of 25). All entries had slight or moderate after cooking darkening when oven baked. Texture of the baked samples was favorably rated as “creamy” or ‘fluffy’ for all entries except CO99076-6R, COTX94216-1R, A99331-2RY, and A99433-5Y, which were rated as “pasty”. The flavor of all baked samples was rated as either “good” or “bland”. Tuber centers of baked samples were given acceptable ratings of “mushy” or “fully cooked” for all entries. Skins of the baked samples were also rated as acceptable (“steamy” or “fully cooked”) for all entries except A99326-1PY, which was rated as “crispy”.

- Purple Majesty, Yukon Gold and A00293-2Y sloughed severely when boiled, CO00412-5W/Y sloughed excessively, and the other entries showed slight to no sloughing. Red LaSoda , COTX94216-1R, COTX94218-1R and A99331-2RY had moderate after cooking darkening. All other entries had slight to no after cooking darkening. BTX2332-1R's texture was "pasty", while the texture of boiled samples of all other entries was favorably rated as "creamy" or "fluffy". The flavor of boiled samples of CO99076-6R 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 BTX2332-1R, COTX94216-1R, A99326-1PY and A99331-2RY; 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" and skins that were "steamy" or "fully cooked", which are desirable ratings for all entries.

In conjunction with Cambridge University, a potato water-use efficiency trial was conducted at the WSU Othello Research Station during 2010.

Upper and Lower Left: Zach Holden, Josh Rodriguez, and Rudy Garza prepare the 2010 Seed lot bags for planting in early spring. Below: Daniel Zommick attempts to keep ahead of the planter by dumping seed filled bags into plastic bins.

Above: Seedlot planting in March is first planting + cold weather + dust. What's not to love?

2010 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											
Chieftain	295	*B*	14.7	100	0	0	0	0	0	0	1.074
Dark Red Norland	420	*A*	21.0	99	0	1	0	0	0	1	1.075
Red LaSoda	430	*A*	21.5	99	1	0	0	0	0	0	1.071
BTX2332-1R	326	*AB*	16.3	100	0	0	0	0	0	0	1.071
CO99076-6R	263	*B*	13.2	98	2	0	0	0	0	0	1.084
CO99256-2R	320	*AB*	16.0	99	1	0	0	0	0	0	1.079
COTX94216-1R	290	*B*	14.5	96	4	0	0	0	0	0	1.073
COTX94218-1R	277	*B*	13.9	99	0	0	0	0	0	0	1.078
Red-Purple/Yellow Flesh											
A99326-1PY	433	*A*	21.6	100	0	0	0	0	0	0	1.078
A99331-2RY	256	*B*	12.8	100	0	0	0	0	0	0	1.075
POR03PG80-2	328	*AB*	16.4	98	2	0	0	0	0	0	1.074
Purple Skin/Purple Flesh											
Purple Majesty	256	*B*	12.8	99	1	0	0	0	0	0	1.090
Yellow Flesh											
Yukon Gold	260	*B*	13.0	98	2	0	0	0	0	0	1.089
A00293-2Y	322	*AB*	16.1	100	0	0	0	0	0	0	1.087
A99433-5Y	281	*B*	14.0	99	1	0	0	0	0	0	1.073
ATC00293 -1W/Y	426	*A*	21.3	98	0	2	0	0	0	2	1.076
CO00412-5W/Y	316	*AB*	15.8	97	1	2	0	0	0	2	1.086

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											
Chieftain	295	*D*	14.7	5	20	29	31	16	0	0	0
Dark Red Norland	415	*ABC*	20.8	2	20	27	39	12	0	0	0
Red LaSoda	426	*AB*	21.3	2	13	22	43	20	0	17	0
BTX2332-1R	325	*ABCD*	16.3	7	37	25	24	7	0	0	0
CO99076-6R	258	*D*	12.9	7	32	36	26	0	0	0	0
CO99256-2R	318	*BCD*	15.9	15	49	23	12	0	0	0	0
COTX94216-1R	279	*D*	13.9	22	39	21	18	0	0	0	0
COTX94218-1R	276	*D*	13.8	16	42	31	11	1	0	0	0
Red-Purple/Yellow Flesh											
A99326-1PY	433	*A*	21.6	4	21	22	37	17	0	0	0
A99331-2RY	255	*D*	12.7	20	48	21	11	0	0	0	0
POR03PG80-2	321	*ABCD*	16.1	3	20	29	36	11	0	0	0
Purple Skin/Purple Flesh											
Purple Majesty	254	*D*	12.7	29	51	15	5	0	0	0	0
Yellow Flesh											
Yukon Gold	256	*D*	12.8	3	16	25	35	21	0	0	0
A00293-2Y	321	*ABCD*	16.1	5	32	25	24	13	0	0	0
A99433-5Y	279	*D*	14.0	11	35	29	18	6	4	0	0
ATC00293 -1W/Y	416	*ABC*	20.8	4	21	28	39	8	0	0	0
CO00412-5W/Y	306	*CD*	15.3	12	48	27	14	0	0	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	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	50 DAY STAND % Emerged	STEMS PER PLANT Above Ground	AVERAGE TUBER WEIGHT Ounces	AVERAGE TUBER NUMBER Tubers/Plant	SIZE UNIFORMITY 1 = Poor 5 = Good	SHAPE UNIFORMITY 1 = Poor 5 = Good	BRUISE (%) (6-10 oz tubers) BLACKSPOT	BRUISE (%) (6-10 oz tubers) SHATTER	Length to Width Ratio 1 = Round 2 = Oblong
Red Skin/White Flesh											
Chieftain	3	2	58	2.5	5.9	4.6	4	4	8	0	1.1
Dark Red Norland	4	2	100	3.2	6.3	6.2	2	2	0	14	1.2
Red LaSoda	2	2	96	2.0	7.2	5.4	2	2	3	0	1.0
BTX2332-1R	3	2	96	3.6	4.9	6.3	3	3	0	14	1.3
CO99076-6R	3	1	97	2.4	4.7	5.0	4	4	6	0	1.2
CO99256-2R	2	1	100	2.5	3.7	7.9	4	4	0	10	1.4
COTX94216-1R	3	2	93	3.7	3.5	7.5	3	3	0	20	1.1
COTX94218-1R	3	1	100	3.7	3.7	6.8	4	4	7	0	1.0
Red-Purple/Yellow Flesh											
A99326-1PY	3	1	100	2.9	6.3	6.3	3	4	0	0	1.1
A99331-2RY	4	2	82	2.5	3.4	6.9	3	3	0	0	1.1
POR03PG80-2	3	3	89	2.0	5.9	4.9	3	3	0	0	1.4
Purple Skin/Purple Flesh											
Purple Majesty	4	2	99	3.4	2.9	7.8	4	4	0	0	1.4
Yellow Flesh											
Yukon Gold	4	2	94	2.2	6.8	3.5	3	3	8	0	1.3
A00293-2Y	4	3	92	2.7	5.4	5.7	3	2	0	0	1.4
A99433-5Y	4	2	75	2.3	4.5	5.8	4	3	0	0	1.2
ATC00293 -1W/Y	2	3	93	2.1	6.0	6.5	3	3	0	0	1.3
CO00412-5W/Y	4	2	96	2.9	4.0	7.2	3	3	0	0	1.3

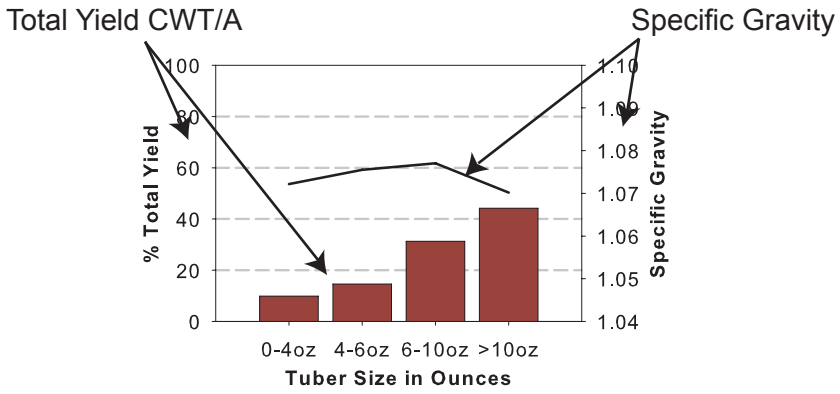
The Regional Red and Specialty trial was planted in a field near Mt. Vernon this year. Zach Holden records mid-season data on the trial.

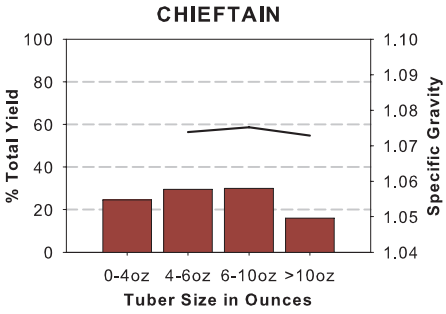
2010 Regional Red and Specialty Trial

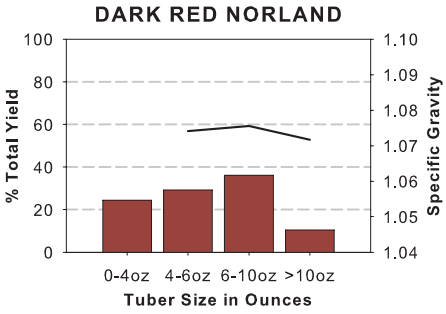
Tuber Yield and Specific Gravity Distributions

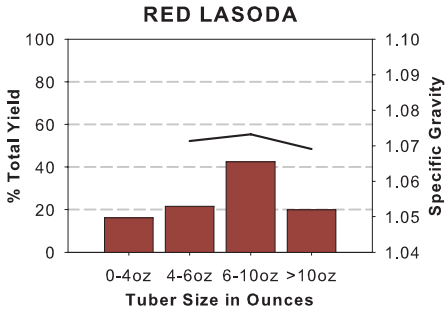
Note: Specific Gravity is based on a sample of U.S. #1 tubers within each size category

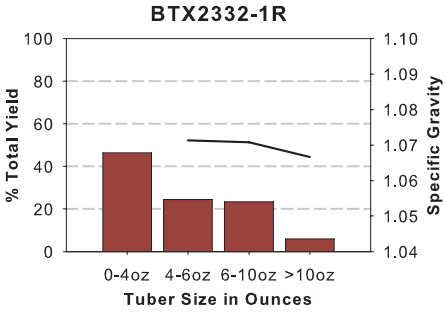
8 inch In-Row Spacing

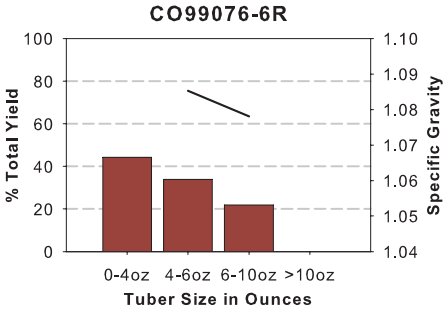


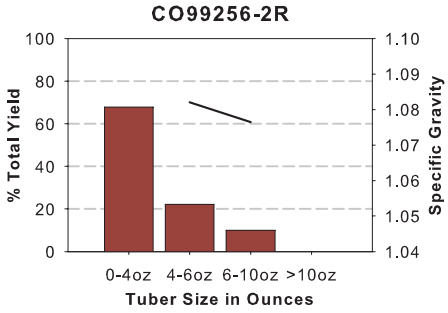


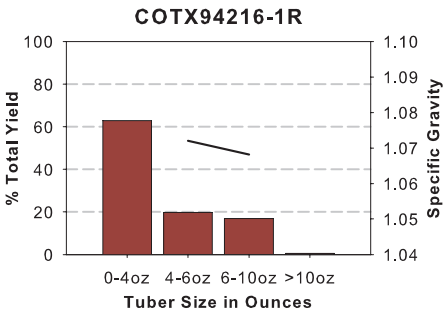


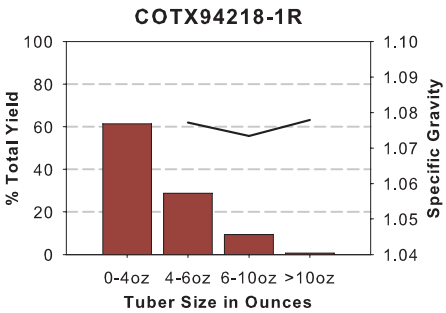


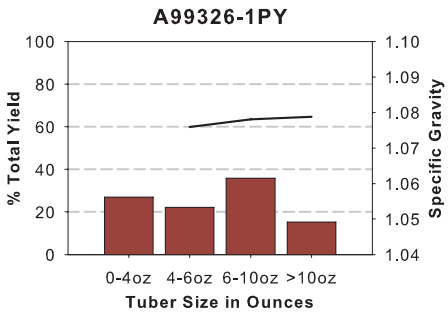




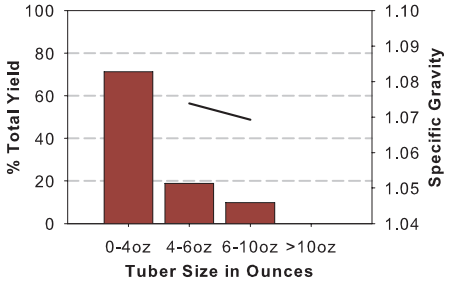








A99331-2RY



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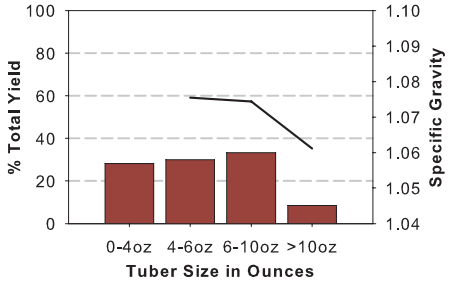
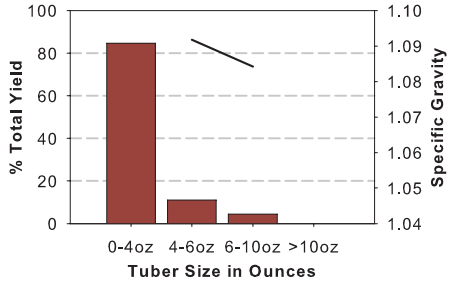
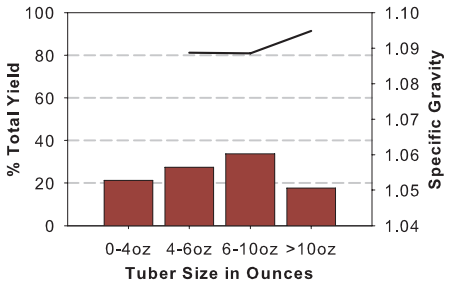


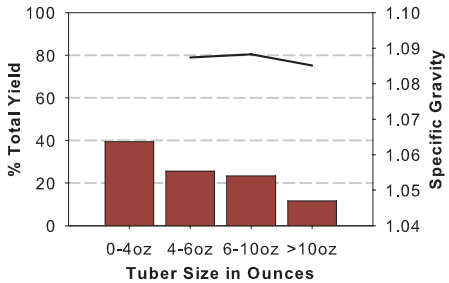
PURPLE MAJESTY



YUKON GOLD



A00293-2Y



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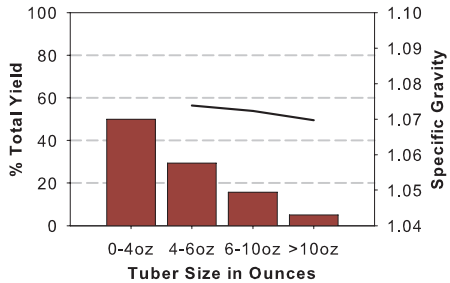
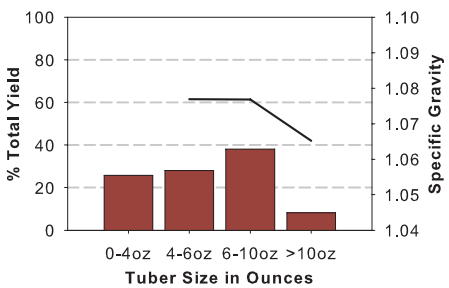
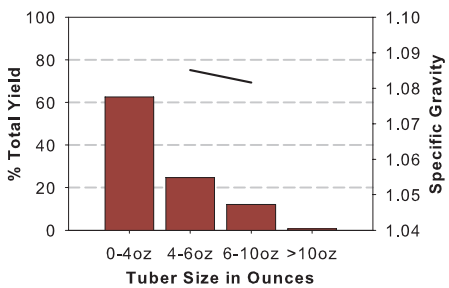
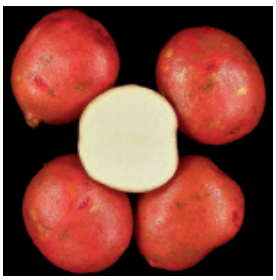


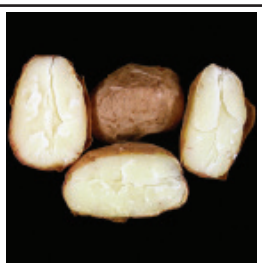
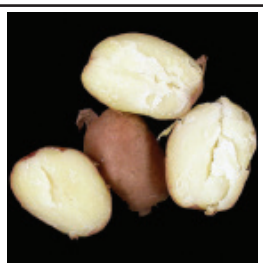
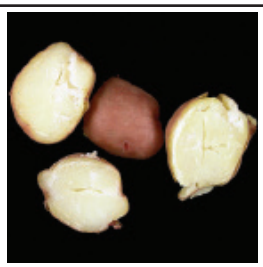
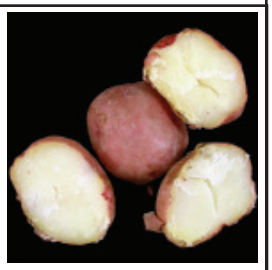
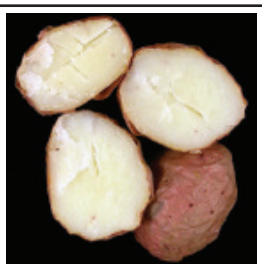
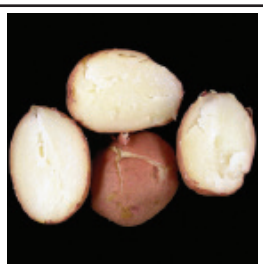
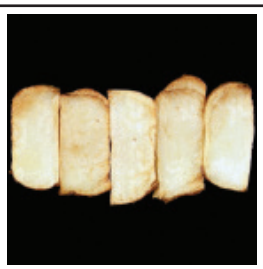
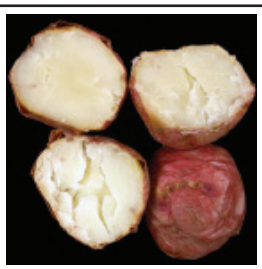
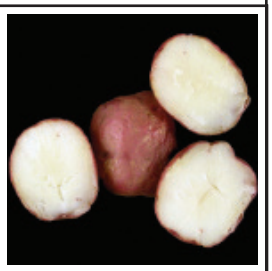
ATC00293-1W/Y



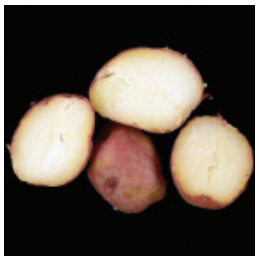
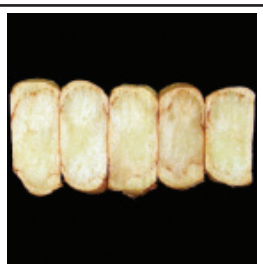
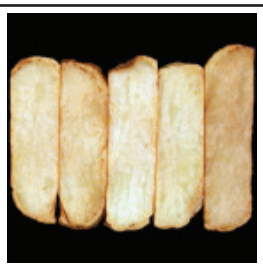
CO00412-5W/Y



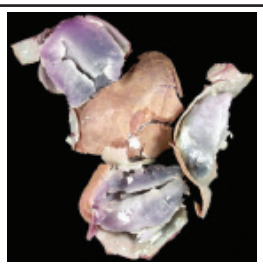
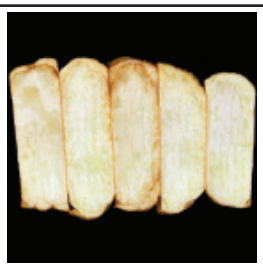
Tubers	WA Tri-State Specialty Trial Comments
Dark Red Norland	
	**Tubers**: Round to oblong tubers. Good skin set; moderately deep eyes. **Fry color:** Light, uniform. **Baked**: Slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin. **Boiled**: Moderate sloughing, no after cooking darkening, fluffy texture, good flavor, fully cooked tuber center. **Microwaved**: Slight after cooking darkening, creamy texture, good flavor, fully cooked tuber center, fully cooked skin.
Red LaSoda	
	**Tubers**: Round to oblong tubers. Poor skin set; deep eyes. **Fry color**: Light, uniform. **Baked**: Moderate after cooking darkening, fluffy texture, good flavor, fully cooked tuber center, steamy skin. **Boiled**: Slight sloughing, moderate after cooking darkening, fluffy texture, bland flavor, fully cooked tuber center. **Microwaved**: Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, fully cooked skin.
BTX2332-1R	
	**Tubers**: Round to oblong tubers. Fair skin set; moderate eye depth. **Fry color:** Light, uniform. **Baked**: Slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin. **Boiled**: Slight sloughing, slight after cooking darkening, pasty texture, bland flavor, mushy tuber center. **Microwaved**: Moderate after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
CO99076-6R	
	**Tubers**: Round tubers. Fair skin set; shallow eyes. **Fry color**: Light, uniform. **Baked**: Slight after cooking darkening, pasty texture, bland flavor, mushy tuber center, crispy skin. **Boiled**: Slight sloughing, slight after cooking darkening, creamy texture, unacceptable flavor, fully cooked tuber center. **Microwaved**: Slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, fully cooked skin.
CO99256-2R	
	**Tubers**: Round tubers. Poor skin set; shallow eyes. **Fry color**: Light, uniform. **Baked**: Moderate after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin. **Boiled**: Slight sloughing, slight 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.

Chips	Fries	Baked	Boiled	Microwaved
Dark Red Norland				
				
Red LaSoda				
				
BTX2332-1R				
				
CO99076-6R				
				
CO99256-2R				
				

Tubers	WA Tri-State Specialty Trial Comments
COTX94216-1R	
	**Tubers:** Round to oblong tubers. Fair skin set; shallow eyes. **Fry color:** Light, uniform. **Baked:** Slight after cooking darkening, pasty texture, bland flavor, mushy tuber center, fully cooked skin. **Boiled:** Slight sloughing, moderate after cooking darkening, creamy texture, bland flavor, fully cooked tuber center. **Microwaved**: Slight after cooking darkening, pasty texture, bland flavor, mushy tuber center, steamy skin.
COTX94218-1R	
	**Tubers:** Round tubers. Fair skin set; shallow eyes. **Fry color:** Light, uniform. **Baked:** Slight after cooking darkening, creamy texture, good flavor, fully cooked tuber center, steamy skin. **Boiled:** Moderate sloughing, moderate after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved**: Moderate after cooking darkening, creamy texture, good flavor, mushy tuber center, fully cooked skin.
A99326-1PY	
	**Tubers:** Round tubers. Fair skin set; shallow eyes. **Fry color:** Light, uniform. **Baked:** Moderate after cooking darkening, creamy texture, good flavor, fully cooked tuber center, crispy skin. **Boiled:** Moderate sloughing, slight after cooking darkening, creamy texture, good flavor, mushy tuber center. **Microwaved**: Moderate after cooking darkening, pasty texture, good flavor, mushy tuber center, steamy skin.
A99331-2RY	
	**Tubers:** Round to oblong tubers. Good skin set; moderate eye depth. **Fry color:** Light, uniform. **Baked:** Moderate after cooking darkening, pasty texture, bland flavor, fully cooked tuber center, steamy skin. **Boiled:** Slight sloughing, moderate after cooking darkening, creamy texture, good flavor, fully cooked tuber center. **Microwaved**: Moderate after cooking darkening, fluffy texture, good flavor, fully cooked tuber center, fully cooked skin.
POR03PG80-2	
	**Tubers:** Oblong tubers. Fair skin set; shallow eyes. **Fry color:** Light, uniform. **Baked:** Slight after cooking darkening, creamy texture, good flavor, fully cooked tuber center, steamy skin. **Boiled:** Slight sloughing, slight 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.

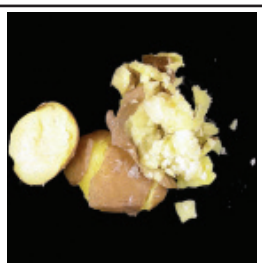
Chips	Fries	Baked	Boiled	Microwaved
COTX94216-1R				
				
COTX94218-1R				
				
A99326-1PY				
				
A99331-2RY				
				
POR03PG80-2				
				

Tubers	WA Tri-State Specialty Trial Comments
Purple Majesty	
	**Tubers:** Round to oblong tubers. Good skin set; shallow eyes. **Fry color:** Unacceptably dark, uniform. **Baked**: Moderate after cooking darkening, fluffy texture, bland flavor, fully cooked tuber center, steamy skin. **Boiled**: Severe sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved**: Slight after cooking darkening, fluffy texture, bland flavor, mushy tuber center, fully cooked skin.
Yukon Gold	
	**Tubers:** Round to oblong tubers. Good skin set; moderate eye depth. **Fry color:** Light, uniform. **Baked**: Slight after cooking darkening, fluffy texture, good flavor, mushy tuber center, steamy skin. **Boiled**: Severe sloughing, slight after cooking darkening, creamy texture, good flavor, mushy tuber center. **Microwaved**: Slight after cooking darkening, fluffy texture, good flavor, fully cooked tuber center, fully cooked skin.
A00293-2Y	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** Light, uniform. **Baked**: Moderate after cooking darkening, fluffy texture, good flavor, fully cooked tuber center, fully cooked skin. **Boiled**: Severe sloughing, slight 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.
A99433-5Y	
	**Tubers:** Round to oblong tubers. Good skin set; shallow eyes. **Fry color:** Light, uniform. **Baked**: Slight after cooking darkening, pasty texture, good flavor, fully cooked tuber center, fully cooked skin. **Boiled**: Slight sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved**: No after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.
ATC00293 -1W/Y	
	**Tubers:** Oblong tubers. Poor skin set; moderate eye depth. **Fry color:** Light, uniform. **Baked**: Slight after cooking darkening, creamy texture, good flavor, fully cooked tuber center, fully cooked skin. **Boiled**: Slight sloughing, slight after cooking darkening, creamy texture, bland flavor, fully cooked tuber center. **Microwaved**: No after cooking darkening, fluffy texture, good flavor, mushy tuber center, fully cooked skin.

Chips	Fries	Baked	Boiled	Microwaved
Purple Majesty				
				
Yukon Gold				
				
A00293-2Y				
				
A99433-5Y				
				
ATC00293 -1W/Y				
				

Tubers	WA Tri-State Specialty Trial Comments
CO00412-5W/Y	
	**Tubers:** Round to oblong tubers. Good skin set; shallow eyes. **Fry color:** Light, uniform. **Baked:** Slight after cooking darkening, creamy texture, bland flavor, fully cooked tuber center, steamy skin. **Boiled:** Excessive sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** Slight after cooking darkening, creamy texture, bland flavor, fully cooked tuber center, fully cooked skin.

Rick Knowles (left) and Lisa Knowles (right) present data during the 2010 WSU Potato Field Day.

Chips	Fries	Baked	Boiled	Microwaved
CO00412-5W/Y				
				

Inserting a soil probe is a precise job, and these are the right three men for the job.
Left to right: Chris Hiles, Zach Holden, Rudy Garza.

2010 Washington Regional Red and Specialty Trial

Postharvest Evaluation

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

	Clone	Raw				After Frying					Av of 5 raters
		Stem	Bud	Average	Difference	Stem	Bud	Average	Difference	USDA	SFA
1	Dk Red Norland	59.8	59.4	59.6	1.4	48.0	47.2	47.6	3.0	0	2.4
2	Red LaSoda	58.5	58.6	58.5	1.3	32.9	39.0	35.9	6.2	0	4.0
3	BTX2332-1R	52.7	51.2	52.0	2.2	36.2	40.4	38.3	4.2	0	3.2
4	CO99076-6R	58.4	58.5	58.4	1.3	44.1	46.3	45.2	2.9	0	2.8
5	CO99256-2R	55.6	55.6	55.6	1.4	45.0	45.1	45.1	3.7	0	3.0
6	COTX94216-1R	57.7	56.4	57.1	2.4	36.9	32.9	34.9	4.8	0	4.0
7	COTX94218-1R	57.0	56.8	56.9	2.0	47.3	46.3	46.8	2.1	0	2.6
8	A99326-1PY	57.0	57.9	57.4	1.5	46.6	45.6	46.1	2.8	0	2.6
9	A99331-2RY	54.5	55.2	54.9	1.6	41.2	41.6	41.4	1.5	0	2.6
10	POR03PG80-2	53.2	55.7	54.5	2.5	42.0	44.1	43.0	3.4	0	3.2
11	Purple Majesty	4.8	4.8	4.8	0.5	13.8	14.6	14.2	1.8	4	2.5
12	Yukon Gold	53.8	56.4	55.1	2.6	48.9	51.8	50.3	3.4	0	1.6
13	A00293-2Y	54.5	52.3	53.4	2.6	48.4	48.4	48.4	2.6	0	1.6
14	A99433-5Y	51.2	52.1	51.7	1.2	47.8	46.6	47.2	3.5	0	2.6
15	ATC00293 -1W/Y	49.2	49.6	49.4	1.7	43.4	43.5	43.5	4.3	0	2.6
16	CO00412-5W/Y	54.3	55.1	54.7	1.6	45.6	44.2	44.9	3.1	0	2.4
	*LSD 0.05 **			*1.7*	*1.1*			*3.5*	*2.1*		
	Average	52.0	52.2	52.1	1.7	41.8	42.3	42.0	3.3	0	2.7

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

Dr. Mark Stalham of Cambridge University, UK, discusses a joint WSU/ Cambridge U. potato water-use trial during the 2010 WSU Potato Field Day.

2010 Washington Regional Red and Specialty Trial

Postharvest Evaluation Summary

	Clone	Boiled (25 max)	Baked (25 max)	Microwaved (25 max)	Total (75 max)
1	Dk Red Norland	20.0	18.9	21.3	60.2
15	ATC00293 -1W/Y	18.5	20.3	21.2	59.9
12	Yukon Gold	17.5	20.5	21.0	59.0
2	Red LaSoda	18.5	19.7	20.0	58.2
10	POR03PG80-2	19.3	19.0	18.2	56.4
14	A99433-5Y	17.8	20.5	17.8	56.1
13	A00293-2Y	17.1	20.5	18.2	55.8
16	CO00412-5W/Y	15.3	19.0	19.3	53.6
9	A99331-2RY	17.5	16.8	19.3	53.6
11	Purple Majesty	15.8	18.3	19.5	53.5
7	COTX94218-1R	15.8	19.6	18.2	53.5
5	CO99256-2R	17.0	17.0	19.0	53.0
8	A99326-1PY	17.3	17.8	18.0	53.0
3	BTX2332-1R	16.8	18.6	17.2	52.5
4	CO99076-6R	17.3	17.0	17.3	51.6
6	COTX94216-1R	17.3	18.0	16.2	51.4

French Fried:	Sept. 20
Chipped:	Sept. 20
Boiled:	Oct. 12
Microwaved:	Oct. 8
Baked:	Oct. 5 & 6

2010 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	3.0	4.5	3.5	4.0	5.0	20.0
2	Red LaSoda	3.5	3.0	3.8	3.3	5.0	18.5
3	BTX2332-1R	3.5	3.5	2.3	3.3	4.3	16.8
4	CO99076-6R	3.5	4.3	2.5	2.3	4.8	17.3
5	CO99256-2R	3.5	3.8	2.5	2.8	4.5	17.0
6	COTX94216-1R	4.0	2.8	2.8	3.0	4.8	17.3
7	COTX94218-1R	2.5	3.3	3.0	2.8	4.3	15.8
	LSD 0.05	*1.2*	*0.8*	*1.4*	*1.6*	*ns*	*3.2*
	Average	3.4	3.6	2.9	3.0	4.6	17.5

Oven Baked

	Clone	After cooking Darkening	Texture	Flavor	Tuber Center	Skin Rating	Total Rating
1	Dk Red Norland	3.9	2.9	3.3	4.4	4.4	18.9
2	Red LaSoda	3.0	4.4	3.6	4.7	4.0	19.7
3	BTX2332-1R	3.7	3.1	3.6	4.3	3.9	18.6
4	CO99076-6R	3.6	2.4	3.4	4.3	3.3	17.0
5	CO99256-2R	3.0	2.6	3.4	3.9	4.1	17.0
6	COTX94216-1R	3.7	2.4	3.1	4.1	4.6	18.0
7	COTX94218-1R	4.3	3.1	4.0	4.6	3.6	19.6
	LSD 0.05	*0.8*	*1.1*	*ns*	*0.7*	*0.9*	*ns*
	Average	3.6	3.0	3.5	4.3	4.0	18.4

Microwaved

	Clone	After cooking Darkening	Texture	Flavor	Tuber Center	Skin Rating	Total Rating
1	Dk Red Norland	4.0	3.3	4.7	4.8	4.5	21.3
2	Red LaSoda	4.2	3.3	3.5	4.2	4.8	20.0
3	BTX2332-1R	3.2	2.5	3.3	3.8	4.3	17.2
4	CO99076-6R	3.8	3.0	3.3	2.5	4.7	17.3
5	CO99256-2R	4.3	2.8	3.7	4.2	4.0	19.0
6	COTX94216-1R	3.8	2.3	2.7	3.5	3.8	16.2
7	COTX94218-1R	3.3	2.7	3.5	4.2	4.5	18.2
	LSD 0.05	*0.8*	*0.9*	*1.0*	*1.3*	*0.7*	*2.7*
	Average	3.8	2.9	3.5	3.9	4.4	18.5

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

2010 Washington Regional Red and Specialty Trial

Specialty Clone Postharvest Evaluation

Boiled

		After Cooking				Tuber	Total
	Clone	Sloughing	Darkening	Texture	Flavor	Center	Rating
8	A99326-1PY	2.5	4.3	2.5	3.8	4.3	17.3
9	A99331-2RY	3.8	2.8	2.5	4.0	4.5	17.5
10	POR03PG80-2	4.3	3.5	3.0	3.8	4.8	19.3
11	Purple Majesty	1.8	4.0	3.3	2.5	4.3	15.8
12	Yukon Gold	2.3	4.3	2.8	4.0	4.3	17.5
13	A00293-2Y	1.6	3.5	3.0	4.3	4.8	17.1
14	A99433-5Y	4.3	4.0	2.5	2.8	4.3	17.8
15	ATC00293 -1W/Y	3.5	4.0	3.0	3.0	5.0	18.5
16	CO00412-5W/Y	1.3	4.0	3.3	2.8	4.0	15.3
	LSD 0.05	*0.8*	*0.8*	*ns*	*1.4*	*ns*	*ns*
	Average	2.8	3.8	2.9	3.4	4.4	17.3

Oven Baked

		After cooking			Tuber	Skin	Total
	Clone	Darkening	Texture	Flavor	Center	Rating	Rating
8	A99326-1PY	2.8	2.8	4.3	5.0	3.0	17.8
9	A99331-2RY	2.8	2.3	3.0	4.8	4.0	16.8
10	POR03PG80-2	3.5	3.0	3.8	4.8	4.0	19.0
11	Purple Majesty	3.3	4.0	3.0	4.5	3.5	18.3
12	Yukon Gold	4.0	4.0	4.3	4.0	4.3	20.5
13	A00293-2Y	3.3	3.5	4.0	4.8	5.0	20.5
14	A99433-5Y	4.3	2.3	4.8	4.5	4.8	20.5
15	ATC00293 -1W/Y	4.0	2.8	3.5	5.0	5.0	20.3
16	CO00412-5W/Y	3.8	3.0	3.3	4.8	4.3	19.0
		ns	*1.3*	*1.4*	*0.8*	*1.5*	*3.6*
	Average	3.5	3.1	3.8	4.7	4.2	19.2

Microwaved

		After cooking			Tuber	Skin	Total
	Clone	Darkening	Texture	Flavor	Center	Rating	Rating
8	A99326-1PY	3.2	2.3	3.8	4.3	4.3	18.0
9	A99331-2RY	2.8	3.5	3.5	4.8	4.7	19.3
10	POR03PG80-2	4.0	2.7	3.3	3.8	4.3	18.2
11	Purple Majesty	4.2	3.8	2.8	4.2	4.5	19.5
12	Yukon Gold	4.2	3.5	4.0	4.8	4.5	21.0
13	A00293-2Y	3.7	2.7	3.7	3.8	4.3	18.2
14	A99433-5Y	4.5	2.5	3.5	3.0	4.3	17.8
15	ATC00293 -1W/Y	4.5	3.8	4.0	4.2	4.7	21.2
16	CO00412-5W/Y	3.7	3.3	3.3	4.5	4.5	19.3
	LSD 0.05	*0.8*	*1.2*	*1.2*	*1.1*	*ns*	*2.9*
	Average	3.9	3.1	3.6	4.2	4.5	19.2

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

Index of Clones and Cultivars