

2012 Potato Cultivar Yield and Postharvest Quality Evaluations

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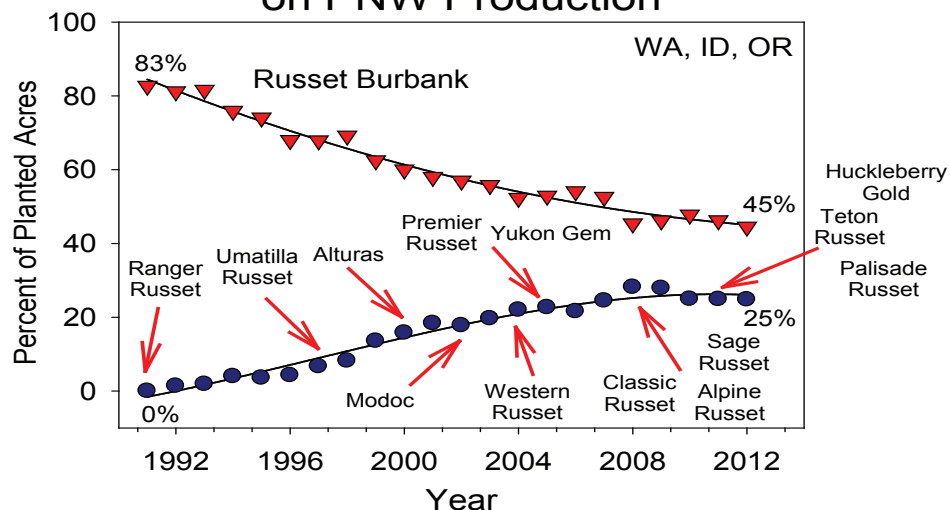


INTRODUCTION

The 2012 Washington “Potato Cultivar Yield and Postharvest Quality Evaluations” annual report provides detailed information about promising new potato clones and cultivars grown in Washington conducted by the Washington State University (WSU) Potato Research Group. 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. **Tri-State trials** include the newest clones which are created and evaluated in ID, OR, and WA by the USDA/ARS at Aberdeen, ID & Prosser, WA, Univ. of ID, OR State U., and WA State U. **Regional trials** include advanced clones from, and evaluated by, ID, OR, WA, CO, TX, and CA. Potato Commissions from the Tri-State area support and fund much of the variety development efforts. Potato Variety Management Institute (PVMI) is a nonprofit corporation that licenses and promotes Tri-State varieties. PVMI collects royalties from the varieties which are then distributed among the Tri-State research programs to support the ongoing development efforts. Learn more at www.pvmi.org.

Recent Accomplishments: The effect of the Tri-State Potato Variety Development Program on the Northwest potato industry has been substantial. Ranger Russet, Umatilla Russet, Alturas, Premier Russet, Bannock Russet, Ivory Crisp, Western Russet, and Alpine Russet are examples of russet cultivars released from the Tri-State program that have greatly benefited the United States and Northwest potato industry, being the 3rd, 4th, 7th, 13th, 14th, 16th, 21st, and 22nd most widely grown cultivars in the United States in 2012, respectively, with Tri-State varieties representing over 21%, or 200,000 acres, of the fall crop nationally. (NASS, Crop Production, November, 2012). Ranger Russet, Umatilla Russet, and Alturas were the 3rd, 4th, and 5th most widely grown cultivars in the PNW (ID, OR, WA) in 2012, respectively, and accounted for 31% of the PNW planted acreage. Varieties recently released by the Tri-State program are now produced on 137,000 acres in the Pacific Northwest with value to growers estimated at approximately \$495 million. Compared with 2010, the 2012 US farm-gate value of Tri-State varieties increased by approximately \$80 million.

Impact of Tri-State Potato Varieties on PNW Production



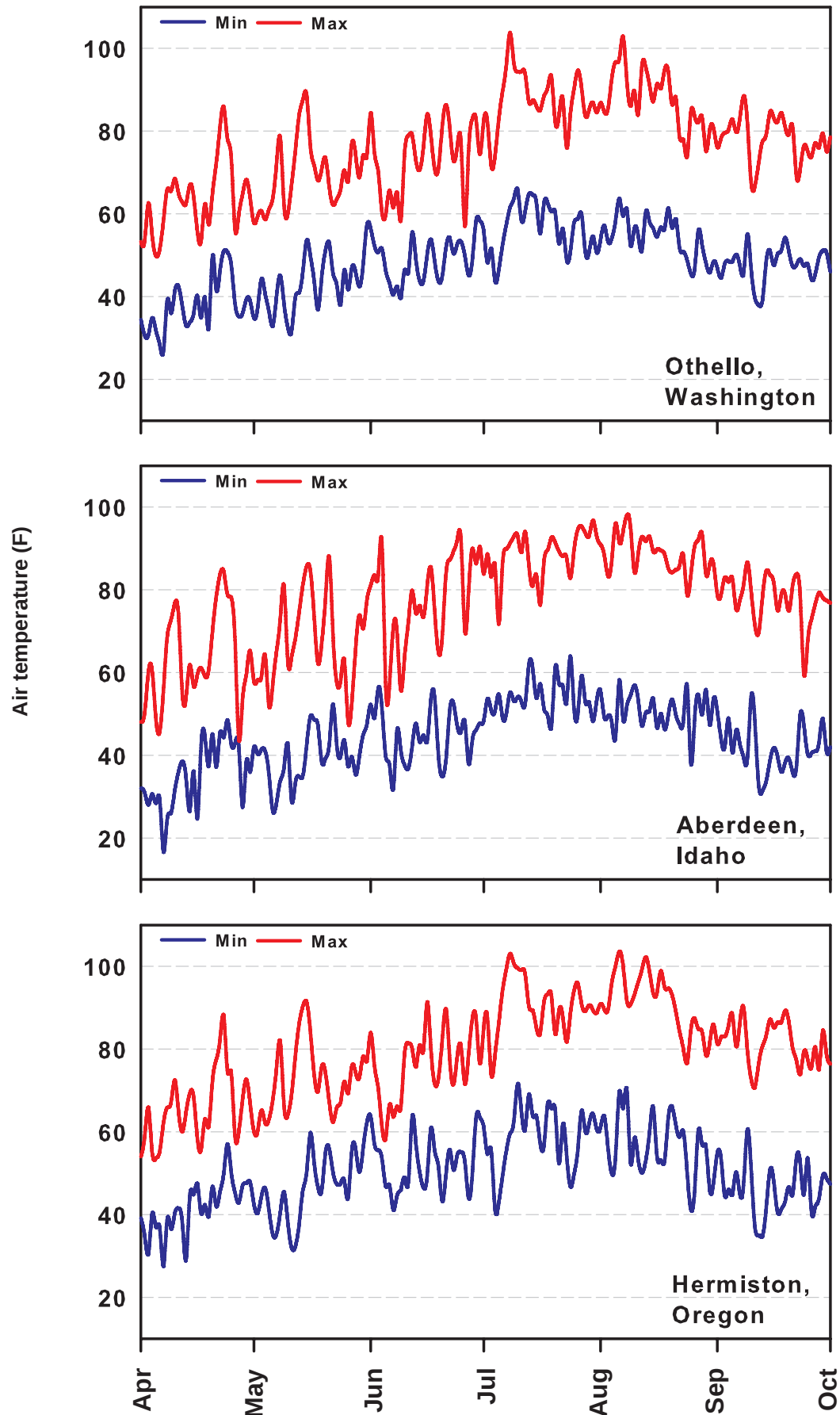
Cultural Information

Late Tri-State and Late Regional Trials

Tri-State Trial	<u>Othello, WA</u>	<u>Aberdeen, ID</u>	<u>Hermiston, OR</u>
Soil type	Shano silt loam	Silt loam	Loamy fine sand
Previous crop	Wheat	Small Grains	Triticale
Planting date	April 11	May 3	April 12
Vine kill date	September 4	September 3	September 10
Soil moisture at harvest	Moist-Dry	N/A	N/A
Temperature at harvest	73°F	N/A	84°F
Harvest date	September 12	September 10	September 18
Storage temperature	48°F	60°F-65°F	45°F
Date received at Pullman	September 17	September 19	September 19

Regional Trial	<u>Othello, WA</u>	<u>Aberdeen, ID</u>	<u>Hermiston, OR</u>
Soil type	Shano silt loam	Silt loam	Loamy fine sand
Previous crop	Wheat	Small Grains	Triticale
Planting date	April 11	May 3	April 12
Vine kill date	September 4	September 3	September 10
Soil moisture at harvest	Moist-Dry	N/A	N/A
Temperature at harvest	73°F	N/A	84°F
Harvest date	September 12	September 10	September 18
Storage temperature	48°F	60°F-65°F	45°F
Date received at Pullman	September 17	September 19	September 19

2012 Growing Season Temperatures



Guide to Clone Designations

Example: ATX91137-1Ru

ATX91137-1Ru
ATX91137-1Ru
 ATX**91**137-1Ru
 ATX91**137**-1Ru
 ATX91137-**1**Ru
 ATX91137-1**Ru**

Breeding Program (**A**berdeen, ID)
 Selection Site (**T**exas)
 Year of Cross (**1991**)
 Cross Number (**137**)
 Tuber Selection (**1**)
 Russet (**Ru**)

Location Codes

Designation		Breeding Program	Selection Program	Other
A	=	Aberdeen, Idaho	Aberdeen, Idaho	
AO	=	Aberdeen, Idaho	Oregon	
AOA	=	Aberdeen, Idaho	Oregon	Aberdeen, Idaho
ATX	=	Aberdeen, Idaho	Texas	
BTX	=	Beltsville, Maryland	Texas	
CO	=	Colorado		
MWTeX	=	Madison Wisconsin	Texas	
NDA	=	North Dakota	Aberdeen, Idaho	
NY	=	New York		
PA	=	Prosser, WA	Aberdeen, Idaho	
POR	=	Prosser, WA	Oregon	
TC	=	Texas	Colorado	
TXA	=	Texas	Aberdeen, Idaho	
TXNS	=	Texas		Norkotah Strain

Miscellaneous Designations

PA97 B 3-2	B	=	Chuck B rown's cross
A93157-6 LS	LS	=	Low S ugar
CO94165-3 P/P	P/P	=	Purple 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	=	R usset skin
VC1009-1 W/Y	W/Y	=	W hite skin & Y ellow flesh
A97066-42 LB	LB	=	Late B light resistance
AC9923 PW/Y	PW/Y	=	Purple skin with W hite eyes/ Y ellow flesh
AC9653 P/Y	P/Y	=	Purple skin/ Y ellow flesh
CO977-2 P/PW	P/PW	=	Purple skin/ P urple & W hite flesh
A99029-3 E	E	=	E arly maturing
A0008-1 TE	TE	=	TE tonia, ID Selection

Graduating Russet Entries and Reference Varieties

Multiple Year Summaries

Entry	Year	Late Harvest Total Yield	US # 1 & 2 Yield > 6 oz	Specific Gravity	Average Tuber Weight/ Number per Plant	Bruise Blackspot/ Shatter	Internal* Issues	Merit Scores (5 = Best)		
								Field Performance		Postharvest Processing Performance
		CWT/A	% of Total		oz/number	%		Early/Late Fresh	Early/Late Process	
A01010-1	2012	896	71	1.082	6.7/11.7	3/95	3% IBS	1.4/1.8	1.8/3.8	3.3
	2011	896	79	1.080	8.0/9.6	6/55	None	2.6/4.8	3.2/4.2	3.8
	2010	931	67	1.085	6.3/12.7	0/100	None	3.4/3.6	4.1/4.2	3.0
	2009	832	84	1.082	8.6/8.5	13/53	None	1.3/2.3	1.2/3.9	4.1
	Shape typically uniform, occasionally variable, nice baker size, puffed-wheat looking skin not always attractive, dark russet, swollen lenticels and variable shape may complicate fresh market capability									
AO00057-2	2012	598	70	1.084	6.7/7.7	3/61	3% IBS	2.6/1.5	3.3/3.1	3.9
	2011	578	78	1.085	7.9/6.4	6/38	None	3.8/2.6	2.0/3.6	4.6
	2010	863	89	1.088	11.2/6.7	7/60	None	3.0/1.8	3.4/4.3	4.4
	2009	678	91	1.077	11.4/5.2	15/59	None	3.5/1.5	3.4/1.7	4.7
	2008	635	84	1.089	9.7/5.7	15/63	None	3.8/2.3	3.4/3.4	4.5
	Large, blocky, uniform shape, dark russet skin, plump girth, short - a bit round, occasionally a bumpy surface. Late harvest yield not always great. Possible ok for early harvest fresh pack and late harvest processing, storage dormancy similar to Russet Burbank									
AO96305-3	2012	581	67	1.084	6.9/7.3	9/69	None	1.8/1.1	2.2/2.9	4.3
	2011	609	71	1.084	7.0/7.5	9/38	None	2.6/2.6	3.5/3.6	4.8
	2010	650	74	1.085	7.3/7.6	22/72	None	3.8/2.0	4.3/3.2	4.2
	2009	740	86	1.081	8.9/7.2	8/37	None	3.2/3.1	3.0/3.6	4.5
	2008	545	70	1.084	6.8/7.0	20/38	None	3.5/1.8	4.1/3.1	4.8
	2007	555	68	1.094	6.6/7.2	54/71	None	2.3/3.9	3.1/3.5	4.7
	Uniform shape - typy, long, some growth cracks, bad skin - spotty, soft rot and c. scab susceptible. Issue for fresh pack will be skin in the Columbia Basin. Good for french fries and storage per postharvest merit scores.									
PA00N14-2	2012	658	53	1.083	5.5/10.5	9/57	None	1.5/1.3	1.6/3.1	3.0
	2011	589	66	1.082	6.2/8.2	32/47	None	2.3/2.3	3.5/3.4	3.9
	2010	665	72	1.084	6.5/8.9	23/32	None	2.8/3.0	4.1/3.3	3.5
	2009	679	83	1.079	7.8/7.5	8/20	None	3.2/4.1	3.3/2.8	3.1
	2008	550	71	1.082	6.6/7.2	3/33	3% IBS	3.0/1.9	4.9/3.2	4.7
	2007	585	53	1.092	5.4/9.3	40/100	None	3.0/2.9	4.9/2.8	3.8
	Resists net necrosis, vascular discoloration, Corky Ringspot. Long, skinny, uniform shape. Occasionally a slight yellow tint to the russet skin. Medium harvest (Mid August) recommended. Tubers typically on the smaller side. Excellent culinary traits: flavor, texture, aroma									
Ranger R.	2012	852	86	1.085	9.6/7.7	50/50	3% IBS	NA	3.1/4.6	3.1
	2011	735	75	1.086	7.5/8.4	49/46	3% IBS	NA	3.1/3.5	4.1
	2010	782	78	1.091	7.6/9.0	29/52	None	NA	3.5/3.7	3.5
	2009	814	87	1.081	10.9/6.5	20/50	None	NA	2.9/3.4	4.3
	2008	625	81	1.083	9.5/5.7	40/60	3% IBS	NA	4.2/2.7	3.7
	2007	600	72	1.087	7.2/7.2	81/66	None	NA	3.5/3.8	3.4
	Long, shape variable at times, yet uniform other times									
R. Burbank	2012	710	63	1.076	7.0/8.8	27/57	10%HH, 20% BC	0.5/0.9	1.0/1.6	1.9
	2011	641	68	1.076	6.8/8.2	6/24	35%HH, 21% BC	2.3/1.3	3.3/1.5	3.9
	2010	683	70	1.079	7.1/8.2	19/62	10% HH, 19% BC	1.9/3.0	3.2/2.3	2.4
	2009	852	85	1.080	9.3/8.0	25/55	3% HH	2.5/2.4	2.7/3.2	3.8
	2008	695	64	1.079	7.4/8.2	13/70	10% BC, 3% IBS	3.0/1.3	3.2/2.3	2.8
	2007	537	53	1.083	5.7/8.1	44/81	25% HH, 19% BC	2.4/2.5	3.6/2.7	3.8
	Shape typically variable, often with many growth cracks and knobs									
R. Norkotah	2012	522	56	1.072	5.7/8.0	14/59	None	1.3/1.2	NA	NA
	2011	506	48	1.070	5.1/8.6	0/38	5% HH, 10% BC	1.1/1.6	NA	NA
	2010	532	45	1.069	4.9/9.4	13/29	None	1.5/1.6	NA	NA
	2009	663	77	1.065	7.4/7.8	15/23	None	5.0/2.5	NA	NA
	Shape and skin typically very uniform, size profile typically on the small side									

*HH = Hollow heart, BC = brown center, IBS = internal brown spot

A01010-1



AO00057-2



AO96305-3



PA00N14-2



Five State, Two Year Summary of Specialty Entries That Recently Graduated

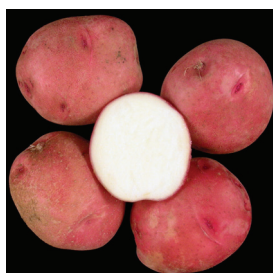
ENTRY*	Total Yield CWT/A	US # 1 Yield						Fresh Merit Score	Process Merit Score	Vine Maturity
		< 4 oz	4-6 oz	6-10 oz	> 10 oz	Culls & 2s	Percent	5 = best	5 = Late	
		-----% of total yield-----								4-10 oz
Red Skin/White Flesh										
Dark Red Norland	507	13	18	39	21	8	58	3.4	4.0	3.7
Red LaSoda	583	9	14	34	31	13	48	2.4	1.0	3.4
CO99076-6R	422	19	21	36	16	8	57	3.0	2.0	2.6
CO99256-2R	488	29	26	29	8	4	55	3.4	5.0	3.6
Red-Purple/Yellow Flesh										
A99331-2RY	434	41	28	21	5	6	49	2.8	1.0	3.8
Yellow Flesh										
Yukon Gold	398	11	15	34	32	8	49	3.0	2.0	2.5
A99433-5Y	458	23	26	33	12	6	59	3.5	5.0	4.2
ATC00293 -1W/Y	453	17	22	33	17	10	55	3.5	5.0	3.7

ENTRY*	STEMS PER PLANT Above Ground	AVERAGE TUBER		SHAPE	Length to	SPECIFIC GRAVITY	Comments**
		WEIGHT	NUMBER	UNIFORMITY	Width Ratio		
				1 = Poor	1 = Round		
				5 = Good	2 = Oblong		
Red Skin/White Flesh							
Dark Red Norland	3.1	6.8	7.3	3.2	1.17	1.067	HH, VD, some irreg shapes
Red LaSoda	2.4	7.7	6.7	2.8	1.13	1.070	Deep eyes, cracks, knobs, HH, BC, VD
CO99076-6R	2.6	5.6	7.5	3.9	1.12	1.077	G. cracks, HH, stky stlms, nice shape & color
CO99256-2R	2.8	4.6	10.2	3.6	1.25	1.072	Bad HH, BC, VD, nice but poor skin set
Red-Purple/Yellow Flesh							
A99331-2RY	3.2	4.0	11.5	3.6	1.14	1.074	Stky stlms, small, multicolor skin, heat sprouts
Yellow Flesh							
Yukon Gold	2.0	7.2	5.6	3.6	1.24	1.083	HH, VD, large size range, nice skin
A99433-5Y	2.6	5.3	8.2	3.8	1.19	1.081	HH, light russet, irreg shape
ATC00293 -1W/Y	2.4	5.7	7.7	3.4	1.32	1.071	Bad HH, G. cracks, purple eyes, heat sorts, nice

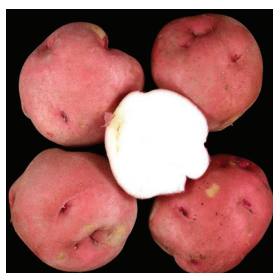
*Chieftain, a popular variety in WA, was not included in this summary because it was only grown in the WSU trials. We are working to get it added to the 5 states. To see how Chieftain compared in WA, see the past two years of this book online at www.potatoes.wsu.edu.

**G. cracks = growth cracks, HH = hollow heart, IBS = internal brown spot, BC = brown center, VD = vascular discoloration, Stky Stlms = sticky, attached stolons

Dark Red Norland



Red LaSoda



CO99076-6R



CO99256-2R



A99331-2RY



Yukon Gold



A99433-5Y



ATC00293 -1W/Y



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 18 (Fresh) and 19 (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.

NEWEST ENTRIES - TRI-STATE TRIAL

Fresh Market Merit Scores Washington

Scale of 1 to 5 (5 = best) - Entries ranked by Field Performance means

Early Harvest Fresh Market				
Entry	Mean	2012	2011	2010
1 A06003-3TE	3.5	3.5	-	-
2 A06015-13TE	2.9	2.9	-	-
3 A02062-1TE	2.8	2.6	4.0	1.9
4 A05052-3TE	2.8	2.8	-	-
5 A03131-4TE	2.7	3.2	2.2	-
6 A05013-29	2.5	2.5	-	-
7 AO01114-4	2.5	3.1	3.0	1.4
8 A05015-5TE	2.4	2.4	-	-
9 A03082-4	2.3	2.3	-	-
10 A06029-5TE	2.3	2.3	-	-
11 Russet Burbank	2.0	0.9	2.8	2.4
12 Ranger Russet	2.0	1.4	2.2	2.3
13 OR05039-4	2.0	0.9	3.0	-
14 Russet Norkotah	1.8	1.4	2.0	2.1
15 A01325-1	1.6	1.6	-	-
16 A03921-2	1.4	1.4	-	-
17 A06084-1TE	1.4	1.4	-	-
18 A02424-83LB	1.1	1.1	-	-
19 A0073-2	1.0	1.0	-	-
20 AO03123-2	1.0	1.0	-	-
21 POR06V12-3	1.0	1.0	-	-
22 A02144-2	0.9	0.4	1.3	-
23 A0012-5	0.8	0.8	-	-

Late Harvest Fresh Market				
Entry	Mean	2012	2011	2010
1 A03921-2	3.1	3.1	-	-
2 Ranger Russet	2.7	1.4	2.9	3.9
3 OR05039-4	2.5	1.5	3.5	-
4 AO01114-4	2.4	1.4	3.5	2.3
5 POR06V12-3	2.3	2.3	-	-
6 Russet Burbank	2.2	0.5	2.7	3.3
7 A01325-1	2.1	2.1	-	-
8 AO03123-2	2.1	2.1	-	-
9 A05013-29	2.0	2.0	-	-
10 A02424-83LB	2.0	2.0	-	-
11 A0012-5	1.9	1.9	-	-
12 Russet Norkotah	1.9	1.2	2.0	2.5
13 A03082-4	1.6	1.6	-	-
14 A0073-2	1.4	1.4	-	-
15 A02144-2	1.3	0.7	2.0	-
16 A06015-13TE	1.1	1.1	-	-
17 A05052-3TE	0.8	0.8	-	-
18 A06003-3TE	0.8	0.8	-	-
19 A06084-1TE	0.8	0.8	-	-
20 A05015-5TE	0.7	0.7	-	-

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

ADVANCED LINES - REGIONAL TRIAL

Fresh Market Merit Scores Washington

Scale of 1 to 5 (5 = best) - Entries ranked by Field Performance means

Early Harvest Fresh Market							
Entry	Mean	2012	2011	2010	2009	2008	2007
1 CO03276-4RU	3.8	3.8	-	-	-	-	-
2 CO03276-5RU	3.8	3.8	-	-	-	-	-
3 A03158-2TE	3.5	2.5	4.4	-	-	-	-
4 AO00057-2	3.3	2.6	3.8	3.0	3.5	3.8	-
5 AO96305-3	2.9	1.8	2.6	3.8	3.2	3.5	2.3
6 Ranger Russet	2.8	1.6	2.2	2.3	3.5	3.3	3.8
7 Russet Norkotah	2.7	1.3	1.1	1.5	5.0	-	4.6
8 PA00N14-2	2.6	1.5	2.3	2.8	3.2	3.0	3.0
9 AO02183-2	2.5	1.9	2.9	3.3	1.9	-	-
10 CO03202-1RU	2.5	2.5	-	-	-	-	-
11 AO02060-3	2.4	1.1	3.1	3.1	-	-	-
12 A01010-1	2.2	1.4	2.6	3.4	1.3	-	-
13 Russet Burbank	2.1	0.5	2.3	1.9	2.5	3.0	2.4
14 AC00395-2RU	2.1	2.1	-	-	-	-	-
15 A99029-3E	2.1	1.7	2.4	-	-	-	-
16 A02138-2	1.8	1.4	2.1	-	-	-	-
17 CO03187-1RU	1.4	1.4	-	-	-	-	-
18 A02507-2LB	1.3	0.6	2.0	-	-	-	-

Late Harvest Fresh Market							
Entry	Mean	2012	2011	2010	2009	2008	2007
1 AO02183-2	4.0	3.4	3.0	4.6	4.8	-	-
2 A03158-2TE	3.7	2.8	4.5	-	-	-	-
3 AC00395-2RU	3.5	3.5	-	-	-	-	-
4 A01010-1	3.1	1.8	4.8	3.6	2.3	-	-
5 A02507-2LB	3.1	2.9	3.3	-	-	-	-
6 PA00N14-2	2.6	1.3	2.3	3.0	4.1	1.9	2.9
7 AO96305-3	2.4	1.1	2.6	2.0	3.1	1.8	3.9
8 AO02060-3	2.2	1.1	2.8	2.8	-	-	-
9 CO03202-1RU	2.2	2.2	-	-	-	-	-
10 Ranger Russet	2.1	1.8	2.5	2.8	2.3	1.0	2.5
11 Russet Norkotah	2.0	1.2	1.6	1.6	2.5	-	3.1
12 AO00057-2	1.9	1.5	2.6	1.8	1.5	2.3	-
13 Russet Burbank	1.9	0.9	1.3	3.0	2.4	1.3	2.5
14 A02138-2	1.4	0.6	2.3	-	-	-	-
15 CO03276-4RU	1.3	1.3	-	-	-	-	-

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

NEWEST ENTRIES - TRI-STATE TRIAL

Process Market Merit Scores Washington

Scale of 1 to 5 (5 = best) - Entries ranked by Field Performance means

Early Harvest Process Market					
		Field Performance	Field Performance*		
Entry		Mean	2012	2011	2010
1	A06029-5TE	4.7	4.7	-	-
2	A06003-3TE	4.2	4.2	-	-
3	A05013-29	4.0	4.0	-	-
4	AO01114-4	3.6	2.7	3.8	4.2
5	Russet Burbank	3.4	2.6	4.0	3.6
6	A05015-5TE	3.3	3.3	-	-
7	Ranger Russet	3.3	2.4	4.0	3.5
8	A03921-2	3.2	3.2	-	-
9	A03082-4	3.1	3.1	-	-
10	OR05039-4	3.0	2.1	3.8	-
11	Russet Norkotah	3.0	3.1	3.2	2.6
12	A03131-4TE	2.8	3.3	2.4	-
13	A02424-83LB	2.8	2.8	-	-
14	A01325-1	2.7	2.7	-	-
15	POR06V12-3	2.6	2.6	-	-
16	A06015-13TE	2.6	2.6	-	-
17	A02062-1TE	2.3	2.8	2.2	2.0
18	A0073-2	2.2	2.2	-	-
19	A02144-2	2.1	1.6	2.7	-
20	A05052-3TE	2.1	2.1	-	-
21	AO03123-2	1.7	1.7	-	-
22	A06084-1TE	1.5	1.5	-	-
23	A0012-5	1.2	1.2	-	-

Late Harvest Process Market						
		Field Performance	Postharvest Processing	Field Performance/Postharvest Processing*		
Entry		Mean	Mean	2012	2011	2010
1	A0012-5	4.8	4.8**	4.8/4.8**	-	-
2	A05013-29	4.6	1.9	4.6/1.9	-	-
3	A01325-1	4.4	3.1	4.4/3.1	-	-
4	A03921-2	4.3	4.1	4.3/4.1	-	-
5	Ranger Russet	4.3	3.5	4.0/3.1	4.5/4.1	4.3/3.2
6	A02424-83LB	4.2	3.9	4.2/3.9	-	-
7	POR06V12-3	4.1	3.5	4.1/3.5	-	-
8	A0073-2	3.9	4.5**	3.9/4.5**	-	-
9	AO03123-2	3.8	4.3	3.8/4.3	-	-
10	AO01114-4	3.3	4.0	3.0/4.2	4.1/4.3	2.9/3.5
11	OR05039-4	3.0	4.2	2.8/3.6	3.2/4.8	-
12	A05052-3TE	2.9	3.5	2.9/3.5	-	-
13	Russet Burbank	2.7	2.9	1.0/1.8	3.5/3.8	3.6/3.2
14	A03082-4	2.6	2.2	2.6/2.2	-	-
15	A02144-2	2.3	4.5	1.2/4.1	3.4/4.8	-
16	A06084-1TE	1.8	3.8	1.8/3.8	-	-
17	A06003-3TE	1.4	2.7	1.4/2.7	-	-
18	A06015-13TE	1.2	2.6	1.2/2.6	-	-
19	A05015-5TE	1.2	1.5	1.2/1.5	-	-

*WA Field performance values and WA postharvest processing values for each year are separated with a forward slash. Postharvest values are not given for the Early Harvest Trial because all varieties typically fry well when delivered directly from the field and cold storage is not typical. For more information on these cultivars, see the Early and Late Harvest Tri-State Trial sections in this book.

**A0012-5 and A0073-5 produced fries with variable color in a striated pattern. This may be due to a virus, rather than genetics; however, if it is related to genetics, these varieties and their fries would be unacceptable.

ADVANCED LINES - REGIONAL TRIAL

Process Market Merit Scores Washington

Scale of 1 to 5 (5 = best) - Entries ranked by Field Performance means

Early Harvest Process Market							
Entry	Field Performance		Field Performance*				
	Mean	2012	2011	2010	2009	2008	2007
1 CO03276-4RU	4.2	4.2	-	-	-	-	-
2 A03158-2TE	3.8	3.4	4.2	-	-	-	-
3 PA00N14-2	3.7	1.6	3.5	4.1	3.3	4.9	4.9
4 Ranger Russet	3.4	3.1	3.1	3.5	2.9	4.2	3.5
5 AO96305-3	3.4	2.2	3.5	4.3	3.0	4.1	3.1
6 A02138-2	3.2	3.1	3.3	-	-	-	-
7 CO03187-1RU	3.2	3.2	-	-	-	-	-
8 AO02060-3	3.1	1.9	3.1	4.4	-	-	-
9 AO00057-2	3.1	3.3	2.0	3.4	3.4	3.4	-
10 CO03276-5RU	3.1	3.1	-	-	-	-	-
11 AC00395-2RU	3.0	3.0	-	-	-	-	-
12 A99029-3E	2.9	2.1	3.7	-	-	-	-
13 Russet Burbank	2.8	1.0	3.3	3.2	2.7	3.2	3.6
14 AO02183-2	2.8	2.1	3.0	4.1	2.0	-	-
15 Russet Norkotah	2.6	2.1	1.7	2.2	3.4	-	3.5
16 A01010-1	2.6	1.8	3.2	4.1	1.2	-	-
17 A02507-2LB	2.3	1.5	3.2	-	-	-	-
18 CO03202-1RU	2.1	2.1	-	-	-	-	-

Late Harvest Process Market									
		Field	Post Harvest	WA Field Performance/WA Postharvest Processing*					
Entry		Mean	Mean	2012	2011	2010	2009	2008	2007
1	AC00395-2RU	4.8	2.1	4.8/2.1	-	-	-	-	-
2	AO02183-2	4.4	4.2	4.2/4.6	4.8/4.4	4.0/4.3	4.4/3.6		
3	A02507-2LB	4.1	4.6	4.2/4.7	4.1/4.4	-	-	-	-
4	CO03202-1RU	4.0	2.4	4.0/2.4	-	-	-	-	-
5	A01010-1	4.0	3.6	3.8/3.3	4.0/3.8	4.2/3.0	3.9/4.1	-	-
6	Ranger Russet	3.6	3.7	4.6/3.1	3.5/4.1	3.7/3.5	3.4/4.3	2.7/3.7	3.8/3.4
7	AO02060-3	3.4	4.3	2.7/3.9	3.9/4.8	3.7/4.1	-	-	-
8	A03158-2TE	3.3	3.9	3.4/3.1	3.3/4.6	-	-	-	-
9	AO96305-3	3.3	4.6	2.9/4.3	3.6/4.8	3.2/4.2	3.6/4.5	3.1/4.8	3.5/4.7
10	AO00057-2	3.2	4.4	3.1/3.9	3.6/4.6	4.3/4.4	1.7/4.7	3.4/4.5	
11	PA00N14-2	3.1	3.7	3.1/3.0	3.4/3.9	3.3/3.5	2.8/3.1	3.2/4.7	2.8/3.8
12	Russet Burbank	2.3	3.1	1.6/1.9	1.5/3.9	2.3/2.4	3.2/3.8	2.3/2.8	2.7/3.8
13	A02138-2	2.0	4.8	1.8/4.7	2.2/4.8	-	-	-	-
14	CO03276-4RU	**	**	**	-	-	-	-	-

*Field performance values and postharvest processing values for each year are separated with a forward slash. Postharvest values are not given for the Early Harvest Trial because all varieties typically fry well when delivered directly from the field and cold storage is not typical. For more information on these cultivars, see the Early and Late Harvest Regional Trial sections in this book.

**Designated for the fresh market only.

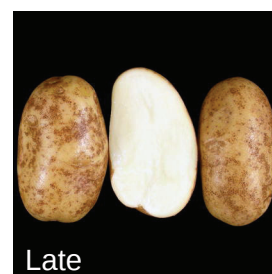
At-Harvest Grading Comments & Fresh Market Appearance

Newest Lines - 2012 Tri-State Trials		
Clone	Fresh Market Appearance	Tuber Appearance Comments
	1-5 (5 = Best)	
Early Harvest Tri-State		
Ranger Russet	1.4	Nice size uniformity.
Russet Burbank	0.9	Knobs, cracks, pears
Russet Norkotah	1.4	Nonuniform russet, a few pears, a bit flat.
A0012-5	0.8	Irregular shape, thick stolons.
A0073-2	1.0	Small, irregular shape.
A01325-1	1.6	Large white, spotty skin, shape a bit irregular.
A02062-1TE	2.6	Mostly ttypy, pointy ends.
A02144-2	0.4	Golf balls, baseballs, and a few pears.
A02424-83LB	1.1	White skin, powdery scab, uniform shape.
A03082-4	2.3	Large, spotty russetting, pear shaped.
A03131-4TE	3.2	Many round ones, good skin set.
A03921-2	1.4	Spotty russetting, variable shape.
A05013-29	2.5	Large, spotty russetting, lot of irregular shapes.
A05015-5TE	2.4	Mostly ttypy, poor skin set, short.
A05052-3TE	2.8	Poor skin set, blocky, ttypy.
A06003-3TE	3.5	Ttypy, some with irregular shapes.
A06015-13TE	2.9	Large, many growth cracks, shape a bit irregular.
A06029-5TE	2.3	Large, irregular shape, spotty russet.
A06084-1TE	1.4	Small, ttypy, not early.
AO01114-4	3.1	Some ttypy, shape variable.
AO03123-2	1.0	Small, not early.
OR05039-4	0.9	White, long, skinny spotty skin.
POR06V12-3	1.0	Irregular shapes, small, mostly ttypy.
Late Harvest Tri-State		
Ranger Russet	2.7	Long, shape a bit irregular.
Russet Burbank	2.2	Smaller, mostly ttypy, eyes a bit deep.
A0012-5	1.9	Puffed wheat skin, thick, shallow eyes.
A0073-2	1.4	Short, blocky tubers.
A01325-1	2.1	Scab, irregular shape - DISCARD.
A02144-2	1.3	Mostly small, pear shaped - DISCARD.
A02424-83LB	2.0	Bad powdery scab, flat, variable shape - DISCARD
A03082-4	1.6	Bumpy, misshapen tubers, scab - DISCARD
A03921-2	3.1	Mostly ttypy, uniform, some flat.
A05013-29	2.0	Very long, uniform shape.
A05015-5TE	0.7	Short, plump, small footballs.
A05052-3TE	0.8	Smaller, irregular shapes.
A06015-13TE	1.1	Mostly ttypy, large
A06003-3TE	0.8	Variable sizes, many growth cracks.
A06084-1TE	0.8	Smaller, skinny, mostly ttypy.
AO01114-4	2.4	Mostly ttypy, nice shape.
AO03123-2	2.1	Some irregular shapes, too small.
OR05039-4	2.5	Shape variable, bad skin.
POR06V12-3	2.3	Ttypy, blocky, nice russet skin.

AO01114-4



A06003-3TE



At-Harvest Grading Comments & Fresh Market Appearance

Advanced Lines - 2012 Regional Trials		
Fresh Market Appearance		
Clone	1-5 (5 = Best)	Tuber Appearance Comments
Early Harvest Regional		
Ranger Russet	1.6	Pointy, a bit rough.
Russet Burbank	0.5	Knobs, cracks, irregular skin.
Russet Norkotah	1.3	Irregular russetting, a bit rough.
A99029-3E	1.7	Poor skin set, nonuniform russetting.
A01010-1	1.4	Deep eyes, shape a bit rough.
A02138-2	1.4	Baseballs, light russetting.
A02507-2LB	0.6	Short, small - DISCARD
A03158-2TE	2.5	Irregular russetting, some cracks, poor skin set.
AC00395-2RU	2.1	Poor skin set, mostly ttypy, some variable sizes.
AO00057-2	2.6	Nice Russet, plump, short.
AO02060-3	1.1	Plump, short, spotty Russet.
AO02183-2	1.9	A few pointy ones; variable russetting.
AO96305-3	1.8	Spotty russetting, severe growth cracks.
CO03187-1RU	1.4	Skinny, some curves.
CO03202-1RU	2.5	Ttypy, some skinny.
CO03276-4RU	3.8	Ttypy, nice russet skin, a bit flat.
CO03276-5RU	3.8	Ttypy, shallow eyes.
PA00N14-2	1.5	Flat, light russetting, shape a bit irregular.
Late Harvest Regional		
Ranger Russet	1.8	Large, skinny.
Russet Burbank	0.9	Nonuniform shape, large, rough.
A01010-1	1.8	Small, eyes a bit deep.
A02138-2	0.6	Round, light russet.
A02507-2LB	2.9	A bit short, mostly ttypy, uniform shape.
A03158-2TE	2.8	Blocky, deep eyes, shape a bit variable.
AC00395-2RU	3.5	Mostly ttypy, shape a bit variable.
AO00057-2	1.5	Variable size, low yield.
AO02060-3	1.1	Rough skin, variable shape.
AO02183-2	3.4	Mostly ttypy, long.
AO96305-3	1.1	Ttypy, variable shape, some cracks.
CO03202-1RU	2.2	Long, large, variable shape.
CO03276-4RU	1.3	Mostly ttypy, smooth.
PA00N14-2	1.3	Smaller, ttypy, similar to Russet Norkotah.
Russet Norkotah	1.2	Small, mostly ttypy.

A03158-2TE



AC00395-2RU



2012 Red & Specialty Potato Clones - Washington State University

RANKED ACCORDING TO 2012 US #1 Yield					
US #1 Yield				(See also Red & Specialty Section near end of book)	
US#1	2012		2011	US#1	Comments
	Yield	0-6 oz 6-10oz			
CWT/A	-----%	-----	CWT/A		
<u>Red Skin/White Flesh*</u>					
Dark Red Norland	384	32 39	542		A bit flat, larger.
Red LaSoda	544	35 40	683		Deep eyes, rough shape.
CO00277-2R	433	60 30	-		Deep red, large range in size.
ATTX98453-6R	344	68 29	439		Nice medium red, range in size, skin set an issue?
CO00291-5R	260	74 19	130		Poor skin set, sticky stolons**.
Chieftain	586	64 33	648		Medium red, poor skin set, uniform size and shape.
OR04131-2	247	91 7	342		Good skin set, deep red, some scab.
<u>Red or Purple Skin/Yellow Flesh</u>					
ATTX98468-5R/Y	490	64 25	-		Poor skin set, rough, sticky stolons** - DISCARD
CO04021-2R/Y	317	51 32	-		Large, curves, irregular shapes.
COTX01403-4R/Y	451	32 46	544		Large, flat, rough shape - DISCARD
<u>Purple Skin/Purple Flesh</u>					
Purple Majesty	478	76 21	471		Deep purple, size and shape mostly uniform.
POR05PG56-1	464	97 3	490		Nice purple, some powdery scab, uniform shape and size.
<u>Yellow Flesh</u>					
Yukon Gold	356	34 40	372		Larger, variable shape.
ATX03564-1Y/Y	470	47 43	-		Spotty prescab, large pears - DISCARD.
CO04013-1W/Y	523	97 3	-		Looks like a small Yukon Gold, uniform size and shape.
OR04036-5	396	60 38	479		Spotty russetting, prescab.

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

** The term "sticky stolons" refers to tubers that remain attached to the plant during harvest. This may or may not be a problem.

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.

Markets/Packaging ^a	Range of Tuber Sizes for Each Package Type and USDA Grade		Four Year WA State Columbia Basin Average Prices ^c	Pack-Shed Fee: Packaging and Handling	Adjusted Value
	U.S. No. 1 ^b	U.S. No. 2			
	oz	oz	\$/CWT	\$/CWT	\$/CWT
<u>50 lb cartons</u>					
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
<u>10 lb Film Bags</u>					
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
<u>Bulk</u>					
Process-Culls	< 4	< 10	\$4.00	\$4.00	\$0.00
Process-Culls	> 20	> 20	\$4.00	\$4.00	\$0.00

^aCount = tuber number per 50 lb carton.

^b18 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.

^cSales F.O.B. Shipping Point, market periods 2008-2011 (USDA Federal-State Market News Service 2008-2011). 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 \$133/ton.
 - a. Base price is an average of early-harvest Ranger Russet contracts from Washington processors.
2. To compensate for yield loss due to early harvest, the base price was increased by \$1.00/ton per day for each day potatoes were harvested earlier than Sept. 1.
3. Early harvest quality parameters were identical to those mentioned below in the Late Harvest Process Value – Methods.

Late Harvest

Economic Potential

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

Contract Assumptions:

1. Base price: \$133/ton for market (U.S. #1 & 2) grade tubers.
2. **Six oz clause:** Premiums for market grade tubers 6 oz or greater of \$0.80/ton for each percentage point >53% of the total tuber yield composite, with premium maximum not to exceed a total of \$12.00/ton. Penalties were \$1.00/ton for each percentage point below 53% > 6 oz tubers; below 40% > 6 oz, lots were penalized \$20/ton.
3. **US #1 clause:** Premiums for US #1 grade tubers 6 oz or greater of \$0.40/ton for each percentage point >60% of the total tuber yield composite, with premium maximum not to exceed a total of \$10.00/ton. Penalties were \$0.20/ton for each percentage point below 60% > 6 oz US #1 tubers, with the penalty maximum not to exceed a total of \$4.20/ton.
4. **Undersized clause:** Market grade potatoes <4 oz (process culls) were valued at \$60.00/ton.
5. **Specific Gravity clause:** Premiums per ton were \$1.00 at 1.078, \$3.00 at 1.079, \$5.00 at 1.080, \$7.00 at 1.081, \$8.00 at 1.082, \$9.00 at 1.083, with a maximum of \$10.00 for 1.084 through 1.088. Above 1.088 premiums were as follows: \$9.00 at 1.089, \$8.00 at 1.090, \$7.00 at 1.091, \$6.00 at 1.092, \$5.00 at 1.093, \$4.00 at 1.094, \$3.00 at 1.095, \$2.00 at 1.096, \$1.00 at 1.097, \$0.00 at 1.098 and \$0.00 at 1.099. Above 1.099, lots were penalized \$1.00/ton with no ceiling. No premium or penalty for a value of 1.077. Penalties per ton were \$5.00 at 1.076, \$10.00 at 1.075, and \$15.00 at 1.074. Below 1.074, 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.

2012 Postharvest Procedures

EARLY HARVEST

Culinary and quality characteristics of clones from the Red/Specialty Trial were evaluated after oven-baking, microwaving, boiling, chipping and French Frying. 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 1.2-mm-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.

Evaluations 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

Boiling time - Cooking time for boiled samples in the Red Specialty Trial was assessed this year. Cores of tuber tissue (1.3 cm diameter x 1.3 cm long) from the stem and bud ends of all entries were immersed in boiling water and the time to penetration of a 90-g probe was recorded.

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 twenty five 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 (≥ 3 in.) (by weight)	Percentage of French Fries (≥ 3 in.) (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 2011 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.

2012 Early Harvest Tri-State Trial

Location: WSU Research Center – Othello, WA

Planting Date: April 4

Vine Kill Date: July 17

Harvest Date: August 1

Days Grown: 104

Fertility: 200-340-220

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 2012 trial compared 3 local reference varieties to 20 new clones. Despite a cooler spring, the consistently mild weather mid-July was ideal for growth and yields were high for many 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): A06003-3TE, AO01114-4.

Process Market Standout(s): A06029-5TE, A06003-3TE, A05013-29.

Standcounts

➤ 40 Day

Slow emergence: A0073-2 (7%), AO03123-2 (11%), A0012-5 (13%).

➤ 60 Day

Full emergence: A03082-4, A03131-4TE, and A05013-29 were 100% emerged.

Poor emergence: A03921-2 (71%), A06084-1TE (82%), A0012-5 and A06003-3TE (each 87%), A0073-2 and A05052-3TE (each 89%).

Plant and Tuber Growth & Development

➤ Stem Number Per Plant – Above Ground

Most: A02424-83LB (2.6), Russet Norkotah and A03921-2 (each 2.3).

Least: A0012-5 and A06029-5TE (each 1.1).

➤ Average Tuber Number Per Plant

Most: A02424-83LB (10.7), AO03123-2 (9.8).

Least: A06015-13TE and A06029-5TE (each 5.4), A0012-5 (5.6).

➤ Average Tuber Size (oz)

Largest: A06029-5TE (7.6), A06015-13TE (7.5).

Smallest: AO03123-2 (3.7), A06084-1TE (4.0), A02144-2 (4.1).

➤ Undersized Tubers (< 4 oz)

Most: AO03123-2 (148 CWT/A), A02424-83LB (135 CWT/A).

Fewest: A06015-13TE (29 CWT/A), A06029-5TE (32 CWT/A).

Yield and Economic Data

➤ **Total Yield**

Highest: A03131-4TE (485 CWT/A), A05013-29 (443 CWT/A), A02424-83LB (442 CWT/A).

Lowest: A06084-1TE (242 CWT/A), A0012-5 (246 CWT/A), A03921-2 (290 CWT/A).

➤ **% U.S. #1's (>4 oz)**

Highest: A03131-4TE and A06029-5TE (each 87%); A05015-5TE (85%).

Lowest: Russet Burbank (53%), A06084-1TE and AO03123-2 (each 54%).

➤ **Carton Yield (100 to 50 Count (7 to 18 oz U.S.#1 Tubers))**

Highest: A06029-5TE (245 CWT/A), A03131-4TE (242 CWT/A), A03082-4 (228 CWT/A).

Lowest: AO03123-2 (12 CWT/A), A0073-2 (31 CWT/A), A06084-1TE (38 CWT/A).

➤ **Specific Gravity**

Highest: A03921-2 (1.087), Russet Burbank (1.086), A05015-5TE (1.086).

Lowest: A06084-1TE (1.061), A03082-4 (1.064), A02062-1TE (1.067).

➤ **Gross Return (\$/acre)**

Fresh Market Highest: A03131-4TE, A06029-5TE, and A05013-29.

Fresh Market Lowest: A06084-1TE, AO03123-2, and A0073-2.

Process Market Highest : A06003-3TE and A06029-5TE.

Process Market Lowest: A06084-1TE, A0012-5, and AO03123-2.

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

➤ **External Defects**

Notable Defects: A06015-13TE had over 50% tubers with growth cracks.

➤ **Internal Defects**

Notable Defects: Russet Burbank had a high incidence of hollow heart (10%) and brown center (40%). All other entries were free of internal defects.

➤ **Bruise**

Highest Blackspot: POR06V12-3 (40%), Ranger Russet (37%).

Highest Shatter: A02144-2 (30%), AO03123-2 (25%).

2012 Early Harvest Tri-State Trial

Summaries

ENTRY	TOTAL YIELD						CARTON YIELD		PROCESS YIELD	
	CWT/A	STATS**	Tons/A	US # 1's*	US # 2's*	Culls*	100-50 count		US 1's and 2's	
				> 4 oz	> 4 oz	& < 4 oz	(US 1's 7-18 oz)		> 6 oz	
				% of Total Yield			% of Total Yield	Tons/A	% of Total Yield	Tons/A
Ranger Russet	323	EF	16.2	78	4	18	43	7.0	58	9.4
Russet Burbank	334	EF	16.7	53	8	40	26	4.3	41	6.8
Russet Norkotah	357	CDEF	17.9	72	3	25	27	4.8	42	7.6
A0012-5	246	G	12.3	74	5	22	32	3.9	54	6.6
A0073-2	308	EFG	15.4	65	6	29	10	1.5	23	3.6
A01325-1	365	CDEF	18.2	77	4	20	34	6.2	51	9.4
A02062-1TE	368	BCDE	18.4	81	1	19	37	6.9	50	9.2
A02144-2	342	DEF	17.1	59	2	40	14	2.4	24	4.1
A02424-83LB	442	AB	22.1	68	1	31	17	3.9	30	6.6
A03082-4	414	ABCD	20.7	83	4	13	55	11.4	68	14.1
A03131-4TE	485	A	24.2	87	1	12	50	12.1	65	15.7
A03921-2	290	FG	14.5	75	0	25	28	4.1	40	5.7
A05013-29	443	AB	22.2	79	5	16	46	10.3	63	13.9
A05015-5TE	323	EF	16.2	85	0	15	47	7.6	62	10.1
A05052-3TE	338	DEF	16.9	84	0	18	45	7.7	58	9.9
A06003-3TE	423	ABC	21.1	81	5	14	47	9.9	61	12.9
A06015-13TE	355	CDEF	17.7	77	0	23	53	9.5	65	11.6
A06029-5TE	376	BCDE	18.8	87	3	10	65	12.3	78	14.7
A06084-1TE	242	G	12.1	54	1	45	16	1.9	26	3.1
AO01114-4	382	BCDE	19.1	83	0	17	42	8.0	54	10.3
AO03123-2	323	EF	16.2	54	0	46	4	0.6	13	2.0
OR05039-4	336	EF	16.8	65	1	35	15	2.5	25	4.2
POR06V12-3	328	EF	16.4	60	5	35	19	3.0	36	6.0

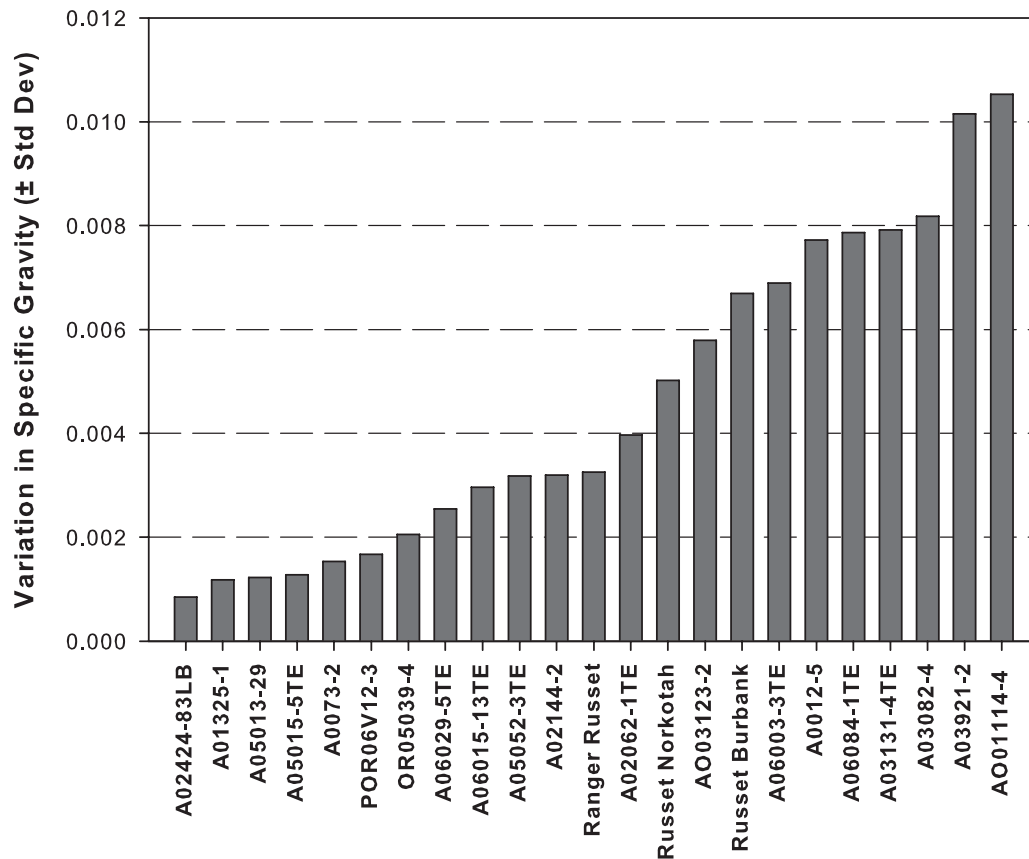
ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%)			
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	> 4 oz*	4-7 oz*	7-14 oz*		> 14 oz*	(8-12 oz tubers)		
				————— % —————					% HH	% BC	% IBS
Ranger Russet	252	DEFG	12.6	45	51	4	1.075	0	0	0	
Russet Burbank	175	IJK	8.8	51	49	0	1.086	10	40	0	
Russet Norkotah	257	DEFG	12.9	62	34	4	1.078	0	0	0	
A0012-5	182	HIJK	9.1	57	43	0	1.074	0	0	0	
A0073-2	201	GHIJK	10.0	85	15	0	1.077	0	0	0	
A01325-1	279	BCDE	14.0	54	42	4	1.075	0	0	0	
A02062-1TE	297	BCD	14.8	54	45	1	1.067	0	0	0	
A02144-2	203	GHIJ	10.1	77	22	2	1.078	0	0	0	
A02424-83LB	301	BCD	15.0	73	25	2	1.078	0	0	0	
A03082-4	344	BC	17.2	33	56	11	1.064	0	0	0	
A03131-4TE	423	A	21.1	43	53	4	1.070	0	0	0	
A03921-2	217	EFGH	10.9	62	36	1	1.087	0	0	0	
A05013-29	351	AB	17.6	39	51	10	1.072	0	0	0	
A05015-5TE	274	BCDE	13.7	43	46	11	1.086	0	0	0	
A05052-3TE	283	BCDE	14.1	46	53	1	1.076	0	0	0	
A06003-3TE	343	BC	17.1	42	53	5	1.077	0	0	0	
A06015-13TE	273	CDEF	13.6	24	61	15	1.073	0	0	0	
A06029-5TE	327	BCD	16.4	23	59	19	1.084	0	0	0	
A06084-1TE	130	K	6.5	71	29	0	1.061	0	0	0	
AO01114-4	316	BCD	15.8	49	47	3	1.071	0	0	0	
AO03123-2	175	JK	8.7	93	7	0	1.081	0	0	0	
OR05039-4	218	HIJK	10.9	77	23	0	1.075	0	0	0	
POR06V12-3	197	HIJK	9.9	69	31	0	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	40 DAY	60 DAY	STEMS PER PLANT	AVERAGE TUBER		SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%)	
	STAND % Emerged	STAND % Emerged	STAND % Emerged		WEIGHT Ounces	NUMBER Tubers/Plant			(8-12 oz tubers) BLACKSPOT	SHATTER
Ranger Russet	0	76	98	1.9	6.0	5.8	4	4	37	7
Russet Burbank	0	51	96	1.3	5.6	6.5	4	3	20	0
Russet Norkotah	0	64	93	2.3	5.1	7.8	4	4	0	0
A0012-5	0	13	87	1.1	5.3	5.6	3	3	0	10
A0073-2	0	7	89	1.3	4.4	8.2	4	3	3	3
A01325-1	0	47	93	1.8	5.3	7.7	4	3	3	13
A02062-1TE	0	38	93	1.5	5.5	7.5	3	4	0	0
A02144-2	0	29	93	2.2	4.1	9.3	4	2	0	30
A02424-83LB	0	89	98	2.6	4.4	10.7	3	3	0	23
A03082-4	0	49	100	1.6	6.3	6.9	4	3	15	20
A03131-4TE	0	84	100	2.0	6.1	8.2	4	2	10	13
A03921-2	0	33	71	2.3	4.8	9.0	4	3	0	0
A05013-29	0	67	100	2.1	6.0	7.7	4	3	7	0
A05015-5TE	0	31	91	1.6	6.1	6.0	4	2	4	2
A05052-3TE	0	29	89	1.6	5.7	7.0	2	3	20	20
A06003-3TE	0	40	87	1.6	6.0	8.6	3	4	3	7
A06015-13TE	0	71	91	1.8	7.5	5.4	4	3	20	15
A06029-5TE	0	58	96	1.1	7.6	5.4	4	3	13	20
A06084-1TE	0	40	82	1.7	4.0	7.8	4	4	13	4
AO01114-4	0	42	98	1.7	5.8	7.0	4	3	3	10
AO03123-2	0	11	93	1.8	3.7	9.8	4	3	0	25
OR05039-4	0	51	91	1.8	4.3	8.9	4	4	13	0
POR06V12-3	0	22	93	1.5	4.4	8.4	4	4	40	3

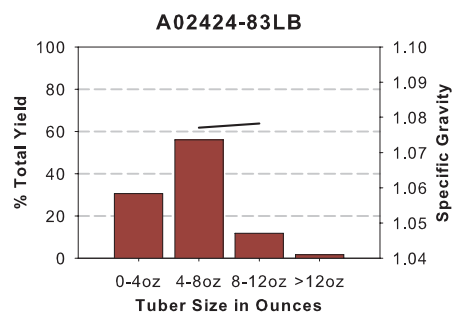
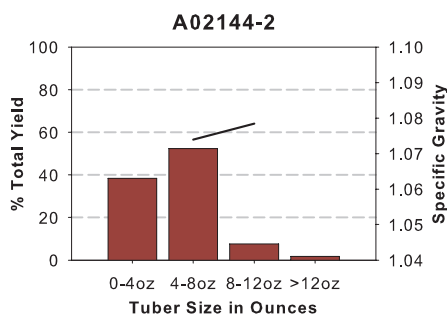
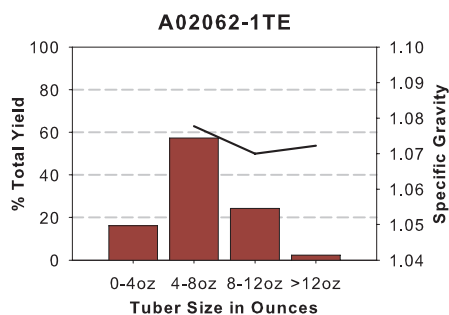
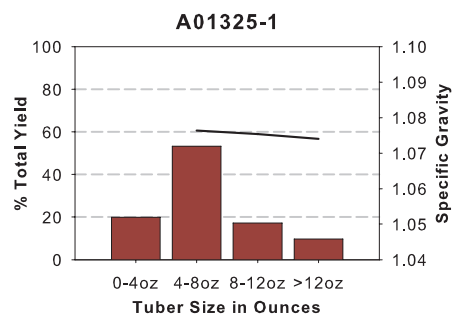
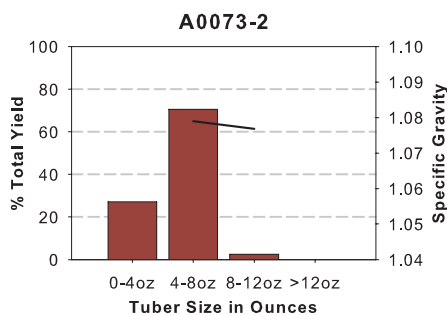
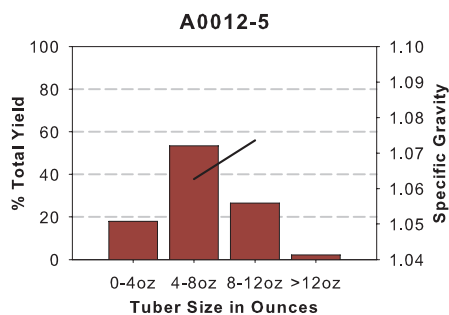
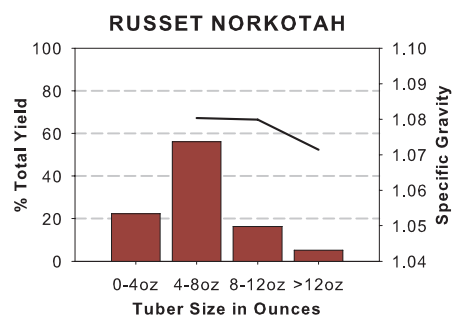
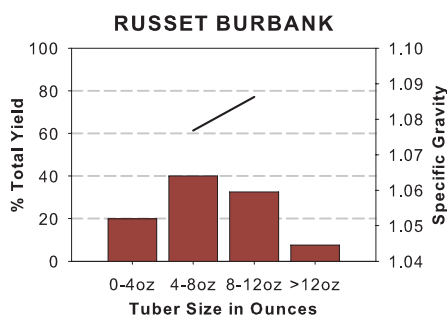
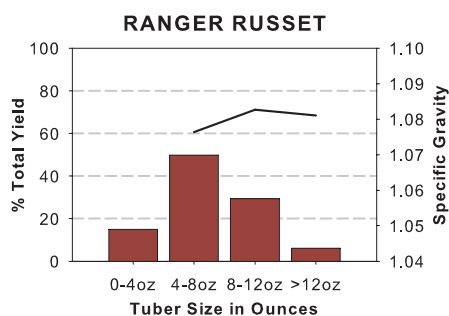
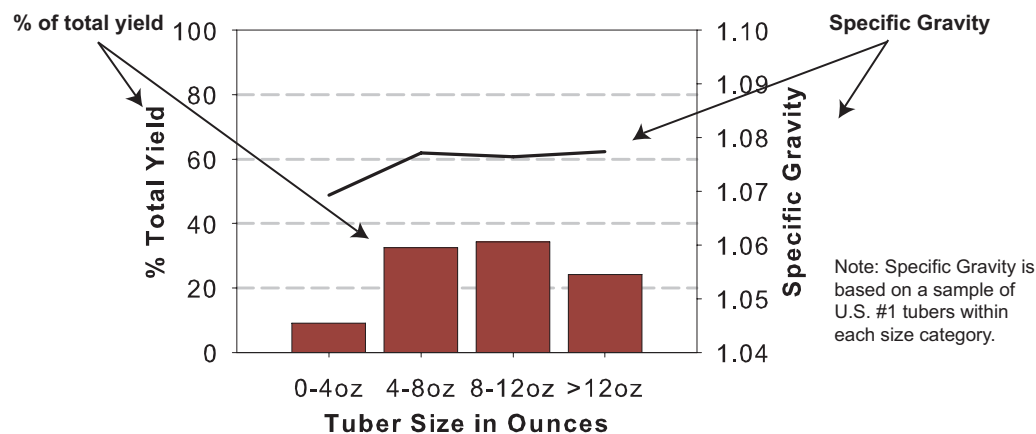
Clone - Dependent Variation in Specific Gravity
Variability among 9, 10lb samples from each entry (all tuber sizes)
 2012 Early-Harvest Tri-State Trial

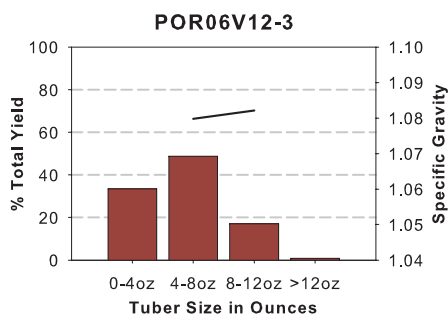
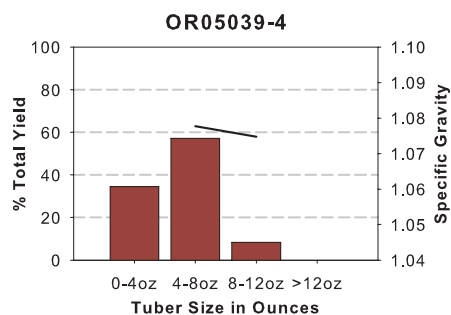
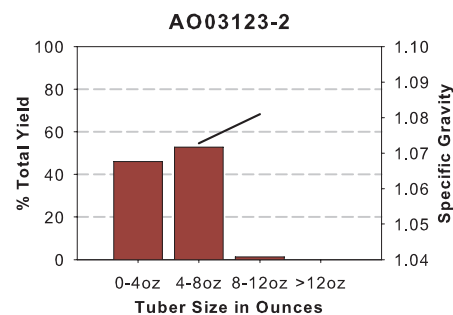
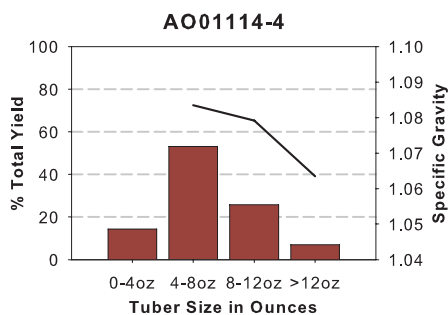
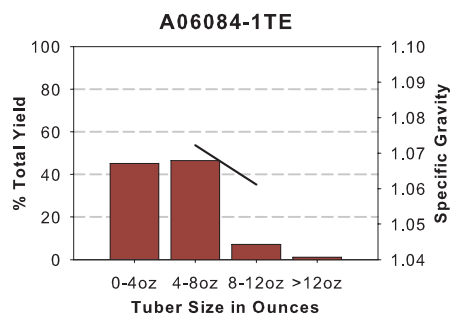
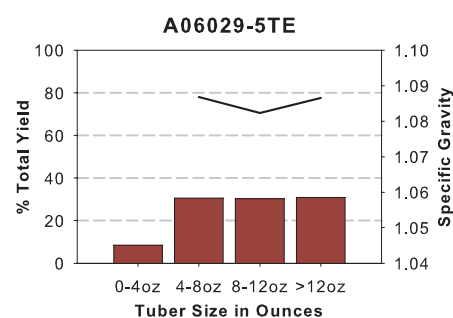
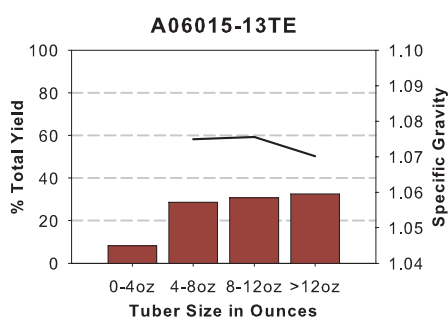
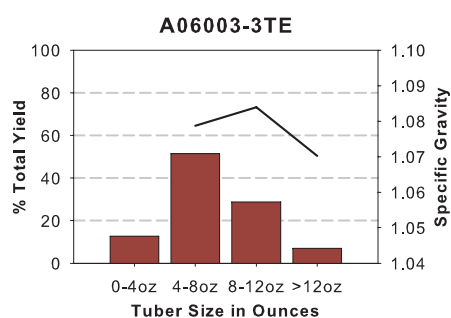
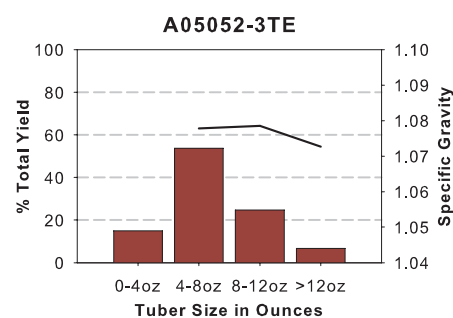
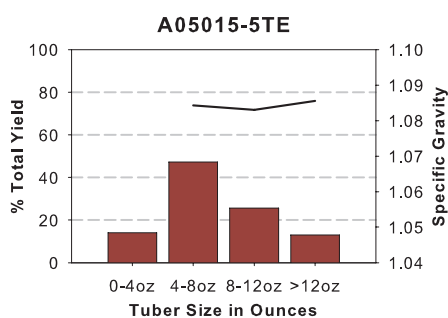
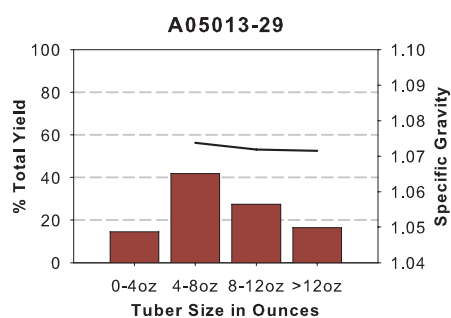
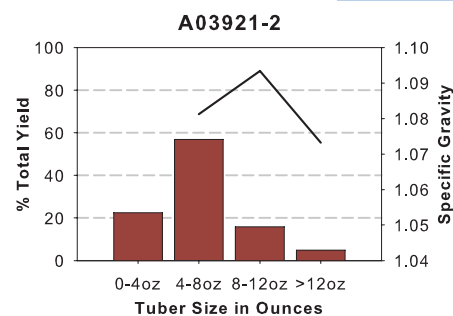
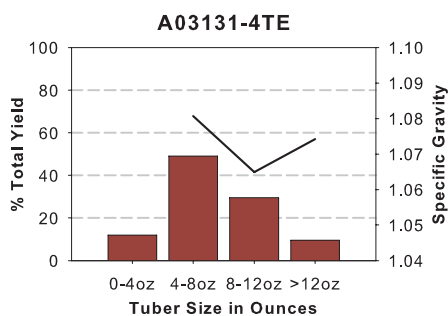
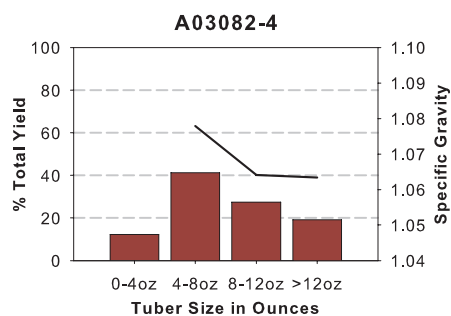


2012 Early Harvest Tri-State Trial

Tuber Yield and Specific Gravity Distributions

12 inch In-Row Spacing





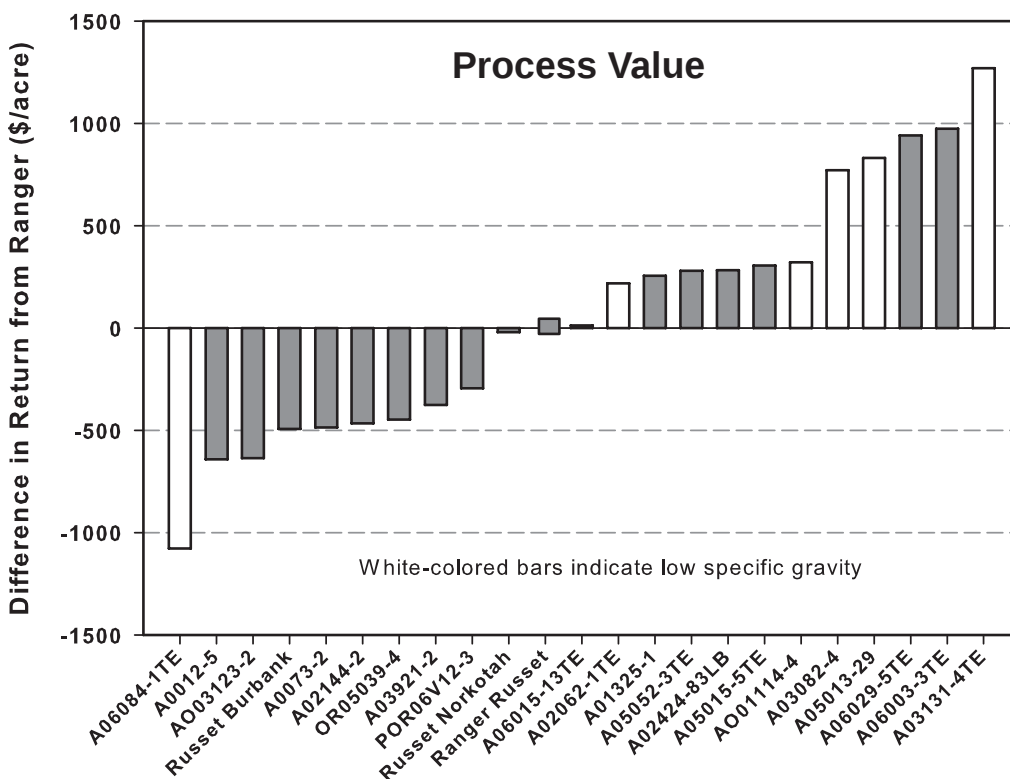
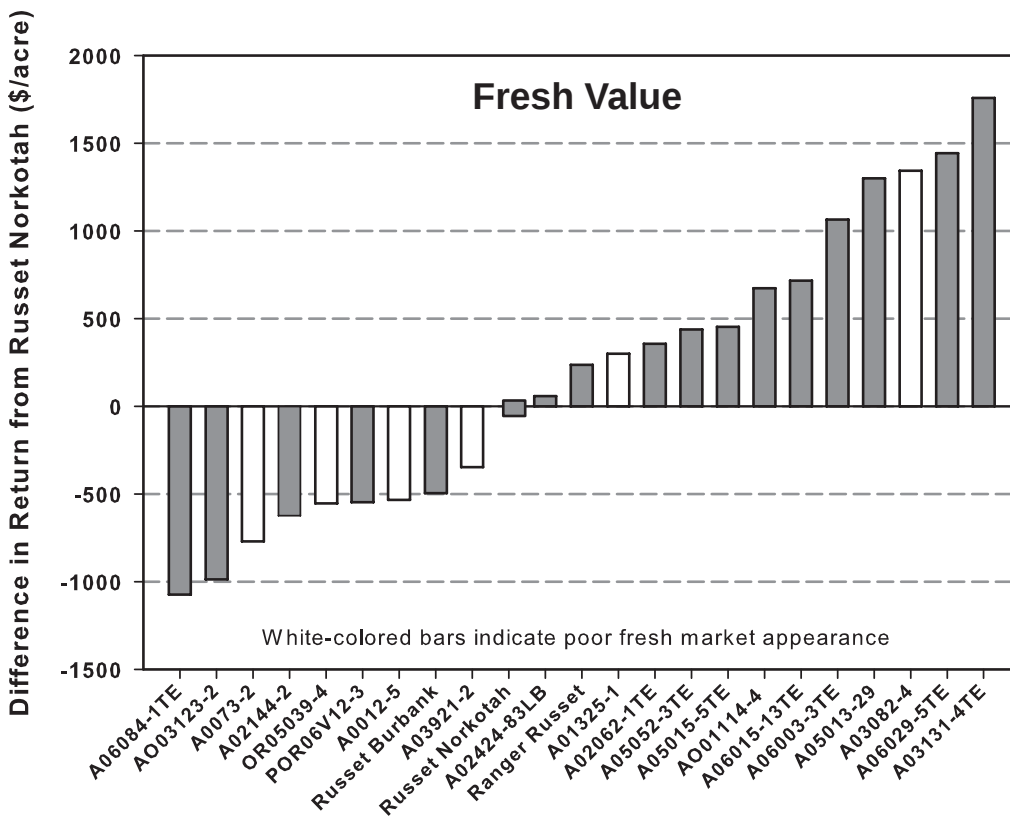


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry.

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.

2012 Early Harvest Tri-State Trial

Tubers

Ranger Russet



A01325-1



A03131-4TE



A06003-3TE



AO03123-2



Russet Burbank



A02062-1TE



A03921-2



A06015-13TE



OR05039-4



Russet Norkotah



A02144-2



A05013-29



A06029-5TE



POR06V12-3



A0012-5



A02424-83LB



A05015-5TE



A06084-1TE



A0073-2



A03082-4



A05052-3TE



A001114-4



2012 Late Harvest Tri-State Trial

Location: WSU Research Center – Othello, WA

Planting Date: April 11

Harvest Date: Sept 12

Fertility: 350–227-450

Vine Kill Date: Sept 4

Days Grown: 146

In-Row Spacing: 10 in.

The Tri-State trial is a part of the cooperative cultivar development program conducted at locations in Washington, Oregon, and Idaho. The Tri-State committee selects all official entries in this trial. All entries are grown for full season late harvest in each of the three states to determine how they perform when grown under different management and climatic conditions. 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 Standouts(s): None.

Process Market Standout(s): A03921-2, A02424-83LB, and A0012-5*.

*See merit scores in front of book for more information

Standcounts

➤ 30 Day

Slow emergence: All entries were less than 19% emerged at 30 DAP except A02424-83LB (61% emerged).

➤ 60 Day

Full emergence: All entries *except* A01325-1, A05015-5TE, and A06003-3TE were at least 95% emerged at 60 DAP.

Plant and Tuber Growth & Development

➤ 50 Day Stem Number per Plant

Most: A02424-83LB (3.4) and AO03123-2 (2.6).

Least: A0012-5 (1.4), A0073-2 (1.6).

➤ Average Tuber Number Per Plant

Most: AO03123-2 (9.8), A02424-83LB (9.3), POR06V12-3 (9.2).

Least: A0073-2 (5.3), A06015-13TE (5.5), A05015-5TE (5.6).

➤ Average Tuber Size (oz)

Largest: A0012-5 (10.7), A0073-2 (10.5).

Smallest: A02144-2 (4.7), AO03123-2 (5.4).

➤ Undersized Tubers (< 4 oz)

Most: AO03123-2 (127 CWT/A), A02144-2 (111 CWT/A).

Least: A0073-2 (23 CWT/A), A0012-5 (25 CWT/A), A0515-5TE (26 CWT/A).

Yield and Economic Data

- **Total and Market Yield (US 1s & 2s > 4oz)**
Highest: A02424-83LB had the highest total yield (816 CWT/A) and market yield (713 CWT/A).
A01325-1 had the second highest total yield (753 CWT/A) and market yield (671 CWT/A).
Lowest: A02144-2 had the lowest total yield (443 CWT/A) and market yield (328 CWT/A).
- **% Market Yield Greater Than 6 oz.**
Highest: A0012-5 and A0073-2 (each 88%).
Lowest: A02144-2 (43%) and AO03123-2 (53%).
- **Carton Yield (100 to 50 Count, 7 to 18 oz US#1 Tubers)**
Highest: A02424-83LB (506 CWT/A), A01325-1 (488 CWT/A).
Lowest: A02144-2 (138 CWT/A).
- **Gross Return (\$/acre)**
Fresh Market Highest: A02424-83LB and A01325-1 (each had poor fresh market appearance).
Fresh Market Lowest: A02144-2 and A06084-1TE.
Process Market Highest: A02424-83LB and A01325-1.
Process Market Lowest: A02144-2 and A06003-3TE.

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

- **External Defects**
Notable Defects: A01325-1, A02424-83LB, and A03082-4 had bad scab. A06015-13TE had bad growth cracks.
- **Internal Defects**
Notable Defects: Russet Burbank had 8% hollow heart and 18% brown center. Hollow heart also was observed in A0073-2 and A05015-5TE (both 6%). Ranger Russet exhibited 6% internal brown spot. All other defects were exhibited at 3% or less. Most entries were free of internal defects.
- **Bruise**
Highest Blackspot: A06015-13TE (27%), A05052-3TE (26%).
Highest/Lowest Shatter: A02144-2 (95%) and Russet Burbank (92%). AO03123-2 and OR05039-4 had the lowest shatter (both 31%).

2012 Late Harvest Tri-State Trial

Postharvest Information

Samples were obtained from the Washington, Idaho and Oregon field adaptation trials for analysis in Pullman. Seventeen numbered entries and two cultivars were tested from ID, WA and OR. Overall ratings of the clones compared with Russet Burbank appear in Table 2. Details are summarized below. An “*” in the summary below indicates similar performance and/or ranking in trials from previous years.

➤ Overall Postharvest Rating

Highest scoring clones: A0073-2, A0012-5, A02144-2, AO01114-4, POR06V12-3, AO03123-2

Lowest scoring clones: RB, A05015-5TE, A05013-29, A03082-4

➤ Low Temperature Sweetening

Most resistant: A02144-2*, A0012-5, A06084-1TE, A03921-2, A0073-2

Most susceptible: RB, A05015-5TE, A06015-13TE, A05013-29

➤ Taste Panel

Highest rated: POR06V12-3, A02144-2, A06084-1TE, AO01114-4, OR05039-4*

Lowest rated: A05015-5TE, A06003-3TE

➤ Blackspot Bruise Susceptibility

Most resistant: POR06V12-3, OR05039-4, AO03123-2

Most susceptible: RR, A02424-83LB, A03921-2, A06003-3TE

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

Lowest L/W: A05015-5TE, A01325-1, A0012-5

Highest L/W: RR, AO03123-2, A06084-1TE, A05013-29, OR05039-4

Least variable: A06084-1TE, RR, A06003-3TE, A01325-1

Most variable: A05052-3TE, A05015-5TE, A06015-13TE

Details

- Averaged across states, all entries received higher postharvest scores than Russet Burbank.
- A0073-2, A0012-5, A02144-2, AO01114-4, POR06V12-3, and AO03123-2 were the highest rated entries, scoring 34.1, 34.1, 32.9, 32.1, 30.6, and 30.4 out of 38 points, respectively. Despite their high scores, fry samples of A0073-2 and A0012-5 from all sites displayed extensive streaks of high sugars throughout the vasculature and internal phloem (mottling), which intensified over the 60-day storage period. The photovolt reflectance values of fry color did not reveal this defect. Since the disorder appeared in samples from all sites, it may have been due to a seed-borne virus.
- A02144-2*, A06084-1TE, and A03921-2 showed resistance to low temperature sweetening, with samples from all states producing highly acceptable light fries (USDA 0, average of stem and bud). However, the latter two clones had non-uniform fry color at all temperatures and particularly from OR-grown samples. All three entries produced USDA 0 fry color following 60 days storage at 44°F from all states and retention of fry color was minimally affected by growing location. A03921-2 and A0012-5 ranked 13th and 12th, respectively, for low acrylamide (out of 88 clones across 5 sites) in the 2012 NFPT trials.
- RB, A05015-5TE, A05013-29, and A03082-4 received the lowest overall postharvest scores (15.1, 15.6, 16.8, and 18.4 out of 38, respectively).

- Average (across sites) gravities of A03082-4, A06015-13TE, A06084-1TE, and A05015-5TE were 1.072, 1.073, 1.074, and 1.074, respectively; too low for most processing contracts. In contrast, average gravities of AO01114-4, POR06V12-3, A02424-83LB, AO03123-2, A0073-2, A01325-1, OR05039-4 ranged from 1.088-1.081, which is ideal for most contracts.
- POR06V12-3, A02144-2, A06084-1TE, AO01114-4, and OR05039-4*were the favorites in the taste panels, scoring 3.6, 3.5, 3.5, 3.5, and 3.4 respectively, across growing locations (5 is best). Ranger and Russet Burbank averaged 3.2/5.
- 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, A02424-83LB, A03921-2, and A06003-3TE were the most susceptible, scoring 100%, 93%, 90%, and 90% bruise (stem end), respectively, in the controlled impact study. These clones also had the highest bruise severity, averaging 4/5. POR06V12-3, OR05039-4, and AO03123-2 were the most resistant, averaging 27.6% bruise (stem end) and a 1.7/5 severity rating.
- The 8- to 10-oz tubers of A05015-5TE, A01325-1, and A0012-5 had low length to width ratios (avg. L/W=1.52), resulting in yields of 3-inch or longer fries averaging only 63% by number. A05052-3TE, A05015-5TE, and A06015-13TE had the greatest variation in L/W ratio; usable fry yields ranged from 56 to 77%, depending on production area. RR, AO03123-2, A06084-1TE, A05013-29, and OR05039-4 had the highest L/W ratios across all states, resulting in an average of 74% yield of French fries by number.
- Reconditioning (60°F, 21 days) tubers of RR, A0012-5, and AO03123-2 that had been previously stored at 40°F for 60 days resulted in the greatest improvement in stem end fry color compared with the other clones. In contrast, fry colors of A00073-2, A02424-83LB, A06084-1TE, POR06V12-3, and A05015-5TE darkened slightly during the reconditioning period. AO03123-2, AO01114-4, OR05039-4, A03082-4, A02144-2, POR06V12-3, and A06084-1TE appeared more susceptible to sugar end development based on attenuated reconditioning of the stem versus bud end of tubers stored at 40°F.
- On average, 90% of tubers of A01325-1 and A03082-4 had 0.9-inch-long (2.3-cm) sprouts after 60 days storage at 48°F compared with 87% of RR tubers (avg. sprout length = 0.5 inch (1.3 cm). In contrast, tubers of AO01114-4, A06003-3TE, A05052-3TE, A0073-2, and AO03123-2 sprouted 10% on average, with sprouts averaging only 0.15 cm (0.06 inches) in length, indicating longer dormancy than RR. Tubers of AO03123-2 and RB did not sprout.

Overall Tri-State Postharvest Merit Scores

Clone	Postharvest Merit Scores			3 state Average
	WA	ID	OR	
4 A0073-2	4.5	4.3	4.7	4.5
3 A0012-5	4.8	4.5	4.1	4.5
6 A02144-2	4.1	4.7	4.1	4.3
16 AO01114-4	4.2	4.3	4.2	4.2
19 POR06V12-3	3.5	4.7	3.9	4.0
17 AO03123-2	4.3	4.3	3.4	4.0
18 OR05039-4	3.6	4.5	3.6	3.9
9 A03921-2	4.1	4.0	3.6	3.9
7 A02424-83LB	3.9	4.7	3.1	3.9
15 A06084-1TE	3.8	4.1	3.5	3.8
5 A01325-1	3.1	4.6	2.7	3.5
1 Ranger Russet	3.1	4.0	2.9	3.3
12 A05052-3TE	3.5	3.5	2.8	3.3
13 A06003-3TE	2.7	3.4	1.8	2.6
14 A06015-13TE	2.6	2.2	2.6	2.5
8 A03082-4	2.2	3.1	2.0	2.4
10 A05013-29	1.9	3.3	1.5	2.2
11 A05015-5TE	1.5	3.1	1.5	2.0
2 Russet Burbank	1.8	2.0	2.2	2.0

2012 Late Harvest Tri-State Trial

Summaries

ENTRY	TOTAL YIELD						CARTON YIELD		PROCESS YIELD	
	CWT/A	STATS**	Tons/A	US # 1's*	US # 2's*	Culls*	100-50 count		US 1's and 2's	
				> 4 oz	> 4 oz	& < 4 oz	(US 1's 7-18 oz)		> 6 oz	
				% of Total Yield			% of Total Yield	Tons/A	% of Total Yield	Tons/A
Ranger Russet	676	ABCD	33.8	81	9	10	49	16.5	80	27.2
Russet Burbank	476	FGH	23.8	76	3	21	45	10.6	61	14.7
A0012-5	713	ABCD	35.6	92	1	6	55	19.6	88	31.3
A0073-2	647	BCDE	32.4	92	3	5	57	18.5	88	28.6
A01325-1	753	AB	37.7	89	3	8	65	24.4	83	31.5
A02144-2	443	H	22.2	72	0	28	31	6.9	43	9.9
A02424-83LB	816	A	40.8	87	2	11	62	25.3	77	31.4
A03082-4	742	ABC	37.1	67	12	21	44	16.2	71	26.4
A03921-2	708	ABCD	35.4	88	2	11	51	18.1	74	26.0
A05013-29	735	ABC	36.7	87	4	10	58	21.3	80	29.5
A05015-5TE	543	EFGH	27.1	90	1	10	54	14.5	79	21.5
A05052-3TE	611	CDEF	30.5	75	3	22	48	14.5	60	19.0
A06003-3TE	463	EFGH	23.2	78	3	19	51	11.7	70	16.3
A06015-13TE	553	EFGH	27.6	77	2	21	55	15.1	70	19.7
A06084-1TE	457	H	22.8	82	2	16	43	9.8	57	12.9
AO01114-4	550	EFGH	27.5	75	2	23	39	10.7	57	16.1
AO03123-2	600	CDEF	30.0	76	1	22	40	12.0	53	16.1
OR05039-4	573	DEFG	28.6	84	5	11	54	15.6	74	21.4
POR06V12-3	658	CDEF	32.9	80	3	16	48	15.8	66	22.1

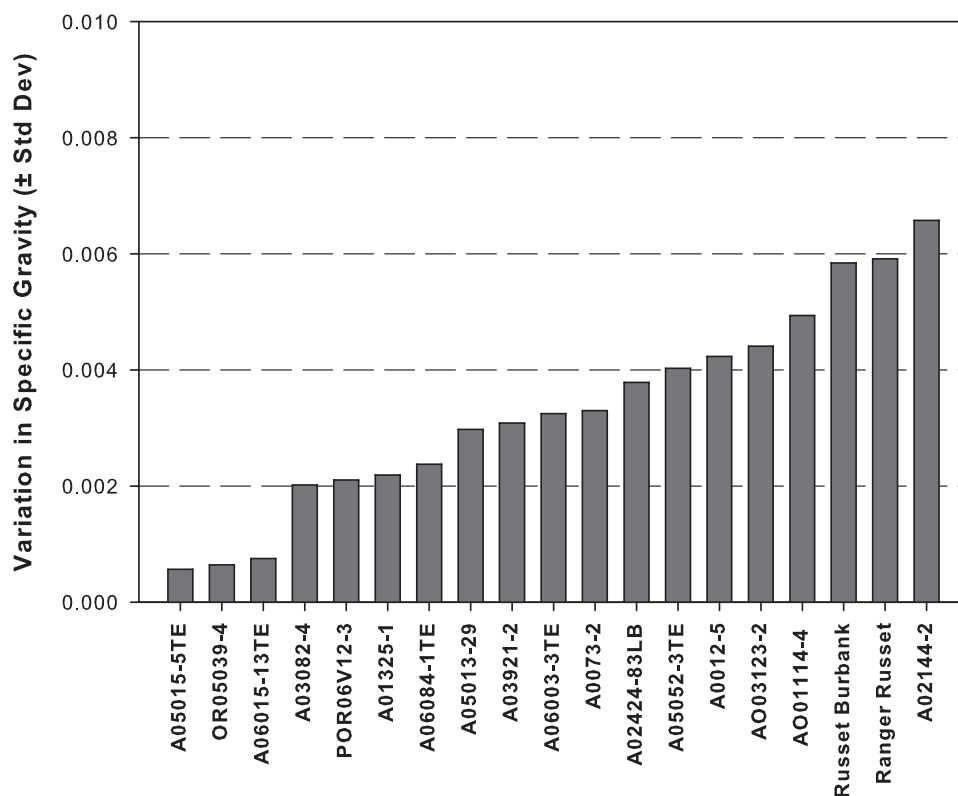
ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%)		
	> 4 oz CWT/A	STATS**	Tons/A	> 4 oz	4-7 oz*	7-14 oz*		(8-12 oz tubers)		
								% HH	% BC	% IBS
Ranger Russet	543	BCDE	27.2	19	50	30	1.079	0	0	6
Russet Burbank	364	GH	18.2	37	47	16	1.072	8	19	0
A0012-5	658	ABC	32.9	10	40	50	1.086	3	0	0
A0073-2	591	ABCD	29.6	12	41	47	1.084	6	0	0
A01325-1	671	AB	33.6	15	52	33	1.084	0	0	0
A02144-2	328	H	16.4	60	37	3	1.075	0	0	0
A02424-83LB	713	A	35.6	22	55	22	1.091	0	0	0
A03082-4	490	DEFG	24.5	17	51	32	1.068	0	0	3
A03921-2	619	ABCD	30.9	27	47	26	1.092	0	3	0
A05013-29	638	ABC	31.9	17	50	33	1.081	0	0	0
A05015-5TE	487	DEFG	24.3	20	44	36	1.073	6	0	0
A05052-3TE	465	EFGH	23.2	34	50	16	1.089	0	0	0
A06003-3TE	361	GH	18.0	23	54	23	1.067	0	0	0
A06015-13TE	428	FGH	21.4	18	56	26	1.069	0	0	0
A06084-1TE	370	GH	18.5	43	48	9	1.079	0	0	0
AO01114-4	416	FGH	20.8	37	41	22	1.087	0	0	0
AO03123-2	461	EFGH	23.0	46	44	11	1.085	0	0	0
OR05039-4	488	DEFG	24.4	28	55	17	1.077	0	0	0
POR06V12-3	529	CDEF	26.5	36	50	14	1.086	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	40 DAY STAND	60 DAY STAND	STEMS PER PLANT	AVERAGE TUBER		SKIN SET	TUBER SHAPE	BRUISE (%)	
	% Emerged	% Emerged	% Emerged	Above Ground	Weight Ounces	Number Tubers/Plant	1 = Poor 5 = Good	1 = Round 5 = Long	BLACKSPOT (8-12 oz tubers)	SHATTER
Ranger Russet	18	95	96	2.3	8.7	6.9	4	4	18	59
Russet Burbank	11	93	98	2.0	6.2	6.7	3	3	0	92
A0012-5	0	60	98	1.4	10.7	5.7	2	3	0	50
A0073-2	0	66	95	1.6	10.5	5.3	4	3	0	51
A01325-1	6	78	90	1.7	9.0	7.3	4	2	3	64
A02144-2	0	84	99	2.4	4.7	8.1	4	3	5	95
A02424-83LB	61	99	98	3.4	7.6	9.3	4	2	14	71
A03082-4	18	95	95	2.4	9.1	7.0	3	4	9	35
A03921-2	0	80	99	2.3	7.7	8.1	4	3	10	51
A05013-29	14	100	99	2.3	8.2	7.8	4	4	0	40
A05015-5TE	0	64	86	1.7	8.6	5.6	4	2	3	61
A05052-3TE	0	44	99	2.2	6.0	8.8	4	2	26	57
A06003-3TE	0	68	80	1.7	7.1	5.7	4	3	9	58
A06015-13TE	4	83	96	1.9	8.7	5.5	3	3	27	50
A06084-1TE	16	84	95	1.8	6.0	6.8	4	4	7	76
AO01114-4	0	95	96	2.1	6.4	7.6	4	3	15	54
AO03123-2	1	81	98	2.6	5.4	9.8	4	3	0	31
OR05039-4	0	98	99	2.2	7.4	6.7	3	3	17	31
POR06V12-3	1	78	95	2.0	6.2	9.2	4	3	0	77

Clone - Dependent Variation in Specific Gravity
 Variability among 12, 10lb samples from each entry (all tuber sizes)
 2012 Late-Harvest Tri-State Trial



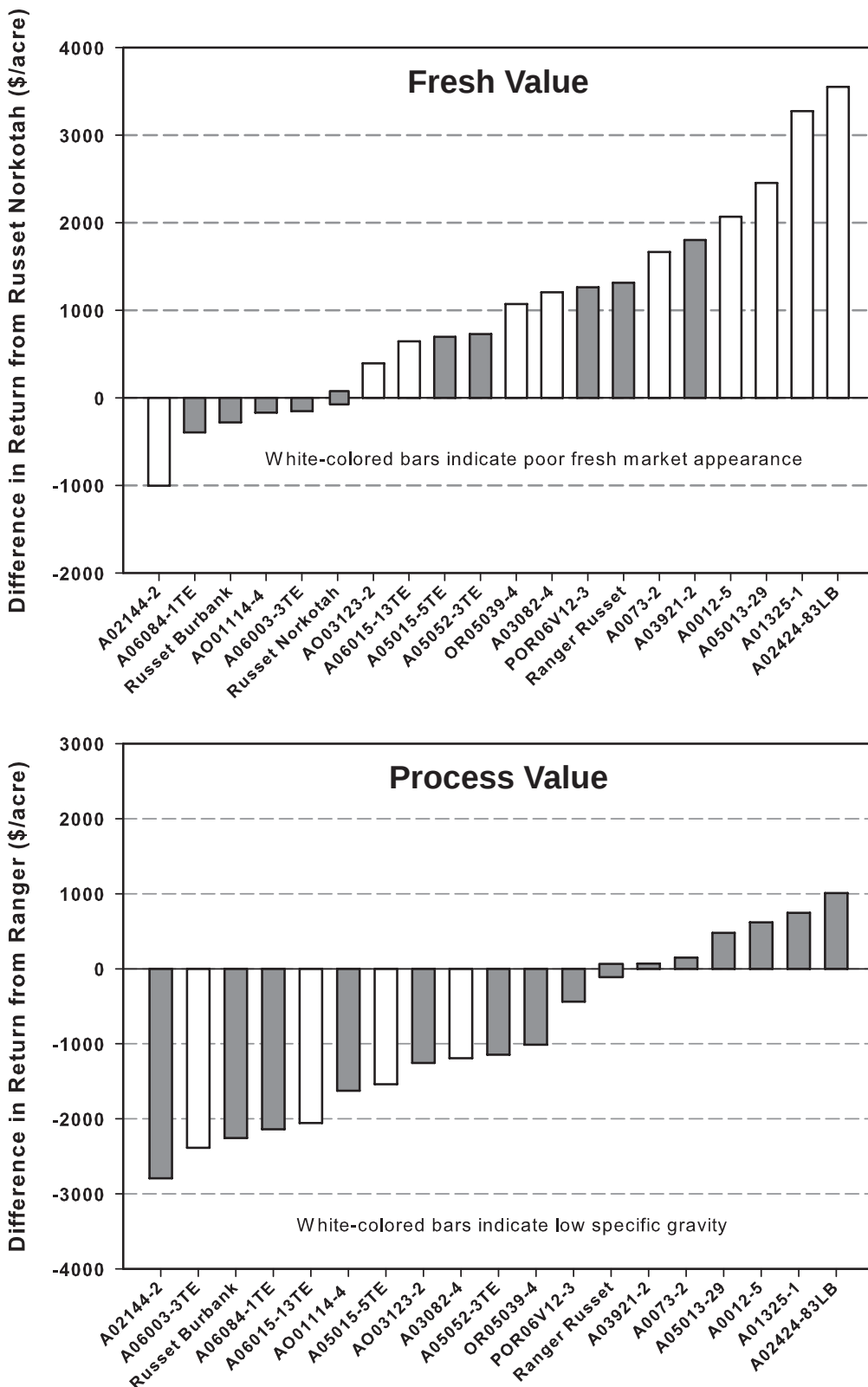


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to undesirable shape or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



Left: Under the watchful eyes of Dr. Rick Knowles (left) Daniel Zommick (WSU PhD Graduate Student) explains the effects of heat on the postharvest quality of potatoes.

Lower left: A row-width study in the making as six rows are opened up for planting.

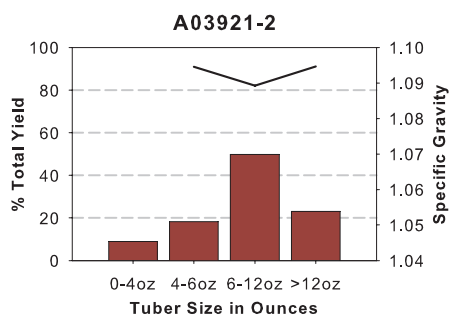
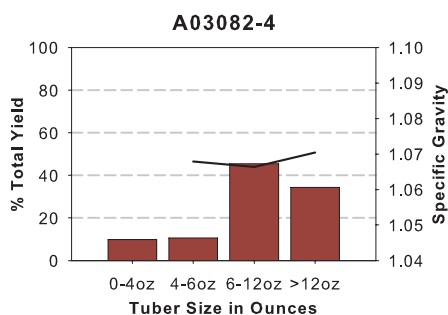
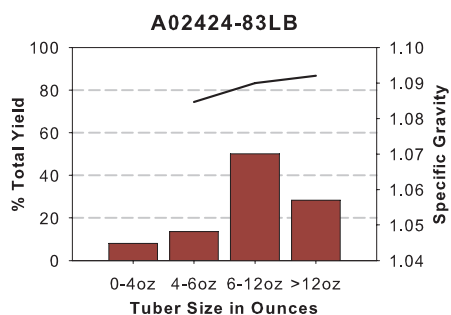
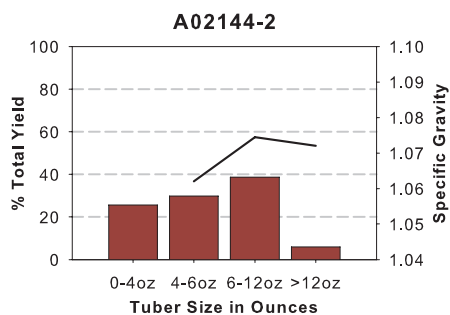
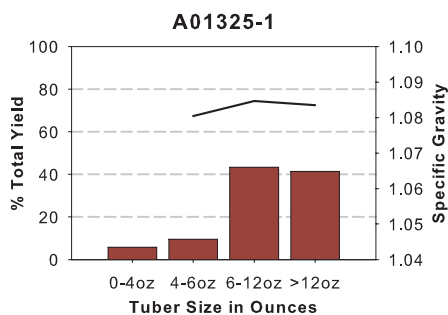
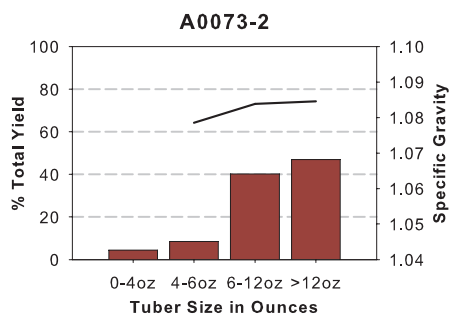
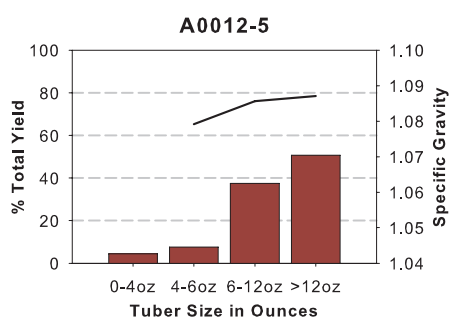
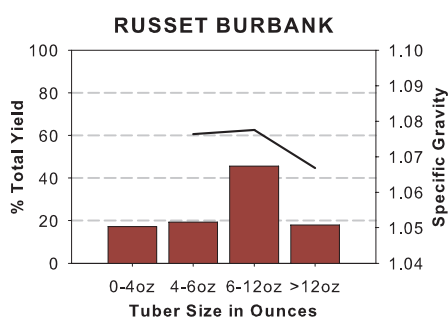
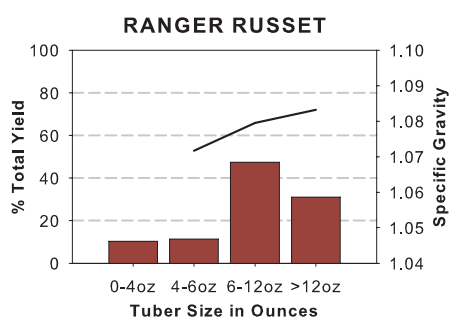
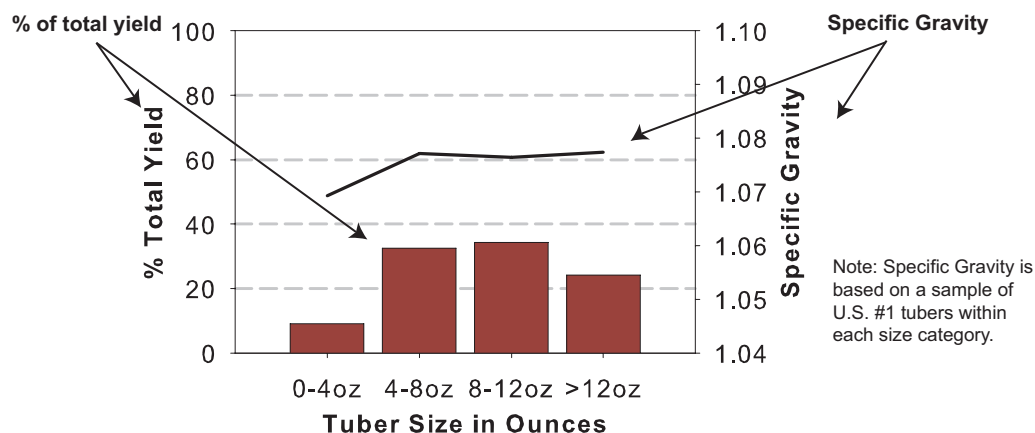
Below: Josh Rodriguez and Rhett Spear adjust the depth of a shank used in the Row Width study.

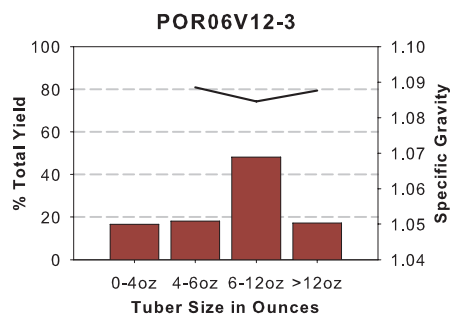
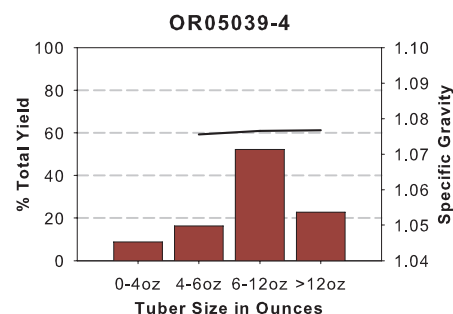
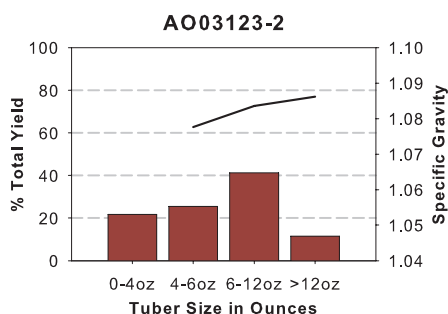
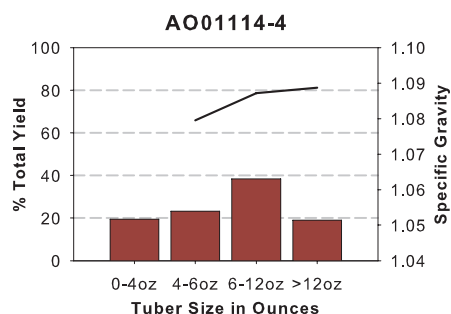
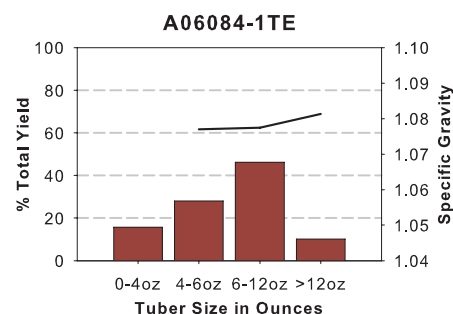
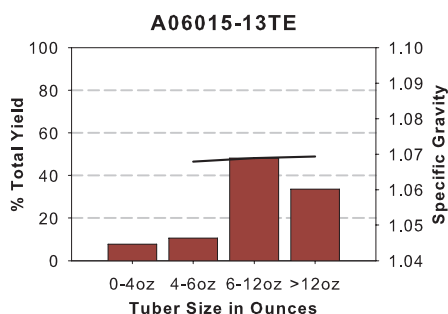
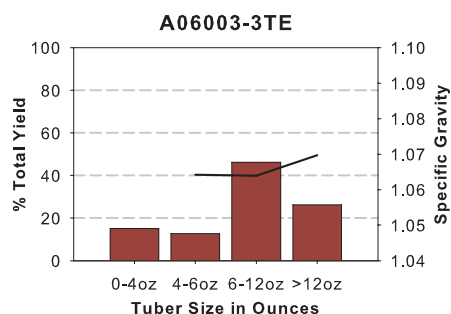
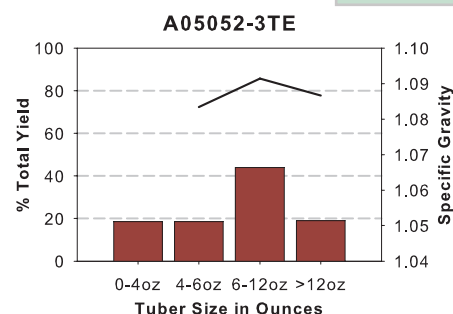
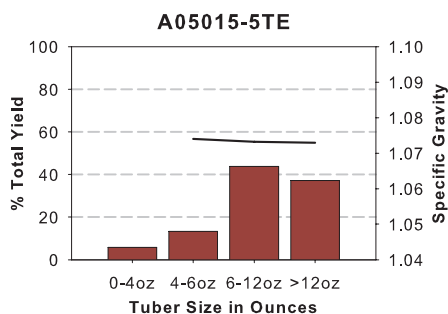
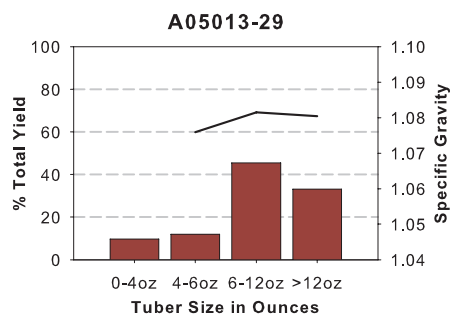


2012 Late Harvest Tri-State Trial

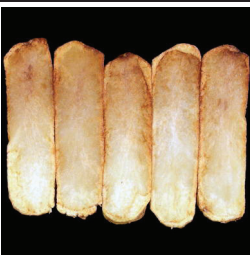
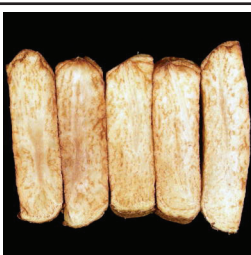
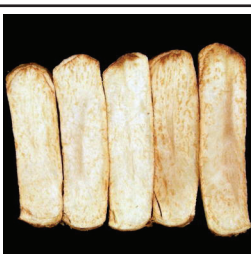
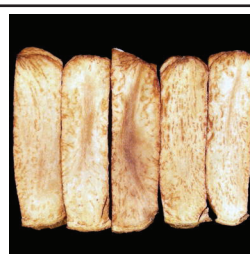
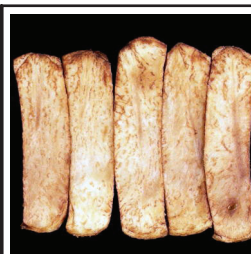
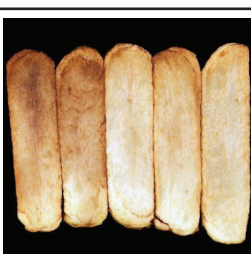
Tuber Yield and Specific Gravity Distributions

10 inch In-Row Spacing

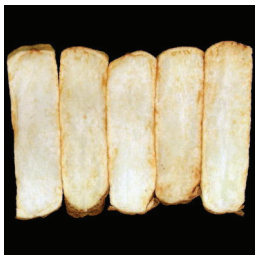
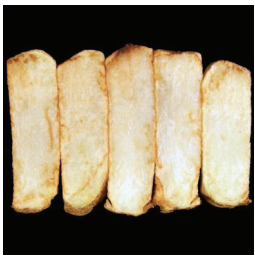
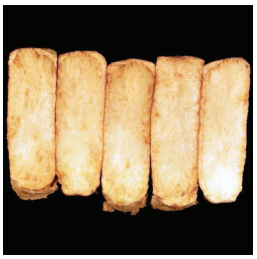
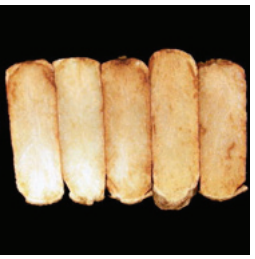
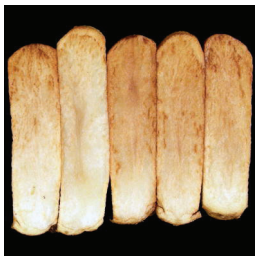
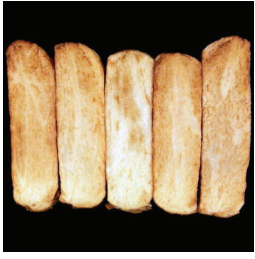
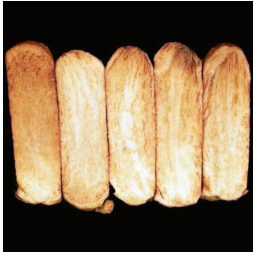
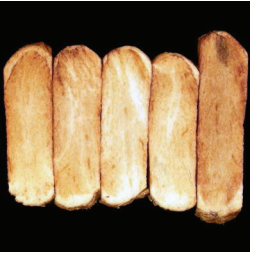
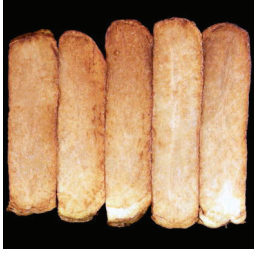
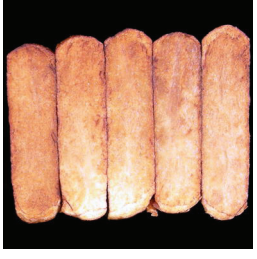


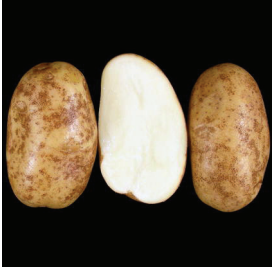
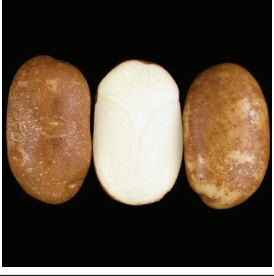


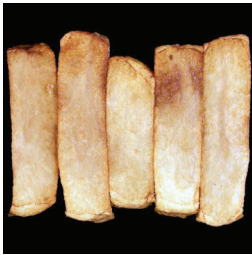
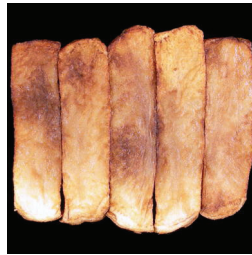
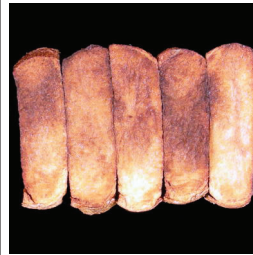
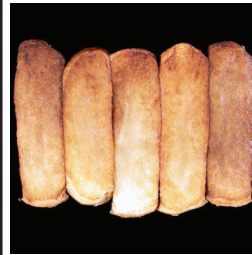
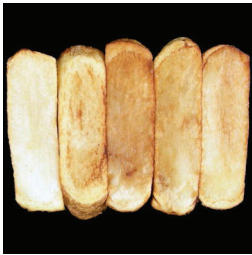
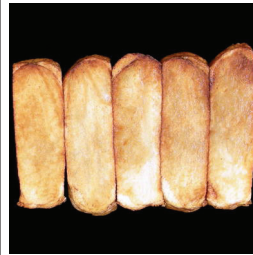
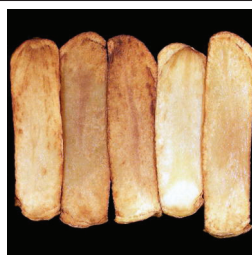
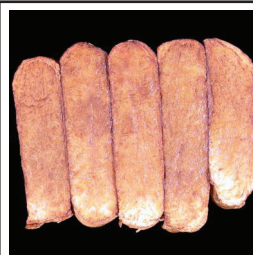
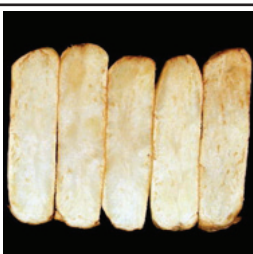
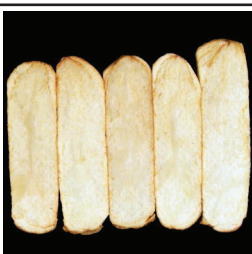
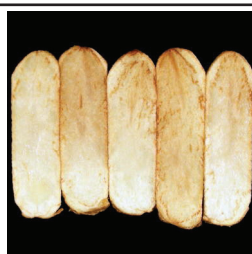
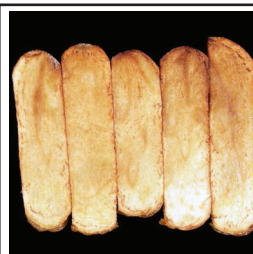
Tubers	WA Late Harvest Tri-State Trial Comments
Ranger Russet	
	Tubers: Oblong to long tubers. Good skin set; moderate eye depth. Fry color: At harvest= light, non-uniform; after approximately two months of storage at 48°F= light, non-uniform; 44°F= light, non-uniform; 40°F= relatively dark, non-uniform; reconditioned= light, non-uniform.
Russet Burbank	
	Tubers: Oblong tubers. 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= relatively dark, non-uniform; 40°F= dark, uniform; reconditioned= relatively dark, non-uniform.
A0012-5	
	Tubers: Oblong tubers. Poor skin set; shallow eyes. Fry color: At harvest= light, uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= light, uniform; 40°F= light, uniform; reconditioned= light, uniform.
A0073-2	
	Tubers: Oblong tubers. 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.
A01325-1	
	Tubers: Round to oblong tubers. 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, uniform; reconditioned= light, non-uniform.

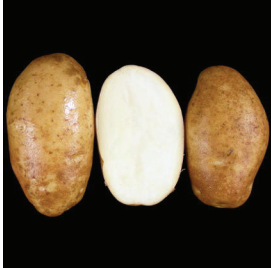
Initial Fries	48° F Storage	44° F Storage	40° F Storage	40° F Recon.
Ranger Russet				
				
Russet Burbank				
				
A0012-5				
				
A0073-2				
				
A01325-1				
				

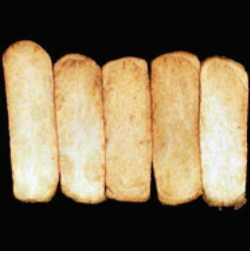
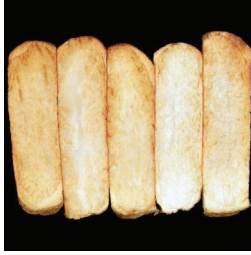
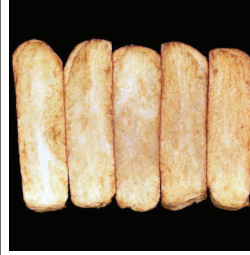
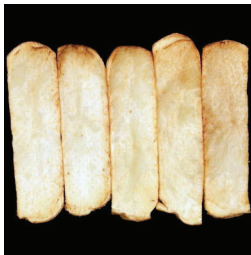
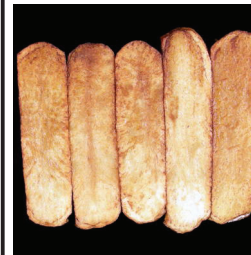
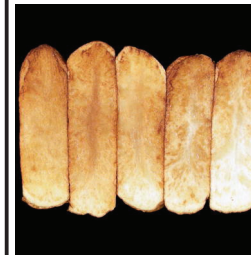
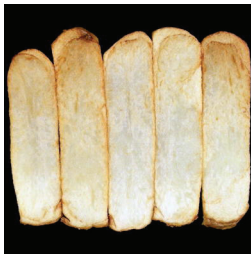
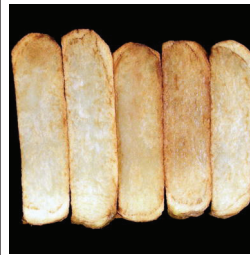
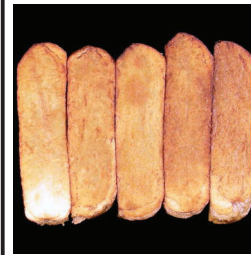
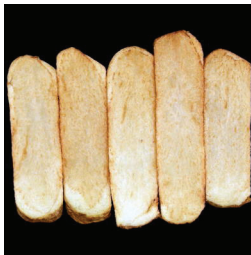
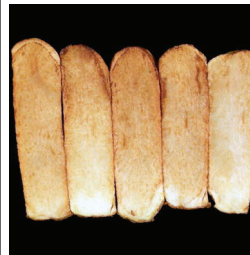
Tubers	WA Late Harvest Tri-State Trial Comments
A02144-2	
	Tubers: Oblong tubers. Good skin set; shallow eyes. Fry color: At harvest= light, uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= light, uniform; 40°F= light, uniform; reconditioned= light, uniform.
A02424-83LB	
	Tubers: Round to oblong tubers. 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, uniform; 40°F= relatively dark, non-uniform; reconditioned= relatively dark, uniform.
A03082-4	
	Tubers: Oblong to long tubers. Fair skin set; moderate eye depth. Fry color: At harvest= relatively dark, 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= relatively dark, non-uniform.
A03921-2	
	Tubers: Oblong tubers. Good skin set; shallow eyes. Fry color: At harvest= light, uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= light, uniform; 40°F= light, non-uniform; reconditioned= light, uniform.
A05013-29	
	Tubers: Oblong to long tubers. Good skin set; shallow eyes. Fry color: At harvest= relatively dark, non-uniform; after approximately two months of storage at 48°F= relatively dark, non-uniform; 44°F= relatively dark, non-uniform; 40°F= dark, non-uniform; reconditioned= dark, non-uniform.

Initial Fries	48° F Storage	44° F Storage	40° F Storage	40° F Recon.
A02144-2				
				
A02424-83LB				
				
A03082-4				
				
A03921-2				
				
A05013-29				
				

Tubers	WA Late Harvest Tri-State Trial Comments
A05015-5TE	
	Tubers: Round to oblong tubers. 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= dark, uniform; reconditioned= relatively dark, non-uniform.
A05052-3TE	
	Tubers: Round to oblong tubers. Good skin set; shallow eyes. Fry color: At harvest= light, uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= light, non-uniform; 40°F= relatively dark, uniform; reconditioned= light, non-uniform.
A06003-3TE	
	Tubers: Oblong tubers. Good skin set; moderate eye depth. Fry color: At harvest= relatively dark, uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= relatively dark, uniform; 40°F= dark, uniform; reconditioned= relatively dark, uniform.
A06015-13TE	
	Tubers: Oblong tubers. Fair skin set; shallow eyes. Fry color: At harvest= light, uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= relatively dark, uniform; 40°F= dark, uniform; reconditioned= dark, uniform.
A06084-1TE	
	Tubers: Oblong to long tubers. Good skin set; shallow eyes. Fry color: At harvest= light, uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= light, non-uniform; 40°F= light, non-uniform; reconditioned= light, non-uniform.

Initial Fries	48° F Storage	44° F Storage	40° F Storage	40° F Recon.
A05015-5TE				
				
A05052-3TE				
				
A06003-3TE				
				
A06015-13TE				
				
A06084-1TE				
				

Tubers	WA Late Harvest Tri-State Trial Comments
AO01114-4	
	Tubers: Oblong tubers. 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, non-uniform.
AO03123-2	
	Tubers: Oblong tubers. Good skin set; moderate eye depth. Fry color: At harvest= light, non-uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= light, uniform; 40°F= relatively dark, non-uniform; reconditioned= light, non-uniform.
OR05039-4	
	Tubers: Oblong tubers. Fair 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= relatively dark, non-uniform.
POR06V12-3	
	Tubers: Oblong tubers. 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, uniform; reconditioned= relatively dark, non-uniform.

Initial Fries	48° F Storage	44° F Storage	40° F Storage	40° F Recon.
AO01114-4				
				
AO03123-2				
				
OR05039-4				
				
POR06V12-3				
				

2012 Late Harvest Tri-State Trial

Accumulated Total Postharvest Rating of Clones

Clone	WA		ID		OR		3 State av. Rating Total
	Rating Total §	Discard §§	Rating Total §	Discard §§	Rating Total §	Discard §§	
4 A0073-2	34.4		32.5		35.4		34.1
3 A0012-5	36.4		34.3		31.5		34.1
6 A02144-2	31.4	Sp. Gr.	35.7		31.5	Sp. Gr.	32.9
16 A001114-4	32.1		32.7		31.6		32.1
19 POR06V12-3	26.9		35.6		29.3		30.6
17 A003123-2	32.9		32.7		25.7		30.4
18 OR05039-4	27.4		34.4		27.5		29.8
9 A03921-2	31.5		30.4		27.1		29.7
7 A02424-83LB	29.3		35.5		23.5		29.4
15 A06084-1TE	29.2	Sp. Gr.	31.5	Sp. Gr.	26.8		29.2
5 A01325-1	23.9		35.3		20.2		26.5
1 Ranger Russet	23.2		30.3		22.3		25.3
12 A05052-3TE	26.9		26.3		21.4		24.9
13 A06003-3TE	20.5		26.0		13.8	Sp. Gr.	20.1
14 A06015-13TE	19.8	Sp. Gr.	17.0		20.1	Sp. Gr.	19.0
8 A03082-4	16.9	Sp. Gr.	23.3	Sp. Gr.	14.9	Sp. Gr.	18.4
10 A05013-29	14.1		25.1	Sp. Gr.	11.1	Sp. Gr.	16.8
11 A05015-5TE	11.2	Sp. Gr.	23.8		11.7	Sp. Gr.	15.6
2 Russet Burbank	13.9	Sp. Gr.	14.9	Sp. Gr.	16.4		15.1
	25.4		29.3		23.3		26.0

§ 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 A0012-5	H	H	H	H
4 A0073-2	H	H	H	H
5 A01325-1	H	H	H	H
6 A02144-2	H	H	H	H
7 A02424-83LB	H	H	H	H
8 A03082-4	H	H	L	H
9 A03921-2	H	H	H	H
10 A05013-29	H	H	L	H
11 A05015-5TE	L	H	L	H
12 A05052-3TE	H	H	H	H
13 A06003-3TE	H	H	L	H
14 A06015-13TE	H	H	H	H
15 A06084-1TE	H	H	H	H
16 A001114-4	H	H	H	H
17 A003123-2	H	H	H	H
18 OR05039-4	H	H	H	H
19 POR06V12-3	H	H	H	H

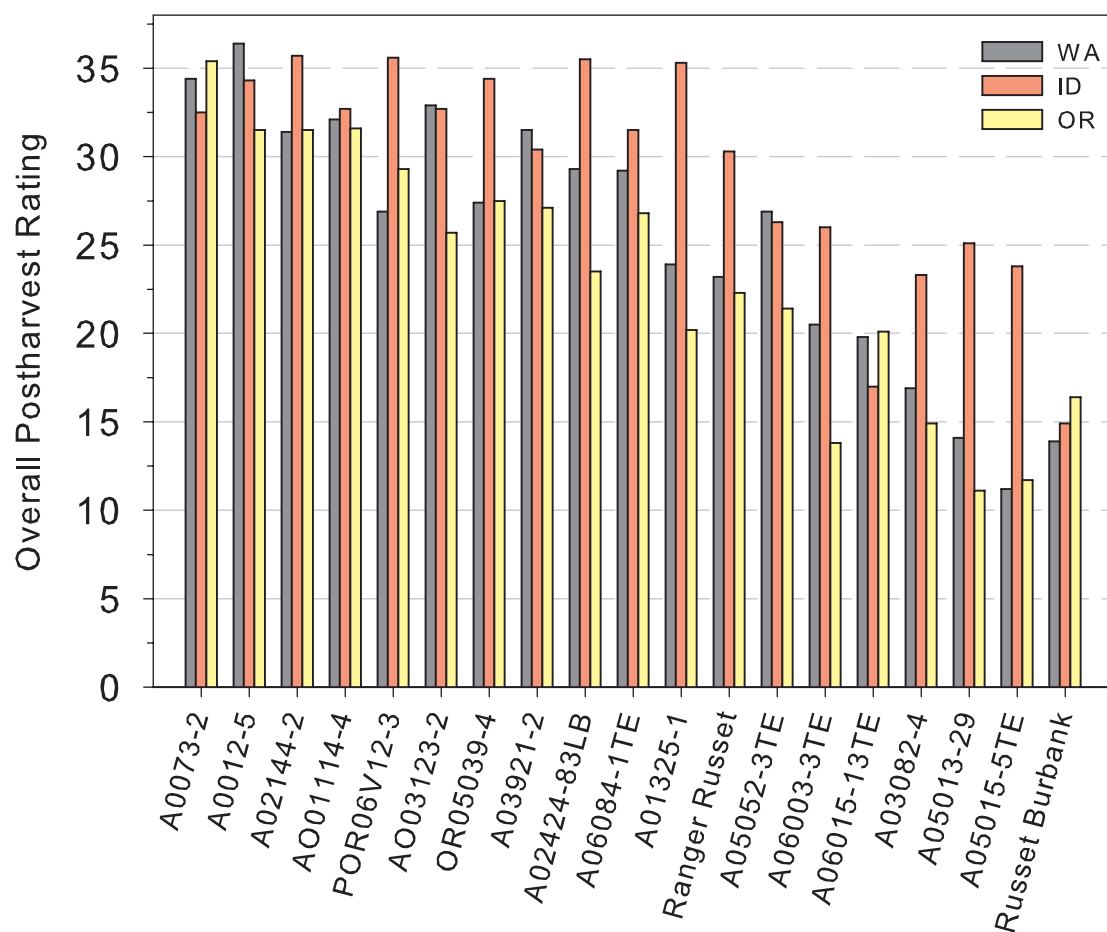
H= Higher than Russet Burbank

S= Same as Russet Burbank

L= Lower than Russet Burbank

2012 Late Harvest Tri-State Trial

Late Harvest Tri-State Postharvest Ratings



2012 Late Harvest Tri-State Trial

Entries Retained from the 2011 Trials Currently in the Tri-State Trial

Harvested fall of 2011

Held at 48° F until December 20, 2011

Stored at 44° F until analysis

Three clones were retained from the Tri-State Trial into the 2012 Trial (A02144-2, AO01114-4 and OR05039-4). When averaged across states A02144-2 produced the lightest fries. OR05039-4 had the shortest dormancy with the longest sprouts, while Russet Burbank had the shortest average sprout length.

Clone	PHOTOVOLT READING				USDA COLOR	% REDUCING SUGAR			Sprouting	
	stem	bud	avg	DIFF		stem	bud	avg	percent	length (in.)
Washington										
1 Ranger Russet	29.4	38.3	33.9	8.9	1	1.4	0.8	1.1	100	4
2 Russet Burbank	28.7	41.5	35.1	12.8	1	1.5	0.7	1.1	100	5
3 A02144-2	47.9	47.0	47.4	2.6	0	0.5	0.5	0.5	100	5
4 AO01114-4	39.3	47.8	43.5	8.4	0	0.8	0.5	0.6	100	4
5 OR05039-4	42.4	47.8	45.1	5.5	0	0.6	0.5	0.6	100	6
Average	37.6	LSD 0.05 44.5	2.7 41.0	3.5 7.6	0.4	1.0	0.6	0.8	100	
Idaho										
1 Ranger Russet	31.6	36.7	34.1	7.3	0	1.2	0.9	1.1	100	9
2 Russet Burbank	33.2	44.2	38.7	11.0	0	1.1	0.6	0.9	100	4
3 A02144-2	49.6	49.7	49.7	2.0	0	0.5	0.5	0.5	100	4.0
4 AO01114-4	No Sample					No Sample			No Sample	
5 OR05039-4	No Sample					No Sample			No Sample	
Average	38.1	LSD 0.05 43.5	3.5 40.8	4.3 6.8	0.0	1.0	0.7	0.8	100	
Oregon										
1 Ranger Russet	34.5	37.0	35.8	3.4	0	1.0	0.9	1.0	100	12
2 Russet Burbank	23.4	38.7	31.1	15.4	2	2.2	0.8	1.5	100	4
3 A02144-2	51.2	51.9	51.5	2.4	0	0.5	0.5	0.5	100	6
4 AO01114-4	34.7	45.8	40.2	11.1	0	1.0	0.6	0.8	100	5
5 OR05039-4	40.4	47.8	44.1	7.4	0	0.7	0.5	0.6	100	12
Average	36.8	LSD 0.05 44.2	2.7 40.5	3.5 7.9	0.4	1.1	0.7	0.9	100	

Date test performed:

Washington

April 27

Idaho

April 30

Oregon

May 2

2012 Late Harvest Tri-State Trial Prior to Storage

		PHOTOVOLT READING				USDA	SPECIFIC		
Clone		stem	bud	av	rtg §	DIFF	COLOR	GRAVITY	rtg
Washington									
1 Ranger Russet		31.8	41.9	36.8	4-	10.1	0	1.082	4
2 Russet Burbank		22.1	39.4	30.8	3-	17.3	2	1.074	0
3 A0012-5		48.3	45.4	46.8	5+	4.4	0	1.083	5
4 A0073-2		45.8	41.4	43.6	5+	5.4	0	1.082	4
5 A01325-1		32.5	44.1	38.3	4-	13.3	0	1.086	5
6 A02144-2		46.2	46.3	46.3	5+	2.2	0	1.074	0
7 A02424-83LB		32.4	43.3	37.8	4-	10.8	0	1.085	5
8 A03082-4		25.5	33.0	29.2	2+	7.9	1	1.072	0
9 A03921-2		36.7	42.3	39.5	4+	6.1	0	1.096	1
10 A05013-29		19.4	36.1	27.7	2-	17.3	3	1.080	3
11 A05015-5TE		27.0	37.9	32.4	3-	10.9	1	1.073	0
12 A05052-3TE		28.7	36.2	32.5	3+	7.4	1	1.091	4
13 A06003-3TE		25.1	32.4	28.8	2+	8.9	1	1.077	1
14 A06015-13TE		34.8	42.0	38.4	4+	8.3	0	1.067	0
15 A06084-1TE		41.6	50.2	45.9	5+	8.6	0	1.074	0
16 A001114-4		38.6	42.3	40.4	4+	4.0	0	1.087	5
17 A003123-2		32.2	42.7	37.5	4-	10.5	0	1.085	5
18 OR05039-4		35.3	49.0	42.1	5-	13.7	0	1.082	4
19 POR06V12-3		28.4	40.5	34.5	3-	12.3	1	1.086	5
Average		LSD 0.05		3.8		4.3		0.007	
		33.3	41.4	37.3		9.4	1	1.081	
Idaho									
1 Ranger Russet		33.2	38.8	36.0	4+	7.1	0	1.081	4
2 Russet Burbank		32.2	35.2	33.7	3+	7.4	0	1.070	0
3 A0012-5		49.0	44.8	46.9	5+	4.8	0	1.080	3
4 A0073-2		43.0	41.5	42.2	5+	4.7	0	1.082	4
5 A01325-1		42.0	43.5	42.7	5+	5.8	0	1.082	4
6 A02144-2		49.6	47.7	48.6	5+	3.0	0	1.081	4
7 A02424-83LB		38.2	44.8	41.5	5+	6.6	0	1.084	5
8 A03082-4		30.0	28.1	29.1	2+	4.3	1	1.075	0
9 A03921-2		43.0	47.9	45.5	5+	6.1	0	1.096	1
10 A05013-29		43.5	47.8	45.6	5+	5.1	0	1.073	0
11 A05015-5TE		26.6	35.4	31.0	3-	9.3	1	1.083	5
12 A05052-3TE		24.1	31.2	27.6	2-	9.4	2	1.090	4
13 A06003-3TE		32.0	34.7	33.4	3+	5.0	0	1.077	1
14 A06015-13TE		27.0	39.6	33.3	3-	12.9	1	1.082	4
15 A06084-1TE		53.4	53.2	53.3	5+	2.7	0	1.072	0
16 A001114-4		44.0	49.2	46.6	5+	5.3	0	1.092	3
17 A003123-2		43.6	44.8	44.2	5+	5.4	0	1.085	5
18 OR05039-4		40.8	45.0	42.9	5+	8.0	0	1.082	4
19 POR06V12-3		39.9	46.5	43.2	5+	7.6	0	1.087	5
Average		LSD 0.05		4.1		3.4		0.005	
		38.7	42.1	40.4		6.3	0	1.082	
Oregon									
1 Ranger Russet		30.0	42.9	36.5	4-	12.9	1	1.078	2
2 Russet Burbank		19.2	38.2	28.7	2-	19.0	3	1.083	5
3 A0012-5		41.0	40.1	40.5	5+	3.5	0	1.077	1
4 A0073-2		40.4	45.5	43.0	5+	5.9	0	1.089	4
5 A01325-1		20.2	42.9	31.5	3-	22.6	2	1.083	5
6 A02144-2		42.8	47.7	45.2	5+	5.9	0	1.075	0
7 A02424-83LB		26.3	41.3	33.8	3-	15.0	1	1.089	4
8 A03082-4		26.5	38.0	32.3	3-	11.6	1	1.070	0
9 A03921-2		34.9	44.9	39.9	4-	10.2	0	1.091	4
10 A05013-29		17.6	35.8	26.7	2-	18.5	3	1.074	0
11 A05015-5TE		23.1	34.0	28.6	2-	11.0	2	1.067	0
12 A05052-3TE		25.4	34.3	29.9	2-	11.1	1	1.091	4
13 A06003-3TE		20.8	31.5	26.2	2-	11.6	2	1.071	0
14 A06015-13TE		35.9	41.1	38.5	4+	6.2	0	1.070	0
15 A06084-1TE		36.9	46.6	41.7	5-	9.7	0	1.076	1
16 A001114-4		34.0	42.3	38.1	4+	8.2	0	1.086	5
17 A003123-2		31.3	40.6	35.9	4-	9.8	0	1.087	5
18 OR05039-4		34.1	48.1	41.1	5-	14.0	0	1.079	2
19 POR06V12-3		37.2	47.6	42.4	5-	11.0	0	1.087	5
Average		LSD 0.05		4.1		4.8		0.006	
		30.4	41.2	35.8		11.5	1	1.080	

Date test performed:

Washington

Oct. 2

Sept. 25

Idaho

Oct. 4

Sept. 26

Oregon

Oct. 8

Sept. 27

§ 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.

2012 Late Harvest Tri-State Trial

Stored at 48°F after Arrival

Clone	TASTE PANEL rating	FRENCH FRY		BRUISE POTENTIAL		SOFT ROT INDEX	
		(percent)		[color 5=darkest]		(percent)	
		stem	bud	stem	bud	stem	bud
Washington							
1 Ranger Russet	3.2	100	38	4.6	1.8	11	16
2 Russet Burbank	2.9	67	29	2.8	1.6	12	16
3 A0012-5	3.4	58	13	2.8	1.7	10	13
4 A0073-2	3.4	50	17	2.3	1.7	10	10
5 A01325-1	2.9	67	8	2.7	1.3	18	21
6 A02144-2	3.4	79	75	3.3	3.2	21	23
7 A02424-83LB	3.3	96	8	4.4	1.2	10	11
8 A03082-4	2.9	58	25	2.4	1.5	12	14
9 A03921-2	3.5	96	17	3.9	1.4	12	13
10 A05013-29	3.1	63	21	2.6	1.7	12	8
11 A05015-5TE	2.2	96	54	4.2	2.6	14	16
12 A05052-3TE	2.9	83	29	3.5	1.7	15	21
13 A06003-3TE	2.5	96	25	3.9	1.5	12	10
14 A06015-13TE	2.8	92	4	3.5	1.1	11	12
15 A06084-1TE	3.2	83	42	3.8	2.1	21	14
16 A001114-4	3.1	50	4	2.3	1.1	12	12
17 A003123-2	2.9	46	21	2.1	1.5	11	10
18 OR05039-4	3.4	8	13	1.2	1.3	11	8
19 POR06V12-3	3.9	13	13	1.4	1.6	14	14
LSD 0.05	0.4	24	23			5	5
Average	3.1	68.4	23.9	3.0	1.7	13.2	13.8
Idaho							
1 Ranger Russet	3.3	100	17	3.9	1.3	12	10
2 Russet Burbank	2.9	42	0	2.0	1.0	13	10
3 A0012-5	3.3	9	18	1.3	1.4	9	8
4 A0073-2	3.5	67	17	2.9	1.3	8	10
5 A01325-1	3.3	29	13	1.8	1.4	16	15
6 A02144-2	3.7	92	71	3.8	2.8	10	11
7 A02424-83LB	3.5	92	21	3.5	1.5	7	7
8 A03082-4	3.3	83	8	3.2	1.2	11	11
9 A03921-2	3.4	96	21	4.0	1.5	9	13
10 A05013-29	3.1	75	17	3.0	1.4	7	7
11 A05015-5TE	2.8	71	29	3.1	1.7	14	11
12 A05052-3TE	3.3	No Sample		No Sample		No Sample	
13 A06003-3TE	3.0	92	0	3.7	1.0	9	10
14 A06015-13TE	3.0	75	0	3.0	1.0	8	5
15 A06084-1TE	3.5	No Sample		No Sample		No Sample	
16 A001114-4	3.7	50	4	2.3	1.1	9	7
17 A003123-2	3.7	13	0	1.3	1.0	6	6
18 OR05039-4	3.4	50	13	2.2	1.3	5	6
19 POR06V12-3	3.6	21	8	1.6	1.2	14	12
LSD 0.05	0.4	25	21			3	3
Average	3.3	62.1	15.0	2.7	1.4	10.0	9.3
Oregon							
1 Ranger Russet	3.3	100	21	4.7	1.7	11	11
2 Russet Burbank	3.4	96	63	4.5	2.8	11	15
3 A0012-5	3.5	75	4	3.3	1.3	9	7
4 A0073-2	3.4	88	17	3.6	1.4	9	10
5 A01325-1	3.2	38	8	2.0	1.3	10	9
6 A02144-2	3.5	83	83	3.5	3.6	12	14
7 A02424-83LB	3.5	92	25	3.9	1.6	6	7
8 A03082-4	2.9	50	8	2.2	1.2	8	10
9 A03921-2	3.1	79	38	3.3	1.9	9	11
10 A05013-29	3.1	83	8	3.4	1.3	8	8
11 A05015-5TE	2.7	96	54	4.0	2.5	11	13
12 A05052-3TE	3.4	100	63	3.8	2.4	9	9
13 A06003-3TE	2.8	83	0	3.5	1.1	9	8
14 A06015-13TE	3.1	96	4	4.2	1.1	7	7
15 A06084-1TE	3.8	100	21	4.4	2.1	13	13
16 A001114-4	3.6	83	8	3.3	1.3	5	7
17 A003123-2	3.7	54	0	2.5	1.0	6	7
18 OR05039-4	3.5	38	21	2.0	1.7	6	7
19 POR06V12-3	3.3	4	4	1.1	1.1	8	9
LSD 0.05	0.4	22	22			3	3
Average	3.3	75.7	1.7	3.3	1.7	8.8	9.6

Date test performed:

Washington

Oct. 15

Oct. 30

Nov. 2

Idaho

Oct. 16

Oct. 31

Nov. 9

Oregon

Oct. 23

Nov. 1

Nov. 16

2012 Late Harvest Tri-State Trial

Stored at 48°F for 60 Days

	PHOTOVOLT READING				DIFF	USDA COLOR	% REDUCING SUGAR			SPROUTING	
	Clone stem	bud	average	rtg §			stem	bud	rtg	(%)	length (in)
Washington											
1 Ranger Russet	29.5	41.8	35.7	4-	12.2	1	1.4	0.7	4	100	0.50
2 Russet Burbank	23.2	40.7	31.9	3-	17.5	2	2.2	0.7	3	0	
3 A0012-5	43.8	40.6	42.2	5+	5.1	0	0.6	0.7	5	7	0.25
4 A0073-2	48.9	43.3	46.1	5+	5.6	0	0.5	0.6	5	53	0.13
5 A01325-1	27.7	45.3	36.5	4-	17.7	1	1.6	0.6	4	100	1.50
6 A02144-2	47.8	48.0	47.9	5+	3.6	0	0.5	0.5	5	40	0.50
7 A02424-83LB	31.8	42.5	37.2	4-	10.7	0	1.2	0.6	5	100	0.50
8 A03082-4	28.4	41.6	35.0	3-	13.3	1	1.6	0.7	4	100	1.50
9 A03921-2	43.7	48.6	46.1	5+	7.5	0	0.6	0.5	5	27	0.25
10 A05013-29	22.3	36.7	29.5	2-	14.4	2	2.3	0.9	3	80	1.00
11 A05015-5TE	26.9	36.7	31.8	3-	10.2	1	1.7	0.9	4	53	0.25
12 A05052-3TE	33.0	40.3	36.6	4+	7.5	0	1.1	0.7	5	33	0.13
13 A06003-3TE	31.3	36.8	34.1	3+	6.6	0	1.3	0.9	4	0	
14 A06015-13TE	28.7	32.6	30.7	3+	4.5	1	1.5	1.2	4	7	0.25
15 A06084-1TE	45.6	51.5	48.6	5+	6.1	0	0.6	0.5	5	80	0.50
16 AO01114-4	39.3	47.1	43.2	5+	7.7	0	0.8	0.5	5	13	0.13
17 AO03123-2	41.2	49.6	45.4	5+	8.7	0	0.7	0.5	5	0	
18 OR05039-4	36.9	48.2	42.5	5-	11.3	0	0.9	0.5	5	53	0.13
19 POR06V12-3	33.9	42.7	38.3	4-	9.2	0	1.1	0.6	5	60	0.25
Average	34.9	LSD 0.05 42.9	3.4 38.9		4.8 9.4	0	1.2	0.7		21 48	
Idaho											
1 Ranger Russet	34.3	38.8	36.6	4+	4.7	0	1.0	0.8	5	73	0.25
2 Russet Burbank	21.7	31.1	26.4	2-	11.5	2	2.4	1.3	3	0	
3 A0012-5	51.3	46.4	48.8	5+	5.6	0	0.5	0.5	5	43	0.25
4 A0073-2	44.7	45.7	45.2	5+	2.3	0	0.6	0.6	5	0	
5 A01325-1	45.0	42.6	43.8	5+	4.4	0	0.6	0.6	5	100	0.50
6 A02144-2	44.9	44.4	44.7	5+	2.7	0	0.6	0.6	5	0	
7 A02424-83LB	45.3	50.7	48.0	5+	7.4	0	0.6	0.5	5	100	0.25
8 A03082-4	37.8	35.6	36.7	4+	7.0	0	0.8	1.0	5	47	0.13
9 A03921-2	44.4	49.8	47.1	5+	5.6	0	0.6	0.5	5	33	0.13
10 A05013-29	33.1	38.4	35.8	4+	6.0	0	1.1	0.8	4	0	
11 A05015-5TE	30.0	38.4	34.2	3+	8.5	1	1.4	0.8	4	40	0.13
12 A05052-3TE	36.8	45.0	40.9	5+	8.5	0	0.9	0.6	5	No Sample	
13 A06003-3TE	35.9	37.4	36.7	4+	4.3	0	0.9	0.9	5	0	
14 A06015-13TE	23.6	31.8	27.7	2-	10.3	2	2.1	1.2	3	21	0.25
15 A06084-1TE	50.0	49.4	49.7	5+	1.8	0	0.5	0.5	5	No Sample	
16 AO01114-4	42.9	45.3	44.1	5+	3.8	0	0.6	0.6	5	0	
17 AO03123-2	49.0	48.8	48.9	5+	2.7	0	0.5	0.5	5	0	
18 OR05039-4	41.5	48.3	44.9	5+	8.1	0	0.7	0.5	5	13	0.13
19 POR06V12-3	44.1	48.2	46.2	5+	5.2	0	0.6	0.5	5	40	0.13
Average	39.8	LSD 0.05 42.9	3.9 41.4		3.2 5.8	0	0.9	0.7		20 26	
Oregon											
1 Ranger Russet	33.0	44.0	38.5	4-	11.0	0	1.1	0.6	5	87	0.75
2 Russet Burbank	20.1	40.2	30.1	2-	20.2	2	2.7	0.7	3	0	
3 A0012-5	47.9	46.6	47.3	5+	3.0	0	0.5	0.5	5	73	0.50
4 A0073-2	42.4	47.5	45.0	5+	5.7	0	0.6	0.5	5	0	
5 A01325-1	22.8	44.8	33.8	3-	22.0	2	2.3	0.6	4	100	0.75
6 A02144-2	44.3	46.2	45.3	5+	3.4	0	0.6	0.5	5	50	0.25
7 A02424-83LB	31.4	45.3	38.4	4-	14.0	0	1.3	0.6	5	93	0.50
8 A03082-4	26.0	40.4	33.2	3-	14.9	1	1.8	0.7	4	93	1.00
9 A03921-2	36.8	51.4	44.1	5-	14.6	0	0.9	0.5	5	27	0.13
10 A05013-29	18.3	39.4	28.9	2-	21.2	3	3.0	0.8	3	80	0.25
11 A05015-5TE	22.6	36.0	29.3	2-	13.5	2	2.3	0.9	3	93	0.25
12 A05052-3TE	31.1	40.0	35.6	4-	9.0	0	1.3	0.7	4	27	0.13
13 A06003-3TE	23.4	31.7	27.6	2-	9.2	2	2.2	1.2	3	7	0.25
14 A06015-13TE	32.0	32.6	32.3	3+	4.7	0	1.2	1.2	4	60	0.13
15 A06084-1TE	37.7	48.5	43.1	5-	12.0	0	0.8	0.5	5	87	1.00
16 AO01114-4	34.8	42.0	38.4	4+	7.1	0	1.0	0.7	5	20	0.13
17 AO03123-2	31.4	43.4	37.4	4-	12.2	0	1.3	0.6	5	0	
18 OR05039-4	40.4	49.7	45.0	5-	9.2	0	0.7	0.5	5	33	0.25
19 POR06V12-3	37.8	48.3	43.0	5-	10.5	0	0.8	0.5	5	87	0.75
Average	32.3	LSD 0.05 43.1	3.7 37.7		5.3 11.4	1	1.4	0.7		21 54	

Date test performed:

Washington

Nov. 29

Nov. 29

Dec. 18

Idaho

Dec. 5

Dec. 5

Dec. 18

Oregon

Dec. 11

Dec. 11

Dec. 18

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

2012 Late Harvest Tri-State Trial

Stored at 44°F for 60 Days

Clone	PHOTOVOLT READING				DIFF	USDA COLOR	% REDUCING SUGAR		
	stem	bud	average	rtg §			stem	bud	rtg
Washington									
1 Ranger Russet	29.6	39.6	34.6	3-	10.3	1	1.4	0.7	4
2 Russet Burbank	20.1	35.1	27.6	2-	15.1	2	2.7	1.0	3
3 A0012-5	42.9	39.0	41.0	5+	5.1	0	0.6	0.8	5
4 A0073-2	37.9	34.7	36.3	4+	4.3	0	0.8	1.0	5
5 A01325-1	25.5	37.2	31.4	3-	11.8	1	1.9	0.9	4
6 A02144-2	43.0	46.2	44.6	5+	3.4	0	0.6	0.5	5
7 A02424-83LB	34.4	42.3	38.3	4+	8.3	0	1.0	0.6	5
8 A03082-4	25.3	35.5	30.4	2-	10.4	1	1.9	1.0	4
9 A03921-2	37.9	43.4	40.6	5+	6.4	0	0.8	0.6	5
10 A05013-29	19.8	32.2	26.0	2-	12.4	2	2.7	1.2	2
11 A05015-5TE	18.1	27.8	23.0	1-	9.7	3	3.0	1.6	1
12 A05052-3TE	26.6	37.3	32.0	3-	10.7	1	1.8	0.9	4
13 A06003-3TE	23.5	32.3	27.9	2+	8.7	2	2.2	1.2	3
14 A06015-13TE	21.2	26.0	23.6	1+	4.8	2	2.5	1.8	2
15 A06084-1TE	35.5	49.1	42.3	5-	14.0	0	1.0	0.5	5
16 AO01114-4	31.0	37.0	34.0	3+	6.0	0	1.3	0.9	4
17 AO03123-2	33.0	41.0	37.0	5+	8.0	0	0.4	0.7	5
18 OR05039-4	30.9	42.4	36.6	4-	11.4	0	1.3	0.6	4
19 POR06V12-3	30.6	39.3	34.9	3+	8.7	0	1.3	0.8	4
Average	29.8	LSD 0.05 37.7	3.6 33.8		4.2 8.9	1	1.5	0.9	
Idaho									
1 Ranger Russet	29.7	36.3	33.0	3+	8.5	1	1.4	0.9	4
2 Russet Burbank	21.2	26.2	23.7	1+	5.7	2	2.5	1.8	2
3 A0012-5	47.8	40.8	44.3	5+	7.7	0	0.5	0.7	5
4 A0073-2	31.0	36.1	33.5	3+	6.7	0	1.3	0.9	4
5 A01325-1	38.9	42.9	40.9	5+	5.2	0	0.8	0.6	5
6 A02144-2	43.6	41.1	42.4	5+	3.6	0	0.6	0.7	5
7 A02424-83LB	33.4	40.3	36.8	4+	7.2	0	1.1	0.7	5
8 A03082-4	33.0	27.4	30.2	2+	6.2	1	1.1	1.7	4
9 A03921-2	40.9	50.1	45.5	5-	9.4	0	0.7	0.5	5
10 A05013-29	28.8	31.3	30.0	2+	3.5	1	1.5	1.3	4
11 A05015-5TE	22.8	30.9	26.9	2+	8.2	2	2.3	1.3	3
12 A05052-3TE	32.2	39.4	35.8	4-	9.6	0	1.2	0.8	4
13 A06003-3TE	35.7	34.1	34.9	3+	5.7	0	1.0	1.1	4
14 A06015-13TE	20.6	25.0	22.8	1+	6.1	2	2.6	2.0	2
15 A06084-1TE	43.8	45.9	44.8	5+	4.5	0	0.6	0.5	5
16 AO01114-4	34.2	37.1	35.6	4+	3.2	0	1.0	0.9	4
17 AO03123-2	32.2	38.8	35.5	4-	9.0	0	1.2	0.8	4
18 OR05039-4	36.8	41.2	39.0	4+	7.0	0	0.9	0.7	5
19 POR06V12-3	35.3	39.9	37.6	4+	5.7	0	1.0	0.7	5
Average	33.8	LSD 0.05 37.1	xx 35.4		xx 6.4	0	1.2	1.0	
Oregon									
1 Ranger Russet	27.4	43.5	35.4	3-	16.1	1	1.7	0.6	4
2 Russet Burbank	18.0	36.9	27.4	2-	18.9	3	3.0	0.9	2
3 A0012-5	35.8	38.0	36.9	4+	4.8	0	0.9	0.8	5
4 A0073-2	36.9	44.6	40.7	5+	7.7	0	0.9	0.6	5
5 A01325-1	22.0	37.4	29.7	2-	15.4	2	2.4	0.9	3
6 A02144-2	40.9	43.6	42.2	5+	3.8	0	0.7	0.6	5
7 A02424-83LB	25.6	41.5	33.5	3-	15.8	1	1.9	0.7	4
8 A03082-4	21.2	36.1	28.6	2-	14.9	2	2.5	0.9	3
9 A03921-2	31.6	44.9	38.2	4-	13.3	0	1.2	0.6	5
10 A05013-29	19.1	33.7	26.4	2-	14.6	3	2.8	1.1	2
11 A05015-5TE	19.7	27.7	23.7	1+	8.6	2	2.7	1.6	2
12 A05052-3TE	23.6	42.2	32.9	3-	18.8	2	2.1	0.6	4
13 A06003-3TE	26.6	30.3	28.5	2+	7.3	1	1.8	1.4	3
14 A06015-13TE	22.8	21.5	22.1	1+	4.2	2	2.3	2.4	2
15 A06084-1TE	34.8	49.6	42.2	5-	14.8	0	1.0	0.5	5
16 AO01114-4	28.3	35.6	31.9	3+	7.3	1	1.6	1.0	4
17 AO03123-2	25.4	41.3	33.3	3-	15.9	1	1.9	0.7	4
18 OR05039-4	36.8	48.1	42.5	5-	11.4	0	0.9	0.5	5
19 POR06V12-3	33.2	43.4	38.3	4-	11.2	0	1.1	0.6	5
Average	27.9	LSD 0.05 38.9	3.8 33.4		5.1 11.8	1	1.8	0.9	

Date test performed:

Washington

Nov. 30

Nov. 30

Idaho

Dec. 6

Dec. 6

Oregon

Dec. 12

Dec. 12

§ 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.

2012 Late Harvest Tri-State Trial

Stored at 40°F for 60 Days and Reconditioned

Clone	PHOTOVOLT (60 Days at 40°F)						PHOTOVOLT AFTER RECONDITIONING (21 days at 60°F)				
	SPROUTING (%)	stem	bud	average	DIFF	USDA COLOR	stem	bud	average	DIFF	USDA COLOR
Washington											
1 Ranger Russet	0	19.5	31.5	25.5	12.4	2	24.8	37.0	30.9	14.3	1
2 Russet Burbank	0	13.5	21.7	17.6	8.2	4	16.7	29.4	23.0	12.7	3
3 A0012-5	0	34.6	32.0	33.3	3.8	0	43.4	42.3	42.9	3.1	0
4 A0073-2	0	27.9	27.8	27.8	5.3	1	37.8	38.6	38.2	4.2	0
5 A01325-1	0	18.2	25.3	21.8	7.5	3	25.9	36.5	31.2	11.2	1
6 A02144-2	0	30.9	35.8	33.3	6.2	0	35.3	42.6	38.9	7.6	0
7 A02424-83LB	0	21.3	34.8	28.0	13.5	2	23.4	30.2	26.8	6.7	2
8 A03082-4	0	16.0	25.0	20.5	9.0	3	20.9	32.1	26.5	12.0	2
9 A03921-2	0	33.7	42.7	38.2	9.9	0	34.5	43.4	39.0	8.9	0
10 A05013-29	0	13.7	24.5	19.1	10.8	4	14.5	23.9	19.2	12.8	3
11 A05015-5TE	0	13.8	19.5	16.6	6.0	4	15.4	25.2	20.3	10.6	3
12 A05052-3TE	0	25.6	33.2	29.4	8.6	1	24.2	37.0	30.6	13.3	2
13 A06003-3TE	0	16.1	19.0	17.6	4.1	3	18.2	22.4	20.3	4.6	3
14 A06015-13TE	0	13.4	16.9	15.1	4.0	4	16.1	16.9	16.5	2.3	3
15 A06084-1TE	0	24.5	39.4	32.0	15.0	1	27.9	46.9	37.4	19.1	1
16 AO01114-4	0	23.0	24.9	24.0	2.8	2	29.6	40.6	35.1	11.0	1
17 AO03123-2	0	20.3	29.7	25.0	9.4	2	25.2	39.9	32.5	14.7	1
18 OR05039-4	0	18.2	27.4	22.8	9.4	3	22.9	36.7	29.8	13.8	2
19 POR06V12-3	0	23.4	31.8	27.6	8.6	2	21.7	33.3	27.5	11.6	2
LSD 0.05	ns			3.3	3.9				3.9	4.7	
Average	0	21.4	28.6	25.0	8.1	2	25.2	34.5	29.8	10.2	2
Idaho											
1 Ranger Russet	0	21.9	33.6	27.7	11.6	2	24.6	30.0	27.3	6.8	1
2 Russet Burbank	0	14.5	19.0	16.7	5.0	3	18.1	23.8	21.0	6.7	3
3 A0012-5	0	41.2	33.5	37.3	7.8	0	40.3	37.6	39.0	4.5	0
4 A0073-2	0	32.4	37.1	34.8	4.7	0	24.6	28.7	26.6	4.2	1
5 A01325-1	0	24.7	31.2	28.0	6.7	1	26.2	32.8	29.5	7.2	1
6 A02144-2	0	38.0	34.3	36.1	4.0	0	32.4	35.1	33.7	6.2	0
7 A02424-83LB	0	29.1	31.0	30.0	3.0	1	24.8	32.8	28.8	8.5	1
8 A03082-4	0	26.3	21.8	24.0	5.8	2	21.8	16.8	19.3	5.3	3
9 A03921-2	0	37.2	46.5	41.9	10.1	0	39.1	49.3	44.2	10.3	0
10 A05013-29	0	16.6	21.7	19.1	5.2	3	18.6	24.5	21.5	6.0	3
11 A05015-5TE	0	16.5	17.7	17.1	3.2	3	14.9	17.9	16.4	3.6	3
12 A05052-3TE	none	25.2	33.6	29.4	8.3	1	30.4	37.6	34.0	9.2	1
13 A06003-3TE	0	18.8	20.4	19.6	3.4	3	18.9	22.9	20.9	5.9	3
14 A06015-13TE	0	14.2	19.2	16.7	5.0	4	15.9	17.3	16.6	2.6	3
15 A06084-1TE	none	34.7	37.0	35.8	3.4	0	No Sample				
16 AO01114-4	0	25.0	30.2	27.6	5.9	1	25.7	30.1	27.9	5.5	1
17 AO03123-2	0	21.7	23.3	22.5	3.9	2	26.2	29.6	27.9	5.4	1
18 OR05039-4	0	24.5	29.6	27.0	5.4	1	25.1	31.8	28.4	8.4	1
19 POR06V12-3	0	23.4	30.6	27.0	7.2	2	24.6	34.8	29.7	13.5	1
LSD 0.05	ns			3.7	3.2				3.7	4.3	
Average	0	25.6	29.0	27.3	5.8	2	25.1	29.6	27.4	6.7	1.5
Oregon											
1 Ranger Russet	0	13.9	29.2	21.5	15.4	4	19.9	43.6	31.8	23.7	2
2 Russet Burbank	0	11.9	26.8	19.3	14.9	4	13.6	26.9	20.2	13.3	4
3 A0012-5	0	30.4	33.2	31.8	6.2	1	35.8	36.2	36.0	4.1	0
4 A0073-2	0	32.7	39.9	36.3	8.3	0	24.9	32.6	28.8	7.7	1
5 A01325-1	0	15.4	27.4	21.4	12.0	3	14.8	32.6	23.7	17.8	3
6 A02144-2	0	31.1	35.0	33.0	3.9	0	31.6	37.9	34.7	7.1	0
7 A02424-83LB	0	22.9	31.3	27.1	8.8	2	19.5	29.9	24.7	11.8	2
8 A03082-4	0	18.3	24.2	21.3	7.6	3	18.1	33.0	25.6	14.9	3
9 A03921-2	0	25.0	37.7	31.3	12.6	1	25.5	39.2	32.3	13.7	1
10 A05013-29	0	16.5	26.4	21.5	9.9	3	13.6	22.1	17.8	9.6	4
11 A05015-5TE	0	10.4	18.5	14.5	8.6	4	9.3	15.3	12.3	6.0	4
12 A05052-3TE	0	22.2	35.1	28.7	12.9	2	22.3	28.4	25.4	7.8	2
13 A06003-3TE	0	13.1	17.6	15.4	4.8	4	13.6	17.3	15.5	4.8	4
14 A06015-13TE	0	13.9	14.4	14.1	4.6	4	14.2	19.1	16.6	5.4	4
15 A06084-1TE	0	25.5	44.5	35.0	19.0	1	26.2	43.3	34.8	17.1	1
16 AO01114-4	0	20.8	24.3	22.6	4.8	2	22.2	26.9	24.5	5.1	2
17 AO03123-2	0	17.6	30.5	24.0	13.0	3	17.8	36.3	27.1	18.5	3
18 OR05039-4	0	25.5	31.7	28.6	10.7	1	21.4	35.1	28.3	13.8	2
19 POR06V12-3	0	20.7	33.6	27.2	12.9	2	20.1	35.7	27.9	15.6	2
LSD 0.05	ns			xx	xx				4.0	5.5	
Average	0	20.4	29.5	25.0	10.1	2	20.2	31.1	25.7	11.5	2

Date test performed:

Washington Dec. 19

Dec. 1

Dec. 14

Idaho Dec. 19

Dec. 7

Dec. 15

Oregon Dec. 19

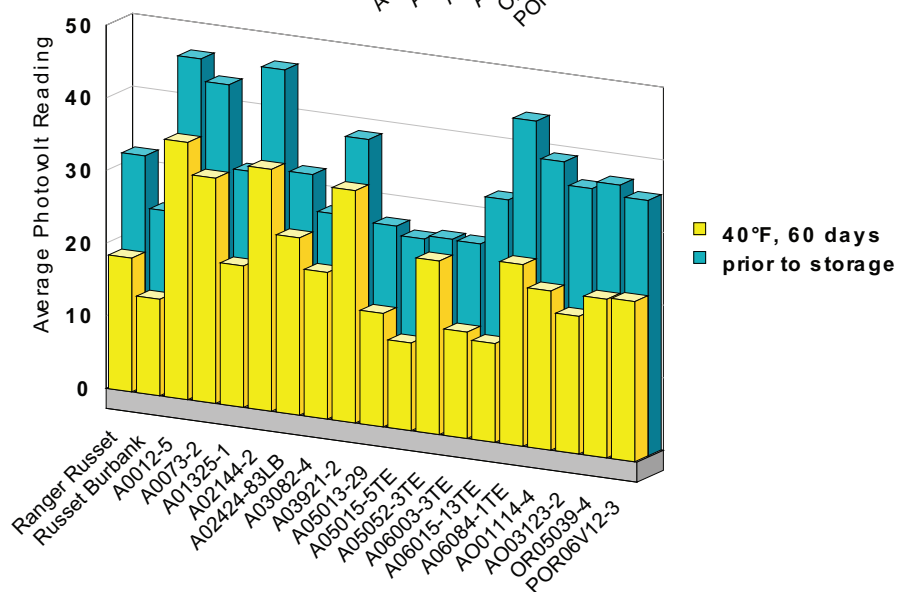
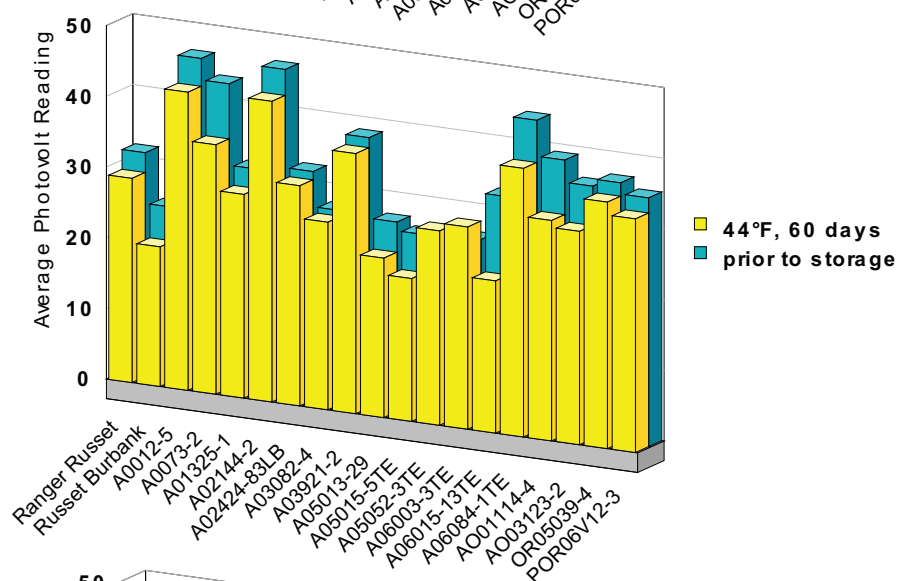
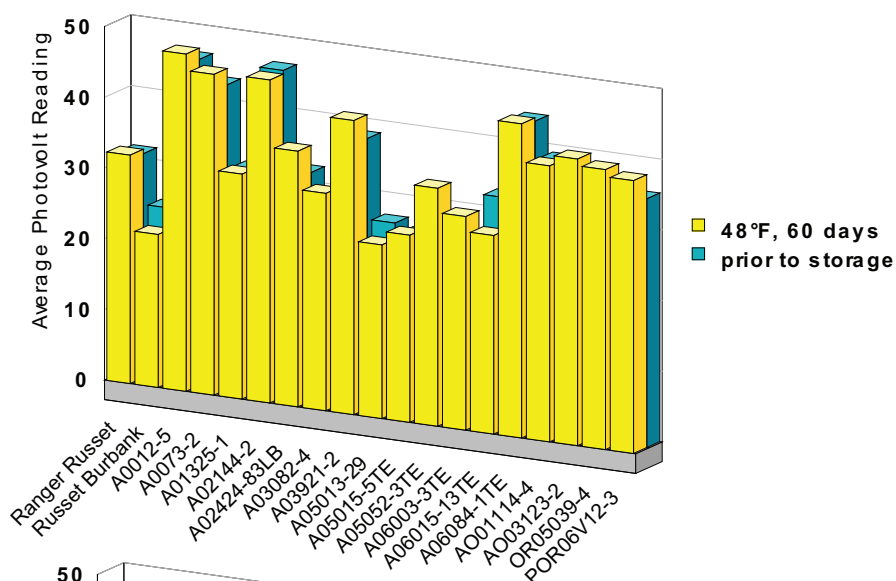
Dec. 13

Dec. 16

DIFF = Absolute difference between bud and stem Photovolt reading.

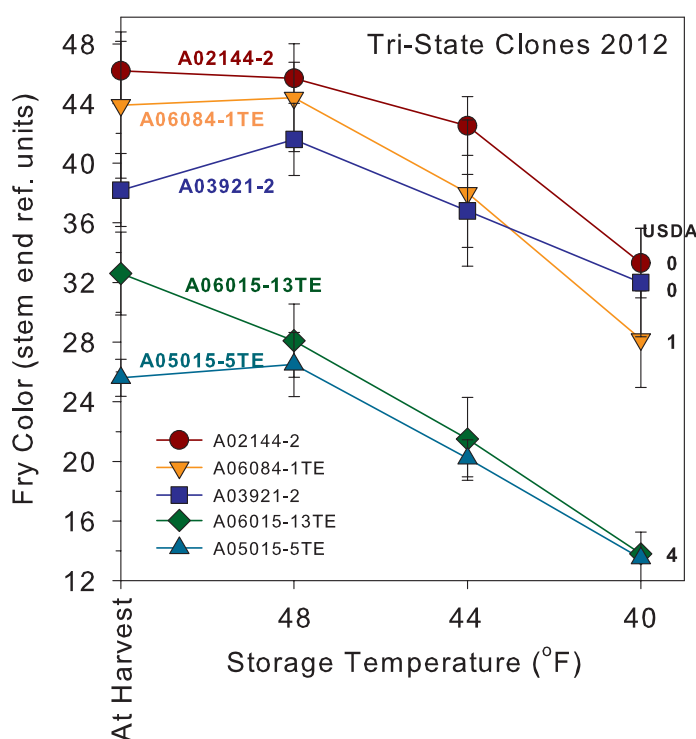
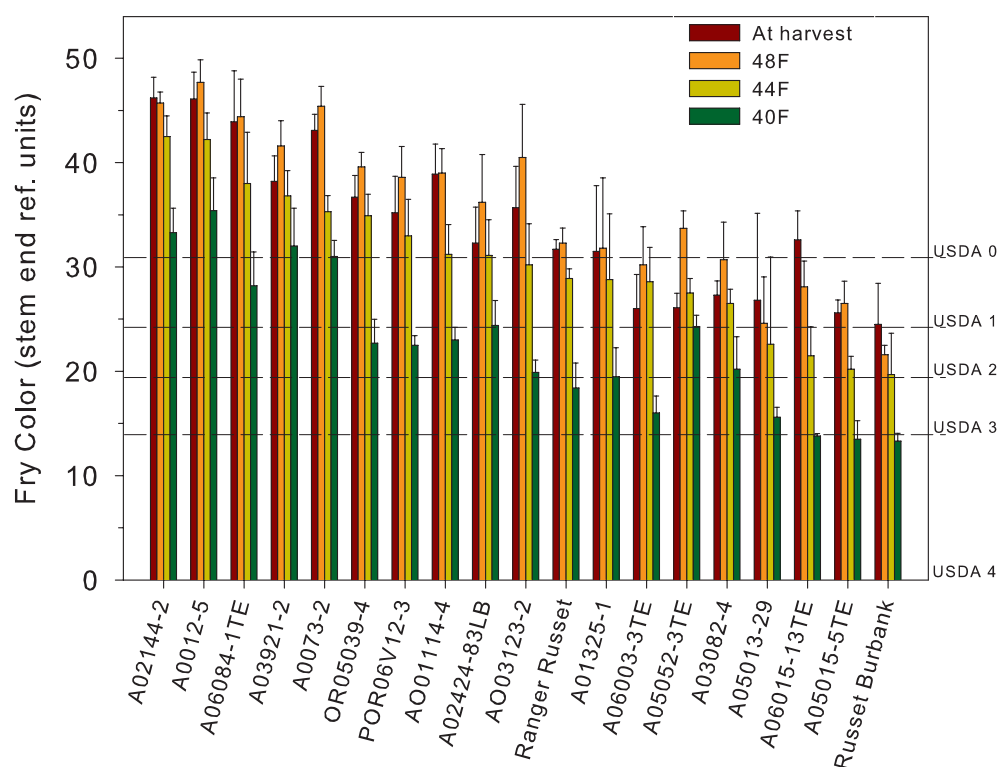
2012 Late Harvest Tri-State Trial

Tri-State Trial - 3 State Average of Stem End



2012 Late Harvest Tri-State Trial

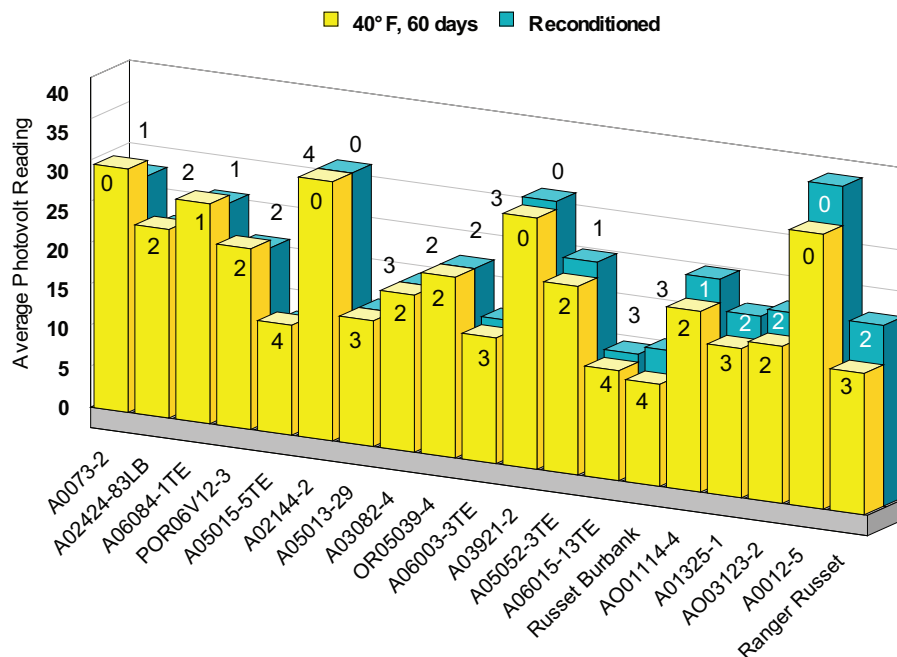
Tri-State Clones 2012



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.

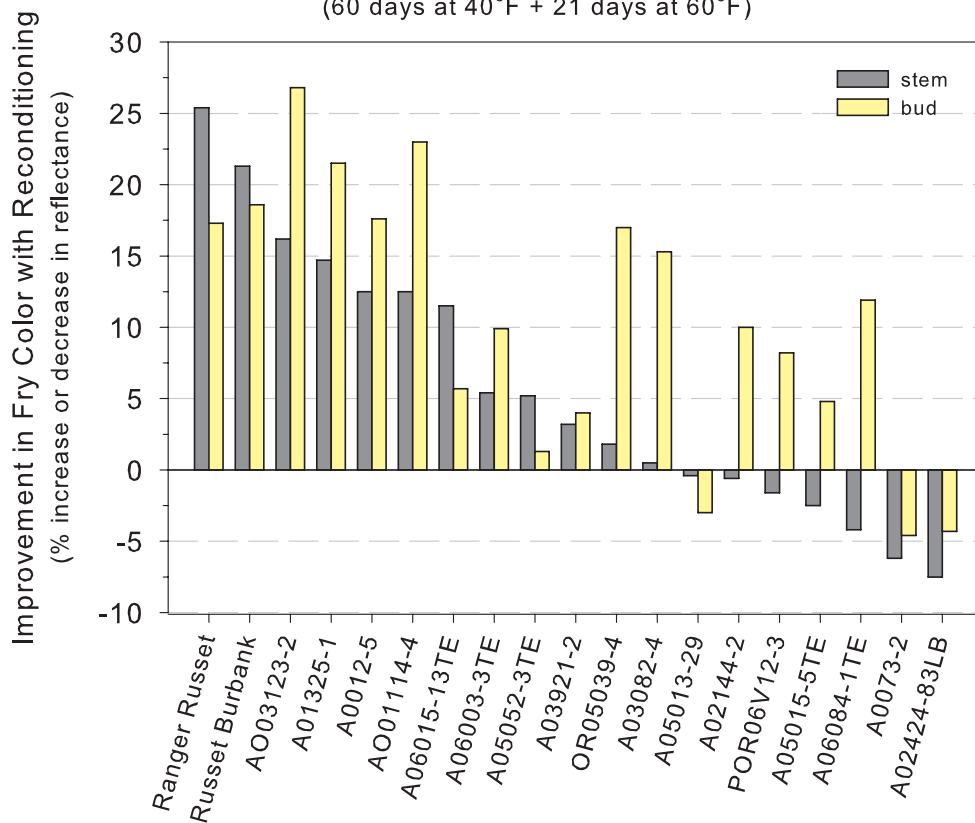
Bottom: Line graph depicting the effects of storage temperature on the change in French fry processing quality (stem end fry color) of the best (A02144-2, A06084-1TE, and A03921-2) and worst (A06015-13TE and A05015-5TE) performing clones in the Tri-State Trial. *Indicates similar performance of the clones last year.

2012 Late Harvest Tri-State Trial



Reconditioning Ability - Tri-State Clones 2012

(60 days at 40°F + 21 days at 60°F)



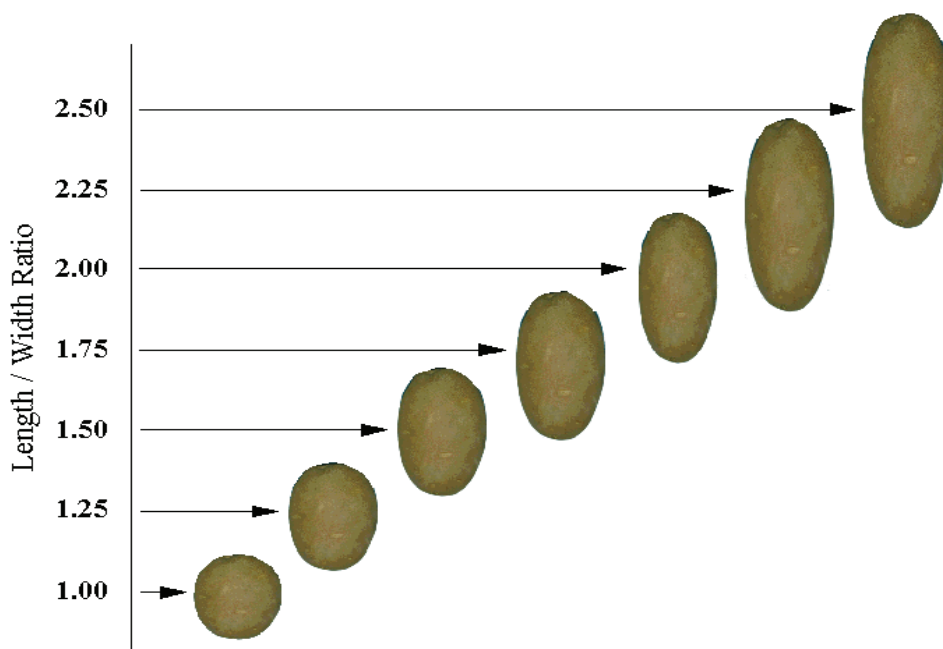
Reconditioning abilities of clones in the 2012 Tri-State Trial (3-state averages). Clones were stored at 40°F for 60 days after harvest and then reconditioned at 60°F for 21 days. **Top:** Stem end fry color before and after reconditioning. Numbers in bars indicate the USDA color rating of the stem end. **Bottom:** Percent improvement of stem and bud end fry color with reconditioning.

2012 Late Harvest Tri-State Trial

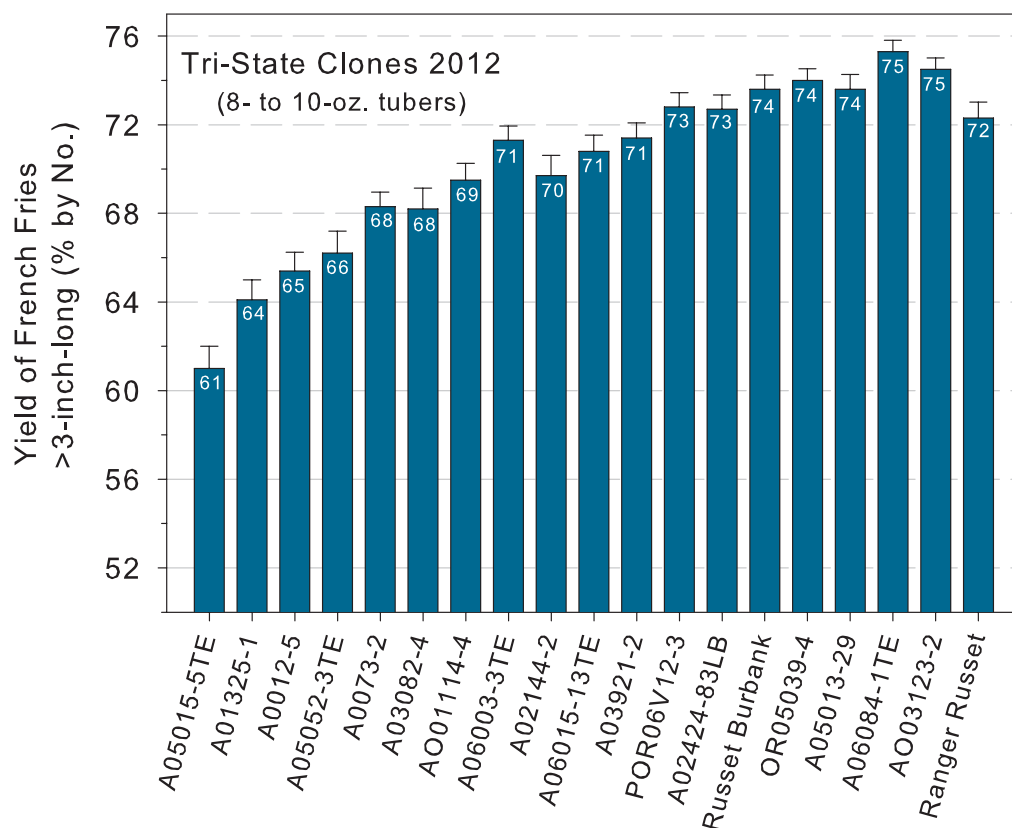
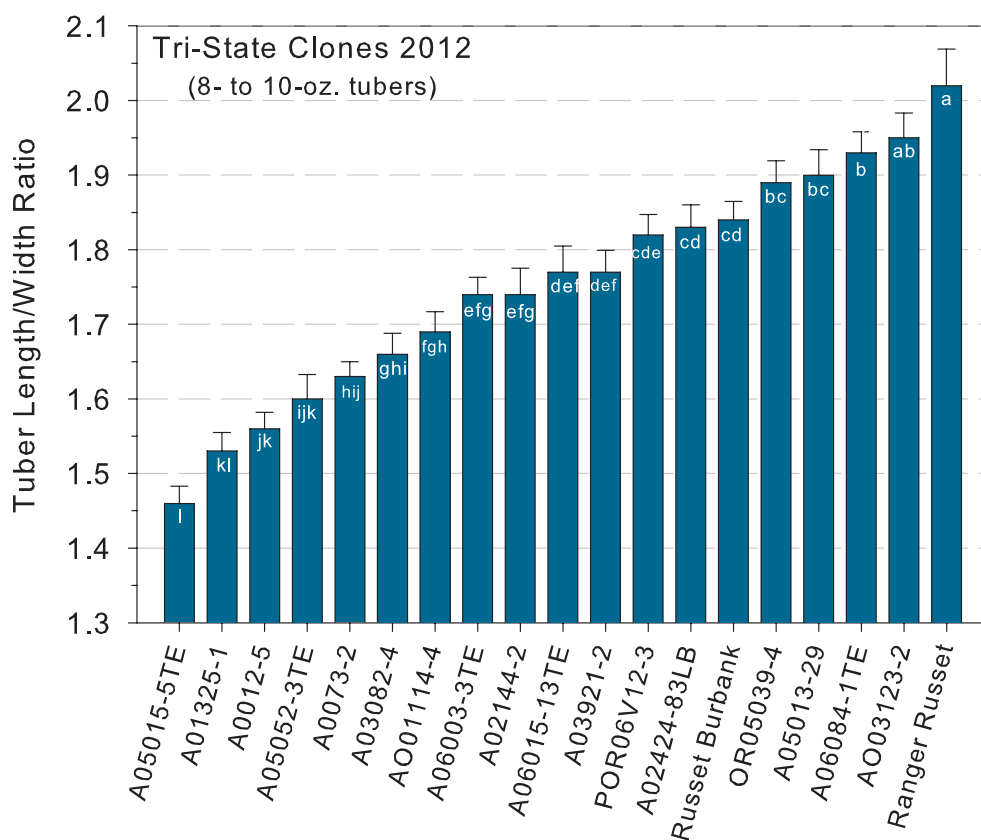
Tuber Shape and Associated French Fry Yields

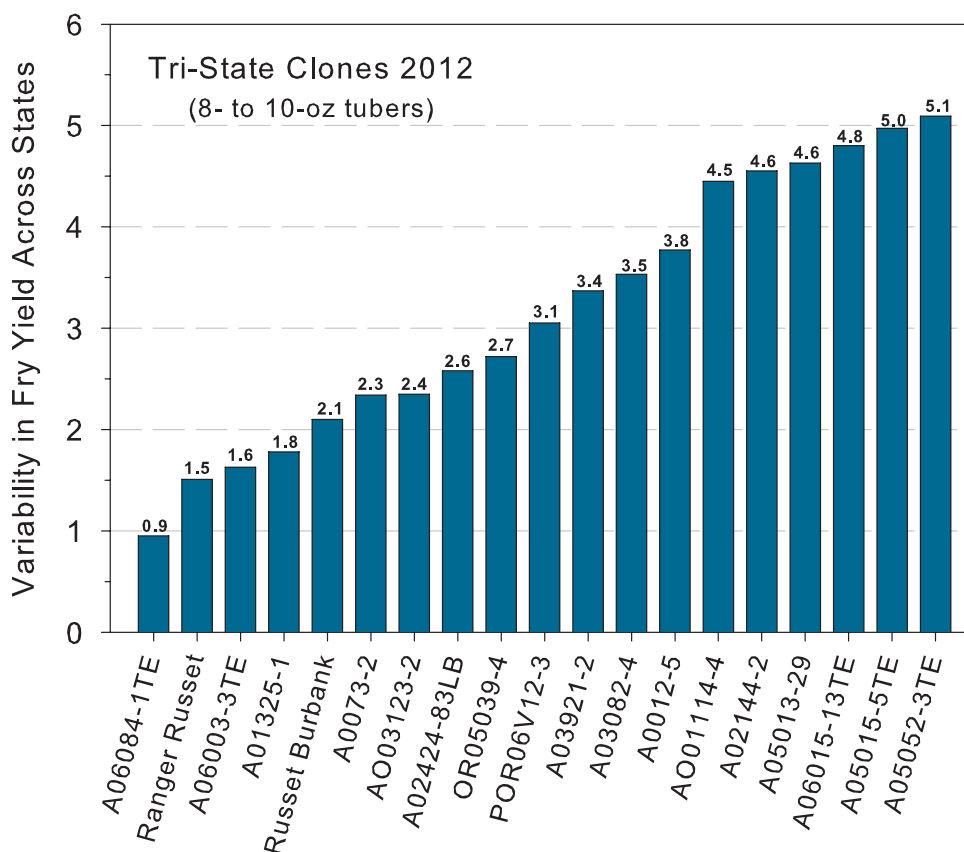
(8- to 10-oz Tubers)

Clone	Length to width ratio				Yield of 3" or longer fries (% by number)			
	WA	ID	OR	3 State Avg.	WA	ID	OR	3 State Avg.
1 Ranger Russet	1.69	2.48	1.87	2.02	70	73	74	72
2 Russet Burbank	1.78	1.98	1.77	1.84	73	77	72	74
3 A0012-5	1.51	1.67	1.47	1.55	64	70	61	65
4 A0073-2	1.56	1.73	1.61	1.63	66	71	68	68
5 A01325-1	1.51	1.59	1.49	1.53	64	66	62	64
6 A02144-2	1.59	2.03	1.59	1.74	67	76	66	70
7 A02424-83LB	1.71	2.02	1.76	1.83	70	76	71	73
8 A03082-4	1.59	1.80	1.58	1.66	66	73	65	68
9 A03921-2	1.66	2.00	1.64	1.77	69	76	69	71
10 A05013-29	2.05	1.58	2.03	1.89	77	67	77	73
11 A05015-5TE	1.42	1.61	1.34	1.46	59	68	56	61
12 A05052-3TE	1.53	1.96	1.53	1.67	65	75	64	68
13 A06003-3TE	1.68	1.82	1.71	1.74	70	74	70	71
14 A06015-13TE	1.74	2.13	1.54	1.80	72	77	65	71
15 A06084-1TE	1.91	2.05	1.91	1.95	75	77	75	76
16 A001114-4	1.59	1.91	1.53	1.67	67	75	65	69
17 A003123-2	1.78	2.22	1.85	1.95	72	78	73	74
18 OR05039-4	1.73	2.14	1.79	1.89	72	78	73	74
19 POR06V12-3	1.75	2.01	1.69	1.82	72	77	70	73
Average	1.67	1.93	1.67	1.76	69	74	68	70



2012 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, A05052-3TE had a length to width ratio of 1.6 (see previous page), resulting in 66% 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 61% to 71% ($66 \pm 5.1\%$).

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

2012 Early Harvest Regional Trial

Location: WSU Research Center – Othello, WA

Planting Date: April 4

Vine Kill Date: July 17

Harvest Date: August 1

Days Grown: 104

Fertility: 200-340-220

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 2012 early harvest trial compared three reference varieties to 15 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): CO03276-4RU and CO03276-5RU.

Process Market Standout(s): A03158-2TE.

Standcounts

➤ 40 Day

Slow emergence: A02507-2LB, CO0302-1RU, AO96305-3.

➤ 60 Day

Full emergence: A02138-2, A03158-2TE, AO02060-3, AO02183-2, AO96305-3, CO03187-1RU, PA00N14-2.

Poor emergence: All other entries were > 92% emerged.

Plant and Tuber Growth & Development

➤ Above Ground Stem Number Per Plant

Most: A01010-1 (3.1), CO03276-4RU (2.7), A02138-2 (2.5).

Least: CO03202-1RU (1.5); A99029-3E and A02507-2LB (each 1.6).

➤ Average Tuber Number Per Plant

Most: A01010-1 (10.9), CO03276-4RU (10.0).

Least: AO96305-3 (6.0), Ranger Russet (6.5), A99029-3E (6.7).

➤ Average Tuber Size (oz)

Largest: Ranger Russet (8.7), AO96305-3 (8.6), A03158-2TE (8.2).

Smallest: A02507-2LB (5.6), PA00N14-2 (5.7).

➤ Undersized Tubers (< 4 oz)

Most: A01010-1 (138 CWT/A), A02507-2LB (119 CWT/A).

Fewest: Ranger Russet (35 CWT/A), AO96305-3 (46 CWT/A).

Yield and Economic Data

➤ **Total Yield and U.S. #1 Yield**

Highest: CO03276-4RU had the highest total yield (524 CWT/A) and U.S. #1 yield (428 CWT/A). A03158-2TE had the second highest total yield (463 CWT/A) and U.S. #1 yield (380 CWT/A).

Lowest: A02507-2LB had the lowest total yield (312 CWT/A); A99029-3E had the second lowest total yield (337 CWT/A). Russet Burbank had the lowest U.S. #1 yield (178 CWT/A); A02507-2LB had the second lowest U.S. #1 yield (185 CWT/A).

➤ **% U.S. #1's (greater than 4 oz)**

Highest: Ranger Russet (88%); A03158-2TE, CO03276-4RU (each 82%).

Lowest: Russet Burbank (49%).

➤ **Carton Yield (100 to 50 Count (7 to 18 oz U.S. #1 Tubers))**

Highest: CO03276-4RU (208 CWT/A), A03158-2TE (200 CWT/A).

Lowest: PA00N14-2 (32 CWT/A), A02507-2LB (34 CWT/A).

➤ **Gross Return (\$/acre)**

Fresh Market Highest: CO03276-4RU, A03158-2TE, and Ranger Russet.

Fresh Market Lowest: A02507-2LB, PA00N14-2, and Russet Burbank.

Process Market Highest: CO03276-4RU and A02138-2.

Process Market Lowest: A02507-2LB, Russet Burbank, and PA00N14-2.

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

➤ **External Defects**

Notable Defects: AO96305-3 had severe growth cracks.

➤ **Internal Defects**

Notable Defects: Russet Burbank had the highest occurrence of hollow heart (10%) and brown center (20%). All other entries had few internal defects.

➤ **Bruise**

Highest Blackspot: A02138-2 (37%), Ranger Russet (30%), AO02060-3 (20%).

Highest Shatter: AO02060-3 (53%), A02138-2 (43%); A01010-1, CO03276-4RU, CO03276-5RU (each 40%).

2012 Early Harvest Regional Trial

Summaries

ENTRY	TOTAL YIELD						CARTON YIELD		PROCESS YIELD	
	CWT/A	STATS**	Tons/A	US # 1's*	US # 2's*	Culls*	100-50 count		US 1's and 2's	
				> 4 oz	> 4 oz	& < 4 oz	(US 1's 7-18 oz)		> 6 oz	
				% of Total Yield			% of Total Yield	Tons/A	% of Total Yield	Tons/A
Ranger Russet	396	BCDE	19.8	88	2	11	48	9.5	65	12.9
Russet Burbank	364	DEF	18.2	49	10	41	18	3.7	38	7.0
Russet Norkotah	355	EF	17.8	75	2	23	30	5.4	48	8.6
A99029-3E	337	EF	16.9	75	2	24	47	7.9	57	9.6
A01010-1	455	ABC	22.8	67	2	31	21	4.9	34	7.7
A02138-2	455	ABC	22.7	77	2	22	32	7.3	49	11.2
A02507-2LB	312	F	15.6	59	2	40	11	1.7	21	3.3
A03158-2TE	463	AB	23.2	82	1	18	42	10.0	58	13.5
AC00395-2RU	404	BCDE	20.2	68	1	31	19	3.8	31	6.3
AO00057-2	391	BCDEF	19.6	75	3	23	34	6.6	46	9.0
AO02060-3	402	BCDE	20.1	79	0	21	30	6.0	44	8.8
AO02183-2	385	BCDEF	19.2	70	0	30	24	4.5	37	7.2
AO96305-3	361	DEF	18.0	69	3	30	37	6.7	55	9.9
CO03187-1RU	380	CDEF	19.0	74	2	24	26	5.1	42	8.0
CO03202-1RU	387	BCDEF	19.3	74	0	26	27	5.4	42	8.1
CO03276-4RU	524	A	26.2	82	1	18	38	10.4	55	14.4
CO03276-5RU	442	BCD	22.1	79	1	20	32	7.2	49	0.0
PA00N14-2	350	EF	17.5	67	0	33	9	1.6	20	3.4

ENTRY	US # 1 YIELD						> 4 oz	INTERNAL DEFECTS (%)		
	> 4 oz	STATS**	> 4 oz	4-7 oz*	7-14 oz*	> 14 oz*	SPECIFIC GRAVITY	(8-12 oz tubers)		
	CWT/A		Tons/A	—————%—————				% HH	% BC	% IBS
Ranger Russet	347	ABC	17.3	42	53	5	1.077	0	0	3
Russet Burbank	178	F	8.9	58	42	0	1.074	10	20	0
Russet Norkotah	267	CDEF	13.3	60	36	5	1.069	0	0	0
A99029-3E	253	DEF	12.6	38	51	12	1.070	0	0	0
A01010-1	304	BCD	15.2	68	32	0	1.069	0	0	3
A02138-2	351	ABC	17.6	58	41	1	1.082	0	0	0
A02507-2LB	185	EF	9.3	81	19	0	1.080	0	0	0
A03158-2TE	380	AB	19.0	47	46	7	1.069	0	0	0
AC00395-2RU	275	CDE	13.7	73	27	0	1.081	0	0	0
AO00057-2	293	BCD	14.7	55	43	2	1.079	0	3	0
AO02060-3	317	BCD	15.8	62	38	0	1.076	3	0	0
AO02183-2	270	CDE	13.5	66	32	1	1.076	0	0	0
AO96305-3	250	DEF	12.5	45	53	3	1.074	0	0	0
CO03187-1RU	282	CD	14.1	64	32	4	1.084	0	0	0
CO03202-1RU	288	BCD	14.4	63	37	0	1.068	0	0	0
CO03276-4RU	428	A	21.4	48	31	2	1.080	0	0	0
CO03276-5RU	348	ABC	17.4	58	9	0	1.076	0	0	0
PA00N14-2	233	DEF	11.7	0	0	0	1.076	0	0	0

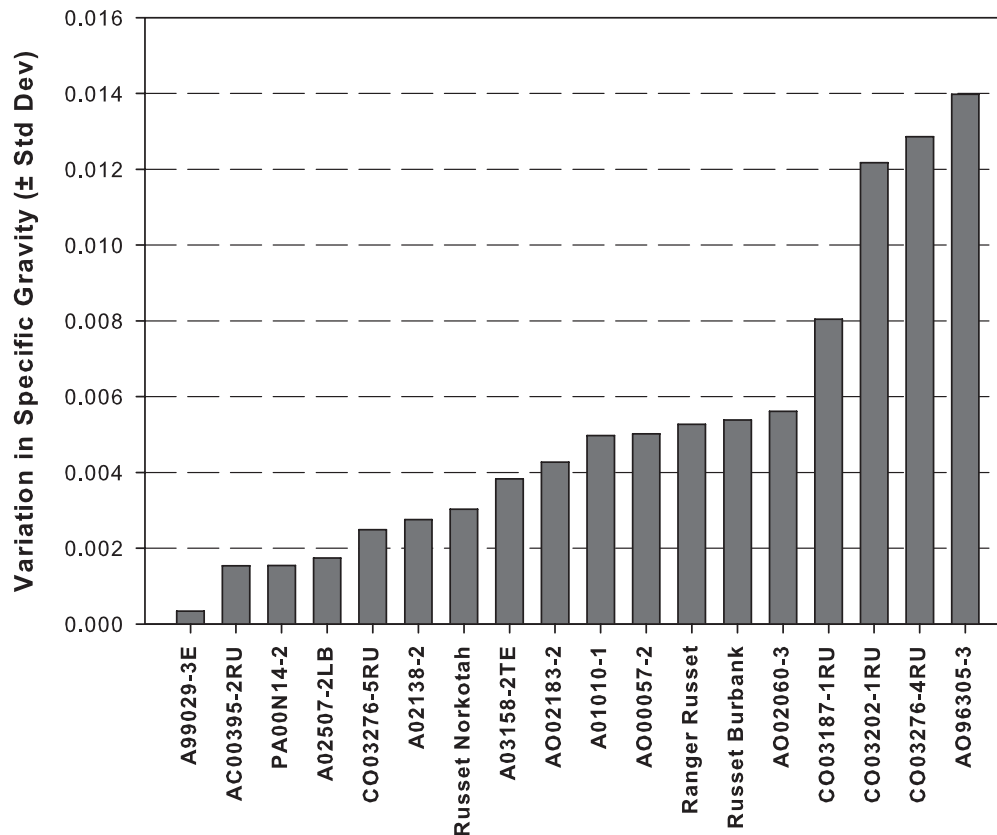
* Percent values may not total 100% due to rounding

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

ENTRY	30 DAY	40 DAY	60 DAY	STEMS PER	AVERAGE TUBER		SKIN	TUBER	BRUISE (%)	
	STAND	STAND	STAND	PLANT	WEIGHT	NUMBER	SET	SHAPE	(8-12 oz tubers)	
	% Emerged	% Emerged	% Emerged	Above Ground	Ounces	Tubers/Plant	1 = Poor 5 = Good	1 = Round 5 = Long	BLACKSPOT	SHATTER
Ranger Russet	0	80	98	2.2	8.7	6.5	3	3	30	20
Russet Burbank	0	71	96	1.9	7.2	7.4	2	3	17	27
Russet Norkotah	0	64	93	2.1	6.9	7.8	4	4	13	10
A99029-3E	0	44	96	1.6	7.4	6.7	2	3	0	13
A01010-1	0	89	96	3.1	6.2	10.9	4	3	0	40
A02138-2	0	93	100	2.5	7.1	9.0	4	2	37	43
A02507-2LB	0	9	96	1.6	5.6	8.2	3	2	4	27
A03158-2TE	0	67	100	1.9	8.2	8.1	3	3	0	10
AC00395-2RU	0	49	96	2.0	6.2	9.6	2	4	3	7
AO00057-2	0	40	98	1.9	6.9	8.2	4	3	7	7
AO02060-3	0	60	100	2.3	6.9	8.2	3	2	20	53
AO02183-2	0	64	100	2.1	6.2	8.8	3	3	17	10
AO96305-3	0	29	100	1.9	8.6	6.0	3	3	7	10
CO03187-1RU	0	91	100	2.1	6.7	8.0	4	4	6	6
CO03202-1RU	0	18	98	1.5	6.6	8.4	3	4	3	17
CO03276-4RU	0	87	98	2.7	7.6	10.0	4	4	13	40
CO03276-5RU	0	71	98	2.4	6.9	9.2	5	4	0	40
PA00N14-2	0	53	100	2.2	5.7	8.6	4	4	5	0

Clone - Dependent Variation in Specific Gravity
 Variability among 9, 10lb samples from each entry (all tuber sizes)

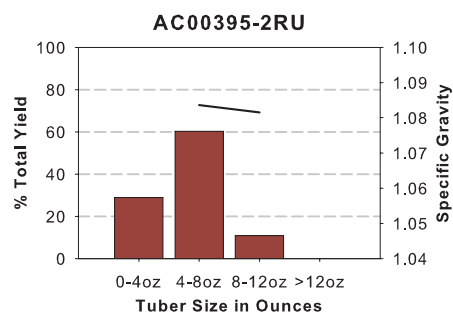
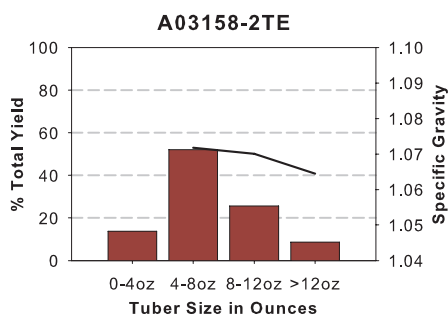
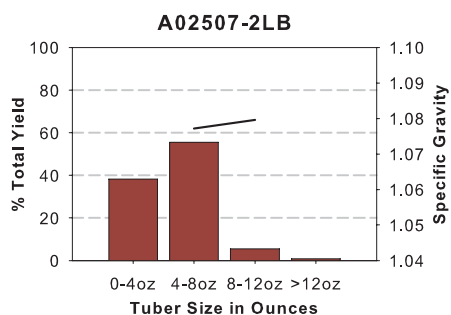
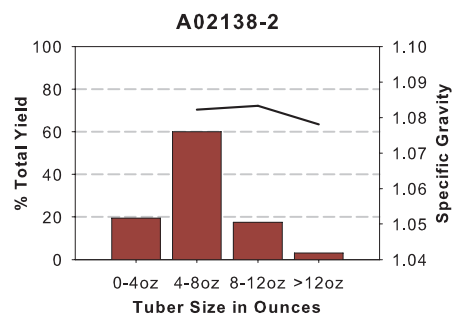
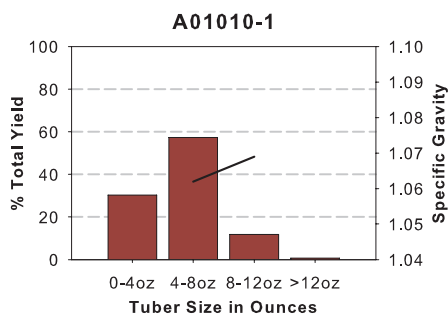
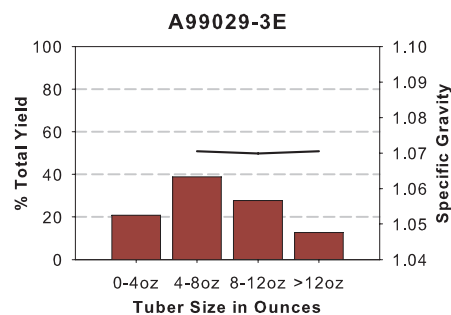
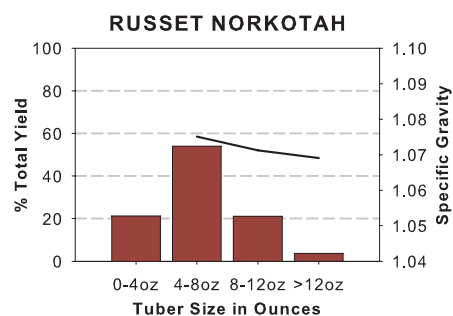
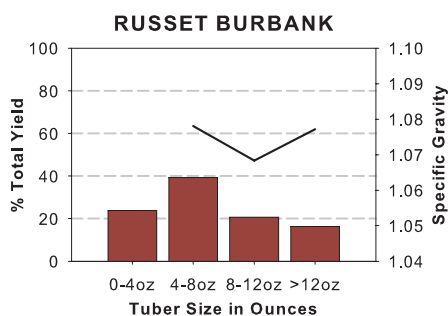
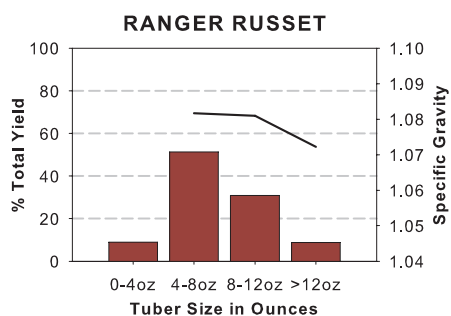
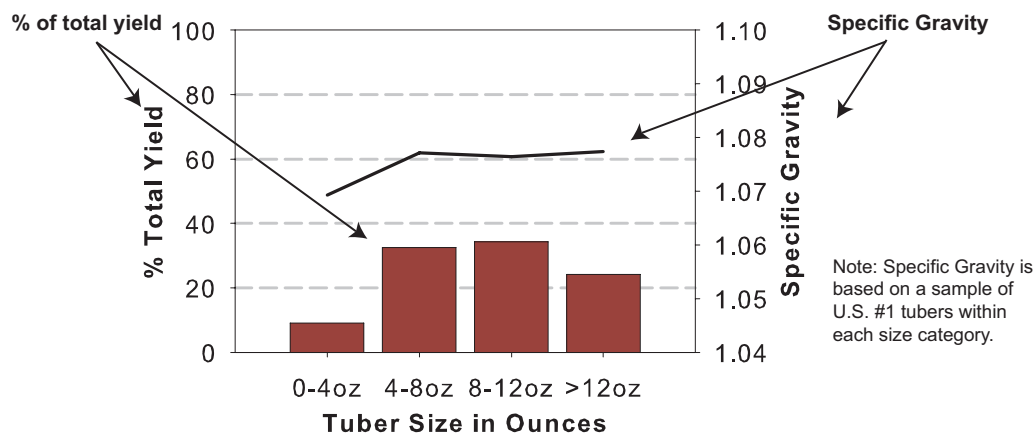
2012 Early-Harvest Regional Trial

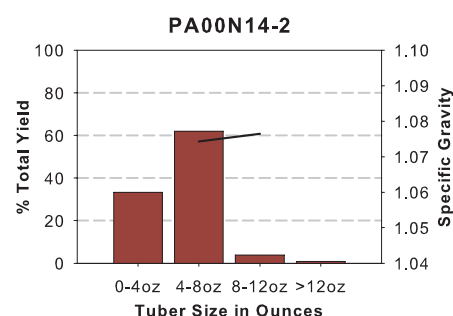
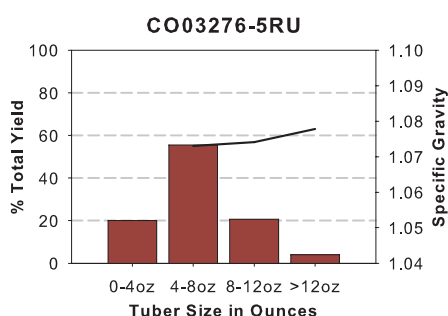
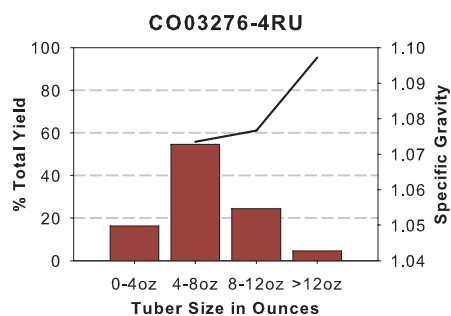
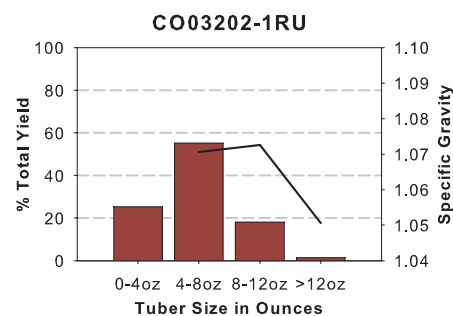
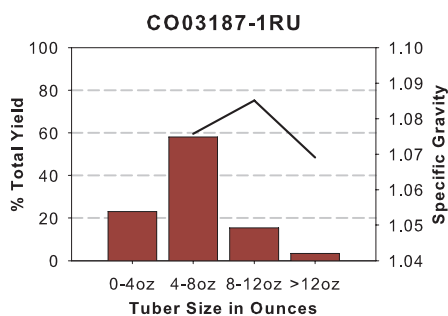
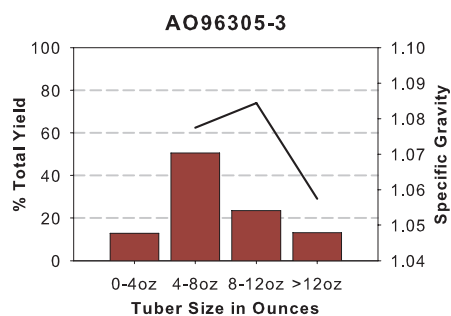
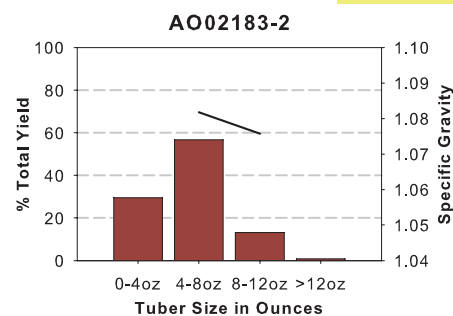
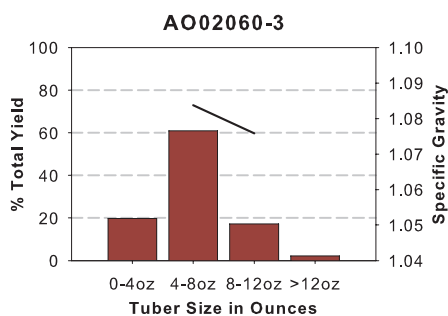
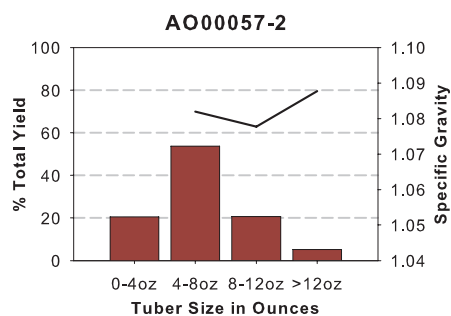


2012 Early Harvest Regional Trial

Tuber Yield and Specific Gravity Distributions

12 inch In-Row Spacing





2012 Early Harvest Regional Trial

Tubers

Ranger Russet



A02138-2



AO02060-3



CO03276-4RU



Russet Burbank



A02507-2LB



AO02183-2



CO03276-5RU



Russet Norkotah



A03158-2TE



AO96305-3



PA00N14-2



A99029-3E



AC00395-2RU



CO03187-1RU



A01010-1



AO00057-2



CO03202-1RU



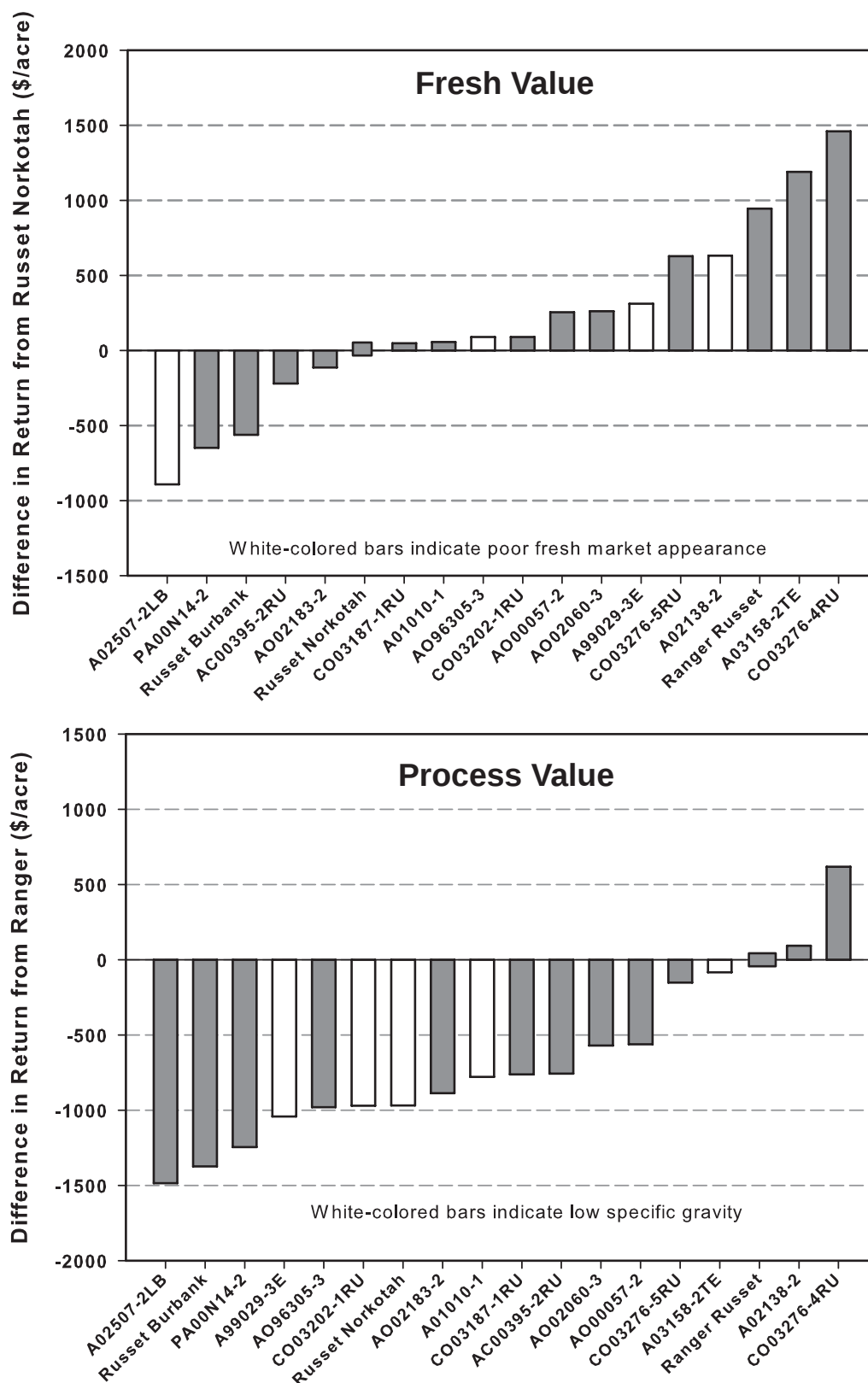


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape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

2012 Late Harvest Regional Trial

Location: WSU Research Center – Othello, WA

Planting Date: April 11

Vine Kill Date: Sept 4

Harvest Date: Sept 12

Days Grown: 146

Fertility: 350-227-450

In-Row Spacing: 10 in.

Regional trials are conducted throughout the western region of the United States, including Washington. Entries in the Regional Trial are chosen by a coordinating committee and are grown for both early (Early Regional) and full (Late Regional) season harvest. This year's trial included three reference varieties and 12 new clones. Overall, this year's growing conditions started out cool and delayed growth, but eventually were able to get some bulk out of most of the varieties. 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): A03158-2TE, AC00395-2RU.

Process Market Standout(s): A02507-2LB, A01010-1, A03158-2TE.

Standcounts

➤ 40 Day

Slow emergence: A02507-2LB (58%), CO03276-4RU (78%).

➤ 60 Day

Full emergence: A02138-2, A03158-2TE, AC00395-2RU, and AO02183-2 were 100% emerged.

Best emergence: All other entries were at least 94% emerged at 60 DAP.

Plant and Tuber Growth & Development

➤ Above Ground Stem Number Per Plant

Most: A01010-1 (3.6), AO02183-2 (3.3).

Least: AO00057-2 (1.8), AC00395-2RU (1.9).

➤ Average Tuber Number Per Plant

Most: A01010-1 (11.7), A02138-2 (11.0)

Least: AO96305-3 (7.3), CO03276-4RU (7.6), Ranger Russet and AO00057-2 (each 7.7).

➤ Average Tuber Size (oz)

Largest: Ranger Russet (9.6), AC00395-2RU (8.8), AO02183-2 (8.6).

Smallest: A02138-2 (5.4), PA00N14-2 (5.5), Russet Norkotah (5.7).

➤ Undersized Tubers (< 4 oz)

Most: A02138-2 and AO02060-3.

Least: Ranger Russet and AC00395-2RU.

Yield and Economic Data

➤ Total and Market Yield

Highest: AC00395-2RU had the highest total yield (965 CWT/A) and market yield (890 CWT/A).

A02507-2LB had the second highest total yield (899 CWT/A) and market yield (796 CWT/A).

Lowest: Russet Norkotah had the lowest total yield (522 CWT/A) and market yield (412 CWT/A).

➤ % Market Yield Greater Than 6 oz.

Highest: Ranger Russet (86%), AC00395-2RU (85%).

Lowest: PA00N14-2 (53%), Russet Norkotah (56%), A02138-2 (58%).

➤ Carton Yield (100 to 50 Count (7 to 18 oz US #1 Tubers)

Highest: AC00395-2RU, A02507-2LB, A03158-2TE, A01010-1 (all at least 500 CWT/A).

Lowest: Russet Norkotah (214 CWT/A), PA00N14-2 (226 CWT/A).

➤ Gross Return (\$/acre)

Fresh Market Highest: AC00395-2RU, A02507-2LB, and A03158-2TE.

Fresh Market Lowest: Russet Norkotah, CO03276-4RU, and PA00N14-2.

Process Market Highest: AC00395-2RU and A02507-2LB.

Process Market Lowest: Russet Norkotah, CO03276-4RU, and AO96305-3.

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

➤ External Defects

Notable Defects: AO96305-3 had some growth cracks, Russet Burbank had many knobs, but overall entries had little to no external defects.

➤ Internal Defects

Notable Defects: Russet Burbank had 10% hollow heart and 17% brown center. A02507-2LB had 5% internal brown spot. All other entries were free of internal defects.

➤ Bruise

Highest Blackspot: Ranger Russet (50%), CO03276-4RU (31%).

Lowest Blackspot: AO02183-2 was free of blackspot. A01010-1, A02507-2LB, and AO00057-2 each had 3% blackspot.

Highest Shatter: A01010-1 (95%), A02507-2LB (90%).

Lowest Shatter: AO02183-2 (29%), CO03276-4RU (49%), Ranger Russet (50%).

2012 Late Harvest Regional Trial

Postharvest Information

The 2012 trial evaluated thirteen numbered clones, along with Ranger Russet and Russet Burbank as check cultivars, from each growing location. When averaged across states, all entries received higher overall postharvest scores than Russet Burbank (RB). An “*” in the summary below indicates similar performance and/or ranking in trials from previous years.

➤ Overall Postharvest Rating

Highest scoring: A02138-2, A02507-2LB, A002183-2*, A002060-3, A096305-3*

Lowest scoring: RB, CO03202-1RU, AC00395-2RU

➤ Low Temperature Sweetening

Most resistant: A02138-2, A02507-2LB, A002183-2*, A096305-3*

Most susceptible: RB*, AC00395-2RU, CO03202-1RU, PA00N14-2*

➤ Taste Panel

Highest rated: A000057-2*, A02507-2LB, A02138-2, A03158-2TE

Lowest rated: CO03202-1RU, RB

➤ Blackspot Bruise Susceptibility

Most resistant: AC00395-2RU, A01010-1*

Most susceptible: RR*, CO03202-1RU, PA00N14-2

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

Lowest L/W: A02138-2*, A02507-2LB*, A000057-2*

Highest L/W: PA00N14-2*, CO03202-1RU, RR*, RB*

Least variable L/W: CO03202-1RU, PA00N14-2, A096305-3*, A02138-2

Most variable L/W: A002183-2, A03158-2TE

Details

- A02138-2, A02507-2LB, A002183-2*, A002060-3, and A096305-3* were the highest rated entries, accumulating an average of 35.3, 35.0, 33.0, 32.4, and 31.0 of 38 possible points, respectively. A02138-2, A02507-2LB, A002183-2*, and A096305-3* were resistant to low temperature sweetening (LTS), producing USDA 1 fries (stem end) when stored for 60 days at 40°F averaged across locations. AC00395-2RU, CO03202-1RU, and PA00N14-2* were susceptible to LTS, producing USDA 3-4 fries after 60 days storage at 40°F.
- While tubers of PA00N14-2 lacked resistance to LTS, they contained 13% and 26% lower concentrations ($P < 0.05$) of asparagine than RB in 2010 and 2011, respectively (WA Regional Trials). A02507-2LB, A02138-2, and A000057-2 ranked 8th, 11th, and 14th out of 88 clones in the 2012 NFPT trial for low acrylamide across 5 trial sites (ME, WI, ND, ID, WA), with 197, 229, and 251 ppb acrylamide, respectively.
- RB*, CO03202-1RU, and AC00395-2RU scored the lowest on overall postharvest performance with 13.5, 18.0, and 18.9 out of 38 possible points, respectively.

- The specific gravities of A03158-2TE, RB, and CO03202-1RU averaged 1.076, 1.077, and 1.079, respectively; marginally low for most processing contracts. In contrast, A01010-1, PA00N14-2, AO02060-3, AO96305-3, A02507-2LB, AO00057-2, and A02138-2 ranged from 1.083-1.089, which is ideal for most contracts.
- AO00057-2*, A02507-2LB, A02138-2, and A03158-2TE were the favorites in the taste panels, averaging 3.8/5 across growing locations (5 is best). CO03202-1RU was the lowest scoring clone (3.0/5). The narrow range of taste panel scores (3.0-4.0) indicates that all clones rated favorably for culinary qualities.
- On average, tubers grown in ID produced the lightest fry colors at harvest. The Regional entries retained 105% (i.e. improved fry color) and 93% 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 nine of thirteen clones grown in OR at harvest and after 60 days storage at 48°F. RR, RB, A01010-1, and PA00N14-2 produced non-uniform fry color when stored at 48°F, regardless of production site. PA00N14-2, A02138-2, and CO03202-1RU varied the most in ability to retain processing quality during storage for 60 days at 44°F across production sites.
- AO00057-2, RR, A01010-1, and AO02060-3 showed the greatest improvement in stem end fry color when reconditioned at 60°F following storage for 60 days at 40°F. Reconditioning A02507-2LB, AC00395-2RU, A03158-2TE, and AO96305-3 had the least effect on change in stem end fry color. AO02060-3, AO02183-2 and A02138-2 showed little ability to recondition stem versus bud ends following storage at 40°F, indicating increased susceptibility to sugar end development relative to the other clones.
- AC00395-2RU and A01010-1* were resistant to blackspot, with only 11 and 24% bruise (stem end), respectively, in the controlled impact study (3-state average). A02507-2LB, AO96305-3, AO02060-3, AO02183-2, and AO00057-2 were moderately resistant with 44 to 54% bruise. RR*, CO03202-1RU, and PA00N14-2 were highly susceptible with 100, 82, and 76% bruise, respectively. Bruise severity was also greatest in RR*, CO03202-1RU, and PA00N14-2 (average 3.8/5) and least in AC00395-2RU, and A01010-1* (average 1.4/5) (1= no bruise; 5= 100% of impact area is dark).
- On average, ID-grown tubers (8-10-oz) had the highest L/W ratios (2.1) compared with those grown in WA (1.7) and OR (1.8). A02138-2*, A02507-2LB*, and AO00057-2* had the lowest L/W ratios (avg. 1.51), indicating round tubers. Low length to width ratio was also an issue with these cultivars in the 2011 trials. PA00N14-2*, CO03202-1RU, RR*, and RB* had the highest L/W ratios (1.9-2.1). AO02183-2 and A03158-2TE had the greatest variation in the L/W ratios of 8- to 10-oz tubers across production sites. In contrast, the L/W ratios of CO03202-1RU, PA00N14-2, AO96305-3*, and A02138-2 were least affected by growing location.
- On average, AO02138-2 produced 1.33-inch sprouts after 60 days storage at 48°F, twice that of RR (0.5 inches), indicating relatively short dormancy. In contrast, CO03202-1RU, AC00395-2RU, and A02507-2LB produced 0.04-in sprouts on average, suggesting dormancy on par with RB (which did not sprout).

- A03158-2TE and A01010-1 produced sprouts averaging 12 inches in length after 7 months of storage, considerably longer (by 6 inches) than RR (6 in) and RB (4 in), indicating relatively short dormancy. In contrast, A02507-2LB, AO02183-2, and PA00N14-2 only produced 2-3-in sprouts after 7 months, suggesting shorter dormancy than RB.
- All entries from WA, ID, and OR fried acceptably light after 7 months of storage (USDA 0-1); however, non-uniform fry color was an issue with five of ten clones grown in OR. The excellent process quality of AO02183-2 from OR (very light and uniform USDA 0 fries) may indicate high tolerance to heat stress. Unfortunately, this clone has unacceptably high concentrations of glycoalkaloids.

Overall Regional Postharvest Merit Scores

Clone	Postharvest Merit Scores			3 state Average
	WA	ID	OR	
4 A02138-2	4.7	4.4	4.8	4.6
5 A02507-2LB	4.7	4.8	4.3	4.6
10 AO02183-2	4.6	4.1	4.3	4.3
9 AO02060-3	3.9	4.7	4.3	4.3
11 AO96305-3	4.3		3.8	4.1
8 AO00057-2	3.9		3.3	3.6
3 A01010-1	3.3	3.9	3.0	3.4
6 A03158-2TE	3.1	3.6	3.4	3.4
1 Ranger Russet	3.1	3.6	2.9	3.2
13 PA00N14-2	3.0	3.5	2.9	3.1
7 AC00395-2RU	2.1	3.0	2.4	2.5
12 CO03202-1RU	2.4	2.6	2.1	2.4
2 Russet Burbank	1.9	1.3	2.1	1.8

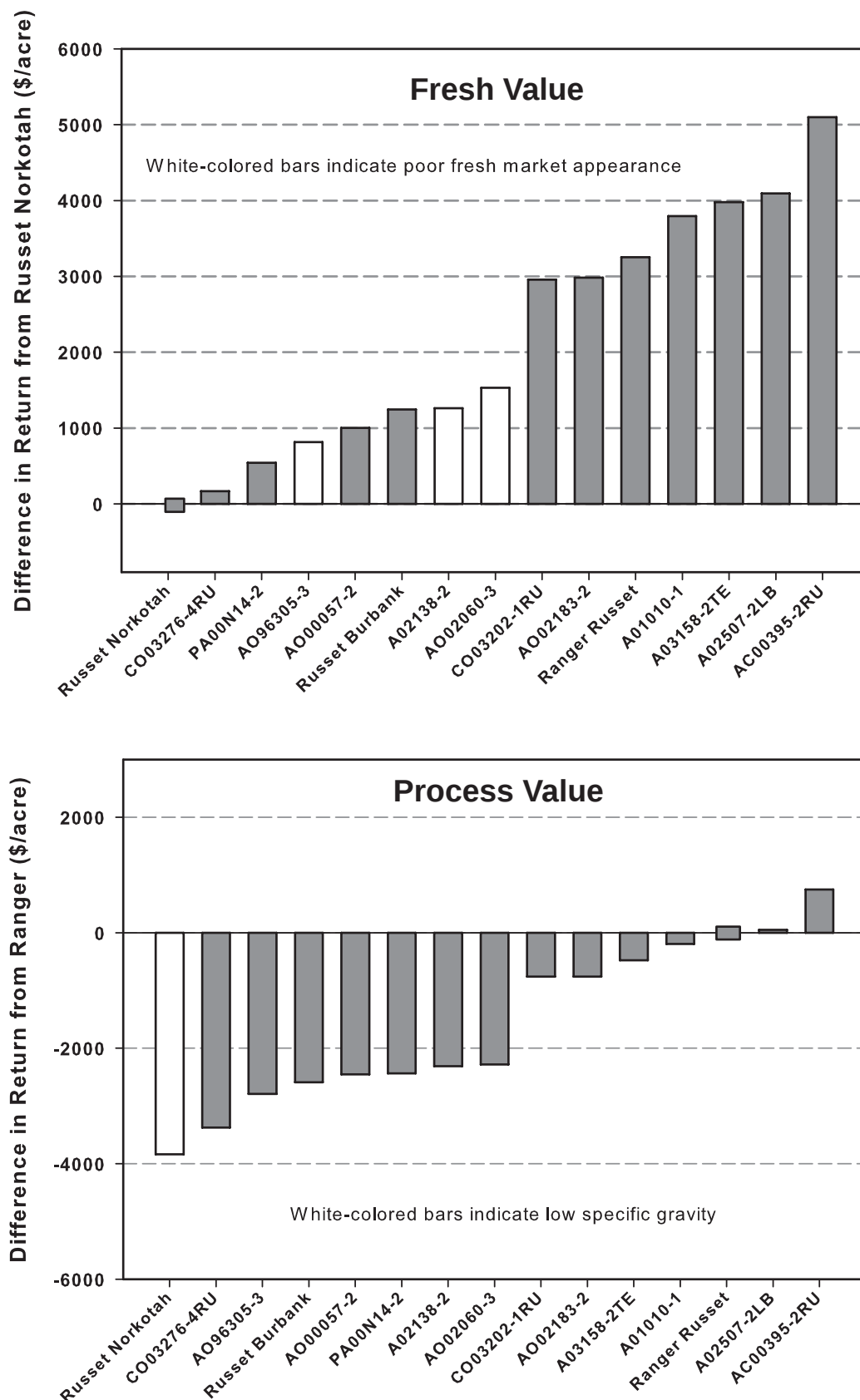


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape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

2012 Late Harvest Regional Trial

Summaries

ENTRY	TOTAL YIELD						CARTON YIELD		PROCESS YIELD	
	CWT/A	STATS**	Tons/A	US # 1's*	US # 2's*	Culls*	100-50 count		US 1's and 2's	
				> 4 oz	> 4 oz	& < 4 oz	(US 1's 7-18 oz)		> 6 oz	
				----- % of Total Yield -----			% of Total Yield	Tons/A	% of Total Yield	Tons/A
Ranger Russet	852	AB	42.6	86	8	6	55	23.6	86	36.6
Russet Burbank	710	CD	35.5	72	6	21	45	15.9	63	22.5
A01010-1	896	AB	44.8	86	3	10	56	25.0	71	32.0
A02138-2	683	CDE	34.1	79	2	19	46	15.6	58	19.8
A02507-2LB	899	AB	44.9	88	3	9	59	26.5	79	35.9
A03158-2TE	872	AB	43.6	87	3	9	60	26.3	78	34.1
AC00395-2RU	965	A	48.3	92	1	7	64	30.7	85	41.0
AO00057-2	598	DEF	29.9	82	2	16	51	15.3	70	20.9
AO02060-3	669	DE	33.4	79	2	19	52	17.5	65	21.7
AO02183-2	787	BC	39.3	87	3	10	60	23.7	80	31.4
AO96305-3	581	EF	29.1	77	4	19	52	15.1	67	19.7
CO03202-1RU	789	BC	39.5	86	2	12	58	23.1	78	30.7
CO03276-4RU	525	F	26.2	81	1	17	46	12.0	60	15.7
PA00N14-2	658	DE	32.9	82	2	16	34	11.3	53	17.5
Russet Norkotah	522	F	26.1	79	3	19	41	10.7	56	14.7

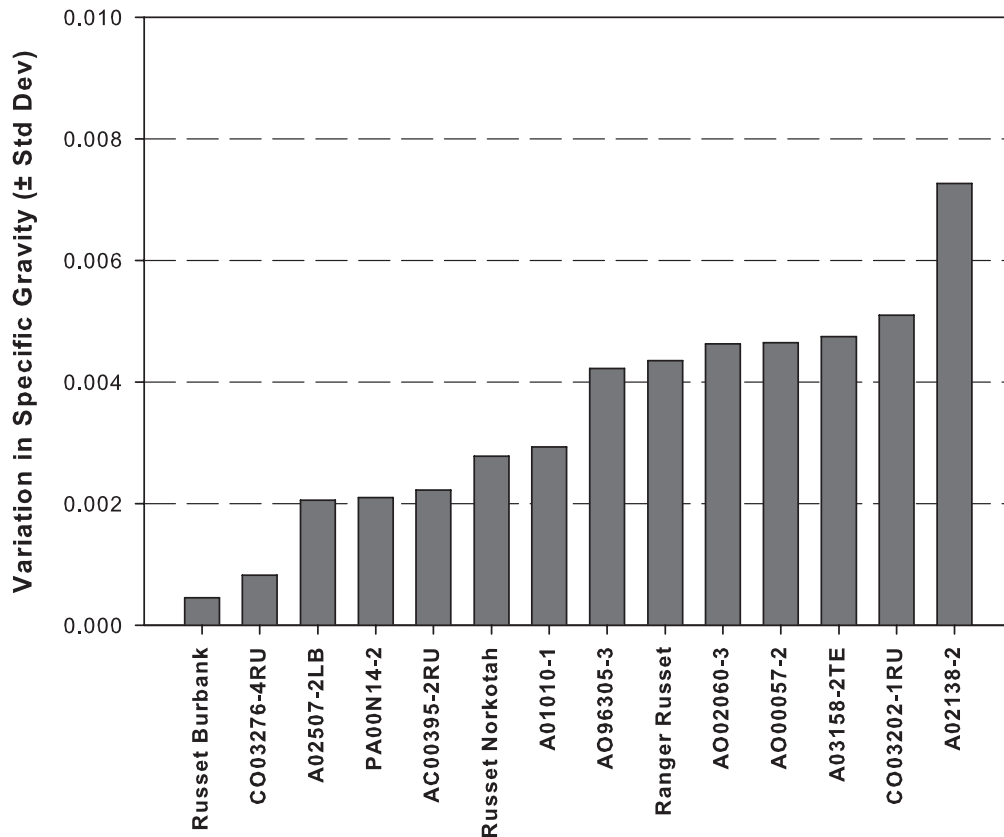
ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%)		
	> 4 oz CWT/A	STATS**	Tons/A	> 4 oz	4-7 oz*	7-14 oz*		(8-12 oz tubers)		
					----- % -----			% HH	% BC	% IBS
Ranger Russet	732	ABC	36.6	17	47	36	1.084	0	0	0
Russet Burbank	515	D	25.7	31	50	19	1.074	10	17	0
A01010-1	773	ABC	38.7	33	58	9	1.081	0	0	0
A02138-2	542	DE	27.1	41	53	6	1.084	0	0	0
A02507-2LB	796	AB	39.8	24	58	18	1.087	0	0	5
A03158-2TE	761	ABC	38.1	23	56	20	1.077	0	0	0
AC00395-2RU	890	A	44.5	17	48	36	1.092	0	0	0
AO00057-2	492	DEF	24.6	27	49	24	1.083	0	0	0
AO02060-3	527	DEF	26.4	30	56	14	1.081	0	0	0
AO02183-2	687	BC	34.3	19	52	29	1.091	0	0	0
AO96305-3	448	DEF	22.4	28	56	16	1.083	0	0	0
CO03202-1RU	680	C	34.0	18	54	28	1.083	0	0	0
CO03276-4RU	429	EF	21.4	40	51	9	1.078	0	0	0
PA00N14-2	541	DE	27.0	58	42	0	1.083	0	0	0
Russet Norkotah	412	F	20.6	48	47	5	1.072	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	40 DAY	60 DAY	STEMS PER PLANT	AVERAGE TUBER		SKIN	TUBER	BRUISE (%)	
	STAND	STAND	STAND		WEIGHT	NUMBER	SET	SHAPE	(8-12 oz tubers)	
	% Emerged	% Emerged	% Emerged	Above Ground	Ounces	Tubers/Plant	1 = Poor 5 = Good	1 = Round 5 = Long	BLACKSPOT	SHATTER
Ranger Russet	30	93	98	2.4	9.6	7.7	3	4	50	50
Russet Burbank	20	81	94	2.3	7.0	8.8	3	3	27	57
A01010-1	44	94	95	3.6	6.7	11.7	3	3	3	95
A02138-2	10	93	100	3.1	5.4	11.0	3	2	21	73
A02507-2LB	0	58	99	2.1	7.7	10.2	3	3	3	90
A03158-2TE	13	96	100	2.5	7.6	9.9	3	3	18	71
AC00395-2RU	3	93	100	1.9	8.8	9.5	3	3	10	62
AO00057-2	0	85	95	1.8	6.7	7.7	4	3	3	61
AO02060-3	1	89	99	2.9	6.2	9.4	4	3	10	73
AO02183-2	6	95	100	3.3	8.6	8.0	3	4	0	29
AO96305-3	0	80	98	2.0	6.9	7.3	3	4	9	69
CO03202-1RU	0	81	95	2.1	7.9	8.7	4	4	23	74
CO03276-4RU	14	78	95	2.6	6.0	7.6	4	4	31	49
PA00N14-2	0	93	96	2.6	5.5	10.5	4	4	9	57
Russet Norkotah	15	93	96	3.0	5.7	8.0	4	4	14	59

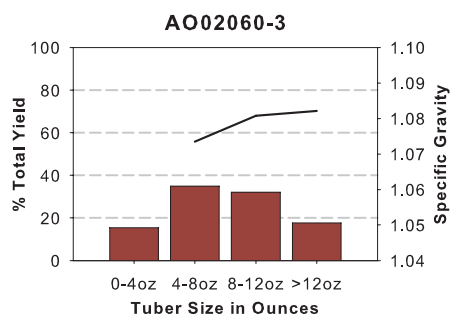
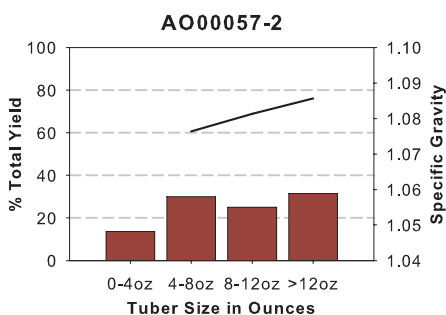
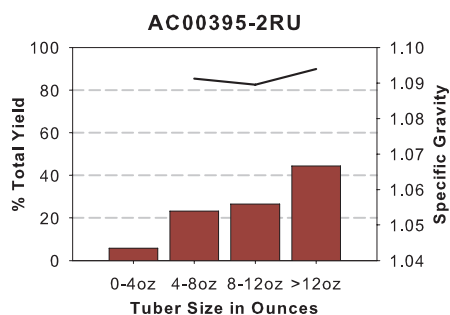
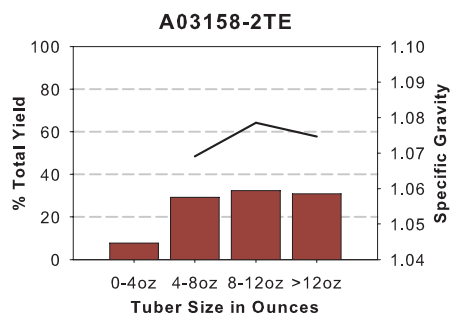
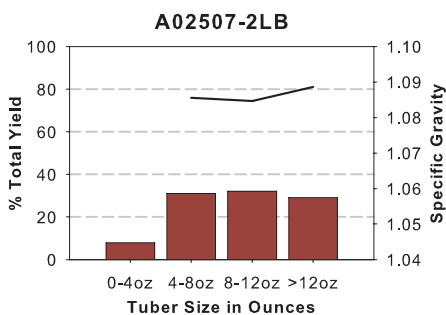
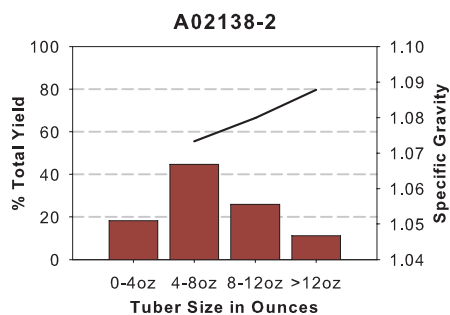
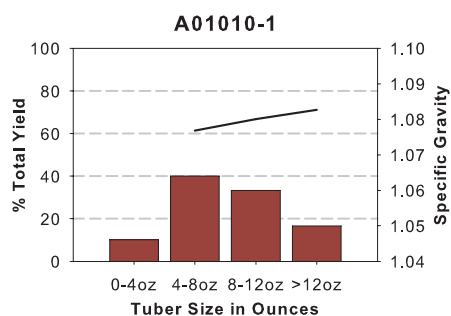
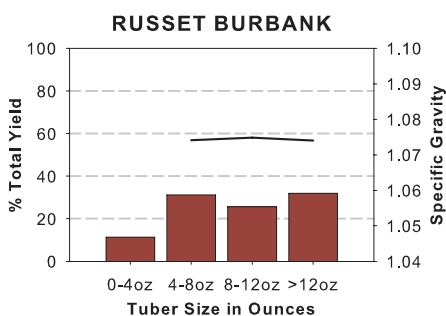
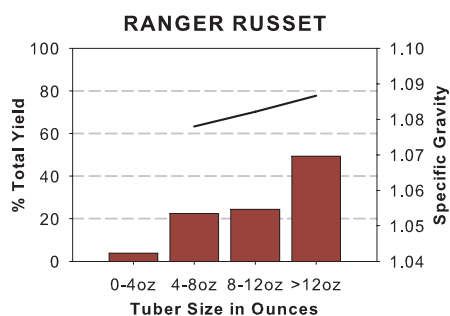
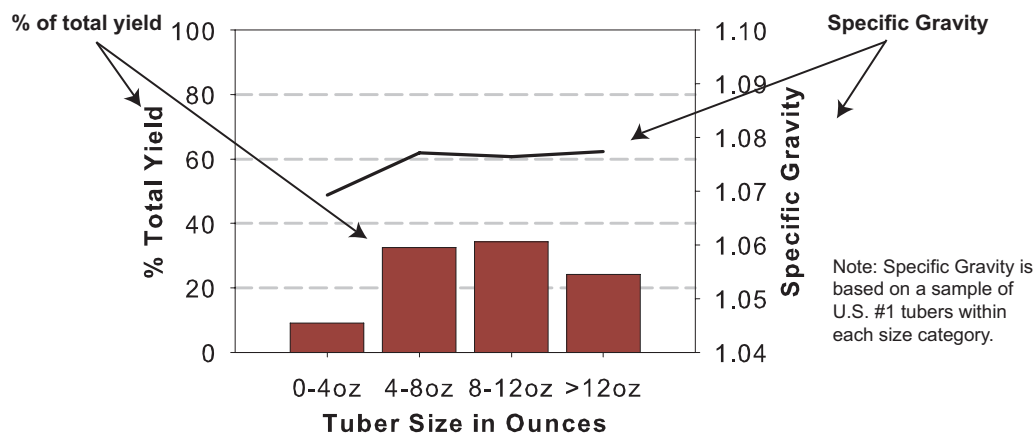
Clone - Dependent Variation in Specific Gravity
 Variability among 12, 10lb samples from each entry (all tuber sizes)
 2012 Late-Harvest Regional Trial

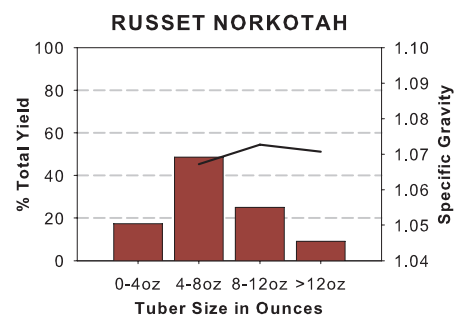
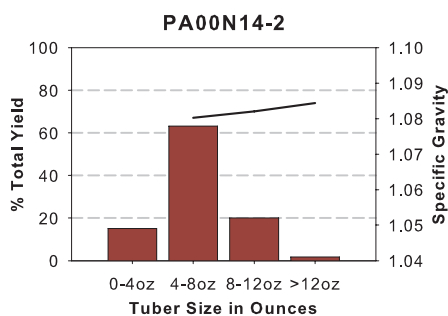
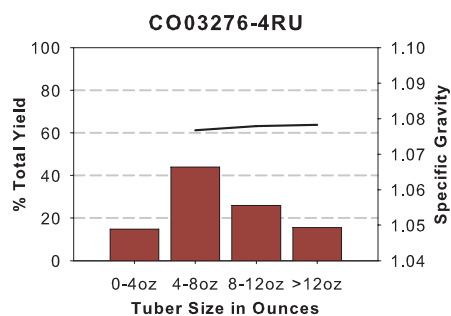
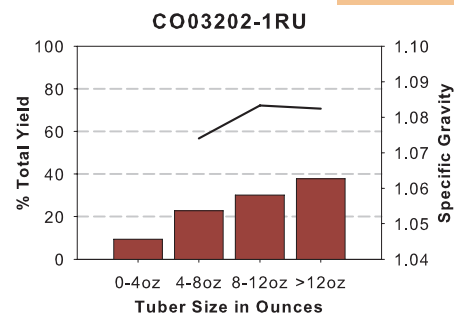
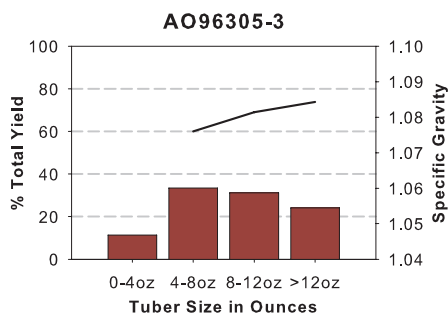
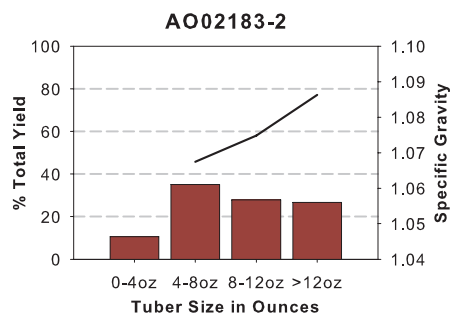


2012 Late Harvest Regional Trial

Tuber Yield and Specific Gravity Distributions

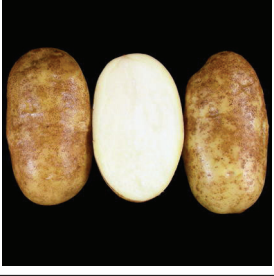
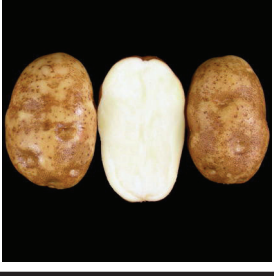
10 inch In-Row Spacing





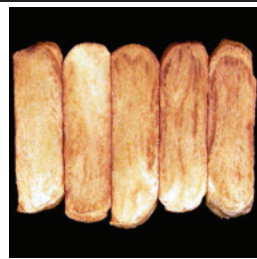
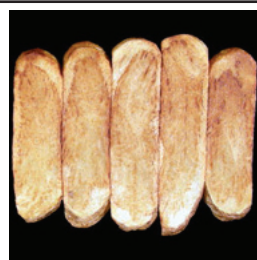
Tubers	WA Late Harvest Regional Trial Comments
Ranger Russet	
	Tubers: Oblong to long tubers. Fair skin set; moderate eye depth. Fry color: At harvest= light, non-uniform; after approximately two months of storage at 48°F= light, non-uniform; 44°F= light, non-uniform; 40°F= relatively dark, non-uniform; reconditioned= light, non-uniform.
Russet Burbank	
	Tubers: Oblong tubers. 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= relatively dark, non-uniform; 40°F= relatively dark, uniform; reconditioned= relatively dark, non-uniform.
A01010-1	
	Tubers: Oblong tubers. 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= light, non-uniform.
A02138-2	
	Tubers: Round to oblong tubers. Fair skin set; shallow eyes. Fry color: At harvest= light, uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= light, uniform; 40°F= relatively dark, uniform; reconditioned= light, non-uniform.
A02507-2LB	
	Tubers: Oblong tubers. 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, non-uniform; reconditioned= light, non-uniform.

Initial Fries	48° F Storage	44° F Storage	40° F Storage	40° F Recon.
Ranger Russet				
				
Russet Burbank				
				
A01010-1				
				
A02138-2				
				
A02507-2LB				
				

Tubers	WA Late Harvest Regional Trial Comments
A03158-2TE	
	Tubers: Oblong tubers. Fair skin set; moderate eye depth. Fry color: At harvest= light, non-uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= relatively dark, uniform; 40°F= dark, uniform; reconditioned= relatively dark, uniform.
AC00395-2RU	
	Tubers: Oblong tubers. Fair skin set; shallow eyes. Fry color: At harvest= light, non-uniform; after approximately two months of storage at 48°F= relatively dark, uniform; 44°F= relatively dark, non-uniform; 40°F= dark, uniform; reconditioned= dark, uniform.
AO00057-2	
	Tubers: Oblong tubers. 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.
AO02060-3	
	Tubers: Oblong tubers. Good skin set; moderate eye depth. Fry color: At harvest= light, non-uniform; after approximately two months of storage at 48°F= light, uniform; 44°F= light, non-uniform; 40°F= dark, uniform; reconditioned= relatively dark, uniform.
AO02183-2	
	Tubers: Oblong to long tubers. 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= light, non-uniform.

Initial Fries	48° F Storage	44° F Storage	40° F Storage	40° F Recon.
A03158-2TE				
				
AC00395-2RU				
				
AO00057-2				
				
AO02060-3				
				
AO02183-2				
				

Tubers	WA Late Harvest Regional Trial Comments
AO96305-3	
	Tubers: Oblong to long tubers. Fair 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, uniform; 40°F= light, non-uniform; reconditioned= light, non-uniform.
CO03202-1RU	
	Tubers: Oblong to long tubers. Good skin set; shallow eyes. Fry color: At harvest= relatively dark, non-uniform; after approximately two months of storage at 48°F= light, non-uniform; 44°F= relatively dark, non-uniform; 40°F= dark, non-uniform; reconditioned= relatively dark, non-uniform.
PA00N14-2	
	Tubers: Oblong to long tubers. Good skin set; shallow eyes. Fry color: At harvest= light, non-uniform; after approximately two months of storage at 48°F= light, non-uniform; 44°F= relatively dark, uniform; 40°F= dark, uniform; reconditioned= relatively dark, non-uniform.

Initial Fries	48° F Storage	44° F Storage	40° F Storage	40° F Recon.
AO96305-3				
				
CO03202-1RU				
				
PA00N14-2				
				

2012 Late Harvest Regional Trial

Accumulated Total Postharvest Ratings of Clones

Clone	WA		ID		OR		3 State av. Rating Total
	Rating Total §	Discard §§	Rating Total §	Discard §§	Rating Total §	Discard §§	
4 A02138-2	35.6		33.6		36.8		35.3
5 A02507-2LB	35.9		36.5		32.6		35.0
10 AO02183-2	35.3		31.2	Sp. Gr.	32.5		33.0
9 AO02060-3	29.4		35.4		32.4		32.4
11 AO96305-3	32.8		No Sample		29.2		31.0
8 AO00057-2	29.8		No Sample		25.3		27.6
3 A01010-1	25.2		29.6		22.5		25.8
6 A03158-2TE	23.4		27.4	Sp. Gr.	25.9		25.6
1 Ranger Russet	23.6		27.5		22.2		24.4
13 PA00N14-2	22.5		26.4		22.1		23.7
7 AC00395-2RU	16.2		22.5		18.0		18.9
12 CO03202-1RU	18.2		19.8	Sp. Gr.	16.1		18.0
2 Russet Burbank	14.5	Sp. Gr.	9.8	Sp. Gr.	16.1		13.5
Average	26.3		23.1		25.5		26.5

§ 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 A01010-1	H	H	H	H
4 A02138-2	H	H	H	H
5 A02507-2LB	H	H	H	H
6 A03158-2TE	H	H	H	H
7 AC00395-2RU	H	H	H	H
8 AO00057-2	H	No Sample	H	H
9 AO02060-3	H	H	H	H
10 AO02183-2	H	H	H	H
11 AO96305-3	H	No Sample	S	H
12 CO03202-1RU	H	H	H	H
13 PA00N14-2	H	H	H	H

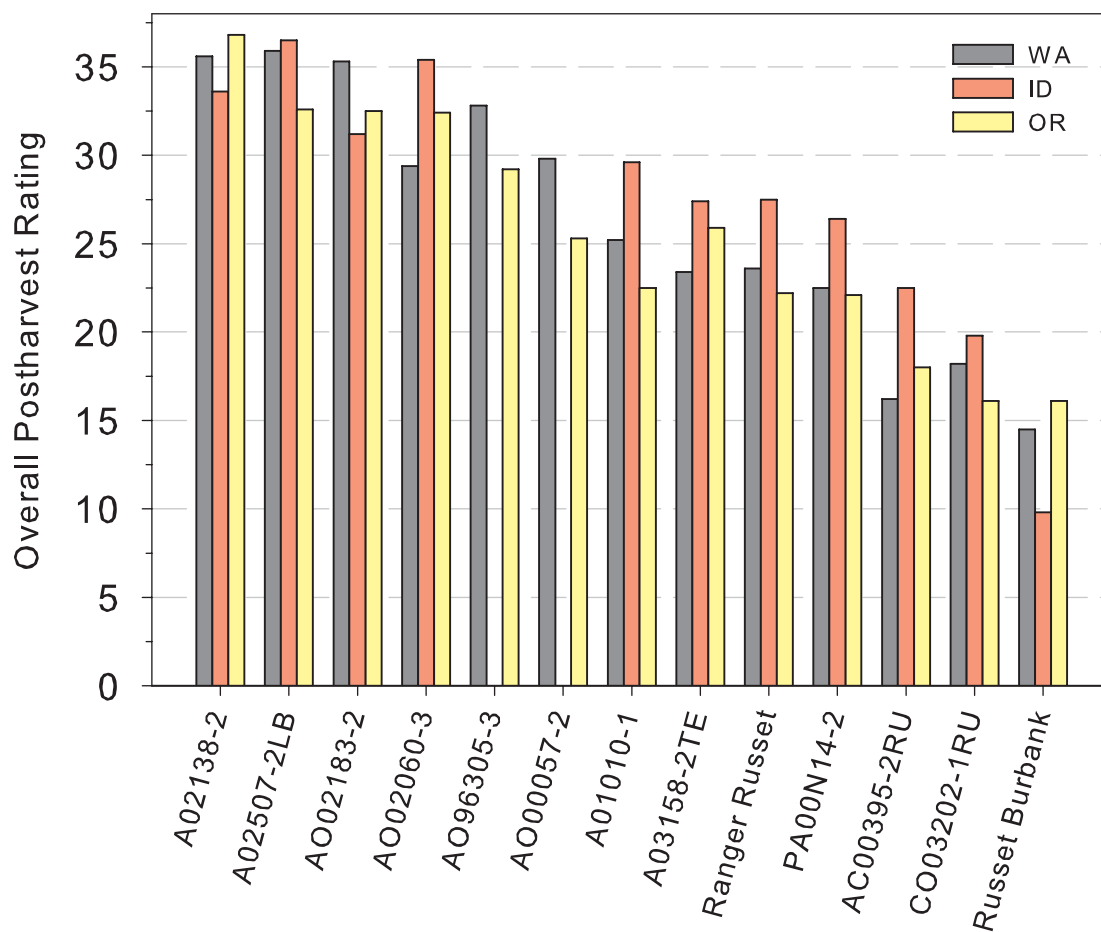
H= Higher than Russet Burbank

S= Same as Russet Burbank

L= Lower than Russet Burbank

2012 Late Harvest Regional Trial

Late Harvest Regional Postharvest Ratings



2012 Late Harvest Regional Trial

Prior to Storage

Clone	PHOTOVOLT READING				DIFF	USDA COLOR	SPECIFIC GRAVITY	
	stem	bud	av	rtg §			GRAVITY	rtg
Washington								
1 Ranger Russet	31.8	41.9	36.8	4-	10.1	0	1.082	4
2 Russet Burbank	22.1	39.4	30.8	3-	17.3	2	1.074	0
3 A01010-1	29.6	50.9	40.2	4-	21.4	1	1.082	4
4 A02138-2	36.4	43.0	39.7	4+	6.7	0	1.085	5
5 A02507-2LB	47.0	47.2	47.1	5+	4.3	0	1.089	4
6 A03158-2TE	27.9	39.9	33.9	3-	12.0	1	1.078	2
7 AC00395-2RU	24.2	38.3	31.2	3-	14.1	2	1.098	1
8 AO00057-2	40.8	46.0	43.4	5+	6.6	0	1.087	5
9 AO02060-3	36.7	48.9	42.8	5-	12.2	0	1.083	5
10 AO02183-2	37.6	43.8	40.7	5+	7.2	0	1.081	4
11 AO96305-3	37.8	50.0	43.9	5-	12.1	0	1.083	5
12 CO03202-1RU	23.5	34.3	28.9	2-	10.8	2	1.082	4
13 PA00N14-2	31.9	41.0	36.4	4-	9.1	0	1.080	3
Average	32.9	LSD 0.05 43.4	3.1 38.1		3.8 11.1	1	0.006 1.083	
Idaho								
1 Ranger Russet	29.4	38.0	33.7	3+	8.6	1	1.083	5
2 Russet Burbank	20.5	35.6	28.1	2-	15.9	2	1.074	0
3 A01010-1	38.2	49.6	43.9	5-	11.5	0	1.085	5
4 A02138-2	45.9	45.8	45.9	5+	3.1	0	1.094	2
5 A02507-2LB	42.9	46.6	44.7	5+	4.3	0	1.083	5
6 A03158-2TE	37.1	43.9	40.5	5+	6.8	0	1.074	0
7 AC00395-2RU	32.1	41.6	36.9	4-	10.6	0	1.095	2
8 AO00057-2	No Sample						No Sample	
9 AO02060-3	45.6	51.2	48.4	5+	6.2	0	1.083	5
10 AO02183-2	41.4	45.2	43.3	5+	6.0	0	1.074	0
11 AO96305-3	No Sample						No Sample	
12 CO03202-1RU	28.5	31.4	29.9	2+	7.0	1	1.074	0
13 PA00N14-2	32.6	44.9	38.7	4-	12.4	0	1.090	4
Average	35.8	LSD 0.05 43.1	3.4 39.5		4.4 8.4	0	0.005 1.083	
Oregon								
1 Ranger Russet	30.0	42.9	36.5	4-	12.9	1	1.078	2
2 Russet Burbank	19.2	38.2	28.7	2-	19.0	3	1.083	5
3 A01010-1	26.1	45.5	35.8	4-	21.3	1	1.080	3
4 A02138-2	48.6	51.1	49.8	5+	4.1	0	1.088	5
5 A02507-2LB	43.7	47.7	45.7	5+	5.9	0	1.088	5
6 A03158-2TE	34.6	43.1	38.8	4+	8.5	0	1.077	1
7 AC00395-2RU	24.8	41.1	32.9	3-	16.3	1	1.100	1
8 AO00057-2	31.3	50.3	40.8	5-	19.0	0	1.087	2
9 AO02060-3	40.5	48.8	44.6	5+	8.2	0	1.087	2
10 AO02183-2	40.6	49.1	44.9	5-	9.7	0	1.086	5
11 AO96305-3	27.0	48.4	37.7	4-	21.5	1	1.088	5
12 CO03202-1RU	18.9	31.8	25.3	2-	14.4	3	1.081	4
13 PA00N14-2	26.7	43.1	34.9	3-	16.4	1	1.078	2
Average	31.7	LSD 0.05 44.7	3.5 38.2		5.2 13.6	1	0.005 1.085	

Date test performed:

Washington

Oct. 1

Sept. 26

Idaho

Oct. 3

Sept. 27

Oregon

Oct. 5

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.

2012 Late Harvest Regional Trial

Stored at 48°F after Arrival

FRENCH FRY			BRUISE POTENTIAL				SOFT ROT INDEX	
TASTE PANEL			(percent)		[color 5=darkest]		(percent)	
Clone	rating		stem	bud	stem	bud	stem	bud
Washington								
1 Ranger Russet	3.6		100	38	4.6	1.8	11	16
2 Russet Burbank	3.5		67	29	2.8	1.6	12	16
3 A01010-1	3.2		0	0	1.0	1.0	9	8
4 A02138-2	3.6		54	33	2.2	1.8	14	20
5 A02507-2LB	3.9		8	13	1.8	1.8	14	15
6 A03158-2TE	3.4		54	0	2.3	1.0	11	15
7 AC00395-2RU	3.2		0	0	1.1	1.0	12	12
8 AO00057-2	3.8		55	9	2.1	1.2	14	10
9 AO02060-3	3.4		42	0	2.6	1.0	20	15
10 AO02183-2	3.3		58	8	2.5	1.2	6	5
11 AO96305-3	3.8		29	8	1.7	1.5	16	19
12 CO03202-1RU	3.2		96	46	3.9	2.1	14	18
13 PA00N14-2	3.5		58	0	2.7	1.0	13	12
LSD 0.05	0.3		27	20			4	5
Average	3.5		47.8	14.2	2.4	1.4	12.8	13.9
Idaho								
1 Ranger Russet	3.5		100	25	4.3	1.6	14	12
2 Russet Burbank	2.8		42	0	1.8	1.0	11	12
3 A01010-1	3.6		21	0	1.5	1.0	7	7
4 A02138-2	3.6		79	33	3.3	1.8	11	9
5 A02507-2LB	3.5		50	33	2.4	2.0	13	14
6 A03158-2TE	3.4		46	0	2.0	1.0	13	9
7 AC00395-2RU	3.5		0	0	1.0	1.0	8	10
8 AO00057-2	No Sample		No Sample				No Sample	
9 AO02060-3	3.4		38	13	2.0	1.3	10	8
10 AO02183-2	3.2		21	4	1.4	1.1	7	6
11 AO96305-3	No Sample		No Sample				No Sample	
12 CO03202-1RU	2.8		67	0	3.0	1.0	10	8
13 PA00N14-2	3.4		96	0	4.4	1.0	9	8
LSD 0.05	0.4		28	18			4	3
Average	3.3		50.8	9.8	2.5	1.2	10.3	9.4
Oregon								
1 Ranger Russet	3.2		100	21	4.7	1.7	11	11
2 Russet Burbank	3.1		96	63	4.5	2.8	11	15
3 A01010-1	3.5		50	8	2.2	1.3	4	8
4 A02138-2	3.8		67	42	3.0	2.2	9	7
5 A02507-2LB	3.6		75	100	3.2	3.8	11	9
6 A03158-2TE	3.9		75	17	3.1	1.3	10	9
7 AC00395-2RU	3.0		33	8	1.7	1.2	10	9
8 AO00057-2	4.3		54	17	2.4	1.4	8	9
9 AO02060-3	3.4		83	8	3.1	1.2	7	9
10 AO02183-2	3.5		83	46	3.2	2.0	5	7
11 AO96305-3	3.2		79	8	2.8	1.3	8	11
12 CO03202-1RU	3.1		83	54	3.8	2.6	9	12
13 PA00N14-2	3.1		75	29	3.0	1.7	7	8
LSD 0.05	0.6		28	25			3	3
Average	3.4		73.4	1.9	3.1	1.9	8.4	9.6

Date test performed:

Washington

Oct. 25

Oct. 27

Nov. 6

Idaho

Oct. 17

Oct. 28

Nov. 7

Oregon

Oct. 24

Oct. 29

Nov. 14

2012 Late Harvest Regional Trial

Stored at 48°F for 60 Days

PHOTOVOLT READING						USDA COLOR	% REDUCING SUGAR			SPROUTING	
Clone	stem	bud	average	rtg §	DIFF		stem	bud	rtg	(%)	length (in)
Washington											
1 Ranger Russet	29.5	41.8	35.7	4-	12.2	1	1.4	0.7	4	100	0.50
2 Russet Burbank	23.2	40.7	31.9	3-	17.5	2	2.2	0.7	3	0	
3 A01010-1	31.4	50.7	41.0	5-	19.3	0	1.3	0.5	5	100	1.50
4 A02138-2	41.7	48.4	45.1	5+	6.9	0	0.7	0.5	5	100	1.25
5 A02507-2LB	46.9	48.4	47.7	5+	2.6	0	0.5	0.5	5	13	0.13
6 A03158-2TE	35.2	36.4	35.8	4+	7.2	0	1.0	0.9	5	100	1.00
7 AC00395-2RU	27.4	32.6	30.0	2+	8.2	1	1.7	1.2	4	0	
8 AO00057-2	37.9	48.8	43.3	5-	10.9	0	0.8	0.5	5	20	0.13
9 AO02060-3	38.9	46.9	42.9	5+	8.3	0	0.8	0.5	5	100	0.50
10 AO02183-2	42.7	45.9	44.3	5+	4.1	0	0.6	0.5	5	87	0.25
11 AO96305-3	38.4	49.3	43.9	5-	10.9	0	0.8	0.5	5	73	0.25
12 CO03202-1RU	24.6	36.9	30.7	3-	12.3	1	2.0	0.9	4	0	
13 PA00N14-2	29.4	43.1	36.2	4-	13.7	1	1.4	0.6	4	67	0.50
Average	34.4	LSD 0.05	3.1		4.2					17	
		43.8	39.1		10.3	0	1.2	0.7		58	
Idaho											
1 Ranger Russet	31.2	40.2	35.7	4-	9.0	0	1.3	0.7	4	67	0.25
2 Russet Burbank	19.4	31.3	25.4	2-	12.9	3	2.8	1.3	2	0	
3 A01010-1	38.8	51.3	45.0	5-	12.6	0	0.8	0.5	5	80	0.25
4 A02138-2	48.7	48.4	48.5	5+	2.6	0	0.5	0.5	5	100	0.75
5 A02507-2LB	47.2	50.4	48.8	5+	3.7	0	0.5	0.5	5	0	
6 A03158-2TE	38.8	40.4	39.6	4+	4.3	0	0.8	0.7	5	33	0.25
7 AC00395-2RU	32.1	37.9	35.0	3+	6.9	0	1.2	0.8	4	0	
8 AO00057-2			No Sample				No Sample			No Sample	
9 AO02060-3	44.8	48.1	46.4	5+	3.4	0	0.6	0.5	5	80	0.13
10 AO02183-2	45.8	45.5	45.6	5+	4.7	0	0.6	0.6	5	80	0.25
11 AO96305-3			No Sample				No Sample			No Sample	
12 CO03202-1RU	33.3	34.7	34.0	3+	6.3	0	1.1	1.0	4	0	
13 PA00N14-2	33.4	40.7	37.0	4+	8.9	0	1.1	0.7	5	0	
Average	37.6	LSD 0.05	4.2		3.7					19	
		42.6	40.1		6.8	0	1.0	0.7		44	
Oregon											
1 Ranger Russet	33.0	44.0	38.5	4-	11.0	0	1.1	0.6	5	87	0.75
2 Russet Burbank	20.1	40.2	30.1	2-	20.2	2	2.7	0.7	3	0	
3 A01010-1	24.7	50.0	37.3	4-	25.3	1	2.0	0.5	4	100	1.00
4 A02138-2	45.6	48.0	46.8	5+	3.8	0	0.6	0.5	5	100	2.00
5 A02507-2LB	40.3	50.7	45.5	5-	10.4	0	0.7	0.5	5	40	0.13
6 A03158-2TE	32.1	41.0	36.6	4+	8.9	0	1.2	0.7	5	100	2.00
7 AC00395-2RU	26.1	39.4	32.8	3-	13.3	1	1.8	0.8	4	67	0.13
8 AO00057-2	33.2	51.4	42.3	5-	18.3	0	1.1	0.5	5	53	0.50
9 AO02060-3	41.8	48.2	45.0	5+	6.7	0	0.7	0.5	5	100	2.00
10 AO02183-2	40.4	49.1	44.7	5+	8.8	0	0.7	0.5	5	93	1.00
11 AO96305-3	35.8	49.3	42.5	5-	13.5	0	0.9	0.5	5	100	0.50
12 CO03202-1RU	20.8	36.7	28.7	2-	15.9	2	2.5	0.9	3	0	
13 PA00N14-2	36.1	47.9	42.0	5-	12.1	0	0.9	0.5	5	20	0.25
Average	33.1	LSD 0.05	2.9		4.6					19	
		45.8	39.4		12.9	0	1.3	0.6		66	

Date test performed:

Washington

Nov. 26

Nov. 26

Dec. 18

Idaho

Dec. 2

Dec. 2

Dec. 18

Oregon

Dec. 8

Dec. 8

Dec. 18

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

2012 Late Harvest Regional Trial

Stored at 44°F for 60 Days

		PHOTOVOLT READING				USDA	% REDUCING SUGAR		
Clone	stem	bud	average	rtg §	DIFF	COLOR	stem	bud	rtg
Washington									
1 Ranger Russet	29.6	39.6	34.6	3-	10.3	1	1.4	0.7	4
2 Russet Burbank	20.1	35.1	27.6	2-	15.1	2	2.7	1.0	2
3 A01010-1	25.4	43.2	34.3	3-	17.8	1	1.9	0.6	4
4 A02138-2	41.2	44.0	42.6	5+	4.8	0	0.7	0.6	5
5 A02507-2LB	43.1	51.6	47.4	5+	8.5	0	0.6	0.5	5
6 A03158-2TE	24.7	27.3	26.0	2+	3.8	1	2.0	1.7	3
7 AC00395-2RU	21.2	29.2	25.2	2-	10.4	2	2.5	1.5	2
8 AO00057-2	29.2	40.7	35.0	3-	11.8	1	1.5	0.7	4
9 AO02060-3	27.1	36.6	31.8	3-	9.5	1	1.7	0.9	4
10 AO02183-2	40.0	43.4	41.7	5+	5.0	0	0.7	0.6	5
11 AO96305-3	42.6	50.0	46.3	5+	7.9	0	0.6	0.5	5
12 CO03202-1RU	23.0	33.2	28.1	2-	11.4	2	2.2	1.1	3
13 PA00N14-2	23.1	31.8	27.5	2+	8.7	2	2.2	1.2	3
Average	30.0	LSD 0.05 38.9	3.4 34.5		4.6 9.6	1	1.6	0.9	
Idaho									
1 Ranger Russet	30.4	37.6	34.0	3+	8.3	1	1.4	0.8	4
2 Russet Burbank	21.0	30.3	25.6	2-	11.5	2	2.5	1.4	3
3 A01010-1	32.9	43.7	38.3	4-	10.7	0	1.1	0.6	5
4 A02138-2	45.4	45.6	45.5	5+	3.0	0	0.6	0.6	5
5 A02507-2LB	42.0	45.6	43.8	5+	4.4	0	0.7	0.6	5
6 A03158-2TE	32.2	30.0	31.1	3+	5.2	0	1.2	1.4	4
7 AC00395-2RU	28.2	27.7	28.0	2+	5.8	1	1.6	1.6	3
8 AO00057-2	No Sample						No Sample		
9 AO02060-3	32.7	40.4	36.6	4+	7.7	0	1.2	0.7	5
10 AO02183-2	44.1	42.2	43.2	5+	3.5	0	0.6	0.6	5
11 AO96305-3	No Sample						No Sample		
12 CO03202-1RU	27.1	27.5	27.3	2+	4.5	1	1.7	1.7	3
13 PA00N14-2	26.9	35.9	31.4	3-	9.3	1	1.7	0.9	4
Average	33.0	LSD 0.05 37.0	3.4 35.0		3.6 6.7	1	1.3	1.0	
Oregon									
1 Ranger Russet	27.4	43.5	35.4	3-	16.1	1	1.7	0.6	4
2 Russet Burbank	18.0	36.9	27.4	2-	18.9	3	3.0	0.9	2
3 A01010-1	24.1	46.3	35.2	3-	22.3	2	2.1	0.5	4
4 A02138-2	41.5	49.2	45.3	5+	7.8	0	0.7	0.5	5
5 A02507-2LB	39.7	49.8	44.7	5-	10.7	0	0.7	0.5	5
6 A03158-2TE	25.5	26.6	26.1	2+	4.2	1	1.9	1.7	3
7 AC00395-2RU	21.7	30.2	26.0	2+	8.5	2	2.4	1.4	3
8 AO00057-2	25.8	41.7	33.7	3-	15.9	1	1.9	0.7	4
9 AO02060-3	36.1	40.8	38.5	4+	5.8	0	0.9	0.7	5
10 AO02183-2	36.6	46.7	41.6	5-	10.6	0	0.9	0.5	5
11 AO96305-3	33.1	49.0	41.0	5-	15.9	0	1.1	0.5	5
12 CO03202-1RU	22.2	36.7	29.5	2-	14.6	2	2.3	0.9	3
13 PA00N14-2	27.5	38.7	33.1	3-	11.2	1	1.6	0.8	4
Average	29.2	LSD 0.05 41.2	3.5 35.2		5.2 12.5	1	1.6	0.8	

Date test performed:

Washington

Nov. 27

Nov. 27

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.

2012 Late Harvest Regional Trial

Stored at 40°F for 60 Days and Reconditioned

Clone	PHOTOVOLT(60 Days at 40°F)						PHOTOVOLT AFTER RECONDITIONING (21 days at 60°F)				
	SPROUTING (%)	stem	bud	average	DIFF	USDA COLOR	stem	bud	average	DIFF	USDA COLOR
Washington											
1 Ranger Russet	0	19.5	31.5	25.5	12.4	2	24.8	37.0	30.9	14.3	1
2 Russet Burbank	0	13.5	21.7	17.6	8.2	4	16.7	29.4	23.0	12.7	3
3 A01010-1	0	15.8	27.4	21.6	11.6	3	22.9	40.3	31.6	17.4	2
4 A02138-2	0	24.6	30.4	27.5	6.3	1	29.2	43.1	36.2	13.9	1
5 A02507-2LB	0	30.8	40.8	35.8	10.1	0	32.8	45.0	38.9	12.4	0
6 A03158-2TE	0	16.3	17.0	16.6	3.5	3	19.6	22.8	21.2	4.3	2
7 AC00395-2RU	0	13.9	20.4	17.1	6.5	4	14.5	22.6	18.5	8.0	3
8 AO00057-2	0	19.9	34.7	27.3	15.1	2	29.7	40.5	35.1	10.9	1
9 AO02060-3	0	15.9	21.2	18.6	6.3	3	23.3	31.4	27.4	8.1	2
10 AO02183-2	0	24.1	29.2	26.6	8.2	2	35.9	43.1	39.5	12.5	0
11 AO96305-3	0	26.3	37.3	31.8	11.5	1	32.5	48.0	40.2	15.5	0
12 CO03202-1RU	0	13.9	24.6	19.3	10.7	4	18.8	28.3	23.5	9.8	3
13 PA00N14-2	0	14.6	22.7	18.7	8.1	3	18.0	28.5	23.3	10.5	3
LSD 0.05	ns			2.8	4.0				3.9	5.1	
Average	0	19.2	27.6	23.4	9.1	2	24.5	35.4	30.0	11.6	2
Idaho											
1 Ranger Russet	0	17.5	27.8	22.6	10.4	3	23.8	33.5	28.7	9.7	2
2 Russet Burbank	0	14.1	20.9	17.5	7.8	4	15.9	25.4	20.7	11.8	3
3 A01010-1	0	19.5	22.3	20.9	5.6	2	23.9	31.1	27.5	7.8	2
4 A02138-2	0	33.9	37.5	35.7	4.0	0	35.4	44.0	39.7	8.6	0
5 A02507-2LB	0	32.9	39.6	36.2	6.7	0	32.5	40.2	36.3	7.9	0
6 A03158-2TE	0	19.1	21.5	20.3	5.0	3	19.8	21.3	20.6	5.2	2
7 AC00395-2RU	0	19.9	21.9	20.9	4.4	2	20.9	22.6	21.8	3.1	2
8 AO00057-2	0	No Sample									
9 AO02060-3	0	19.4	24.9	22.1	6.2	3	27.9	39.0	33.5	12.2	1
10 AO02183-2	0	35.3	31.4	33.4	5.1	0	38.4	39.0	38.7	5.0	0
11 AO96305-3	0	No Sample									
12 CO03202-1RU	0	15.4	21.0	18.2	5.6	3	17.2	22.1	19.6	4.9	3
13 PA00N14-2	0	14.9	19.5	17.2	5.2	3	16.1	18.7	17.4	4.5	3
LSD 0.05	ns			2.9	3.4				3.2	3.7	
Average	0	22.0	26.2	24.1	6.0	2	24.7	30.6	27.7	7.3	2
Oregon											
1 Ranger Russet	0	13.9	29.2	21.5	15.4	4	19.9	43.6	31.8	23.7	2
2 Russet Burbank	0	11.9	26.8	19.3	14.9	4	13.6	26.9	20.2	13.3	4
3 A01010-1	0	12.7	31.7	22.2	19.1	4	16.7	33.2	24.9	16.6	3
4 A02138-2	0	28.9	36.2	32.6	7.3	1	30.2	38.0	34.1	7.8	1
5 A02507-2LB	0	25.0	41.9	33.4	17.0	1	22.9	38.6	30.7	15.7	2
6 A03158-2TE	0	17.7	18.5	18.1	5.3	3	16.6	19.5	18.1	4.1	3
7 AC00395-2RU	0	14.6	22.3	18.4	8.5	3	14.5	20.9	17.7	6.7	3
8 AO00057-2	0	17.9	35.0	26.4	17.1	3	21.6	39.9	30.8	18.3	2
9 AO02060-3	0	22.7	21.4	22.1	2.2	2	21.9	30.2	26.1	8.4	2
10 AO02183-2	0	24.3	36.3	30.3	12.0	2	24.1	45.8	35.0	22.3	2
11 AO96305-3	0	25.9	38.9	32.4	13.0	1	22.5	39.9	31.2	17.4	2
12 CO03202-1RU	0	13.0	23.6	18.3	10.5	4	15.7	30.0	22.9	14.3	3
13 PA00N14-2	0	15.7	21.8	18.7	6.0	3	16.9	27.8	22.3	11.1	3
LSD 0.05	ns			3.4	4.3				3.7	5.9	
Average	0	18.8	29.5	24.1	11.4	3	19.8	33.4	26.6	13.8	2

Date test performed:

Washington Dec. 19
Idaho Dec. 19
Oregon Dec. 19

Nov. 28
Dec. 4
Dec. 10

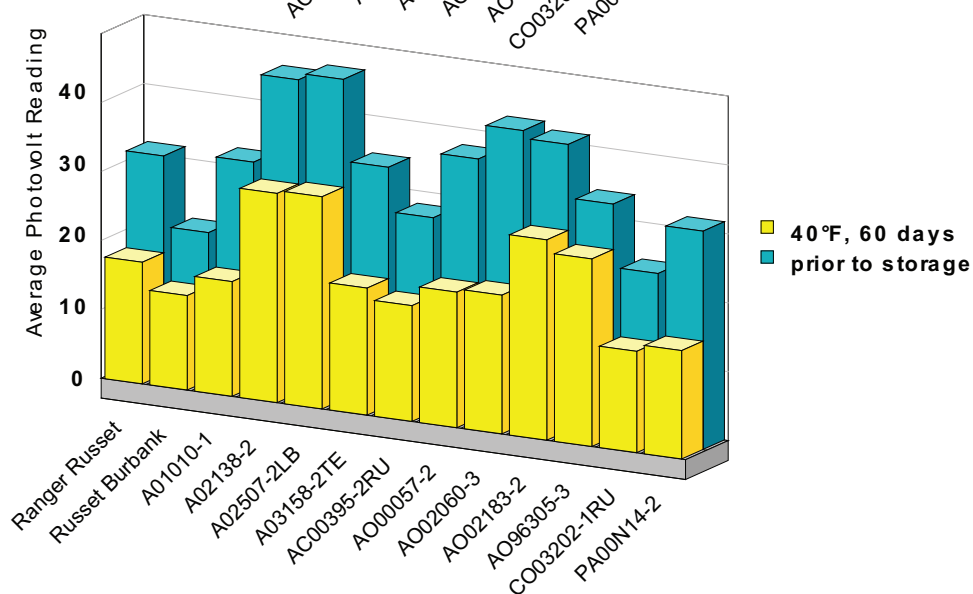
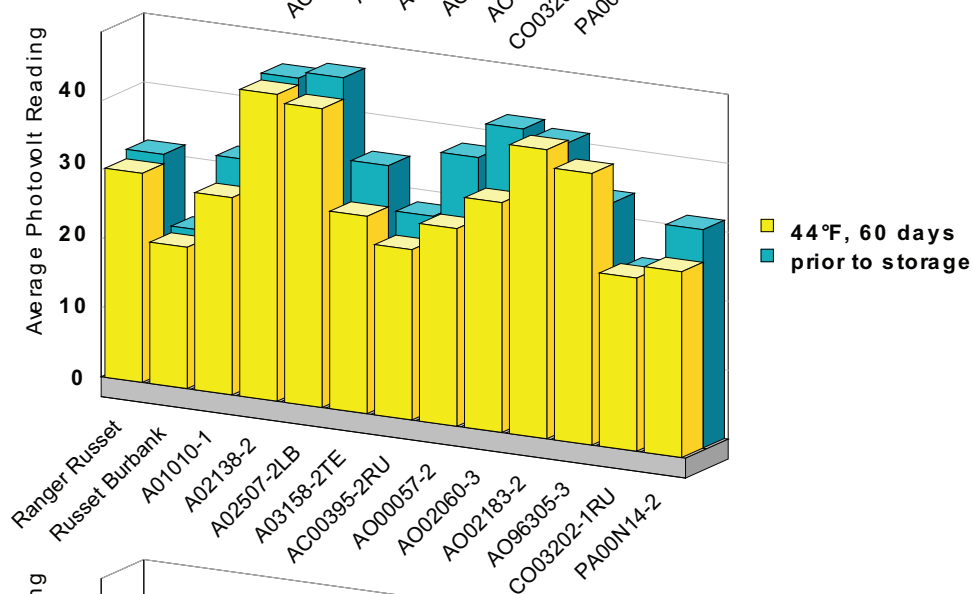
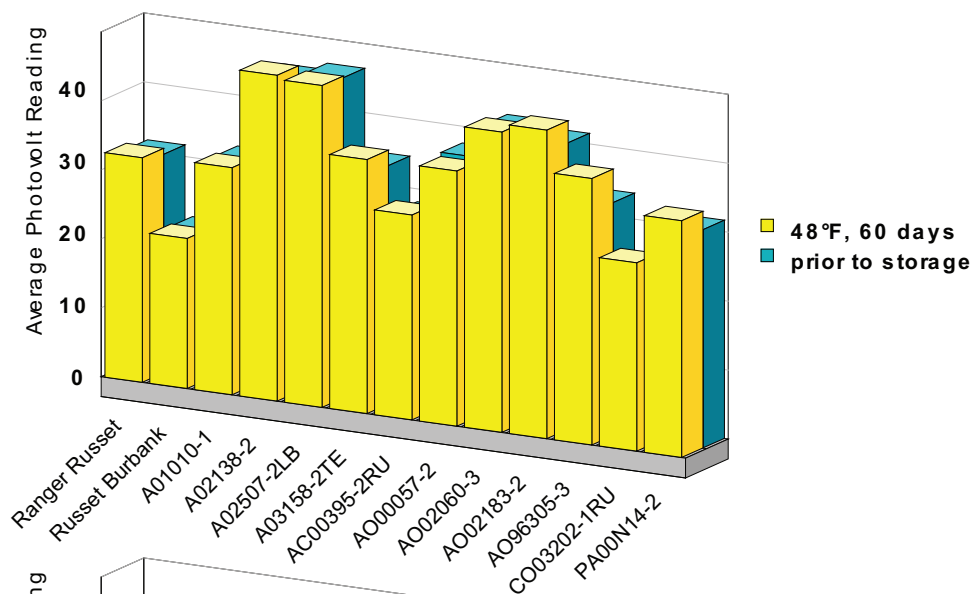
Dec. 14
Dec. 16
Dec. 17

Murphy's Law...What Can Go Wrong, Will Go Wrong

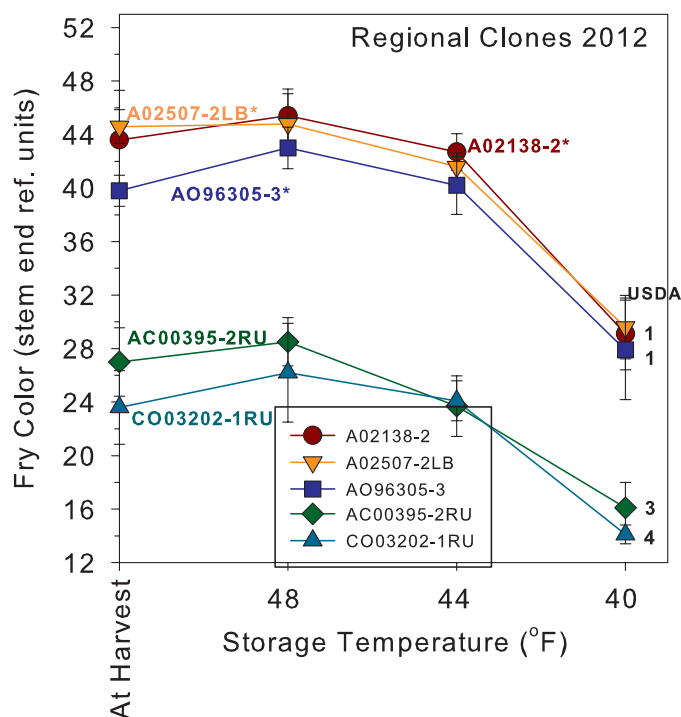
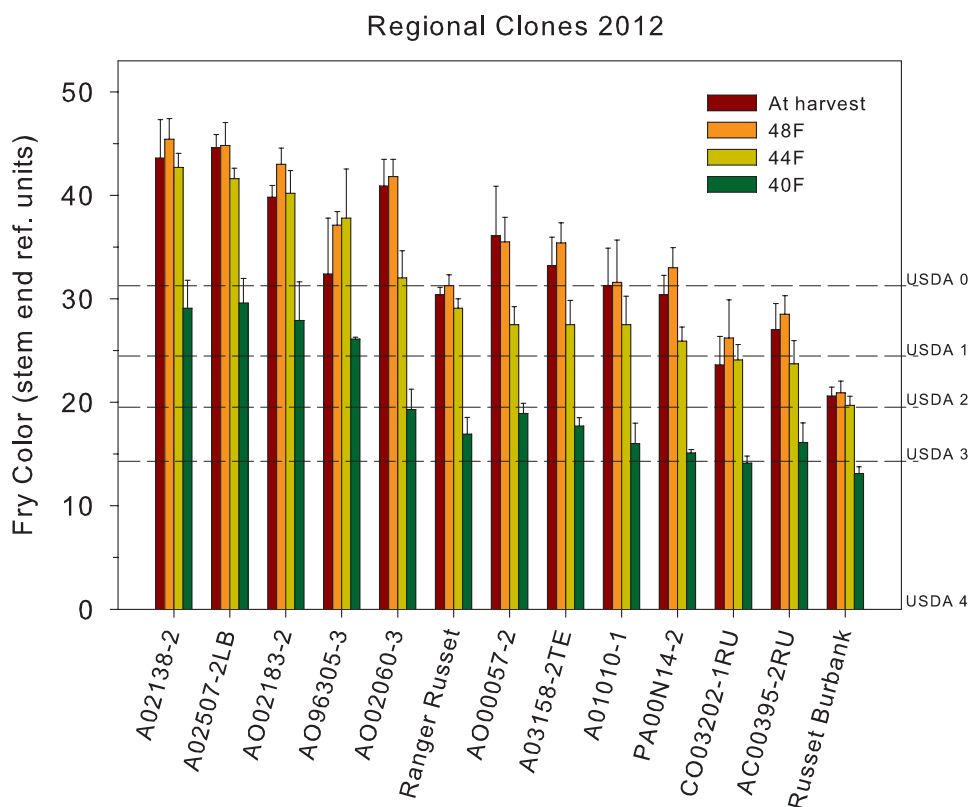


Regional Trial - 3 State Average of Stem End

2012 Late Harvest Regional Trial



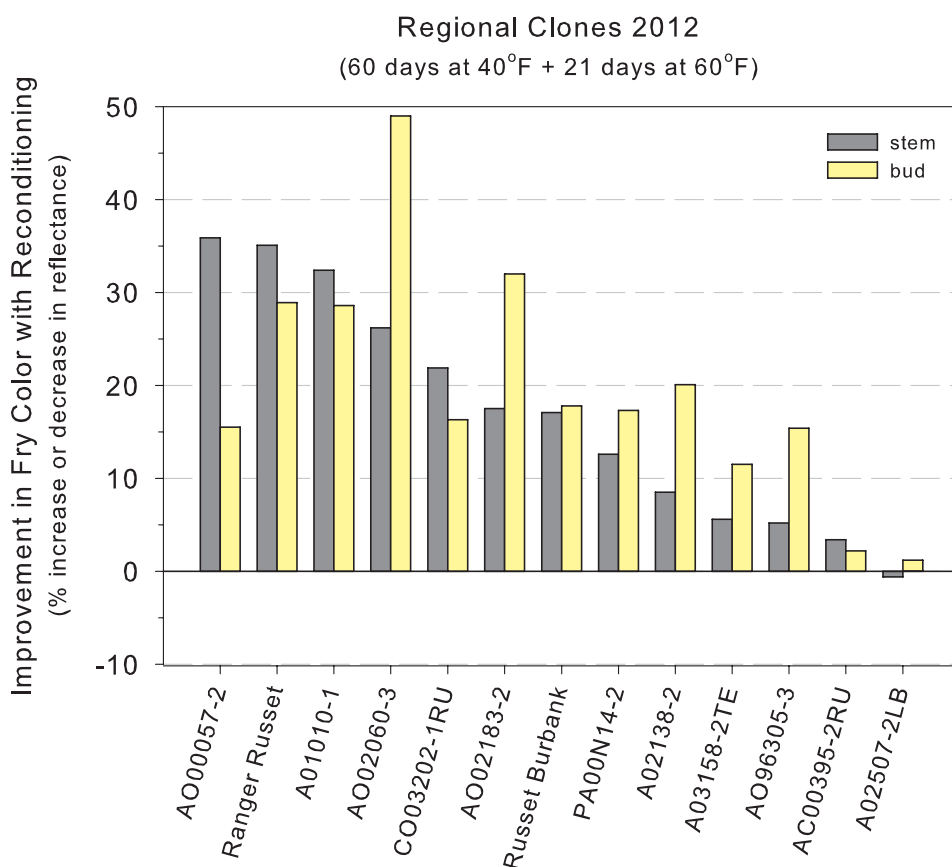
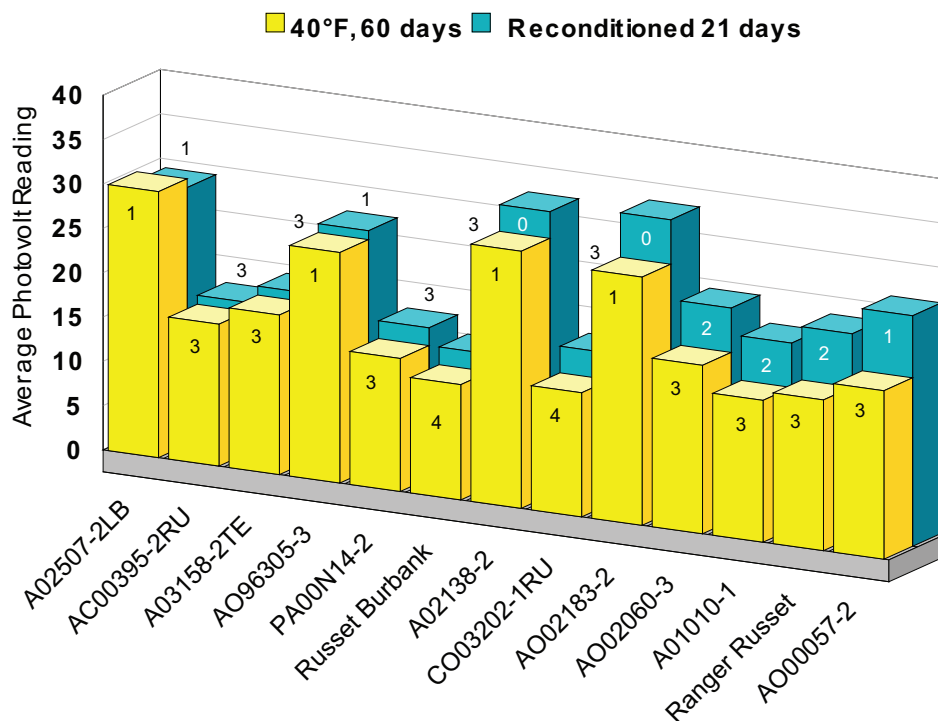
2012 Late Harvest Regional Trial



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.

Bottom: Line graph depicting the effects of storage temperature on the change in French fry processing quality (stem end fry color) of the best (A02138-2, AO96305-3, A02507-2LB) and worst (AC00395-2RU and CO03202-1RU) performing clones in the Regional Trial. *Indicates similar performance of the clones last year.

2012 Late Harvest Regional Trial



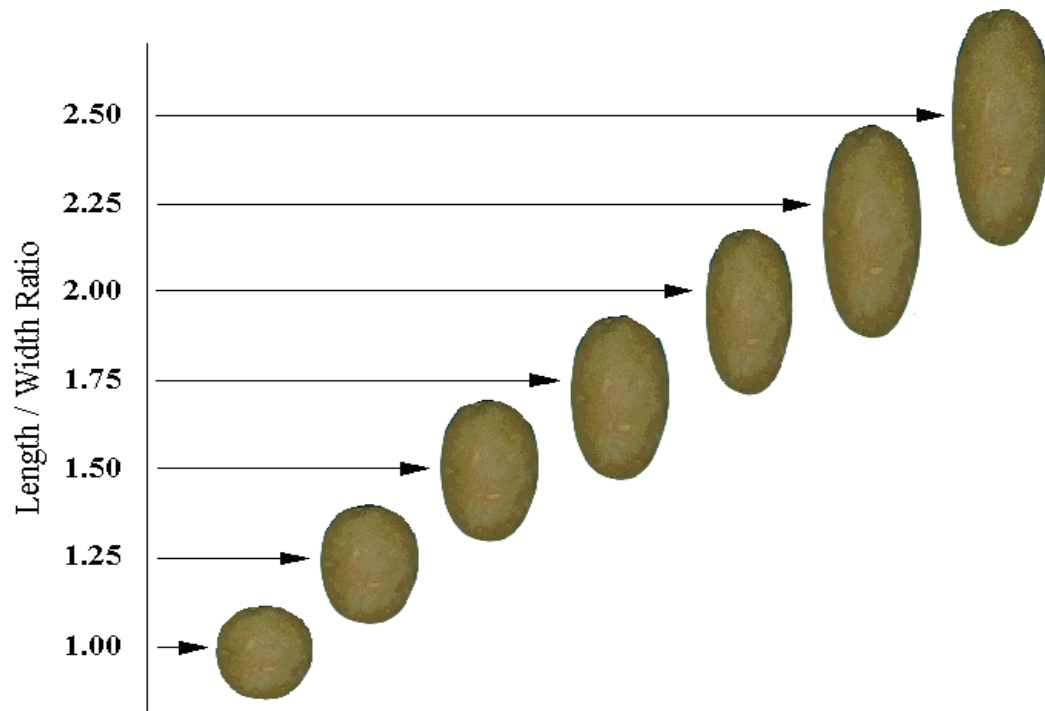
Reconditioning abilities of clones in the 2012 Regional Trial (3-state averages). Clones were stored at 40°F for 60 days after harvest and then reconditioned at 60°F for 21 days. **Top:** Stem end fry color before and after reconditioning. Numbers in bars indicate the USDA color rating of the stem end. **Bottom:** Percent improvement of stem and bud end fry color with reconditioning.

2012 Late Harvest Regional Trial

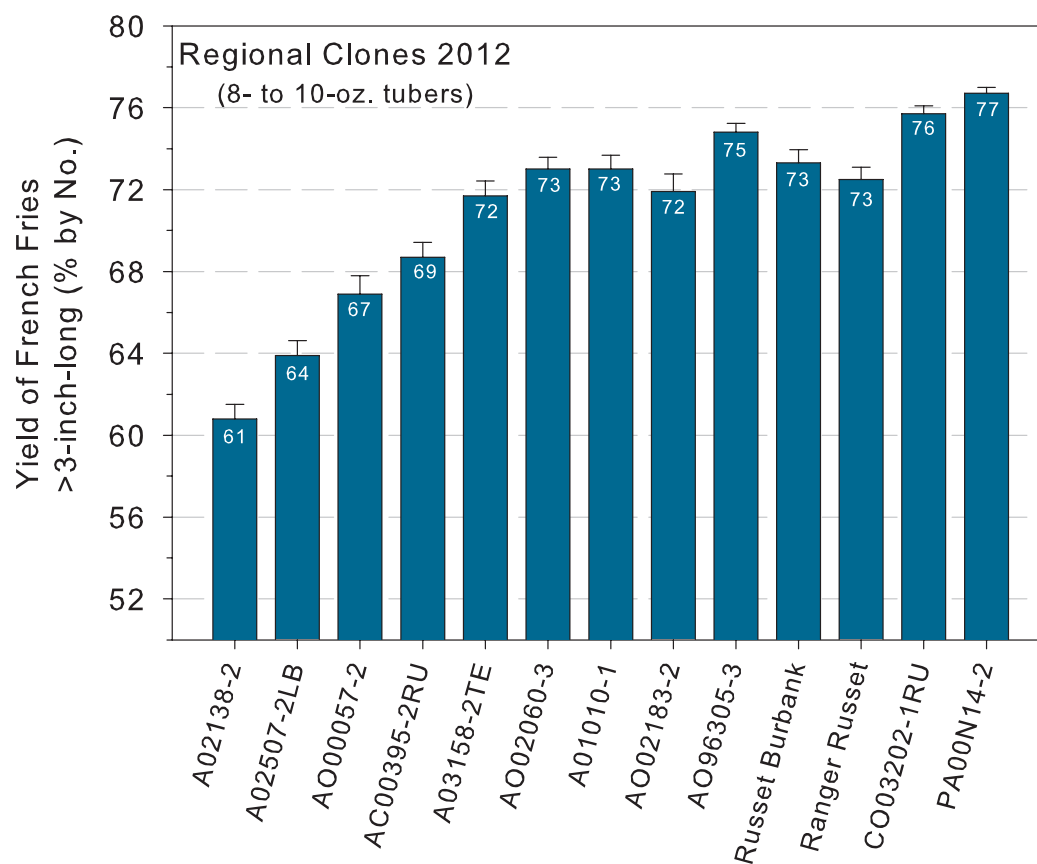
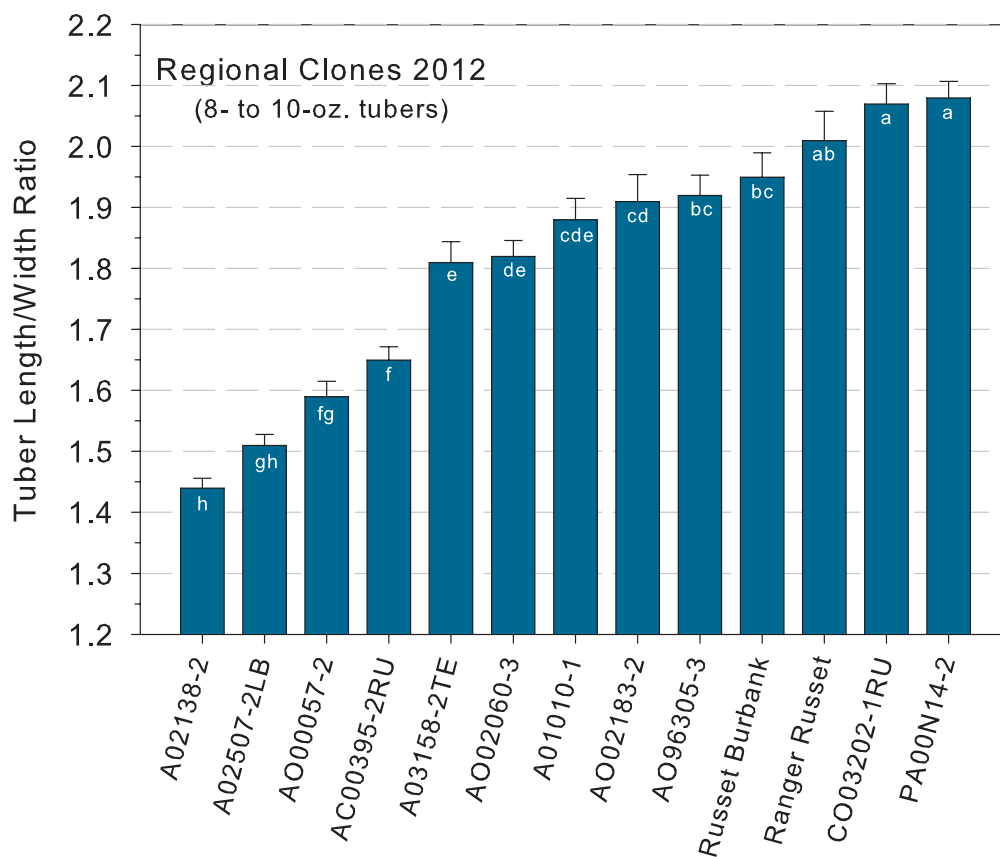
Tuber Shape and Associated French Fry Yields

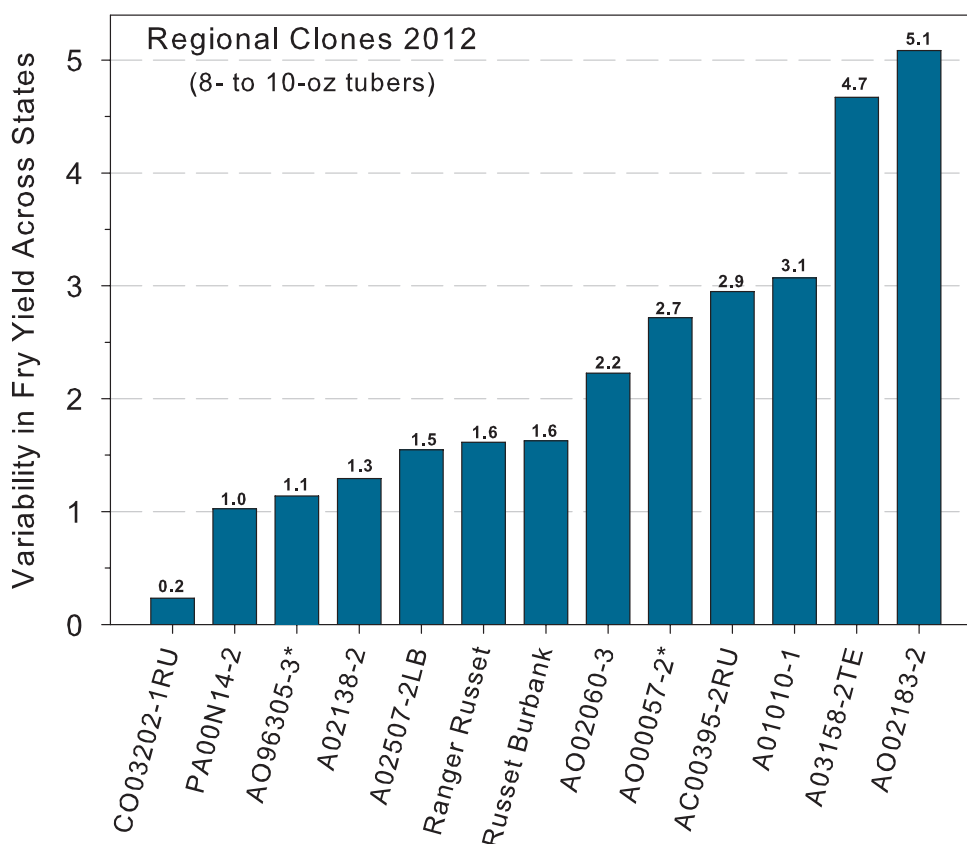
(8- to 10-oz Tubers)

Clone	Length to width ratio				Yield of 3" or longer fries (% by number)			
	WA	ID	OR	3 State Avg.	WA	ID	OR	3 State Avg.
1 Ranger Russet	1.69	2.45	1.87	2.01	70	73	74	73
2 Russet Burbank	1.78	2.30	1.77	1.95	73	75	72	73
3 A01010-1	1.70	2.19	1.76	1.88	70	77	72	73
4 A02138-2	1.45	1.46	1.40	1.44	62	62	59	61
5 A02507-2LB	1.49	1.57	1.47	1.51	63	66	62	64
6 A03158-2TE	1.56	2.14	1.74	1.81	66	78	72	72
7 AC00395-2RU	1.55	1.79	1.63	1.65	66	73	68	69
8 AO00057-2	1.52	no sample	1.67	1.59	64	no sample	70	67
9 AO02060-3	1.68	1.87	1.91	1.82	70	75	75	73
10 AO02183-2	1.55	2.28	1.91	1.91	65	76	75	72
11 AO96305-3	1.81	no sample	2.03	1.92	74	no sample	76	75
12 CO03202-1RU	1.93	2.34	1.95	2.07	75	76	76	76
13 PA00N14-2	1.94	2.21	2.08	2.08	75	78	77	77
Average	1.66	2.05	1.78	1.82	69	73	71	71



2012 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, AO02183-2 had a length to width ratio of 1.92 (see previous page), resulting in 72% 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 66.9% to 77.1% ($72 \pm 5.1\%$).

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



Left: Participants were treated to a hay ride during the 2012 WSU Potato Field Day.



Right: A group anticipates the start of the 2012 WSU Potato Field Day at Othello.

Entries Retained from the 2011 Trials Currently in the Regional Trial

Harvested fall of 2011

Held at 48°F until December 20

Stored at 44°F until analysis

Three clones were advanced from the Tri-State Trial into the 2012 Regional Trial (A02138-2, A02507-2LB & A03158-2TE). Five clones were retained in the Regional Trial. When averaged across states, A02507-2LB and A002183-2 produced the lightest fries. A03158-2TE had the shortest dormancy with the longest sprouts, while A02507-2LB had the shortest average sprout length.

		PHOTOVOLT READING				USDA	% REDUCING SUGAR			Sprouting	
Clone		stem	bud	avg	DIFF	COLOR	stem	bud	avg	percent	length (in.)
Washington											
1	Ranger Russet	29.4	38.3	33.9	8.9	1	1.4	0.8	1.1	100	4
2	Russet Burbank	28.7	41.5	35.1	12.8	1	1.5	0.7	1.1	100	5
3	A01010-1	43.3	53.4	48.4	10.1	0	0.6	0.6	0.6	100	12
4	A02138-2 §	50.4	47.3	48.8	4.2	0	0.5	0.5	0.5	100	9
5	A02507-2LB §	53.5	52.3	52.9	2.9	0	0.6	0.5	0.5	100	1.5
6	A03158-2TE §	44.7	45.2	44.9	5.7	0	0.6	0.6	0.6	100	10
7	AO00057-2	40.0	50.7	45.4	10.8	0	0.7	0.5	0.6	100	4
8	AO02183-2	51.1	51.6	51.4	4.2	0	0.5	0.5	0.5	100	5
9	AO96305-3	50.7	54.1	52.4	3.5	0	0.5	0.5	0.5	100	5
10	PA00N14-2	40.4	48.0	44.2	8.3	0	0.7	0.5	0.6	100	4
Average		43.2	LSD 0.05 48.2	2.9 45.7	3.9 7.1	0	0.6	0.5	0.7	100	
Idaho											
1	Ranger Russet	27.3	40.1	33.7	12.8	1	1.7	0.7	1.2	100	7
2	Russet Burbank	27.8	37.2	32.5	9.5	1	1.6	0.9	1.2	100	3
3	A01010-1	36.6	41.0	38.8	8.4	0	0.9	0.7	0.8	100	11
4	A02138-2 §	49.6	46.3	48.0	3.6	0	0.5	0.5	0.5	100	7
5	A02507-2LB §	44.7	47.4	46.0	3.9	0	0.6	0.5	0.6	100	1.75
6	A03158-2TE §	35.8	35.1	35.5	9.6	0	0.9	1.0	1.0	100	12
7	AO00057-2	No Sample					No Sample			No Sample	
8	AO02183-2	No Sample					No Sample			No Sample	
9	AO96305-3	No Sample					No Sample			No Sample	
10	PA00N14-2	No Sample					No Sample			No Sample	
Average		37.0	LSD 0.05 41.2	2.9 39.1	3.8 8.0	0	1.0	0.7	0.9	100	
Oregon											
1	Ranger Russet	26.8	38.4	32.6	11.5	1	1.7	0.8	1.3	100	8
2	Russet Burbank	25.0	40.5	32.7	15.5	1	2.0	0.7	1.3	100	5
3	A01010-1	39.2	47.0	43.1	9.3	0	0.8	0.5	0.7	100	10
4	A02138-2 §	44.6	44.5	44.6	4.8	0	0.6	0.6	0.6	100	7
5	A02507-2LB §	51.6	50.4	51.0	4.7	0	0.5	0.5	0.5	100	3
6	A03158-2TE §	34.2	33.7	34.0	3.2	0	1.0	1.1	1.1	100	16
7	AO00057-2	40.2	50.3	45.3	10.1	0	0.7	0.5	0.6	100	10
8	AO02183-2	49.2	47.4	48.3	3.5	0	0.5	0.5	0.5	100	4
9	AO96305-3	35.8	52.4	44.1	16.7	0	0.9	0.5	0.7	100	6
10	PA00N14-2	39.9	45.4	42.6	6.6	0	0.7	0.6	0.6	100	5.0
Average		38.6	LSD 0.05 45.0	2.7 41.8	3.7 8.6	0	1.0	0.6	0.8	100	

§ Advanced from 2011 Tri-State Trial

Date test performed:

Washington April 27**Idaho** April 30**Oregon** May 2

2012 Red and Specialty Trial

Location: WSU Research Center – Othello, WA

Planting Date: April 5

Vine Kill Date: July 17

Harvest Date: July 31

Days Grown: 103

In-Row Spacing: 8 Inch

The Regional Red and Specialty 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 11 new clones. 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: OR04131-2

Yellow flesh: CO04013-1W/Y

Standcounts

➤ 50 Day

Full emergence: Red LaSoda, Purple Majesty, CO04013-1W/Y (all 100%).

Poor emergence: OR04131-1 (67%), ATTX98453-6R (67%).

Plant and Tuber Growth & Development

➤ 50 Day Stems per plant

Most: PG56-1 (3.0), Purple Majesty (2.8), OR04131-2 (2.7).

Fewest: CO00277-2R and Red LaSoda (2.2 each).

➤ Average Tuber Number Per Plant

Most: CO04013-1W/Y (12.0), POR05PG56-1 (11.6).

Fewest: Yukon Gold (3.9) and Dark Red Norland (4.5).

➤ Average Tuber Size (oz)

Largest: Yukon Gold and Red LaSoda (8.0), and COTX01403-4R/Y (7.8).

Smallest: OR04131-2 (3.4), POR05PG56-1 (3.5), CO04013-1W/Y (3.8).

Yield Data

➤ Total Yield and U.S. #1 Yield

Highest: Red LaSoda had the highest total (605 CWT/A) and Chieftain had the highest U.S. #1 yield (586 CWT/A).

Lowest: OR04131-2 had the lowest total and U.S. #1 yield (both 250 CWT/A).

➤ % U.S. #1's

Highest: Yukon Gold, Chieftain, and CO04013-1W/Y (each 100%).

Lowest: Red LaSoda (90%).

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

➤ External Defects

COTX01403-4R/Y had 18% malformed tubers. ATTX98453-6R and Dark Red Norland had some cracked tubers (14% each).

➤ Internal Defects

Notable defects: Most entries were free of internal defects. Red LaSoda has 13% hollow heart and 17% brown center.

➤ Bruise

Highest Blackspot: ATX03564-1Y/Y (15%), Dark Red Norland and OR04036-5 (7%) each.

Highest Shatter: ATTX98453-6R (60%), OR04036-5 (40%), Dark Red Norland (37%).

Postharvest Analysis

- The top five scoring clones were Yukon Gold*, POR05PG56-1, Chieftain, CO00277-2R, and OR04131-2, which averaged 57.1/75 points in the 2012 culinary evaluations. POR05PG56-1 has reddish-purple skin and mottled (reddish-purple and white) flesh. CO00277-2R has white flesh and red skin. OR04131-2 has yellow skin and flesh. The other yellow flesh entries include CO04013-1W/Y (white skin), ATX03564-1Y/Y (yellow skin), COTX01403-4R/Y (red skin), ATTX98468-5R/Y (red skin), and CO04021-2R/Y (red skin). As in previous years, culinary scores were high with all entries receiving 66 to 78% of total points possible.
- Purple Majesty and POR05PG56-1 were the only entries with purple flesh. Purple flesh clones are not considered in the statistical analysis of fry color with white and yellow flesh entries. All white and yellow flesh entries produced acceptably light colored French fries (USDA 0-2) except ATTX98453-6R, CO00277-2R, and Yukon Gold, which produced USDA 3 fries. Non-uniform fry color was an issue for Yukon Gold (>9 ref. diff. between bud and stem ends).
- The red/specialty entries produced relatively dark chips as a group. OR04036-5, Yukon Gold, CO00291-5R, and ATTX98453-6R produced the darkest chips with SFA scores of 5. CO04013-1W/Y and ATTX98468-5R/Y received the lightest SFA chip ratings of 3.3 and 3.8, respectively, from the seven-member taste panel.
- The range in ratings of baked samples in the 2012 trial was relatively narrow (17.0-20.1 out of 25). All entries had moderate to slight after cooking darkening when oven baked. Texture of the baked samples was favorably rated as “creamy” or “fluffy” for all entries except CO00291-5R, which was rated as “pasty” again this season. The flavor of all baked samples was rated “good” or “bland”. Tuber centers of baked samples received acceptable ratings of “mushy” for all entries. Skins of the baked samples were also rated as acceptable (“steamy” or “fully cooked”) for all entries.

- CO04013-1W/Y sloughed excessively when boiled, COTX01403-4R/Y sloughed moderately, and the other entries showed none or slight sloughing. ATTX98468-R/Y, CO04021-2R/Y, and OR04036-5 (2nd year) had moderate after cooking darkening. All other entries had slight to zero after cooking darkening when boiled. The texture of boiled samples of CO00277-2R, CO00291-5R, COTX01403-4R/Y and CO04013-1W/Y was rated as “pasty”, ATTX98468-5R/Y was rated as “soggy”, while all other entries were more favorably rated as “creamy” or “fluffy”. The flavor of boiled samples of Dark Red Norland, CO04021-2R/Y and CO04013-1W/Y was 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.
- Cooking time for boiled samples was assessed this year. Cores of tuber tissue (1.3 cm diameter x 1.3 cm long) from the stem and bud ends of all entries were immersed in boiling water and the time to penetration of a 90-g probe was recorded. Stem end cores averaged 6.1 min to fully cook compared with 4.7 min for bud end cores. Cooking times (stem end) ranged from 3.9 min (CO04013-1W/Y) to 8.5 min (CO00277-2R). ATTX98453-6R/Y, Red LaSoda, and CO00277-2R took the longest to fully cook (avg = 8.2 min) whereas CO04013-1W/Y, COTX01403-4R/Y, and OR04036-5 cooked the fastest (avg = 4 min).
- Microwaving produced “moderate” after cooking darkening in Dark Red Norland, ATTX98468-5R/Y, CO04021-2R/Y and Purple Majesty; all other entries had “slight” or no after cooking darkening. The texture of all microwaved samples was favorably rated as “creamy” or “fluffy” except CO00291-5R and OR04131-2 which were “pasty”. Except for ATTX98468-5R/Y which was “unacceptable”, flavor ratings for all entries ranged from “bland” to “good”. Microwaving resulted in “mushy” tuber centers and skins rated “steamy” or “fully cooked”, which is desirable.



WSU Graduate Student Rhett Spear happily records data during the growing season. In fact, he looks a little too happy taking data. Hmmm...



Above: Let the selecting begin!
The Tri-State Variety Selection
Tour makes a stop at Hermiston,
OR. Right: WSU PhD graduate
student, Rhett Spear, displays a
non-commercial potato cultivar that
is the text book example of
“sticky stolons”.



Left: Somebody received a
clever birthday greeting during
the Tri-State Variety Selection
Tour. You know who you are!

2012 Regional Red and Specialty Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's*	US # 2's*	Culls*	EXTERNAL DEFECTS (%)				SPECIFIC GRAVITY
	CWT/A	STATS**	Tons/A	> 0 oz	> 0 oz	> 0 oz	Knobs	Malformed	Growth	Green	
				-----	% of Total Yield	-----			Cracks		
Red Skin/White Flesh											
Dk Red Norland	402	CDE	20.1	95	0	5	0	1	4	0	1.072
Red LaSoda	605	A	30.3	90	8	2	0	0	2	0	1.070
ATTX98453-6R	361	DEF	18.0	95	0	4	0	0	4	0	1.070
CO00277-2R	439	BCD	21.9	99	1	1	0	0	0	1	1.070
CO00291-5R	273	F	13.7	95	3	1	0	1	0	1	1.057
OR04131-2	250	F	12.5	99	0	1	0	0	1	0	1.075
Chieftain	587	AB	29.3	100	0	0	0	0	0	0	1.067
Red-Purple/Yellow Flesh											
ATTX98468-5R/Y	501	BCDE	25.0	98	0	2	0	1	0	1	1.067
CO04021-2R/Y	334	EF	16.7	95	4	2	0	0	2	0	1.063
COTX01403-4R/Y	480	ABCD	24.0	94	0	6	0	4	1	1	1.075
Purple Skin/Purple Flesh											
Purple Majesty	484	ABCD	24.2	99	0	1	0	1	0	0	1.079
POR05PG56-1	474	ABCD	23.7	98	1	1	0	0	0	1	1.075
Yellow Flesh											
Yukon Gold	356	DEF	17.8	100	0	0	0	0	0	0	1.073
ATX03564-1Y/Y	489	ABCD	24.5	96	2	2	0	1	0	1	1.068
CO04013-1W/Y	525	ABC	26.2	100	0	0	0	0	0	0	1.088
OR04036-5	404	CDEF	20.2	98	1	1	0	0	1	0	1.067

ENTRY	US # 1 YIELD								INTERNAL DEFECTS (%)		
	CWT/A	STATS**	Tons/A	0-2 oz*	2-4 oz*	4-6 oz*	6-10 oz*	> 10 oz*	(6-10 oz tubers)		
				-----%-----					% HH	% BC	% IBS
Red Skin/White Flesh											
Dk Red Norland	384	CDEF	19.2	2	11	19	39	29	0	0	0
Red LaSoda	544	AB	27.2	1	13	20	40	25	13	17	0
ATTX98453-6R	344	DEF	17.2	5	27	35	29	3	0	0	0
CO00277-2R	433	CDEF	21.6	5	29	26	30	10	6	6	0
CO00291-5R	260	F	13.0	10	37	28	19	6	5	0	0
OR04131-2	247	F	12.4	20	51	19	7	2	0	0	0
Chieftain	586	A	29.3	2	23	39	33	3	0	0	0
Red-Purple/Yellow Flesh											
ATTX98468-5R/Y	490	ABCD	24.5	6	31	27	25	11	10	0	0
CO04021-2R/Y	317	EF	15.8	5	27	19	32	17	0	0	0
COTX01403-4R/Y	451	BCDE	22.5	1	10	20	46	23	10	0	0
Purple Skin/Purple Flesh											
Purple Majesty	478	ABCD	23.9	6	38	32	21	3	0	0	0
POR05PG56-1	464	CDEF	23.2	14	62	21	3	0	0	0	0
Yellow Flesh											
Yukon Gold	356	DEF	17.8	0	9	24	40	26	0	0	0
ATX03564-1Y/Y	470	ABCD	23.5	2	18	27	43	10	0	0	0
CO04013-1W/Y	523	ABC	26.2	9	63	25	3	0	0	3	0
OR04036-5	396	BCDE	19.8	3	24	33	38	3	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	TUBER	50 DAY STAND	STEMS PER PLANT	AVERAGE TUBER		SIZE	SHAPE	BRUISE (%)		Length to		
	SET	SHAPE			WEIGHT	NUMBER	UNIFORMITY	UNIFORMITY	(6-10 oz tubers)		Width Ratio		
	1 = Poor 5 = Good	1 = Round 5 = Long			% Emerged	Above Ground	Ounces	Tubers/Plant	1 = Poor 5 = Good	1 = Poor 5 = Good	BLACKSPOT	SHATTER	1 = Round 2 = Oblong
Red Skin/White Flesh													
Dk Red Norland	4	1	85	2.6	7.7	4.5	4	3	7	37	1.5		
Red LaSoda	3	1	100	2.2	8.0	6.6	3	1	0	23	1.3		
ATTX98453-6R	3	1	68	2.4	5.3	5.9	3	4	0	60	1.3		
CO00277-2R	3	1	72	2.2	5.4	7.0	2	3	0	22	1.4		
CO00291-5R	2	1	90	2.3	4.1	5.2	4	4	0	20	1.4		
OR04131-2	4	1	67	2.7	3.4	6.4	4	4	0	21	1.3		
Chieftain	2	1	95	2.5	6.0	8.6	4	4	0	30	1.4		
Red-Purple/Yellow Flesh													
ATTX98468-5R/Y	1	1	95	2.4	5.1	8.6	3	2	0	13	1.4		
CO04021-2R/Y	4	3	85	2.3	5.4	4.9	3	2	0	30	1.7		
COTX01403-4R/Y	3	1	81	2.5	7.8	5.3	2	2	0	30	1.4		
Purple Skin/Purple Flesh													
Purple Majesty	4	3	100	2.8	4.8	8.8	4	4	0	0	1.6		
POR05PG56-1	4	2	97	3.0	3.5	11.6	4	3	0	7	1.7		
Yellow Flesh													
Yukon Gold	4	1	81	2.3	8.0	3.9	4	3	0	30	1.4		
ATX03564-1Y/Y	4	3	75	2.4	6.7	6.3	3	3	15	15	1.6		
CO04013-1W/Y	4	1	100	2.6	3.8	12.0	4	4	0	7	1.4		
OR04036-5	4	3	94	2.5	5.8	6.1	4	4	7	40	1.6		



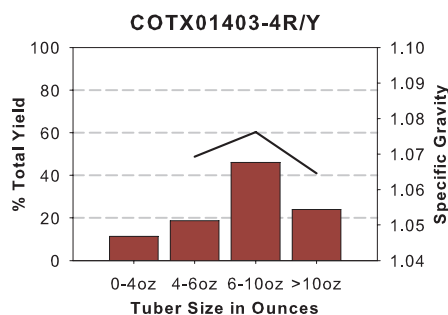
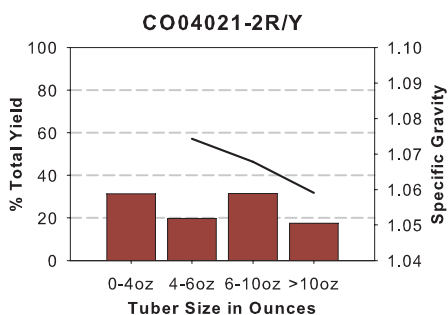
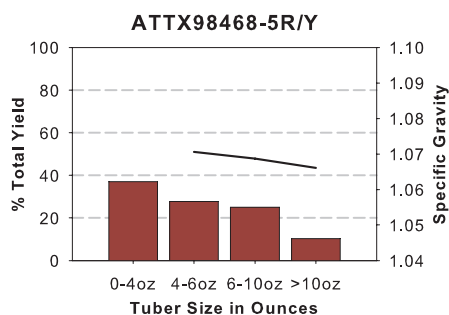
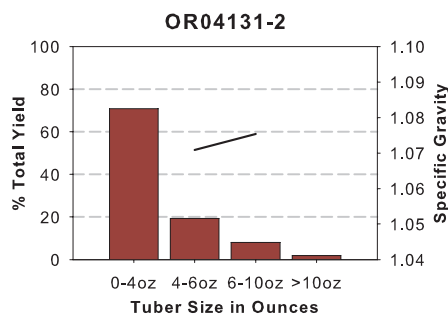
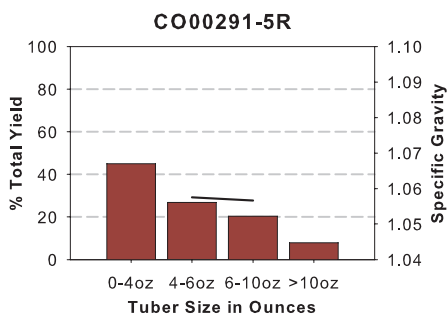
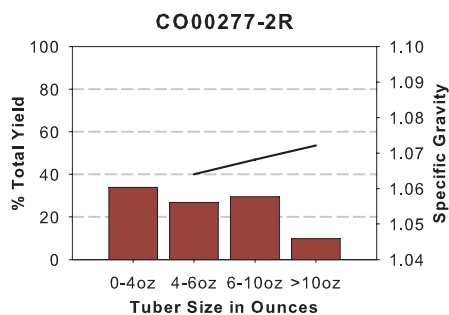
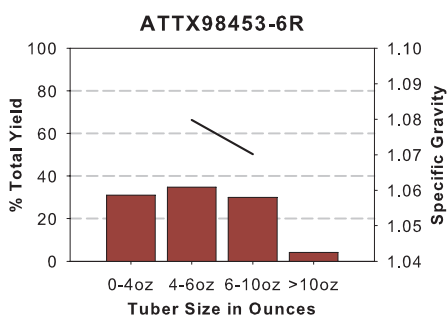
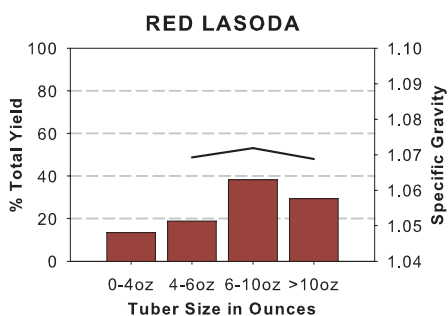
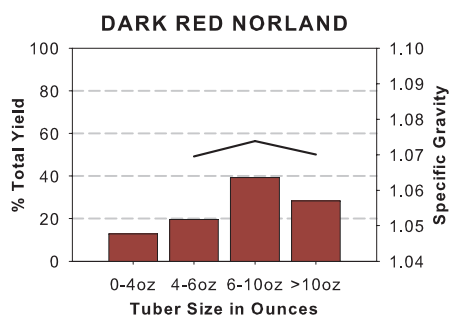
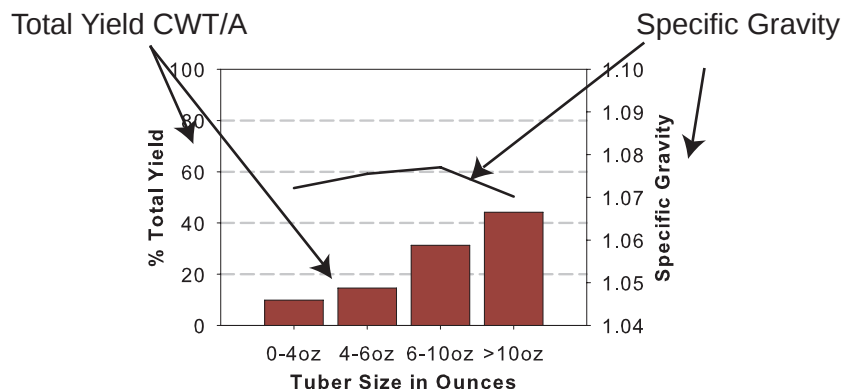
(Left to right) Allan French, Mark Pavek, Rhett Spear, Dan Hane and Rebecca Jones select the next “Russet Burbank”.

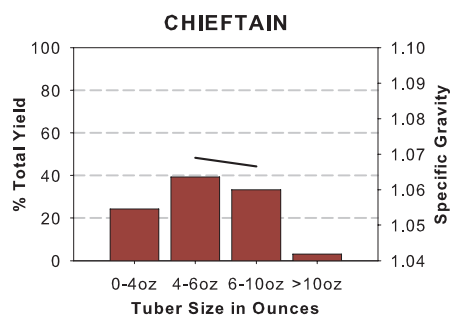
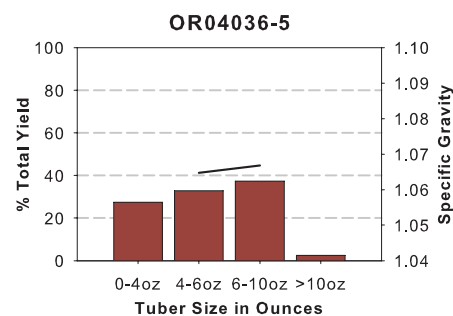
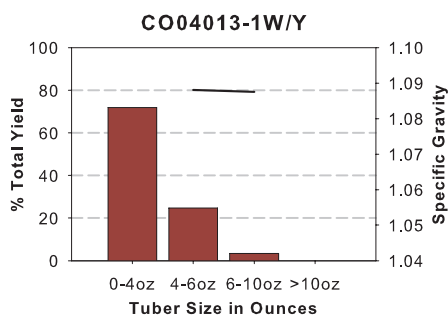
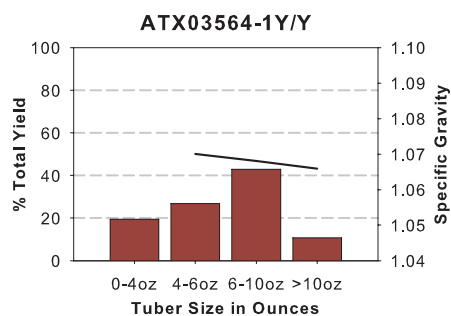
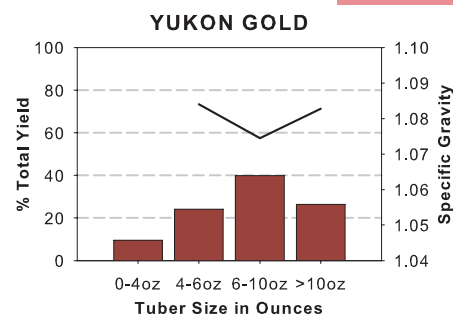
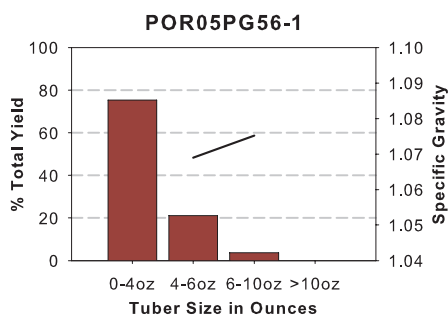
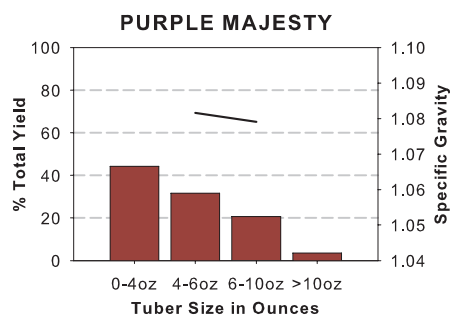
2012 Regional Red and Specialty Trial

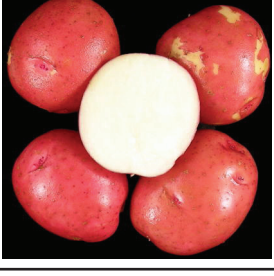
Tuber Yield and Specific Gravity Distributions

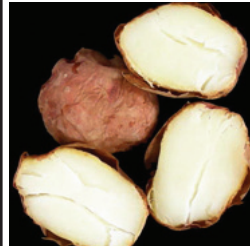
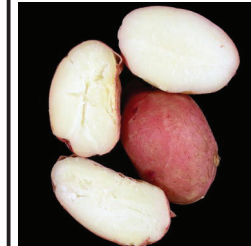
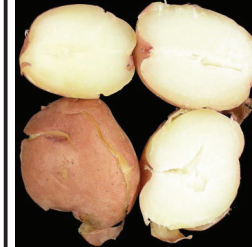
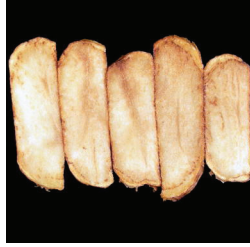
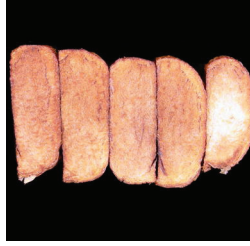
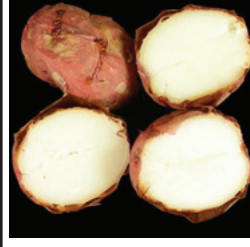
Note: Specific Gravity is based on a sample of U.S. #1 tubers within each size category

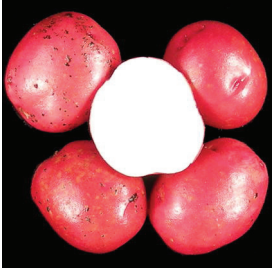
8 inch In-Row Spacing

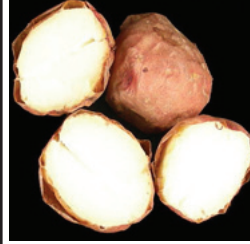
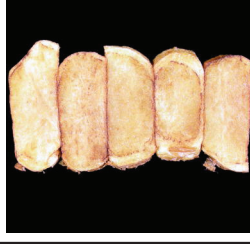
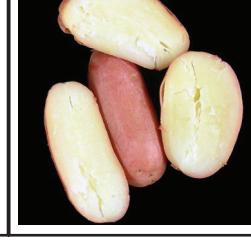
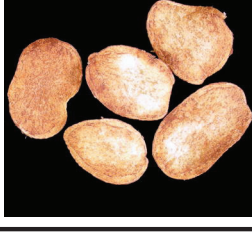
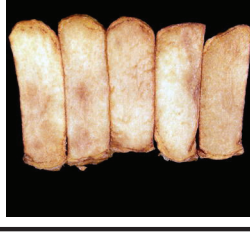




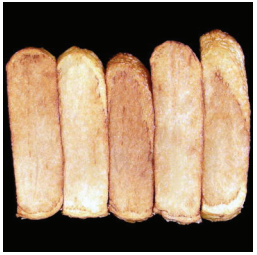
Tubers	WA Red and Specialty Regional Trial Comments
Dark Red Norland	
	Tubers: Round tubers. Good skin set; moderate eye depth. Fry color: light, uniform. Baked: slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin. Boiled: slight sloughing, slight after cooking darkening, creamy texture, unacceptable flavor, mushy tuber center. Microwaved: moderate after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
Red LaSoda	
	Tubers: Round tubers. Fair skin set; deep eyes. Fry color: light, uniform. Baked: slight after cooking darkening, creamy texture, good flavor, mushy tuber center, fully cooked skin. Boiled: slight sloughing, slight after cooking darkening, creamy texture, bland flavor, fully cooked tuber center. Microwaved: slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
Chieftain	
	Tubers: Round tubers. Poor skin set; moderate eye depth. Fry color: light, uniform. Baked: slight after cooking darkening, creamy texture, good flavor, mushy tuber center, fully cooked skin. Boiled: slight sloughing, slight after cooking darkening, creamy texture, good flavor, mushy tuber center. Microwaved: slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.
ATTX98453-6R	
	Tubers: Round tubers. Fair skin set; moderate eye depth. Fry color: light, uniform. Baked: slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, fully cooked skin. Boiled: slight sloughing, no after cooking darkening, creamy texture, bland flavor, fully cooked tuber center. Microwaved: slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.
CO00277-2R	
	Tubers: Round tubers. Fair skin set; moderately deep eyes. Fry color: light, uniform. Baked: slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, slightly burnt skin. Boiled: slight sloughing, no after cooking darkening, pasty texture, good flavor, fully cooked tuber center. Microwaved: no after cooking darkening, creamy texture, good flavor, mushy tuber center, fully cooked skin.

Chips	Fries	Baked	Boiled	Microwaved
Dark Red Norland				
				
Red LaSoda				
				
Chieftain				
				
ATTX98453-6R				
				
CO00277-2R				
				

Tubers	WA Red and Specialty Regional Trial Comments
CO00291-5R	
	Tubers: Round tubers. Poor skin set; shallow eyes. Fry color: light, uniform. Baked: slight after cooking darkening, pasty texture, bland flavor, mushy tuber center, steamy skin. Boiled: no sloughing, slight after cooking darkening, pasty texture, bland flavor, mushy tuber center. Microwaved: slight after cooking darkening, pasty texture, bland flavor, mushy tuber center, steamy skin.
OR04131-2	
	Tubers: Round tubers. Good skin set; moderate eye depth. Fry color: light, uniform. Baked: slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin. Boiled: no sloughing, slight after cooking darkening, fluffy texture, good flavor, fully cooked tuber center. Microwaved: slight after cooking darkening, pasty texture, bland flavor, mushy tuber center, steamy skin.
ATTX98468-5R/Y	
	Tubers: Round tubers. Very poor skin set; moderately deep eyes. Fry color: light, uniform. Baked: slight after cooking darkening, creamy texture, good flavor, mushy tuber center, fully cooked skin. Boiled: slight sloughing, moderate after cooking darkening, soggy texture, bland flavor, mushy tuber center. Microwaved: moderate after cooking darkening, creamy texture, unacceptable flavor, mushy tuber center, steamy skin.
CO04021-2R/Y	
	Tubers: Oblong tubers. Good 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, moderate after cooking darkening, creamy texture, unacceptable flavor, mushy tuber center. Microwaved: moderate after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
COTX01403-4R/Y	
	Tubers: Round 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: moderate sloughing, slight after cooking darkening, pasty texture, bland flavor, mushy tuber center. Microwaved: slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.

Chips	Fries	Baked	Boiled	Microwaved
CO00291-5R				
				
OR04131-2				
				
ATTX98468-5R/Y				
				
CO04021-2R/Y				
				
COTX01403-4R/Y				
				

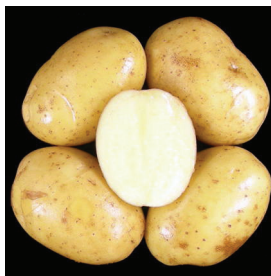
Tubers	WA Red and Specialty Regional Trial Comments
Purple Majesty	
	Tubers: Oblong tubers. Good skin set; moderate eye depth. Fry color: unacceptably dark, uniform. Baked: moderate after cooking darkening, fluffy texture, good flavor, mushy tuber center, steamy skin. Boiled: slight sloughing, slight after cooking darkening, fluffy texture, good flavor, fully cooked tuber center. Microwaved: moderate after cooking darkening, fluffy texture, bland flavor, mushy tuber center, steamy skin.
POR05PG56-1	
	Tubers: Round to oblong tubers. Good skin set; moderate eye depth. Fry color: unacceptably dark, uniform. Baked: slight after cooking darkening, fluffy texture, good flavor, mushy tuber center, steamy skin. Boiled: no sloughing, no after cooking darkening, creamy texture, bland flavor, fully cooked tuber center. Microwaved: slight after cooking darkening, fluffy texture, bland flavor, mushy tuber center, steamy skin.
Yukon Gold	
	Tubers: Round 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: no sloughing, no after cooking darkening, fluffy texture, good flavor, fully cooked tuber center. Microwaved: slight after cooking darkening, fluffy texture, bland flavor, mushy tuber center, steamy skin.
ATX03564-1Y/Y	
	Tubers: Oblong tubers. Good skin set; shallow eyes. Fry color: light, uniform. Baked: slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, fully cooked skin. Boiled: slight sloughing, no after cooking darkening, fluffy texture, bland flavor, fully cooked tuber center. Microwaved: no after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
CO04013-1W/Y	
	Tubers: Round tubers. Good skin set; shallow eyes. Fry color: light, uniform. Baked: slight after cooking darkening, fluffy texture, bland flavor, mushy tuber center, fully cooked skin. Boiled: excessive sloughing, slight after cooking darkening, pasty texture, unacceptable flavor, mushy tuber center. Microwaved: slight after cooking darkening, fluffy texture, bland flavor, mushy tuber center, fully cooked skin.

Chips	Fries	Baked	Boiled	Microwaved
Purple Majesty				
				
POR05PG56-1				
				
Yukon Gold				
				
ATX03564-1Y/Y				
				
CO04013-1W/Y				
				

Tubers

WA Red and Specialty Regional Trial Comments

OR04036-5



Tubers: Oblong tubers. Good skin set; shallow eyes. **Fry color:** light, uniform. **Baked:** slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin. **Boiled:** slight sloughing, moderate after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.

Postharvest Evaluation

(French Fried)

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

(Chips)

(BOILED Cooking Time)

Clone	Raw				After Frying					Av of 6 raters SFA	Time to Breakdown (min)		
	Stem	Bud	Average	Difference	Stem	Bud	Average	Difference	USDA		Stem	Bud	Average
1 Chieftain	56.3	56.4	56.3	1.6	27.1	32.0	29.5	5.7	1	4.0	6.7	5.2	6.0
2 Dk Red Norland	58.7	57.5	58.1	1.5	28.0	29.8	28.9	7.3	1	3.9	7.3	4.4	5.8
3 Red LaSoda	58.8	60.3	59.5	1.8	19.7	21.6	20.7	3.7	2	4.8	8.0	6.1	7.1
4 ATTX98453-6R	58.3	58.8	58.5	1.4	15.3	18.8	17.0	3.5	3	5.0	8.0	6.4	7.2
5 CO00277-2R	57.5	58.2	57.8	1.3	17.5	19.3	18.4	2.6	3	4.9	8.5	5.4	6.9
6 CO00291-5R	54.4	55.5	55.0	1.5	20.4	24.4	22.4	4.1	2	5.0	7.2	5.6	6.4
7 OR04131-2	60.8	59.8	60.3	1.4	36.1	42.1	39.1	6.0	0	4.1	5.0	5.0	5.0
8 ATTX98468-5R/Y	53.5	54.8	54.1	1.9	30.6	30.7	30.7	3.6	0	3.8	6.1	5.1	5.6
9 CO04021-2R/Y	48.8	49.5	49.2	1.6	21.8	24.2	23.0	5.2	2	4.7	6.0	5.0	5.5
10 COTX01403-4R/Y	53.8	53.8	53.8	1.3	32.0	32.1	32.0	5.4	0	4.4	4.0	3.9	4.0
11 Purple Majesty	5.1	4.9	5.0	0.4	13.2	13.3	13.2	2.3	4	4.2	5.4	3.2	4.5
12 POR05PG56-1	7.4	8.9	8.2	2.3	15.8	17.9	16.8	2.4	3	4.5	4.4	4.2	4.3
13 Yukon Gold	53.6	55.7	54.7	2.2	17.3	27.8	22.5	10.5	3	5.0	6.6	4.0	5.3
14 ATX03564-1Y/Y	52.0	51.4	51.7	2.4	23.5	26.6	25.1	3.2	2	4.3	5.7	4.4	5.1
15 CO04013-1W/Y	51.3	51.7	51.5	1.0	36.2	38.0	37.1	2.8	0	3.3	3.9	3.3	3.6
16 OR04036-5	53.3	55.7	54.5	2.6	20.0	27.8	23.9	8.0	2	5.0	4.2	3.6	3.9
LSD 0.05 *			1.6	1.1			3.4	2.8			1.9	1.1	
Average	49.0	49.5	49.3	1.6	23.4	26.6	25.0	4.8	2	4.4	6.1	4.7	5.4

*Differences between clones equal to or greater than the LSD 0.05 are significant. Entries with purple (Purple Majesty & POR05PG56-1) flesh were not included in the ANOVA. All other entries have white or yellow flesh. SFA 1 (lightest) to 5 (darkest).

Chips	Fries	Baked	Boiled	Microwaved
OR04036-5				
				

Postharvest Evaluation

Clone	Boiled (25 max)	Baked (25 max)	Microwaved (25 max)	Total (75 max)
13 Yukon Gold	21.7	19.6	17.5	58.8
12 POR05PG56-1	19.7	19.0	18.4	57.1
1 Chieftain	18.8	19.4	18.3	56.6
5 CO00277-2R	19.3	17.5	19.8	56.5
7 OR04131-2	21.3	18.3	16.8	56.4
14 ATX03564-1Y/Y	19.5	18.6	17.6	55.7
4 ATTX98453-6R	19.6	18.4	17.6	55.6
2 Dk Red Norland	17.2	20.1	17.4	54.7
16 OR04036-5	17.3	18.5	18.7	54.5
11 Purple Majesty	19.2	17.6	17.1	53.8
3 Red LaSoda	17.5	18.8	16.7	53.0
15 CO04013-1W/Y	13.8	19.1	19.5	52.5
10 COTX01403-4R/Y	16.2	18.8	16.7	51.6
6 CO00291-5R	17.8	17.2	16.3	51.3
8 ATTX98468-5R/Y	15.8	18.0	15.9	49.8
9 CO04021-2R/Y	15.8	17.0	16.7	49.5

French Fried: Aug. 20 & 22
 Chipped: Aug. 20 & 22
 Boiled: Aug. 10 & 16
 Microwaved: Aug. 9 & 15
 Baked: Aug. 8 & 14
 Cooking Time: Aug. 31

2012 Washington Regional Red and Specialty Trial

Red Clone Postharvest Evaluation

Boiled

Clone	After Cooking			Tuber Center	Sloughing	Total Rating
	Flavor	Darkening	Texture			
1 Chieftain	3.8	4.3	2.8	4.3	3.5	18.8
2 Dk Red Norland	2.3	3.7	2.5	4.3	4.3	17.2
3 Red LaSoda	2.8	4.0	2.5	4.5	3.7	17.5
4 ATTX98453-6R	3.3	4.5	3.2	4.7	3.9	19.6
5 CO00277-2R	3.6	4.5	2.3	4.7	4.2	19.3
6 CO00291-5R	3.0	3.7	2.0	4.2	5.0	17.8
7 OR04131-2	3.7	4.2	3.8	4.7	5.0	21.3
8 ATTX98468-5R/Y	2.5	3.2	1.7	4.2	4.3	15.8
9 CO04021-2R/Y	2.2	3.2	2.5	4.2	3.8	15.8
10 COTX01403-4R/Y	3.3	3.5	2.3	4.0	3.0	16.2
LSD 0.05	NS	1.1	1.2	NS	0.9	2.7
Average	3.2	4.1	2.7	4.5	4.2	18.8

Oven Baked

Clone	After cooking			Tuber Center	Skin Rating	Total Rating
	Flavor	Darkening	Texture			
1 Chieftain	3.5	4.2	3.0	4.1	4.7	19.4
2 Dk Red Norland	4.2	3.8	3.4	4.3	4.4	20.1
3 Red LaSoda	3.6	3.8	2.8	3.7	4.8	18.8
4 ATTX98453-6R	2.8	4.2	3.1	3.7	4.7	18.4
5 CO00277-2R	3.3	4.3	3.4	4.0	2.5	17.5
6 CO00291-5R	2.6	4.1	2.2	4.2	4.2	17.2
7 OR04131-2	3.1	4.4	3.2	3.2	4.3	18.3
8 ATTX98468-5R/Y	3.5	3.7	2.7	3.4	4.8	18.0
9 CO04021-2R/Y	3.2	3.2	2.9	4.2	3.5	17.0
10 COTX01403-4R/Y	3.7	4.1	3.0	4.3	3.8	18.8
LSD 0.05	1.1	0.6	0.9	0.9	0.9	3.1
Average	3.3	4.0	3.0	3.9	4.2	18.3

Microwaved

Clone	After cooking			Tuber Center	Skin Rating	Total Rating
	Flavor	Darkening	Texture			
1 Chieftain	4.2	4.3	2.5	3.2	4.3	18.3
2 Dk Red Norland	3.3	3.2	3.2	3.5	4.3	17.4
3 Red LaSoda	2.9	4.0	2.8	2.8	4.3	16.7
4 ATTX98453-6R	3.7	4.2	2.6	2.9	4.3	17.6
5 CO00277-2R	4.0	4.5	3.2	3.5	4.8	19.8
6 CO00291-5R	3.0	3.8	2.0	3.3	4.1	16.3
7 OR04131-2	2.6	4.1	2.3	3.7	4.1	16.8
8 ATTX98468-5R/Y	2.4	3.3	2.8	3.0	4.3	15.9
9 CO04021-2R/Y	2.8	3.2	3.0	3.3	4.4	16.7
10 COTX01403-4R/Y	3.2	4.0	2.6	2.8	4.1	16.7
LSD 0.05	1.1	0.6	0.8	NS	NS	2.4
Average	3.2	3.9	2.7	3.2	4.3	17.2

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

2012 Washington Regional Red and Specialty Trial

Specialty Clone Postharvest Evaluation

Boiled

Clone	After Cooking			Tuber Center	Sloughing	Total Rating
	Flavor	Darkening	Texture			
11 Purple Majesty	3.7	3.5	3.5	4.7	3.8	19.2
12 POR05PG56-1	2.8	4.5	3.0	4.7	4.7	19.7
13 Yukon Gold	3.8	4.7	3.5	4.8	4.8	21.7
14 ATX03564-1Y/Y	2.7	4.5	3.5	4.5	4.3	19.5
15 CO04013-1W/Y	2.3	4.3	1.8	4.0	1.3	13.8
16 OR04036-5	2.8	3.3	3.0	3.8	4.3	17.3
<i>LSD 0.05</i>	<i>NS</i>	<i>1.1</i>	<i>1.4</i>	<i>0.9</i>	<i>0.6</i>	<i>4.1</i>
Average	3.0	4.1	3.1	4.4	3.9	18.5

Oven Baked

Clone	After cooking			Tuber Center	Skin Rating	Total Rating
	Flavor	Darkening	Texture			
11 Purple Majesty	3.5	3.2	3.6	3.6	3.6	17.6
12 POR05PG56-1	3.7	3.5	3.6	3.8	4.4	19.0
13 Yukon Gold	3.9	3.9	3.9	3.9	4.1	19.6
14 ATX03564-1Y/Y	3.1	4.4	3.0	3.7	4.5	18.6
15 CO04013-1W/Y	2.7	4.4	3.7	3.7	4.6	19.1
16 OR04036-5	3.6	3.6	2.9	3.9	4.4	18.5
	<i>0.9</i>	<i>0.7</i>	<i>0.8</i>	<i>NS</i>	<i>0.8</i>	<i>NS</i>
Average	3.4	3.8	3.5	3.8	4.3	18.8

Microwaved

Clone	After cooking			Tuber Center	Skin Rating	Total Rating
	Flavor	Darkening	Texture			
11 Purple Majesty	3.2	3.1	3.7	3.3	3.7	17.1
12 POR05PG56-1	3.1	3.6	3.6	3.7	4.4	18.4
13 Yukon Gold	2.7	4.0	3.8	2.6	4.4	17.5
14 ATX03564-1Y/Y	3.3	4.6	3.1	2.3	4.3	17.6
15 CO04013-1W/Y	3.1	3.6	4.2	3.9	4.7	19.5
16 OR04036-5	3.9	3.6	2.7	4.4	4.1	18.7
	<i>1.2</i>	<i>1.2</i>	<i>1.5</i>	<i>1.0</i>	<i>1.0</i>	<i>NS</i>
Average	3.2	3.8	3.5	3.3	4.3	18.1

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

Index of Clones and Cultivars

Early Harvest Tri-State Trial24-33

A0012-5
A0073-2
A01325-1
A02062-1TE
A02144-2
A02424-83LB
A03082-4
A03131-4TE

A03921-2
A05013-29
A05015-5TE
A05052-3TE
A06003-3TE
A06015-13TE
A06029-5TE
A06084-1TE

AO01114-4
AO03123-2
OR05039-4
POR06V12-3
Ranger Russet
Russet Burbank
Russet Norkotah

Late Harvest Tri-State Trial34-65

A0012-5
A0073-2
A01325-1
A02144-2
A02424-83LB
A03082-4
A03921-2

A05013-29
A05015-5TE
A05052-3TE
A06003-3TE
A06015-13TE
A06084-1TE
AO01114-4

AO03123-2
OR05039-4
POR06V12-3
Ranger Russet
Russet Burbank

Early Harvest Regional Trial66-73

A01010-1
A02138-2
A02507-2LB
A03158-2TE
A99029-3E
AC00395-2RU

AO00057-2
AO02060-3
AO02183-2
AO96305-3
CO03187-1RU
CO03202-1RU

CO03276-4RU
CO03276-5RU
PA00N14-2
Ranger Russet
Russet Burbank
Russet Norkotah

Late Harvest Regional Trial74-105

A01010-1
A02138-2
A02507-2LB
A03158-2TE
AC00395-2RU

AO00057-2
AO02060-3
AO02183-2
AO96305-3
CO03202-1RU

CO03276-4RU
PA00N14-2
Ranger Russet
Russet Burbank
Russet Norkotah

Regional Red and Specialty Trial106-123

ATTX98453-6R
ATTX98468-5R/Y
ATX03564-1Y/Y
Chieftain
CO00277-2R
CO00291-5R

CO04013-1W/Y
CO04021-2R/Y
COTX01403-4R/Y
Dark Red Norland
OR04036-5
OR04131-2

POR05PG56-1
Purple Majesty
Red LaSoda
Yukon Gold