2014 Potato Cultivar Yield and Postharvest Quality Evaluations

WSU Potato Research Group

WASHINGTON STATE UNIVERSITY

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2014 Potato Cultivar Yield and Postharvest Quality Evaluations

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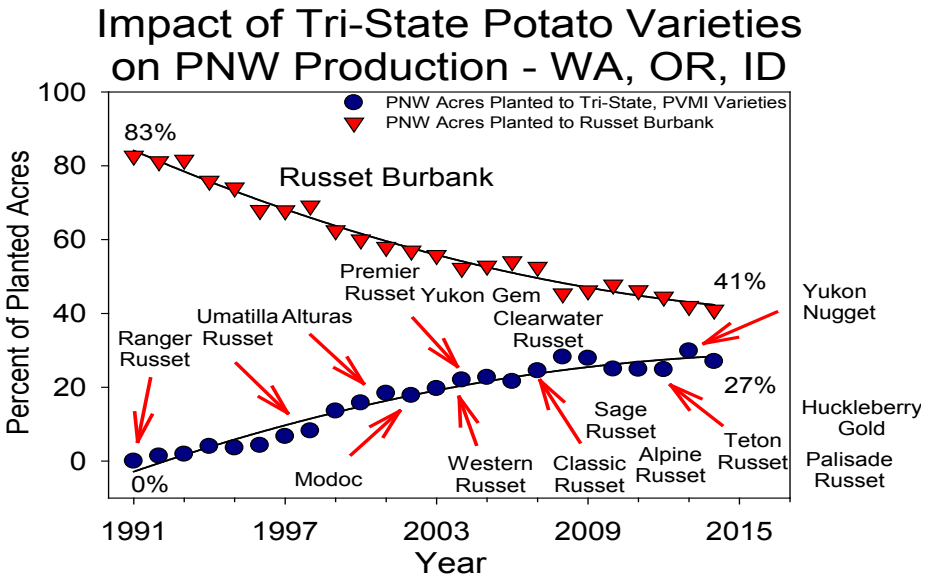
INTRODUCTION

The 2014 Washington "Potato Cultivar Yield and Postharvest Quality Evaluations" is an annual report providing detailed information about promising new potato clones and cultivars grown in Washington conducted by the Washington State University (WSU) Potato Research Group. Our mission: to identify and release new potato varieties that will provide profitable, sustainable production for the grower, improved competitiveness for the Washington and NW US 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 of 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 organization 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, Bannock Russet, and Clearwater 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 2nd, 4th, 7th, 8th, and 15th most widely grown cultivars in the United States in 2014, respectively, with Tri-State varieties representing 25%, or 264,000 acres, of the fall crop nationally. (NASS, Crop Production, November, 2014). Ranger Russet, Umatilla Russet, and Alturas were the 2nd, 4th, and 5th most widely grown cultivars in the PNW (ID, OR, WA) in 2014, respectively, and accounted for 27% of the PNW planted acreage. Varieties recently released by the Tri-State program are now produced on more than 141,000 acres in the Pacific Northwest with value to growers estimated at approximately $510 million. Compared with 2012, the 2014 US farm-gate value of Tri-State varieties increased by approximately $15 million.



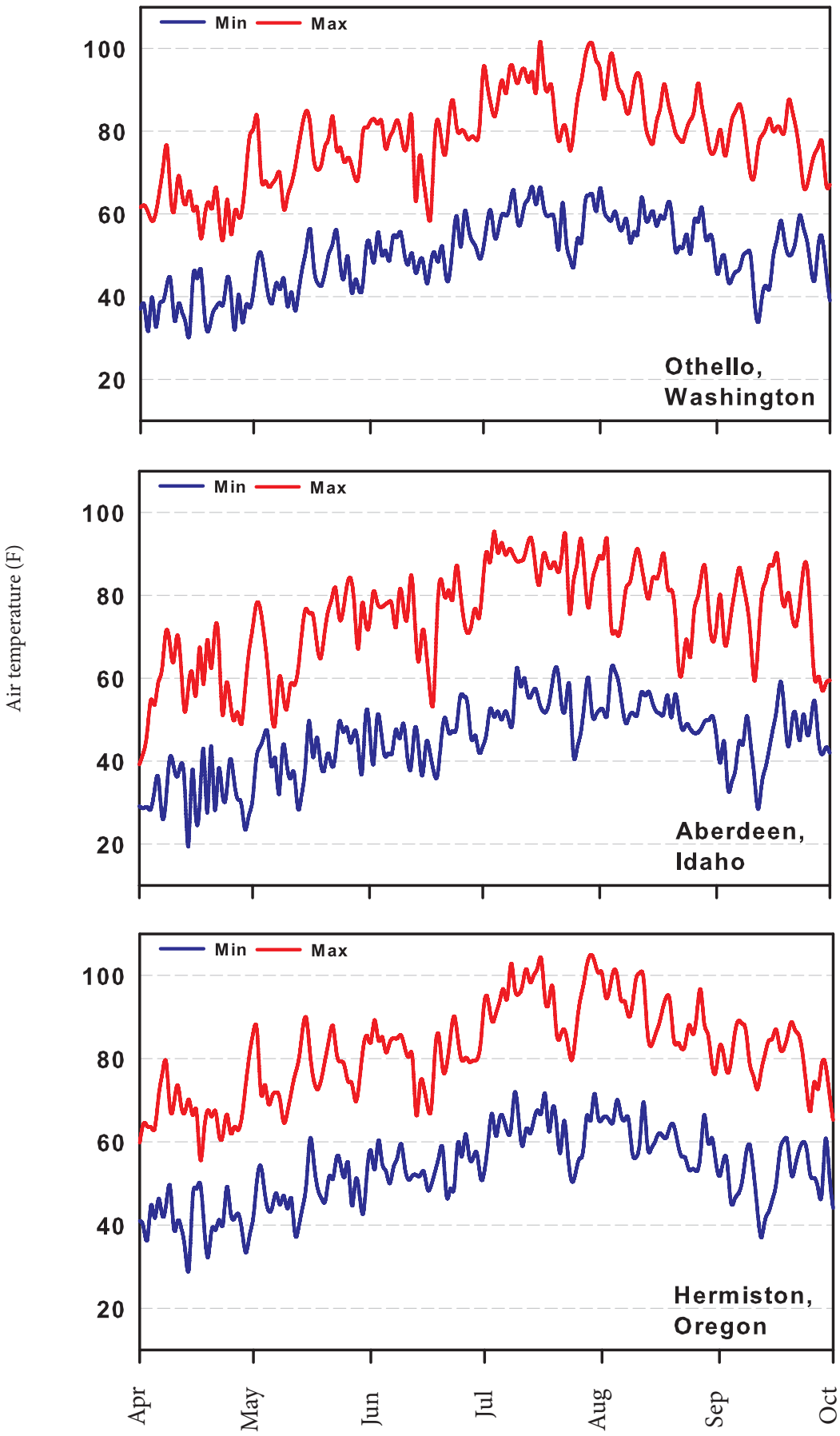
Cultural Information

Late Tri-State and Late Regional Trials

Tri-State Trial	Othello, WA	Aberdeen, ID	Hermiston, OR
Soil type	Shano silt loam	Silt loam	Loamy fine sand
Previous crop	Corn	Small Grains	Triticale
Planting date	April 3	May 2	April 10
Vine kill date	September 2	August 28	September 14
Soil moisture at harvest	Moist-Dry	N/A	N/A
Temperature at harvest	73°F	N/A	N/A
Harvest date	September 9	September 17	September 25
Storage temperature	48°F	60°F-65°F	45°F
Date received at Pullman	September 11	September 18	September 26

Regional Trial	Othello, WA	Aberdeen, ID	Hermiston, OR
Soil type	Shano silt loam	Silt loam	Loamy fine sand
Previous crop	Corn	Small Grains	Triticale
Planting date	April 3	May 2	April 10
Vine kill date	September 2	August 28	September 14
Soil moisture at harvest	Moist-Dry	N/A	N/A
Temperature at harvest	73°F	N/A	N/A
Harvest date	September 9	September 17	September 25
Storage temperature	48°F	60°F-65°F	45°F
Date received at Pullman	September 11	September 18	September 26

2014 Growing Season Temperatures



Guide to Clone Designations

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

Location Codes

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

Miscellaneous Designations

PA97**B**3-2	**B**	=	Chuck **B**rown's cross
A93157-6**LS**	**LS**	=	**L**ow **S**ugar
CO94165-3**P/P**	**P/P**	=	**P**urple skin & **P**urple flesh
A96741-2**R**	**R**	=	**R**ed skin
CO94183-1**R/R**	**R/R**	=	**R**ed skin / **R**ed flesh
VC0967-2**R/Y**	**R/Y**	=	**R**ed skin / **Y**ellow flesh
ATX92230-1**Ru**	**Ru**	=	**Ru**sset skin
VC1009-1**W/Y**	**W/Y**	=	**W**hite skin & **Y**ellow flesh
A97066-42**LB**	**LB**	=	**L**ate **B**light resistance
AC9923**PW/Y**	**PW/Y**	=	**P**urple skin with **W**hite eyes/ **Y**ellow flesh
AC9653**P/Y**	**P/Y**	=	**P**urple skin/**Y**ellow flesh
CO977-2**P/PW**	**P/PW**	=	**P**urple skin/**P**urple & **W**hite flesh
A99029-3**E**	**E**	=	**E**arly maturing
A0008-1**TE**	**TE**	=	**TE**tonia, ID Selection, Early maturing
A07008-4**T**	**T**	=	**T**etonia, ID Selection, Late maturing
A06914-3**CR**	**CR**	=	**C**orky **R**ingspot resistance
A06862-18**VR**	**VR**	=	**V**irus **R**esistance

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.

Multi-Year Summaries of Graduating Russet Entries and Reference Varieties

Entry	Year	Early/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 Early/Late Fresh	Field Performance Early/Late Process	Postharvest Processing Performance
		CWT/A	% of Total		oz/number	%				
A02062-1TE	2014	450	80	1.074	8.6/5.4	none	none	3.5	2.6	-
(Early Harvest)	2013	477	59	1.069	5.5/8.4	none	none	5.0	4.0	-
data only	2012	368	50	1.067	5.5/7.5	none	none	2.6	2.2	-
	2011	442	81	1.075	7.6/6.1	0/39	none	4.0	2.2	-
	2010	518	87	1.073	7.2/6.4	15/8	none	1.9	2.0	-
	Early to mid harvest variety. Fresh market standout at least one year. Often looks like a long Russet Norkotah. May be too long at times; ends can be pointy. Dark russeting, nice shape overall.									
A02507-2LB	2014	352/684	76	1.090	7.5/7.9	19/75	3% IBS	1.3/2.4	2.0/3.5	4.8
	2013	317/756	77	1.094	7.4/8.3	25/50	21% IBS	0.6/1.8	0.9/3.7	4.4
	2012	312/899	79	1.087	7.7/10.2	3/90	5% IBS	0.6/2.9	3.2/4.2	4.7
	2011	388/816	83	1.096	8.4/8.7	30/50	8% BC, 3% IBS	2.0/3.3	3.2/4.1	4.4
	Late harvest variety. IBS and short/round shape a concern in the Columbia Basin, not recommended for fresh pack due to shape and appearance. Slow emergence, not an early harvest variety. On the other hand, this variety has good dormancy for storage.									
A03158-2TE	2014	543/814	83	1.074	10.1/7.0	13/45	13% HH	3.8/1.8	4.2/3.6	2.6
	2013	505/844	70	1.075	7.3/9.5	33/33	8% HH, 6% IBS	2.9/3.0	2.4/3.4	2.3
	2012	463/872	78	1.077	7.6/9.9	18/71	none	2.5/2.8	4.2/3.4	3.1
	2011	551/892	87	1.081	9.4/8.5	3/42	3% HH	4.4/4.5	4.2/3.3	4.6
	Nice shape, deeper eyes, high market yield. Fresh market standout at least one year. Hollow heart may be an issue in locations with high incidence, 17% HH early harvest 2013, 13% HH early harvest 2011. Specific gravity similar or lower than R. Burbank. Fresh pack or process market, typically mid to late maturity, but could kill early for early to mid harvest.									
AO02060-3	2014	467/672	75	1.079	7.8/7.5	17/40	none	1.4/2.5	2.7/3.2	3.0
	2013	524/696	70	1.080	7.3/7.7	21/44	6% HH, 3% IBS	2.8/0.9	2.9/2.7	2.9
	2012	402/669	65	1.081	6.2/9.4	10/73	none	1.1/1.1	3.1/2.7	3.9
	2011	403/724	83	1.081	8.6/7.4	23/43	none	3.1/2.8	3.1/3.9	4.8
	2010	615/721	67	1.089	6.0/10.4	6/88	none	3.1/2.8	-	-
	Mostly nice shape; however, it is somewhat short/round. Fresh market standout at least one year. Skin may produce spotty/non-uniform russeting, which may be an issue for fresh market. A mid to late harvest is prefered with this variety.									
Ranger R.	2014	524/681	76	1.077	8.9/6.6	49/19	3% IBS	NA	4.3/2.5	2.8
	2013	479/821	75	1.085	7.9/8.4	29/45	none	NA	2.7/4.4	3.8
	2012	396/852	86	1.085	9.6/7.7	50/50	3% IBS	NA	3.1/4.6	3.1
	2011	468/735	75	1.086	7.5/8.4	49/46	3% IBS	NA	3.1/3.5	4.1
	2010	630/782	78	1.091	7.6/9.0	29/52	none	NA	3.5/3.7	3.5
	Long, shape variable at times, yet uniform other times									
R. Burbank	2014	466/730	63	1.077	9.4/6.8	31/61	3% HH, 6% IBS	0.9/0.4	1.3/1.2	2.0
	2013	364/738	67	1.075	8.0/7.5	22/47	9% HH, 3% BC	1.2/0.6	1.4/1.7	1.9
	2012	364/710	63	1.076	7.0/8.8	27/57	10%HH, 20% BC	0.5/0.9	1.0/1.6	1.9
	2011	487/641	68	1.076	6.8/8.2	6/24	35%HH, 21% BC	2.3/1.3	3.3/1.5	3.9
	2010	676/683	70	1.079	7.1/8.2	19/62	10% HH, 19% BC	1.9/3.0	3.2/2.3	2.4
	Shape typically variable, often with many growth cracks and knobs									
R. Norkotah	2014	465/730	73	1.068	7.5/8.0	22/11	none	2.3/3.5	NA	NA
	2013	364/598	58	1.067	5.7/8.5	18/33	3% HH, 3% IBS	2.0/1.0	NA	NA
	2012	355/522	56	1.072	5.7/8.0	14/59	none	1.3/1.2	NA	NA
	2011	360/506	48	1.070	5.1/8.6	0/38	5% HH, 10% BC	1.1/1.6	NA	NA
	Shape and skin typically very uniform, size profile typically on the small side									
Shepody	2014	553	84	1.073	9.9/5.8	13/0	none	NA	3.8	-
(Early Harvest)	2013	354	77	1.062	7.9/4.4	5/10	none	NA	2.6	-
only	Early-harvest processing variety. Post-harvest merit not available as this and most varieties typically produce acceptable fries directly from the field.									

*Early Harvest ~ 110 days after planting, Late Harvest ~ 150 DAP.

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

FRESH MARKET MERIT - NEWEST LINES
2012-2014

(5 = best) - Entries ranked by means

EARLY HARVEST - Fresh Market Merit Scores

	Entry	Mean	2014	2013	2012
1	AO06191-1	**4.0**	4.0	-	-
2	A06029-4T	**3.1**	2.8	3.5	-
3	A05084-11	**2.7**	2.1	3.3	-
4	A03141-6	**2.5**	2.2	2.8	-
5	A06014-14TE	**2.0**	2.0	-	-
6	A07008-4T	**1.9**	1.9	-	-
7	Russet Norkotah	**1.9**	2.5	1.7	1.4
8	A08014-9TE	**1.8**	1.8	-	-
9	Ranger Russet	**1.8**	2.6	1.3	1.4
10	Shepody	**1.6**	2.2	1.8	1.0
11	A07103-1T	**1.5**	1.5	-	-
12	OR08014-4	**1.5**	1.5	-	
13	AO03123-2	**1.5**	2.0	1.5	1.0
14	A06408-99LB	**1.4**	1.4	-	-
15	A06914-3CR	**1.4**	1.4	-	-
16	A08014-11TE	**1.4**	1.4	-	-
17	A06096-2	**1.4**	1.4	-	-
18	COA05149-2	**1.4**	1.4	-	-
19	AOR06070-1KF	**1.3**	1.3	1.4	-
20	Russet Burbank	**1.3**	2.3	0.9	0.9
21	A06862-18VR	**1.0**	1.0	-	-
22	A0073-2	**1.0**	0.6	1.3	1.0
23	A06020-8	**0.6**	0.6	-	-

LATE HARVEST - Fresh Market Merit Scores

	Entry	Mean	2014	2013	2012
1	A07008-4T	**2.5**	2.5	-	-
2	A06914-3CR	**2.3**	1.4	3.3	-
3	A07103-1T	**2.3**	2.3	-	-
4	AO03123-2	**2.2**	1.1	3.5	2.1
5	Russet Norkotah	**1.9**	2.6	2.0	1.2
6	A06096-2	**1.9**	1.9	-	-
7	A03141-6	**1.8**	1.4	2.1	-
8	A06408-99LB	**1.8**	1.8	-	-
9	OR08014-4	**1.6**	1.6	-	-
10	A06862-18VR	**1.6**	1.6	-	-
11	AO06191-1	**1.5**	1.5	-	-
12	A06014-14TE	**1.4**	1.4	-	-
13	AOR06070-1KF	**1.4**	1.4	1.4	-
14	A0073-2	**1.3**	1.1	1.5	1.4
15	A08014-9TE	**1.3**	1.3	-	-
16	Ranger Russet	**1.3**	1.4	1.1	1.4
17	Russet Burbank	**1.1**	1.6	1.1	0.5
18	A08014-11TE	**1.0**	1.0	-	-
19	COA05149-2	**1.0**	1.0	-	-
20	A06020-8	**0.6**	0.6	-	-

For more information on these cultivars, see the Early and Late Harvest Regional Trial Sections in this Book. The dash (" - ") indicates the clone was not yet entered into the trial.

FRESH MARKET MERIT - ADVANCED LINES
2010-2014

(5 = best) - Entries ranked by means

EARLY HARVEST - Fresh Market Merit Scores

	Entry	Mean	2014	2013	2012	2011	2010
1	A06021-1T	**4.4**	4.9	3.9	-	-	-
2	CO03276-5RU	**3.7**	3.9	3.3	3.8	-	-
3	A02062-1TE	**3.4**	3.5	5.0	2.6	4.0	1.9
4	A03158-2TE	**3.4**	3.8	2.9	2.5	4.4	-
5	CO05175-1RU	**2.8**	2.8	-	-	-	-
6	AO01114-4	**2.8**	4.9	1.6	3.1	3.0	1.4
7	AO02060-3	**2.3**	1.4	2.8	1.1	3.1	3.1
8	POR06V12-3	**2.2**	2.8	2.8	1.0	-	-
9	Shepody	**2.1**	1.9	2.3	-	-	-
10	Ranger Russet	**2.1**	2.6	1.7	1.6	2.2	2.3
11	A03921-2	**2.0**	3.4	1.3	1.4	-	-
12	OR05039-4	**1.9**	1.8	1.8	0.9	3.0	-
13	Russet Norkotah	**1.8**	2.3	2.0	1.3	2.0	1.5
14	A06084-1TE	**1.7**	1.4	2.3	1.4	-	-
15	Russet Burbank	**1.5**	0.9	1.2	0.5	2.8	1.9
16	A02424-83LB	**1.3**	1.0	1.8	1.1	-	-
17	CO05068-1RU	**1.1**	1.1	-	-	-	-
18	A02507-2LB	**1.1**	1.3	0.6	0.6	2.0	-

LATE HARVEST - Fresh Market Merit Scores

	Entry	Mean	2014	2013	2012	2011	2010
1	CO05175-1RU	**3.7**	3.7	-	-	-	-
2	POR06V12-3	**3.5**	4.0	4.1	2.3	-	-
3	A03158-2TE	**3.0**	1.8	3.0	2.8	4.5	-
4	A02507-2LB	**2.6**	2.4	1.8	2.9	3.3	-
5	A03921-2	**2.5**	1.5	3.5	-	-	-
6	A06021-1T	**2.4**	3.2	3.4	0.8	-	-
7	OR05039-4	**2.3**	2.0	2.2	1.5	3.5	-
8	CO03276-5RU	**2.3**	2.3	-	-	-	-
9	Ranger Russet	**2.1**	1.3	0.9	1.8	2.9	3.9
10	Russet Norkotah	**2.0**	3.5	1.0	1.2	2.0	2.5
11	A06084-1TE	**2.0**	0.7	1.9	3.5	-	-
12	AO02060-3	**2.0**	2.5	0.9	1.1	2.8	2.8
13	CO05068-1RU	**1.9**	1.9	-	-	-	-
14	AO01114-4	**1.8**	0.7	1.0	1.4	3.5	2.3
15	Russet Burbank	**1.6**	0.4	0.6	0.9	2.7	3.3
16	A02424-83LB	**1.2**	1.0	0.6	2.0	-	-

For more information on these cultivars, see the Early and Late Harvest Regional Trial Sections in this Book. The dash (" - ") indicates the clone was not yet entered into the trial.

PROCESS MARKET MERIT - NEWEST LINES
2012-2014

(5 = best) - Entries ranked by Field Performance means

EARLY HARVEST - Process Market Merit Scores

	Entry	Field Performance Mean	Field Performance Only* 2014	2013	2012
1	AO06191-1	**4.3**	4.3	-	-
2	A06914-3CR	**4.2**	4.2	-	-
3	OR08014-4	**3.9**	3.9	-	-
4	A06408-99LB	**3.5**	3.5	-	-
5	A07103-1T	**3.4**	3.4	-	-
6	A03141-6	**3.4**	4.4	2.4	-
7	A06096-2	**3.2**	3.2	-	-
8	A07008-4T	**3.1**	3.1	-	-
9	Shepody	**3.0**	3.3	2.8	-
10	A06029-4T	**2.9**	2.3	3.5	-
11	AOR06070-1KF	**2.9**	3.1	2.7	-
12	A08014-9TE	**2.8**	2.8	-	-
13	Russet Norkotah	**2.8**	2.0	3.3	3.1
14	Ranger Russet	**2.6**	2.8	2.7	2.4
15	A06014-14TE	**2.6**	2.6	-	-
16	Russet Burbank	**2.6**	3.5	1.6	2.6
17	A05084-11	**2.5**	1.6	3.4	-
18	A06862-18VR	**2.5**	2.5	-	-
19	COA05149-2	**2.2**	2.2	-	-
20	AO03123-2	**2.1**	2.4	2.2	1.7
21	A0073-2	**1.8**	1.7	1.5	2.2
22	A08014-11TE	**1.7**	1.7	-	-
23	A06020-8	**1.1**	1.1	-	-

*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. The dash (" - ") indicates the clone was not yet entered into the trial.

LATE HARVEST - Process Market Merit Scores

		Field & Postharvest Processing Performance							
		All Years		2014		2013		2012	
	Entry	Field Mean	Post Harvest Mean	Field	Post Harv	Field	Post Harv	Field	Post Harv
1	A03141-6	**4.5**	**4.3**	4.5	4.3	-	-	-	-
2	A07103-1T	**4.0**	**2.8**	4.0	2.8	-	-	-	-
3	AO03123-2	**3.8**	**4.1**	2.9	3.5	4.7	4.6	3.8	4.3
4	OR08014-4	**3.7**	**4.0**	3.7	4.0	-	-	-	-
5	Ranger Russet	**3.5**	**3.0**	2.8	2.7	3.7	3.2	4.0	3.1
6	A0073-2**	**3.3**	**4.5**	2.1	4.4	4.6	4.5	-	-
7	A07008-4T	**3.1**	**3.9**	3.1	3.9	-	-	-	-
8	A06096-2	**3.0**	**3.4**	3.0	3.4	-	-	-	-
9	AOR06070-1KF	**2.9**	**3.9**	3.1	3.8	2.8	4.0	-	-
10	A06408-99LB	**2.4**	**4.1**	2.4	4.1	-	-	-	-
11	AO06191-1	**2.3**	**3.1**	2.3	3.1	-	-	-	-
12	Russet Burbank	**2.2**	**1.8**	3.1	2.0	2.5	1.6	1.0	1.8
13	A06014-14TE	**2.2**	**3.5**	2.2	3.5	-	-	-	-
14	A08014-11TE	**2.0**	**2.7**	2.0	2.7	-	-	-	-
15	A06914-3CR	**1.9**	**4.0**	1.9	4.0	-	-	-	-
16	A06862-18VR	**1.7**	**3.7**	1.7	3.7	-	-	-	-
17	A06020-8	**1.6**	**4.1**	1.6	4.1	-	-	-	-
18	A08014-9TE	**1.2**	**3.2**	1.2	3.2	-	-	-	-
19	COA05149-2	**1.0**	**3.4**	1.0	3.4	-	-	-	-

**A0073-5 produced fries with variable color in a striated pattern in 2012. This may be due to a virus, rather than genetics; however, if it is related to genetics, this clone and its fries would be unacceptable.For more information on these cultivars, see the Early and Late Harvest Regional Trial sections in this book.

PROCESS MARKET MERIT - ADVANCED LINES
2010-2014

(5 = best) - Entries ranked by Field Performance means

EARLY HARVEST - Process Market Merit Scores

	Entry	Field Performance Mean	Field Performance Only* 2014	2013	2012	2011	2010
1	CO05175-1RU	**4.1**	4.1	-	-	-	-
2	A03921-2	**3.9**	4.7	3.7	-	-	-
3	A06021-1T	**3.7**	4.2	3.2	-	-	-
4	A03158-2TE	**3.5**	4.2	2.5	4.2	4.2	-
5	Ranger Russet	**3.5**	4.3	2.7	4.0	4.0	3.5
6	CO05068-1RU	**3.5**	3.5	-	-	-	-
7	AO01114-4	**3.4**	4.9	1.5	3.8	3.8	4.2
8	A02424-83LB	**3.3**	3.4	3.8	-	-	-
9	CO03276-5RU	**3.3**	4.0	2.8	-	-	-
10	Shepody	**3.2**	3.8	2.6	-	-	-
11	OR05039-4	**2.8**	3.1	2.2	3.8	3.8	-
12	A02062-1TE	**2.7**	2.6	4.0	2.2	2.2	2.0
13	POR06V12-3	**2.7**	2.7	2.6	-	-	-
14	AO02060-3	**2.6**	2.7	2.9	3.1	3.1	-
15	Russet Norkotah	**2.5**	2.6	2.0	3.2	3.2	2.6
16	Russet Burbank	**2.3**	1.3	1.4	4.0	4.0	3.6
17	A06084-1TE	**2.0**	2.2	2.2	-	-	-
18	A02507-2LB	**1.9**	2.0	0.9	3.2	3.2	-

*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. The dash (" - ") indicates the clone was not yet entered into the trial.

LATE HARVEST - Process Market Merit Scores

Field & Postharvest Processing Performance

		All Years		2014		2013		2012		2011		2010	
	Entry	Field Mean	Post Harvest Mean	Field	Post Harv	Field	Post Harv	Field	Post Harv	Field	Post Harv	Field	Post Harv
1	POR06V12-3	**4.6**	**3.8**	4.9	3.5	4.9	4.4	4.1	3.5	-	-	-	-
2	CO05175-1RU	**4.2**	**2.8**	4.2	2.8	-	-	-	-	-	-	-	-
3	CO05068-1RU	**4.1**	**3.9**	4.1	3.9	-	-	-	-	-	-	-	-
4	Ranger Russet	**4.0**	**3.4**	2.5	2.8	4.4	3.8	4.6	3.1	4.5	4.1	4.3	3.2
5	A02507-2LB	**3.9**	**4.6**	3.5	4.8	3.7	4.4	4.2	4.7	4.1	4.4	-	-
6	A03921-2	**3.7**	**3.9**	3.3	3.5	3.3	4.2	4.3	4.1	-	-	-	-
7	A02424-83LB	**3.5**	**2.9**	3.4	2.5	2.9	2.4	4.2	3.9	-	-	-	-
8	A03158-2TE	**3.4**	**3.2**	3.6	2.6	3.4	2.3	3.4	3.1	3.3	4.6	-	-
9	OR05039-4	**3.2**	**3.7**	2.9	3.5	3.9	2.7	2.8	3.6	3.2	4.8	-	-
10	AO02060-3	**3.1**	**3.7**	3.2	3.0	2.7	2.9	2.7	3.9	3.9	4.8	-	-
11	A06021-1T	**3.0**	**2.4**	2.8	2.1	3.2	2.6	-	-	-	-	-	-
12	AO01114-4	**2.9**	**3.7**	2.8	3.6	1.9	3.0	3.0	4.2	4.1	4.3	2.9	3.5
13	Russet Burbank	**2.3**	**2.6**	1.2	2.0	1.7	1.9	1.6	1.9	3.5	3.9	3.6	3.2
14	A06084-1TE	**2.1**	**3.7**	1.2	3.3	3.3	3.9	1.8	3.8	-	-	-	-

For more information on these cultivars, see the Early and Late Harvest Regional Trial sections in this book. Varieties with 'fresh' were designated for direct processing or fresh market only.

At-Harvest Grading Comments & Fresh Market Appearance

Newest Lines - 2014 Tri-State Trials			
	Fresh Market Appearance 1-5 (5 = Best)		
Clone	2014	2013	Tuber Appearance Comments
Early Harvest Tri-State			
Ranger Russet	3.0	2.3	Large size range, shape somewhat irregular, deep eyes.
Russet Burbank	3.0	2.3	Some irregular shapes, knobs, deep eyes, a bit flat.
Russet Norkotah	3.0	2.7	Skinny, some points, eyes a bit deep, somewhat typy*.
Shepody	1.0	2.0	Large, flat, irregular shapes, pre-scab.
A0073-2	1.7	3.0	Short/round/flat/rough, irregular shapes - DISCARD.
A03141-6	1.3	4.0	Irregular size and shapes, bad pre-scab - processing only.
A05084-11	3.3	3.0	Plump, short, somewhat typy, low tuber number.
A06014-14TE	3.0	-	Nice skin, short, deep eyes, shape a bit irregular.
A06020-8	2.3	-	Smaller, many irregular shapes, 100% pre-scab.
A06029-4T	3.0	3.0	Blocky, plump, short, spotty russeting, pre-scab.
A06096-2	2.3	-	Small, round, some points, many pears, pre-scab.
A06408-99LB	2.3	-	Irregular shapes, some scab - DISCARD.
A06862-18VR	2.0	-	Highly variable shapes, spotty russeting, pre-scab.
A06914-3CR	2.0	-	Highly variable shapes, light/buff skin.
A07008-4T	4.0	-	Small, typy.
A07103-1T	2.0	-	Pear shaped, light skin, spotty russeting.
A08014-11TE	4.0	-	Nice skin, some small, short, typy.
A08014-9TE	2.7	-	Short, plump, round, nice skin.
AO03123-2	3.2	3.0	Small, short, light skin, spotty russeting, bad Rhizoctonia.
AO06191-1	4.0	-	Dark skin, poor skin set, typy.
AOR06070-1KF	2.0	2.3	Bad skin - spotty russeting, pre-scab; processing only.
COA05149-2	2.0	-	Large, flat, oval.
OR08014-4	2.3	-	Nonuniform shape, plump, flat.
Late Harvest Tri-State			
Ranger Russet	2.7	1.0	Long, skinny, shape somewhat irregular.
Russet Burbank	2.7	1.5	Irregular shape, good length, some knobs, mostly typy.
Russet Norkotah	3.3	4.0	Large, good shape and length, some Rhizoctonia.
A0073-2	2.5	2.0	Nonuniform shape, some small, short, plump; scab.
A03141-6	2.0	2.5	Large, short, irregular shape, looks a bit like Shepody.
A06014-14TE	2.9	-	Dark skin, blocky, short, irregular shape.
A06020-8	2.0	-	Ugly skin, bumpy, plump, short, some Rhizoc and scab.
A06096-2	2.0	-	Variable shapes, many small, pears, points - DISCARD.
A06408-99LB	2.5	-	Short, too round, powdery scab - DISCARD.
A06862-18VR	2.7	-	Short, round, deep eyes.
A06914-3CR	2.3	4.0	Short, round, bumpy, irregular, deep eyes - high eyebrows.
A07008-4T	3.3	-	Good length, some curves and points, mostly typy.
A07103-1T	2.3	-	Large, inconsistent shape and size.
A08014-11TE	3.3	-	Mostly blocky and typy, many smalls.
A08014-9TE	2.8	-	Too short, almost round - DISCARD.
AO03123-2	2.5	3.0	Irregular shapes, deep eyes, bumpy tubers, Rhizoctonia.
AO06191-1	4.0	-	Pretty, long, typy, dark russet, low tuber set.
AOR06070-1KF	2.5	1.0	Large, many skin defects, shatter, Rhizoctonia.
COA05149-2	2.8	-	Large, blocky, plump, flat - irregular shapes.
OR08014-4	2.8	-	Large, many short, irregular shapes, Rhizoctonia.

*Typy - Visually appealing, uniform tuber shape.

A07008-4T

A08014-11TE

AO06191-1

A07008-4T

At-Harvest Grading Comments & Fresh Market Appearance

Advanced Lines - 2014 Regional Trials				
	Fresh Market Appearance 1-5 (5 = Best)			
Clone	2014	2013	2012	Tuber Appearance Comments*
Early Harvest Regional				
Ranger Russet	3.0	2.7	2.0	Good size, somewhat typy, Rhizoctonia.
Russet Burbank	1.7	2.7	1.0	Many irregular shapes, knobs, some rot.
Russet Norkotah	3.3	3.5	2.7	Small, mostly typy*, ends a bit pointed, Rhizoctonia.
Shepody	1.7	2.0	-	Large, white, ugly; prescab.
A02062-1TE	3.7	4.0	3.0	Long, skinny, good skin, typy.
A02424-83LB	2.0	2.7	2.3	Light/white skin, variable size and shape, powdery scab.
A02507-2LB	3.0	2.0	2.0	Small, short, roundish, spotty russeting.
A03158-2TE	3.8	3.0	2.7	Mostly typy, a few irregular shapes, good skin.
A03921-2	3.0	2.0	2.3	Good length.
A06021-1T	4.0	4.0	-	Good length, typy - Best of Trial
A06084-1TE	2.7	3.7	-	Mostly typy, spotty russeting, Rhizoctonia.
AO01114-4	4.0	3.7	3.0	Nice shape, length, size - Rhizoctonia.
AO02060-3	2.7	3.0	2.3	Bad skin, spotty russeting, plump, typy.
CO03276-5RU	3.8	4.0	4.0	Typy, some curves, good skin, looks like Russet Norkotah.
CO05068-1RU	2.7	-	-	Small, short, severe Rhizoctonia.
CO05175-1RU	3.3	-	-	Flat, inconsistent skin set.
OR05039-4	2.0	2.0	2.7	White/buff skin, good length, irregular shapes
POR06V12-3	4.0	4.0	3.0	Nice skin, typy, flat, smaller.
Late Harvest Regional				
Ranger Russet	2.7	1.0	2.8	Large, some irregular shapes, mostly typy.
Russet Burbank	1.8	1.0	1.8	Large, rough, irregular shapes; some typy.
A02424-83LB	1.8	1.8	1.8	Light skin, irregular shape, short and plump, scab.
A02507-2LB	3.0	2.8	3.3	Short, plump, round.
A03158-2TE	2.5	3.0	3.0	Deep eyes, bumpy, variable shape, some round.
A03921-2	2.5	-	-	Large, oval, flat, light skin, Rhizoctonia.
A06021-1T	3.8	-	-	Typy, plump, spotty russeting.
A06084-1TE	2.3	-	-	Many small, some round, rot on ends.
AO01114-4	2.5	3.8	3.5	Mostly typy, wide netting, cracks.
AO02060-3	3.0	2.8	2.5	Skin inconsistent, length okay, mostly typy.
CO03276-5RU	3.1	-	-	Dark russeting, a bit flat, mostly typy, Rhizoctonia.
CO05068-1RU	2.8	-	-	Oval to round, short, somewhat flat.
CO05175-1RU	3.0	-	-	Flat, oval, broad, odd shapes.
OR05039-4	2.5	2.8	2.0	Plump, length okay, light skin.
POR06V12-3	3.8	4.0	3.3	Smooth, dark skin, mostly typy, Rhizoctonia.
Russet Norkotah	3.5	3.5	3.3	Non-uniform russeting, good length, mostly typy.

*Typy - Visually appealing, uniform tuber shape

A03158-2TE

AO01114-4

A06021-1T

POR06V12-3

2014 Tri-State Specialty Potato Clones - Washington State University

2014 Tri-State Specialty Trial

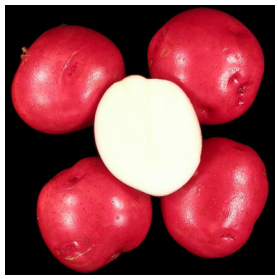
	US #1 Yield 2014			Fresh Market	(See also Tri-State Specialty Section near end of book)
	US#1 Yield	0-6 oz	6-10oz	Appearance	
	CWT/A	-----%-----		5 = best	Comments
Red Skin/White Flesh*					
Chieftain	685	50	41	3.0	Irregular shape, light red, PVY growth cracks.
NDA050237B-1R	479	51	39	3.3	Nice, deep red, irregular shape, PVY growth cracks.
Red or Purple Skin/Yellow Flesh					
A05180-3PY	673	63	29	3.0	Deep eyes, sticky stolons - DISCARD.
COA07365-4RY	550	71	24	4.0	Nice red color, size and shape.
Yellow Flesh					
Yukon Gold	540	29	38	2.7	Large size range, somewhat flat, some Rhizoctonia.
A02267-1Y	627	51	40	2.3	Highly variable shapes, nice skin, some powdery scab.
A05182-7RY	612	88	12	4.0	Nice color, size, and shape; powdery scab.
POR07PG20-2	403	89	9	3.0	Orangish color, some sprouts, short dormancy.
POR07PG3-1	571	72	22	2.5	Irregular shape, variable sizes.
NDA081451CB-1CY	627	83	16	4.0	Nice shape, size, and color.

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

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

Chieftain

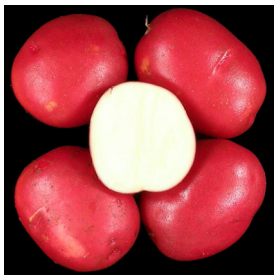
NDA050237B-1R



A05180-3PY

Yukon Gold

COA7365-4RY



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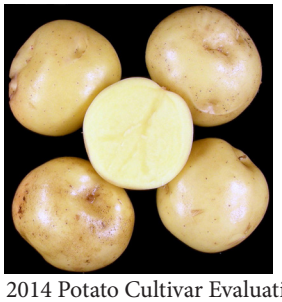


WORK HARD...PLAY HARD!

Fresh Market Value - Methods

Economic Potential

The gross return in U.S. dollars per acre for each trial entry was calculated using WA (Columbia Basin) four-year average fresh potato prices. Production costs per acre were not applied. All assumptions are listed in the table below. Assessing the fresh value of a given lot of potatoes is difficult because the actual market allows fresh-pack sheds to utilize a mix of tuber sizes, packaging, and marketing opportunities to maximize income potential. Following discussions with actual pack-sheds and complying with USDA standards, the packaging and size ranges described below provide a good base for variety comparison. A packaging and handling fee (pack-shed operating fee) of $4.00 was assessed on each CWT of potatoes. This economic evaluation does not fully account for consumer preferences for each trial entry.

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

	Range of Tuber Sizes for Each Package Type and USDA Grade		Four Year WA State Columbia Basin	Pack-Shed Fee: Packaging	
Markets/Packaging[a]	U.S. No. 1[b]	U.S. No. 2	Average Prices[c]	and Handling	Adjusted Value
50 lb cartons	oz	oz	$/CWT	$/CWT	$/CWT
100 Count	7 to 8.5		$13.54	$4.00	$9.54
90 Count	8.5 to 9.5		$14.71	$4.00	$10.71
80 Count	9.5 to 10.5		$17.02	$4.00	$13.02
70 Count	10.5 to 12.5		$17.62	$4.00	$13.62
60 Count	12.5 to 14		$17.61	$4.00	$13.61
50 Count	14 to 18		$17.06	$4.00	$13.06
10 lb Film Bags					
Non-size A	4 to 7		$9.15	$4.00	$5.15
100 lb Burlap Sacks					
10 oz Min. Size U.S. No. 2		10 to 20	$8.60	$4.00	$4.60
10 oz Min. Size U.S. No. 2	18 to 20		$8.60	$4.00	$4.60
Bulk					
Process-Culls	< 4	< 10	$4.00	$4.00	$0.00
Process-Culls	> 20	> 20	$4.00	$4.00	$0.00

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

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

[c]Sales F.O.B. Shipping Point, market periods 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.

2014 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

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 (≥3in.) (by weight)	(by number)

2014 Early Harvest Tri-State Trial

Location: WSU Research Center – Othello, WA
Planting Date: March 31 Vine Kill Date: July 21
Harvest Date: August 6 Days Grown: 112

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 2014 trial compared 4 local reference varieties to 19 new clones. 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): AO06191-1
Process Market Standout(s): AO06191-1, A06914-3CR, and OR08014-4.

Standcounts

- 40 Day
  Slow emergence: AO06191-1 (7%), A08014-11TE (20%), and A0073-2 (27%).

- 60 Day
  Full emergence: All entries *except* Ranger Russet, A0073-2, A06029-4T, AO03123-2, AOR06070-1KF and OR08014-4 were at least 91% emerged.

Plant and Tuber Growth & Development

- Stem Number Per Plant – Above Ground
  Most: A06096-2 (3.0) and A06020-8 (2.4).
  Least: A06029-4T (1.3), A05084-11 and AO06191-1 (each 1.4).

- Average Tuber Number Per Plant
  Most: A06096-2 (10.2) and A06914-3CR (9.5).
  Least: COA05149-2 (4.8) and A05084-11 (5.2).

- Average Tuber Size (oz)
  Largest: COA05149-2 (10.9) and A03141-6 (9.3).
  Smallest: A08014-11TE (5.1) and A07008-4T (5.7).

- Undersized Tubers (< 4 oz)
  Most: A08014-11TE and A06096-2.
  Fewest: COA05149-2, AO06191-1, and A03141-6.

Yield and Economic Data

- Total Yield
  Highest: A06408-99LB (604 CWT/A) and A06914-3CR (591 CWT/A).
  Lowest: A0073-2 (380 CWT/A) and A06020-8 (411 CWT/A).

- % U.S. #1's (>4 oz)
  Highest: COA05149-2 (93%); Ranger Russet, A05084-11, A06029-4T, and AO06191-1 (each 91%).
  Lowest: A08014-11TE (77%); A06096-2 and A07008-4T (each 83%).

- Carton Yield (100 to 50 Count (7 to 18 oz U.S.#1 Tubers))
  Highest: A03141-6 (398 CWT/A), A08014-9TE (354 CWT/A).
  Lowest: A08014-11TE (140 CWT/A), A07008-4T (144 CWT/A).

- Specific Gravity
  Highest: A06029-4T (1.1) AOR06070-1KF (1.096), A07008-4T (1.087). *Lowest*: Russet Norkotah (1.070), A05084-11 (1.073).

- Gross Return ($/acre)
  Fresh Market Highest: A03141-6, A06408-99LB, and A08014-9TE.
  Fresh Market Lowest: A08014-11TE, A06020-8, and A0073-2.
  Process Market Highest : A03141-6, A06408-99LB, and OR08014-4.
  Process Market Lowest: A06020-8, A08014-11TE, and A0073-2.

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

- External Defects
  Notable Defects: All entries were relatively free of external defects

- Internal Defects
  Notable Defects: All entries were relatively free of internal defects.

- Bruise
  Highest Blackspot: A06408-99LB (53%) and A06020-8 (50%).
  Highest Shatter: AOR06070-1KF (93%), A06862-18VR (83%), A06014-14TE (73%), A08014-11TE (60%).

2014 Early Harvest Tri-State Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's* > 4 oz	US # 2's* > 4 oz	Culls* & < 4 oz	CARTON YIELD 100-50 count (US 1's 7-18 oz)		PROCESS YIELD US 1's and 2's > 6 oz	
	CWT/A	STATS**	Tons/A	% of Total Yield			% of Total Yield	Tons/A	% of Total Yield	Tons/A
Ranger Russet	463	*EFG*	23.1	91	2	7	66	15.3	78	18.3
Russet Burbank	489	*CDEF*	24.4	85	0	14	57	13.8	73	17.9
Russet Norkotah	511	*BCDE*	25.6	86	1	13	49	12.5	61	15.7
Shepody	545	*ABCD*	27.3	89	3	9	63	17.3	79	21.7
A0073-2	380	*H*	19.0	84	3	13	45	8.6	63	11.9
A03141-6	555	*ABCD*	27.7	89	4	7	72	19.9	87	24.0
A05084-11	430	*FGH*	21.5	91	1	9	71	15.2	81	17.6
A06014-14TE	502	*BCDE*	25.1	88	1	11	57	14.3	72	18.1
A06020-8	411	*GH*	20.6	84	0	16	40	8.2	56	11.4
A06029-4T	458	*EFG*	22.9	91	0	8	71	16.3	83	19.0
A06096-2	573	*ABCD*	28.6	83	0	17	37	10.6	51	14.6
A06408-99LB	604	*A*	30.2	87	2	12	53	16.0	67	20.5
A06862-18VR	474	*DEFG*	23.7	86	1	13	55	13.1	64	15.3
A06914-3CR	591	*A*	29.6	86	1	13	43	12.6	62	18.2
A07008-4T	469	*EFG*	23.4	83	0	17	33	7.7	50	11.6
A07103-1T	445	*EFGH*	22.3	89	0	11	58	12.9	77	17.1
A08014-11TE	450	*EFGH*	22.5	77	0	23	31	7.0	46	10.3
A08014-9TE	544	*ABCD*	27.2	90	0	9	65	17.7	75	20.6
AO03123-2	429	*FGH*	21.4	87	1	12	48	10.2	60	13.0
AO06191-1	460	*EFG*	23.0	91	2	6	69	15.9	82	18.8
AOR06070-1KF	500	*BCDE*	25.0	87	5	8	55	13.7	78	19.3
COA05149-2	495	*CDEF*	24.8	93	1	6	55	13.6	86	21.4
OR08014-4	561	*ABC*	28.1	86	4	10	55	15.5	71	19.9

ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers)		
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	4-7 oz*	7-14 oz*	> 14 oz*		% HH	% BC	% IBS
				%						
Ranger Russet	422	*DEFGH*	21.1	57	42	2	1.076	0	0	0
Russet Burbank	416	*EFGHI*	20.8	12	79	10	1.084	0	0	0
Russet Norkotah	442	*BCDE*	22.1	14	69	17	1.070	0	0	0
Shepody	483	*ABCD*	24.2	27	60	13	1.078	3	0	0
A0073-2	319	*K*	16.0	43	48	9	1.082	0	0	0
A03141-6	492	*ABCD*	24.6	28	61	10	1.086	0	0	0
A05084-11	390	*HIJ*	19.5	45	45	10	1.073	0	0	0
A06014-14TE	438	*BCDE*	21.9	38	54	8	1.080	0	0	0
A06020-8	345	*JK*	17.3	27	63	10	1.074	0	0	0
A06029-4T	418	*EFGH*	20.9	40	45	15	1.100	0	0	3
A06096-2	473	*ABCD*	23.7	52	45	3	1.083	0	0	0
A06408-99LB	523	*A*	26.2	34	55	11	1.079	0	0	0
A06862-18VR	408	*FGHIJ*	20.4	45	49	6	1.082	0	3	0
A06914-3CR	507	*AB*	25.4	35	58	7	1.081	0	0	0
A07008-4T	389	*HIJ*	19.5	45	51	4	1.087	0	0	0
A07103-1T	396	*GHIJ*	19.8	25	65	10	1.084	0	0	0
A08014-11TE	346	*IJK*	17.3	35	52	13	1.079	0	0	0
A08014-9TE	489	*ABCD*	24.5	27	35	38	1.076	0	0	0
AO03123-2	375	*HIJK*	18.8	29	58	13	1.078	0	0	0
AO06191-1	421	*DEFG*	21.1	39	58	3	1.084	0	0	0
AOR06070-1KF	433	*CDEF*	21.7	28	60	12	1.096	0	0	0
COA05149-2	463	*ABCD*	23.2	43	55	2	1.074	3	0	0
OR08014-4	482	*ABCD*	24.1	17	58	25	1.082	0	0	0

* Percent values may not total 100% due to rounding

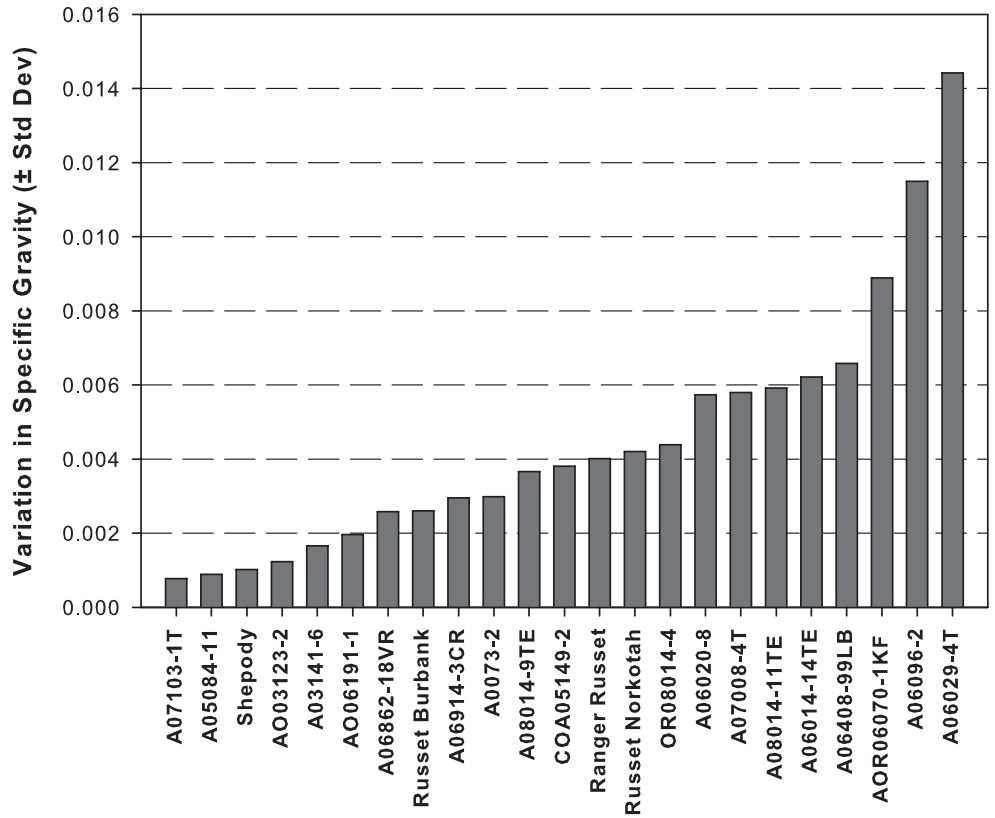
**Numbers followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

ENTRY	30 DAY STAND % Emerged	40 DAY STAND % Emerged	50 DAY STAND % Emerged	STEMS PER PLANT Above Ground	AVERAGE TUBER WEIGHT Ounces	AVERAGE TUBER NUMBER Tubers/Plant	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers) BLACKSPOT	BRUISE (%) (8-12 oz tubers) SHATTER
Ranger Russet	9	76	84	1.7	8.3	5.8	5	4	10	7
Russet Burbank	18	78	93	1.6	7.2	7.1	4	3	27	27
Russet Norkotah	11	89	91	2.0	6.4	8.3	4	4	7	0
Shepody	0	93	98	1.7	8.9	6.4	4	3	38	7
A0073-2	0	27	84	1.5	6.6	6.1	4	2	17	30
A03141-6	2	80	100	1.7	9.3	6.2	4	2	20	3
A05084-11	0	36	93	1.4	8.6	5.2	4	3	23	20
A06014-14TE	2	82	98	2.0	7.0	7.5	4	3	17	73
A06020-8	0	80	93	2.4	5.8	7.3	4	3	50	30
A06029-4T	0	73	89	1.3	8.3	5.8	4	3	20	20
A06096-2	60	93	98	3.0	5.8	10.2	4	3	27	37
A06408-99LB	4	69	93	1.6	6.9	9.1	4	2	53	33
A06862-18VR	56	96	100	2.0	6.7	7.4	4	2	30	83
A06914-3CR	51	96	96	2.3	6.5	9.5	4	3	26	6
A07008-4T	18	87	93	2.3	5.7	8.7	4	4	0	30
A07103-1T	2	53	96	1.5	7.8	5.9	4	3	0	27
A08014-11TE	0	20	93	1.6	5.1	9.2	4	3	13	60
A08014-9TE	0	93	98	1.7	7.5	7.5	4	2	3	33
AO03123-2	0	42	87	1.7	6.3	7.1	4	3	10	33
AO06191-1	0	7	91	1.4	8.3	5.7	4	4	17	27
AOR06070-1KF	4	84	89	1.9	7.9	6.6	4	3	30	93
COA05149-2	58	93	100	2.0	10.9	4.8	4	3	27	37
OR08014-4	4	42	78	2.2	7.2	8.2	4	3	33	57

Clone - Dependent Variation in Specific Gravity

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

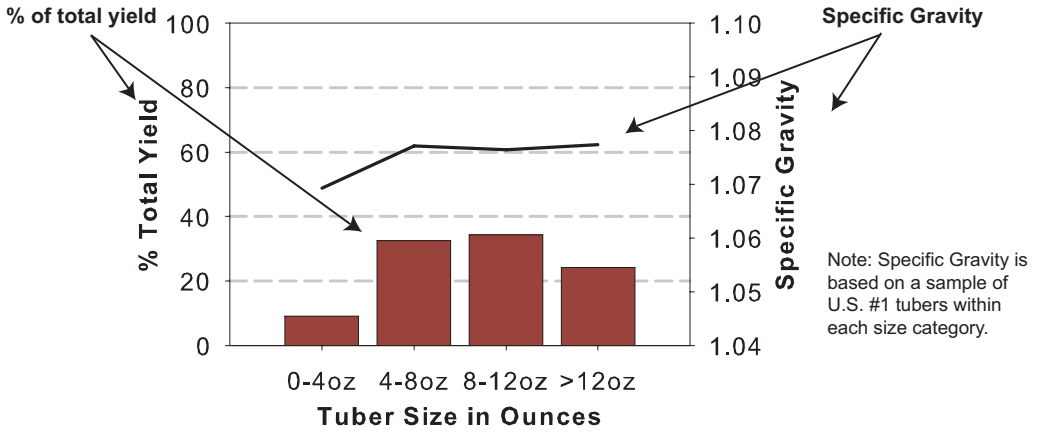
2014 Early-Harvest Tri-State Trial



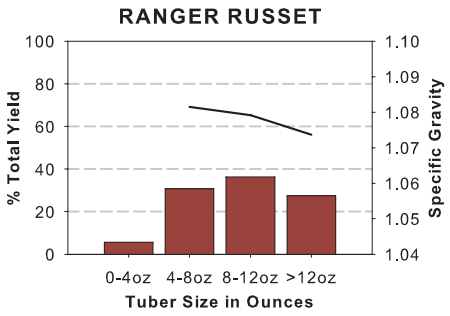
2014 Early Harvest Tri-State Trial

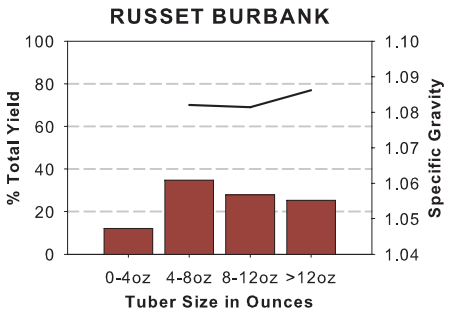
Tuber Yield and Specific Gravity Distributions

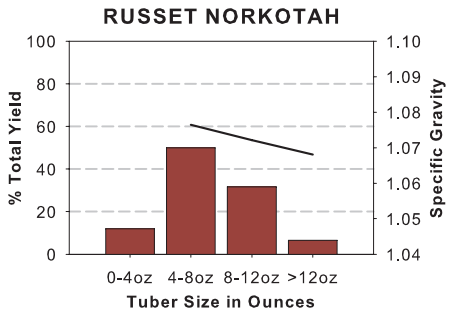
12 inch In-Row Spacing

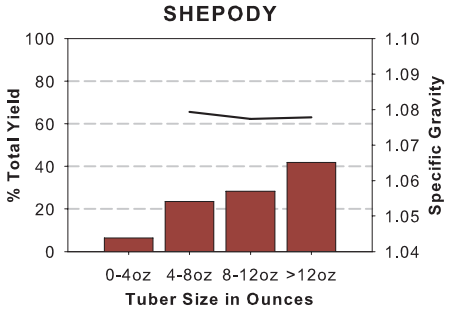


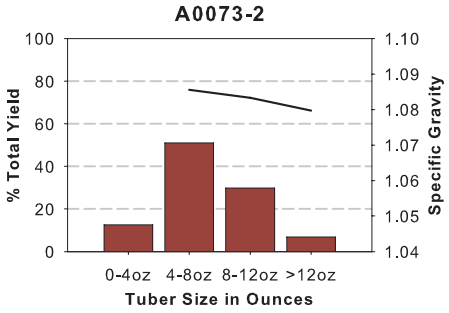
Note: Specific Gravity is based on a sample of U.S. #1 tubers within each size category.

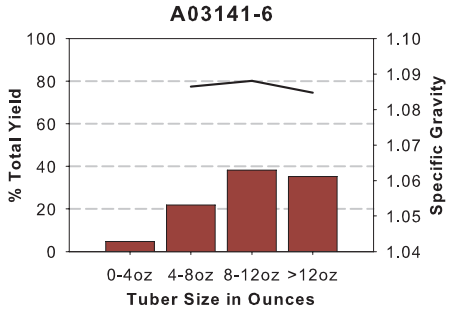


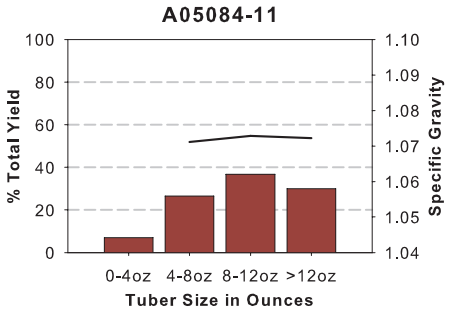


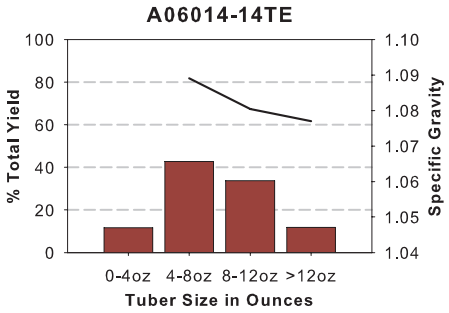


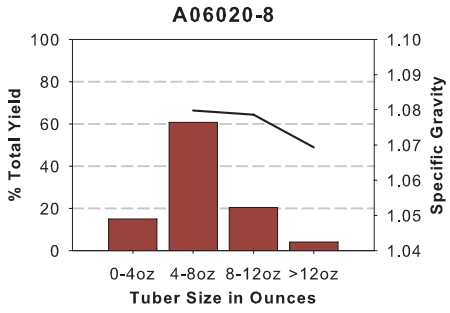


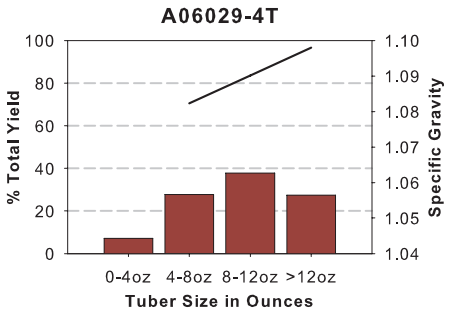


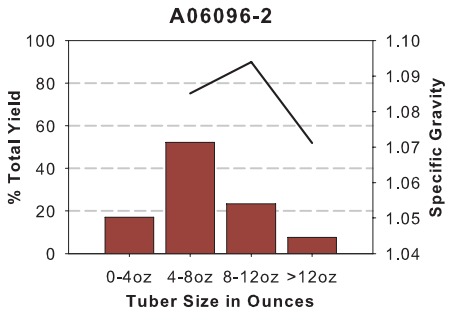


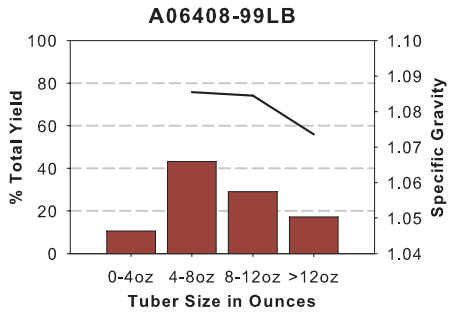


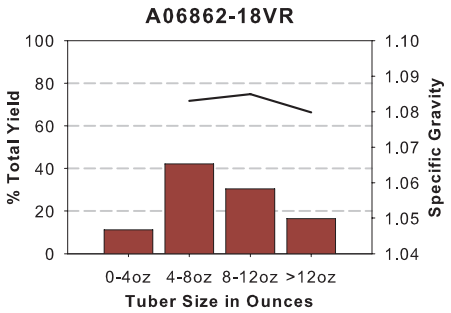


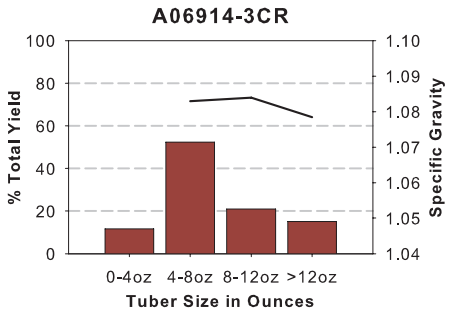


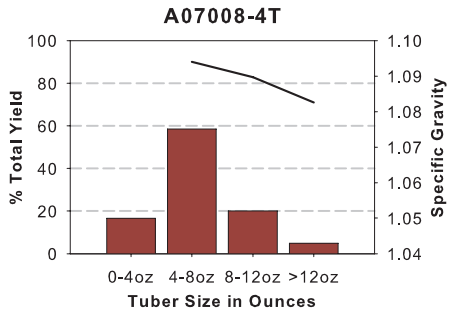

A06029-4T
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

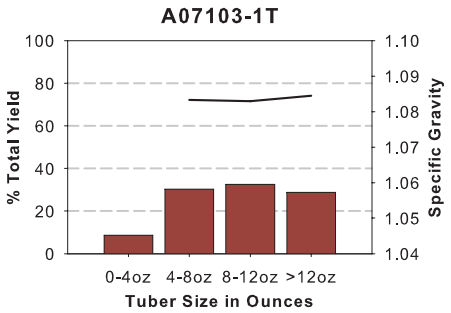

A06096-2
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

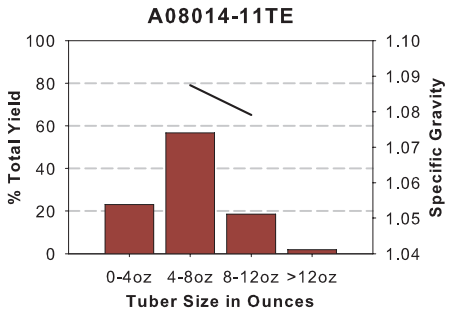

A06408-99LB
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

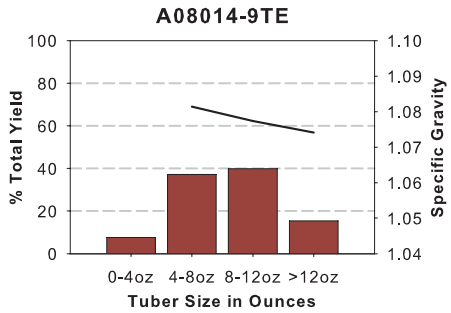

A06862-18VR
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

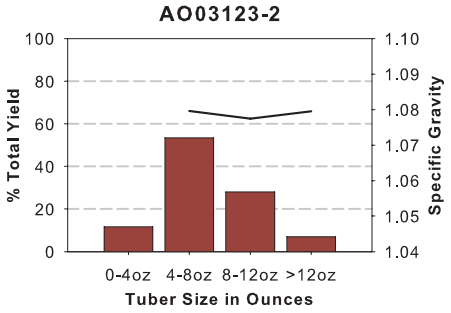

A06914-3CR
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

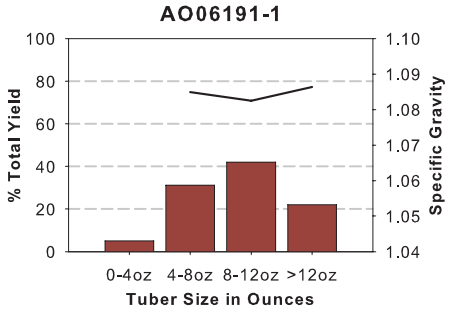

A07008-4T
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

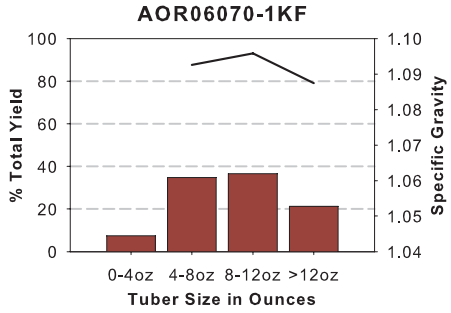

A07103-1T
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

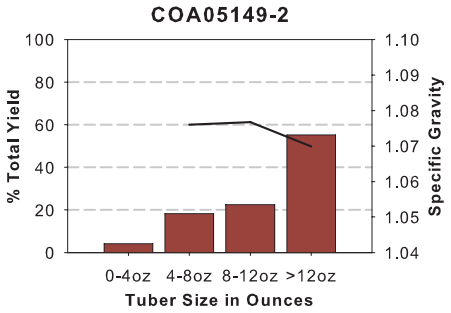

A08014-11TE
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

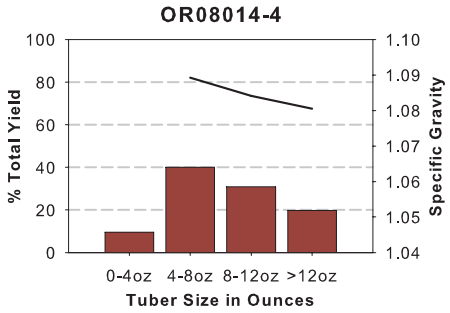

A08014-9TE
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


AO03123-2
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


AO06191-1
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


AOR06070-1KF
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


COA05149-2
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


OR08014-4
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

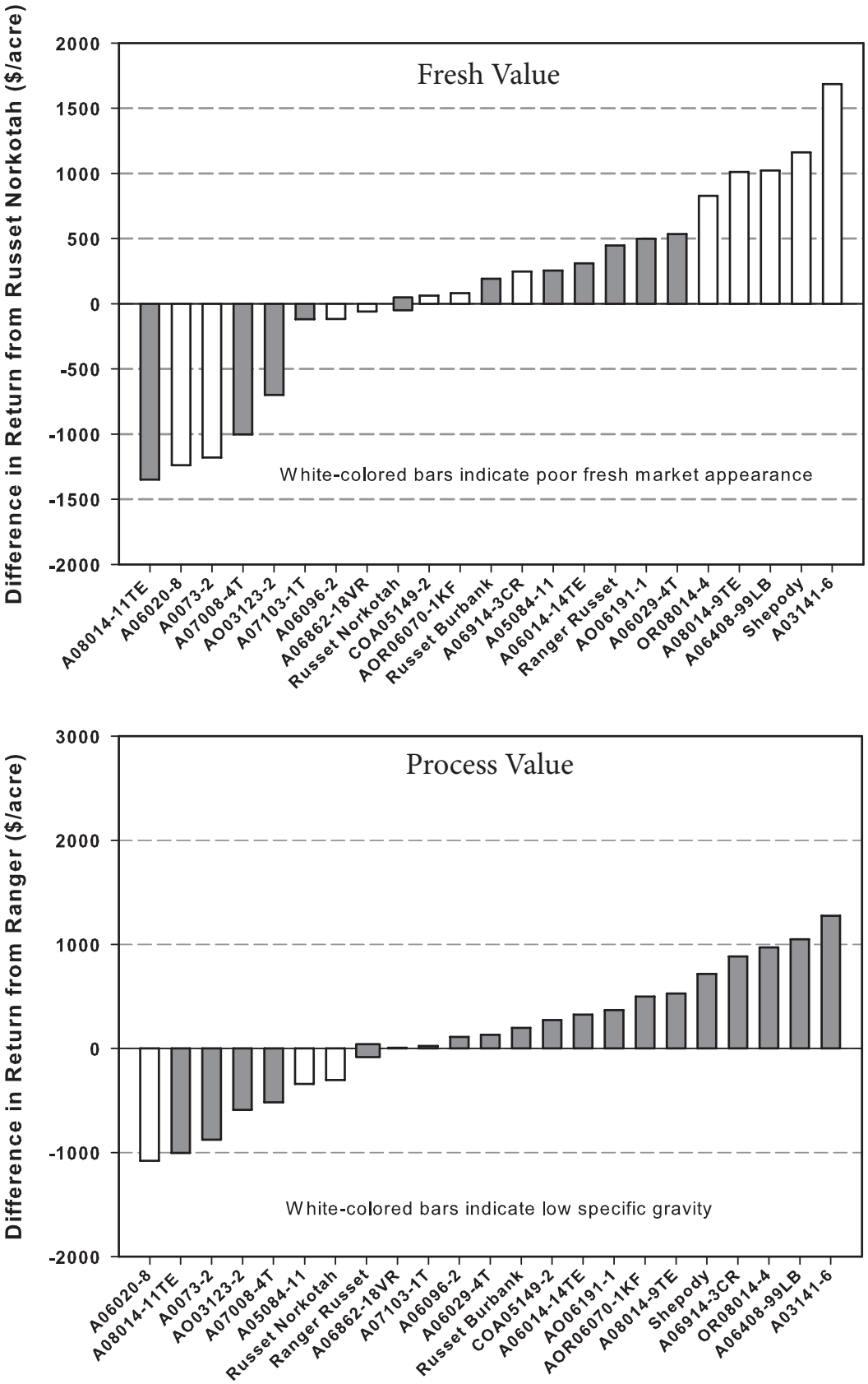
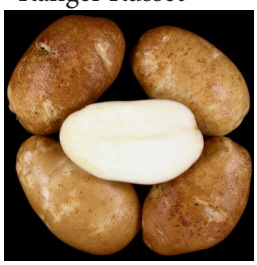


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. **Figure 2 (Bottom).** Difference in gross return per acre (Process Market) from Ranger Russet calculated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

2014 Early Harvest Tri-State Trial

Tubers

Ranger Russet



A0073-2

A06020-8

A06862-18VR

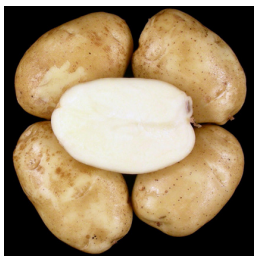
COA05149-2

Russet Burbank

A03141-6

A06029-4T

A06914-3CR

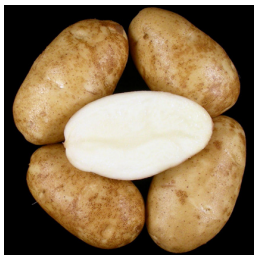


OR08014-4

Russet Norkotah

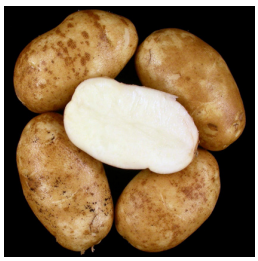
A05084-11

A06096-2



A07008-4T

AOR06070-KF



Shepody

A06014-14TE

A06408-99LB

A07103-1T

AO06191-1

A08014-11TE

A08014-9TE

2014 Late Harvest Tri-State Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 3
Harvest Date: September 9
In-Row Spacing: 10 in.
Vine Kill Date: September 2
Days Grown: 152

The Tri-State trial is a part of the cooperative cultivar development program conducted at locations in Washington, Oregon, and Idaho. The Tri-State committee selects all official entries in this trial. All entries are grown for full season late harvest in each of the three states to determine how they perform when grown under different management and climatic conditions. The following is a summary of the Washington field and post harvest results. See also: grading comments and merit scores near front of book.

Fresh Market Standout(s): A07008-4T.
Process Market Standout(s): A03141-6, AO03123-2, A07103-1T, and OR08014-4.

Standcounts

- 40 Day
  Slow emergence: A08014-11TE (78%), A0073-2 and AO0619-1 each 81%.

- 60 Day
  Full emergence: A06020-8, A06096-2, and A07008-4T were 100%.
  Best emergence: All other entries were at least 88% at 60 DAP.

Plant and Tuber Growth & Development

- Above Ground Stem Number Per Plant
  Most: A06096-2 (3.8) and A06020-8 (2.7).
  Least: A0073-2, A08014-11TE, and AO06191-1 each (1.3).

- Average Tuber Number Per Plant
  Most: A06096-2 (12.5) and A06408-99LB (8.5).
  Least: AO06191-1 (4.1) and COA05149-2 (4.7).

- Average Tuber Size (oz)
  Largest: A03414-6 (13.3), AO06191-1 (11.0), and COA05149-2 (10.5).
  Smallest: A06096-2 (6.4) and A08014-11TE (7.0)

- Undersized Tubers (< 4 oz)
  Most:. A06096-2 and Russet Norkotah.
  Least: AO06191-1 and A03141-6.

Yield and Economic Data

- Total and Market Yield
  Highest: A06096-2 had the highest total yield (921 CWT/A); A06096-2 had the highest market yield (718 CWT/A). A06408-99LB had the second highest total yield (784 CWT/A); A06408-99LB had the second highest market yield (699 CWT/A).
  Lowest: A08014-11TE had the lowest total yield (511 CWT/A) and market yield (436 CWT/A).

- % Market Yield Greater Than 6 oz.
  Highest: A03141-6 (89%), AO06191-1 (87%), COA05149-2 (86%).
  Lowest: A06096-2 (64%), A08014-11TE (69%).

- Carton Yield (100 to 50 Count (7 to 18 oz US #1 Tubers)
  Highest: A07103-1T, A06408-99LB, A06862-18VR (all at least 442 CWT/A).
  Lowest: A08014-11TE (286 CWT/A), AO06191-1 (312 CWT/A).

- Gross Return ($/acre)
  Fresh Market Highest: A06096-2 and A06408-99LB.
  Fresh Market Lowest: A08014-11TE, Russet Norkotah, and A06020-8.
  Process Market Highest: A06096-2, A06408-99, and A07103-1T
  Process Market Lowest: A08014-11TE, AO06191-1, and A06020-8.

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

- External Defects
  Notable Defects: Russet Burbank had some knobs, most entries had little to no external defects .

- Internal Defects
  Notable Defects: A06408-99LB had 11% internal brown spot. Other defects were present at 7% or less. Most entries were relatively free of internal defects.

- Bruise
  Highest Blackspot: Ranger Russet (53%) and A06020-8 (45%).
  Lowest Blackspot: A07103-1T and A08014-11TE each had 0%.
  Highest Shatter: AOR06070-1KF (79%) and A06862-18VR (77%).
  Lowest Shatter: Russet Norkotah (10%) and Ranger Russet (16%).

2014 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. Details are summarized below. An asterisk (*) indicates similar performance and/or ranking in trials from previous years.

- Overall Postharvest Rating

  Highest scoring clones: A03141-6*, A0073-2, A06020-8, AOR06070-1KF*, OR08014-4
  Lowest scoring clones: RB, A08014-11TE, A07103-1T, A06096-2

- Low Temperature Sweetening

  Most resistant: A03141-6, A0073-2, A06020-8, OR08014-4
  Most susceptible: RB, A08014-11TE, A07103-1T

- Taste Panel

  Highest rated: A03141-6*, A07008-4T, OR08014-4, A06914-3CR
  Lowest rated: RR, A06014-14TE, A06862-18VR

- Blackspot Bruise Susceptibility

  Most resistant: A07103-1T, AO03123-6, A03141-6
  Most susceptible: RR*, A06862-18VR, OR08014-4, A0073-2

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

  Lowest L/W: A06408-99LB, A08014-9TE, A06862-18VR, COA05149-2, A07103-1T
  Highest L/W: RR*, A07008-4T, RB, AO03123-2
  Least variable: A0073-2, RR, A07008-4T, AO3123-2, RB
  Most variable: A06914-3CR, A06408-99LB, A06014-14TE, A06862-18VR

Details

- Averaged across states, all entries received higher postharvest scores than Russet Burbank.

- A03141-6*, A0073-2, A06020-8, AOR06070-1KF* and OR08014-4 were the highest rated entries, scoring 33.4, 32.4, 31.1, 29.4 and 29.2 out of 38 points, respectively.

- A03141-6, A0073-2, A06020-8 and OR08014-4 were resistanct to low temperature sweetening, with samples from all states producing highly acceptable light colored fries (USDA 0-1 after 60 d at 44°F; USDA 0-2 at 40°F; average of stem ends). However, A03141-6, A06020-8, and OR08014-4 had non-uniform fry color after storage at 44 and 40°F, particularly from WA and OR. Retention of fry color (60 days at 44°F) for RB, A06914-3CR and A03141-6 was minimally affected by growing location (Fig. 4). In contrast, retention of fry color in A06408-99LB, AOR06070-1KF and AO03123-2 was highly variable across the three production sites.

- RB, A08014-11TE, A07103-1T and A06096-2 received the lowest overall postharvest scores (14.2, 19.8, 22.7 and 22.7 out of 38, respectively).

- Average (across states) gravities of COA05149-2 and A08014-9TE were 1.070 and 1.072, respectively; too low for frozen processing contracts. In contrast, average gravities of 12 of 19 entries ranged from 1.082-1.089, which is ideal for most contracts.
- A03141-6*, A07008-4T, OR08014-4 and A06914-3CR were the favorites in the taste panels, scoring 3.7, 3.7,

3.5 and 3.5, respectively, across growing locations (5 is best). RR, A06014-14TE and A06862-18VR received the lowest taste panel scores (avg = 3.0).

- 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*, A06862-18VR, OR08014-4, A0073-2 were the most susceptible, scoring 90, 72, 69 and 69% bruise (stem end), respectively, in the controlled impact study. These clones also had the highest bruise severity, averaging 3.1/5. A07103-1T, AO03123-6 and A03141-6 were the most resistant, averaging 9.4% bruise (stem end) and 1.2/5 severity rating.

- The 8- to 10-oz tubers of A06408-99LB, A08014-9TE, A06862-18VR, COA05149-2 and A07103-1T had low length to width ratios (avg. L/W=1.49), resulting in yields of 3-inch or longer fries averaging only 63% by number. A06914-3CR, A06408-99LB, A06014-14TE and A06862-18VR had the greatest variation in L/W ratio; usable fry yields ranged from 58 to 77%, depending on production area. RR*, A07008-4T, RB and AO03123-2 had the highest L/W ratios across all states, resulting in an average of 75% yield of French fries by number.

- Reconditioning (60°F, 21 days) tubers of COA05149-2, AO03123-2, OR08014-4, A08014-11TE and A06862-18VR that had been 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 color of A03141-6, A06408-99LB and A0073-2 changed little in response to reconditioning. AO6191-1 and A08014-9TE appeared more susceptible to sugar end development based on attenuated reconditioning of the stem versus bud end of tubers following storage at 40°F.

- On average, 99% of tubers of A06096-2, A08014-9TE, A06862-18VR, COA05149-2 and A06408-99LB had 1.2-inch sprouts after 60 days storage at 48°F compared with 89% of RR tubers (avg. sprout length = 0.75 inches). In contrast, tubers of A03141-6 and A08014-11TE had no sprouts compared with 9% sprouting of RB. The remaining entries sprouted 50% on average, with sprouts averaging 0.37 inches, indicating dormancy intermediate between RB and RR.

Overall Tri-State Postharvest Merit Scores

Clone	Postharvest Merit Scores WA	ID	OR	3 state Average
4 A03141-6	4.3	4.6	4.3	4.4
3 A0073-2	4.4	3.6	4.8	4.3
6 A06020-8	4.1	4.1	4.0	4.1
17 AOR06070-1KF	3.8	4.0	3.9	3.9
19 OR08014-4	4.0	3.9	3.6	3.8
10 A06914-3CR	4.0	4.4	2.8	3.7
11 A07008-4T	3.9	4.0	3.2	3.7
8 A06408-99LB	4.1	3.1	3.2	3.6
9 A06862-18VR	3.7	3.5	3.3	3.5
5 A06014-14TE	3.5	3.9	3.0	3.5
15 AO03123-2	3.5	3.1	3.5	3.4
18 COA05149-2	3.4	3.6	2.9	3.3
14 A08014-9TE	3.2	3.6	2.6	3.1
16 AO06191-1	3.1	3.0	3.3	3.1
1 Ranger Russet	2.7	2.8	3.7	3.1
7 A06096-2	3.4	3.5	2.1	3.0
12 A07103-1T	2.8	3.5	2.7	3.0
13 A08014-11TE	2.7	3.2	2.0	2.6
2 Russet Burbank	2.0	1.8	1.8	1.9

2014 Late Harvest Tri-State Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's* > 4 oz	US # 2's* > 4 oz	Culls* & < 4 oz	CARTON YIELD 100-50 count (US 1's 7-18 oz)		PROCESS YIELD US 1's and 2's > 6 oz	
	CWT/A	STATS**	Tons/A	% of Total Yield			% of Total Yield	Tons/A	% of Total Yield	Tons/A
Ranger Russet	609	EFGHI	30.5	86	3	11	62	18.8	80	24.4
Russet Burbank	702	BCD	35.1	79	7	15	53	18.7	78	27.2
Russet Norkotah	635	DEFG	31.7	86	2	12	58	18.3	74	23.7
A0073-2	573	FGHI	28.6	83	6	11	56	16.0	75	21.5
A03141-6	771	BC	38.5	87	6	7	48	18.3	89	34.4
A06014-14TE	622	DEFGH	31.1	84	4	12	59	18.4	77	23.9
A06020-8	543	HI	27.1	84	2	13	60	16.2	73	19.8
A06096-2	921	A	46.0	79	4	18	48	22.0	64	29.2
A06408-99LB	784	B	39.2	89	2	9	59	23.0	76	29.9
A06862-18VR	687	BCDE	34.3	91	1	7	64	22.1	84	28.8
A06914-3CR	646	DEFG	32.3	86	1	12	60	19.5	75	24.1
A07008-4T	572	FGHI	28.6	91	2	8	69	19.7	80	22.9
A07103-1T	691	BCDE	34.6	91	2	8	70	24.1	85	29.4
A08014-11TE	511	I	25.5	85	0	14	56	14.3	69	17.5
A08014-9TE	603	EFGHI	30.1	91	1	8	68	20.6	82	24.7
AO03123-2	553	GHI	27.7	86	3	11	64	17.6	79	21.9
AO06191-1	513	I	25.6	92	2	7	61	15.6	87	22.4
AOR06070-1KF	689	BCDE	34.4	87	1	12	57	19.6	80	27.6
COA05149-2	568	FGHI	28.4	93	1	7	59	16.7	86	24.3
OR08014-4	723	BCD	36.2	86	2	12	56	20.1	78	28.2

ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers)		
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	4-7 oz*	7-14 oz*	> 14 oz*		% HH	% BC	% IBS
				%						
Ranger Russet	523	GHIJ	26.2	16	52	32	1.084	0	0	0
Russet Burbank	549	EGHI	27.5	17	48	35	1.079	0	0	0
Russet Norkotah	544	FGHI	27.2	26	58	16	1.071	0	0	0
A0073-2	479	HIJK	24.0	27	53	20	1.088	0	0	0
A03141-6	669	ABC	33.5	5	30	65	1.083	0	0	0
A06014-14TE	521	HIJ	26.0	18	59	22	1.079	0	0	0
A06020-8	457	JK	22.8	28	60	12	1.085	3	0	0
A06096-2	718	A	35.9	36	56	8	1.084	0	0	0
A06408-99LB	699	AB	34.9	28	58	14	1.080	3	0	11
A06862-18VR	629	BCD	31.4	18	52	29	1.082	3	0	0
A06914-3CR	557	DEFGH	27.9	24	60	16	1.079	0	0	0
A07008-4T	518	HIJ	25.9	23	71	6	1.088	0	0	0
A07103-1T	626	BCDE	31.3	14	57	29	1.083	0	0	0
A08014-11TE	436	K	21.8	32	62	6	1.083	0	0	0
A08014-9TE	549	EFGH	27.5	19	59	23	1.077	0	0	0
AO03123-2	472	IJK	23.6	20	60	20	1.086	3	0	0
AO06191-1	471	IJK	23.6	11	46	43	1.083	3	0	0
AOR06070-1KF	602	CDEFG	30.1	14	45	41	1.093	0	0	0
COA05149-2	525	GHIJ	26.3	13	46	41	1.076	0	0	0
OR08014-4	625	BCDEF	31.3	17	47	37	1.086	7	0	7

* Percent values may not total 100% due to rounding

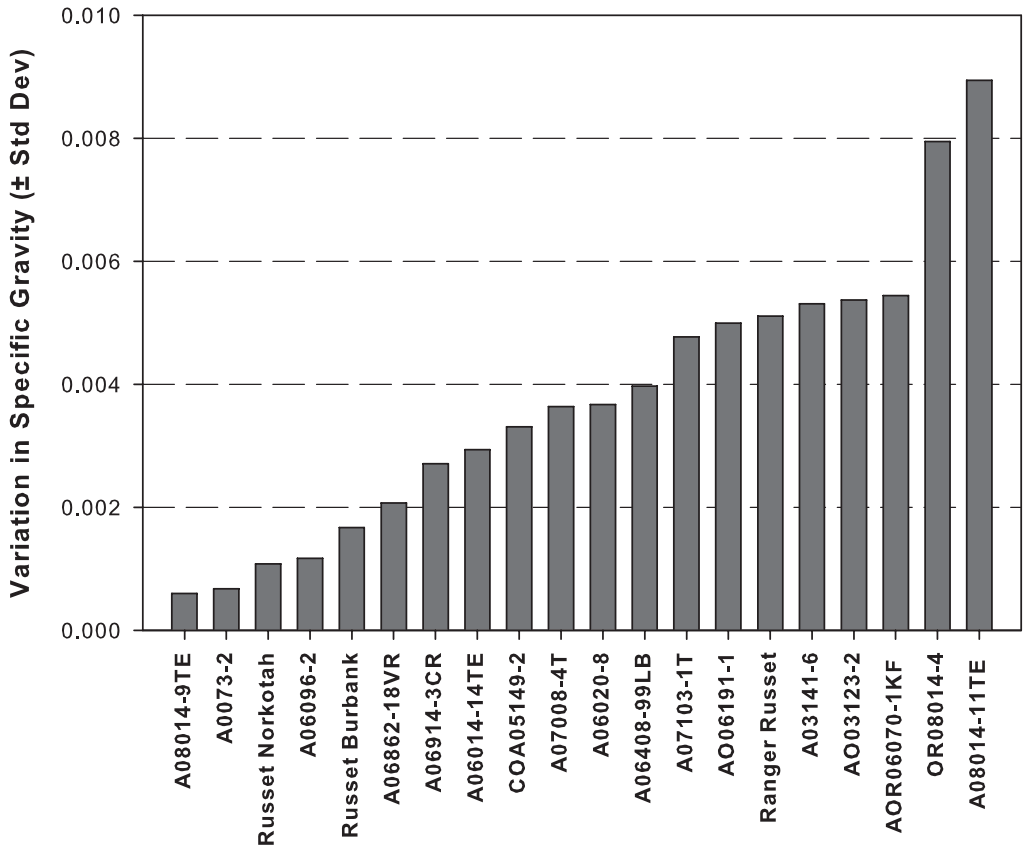
**Numbers followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

ENTRY	30 DAY STAND % Emerged	40 DAY STAND % Emerged	60 DAY STAND % Emerged	STEMS PER PLANT Above Ground	AVERAGE TUBER WEIGHT Ounces	AVERAGE TUBER NUMBER Tubers/Plant	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers) BLACKSPOT	BRUISE (%) (8-12 oz tubers) SHATTER
Ranger Russet	60	84	94	1.5	9.1	5.8	4	4	53	16
Russet Burbank	66	96	98	1.6	9.4	6.5	4	4	15	50
Russet Norkotah	58	90	99	2.0	7.6	7.3	4	4	10	10
A0073-2	3	81	90	1.3	8.1	6.2	4	3	33	64
A03141-6	54	99	99	1.8	13.3	5.0	3	3	20	40
A06014-14TE	63	93	99	1.9	8.8	6.2	4	3	18	38
A06020-8	33	98	100	2.7	7.1	6.7	4	3	45	42
A06096-2	90	95	100	3.8	6.4	12.5	3	2	38	50
A06408-99LB	61	88	88	1.9	8.0	8.5	4	2	29	50
A06862-18VR	75	91	98	2.0	8.7	6.8	4	2	29	77
A06914-3CR	83	94	98	2.1	7.9	7.1	4	2	14	28
A07008-4T	66	98	100	1.9	8.1	6.2	4	4	20	33
A07103-1T	66	94	99	2.0	9.4	6.4	4	3	0	34
A08014-11TE	0	78	90	1.3	7.0	6.4	4	3	0	58
A08014-9TE	54	95	95	1.8	8.6	6.2	4	2	17	40
AO03123-2	5	88	94	1.6	8.3	5.8	4	4	19	44
AO06191-1	1	81	93	1.3	11.0	4.1	5	3	22	47
AOR06070-1KF	68	96	99	1.8	10.0	6.0	4	3	18	79
COA05149-2	66	90	96	2.1	10.5	4.7	4	3	21	52
OR08014-4	28	93	98	2.3	9.2	6.8	4	3	41	52

Clone - Dependent Variation in Specific Gravity

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

2014 Late-Harvest Tri-State Trial



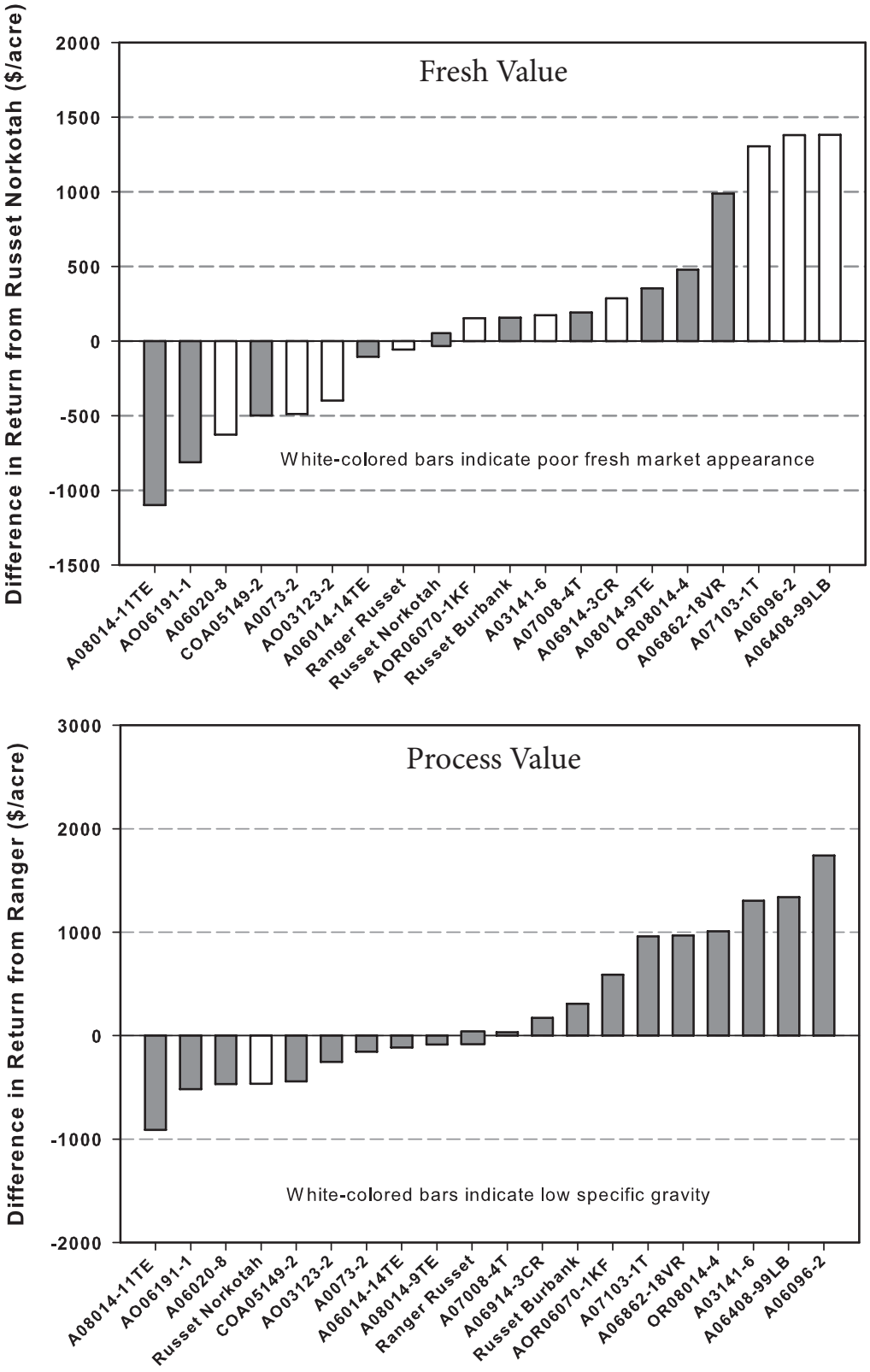


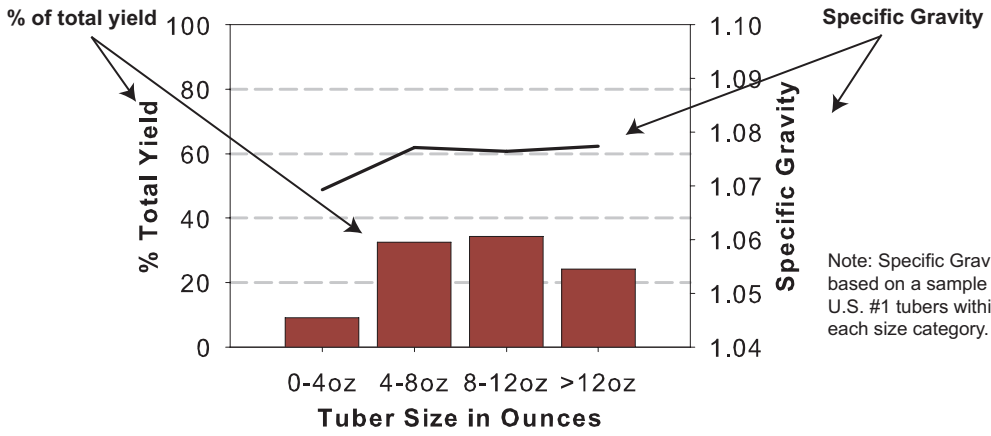
Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to undesirable shape or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

Who knew that Hail damage simulation could be so much fun? (Top to Bottom, Rudy Garza, Seth Shelton.)

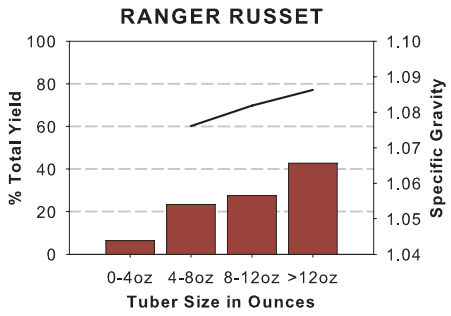
2014 Late Harvest Tri-State Trial

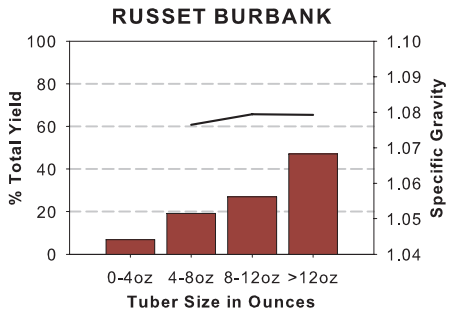
Tuber Yield and Specific Gravity Distributions

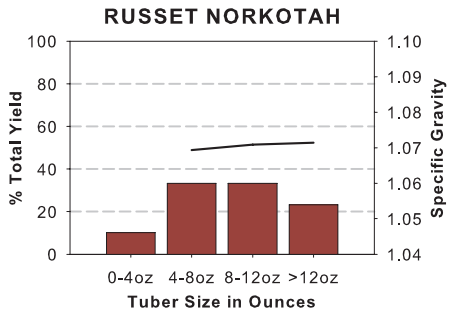
10 inch In-Row Spacing

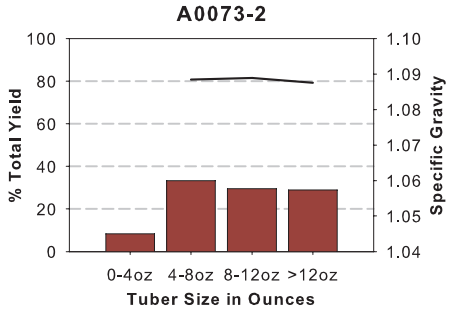


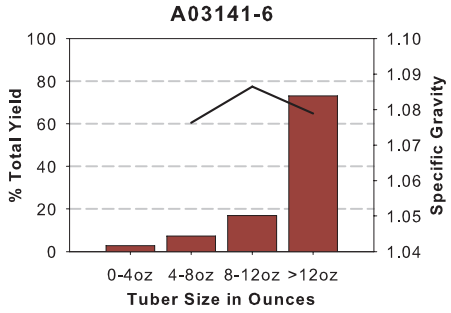
Note: Specific Gravity is based on a sample of U.S. #1 tubers within each size category.

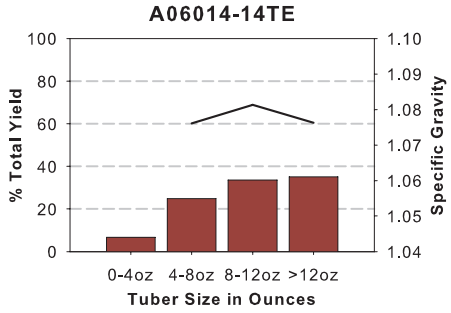


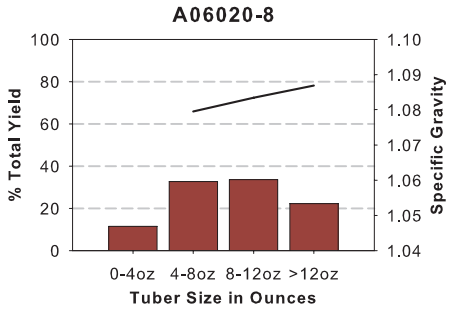


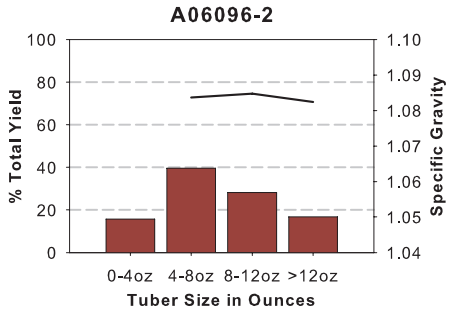


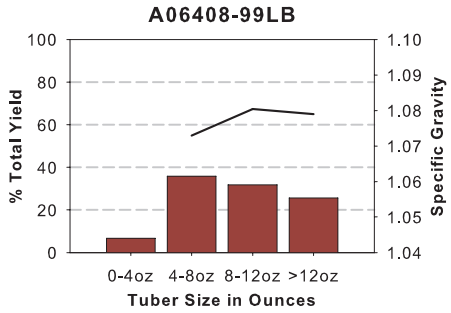


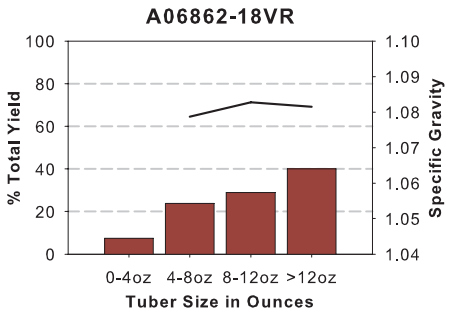


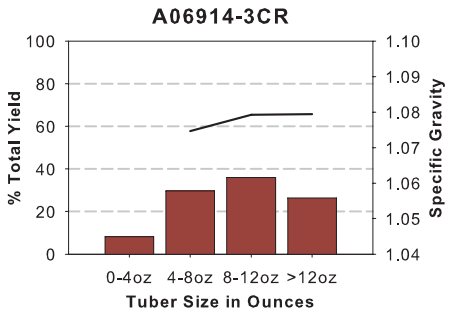


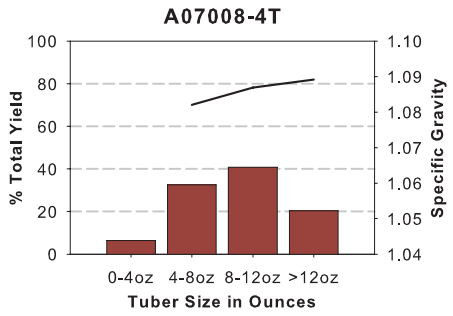


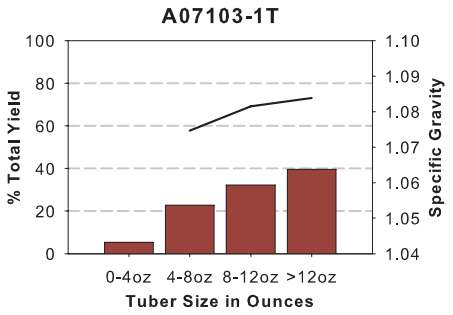


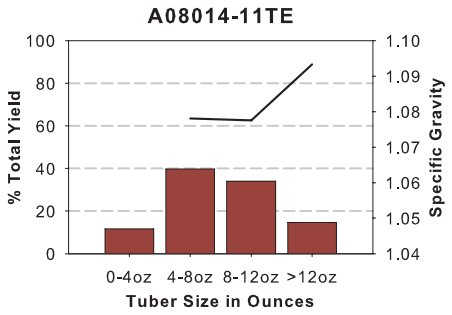


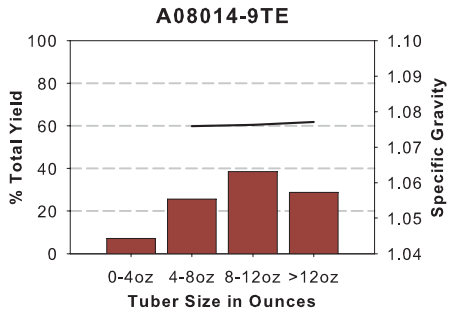

A06862-18VR
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

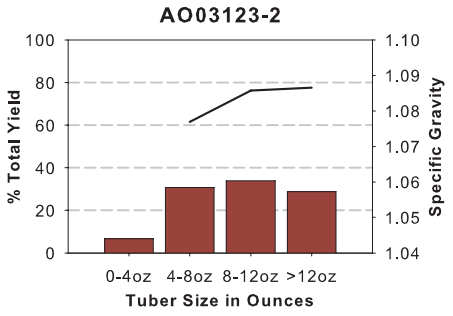

A06914-3CR
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

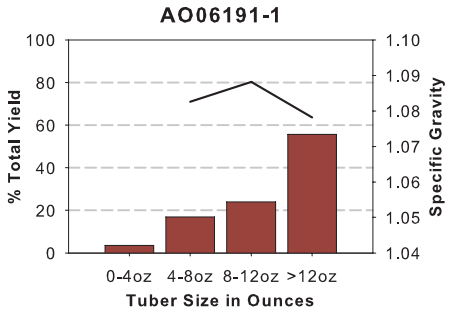

A07008-4T
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

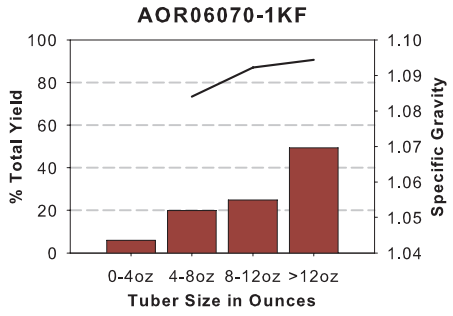

A07103-1T
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

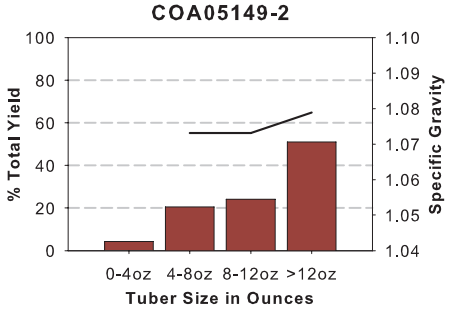

A08014-11TE
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

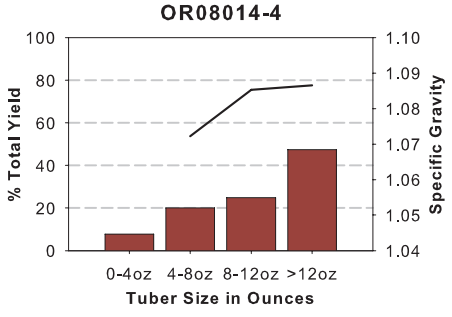

A08014-9TE
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

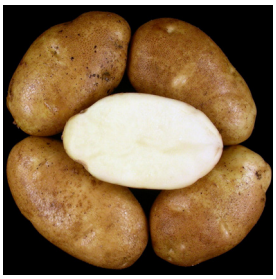
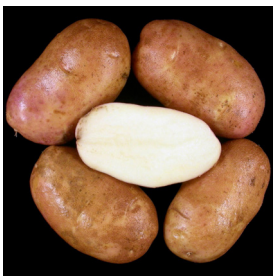

AO03123-2
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

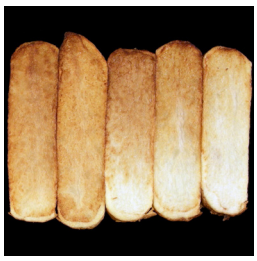
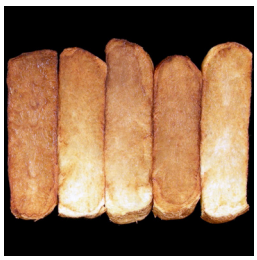
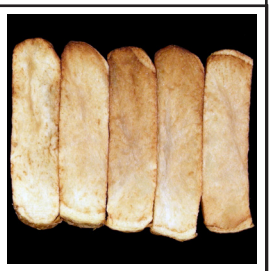
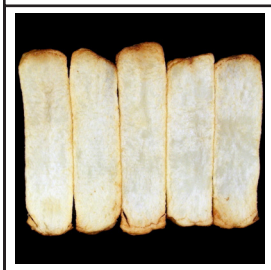
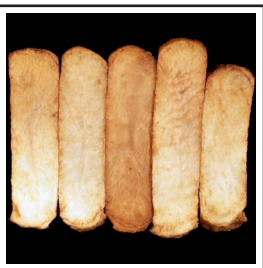
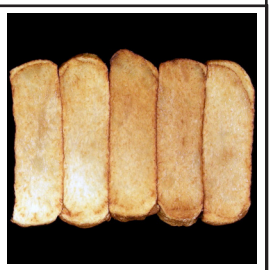

AO06191-1
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

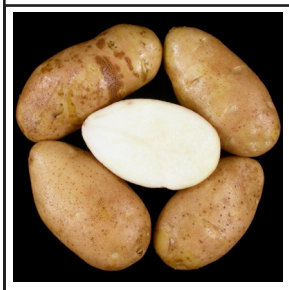
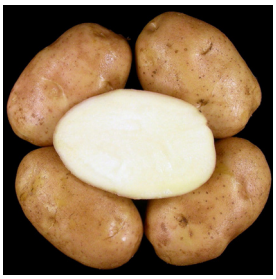

AOR06070-1KF
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

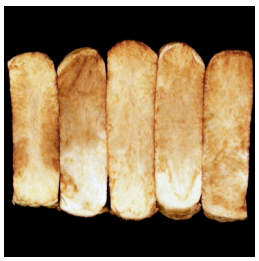
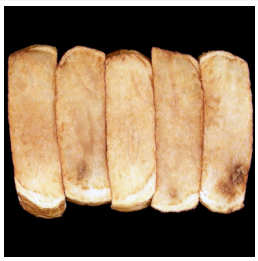
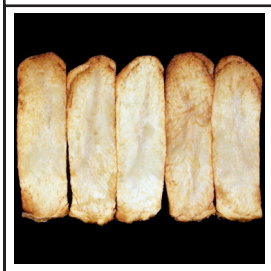
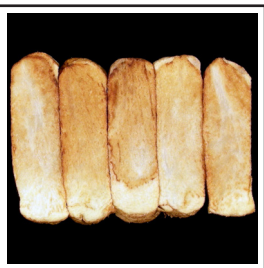
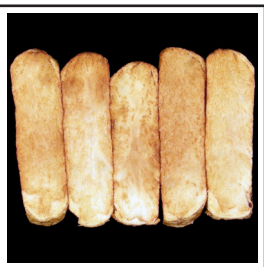
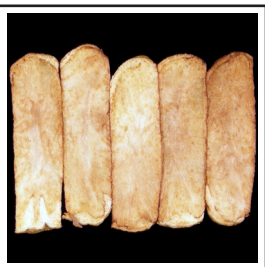

COA05149-2
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

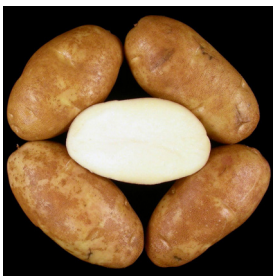
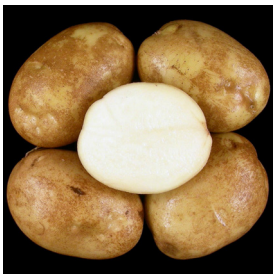

OR08014-4
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

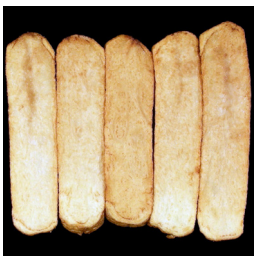
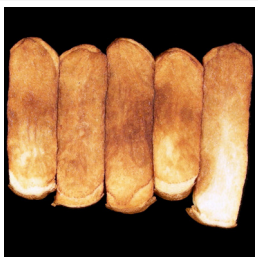
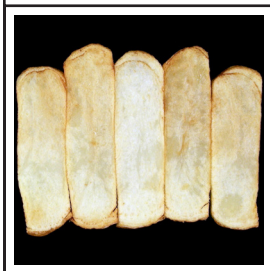
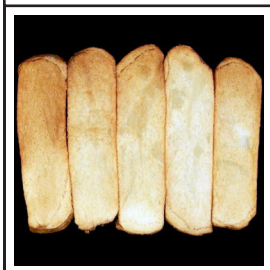
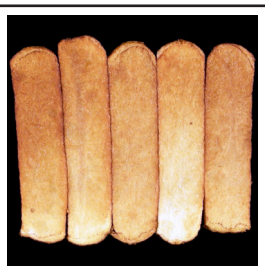
Tubers	WA Late Harvest Tri-State Trial Comments
Ranger Russet	
	**Tubers:** Oblong to long tubers. Good skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; Reconditioned = light, non-uniform.
Russet Burbank	
	**Tubers:** Oblong to long tubers. Good skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; 48°F = relatively dark, non-uniform; 44°F = relatively dark, non-uniform; 40°F = unnacceptably dark, non-uniform; Reconditioned = relatively dark, non-uniform.
A0073-2	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, uniform; 48°F = light, non-uniform; 44°F = light, uniform; 40°F = light, non-uniform; Reconditioned = light, non-uniform.
A03146-6	
	**Tubers:** Oblong tubers. Fair skin set; moderate eye depth. **Fry color:** At harvest= light, uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = light, non-uniform; Reconditioned = light, non-uniform.
A06014-14TE	
	**Tubers:** Oblong tubers. Good skin set; moderately deep eyes. **Fry color:** At harvest= light, uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = light, non-uniform; Reconditioned = light, non-uniform.

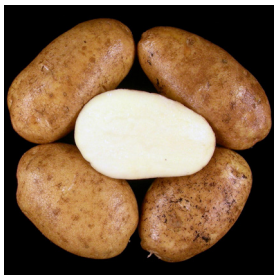
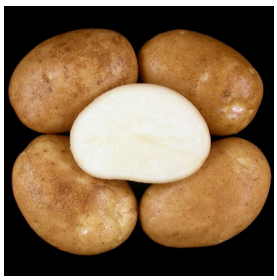
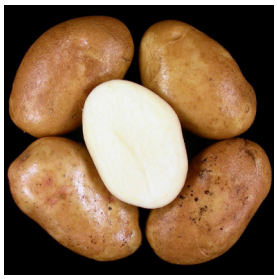
Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
Ranger Russet				
				
Russet Burbank				
				
A0073-2				
				
A03146-6				
				
A06014-14TE				
				

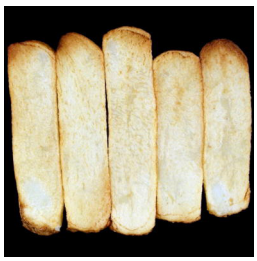
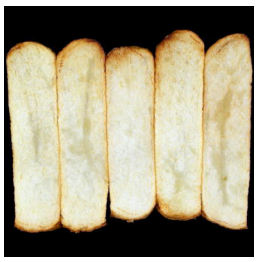
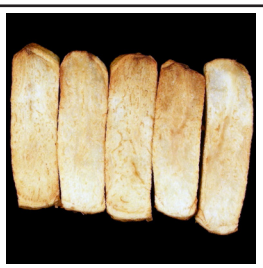
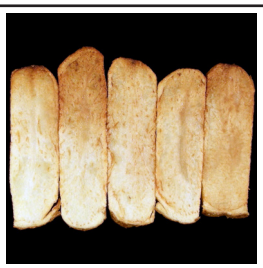
Tubers	WA Late Harvest Tri-State Trial Comments
A06020-8	
	**Tubers:** Oblong tubers. Good skin set; moderate eye depth. **Fry color:** At harvest= light, uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = light, non-uniform; Reconditioned = light, non-uniform.
A06096-2	
	**Tubers:** Round to oblong tubers. Fair skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; Reconditioned = light, non-uniform.
A06408-99LB	
	**Tubers:** Round to oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, uniform; 48°F = light, uniform; 44°F = light, uniform; 40°F = relatively dark, uniform; Reconditioned = light, non-uniform.
A06862-18VR	
	**Tubers:** Round to oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, uniform; Reconditioned = light, non-uniform.
A06914-3CR	
	**Tubers:** Round to oblong tubers. Good skin set; moderately deep eyes. **Fry color:** At harvest= light, uniform; 48°F = light, uniform; 44°F = light, uniform; 40°F = relatively dark, uniform; Reconditioned = light, uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
A06020-8				
				
A06096-2				
				
A06408-99LB				
				
A06862-18VR				
				
A06914-3CR				
				

Tubers	WA Late Harvest Tri-State Trial Comments
A07008-4T	
	**Tubers:** Oblong to long tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = light, non-uniform; Reconditioned = light, non-uniform.
A07103-1T	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; Reconditioned = light, non-uniform.
A08014-11TE	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40°F = relatively dark, non-uniform; Reconditioned = light, non-uniform.
A08014--9TE	
	**Tubers:** Round to oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, uniform; 48°F = light, uniform; 44°F = relatively dark, uniform; 40°F = relatively dark, uniform; Reconditioned = light, uniform.
AO06191-1	
	**Tubers:** Oblong tubers. Very good skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, uniform; Reconditioned = light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
A07008-4T				
				
A07103-1T				
				
A08014-11TE				
				
A08014--9TE				
				
AO06191-1				
				

Tubers	WA Late Harvest Tri-State Trial Comments
AOR06070-1KF	
	**Tubers:** Oblong tubers. Good skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = light, non-uniform; Reconditioned = light, non-uniform.
COA05149-2	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; Reconditioned = light, uniform.
OR08014-4	
	**Tubers:** Oblong tubers. Good skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = light, non-uniform; Reconditioned = light, non-uniform.
AO03123-2	
	**Tubers:** Oblong to long tubers. Good skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; Reconditioned = light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
AOR06070-1KF				
				
COA05149-2				
				
OR08014-4				
				
AO03123-2				
				

2014 Late Harvest Tri-State Trial

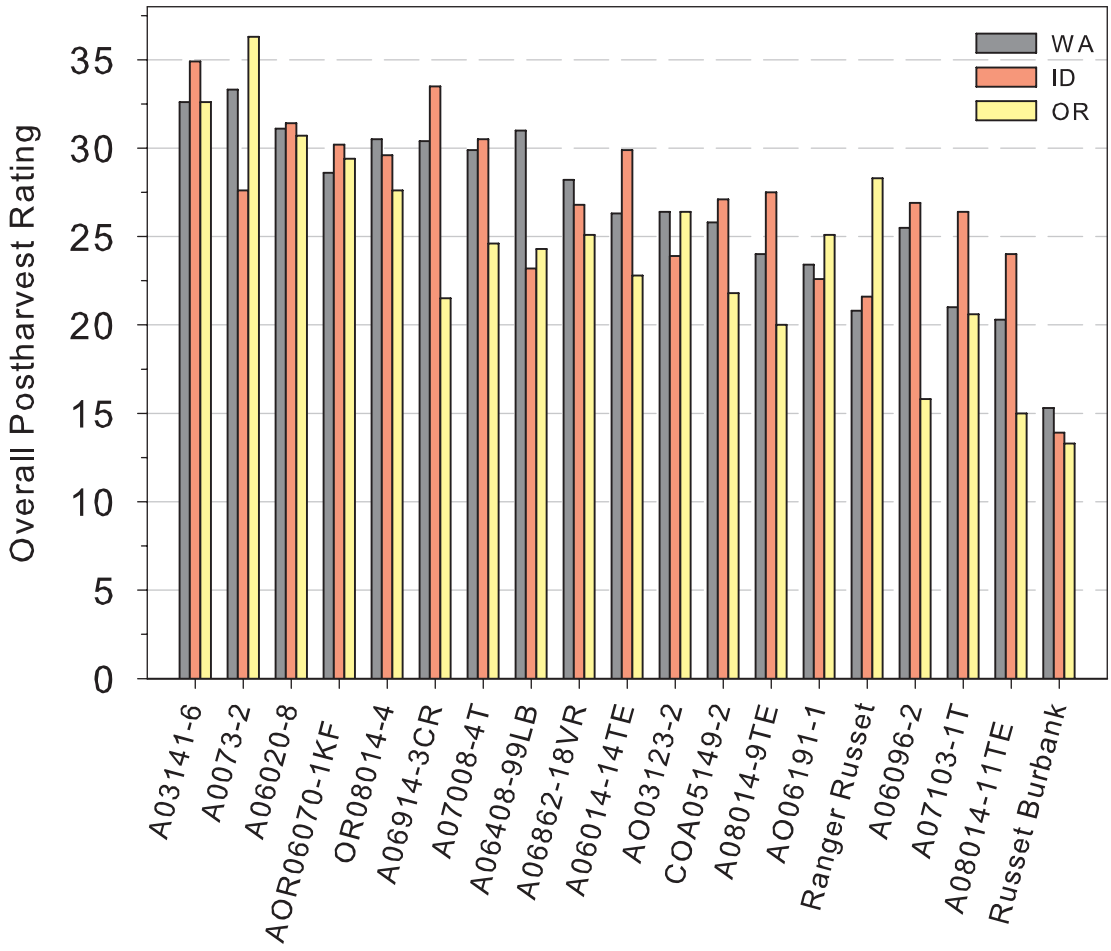
Accumulated Total Postharvest Rating of Clones

Clone	WA Rating Total §	WA Discard §§	ID Rating Total §	ID Discard §§	OR Rating Total §	OR Discard §§	3 State av. Rating Total
4 A03141-6	32.6		34.9		32.6		33.4
3 A0073-2	33.3		27.6		36.3		32.4
6 A06020-8	31.1		31.4		30.7	Sp. Gr.	31.1
17 AOR06070-1KF	28.6		30.2		29.4		29.4
19 OR08014-4	30.5		29.6		27.6		29.2
10 A06914-3CR	30.4		33.5		21.5	Sp. Gr.	28.5
11 A07008-4T	29.9		30.5		24.6		28.3
8 A06408-99LB	31.0		23.2		24.3	Sp. Gr.	27.7
9 A06862-18VR	28.2		26.8		25.1		26.7
5 A06014-14TE	26.3		29.9		22.8	Sp. Gr.	26.3
15 AO03123-2	26.4		23.9		26.4		25.6
18 COA05149-2	25.8	Sp. Gr.	27.1	Sp. Gr.	21.8	Sp. Gr.	24.9
14 A08014-9TE	24.0		27.5		20.0	Sp. Gr.	23.8
16 AO06191-1	23.4		22.6		25.1		23.7
1 Ranger Russet	20.8		21.6		28.3		23.6
7 A06096-2	25.5		26.9		15.8		22.7
12 A07103-1T	21.0		26.4		20.6		22.7
13 A08014-11TE	20.3		24.0		15.0	Sp. Gr.	19.8
2 Russet Burbank	15.3		13.9	Sp. Gr.	13.3	Sp. Gr.	14.2
Average	26.5		26.9		24.3		26.0

Graduate students Chandler Dolezal and Rhett Spear inject experimental products into the soil with the goal of keeping farming profitable.

2014 Late Harvest Tri-State Trial

Late Harvest Tri-State Postharvest Ratings



2014 Late Harvest Tri-State Trial

Entries Retained from the 2013 Trials Currently in the Tri-State Trial

Harvested fall of 2013
Held at 48° F until December 21, 2013
Stored at 44° F until analysis

In addition to Ranger and Russet Burbank (RB), three clones were retained from the 2013 Tri-State Trial. When averaged across states, the numbered entries produced 30% lighter fries than RB and Ranger (44 vs 34 ref units) and the uniformity of fry color was substantially better for all clones relative to RB and Ranger. Sprout lengths ranged from 3.2 to 4.0 inches when averaged across states and were highly variable depending on clone and state.

	PHOTOVOLT READING				USDA	% REDUCING SUGAR			Sprouting	
Clone	stem	bud	avg	DIFF	COLOR	stem	bud	avg	percent	length (in.)
Washington										
1 Ranger Russet	27.3	40.4	33.8	15.9	1	1.7	0.7	1.2	100	4.0
2 Russet Burbank	22.5	46.0	34.2	23.5	2	2.3	0.5	1.4	100	5.0
3 A0073-2	40.5	49.7	45.1	9.3	0	0.7	0.5	0.6	100	3.5
4 A03141-6	39.2	44.3	41.7	5.2	0	0.8	0.6	0.7	100	4.0
5 AOR06070-1KF	36.8	45.2	41.0	8.6	0	0.9	0.6	0.7	100	3.0
		LSD 0.05	*3.4*	*5.0*						
Average	33.3	45.1	39.2	12.5	0.6	1.3	0.6	0.9	100	
Idaho										
1 Ranger Russet	27.9	42.1	35.0	15.4	1	1.6	0.6	1.1	100	4.0
2 Russet Burbank	24.5	47.0	35.8	22.5	1	2.0	0.5	1.3	100	0.5
3 A0073-2	38.2	48.2	43.2	10.8	0	0.8	0.5	0.7	100	2.5
4 A03141-6	41.1	52.0	46.6	10.9	0	0.7	0.5	0.6	100	2.0
5 AOR06070-1KF	48.7	51.6	50.2	5.9	0	0.5	0.5	0.5	100	6.0
		LSD 0.05	*4.4*	*5.8*						
Average	36.1	48.2	42.1	13.1	0.4	1.1	0.6	0.8	100	
Oregon										
1 Ranger Russet	27.0	42.0	34.5	15.0	1	1.7	0.7	1.2	100	4.0
2 Russet Burbank	22.0	42.3	32.2	20.2	2	2.4	0.6	1.5	100	4.0
3 A0073-2	40.6	47.0	43.8	6.5	0	0.7	0.5	0.6	100	5.5
4 A03141-6	40.2	45.0	42.6	6.0	0	0.7	0.6	0.6	100	3.5
5 AOR06070-1KF	34.5	46.7	40.6	12.3	0	1.0	0.5	0.8	100	1.5
		LSD 0.05	*4.7*	*4.8*						
Average	32.8	44.6	38.7	12.0	0.6	1.3	0.6	0.9	100	

Date test performed:

Washington	April 28
Idaho	April 28
Oregon	April 28

2014 Late Harvest Tri-State Trial
Prior to Storage

Clone	PHOTOVOLT READING stem	bud	av	rtg §	DIFF	USDA COLOR	SPECIFIC GRAVITY	rtg
Washington								
1 Ranger Russet	22.7	40.2	31.4	**3-**	17.5	2	1.082	**4**
2 Russet Burbank	22.7	48.4	35.6	**4-**	25.6	2	1.079	**2**
3 A0073-2	40.6	45.5	43.0	**5+**	7.2	0	1.091	**4**
4 A03141-6	45.7	53.5	49.6	**5+**	8.4	0	1.087	**5**
5 A06014-14TE	44.6	51.8	48.2	**5+**	8.2	0	1.080	**3**
6 A06020-8	39.0	45.5	42.2	**5+**	8.8	0	1.090	**4**
7 A06096-2	35.6	48.0	41.8	**5-**	12.4	0	1.088	**5**
8 A06408-99LB	28.7	35.9	32.3	**3+**	7.4	1	1.082	**4**
9 A06862-18VR	37.5	44.8	41.1	**5+**	8.0	0	1.081	**4**
10 A06914-3CR	48.7	47.6	48.2	**5+**	3.4	0	1.077	**1**
11 A07008-4T	42.0	51.0	46.5	**5-**	9.0	0	1.089	**4**
12 A07103-1T	21.4	50.3	35.8	**4-**	28.9	2	1.082	**4**
13 A08014-11TE	31.3	51.6	41.5	**5-**	20.3	0	1.078	**2**
14 A08014-9TE	43.5	47.2	45.4	**5+**	4.8	0	1.077	**1**
15 AO03123-2	30.6	44.2	37.4	**4-**	13.6	0	1.084	**5**
16 AO06191-1	35.8	49.7	42.7	**5-**	13.9	0	1.090	**4**
17 AOR06070-1KF	44.0	51.3	47.6	**5-**	9.5	0	1.093	**3**
18 COA05149-2	44.3	50.6	47.5	**5+**	6.3	0	1.074	**0**
19 OR08014-4	39.1	51.7	45.4	**5-**	12.6	0	1.087	**5**
		LSD 0.05	*3.2*		*4.9*		*0.006*	
Average	36.7	47.8	42.3		11.9	0	1.084	
Idaho								
1 Ranger Russet	26.9	37.4	32.2	**3-**	10.5	1	1.086	**5**
2 Russet Burbank	23.9	40.3	32.1	**3-**	16.4	2	1.071	**0**
3 A0073-2	40.9	42.5	41.7	**5+**	4.3	0	1.083	**5**
4 A03141-6	49.1	51.0	50.1	**5+**	3.6	0	1.088	**5**
5 A06014-14TE	40.3	48.9	44.6	**5+**	8.9	0	1.085	**5**
6 A06020-8	44.5	47.7	46.1	**5+**	5.0	0	1.091	**4**
7 A06096-2	37.3	44.8	41.1	**5+**	8.8	0	1.085	**5**
8 A06408-99LB	24.9	34.9	29.9	**2-**	10.0	1	1.084	**5**
9 A06862-18VR	36.0	46.8	41.4	**5-**	10.8	0	1.084	**5**
10 A06914-3CR	44.9	51.2	48.1	**5+**	6.7	0	1.083	**5**
11 A07008-4T	44.2	51.7	47.9	**5+**	7.4	0	1.093	**3**
12 A07103-1T	36.9	52.4	44.6	**5-**	15.4	0	1.088	**5**
13 A08014-11TE	41.4	49.6	45.5	**5+**	8.2	0	1.080	**3**
14 A08014-9TE	47.1	47.7	47.4	**5+**	5.3	0	1.076	**1**
15 AO03123-2	39.4	50.4	44.9	**5-**	11.3	0	1.079	**2**
16 AO06191-1	33.3	46.8	40.0	**4-**	13.5	0	1.088	**5**
17 AOR06070-1KF	37.0	49.8	43.4	**5-**	14.4	0	1.086	**5**
18 COA05149-2	48.8	53.7	51.2	**5+**	6.2	0	1.075	**0**
19 OR08014-4	36.4	52.5	44.4	**5-**	16.4	0	1.085	**5**
		LSD 0.05	*3.2*		*4.9*		*0.004*	
Average	39.4	48.1	43.7		9.6	0	1.084	
Oregon								
1 Ranger Russet	31.8	47.4	37.6	**4-**	17.9	0	1.085	**5**
2 Russet Burbank	19.7	48.8	34.2	**3-**	29.1	2	1.075	**0**
3 A0073-2	46.2	47.4	46.8	**5+**	4.9	0	1.088	**5**
4 A03141-6	45.3	53.8	49.5	**5-**	9.1	0	1.093	**3**
5 A06014-14TE	41.6	49.1	45.4	**5+**	8.9	0	1.065	**0**
6 A06020-8	39.3	46.1	42.7	**5+**	8.1	0	1.071	**0**
7 A06096-2	30.4	48.5	39.4	**4-**	18.8	1	1.076	**1**
8 A06408-99LB	38.1	36.3	37.2	**4+**	3.9	0	1.072	**0**
9 A06862-18VR	27.2	44.7	36.0	**4-**	17.5	1	1.085	**5**
10 A06914-3CR	43.3	48.6	46.0	**5-**	10.1	0	1.068	**0**
11 A07008-4T	40.7	53.5	47.1	**5-**	12.8	0	1.078	**2**
12 A07103-1T	29.7	50.9	40.3	**4-**	22.4	1	1.076	**1**
13 A08014-11TE	30.9	48.7	39.8	**4-**	19.6	0	1.068	**0**
14 A08014-9TE	37.5	38.9	38.2	**4+**	3.3	0	1.062	**0**
15 AO03123-2	37.8	51.4	44.6	**5-**	13.7	0	1.081	**4**
16 AO06191-1	34.3	49.5	41.9	**5-**	15.2	0	1.084	**5**
17 AOR06070-1KF	37.7	51.0	44.4	**5-**	13.7	0	1.083	**5**
18 COA05149-2	36.1	46.3	41.2	**5-**	11.1	0	1.060	**0**
19 OR08014-4	33.0	47.2	40.1	**4-**	14.4	0	1.086	**5**
		LSD 0.05	*4.5*		*6.5*		*0.007*	
Average	35.8	47.8	41.7		13.4	0	1.077	

Date test performed:

Washington	Sept. 16	Sept. 15	
Idaho	Sept. 24		Sept. 23
Oregon	Oct. 2		Oct. 1

§ 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.

2014 Late Harvest Tri-State Trial

Stored at 48°F after Arrival

Clone	FRENCH FRY TASTE PANEL rating	BRUISE POTENTIAL (percent) stem	bud	[color 5=darkest] stem	bud	SOFT ROT INDEX (percent) stem	bud
Washington							
1 Ranger Russet	**2.8**	96	50	4.3	2.1	15	18
2 Russet Burbank	**3.3**	75	25	3.0	1.5	20	23
3 A0073-2	**3.3**	67	33	2.7	1.8	14	13
4 A03141-6	**3.6**	35	0	1.9	1.1	16	11
5 A06014-14TE	**3.3**	71	42	2.9	2.2	14	11
6 A06020-8	**3.1**	63	8	2.5	1.2	15	20
7 A06096-2	**3.5**	96	33	3.9	1.8	16	20
8 A06408-99LB	**3.0**	42	13	2.0	1.3	16	14
9 A06862-18VR	**3.2**	96	29	4.0	1.8	15	14
10 A06914-3CR	**3.4**	50	38	2.2	2.0	10	11
11 A07008-4T	**3.9**	29	13	1.8	1.3	14	13
12 A07103-1T	**3.0**	0	4	1.0	1.1	20	20
13 A08014-11TE	**3.3**	58	0	2.2	1.0	22	21
14 A08014-9TE	**3.0**	42	17	2.0	1.4	17	16
15 AO03123-2	**3.4**	17	4	1.4	1.1	13	10
16 AO06191-1	**3.4**	83	13	3.0	1.3	12	12
17 AOR06070-1KF	**3.6**	46	42	2.1	2.0	14	11
18 COA05149-2	**3.8**	38	4	2.0	1.1	21	18
19 OR08014-4	**3.5**	83	33	3.4	1.8	19	17
LSD 0.05	*0.4*	*28*	*24*			*6*	*6*
Average	3.3	57.1	21.1	2.5	1.5	15.9	15.5
Idaho							
1 Ranger Russet	**2.6**	79	25	3.3	1.6	11	11
2 Russet Burbank	**2.9**	13	4	1.3	1.1	17	16
3 A0073-2	**2.6**	54	4	2.3	1.1	15	18
4 A03141-6	**3.9**	8	0	1.2	1.0	12	9
5 A06014-14TE	**2.9**	46	17	2.0	1.3	12	15
6 A06020-8	**3.4**	75	29	2.8	1.6	12	12
7 A06096-2	**2.9**	42	0	1.8	1.0	9	8
8 A06408-99LB	**3.2**	67	4	2.8	1.1	11	12
9 A06862-18VR	**2.8**	71	4	2.8	1.1	7	10
10 A06914-3CR	**3.5**	83	0	2.8	1.0	8	8
11 A07008-4T	**3.5**	42	0	1.8	1.0	9	10
12 A07103-1T	**3.4**	8	8	1.2	1.2	19	13
13 A08014-11TE	**3.0**	42	4	1.9	1.1	7	11
14 A08014-9TE	**3.5**	75	4	2.5	1.1	14	14
15 AO03123-2	**2.9**	0	0	1.0	1.0	6	7
16 AO06191-1	**3.6**	63	8	2.3	1.2	8	9
17 AOR06070-1KF	**3.2**	17	8	1.3	1.2	10	12
18 COA05149-2	**3.1**	38	0	1.8	1.0	12	13
19 OR08014-4	**3.6**	50	25	2.0	1.5	10	11
LSD 0.05	*0.3*	*27*	*17*			*7*	*4*
Average	3.2	44.7	7.9	2.0	1.2	10.9	11.5
Oregon							
1 Ranger Russet	**3.3**	96	13	4.2	1.3	11	9
2 Russet Burbank	**3.3**	71	17	2.8	1.3	9	11
3 A0073-2	**3.3**	88	13	2.9	1.3	10	11
4 A03141-6	**3.6**	4	0	1.1	1.0	7	7
5 A06014-14TE	**2.8**	33	13	2.0	1.3	No Sample	
6 A06020-8	**3.7**	17	8	1.4	1.3	7	11
7 A06096-2	**2.8**	29	17	1.8	1.4	9	12
8 A06408-99LB	**3.3**	38	13	2.2	1.4	12	8
9 A06862-18VR	**3.1**	50	13	2.5	1.3	8	7
10 A06914-3CR	**3.5**	8	0	1.2	1.0	5	8
11 A07008-4T	**3.6**	0	0	1.0	1.0	8	10
12 A07103-1T	**3.6**	4	0	1.1	1.0	12	13
13 A08014-11TE	**3.0**	46	0	2.1	1.0	11	10
14 A08014-9TE	**3.0**	4	4	1.1	1.1	9	6
15 AO03123-2	**3.4**	8	0	1.3	1.0	7	9
16 AO06191-1	**3.1**	42	13	2.0	1.3	7	8
17 AOR06070-1KF	**3.4**	17	0	1.4	1.1	9	10
18 COA05149-2	**2.8**	42	4	2.1	1.1	7	8
19 OR08014-4	**3.6**	75	17	3.0	1.6	8	8
LSD 0.05	*0.3*	*26*	*16*			*4*	*3*
Average	3.3	35.3	1.2	1.9	1.2	8.7	9.2

Date test performed:

Washington	Oct. 14	Oct. 23	Nov. 4
Idaho	Oct. 15	Oct. 28	Nov. 14
Oregon	Oct. 16	Oct. 30	Nov. 18

2014 Late Harvest Tri-State Trial

Stored at 48°F for 60 Days

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg	SPROUTING (%)	length (in)
Washington											
1 Ranger Russet	24.8	49.5	37.1	**4-**	24.7	1	2.0	0.5	**4**	87	1.00
2 Russet Burbank	16.2	42.1	29.1	**2-**	25.9	3	3.4	0.7	**2**	27	0.13
3 A0073-2	36.7	46.9	41.8	**5-**	10.8	0	0.9	0.5	**5**	47	0.13
4 A03141-6	41.6	54.3	47.9	**5-**	12.7	0	0.7	0.5	**5**	No Sample	
5 A06014-14TE	30.3	46.5	38.4	**4-**	16.2	1	1.4	0.5	**4**	100	2.50
6 A06020-8	37.8	50.7	44.3	**5-**	12.9	0	0.8	0.5	**5**	80	1.00
7 A06096-2	29.1	45.8	37.4	**4-**	17.2	1	1.5	0.6	**4**	100	2.00
8 A06408-99LB	34.2	40.9	37.5	**4+**	7.8	0	1.0	0.7	**5**	100	0.75
9 A06862-18VR	34.2	47.8	41.0	**5-**	13.5	0	1.0	0.5	**5**	100	2.00
10 A06914-3CR	35.7	41.6	38.7	**4+**	6.4	0	1.0	0.7	**5**	100	1.50
11 A07008-4T	34.9	53.2	44.0	**5-**	18.3	0	1.0	0.6	**5**	93	0.50
12 A07103-1T	19.8	52.6	36.2	**4-**	32.8	2	2.7	0.5	**3**	80	0.25
13 A08014-11TE	24.6	47.0	35.8	**4-**	22.4	1	2.0	0.5	**4**	0	
14 A08014-9TE	28.0	35.8	31.9	**3+**	8.2	1	1.6	0.9	**4**	100	2.00
15 AO03123-2	26.3	49.9	38.1	**4-**	23.6	1	1.8	0.5	**4**	53	0.13
16 AO06191-1	23.1	38.7	30.9	**3-**	15.7	2	2.2	0.8	**3**	47	0.13
17 AOR06070-1KF	33.1	55.3	44.2	**5-**	22.2	0	1.1	0.5	**5**	100	1.00
18 COA05149-2	33.8	47.7	40.8	**5-**	13.9	0	1.1	0.5	**5**	100	2.00
19 OR08014-4	33.3	48.5	40.9	**5-**	15.2	0	1.1	0.5	**5**	100	1.25
		LSD 0.05	*3.6*		*5.6*					*24*	
Average	30.4	47.1	38.7		16.9	1	1.5	0.6		79	
Idaho											
1 Ranger Russet	25.2	37.9	31.6	**3-**	12.7	1	1.9	0.8	**4**	80	0.25
2 Russet Burbank	16.8	44.6	30.7	**3-**	27.8	3	3.2	0.6	**3**	0	
3 A0073-2	30.2	39.1	34.7	**3-**	9.1	1	1.4	0.8	**4**	93	0.13
4 A03141-6	43.2	43.1	43.1	**5-**	9.6	0	0.6	0.6	**5**	0	
5 A06014-14TE	30.3	46.9	38.6	**4-**	16.5	1	1.4	0.5	**5**	100	0.50
6 A06020-8	36.6	37.1	36.9	**4+**	7.1	0	0.9	0.9	**5**	0	
7 A06096-2	23.8	41.7	32.8	**3-**	18.1	2	2.1	0.7	**4**	100	1.00
8 A06408-99LB	29.3	38.2	33.8	**3-**	9.3	1	1.5	0.8	**4**	77	0.13
9 A06862-18VR	30.3	47.9	39.1	**4-**	17.6	1	1.4	0.5	**5**	100	0.50
10 A06914-3CR	36.6	48.0	42.3	**5-**	11.8	0	0.9	0.5	**5**	0	
11 A07008-4T	39.5	49.0	44.2	**5-**	12.5	0	0.8	0.5	**5**	33	0.13
12 A07103-1T	24.2	50.8	37.5	**4-**	26.6	2	2.1	0.5	**4**	0	
13 A08014-11TE	24.2	43.0	33.6	**3-**	20.2	2	2.1	0.6	**4**	0	
14 A08014-9TE	33.5	38.1	35.8	**4+**	7.6	0	1.1	0.8	**4**	100	0.50
15 AO03123-2	27.6	46.2	36.9	**4-**	19.5	1	1.6	0.5	**4**	0	
16 AO06191-1	22.3	41.2	31.8	**3-**	18.9	2	2.3	0.7	**3**	0	
17 AOR06070-1KF	38.3	49.1	43.7	**5-**	11.8	0	0.8	0.5	**5**	14	0.13
18 COA05149-2	40.0	49.0	44.5	**5-**	9.0	0	0.7	0.5	**5**	93	0.50
19 OR08014-4	34.4	44.6	39.5	**4-**	10.1	0	1.0	0.6	**5**	60	0.25
		LSD 0.05	*3.6*		*6.1*					*21*	
Average	30.9	44.0	37.4		14.5	1	1.5	0.6		45	
Oregon											
1 Ranger Russet	31.1	49.0	40.0	**4-**	18.0	0	1.3	0.5	**5**	100	1.00
2 Russet Burbank	18.0	43.6	30.8	**3-**	25.7	3	3.0	0.6	**3**	0	
3 A0073-2	41.8	49.4	45.6	**5+**	7.8	0	0.7	0.5	**5**	20	0.13
4 A03141-6	49.5	56.5	53.0	**5+**	7.0	0	0.5	0.5	**5**	0	
5 A06014-14TE	34.2	46.1	40.2	**4-**	11.8	0	1.0	0.5	**5**	No Sample	
6 A06020-8	43.9	48.4	46.1	**5+**	5.6	0	0.6	0.5	**5**	73	0.13
7 A06096-2	20.8	43.1	32.0	**3-**	22.8	2	2.6	0.6	**3**	100	1.00
8 A06408-99LB	30.5	35.3	32.9	**3+**	7.6	0	1.3	1.0	**4**	93	0.75
9 A06862-18VR	32.7	46.2	39.4	**4-**	14.8	0	1.2	0.5	**5**	100	1.00
10 A06914-3CR	33.5	43.9	38.7	**4-**	11.4	0	1.1	0.6	**5**	85	0.25
11 A07008-4T	33.0	50.2	41.6	**5-**	17.2	0	1.1	0.5	**5**	60	0.13
12 A07103-1T	24.4	52.8	38.6	**4-**	28.4	2	2.0	0.5	**4**	29	0.13
13 A08014-11TE	24.7	45.7	35.2	**3-**	20.9	1	2.0	0.6	**4**	0	
14 A08014-9TE	28.0	33.7	30.9	**3+**	6.4	1	1.6	1.1	**4**	100	1.00
15 AO03123-2	35.8	51.6	43.7	**5-**	16.2	0	0.9	0.5	**5**	0	
16 AO06191-1	28.7	42.7	35.7	**4-**	17.1	1	1.5	0.6	**4**	0	
17 AOR06070-1KF	36.9	52.6	44.7	**5-**	16.5	0	0.9	0.5	**5**	60	0.13
18 COA05149-2	35.2	45.9	40.5	**5-**	10.8	0	1.0	0.5	**5**	100	1.50
19 OR08014-4	36.7	53.1	44.9	**5-**	16.6	0	0.9	0.6	**5**	71	0.75
		LSD 0.05	*4.3*		*6.4*					*24*	
Average	32.6	46.8	39.7		14.9	1	1.3	0.6		55	

Date test performed:

Washington	Dec. 4	Dec. 4		Dec. 21
Idaho	Dec. 10	Dec. 10	Dec. 21	
Oregon	Dec. 16	Dec. 16	Dec. 21	

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

2014 Late Harvest Tri-State Trial

Stored at 44°F for 60 Days

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg
Washington									
1 Ranger Russet	21.6	42.5	32.0	**3-**	20.9	2	2.4	0.6	**3**
2 Russet Burbank	18.8	36.3	27.5	**2-**	17.6	3	2.9	0.9	**3**
3 A0073-2	42.0	48.8	45.4	**5+**	6.8	0	0.7	0.5	**5**
4 A03141-6	41.3	52.6	47.0	**5-**	13.4	0	0.7	0.5	**5**
5 A06014-14TE	30.6	42.5	36.5	**4-**	13.2	0	1.3	0.6	**4**
6 A06020-8	36.5	47.8	42.2	**5-**	11.4	0	0.9	0.5	**5**
7 A06096-2	27.8	40.9	34.4	**3-**	13.0	1	1.6	0.7	**4**
8 A06408-99LB	33.3	39.8	36.6	**4+**	6.9	0	1.1	0.7	**5**
9 A06862-18VR	26.6	42.2	34.4	**3-**	15.6	1	1.8	0.6	**4**
10 A06914-3CR	37.1	43.3	40.2	**4+**	8.1	0	0.9	0.6	**5**
11 A07008-4T	35.9	49.6	42.7	**5-**	13.7	0	0.9	0.5	**5**
12 A07103-1T	17.9	51.2	34.6	**3-**	33.3	3	3.0	0.5	**3**
13 A08014-11TE	21.2	34.9	28.1	**2-**	13.7	2	2.5	1.0	**3**
14 A08014-9TE	24.8	32.1	28.4	**2+**	8.4	1	2.0	1.2	**3**
15 AO03123-2	30.4	47.9	39.1	**4-**	18.4	1	1.4	0.5	**5**
16 AO06191-1	28.9	42.4	35.6	**4-**	13.5	1	1.5	0.6	**4**
17 AOR06070-1KF	31.9	52.6	42.3	**5-**	20.7	0	1.2	0.5	**5**
18 COA05149-2	28.3	44.1	36.2	**4-**	15.8	1	1.6	0.6	**4**
19 OR08014-4	34.8	51.2	43.0	**5-**	16.4	0	1.0	0.5	**5**
		LSD 0.05	*3.2*		*5.6*				
Average	30.0	44.3	37.2		14.8	1	1.5	0.7	
Idaho									
1 Ranger Russet	27.6	42.0	34.8	**3-**	14.4	1	1.6	0.7	**4**
2 Russet Burbank	19.3	37.1	28.2	**2-**	17.8	3	2.8	0.9	**3**
3 A0073-2	31.0	36.3	33.7	**3+**	7.0	0	1.3	0.9	**4**
4 A03141-6	45.0	46.2	45.6	**5+**	7.2	0	0.6	0.5	**5**
5 A06014-14TE	33.0	44.4	38.7	**4-**	11.4	0	1.1	0.6	**5**
6 A06020-8	34.7	36.1	35.4	**3+**	4.8	0	1.0	0.9	**4**
7 A06096-2	27.5	43.4	35.5	**4-**	15.9	1	1.6	0.6	**4**
8 A06408-99LB	30.4	35.9	33.1	**3+**	6.4	1	1.4	0.9	**4**
9 A06862-18VR	27.3	48.4	37.8	**4-**	21.1	1	1.7	0.5	**4**
10 A06914-3CR	33.6	40.1	36.9	**4+**	7.8	0	1.1	0.7	**5**
11 A07008-4T	43.0	52.3	47.7	**5-**	9.3	0	0.6	0.5	**5**
12 A07103-1T	25.8	49.1	37.4	**4-**	23.3	1	1.9	0.5	**4**
13 A08014-11TE	26.3	41.8	34.1	**3-**	15.7	1	1.8	0.7	**4**
14 A08014-9TE	31.9	35.5	33.7	**3+**	4.7	0	1.2	1.0	**4**
15 AO03123-2	32.7	46.2	39.5	**4-**	13.5	0	1.2	0.5	**5**
16 AO06191-1	24.0	41.0	32.5	**3-**	17.0	2	2.1	0.7	**4**
17 AOR06070-1KF	39.1	51.9	45.5	**5-**	12.8	0	0.8	0.5	**5**
18 COA05149-2	37.0	50.0	43.5	**5-**	13.0	0	0.9	0.5	**5**
19 OR08014-4	39.5	51.3	45.4	**5-**	13.4	0	0.8	0.5	**5**
		LSD 0.05	*3.5*		*5.1*				
Average	32.0	43.6	37.8		12.4	1	1.3	0.7	
Oregon									
1 Ranger Russet	36.2	46.8	41.5	**5-**	12.0	0	0.9	0.5	**5**
2 Russet Burbank	15.9	39.9	27.9	**2-**	24.0	3	3.4	0.7	**2**
3 A0073-2	40.4	45.4	42.9	**5+**	5.2	0	0.7	0.6	**5**
4 A03141-6	43.3	48.5	45.9	**5+**	8.1	0	0.6	0.5	**5**
5 A06014-14TE	25.8	36.4	31.1	**3-**	11.9	1	1.9	0.9	**4**
6 A06020-8	34.7	39.4	37.0	**4+**	7.7	0	1.0	0.8	**5**
7 A06096-2	21.1	39.6	30.3	**2-**	18.5	2	2.5	0.8	**3**
8 A06408-99LB	31.2	32.9	32.0	**3+**	7.6	0	1.3	1.1	**4**
9 A06862-18VR	26.6	40.1	33.3	**3-**	14.1	1	1.8	0.7	**4**
10 A06914-3CR	31.7	36.9	34.3	**3-**	10.8	0	1.2	0.9	**4**
11 A07008-4T	27.9	41.2	34.6	**3-**	13.3	1	1.6	0.7	**4**
12 A07103-1T	23.5	45.2	34.4	**3-**	21.7	2	2.2	0.6	**4**
13 A08014-11TE	17.9	33.7	25.8	**2-**	15.8	3	3.0	1.1	**2**
14 A08014-9TE	22.7	22.4	22.5	**1+**	4.2	2	2.3	2.3	**2**
15 AO03123-2	25.4	44.5	34.9	**3-**	19.0	1	1.9	0.6	**4**
16 AO06191-1	23.7	40.3	32.0	**3-**	16.6	2	2.1	0.7	**4**
17 AOR06070-1KF	31.1	48.9	40.0	**4-**	17.9	0	1.3	0.5	**5**
18 COA05149-2	28.6	38.0	33.3	**3-**	9.3	1	1.5	0.8	**4**
19 OR08014-4	29.0	46.1	37.6	**4-**	17.1	1	1.5	0.5	**4**
		LSD 0.05	3.9		5.7				
Average	28.2	40.3	34.3		13.4	1	1.7	0.8	

Date test performed:

Washington	Dec. 5		Dec. 5	
Idaho		Dec. 11		Dec. 11
Oregon		Dec. 17		Dec. 17

§ 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.

2014 Late Harvest Tri-State Trial

Stored at 40°F for 60 Days and Reconditioned

		PHOTOVOLT (60 Days at 40°F)					PHOTOVOLT AFTER RECONDITIONING (21 days at 60°F)				
Clone	SPROUTING (%)	stem	bud	average	DIFF	USDA COLOR	stem	bud	average	DIFF	USDA COLOR
Washington											
1 Ranger Russet	0	14.7	30.0	22.3	15.5	3	26.1	45.7	35.9	19.5	1
2 Russet Burbank	0	11.4	25.4	18.4	14.0	4	18.1	36.8	27.5	18.7	3
3 A0073-2	0	33.0	41.8	37.4	9.5	0	40.8	51.1	45.9	10.3	0
4 A03141-6	No Sample	29.2	39.6	34.4	10.4	1	38.1	51.3	44.7	13.5	0
5 A06014-14TE	0	25.6	35.1	30.3	9.6	1	34.8	44.0	39.4	11.2	0
6 A06020-8	0	26.5	43.3	34.9	18.3	1	38.1	48.6	43.3	11.3	0
7 A06096-2	80	22.9	35.2	29.1	13.0	2	27.7	46.7	37.2	19.0	1
8 A06408-99LB	0	24.9	32.5	28.7	7.6	1	29.4	37.2	33.3	9.3	1
9 A06862-18VR	50	23.0	30.0	26.5	8.1	2	39.1	49.6	44.3	10.8	0
10 A06914-3CR	0	26.6	32.6	29.6	6.9	1	35.0	35.3	35.2	5.5	0
11 A07008-4T	0	21.6	41.5	31.6	19.9	2	32.3	53.9	43.1	21.9	0
12 A07103-1T	0	18.5	39.4	28.9	20.8	3	25.6	53.2	39.4	27.7	1
13 A08014-11TE	0	14.4	24.9	19.6	10.4	4	27.5	42.6	35.1	15.1	1
14 A08014-9TE	0	20.3	21.7	21.0	3.2	2	28.0	34.0	31.0	6.3	1
15 AO03123-2	No Sample	16.7	33.5	25.1	16.8	3	24.6	46.5	35.5	22.0	1
16 AO06191-1	0	19.0	23.8	21.4	5.7	3	25.0	39.0	32.0	14.0	1
17 AOR06070-1KF	No Sample	25.1	39.3	32.2	14.3	1	30.4	53.3	41.8	22.9	1
18 COA05149-2	0	19.1	31.6	25.3	12.5	3	43.7	51.5	47.6	8.0	0
19 OR08014-4	0	21.6	40.6	31.1	19.0	2	39.3	50.8	45.1	11.4	0
LSD 0.05	*14.6*			*3.7*	*5.4*				*4.0*	*5.9*	
Average	8	21.8	33.8	27.8	12.4	2	31.8	45.8	38.8	14.6	1
Idaho											
1 Ranger Russet	0	19.7	31.5	25.6	12.8	2	21.5	42.0	31.8	20.7	2
2 Russet Burbank	0	13.5	26.1	19.8	12.7	4	17.5	32.8	25.2	15.2	3
3 A0073-2	0	24.7	32.2	28.4	9.2	1	22.2	29.1	25.6	7.0	2
4 A03141-6	0	43.0	45.3	44.1	5.7	0	36.9	39.4	38.1	9.7	0
5 A06014-14TE	0	22.5	32.7	27.6	10.2	2	24.4	37.1	30.8	12.8	2
6 A06020-8	0	28.1	28.5	28.3	6.7	1	33.2	35.6	34.4	7.7	0
7 A06096-2	0	20.0	30.3	25.1	10.4	2	22.9	37.2	30.1	14.3	2
8 A06408-99LB	0	24.1	30.1	27.1	6.0	2	24.2	39.1	31.6	15.0	2
9 A06862-18VR	0	24.3	38.5	31.4	14.2	2	27.7	46.1	36.9	18.4	1
10 A06914-3CR	0	26.6	35.7	31.2	9.1	1	22.2	29.2	25.7	7.7	2
11 A07008-4T	0	26.1	38.1	32.1	12.1	1	30.7	52.2	41.4	21.5	0
12 A07103-1T	0	20.0	32.7	26.3	12.7	2	26.0	50.9	38.4	24.9	1
13 A08014-11TE	0	18.2	33.6	25.9	15.4	3	24.1	38.7	31.4	15.1	2
14 A08014-9TE	0	22.8	23.9	23.3	3.4	2	25.8	27.0	26.4	2.8	1
15 AO03123-2	0	17.5	25.4	21.5	8.6	3	27.5	39.7	33.6	12.3	1
16 AO06191-1	0	17.1	25.4	21.2	8.3	3	23.4	36.4	29.9	13.7	2
17 AOR06070-1KF	0	26.3	36.5	31.4	10.4	1	29.0	44.5	36.8	15.5	1
18 COA05149-2	0	22.7	31.6	27.1	8.9	2	31.5	44.7	38.1	13.2	0
19 OR08014-4	0	34.4	39.1	36.8	6.4	0	36.6	48.1	42.4	12.2	0
LSD 0.05	ns			*2.8*	*4.6*				*3.8*	*5.3*	
Average	0	23.8	32.5	28.1	9.6	2	26.8	39.5	33.2	13.6	1
Oregon											
1 Ranger Russet	0	20.3	33.8	27.0	16.3	2	26.5	39.6	33.0	13.1	1
2 Russet Burbank	0	12.3	26.0	19.2	13.7	4	13.1	34.6	23.9	21.6	4
3 A0073-2	0	29.7	36.9	33.3	7.3	1	33.7	44.2	39.0	11.3	0
4 A03141-6	0	34.2	42.7	38.4	9.5	0	33.5	46.8	40.2	14.9	0
5 A06014-14TE	No Sample	20.6	21.4	21.0	4.3	2	28.1	39.0	33.6	10.9	1
6 A06020-8	0	25.9	29.1	27.5	6.5	1	29.4	39.1	34.2	11.0	1
7 A06096-2	0	14.3	26.6	20.4	12.3	4	16.3	26.7	21.5	10.4	3
8 A06408-99LB	0	21.8	23.5	22.7	7.2	2	22.9	26.4	24.7	5.5	2
9 A06862-18VR	0	26.0	33.5	29.8	9.8	1	29.8	45.6	37.7	16.5	1
10 A06914-3CR	0	22.5	26.2	24.4	6.2	2	29.4	36.3	32.8	10.0	1
11 A07008-4T	0	14.7	26.4	20.5	11.7	3	21.9	47.2	34.6	25.3	2
12 A07103-1T	No Sample	16.6	33.4	25.0	16.8	3	21.7	48.2	34.9	26.4	2
13 A08014-11TE	0	14.0	25.5	19.7	12.0	4	20.6	37.2	28.9	16.6	2
14 A08014-9TE	0	12.9	12.3	12.6	4.1	4	21.6	30.7	26.2	10.8	2
15 AO03123-2	0	18.7	29.1	23.9	10.8	3	30.2	44.9	37.5	14.9	1
16 AO06191-1	0	9.7	18.0	13.9	8.3	4	17.4	38.7	28.0	21.3	3
17 AOR06070-1KF	0	24.0	39.1	31.5	15.1	2	28.8	46.0	37.4	18.1	1
18 COA05149-2	27	15.1	24.5	19.8	9.4	3	36.5	44.5	40.5	8.1	0
19 OR08014-4	0	24.4	43.3	33.8	19.7	2	31.5	47.1	39.3	16.8	0
LSD 0.05	*10*			*3.5*	*5.0*				*4.4*	*6.4*	
Average	2	19.9	29.0	24.4	10.6	2	25.9	40.1	33.0	14.9	1

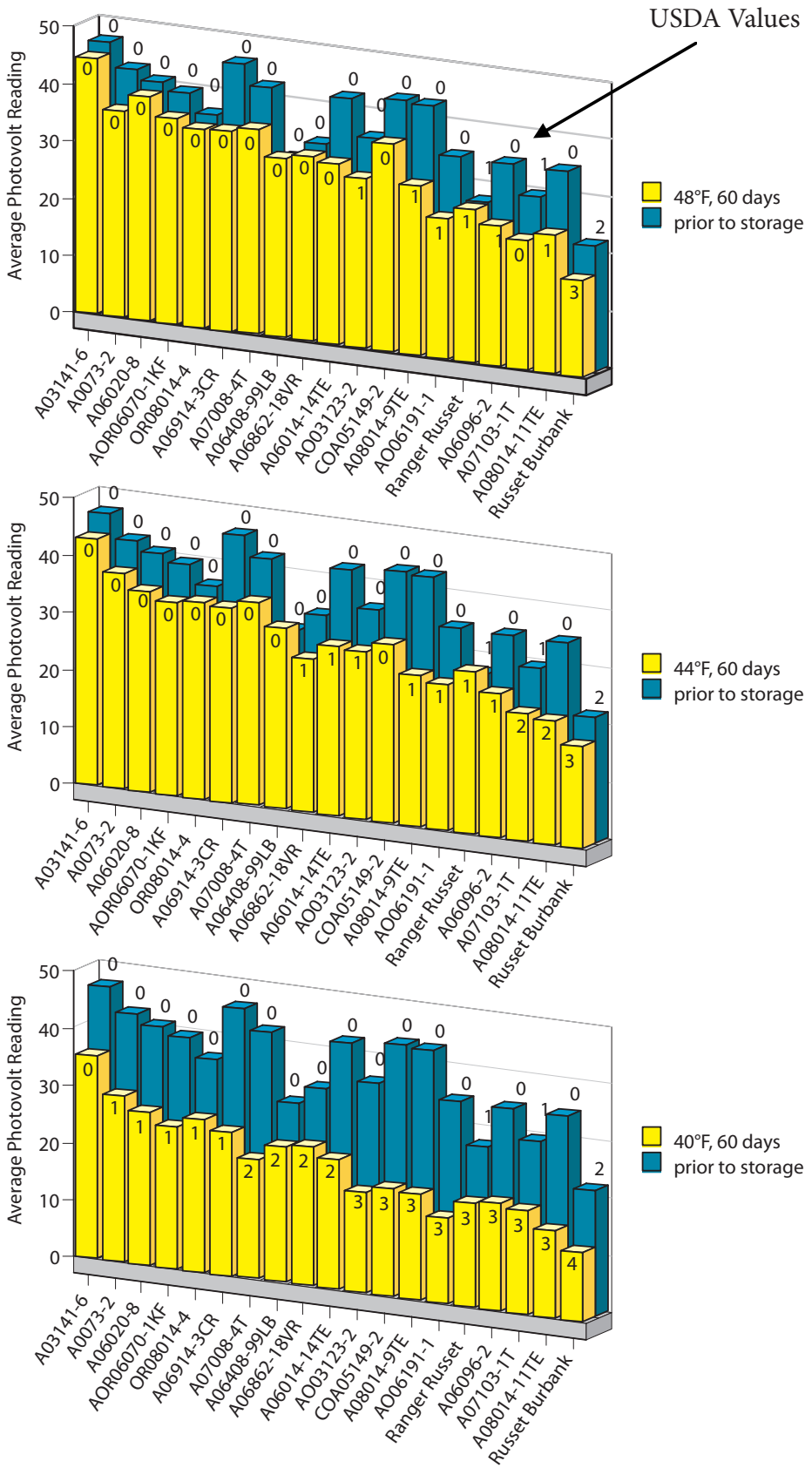
Date test performed:

Washington	Dec. 22	Dec. 6	Dec. 19
Idaho	Dec. 22	Dec. 11	Dec. 19
Oregon	Dec. 22	Dec. 18	Dec. 19

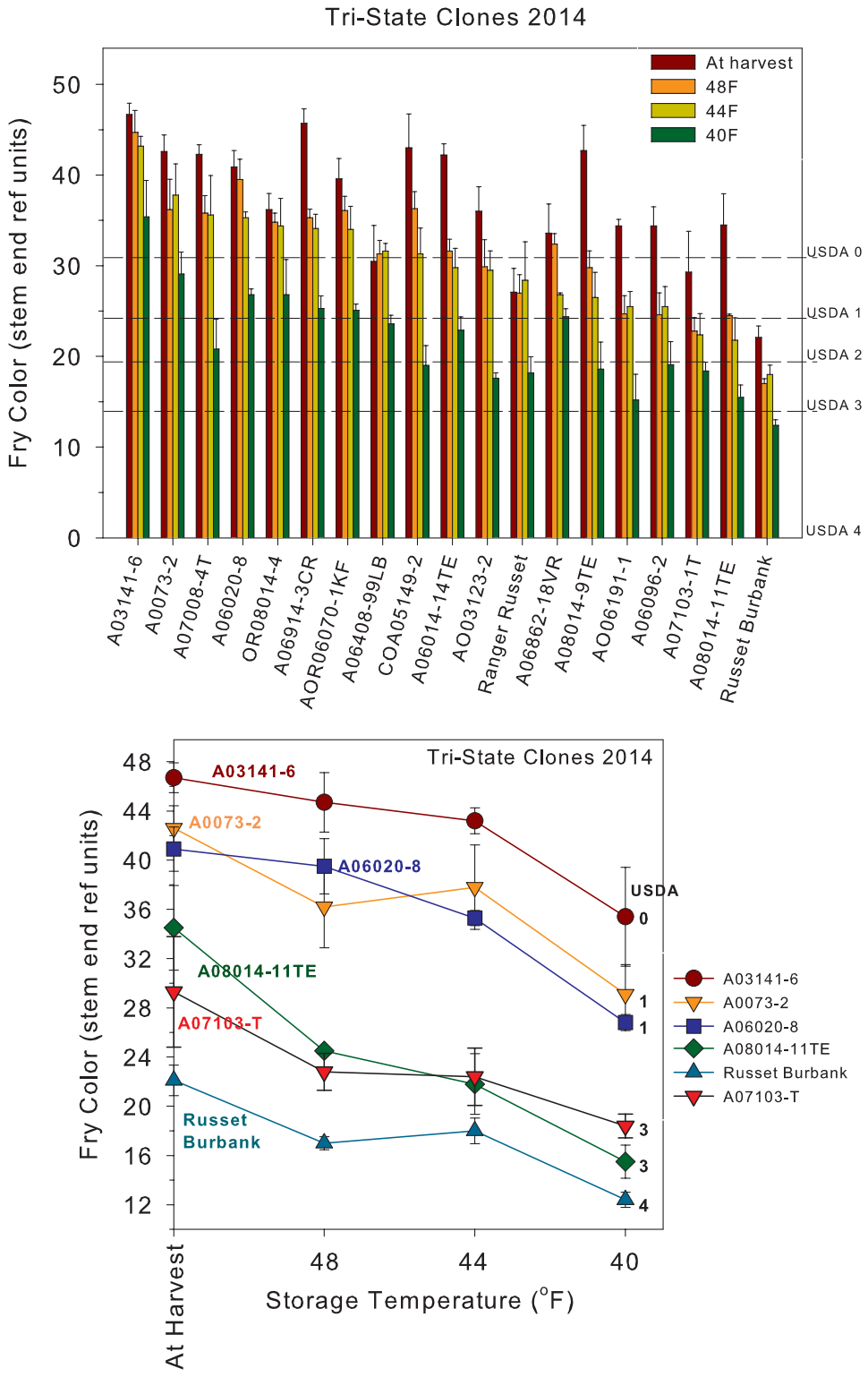
DIFF = Absolute difference between bud and stem Photovolt reading.

2014 Late Harvest Tri-State Trial

Tri-State Trial - 3 State Average of Stem End



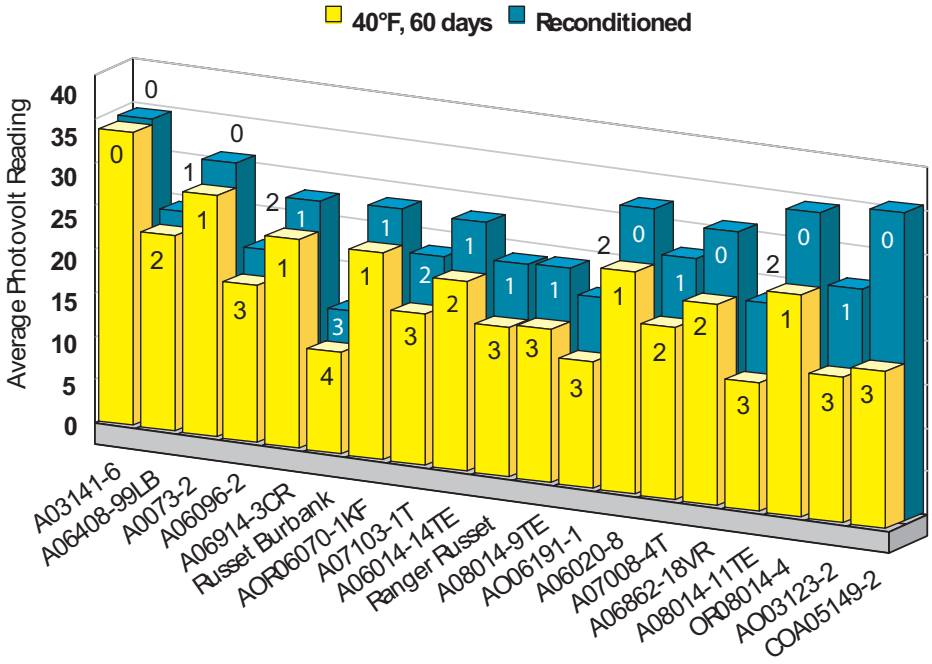
2014 Late Harvest Tri-State Trial

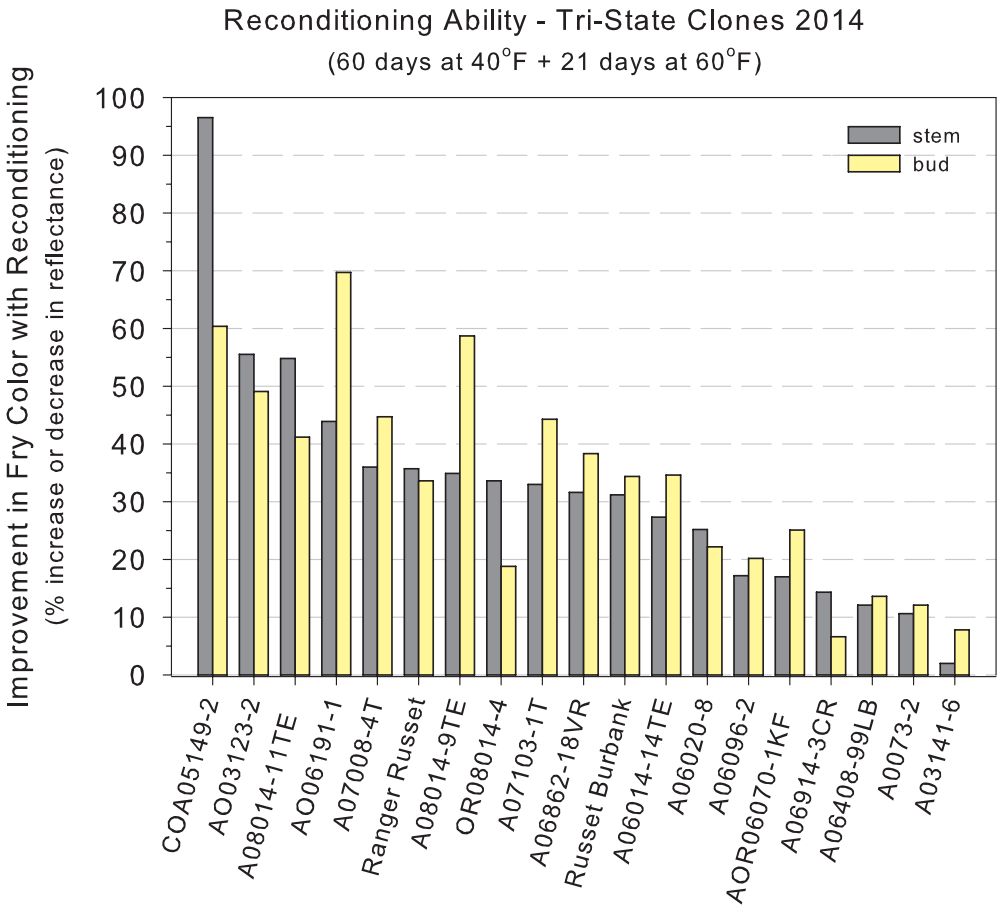


Top: At-harvest and after-storage French fry colors (stem end) of clones in the Tri-State Trial. Tubers were stored for 60 days at 48, 44, and 40°F. The clones are ranked from best to worst on fry color of the 44°F-stored tubers. High reflectance values indicate light colored fries.

Bottom: Line graph depicting the effects of storage temperature on the change in French fry processing quality (stem end fry color) of the best (A03141-6, A06020-8, and A0073-2) and worst (A08014-11TE, A07103-T, and Russet Burbank) performing clones in the Tri-State Trial. *Indicates similar performance of the clones last year.

2014 Late Harvest Tri-State Trial





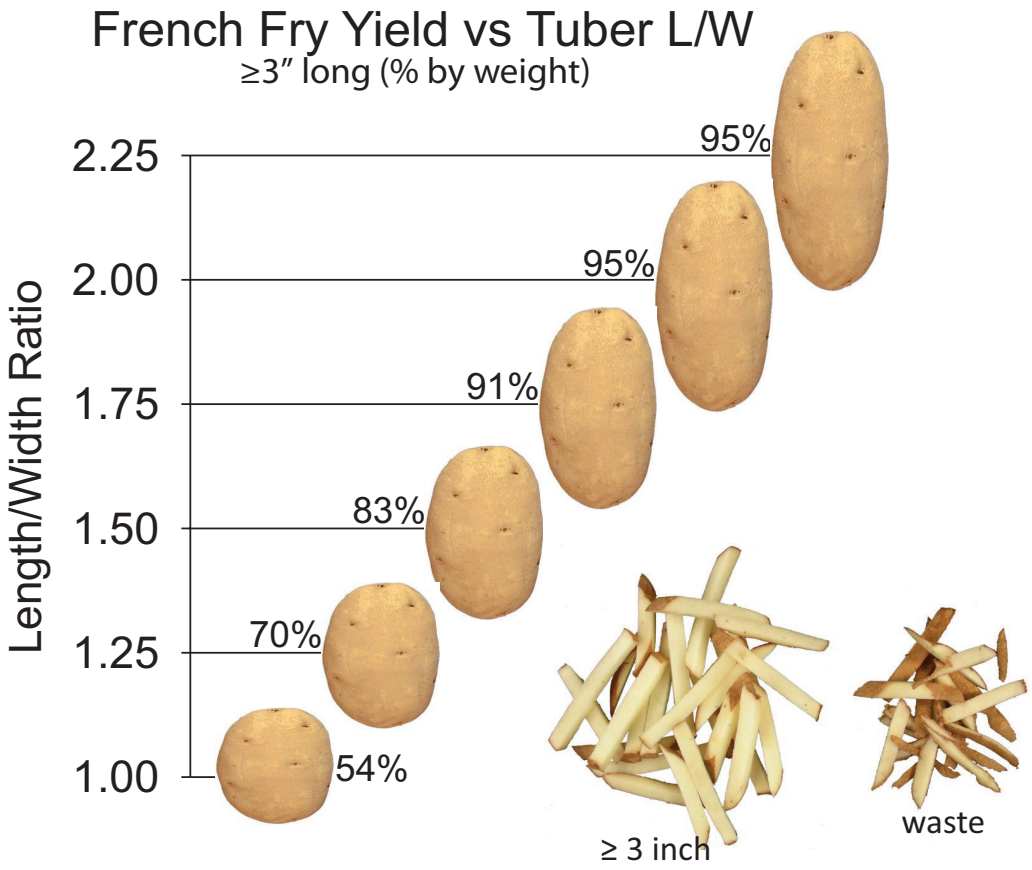
Reconditioning abilities of clones in the 2014 Tri-State Trial (3-state averages). Clones were stored at 40°F for 60 days after harvest and then reconditioned at 60°F for 21 days. Top: Stem end fry color before and after reconditioning. Numbers in bars indicate the USDA color rating of the stem end. Bottom: Percent improvement of stem and bud end fry color with reconditioning.

2014 Late Harvest Tri-State Trial

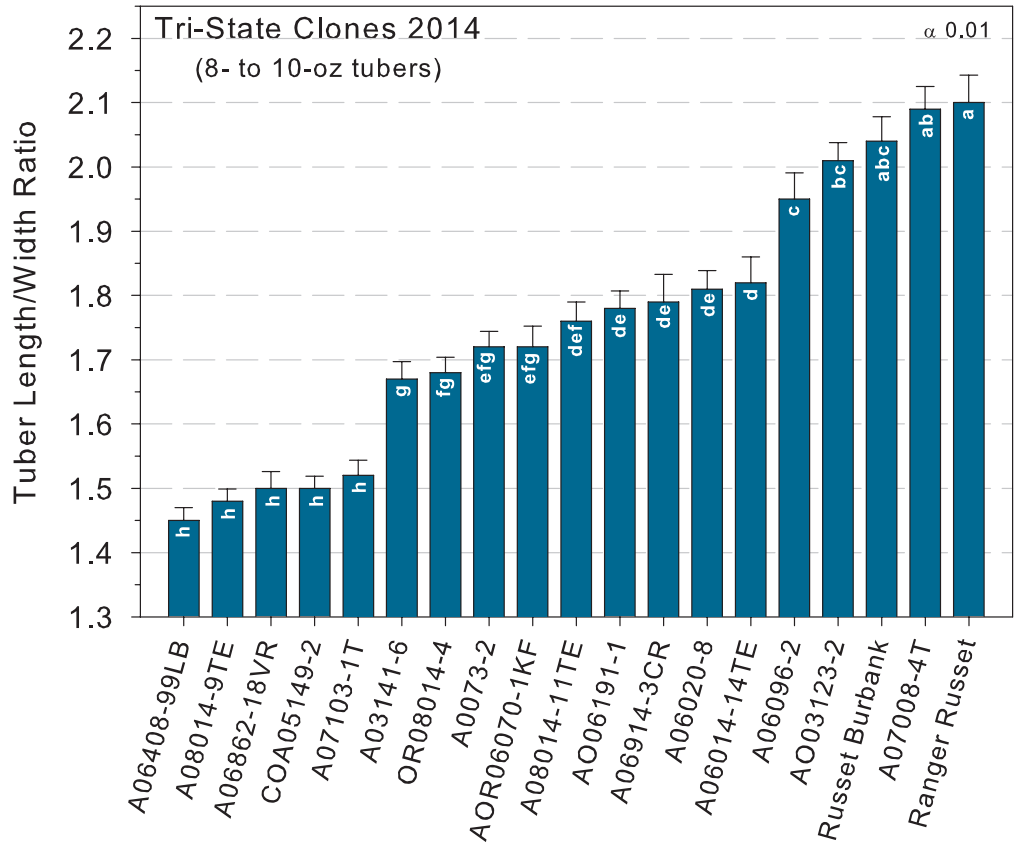
Tuber Shape and Associated French Fry Yields

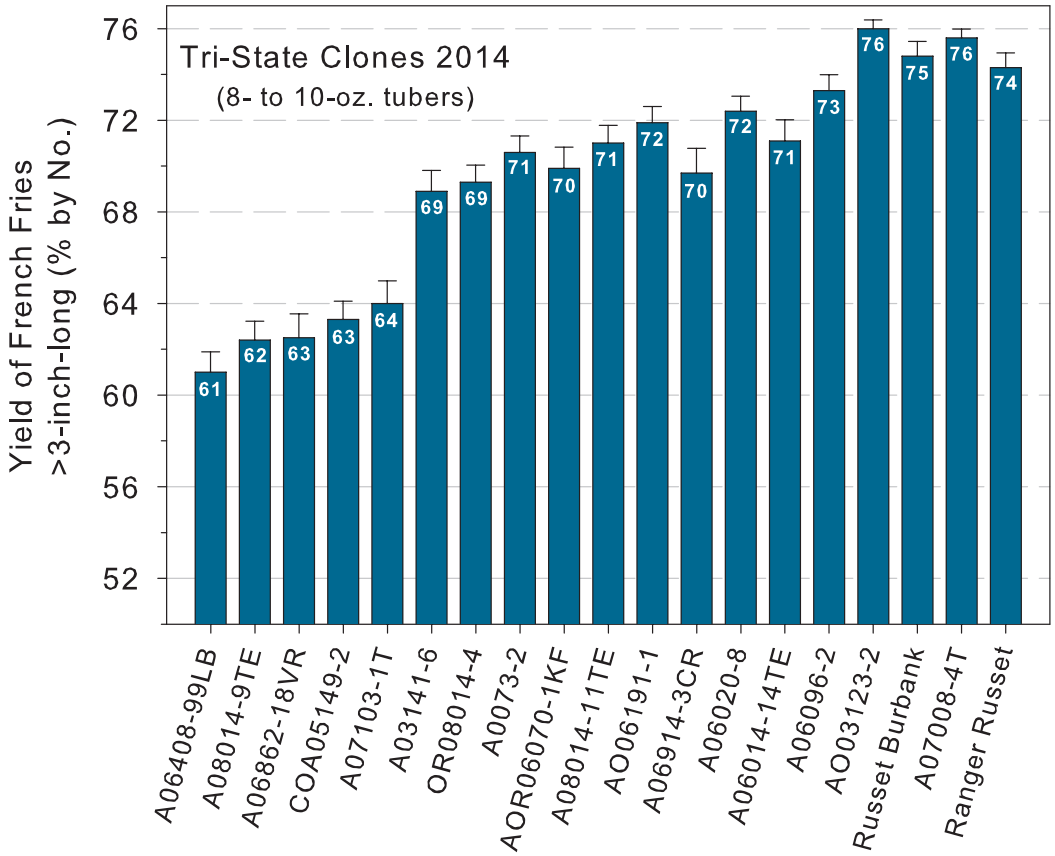
(8- to 10-oz Tubers)

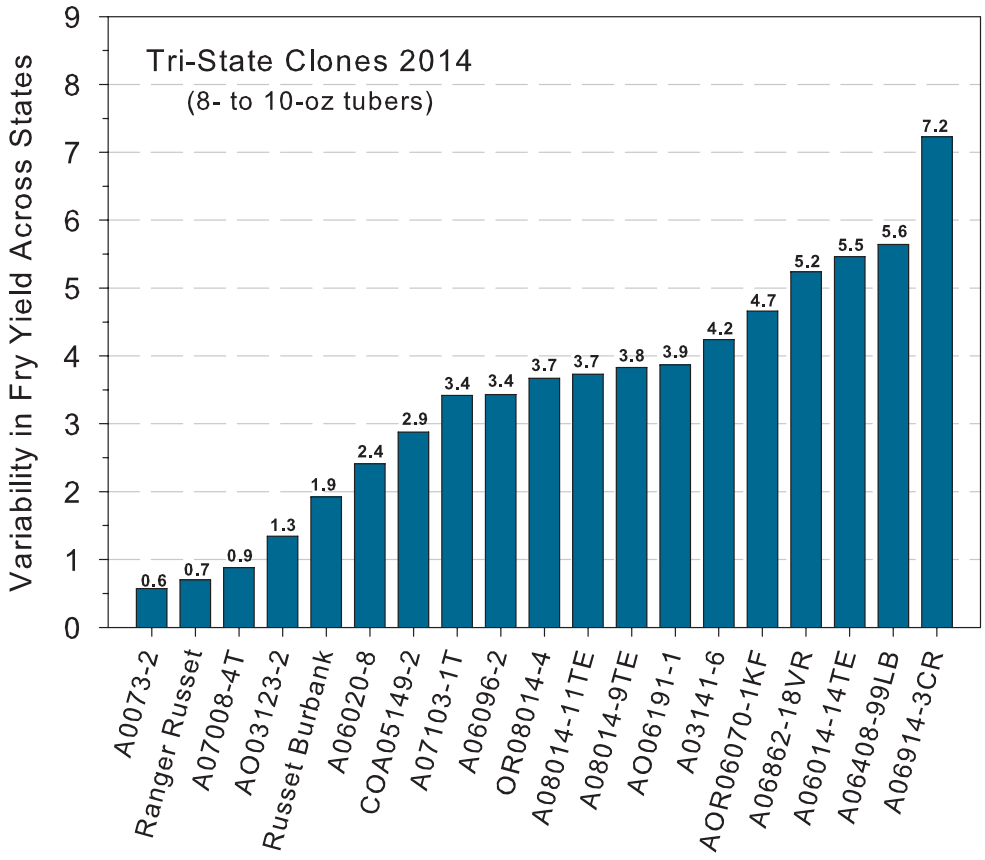
Clone	Length to width ratio				Yield of 3" or longer fries (% by number)			
	WA	ID	OR	3 State Avg.	WA	ID	OR	3 State Avg.
1 Ranger Russet	1.89	2.39	2.03	2.10	73	75	75	74
2 Russet Burbank	1.90	2.20	2.03	2.04	72	77	75	75
3 A0073-2	1.68	1.75	1.72	1.72	70	71	70	71
4 A03141-6	1.47	1.75	1.71	1.64	62	72	70	68
5 A06014-14TE	1.52	2.12	1.83	1.82	64	77	72	71
6 A06020-8	1.70	2.00	1.72	1.81	70	76	71	72
7 A06096-2	1.71	2.10	2.06	1.95	68	76	75	73
8 A06408-99LB	1.31	1.62	1.42	1.45	55	68	60	61
9 A06862-18VR	1.37	1.69	1.43	1.49	58	70	60	62
10 A06914-3CR	1.43	2.10	1.86	1.80	60	77	72	70
11 A07008-4T	1.86	2.33	2.08	2.09	74	76	77	76
12 A07103-1T	1.41	1.59	1.61	1.54	60	67	67	64
13 A08014-11TE	1.67	1.99	1.61	1.76	68	76	67	70
14 A08014-9TE	1.41	1.61	1.42	1.48	60	68	60	62
15 AO03123-2	1.90	2.19	1.94	2.01	75	78	75	76
16 AO06191-1	1.63	2.02	1.69	1.78	68	77	70	72
17 AOR06070-1KF	1.60	1.96	1.58	1.71	67	76	66	70
18 COA05149-2	1.49	1.59	1.42	1.50	63	67	60	63
19 OR08014-4	1.52	1.72	1.78	1.68	64	71	73	69
Average	1.60	1.93	1.73	1.76	66	73	69	70



2014 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, A06914-3CR had a length to width ratio of 1.8 (see previous page), resulting in 70% 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 63% to 77% (70 ± 7.2%).

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

2014 Early Harvest Regional Trial

Location: WSU Research Center – Othello, WA
Planting Date: March 31 Vine Kill Date: July 21
Harvest Date: August 6 Days Grown: 112

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 2014 early harvest trial compared 4 local reference varieties to 14 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): A06021-1T, A02062-1TE, and A03158-2TE.
Process Market Standout(s): A03921-2, A06021-1T, and A03158-2TE.

Standcounts

- 40 Day
  Slow emergence: A02507-2LB (0%) and A06021-1T (16%).

- 50 Day
  Full emergence: Shepody, A02424-83LB, and AO02060-3.
  Poor emergence: A02507-2LB (60%) and Russet Norkotah (78%).

Plant and Tuber Growth & Development

- Above Ground Stem Number Per Plant
  Most: A02424-83LB (2.9) and CO03276-5RU (2.6).
  Least: A06021-1T (1.3), Russet Burbank and A02062-1TE (each 1.5).

- Average Tuber Number Per Plant
  Most: CO03276-5RU (10.7) and A02424-83LB (9.4).
  Least: A02062-1TE (5.4) and Shepody (5.8).

- Average Tuber Size (oz)
  Largest: Shepody (9.9), A02062-1TE (8.6), and A03921-2 (8.5).
  Smallest: A02424-83LB and POR06V12-3 (each 5.7); A02507-2LB and A06084-1TE (each 5.8).

- Undersized Tubers (< 4oz)
  Most: CO03276-5R, POR06V12-3, and A06084-1TE.
  Fewest: A03921-2, A02062-1TE, and A06021-1T.

Yield and Economic Data

- Total Yield and U.S. #1 Yield
  Highest: CO03276-5RU had the highest total yield (623 CWT/A) and U.S. #1 yield (512 CWT/A). Shepody had the second highest total yield (553 CWT/A) and U.S. #1 yield (497 CWT/A).
  Lowest: A02507-2LB had the lowest total yield (352 CWT/A) and U.S. #1 yield (284 CWT/A). A02062-1TE had the second lowest total yield (450 CWT/A); Russet Burbank had the second lowest U.S. #1 yield (317 CWT/A).

- % U.S. #1's (greater than 4 oz)
  Highest: A06021-1T and CO05068-1RU (each 92%).
  Lowest: A02424-83LB and A06084-1TE (each 78%).

- Carton Yield (100 to 50 Count (7 to 18 oz U.S. #1 Tubers))
  Highest: A06021-1T (346 CWT/A) and A03158-2TE (320 CWT/A).
  Lowest: A02507-2LB (122 CWT/A) and A02424-83LB (156 CWT/A).

- Gross Return ($/acre)
  Fresh Market Highest: A06021-1T, A03158-2TE, and A03921-2.
  Fresh Market Lowest: A02507-2LB, A06084-1TE, and A02424-83LB.
  Process Market Highest: A03921-2 and Ranger Russet.

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

- External Defects
  Notable Defects: Russet Burbank had many knobs, but overall entries had little to no external defects.

- Internal Defects
  Notable Defects: Most entries had no internal defects. Russet Burbank and CO05068-1RU exhibited 7% hollow heart.

- Bruise
  Highest Blackspot: Ranger Russet (27%), A02424-83LB and CO05068-1RU (each 23%).
  Highest Shatter: AO02060-3 (7%) and CO03276-5RU (6%).

2014 Early Harvest Regional Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's* > 4 oz	US # 2's* > 4 oz	Culls* & < 4 oz	CARTON YIELD 100-50 count (US 1's 7-18 oz)		PROCESS YIELD US 1's and 2's > 6 oz	
	CWT/A	STATS**	Tons/A	% of Total Yield			% of Total Yield	Tons/A	% of Total Yield	Tons/A
Ranger Russet	524	*AB*	26.2	89	1	10	54	14.1	73	19.3
Russet Burbank	466	*ABC*	23.3	68	1	31	40	9.3	49	11.6
Russet Norkotah	465	*ABC*	23.2	87	1	12	53	12.3	65	15.1
Shepody	553	*A*	27.7	90	3	7	51	14.0	84	23.1
A02062-1TE	450	*ABC*	22.5	89	2	9	65	14.6	80	18.1
A02424-83LB	506	*AB*	25.3	78	3	18	31	7.8	48	12.1
A02507-2LB	352	*BC*	17.6	81	3	16	35	6.1	53	9.4
A03158-2TE	543	*A*	27.2	87	1	12	59	16.0	70	19.1
A03921-2	520	*AB*	26.0	88	3	9	58	15.0	76	19.9
A06021-1T	515	*AB*	25.7	92	1	7	67	17.3	80	20.5
A06084-1TE	452	*ABC*	22.6	78	2	20	38	8.5	55	12.4
AO01114-4	520	*AB*	26.0	87	2	11	58	15.0	73	18.9
AO02060-3	467	*ABC*	23.4	86	0	14	52	12.1	67	15.6
CO03276-5RU	623	*A*	31.1	82	0	17	42	13.1	55	17.0
CO05068-1RU	471	*ABC*	23.6	92	0	8	46	11.0	66	15.4
CO05175-1RU	483	*ABC*	24.2	88	0	12	60	14.5	68	16.4
OR05039-4	464	*ABC*	23.2	84	4	12	44	10.3	67	15.6
POR06V12-3	478	*ABC*	23.9	81	1	18	38	9.1	53	12.5

ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers)		
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	4-7 oz*	7-14 oz*	> 14 oz*		% HH	% BC	% IBS
				%						
Ranger Russet	469	*ABCDE*	23.4	30	52	18	1.081	0	0	0
Russet Burbank	317	*HI*	15.9	42	51	8	1.078	7	0	0
Russet Norkotah	407	*CDEFG*	20.3	38	59	3	1.077	0	0	0
Shepody	497	*AB*	24.9	15	38	47	1.073	0	0	0
A02062-1TE	403	*DEFG*	20.1	18	59	23	1.074	0	0	0
A02424-83LB	395	*DEFGH*	19.8	61	39	0	1.085	0	0	0
A02507-2LB	284	*I*	14.2	57	42	1	1.082	0	0	0
A03158-2TE	473	*ABCD*	23.6	32	63	4	1.080	3	0	0
A03921-2	460	*ABCDE*	23.0	30	51	20	1.089	0	0	0
A06021-1T	475	*DEFG*	23.7	26	62	12	1.097	0	0	0
A06084-1TE	353	*A*	17.6	52	46	2	1.076	0	0	0
AO01114-4	451	*ABCDE*	22.6	30	62	8	1.086	0	0	0
AO02060-3	401	*DEFG*	20.1	39	57	3	1.080	0	0	0
CO03276-5RU	512	*A*	25.6	47	48	5	1.078	0	0	0
CO05068-1RU	431	*ABCDE*	21.6	49	46	5	1.086	7	0	0
CO05175-1RU	424	*BCDE*	21.2	33	63	4	1.081	0	0	0
OR05039-4	391	*FGH*	19.6	47	50	3	1.079	0	0	0
POR06V12-3	385	*EFGH*	19.3	53	47	0	1.081	0	0	0

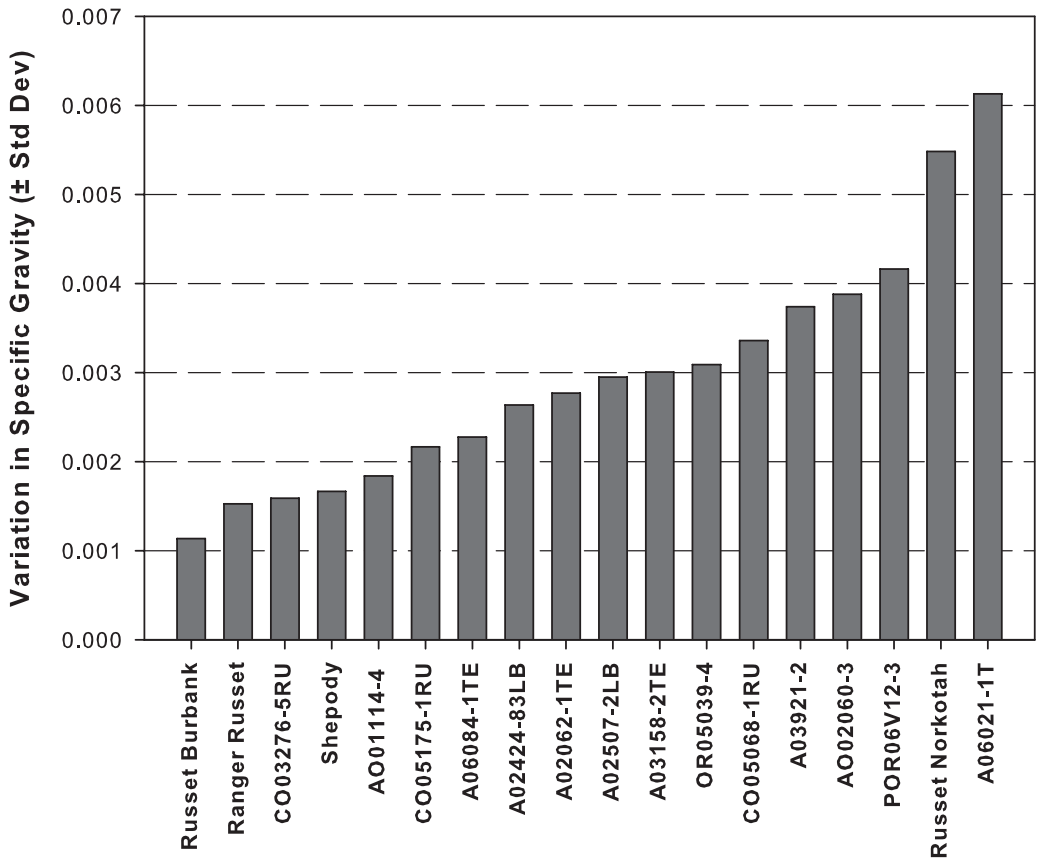
* Percent values may not total 100% due to rounding
**Numbers followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

ENTRY	30 DAY STAND % Emerged	40 DAY STAND % Emerged	50 DAY STAND % Emerged	STEMS PER PLANT Above Ground	AVERAGE TUBER WEIGHT Ounces	AVERAGE TUBER NUMBER Tubers/Plant	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers) BLACKSPOT	BRUISE (%) (8-12 oz tubers) SHATTER
Ranger Russet	9	76	89	1.9	7.8	7.0	3	4	27	0
Russet Burbank	0	60	87	1.5	6.9	7.3	3	3	20	0
Russet Norkotah	2	56	78	2.3	6.7	7.3	5	4	13	0
Shepody	4	91	100	1.6	9.9	5.8	4	3	13	0
A02062-1TE	2	49	80	1.5	8.6	5.4	3	5	0	0
A02424-83LB	9	93	100	2.9	5.7	9.4	4	3	23	3
A02507-2LB	0	0	60	2.0	5.8	6.4	3	3	10	0
A03158-2TE	0	58	98	2.0	7.0	8.1	4	3	7	0
A03921-2	0	69	96	1.7	8.5	6.4	4	3	20	0
A06021-1T	0	16	98	1.3	7.9	6.9	4	4	7	0
A06084-1TE	7	76	93	1.7	5.8	8.1	3	3	3	0
AO01114-4	0	67	96	1.7	7.5	7.3	3	3	3	3
AO02060-3	0	58	100	1.8	6.5	7.5	4	3	13	7
CO03276-5RU	0	73	98	2.6	6.1	10.7	4	4	4	6
CO05068-1RU	2	69	91	2.0	6.6	7.4	3	3	23	0
CO05175-1RU	4	78	98	2.1	6.7	7.5	2	3	7	3
OR05039-4	4	69	89	2.0	6.6	7.3	4	3	5	0
POR06V12-3	0	53	93	1.8	5.7	8.8	3	4	0	0

Clone - Dependent Variation in Specific Gravity

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

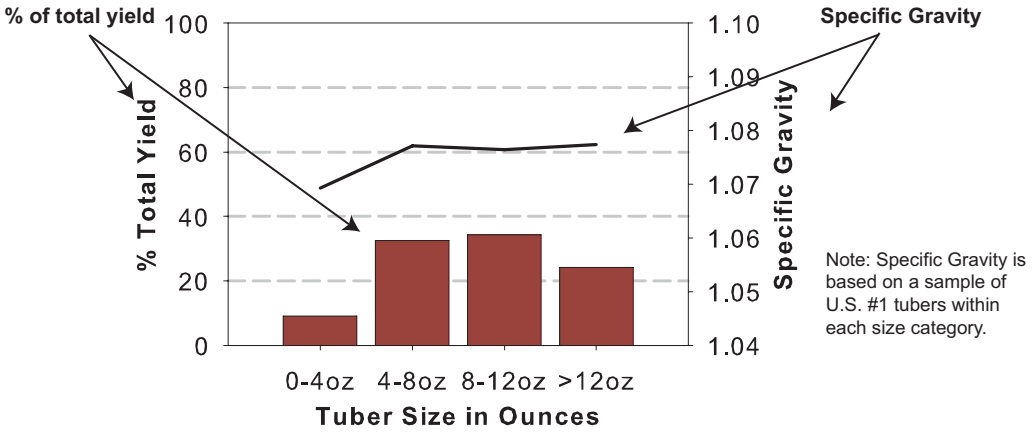
2014 Early-Harvest Regional Trial



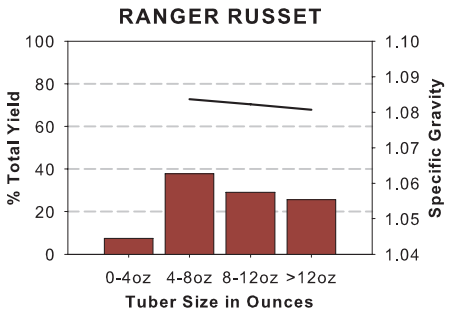
2014 Early Harvest Regional Trial

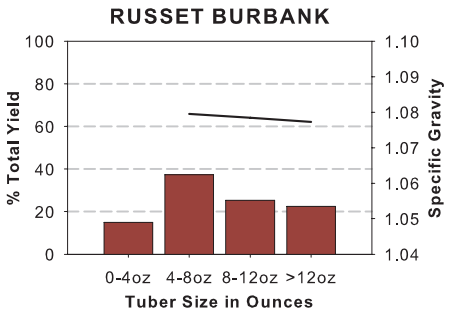
Tuber Yield and Specific Gravity Distributions

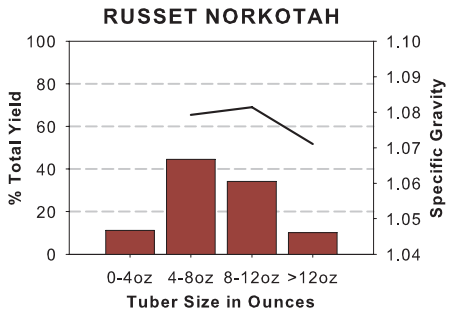
12 inch In-Row Spacing

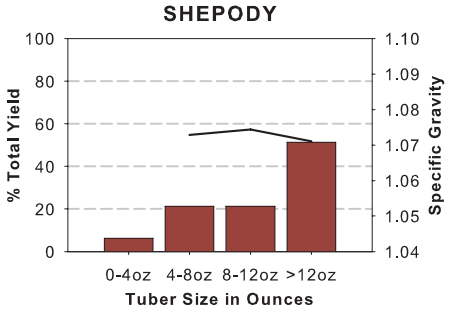


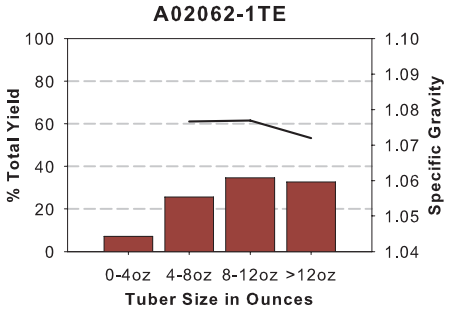
Note: Specific Gravity is based on a sample of U.S. #1 tubers within each size category.

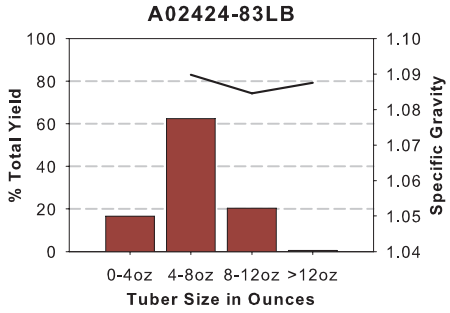


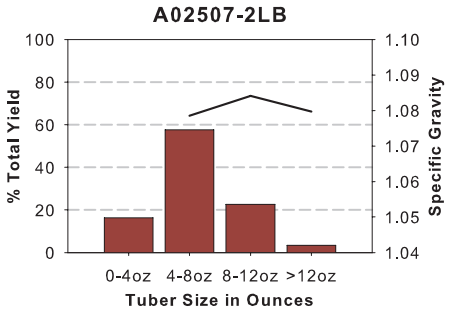


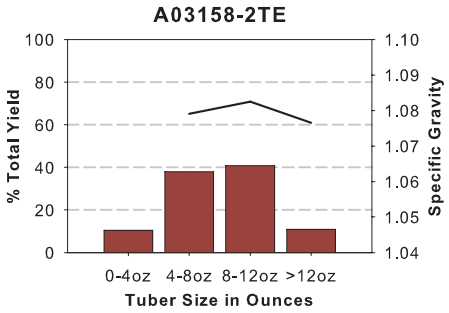


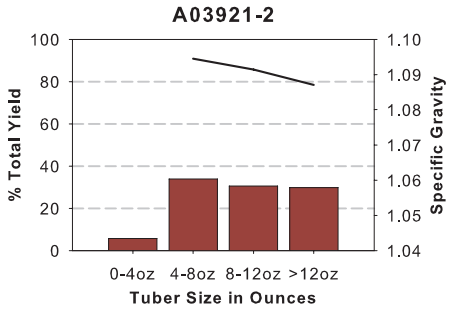


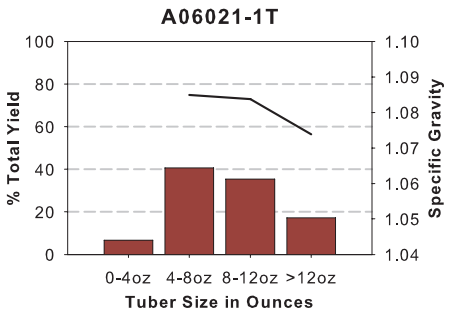


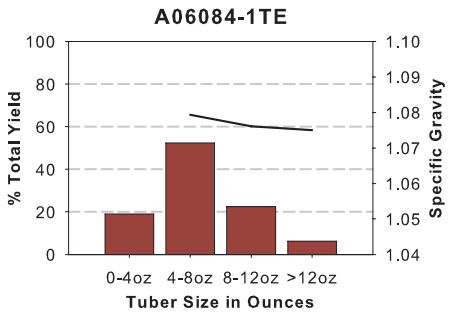


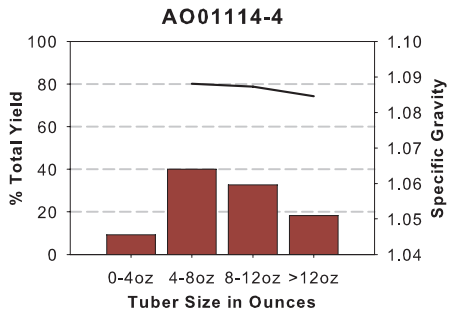


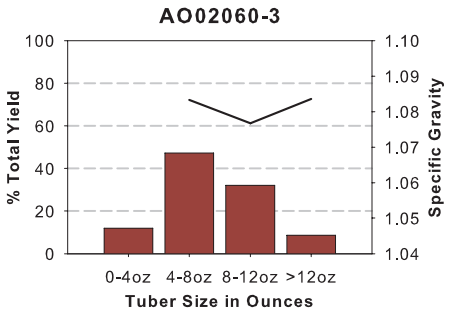


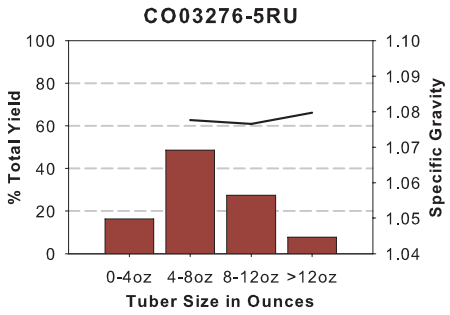


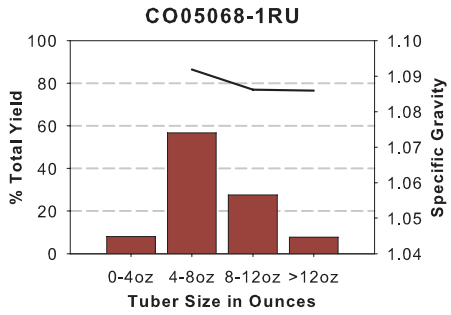

A06021-1T
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

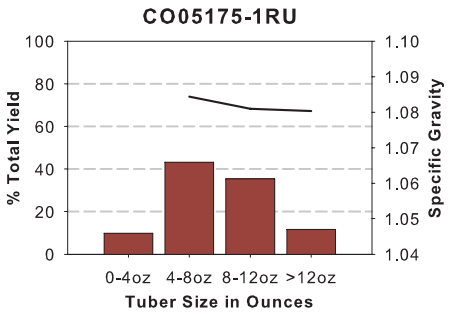

A06084-1TE
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

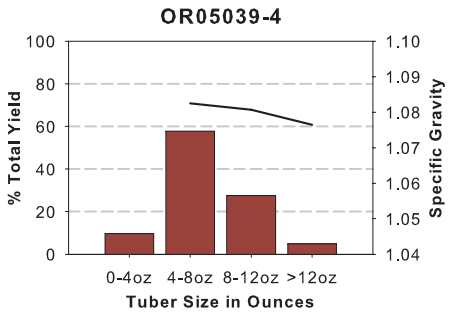

AO01114-4
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

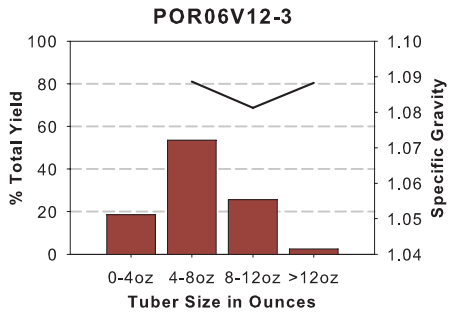

AO02060-3
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


CO03276-5RU
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


CO05068-1RU
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


CO05175-1RU
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces


OR05039-4
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

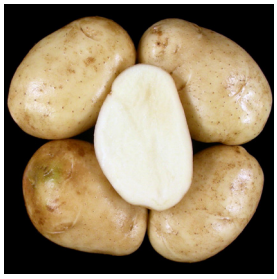

POR06V12-3
% Total Yield
Specific Gravity
0-4oz 4-8oz 8-12oz >12oz
Tuber Size in Ounces

2014 Early Harvest Regional Trial

Tubers

Ranger Russet

Shepody

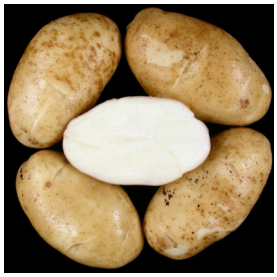


AO01114-4

OR05039-4

Russet Burbank

A02424-83LB

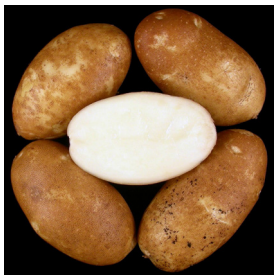


A02507-2LB

A03921-2

Russet Norkotah

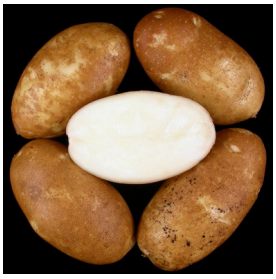
A02062-1TE



A03158-2TE

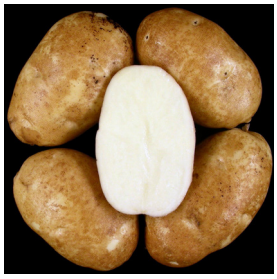
POR06V12-3

A006021-1T



A06084-1TE

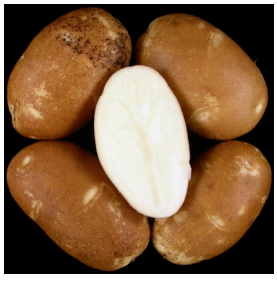
AO02060-3



CO03276-5RU

CO05068-1RU

CO05175-1RU



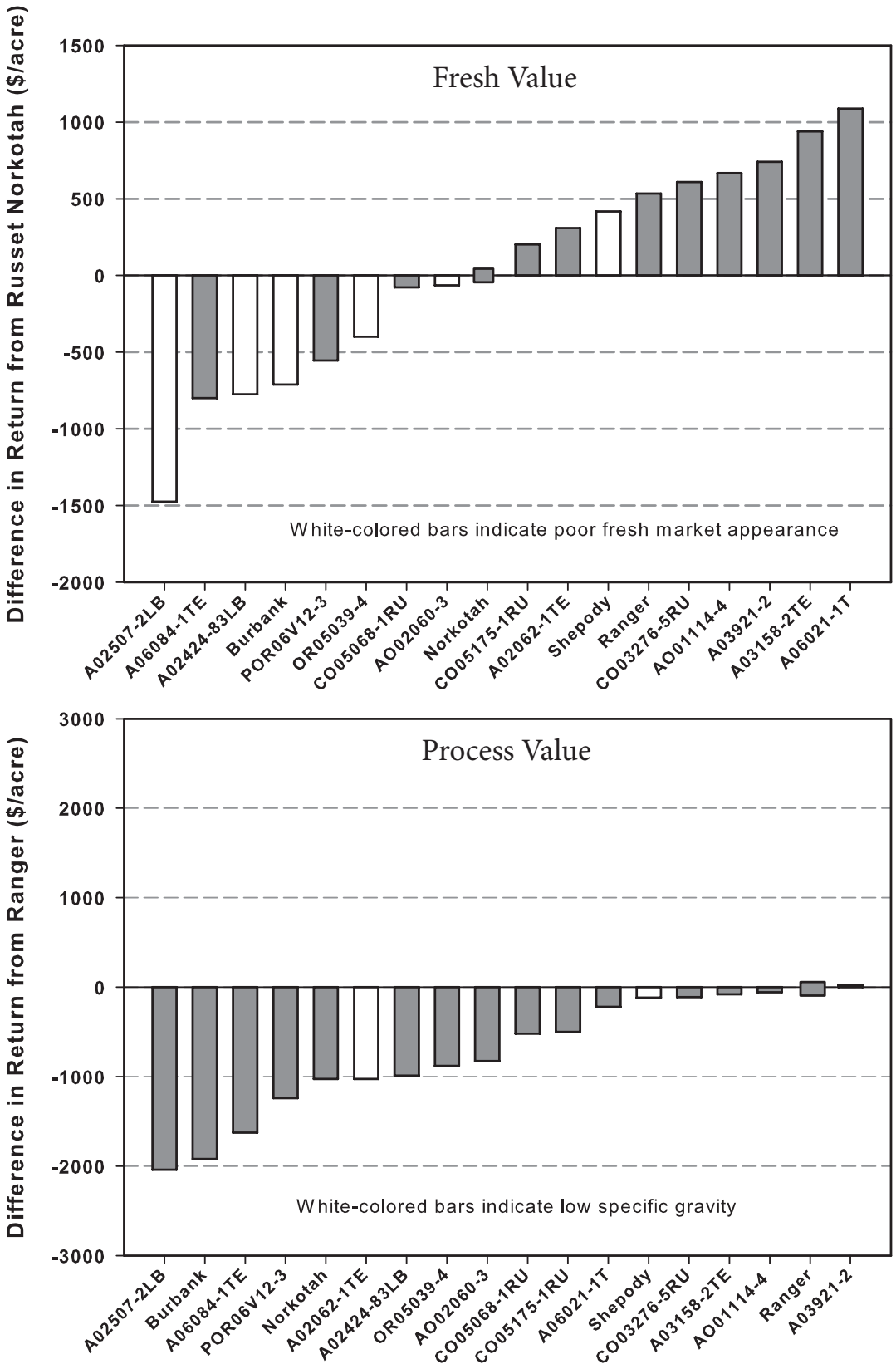


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape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

2014 Late Harvest Regional Trial

Location: WSU Research Center – Othello, WA
Planting Date: April 3
Harvest Date: Sept 9
In-Row Spacing: 10 in.
Vine Kill Date: Sept 2
Days Grown: 152

Regional trials are conducted throughout the western region of the United States, including Washington. Entries in the Regional Trial are chosen by a coordinating committee and are grown for both early (Early Regional) and full (Late Regional) season harvest. This year's trial included 3 local reference varieties and 13 new clones. 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): POR06V12-3 and A06021-1T.
Process Market Standout(s): POR06V12-3, CO05068-1RU, A02507-2LB, and A03921-2.

Standcounts

- 40 Day
  Slow emergence: A02507-2LB (3%) andA06021-1T (15%).

- 60 Day
  Full emergence: A02424-83LB.
  Best emergence: All entries were at least 94% emerged at 60 DAP.

Plant and Tuber Growth & Development

- Above Ground Stem Number Per Plant
  Most: CO03276-5RU (2.7) and CO05175-1RU (2.4).
  Least: A06021-1T (1.3), Russet Burbank (1.5).

- Average Tuber Number Per Plant
  Most: CO03276-5RU (8.7), Russet Norkotah (8.0).
  Least: A06021-1T (6.1), A03921-2 (6.3).

- Average Tuber Size (oz)
  Largest: A03158-2TE (10.1), A03921-2 (9.9), A06021-1T (9.6).
  Smallest: A06084-1TE (7.0), CO03276-5RU (7.2).

- Undersized Tubers (< 4 oz)
  Most: CO03276-5RU and A06084-1TE.
  Least: A03921-2 and CO05068-1RU.

Yield and Economic Data

- Total and Market Yield
  Highest: A03158-2TE had the highest total yield (814 CWT/A); A03158-2TE had the highest market yield (721 CWT/A). CO05175-1RU had the second highest total yield (772 CWT/A); CO05068-1RU had the second highest market yield (667 CWT/A).
  Lowest: AO01114-4 had the lowest total yield (581 CWT/A) and market yield (473 CWT/A).

- % Market Yield Greater Than 6 oz.
  Highest: A03158-2TE (83%), A06021-1T (83%), and CO05068-1RU (83%).
  Lowest: Russet Burbank (63%), A06084-1TE (66%).

- Carton Yield (100 to 50 Count (7 to 18 oz US #1 Tubers)
  Highest: CO05068-1RU, A06021-1T, POR06V12-3 (all at least 438 CWT/A).
  Lowest: Russet Burbank (280 CWT/A), A06084-1TE (304 CWT/A).

- Gross Return ($/acre)
  Fresh Market Highest: CO05068-1RU, CO05175-1RU, and POR06V12-3.
  Fresh Market Lowest: Russet Burbank, A06084-1TE, and AO01114-4.
  Process Market Highest: CO05068-1RU, POR06V12-3, and A03158-2TE.
  Process Market Lowest: A06084-1TE, Russet Burbank, and AO01114-4.

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

- External Defects
  Notable Defects: Russet Burbank had some rot, A06021-1T had many growth cracks, but overall entries had little to no external defects.

- Internal Defects
  Notable Defects: A03158-2TE had 13% hollow heart. Other defects were present at 5% or less. Most entries were relatively free of internal defects.

- Bruise
  Highest Blackspot: Ranger Russet (49%), CO05068-1RU (37%).
  Lowest Blackspot: A03158-2TE (13%) and A06084-1TE (15%).
  Highest Shatter: A02424-83LB (95%), AO01114-4 (92%).
  Lowest Shatter: Russet Norkotah (11%), CO05175-1RU (18%).

2014 Late Harvest Regional Trial

Postharvest Information

The 2014 trial evaluated twelve 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 asterisk (*) in the summary below indicates similar performance and/or ranking in trials from previous years.

- Overall Postharvest Rating

  Highest scoring: A02507-2LB*, CO05068-1RU, A03921-2, A06084-1TE
  Lowest scoring: RB, A03158-2TE*, A06021-1T

- Low Temperature Sweetening

  Most resistant:A02507-2LB*, A03921-2, A06084-1TE, CO05068-1RU, POR06V12-3*, OR05039-4
  Most susceptible: RB, A03158-2TE, RR

- Taste Panel

  Highest rated: A02507-2LB*, POR06V12-3, A06084-1TE, A03921-2
  Lowest rated: RB*, A03158-2TE

- Blackspot Bruise Susceptibility

  Most resistant: OR05039-4, POR06V12-3*, AO02060-3, A03158-2TE, AO01114-4
  Most susceptible: RR*, A03921-2, CO05068-1RU, A02424-83LB*

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

  Lowest L/W: A02507-2LB* and CO05068-1RU
  Highest L/W: RR, RB, OR05039-4*, CO05175-1RU and A06084-1TE
  Least variable: AO02060-3, OR05039-4*
  Most variable: CO05068-1RU, A03921-2, A03158-2TE*, A02507-2LB*

Details

- A02507-2LB*, CO05068-1RU, A03921-2 and A06084-1TE were the highest rated entries, accumulating an average of 34.3, 29.5, 27.8 and 27.6 of 38 possible points, respectively.

- A02507-2LB*, A03921-2, A06084-1TE, CO05068-1RU, POR06V12-3* and OR05039-4 were resistant to low temperature sweetening (LTS), producing USDA 0 or 1 fries (stem end) when stored for 60 days at 40°F averaged across locations. RB, A03158-2TE and RR were susceptible to LTS, producing USDA 3-4 fries after 60 days at 40°F.

- A02507-2LB, AO02060-3 and A03158-2TE contained 30% and 33% lower concentrations ($P<0.05$) of asparagine (acrylamide precursor) than RB in 2012 and 2013, respectively. A02424-83LB and POR06V12-3 contained 38% and 49% less asparagine than RB in 2013. These entries are undergoing further evaluations in the 2014 National Fry Processing Trials and/or the Advanced Agronomic Trials for development of low acrylamide varieties (USDA SCRI funded).

- RB, A03158-2TE* and A06021-1T scored the lowest on overall postharvest performance with 12.9, 20.0 and 22.8 out of 38 possible points, respectively.

- The specific gravities of RB, A06084-1TE and A03158-2TE averaged 1.074, 1.073 and 1.072, respectively; too low for processing contracts. In contrast, gravities of RR, A02424-83LB*, AO01114-4*, and A02507-2LB* ranged from 1.084-1.087, which is ideal for most contracts.

- A02507-2LB*, POR06V12-3*, A06084-1TE and A03921-2 were the favorites in the taste panels, averaging 3.6/5 across growing locations (5 is best). RB was the lowest scoring clone (2.9/5). The narrow range of taste panel scores (3.0-3.7) across numbered entries indicates that all were rated favorably for French fry culinary quality.

- On average, tubers grown in ID produced the lightest fry colors at harvest. The Regional entries retained 89% and 84% of their at-harvest processing quality (stem end fry color) when stored at 48 and 44°F for 60 days, respectively.

- At harvest, 12/14, 1/14 and 13/14 entries had non-uniform fry color from WA, ID and OR, respectively. The majority of clones had non-uniform fry color regardless of production site after 60 days storage at 48 and 44°F. CO05175-1RU, A02424-83LB*, A02507-2LB, AO01114-4, RR* and A03921-2 varied the most in ability to retain process quality during storage for 60 days at 44°F across production sites.

- AO02060-3*, AO01114-4*, RR* and A06084-1TE, and CO05175-1RU 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*, A03158-2TE*, A06021-1T, RB, OR05039-4*, and CO05068-1RU had relatively little effect on change in stem end fry color. AO02060-3*, AO01114-4*, RB and A06021-1T showed reduced ability to recondition stem versus bud ends following storage at 40°F, indicating increased susceptibility to sugar end development relative to the other clones.

- OR05039-4, POR06V12-3*, AO02060-3, A03158-2TE and AO01114-4* were resistant to blackspot, with an average of 21% (stem end) in the controlled impact study (3-state average). These entries also scored lowest in bruise severity, averaging 1.5/5 (1= no bruise; 5= 100% of impact area is dark). RR*, A03921-2, and CO05068-1RU were highly susceptible with 90, 75 and 72% bruise, respectively. Bruise severity was also greatest in these four entries (average 3.1/5).

- 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). A02507-2LB* and CO05068-1RU had the lowest L/W ratios (avg. 1.5), indicating round tubers. Low length to width ratio was also an issue with A02507-2LB in the 2011, 2012 and 2013 trials. RR, RB, OR05039-4*, CO05175-1RU and A06084-1TE had the highest L/W ratios (1.9-2.2). CO05068-1RU, A03921-2, A03158-2TE* and A02507-2LB* had the greatest variation in L/W ratios of 8- to 10-oz tubers across production sites. In contrast, the L/W ratios of AO02060-3 and OR05039-4* were least affected by growing location.

- On average, 97% of tubers of AO02060-3, A02424-83LB, CO05068-1RU and A03158-2TE had 0.7-inch-long (1.8 cm) sprouts after 60 days storage at 48°F compared with 91% of RR tubers (avg sprout length = 0.8 inch (2.0 cm)). Sprouting of A02507-2LB*, OR05039-4* and AO01114-4* averaged 28% with sprout lengths ranging from 0.04-0.13 inches (0.1-0.6 cm) compared with 9% of RB tubers sprouting (0.1-cm sprouts). A06021-1T had the longest dormancy with only 2% of tubers peeping.

- A03158-2TE*, A06084-1TE and A03921-2 produced sprouts averaging 6.9 inches after 7 months storage, considerably longer than RR (4.0 in) and RB (3.3 in), indicating relatively short dormancy. In contrast, A02507-2LB* and A06021-1T produced 1.3 and 1.7-in-long sprouts, respectively, after 7 months, indicating shorter dormancy than RB.

- When stored for 7 months, RB produced USDA 2 fries from all states. The remaining entries fried

USDA 0-1 regardless of production site. When averaged across states, A02507-2LB (51.9 ref units) and POR06V12-3 (50.1 ref units) produced the lightest fries. Uniformity of fry color was unacceptable for eleven of the thirteen entries. A02507-2LB and POR06V12-3 were the only two entries to produce uniform fries from all three states, which may indicate high tolerance of heat stress. Unfortunately, A02507-2LB has low L/W ratios (1.41 WA, 1.70 ID, 1.43 OR). The extent of heat tolerance and management techniques to increase L/W ratio are under investigation.

Overall Regional Postharvest Merit Scores

		Postharvest Merit Scores			3 state
	Clone	WA	ID	OR	Average
4	A02507-2LB	4.8	4.0	4.7	4.5
11	CO05068-1RU	3.9	3.8	4.0	3.9
6	A03921-2	3.5	3.5	4.1	3.7
8	A06084-1TE	3.3	3.9	3.6	3.6
13	OR05039-4	3.5	3.3	3.9	3.6
9	AO01114-4	3.6	3.4	3.5	3.5
14	POR06V12-3	3.5	3.5	3.5	3.5
10	AO02060-3	3.0	3.3	3.2	3.2
3	A02424-83LB	2.5	3.4	3.6	3.2
1	Ranger Russet	2.8	2.9	3.8	3.1
12	CO05175-1RU	2.8	3.2	3.2	3.1
7	A06021-1T	2.1	3.4	3.4	3.0
5	A03158-2TE	2.6	2.4	2.9	2.6
2	Russet Burbank	2.0	1.4	1.7	1.7

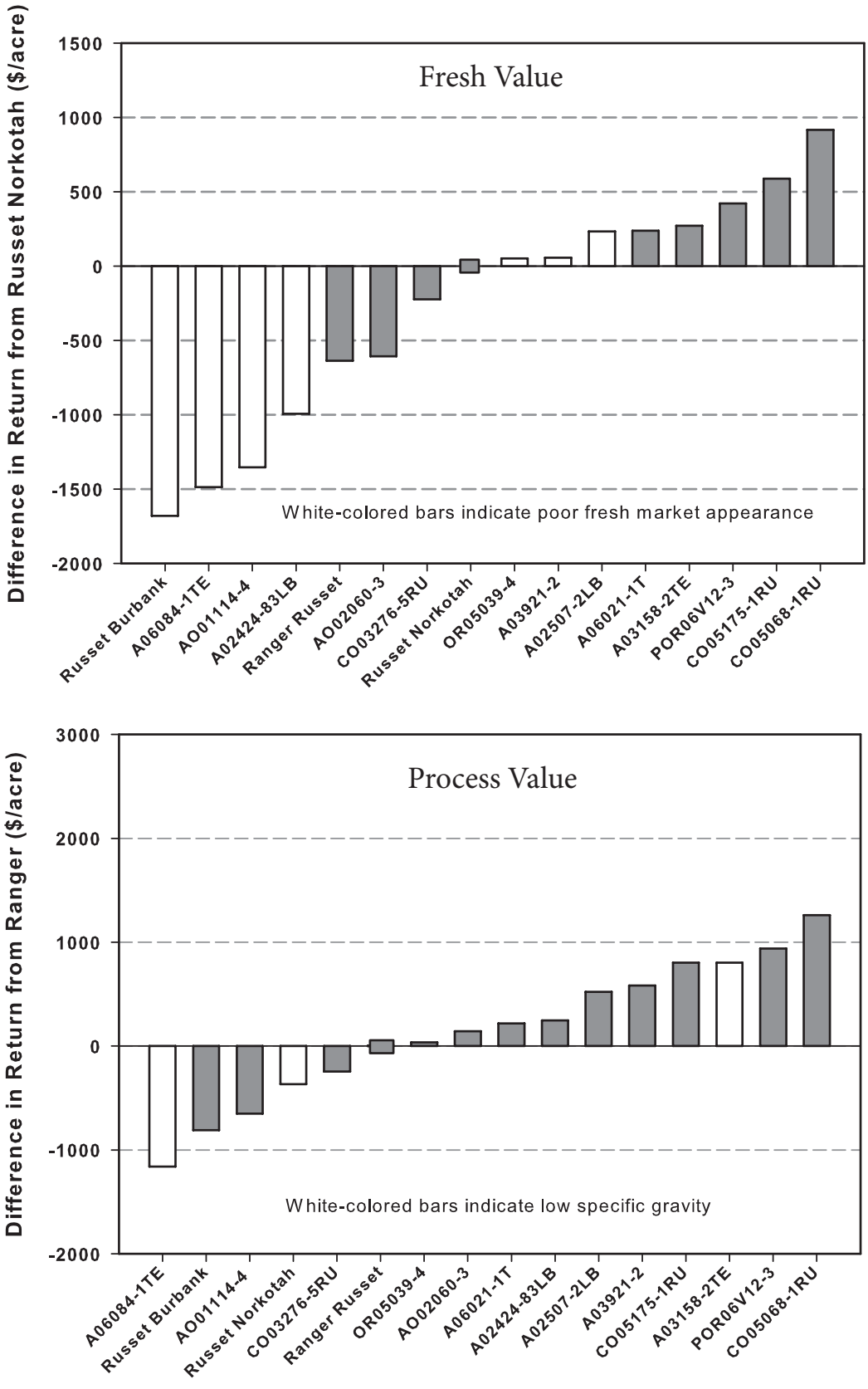


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape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

2014 Late Harvest Regional Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's* > 4 oz	US # 2's* > 4 oz	Culls* & < 4 oz	CARTON YIELD 100-50 count (US 1's 7-18 oz)		PROCESS YIELD US 1's and 2's > 6 oz	
	CWT/A	STATS**	Tons/A	% of Total Yield			% of Total Yield	Tons/A	% of Total Yield	Tons/A
Ranger Russet	681	*DC*	34.1	83	3	14	53	18.1	76	25.9
Russet Burbank	730	*BCD*	36.5	65	6	29	38	14.0	63	23.1
Russet Norkotah	686	*DC*	34.3	88	1	11	60	20.7	73	25.2
A02424-83LB	655	*DEF*	32.7	85	3	12	51	16.7	76	25.0
A02507-2LB	684	*CD*	34.2	87	2	11	62	21.3	76	25.9
A03158-2TE	814	*A*	40.7	89	2	9	52	21.0	83	33.9
A03921-2	712	*BCD*	35.6	88	0	11	60	21.3	80	28.5
A06021-1T	665	*DE*	33.3	89	0	11	67	22.4	83	27.8
A06084-1TE	602	*EF*	30.1	80	2	19	50	15.2	66	19.8
AO01114-4	581	*F*	29.1	81	1	18	55	15.9	70	20.4
AO02060-3	672	*DE*	33.6	85	2	13	54	18.3	75	25.2
CO03276-5RU	712	*BCD*	35.6	83	2	15	55	19.7	69	24.7
CO05068-1RU	751	*ABC*	37.6	89	4	7	66	24.7	83	31.2
CO05175-1RU	772	*AB*	38.6	85	6	10	59	22.9	81	31.2
OR05039-4	685	*CD*	34.3	86	1	13	62	21.3	77	26.6
POR06V12-3	724	*BCD*	36.2	89	1	9	60	21.9	78	28.4

ENTRY	US # 1 YIELD						> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%) (8-12 oz tubers)		
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	4-7 oz*	7-14 oz*	> 14 oz*		% HH	% BC	% IBS
				%						
Ranger Russet	572	*CDE*	25.3	10	53	37	1.077	0	0	3
Russet Burbank	478	*F*	22.0	13	49	38	1.077	3	0	6
Russet Norkotah	601	*BCD*	25.2	12	68	19	1.068	0	0	0
A02424-83LB	559	*DEF*	24.8	9	50	40	1.086	0	0	0
A02507-2LB	594	*BCD*	25.3	14	71	15	1.090	0	0	3
A03158-2TE	726	*A*	33.9	7	44	49	1.074	13	0	0
A03921-2	629	*BCD*	28.0	5	54	41	1.093	3	0	3
A06021-1T	593	*BCD*	28.3	7	53	40	1.078	0	0	0
A06084-1TE	480	*EF*	21.0	18	61	21	1.073	0	0	0
AO01114-4	473	*F*	20.4	11	56	33	1.084	0	0	0
AO02060-3	574	*BCD*	25.7	12	59	28	1.079	0	0	0
CO03276-5RU	594	*BCD*	25.9	16	62	22	1.073	0	0	0
CO05068-1RU	667	*AB*	29.8	6	64	29	1.088	5	0	0
CO05175-1RU	654	*ABC*	29.3	7	59	33	1.077	3	0	0
OR05039-4	587	*BCD*	27.5	12	58	29	1.078	0	0	0
POR06V12-3	647	*ABCD*	27.4	10	64	26	1.087	0	0	0

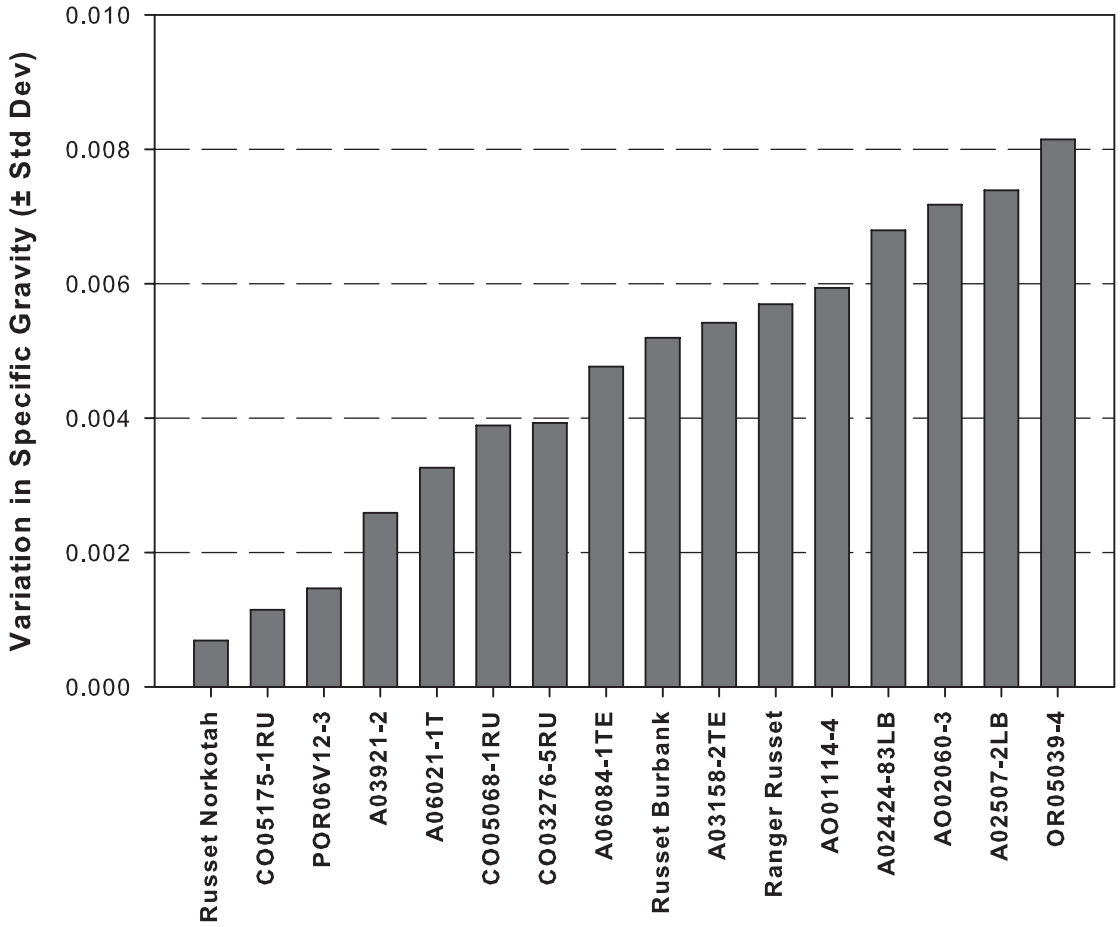
* Percent values may not total 100% due to rounding
**Numbers followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

ENTRY	30 DAY STAND % Emerged	40 DAY STAND % Emerged	60 DAY STAND % Emerged	STEMS PER PLANT Above Ground	AVERAGE TUBER WEIGHT Ounces	AVERAGE TUBER NUMBER Tubers/Plant	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers) BLACKSPOT	BRUISE (%) (8-12 oz tubers) SHATTER
Ranger Russet	84	91	94	1.8	8.9	6.6	4	3	49	19
Russet Burbank	60	88	91	1.5	9.4	6.8	4	3	31	61
Russet Norkotah	78	96	98	2.0	7.5	8.0	4	4	22	11
A02424-83LB	71	98	100	2.3	8.6	6.6	4	3	21	95
A02507-2LB	3	89	93	1.8	7.5	7.9	4	2	19	75
A03158-2TE	46	98	99	1.9	10.1	7.0	4	3	13	45
A03921-2	48	96	96	1.9	9.9	6.3	4	3	33	72
A06021-1T	15	96	99	1.3	9.6	6.1	4	4	36	41
A06084-1TE	74	94	95	2.0	7.0	7.4	3	3	15	56
AO01114-4	53	93	95	1.8	8.6	5.9	4	3	18	92
AO02060-3	50	94	96	2.1	7.8	7.5	3	3	17	40
CO03276-5RU	55	94	95	2.7	7.2	8.7	4	4	21	74
CO05068-1RU	60	96	96	1.9	9.2	7.1	3	2	37	42
CO05175-1RU	55	94	99	2.4	9.5	7.1	4	3	24	18
OR05039-4	64	93	95	1.9	7.9	7.5	4	3	17	47
POR06V12-3	30	93	95	1.8	8.0	7.8	4	4	18	53

Clone - Dependent Variation in Specific Gravity

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

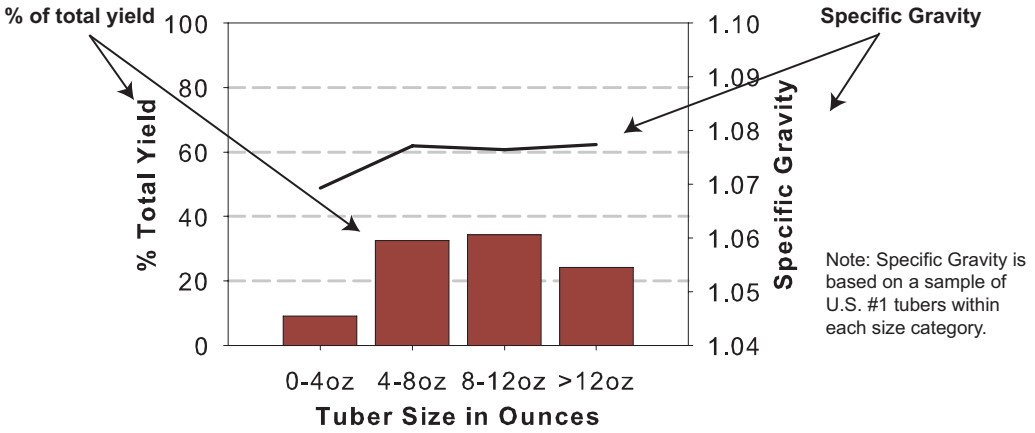
2014 Late-Harvest Regional Trial



2014 Late Harvest Regional Trial

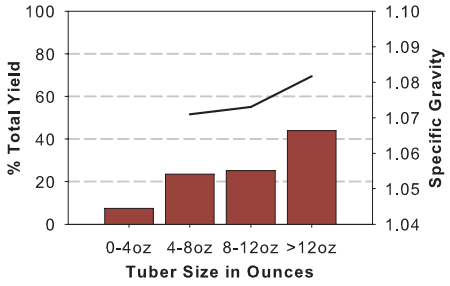
Tuber Yield and Specific Gravity Distributions

10 inch In-Row Spacing

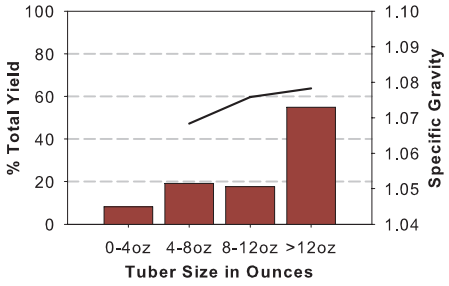


Note: Specific Gravity is based on a sample of U.S. #1 tubers within each size category.

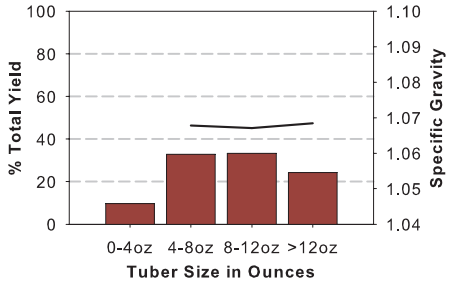
RANGER RUSSET



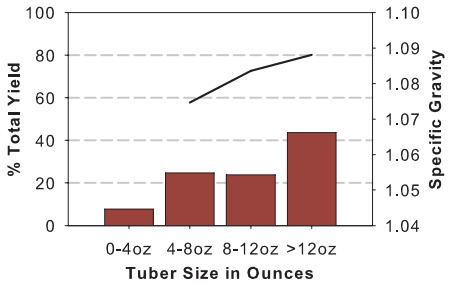
RUSSET BURBANK



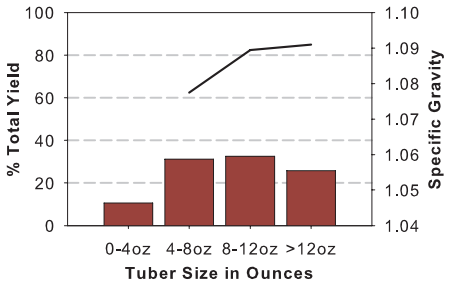
RUSSET NORKOTAH



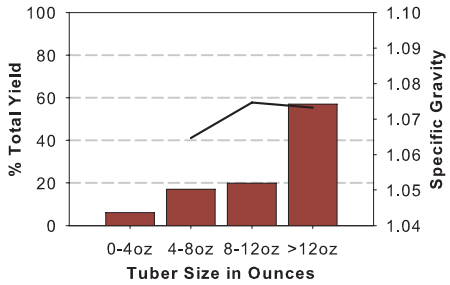
A02424-83LB



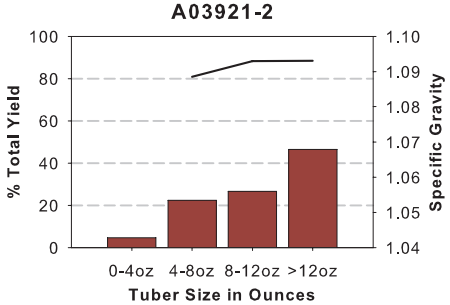
A02507-2LB



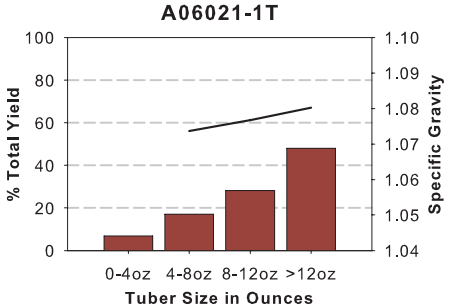
A03158-2TE



A03921-2



A06021-1T



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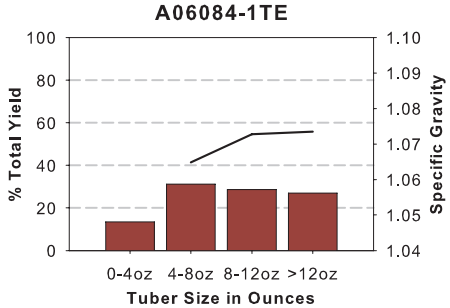
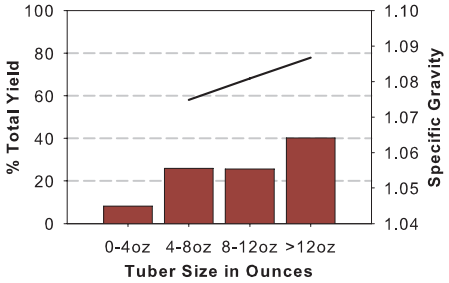
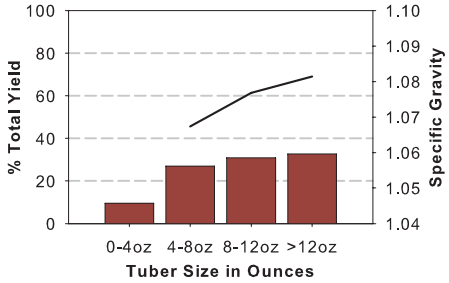


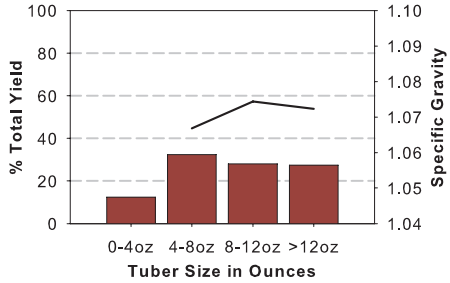
AO01114-4



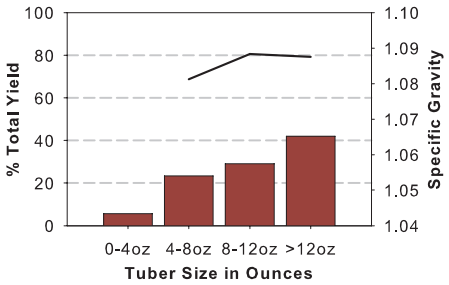
AO02060-3



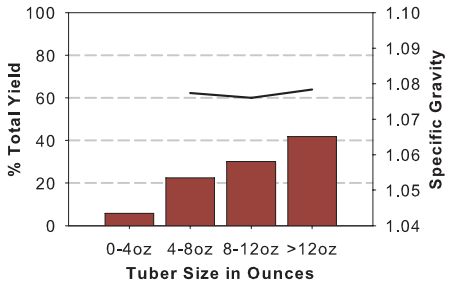
CO03276-5RU



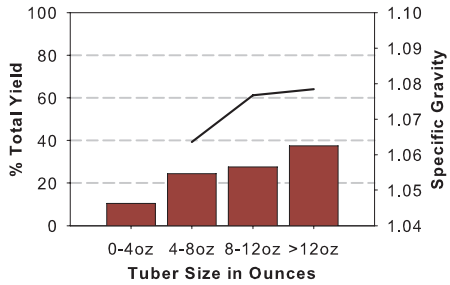
CO05068-1RU



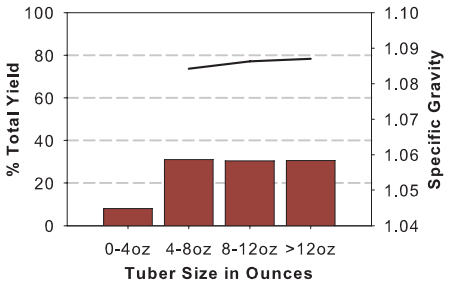
CO05175-1RU

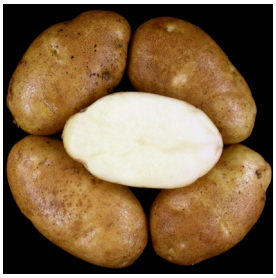
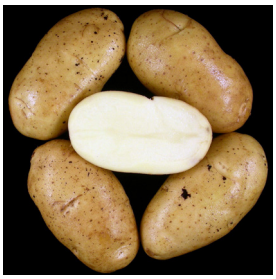


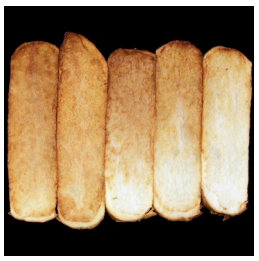
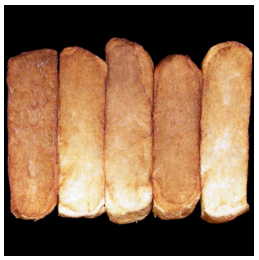
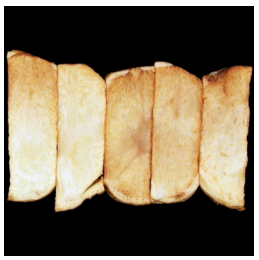
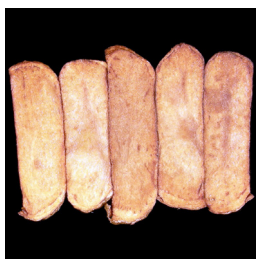
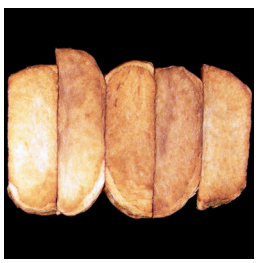
OR05039-4



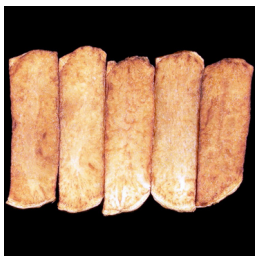
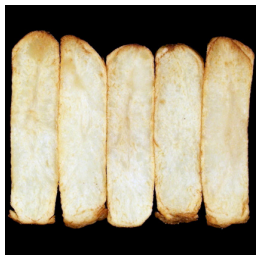
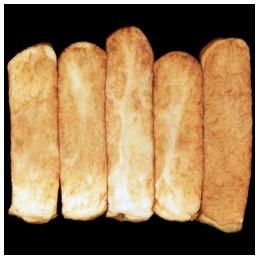
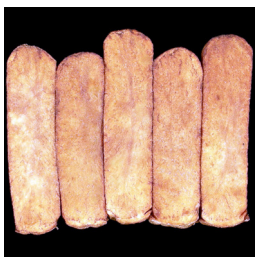
POR06V12-3

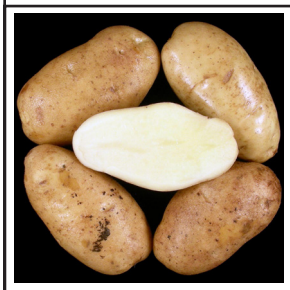
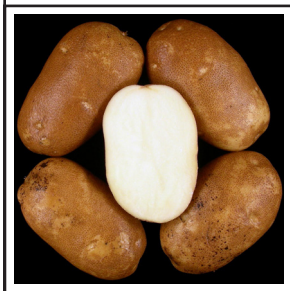


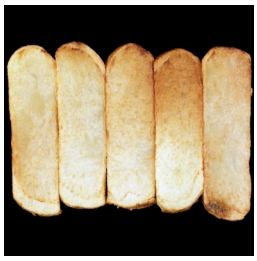
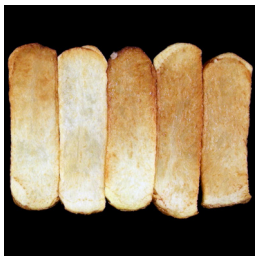
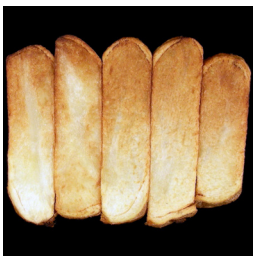
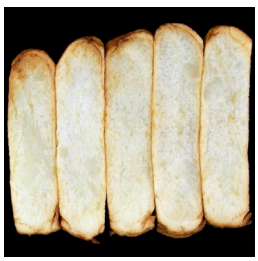
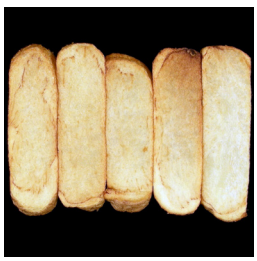
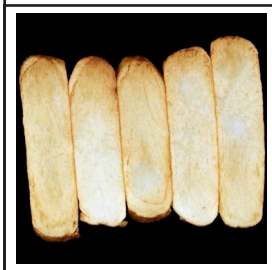
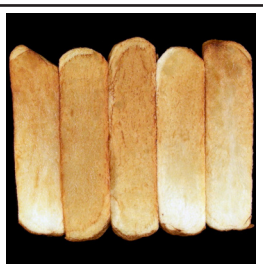
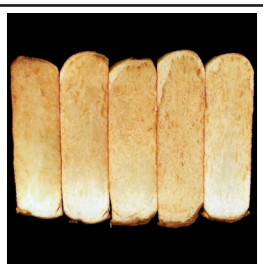
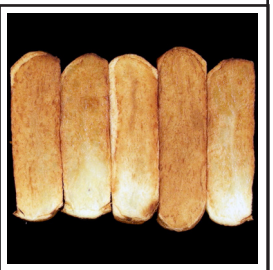
Tubers	WA Late Harvest Regional Trial Comments
Ranger Russet	
	**Tubers:** Oblong tubers. Good skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; Reconditioned = light, non-uniform.
Russet Burbank	
	**Tubers:** Oblong tubers. Good skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; 48°F = relatively dark, non-uniform; 44°F = relatively dark, non-uniform; 40°F = unnacceptably dark, non-uniform; Reconditioned = relatively dark, non-uniform.
A02424-83LB	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; Reconditioned = light, non-uniform.
A02507-2LB	
	**Tubers:** Round to oblong tubers. Good skin set; moderate eye depth. **Fry color:** At harvest= light, uniform; 48°F = light, uniform; 44°F = light, uniform; 40°F = light, non-uniform; Reconditioned = light, non-uniform.
A03158-2TE	
	**Tubers:** Oblong tubers. Good skin set; moderately deep eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, uniform; 44°F = relatively dark, uniform; 40°F = unnacceptably dark, uniform; Reconditioned = relatively dark, uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
Ranger Russet				
				
Russet Burbank				
				
A02424-83LB				
				
A02507-2LB				
				
A03158-2TE				
				

Tubers	WA Late Harvest Regional Trial Comments
A03921-2	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = light, non-uniform; Reconditioned = light, non-uniform.
A06021-1T	
	**Tubers:** Oblong to long tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = relatively dark, non-uniform; 40°F = relatively dark, uniform; Reconditioned = relatively dark, uniform.
A06084-1TE	
	**Tubers:** Oblong tubers. Fair skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = ligt, non-uniform; Reconditioned = light, uniform.
AO01114-4	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, uniform; 48°F = light, non-uniform; 44°F = light, uniform; 40°F = relatively dark, uniform; Reconditioned = light, non-uniform.
AO02060-3	
	**Tubers:** Oblong tubers. Fair skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, uniform; 40°F = unnacceptably dark, uniform; Reconditioned = light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
A03921-2				
				
A06021-1T				
				
A06084-1TE				
				
AO01114-4				
				
AO02060-3				
				

Tubers	WA Late Harvest Regional Trial Comments
CO05068-1RU	
	**Tubers:** Round to oblong tubers. Fair skin set; moderate eye depth. **Fry color:** At harvest= light, non-uniform; 48°F = light, uniform; 44°F = light, non-uniform; 40°F = relatively dark, uniform; Reconditioned = light, non-uniform.
CO05175-1RU	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; Reconditioned = light, non-uniform.
OR05039-4	
	**Tubers:** Oblong tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, uniform; Reconditioned = light, non-uniform.
POR06V12-3	
	**Tubers:** Oblong to long tubers. Good skin set; shallow eyes. **Fry color:** At harvest= light, non-uniform; 48°F = light, non-uniform; 44°F = light, non-uniform; 40°F = relatively dark, non-uniform; Reconditioned = light, non-uniform.

Initial Fries	48º F Storage	44º F Storage	40º F Storage	40º F Recon.
CO05068-1RU				
				
CO05175-1RU				
				
OR05039-4				
				
POR06V12-3				
				

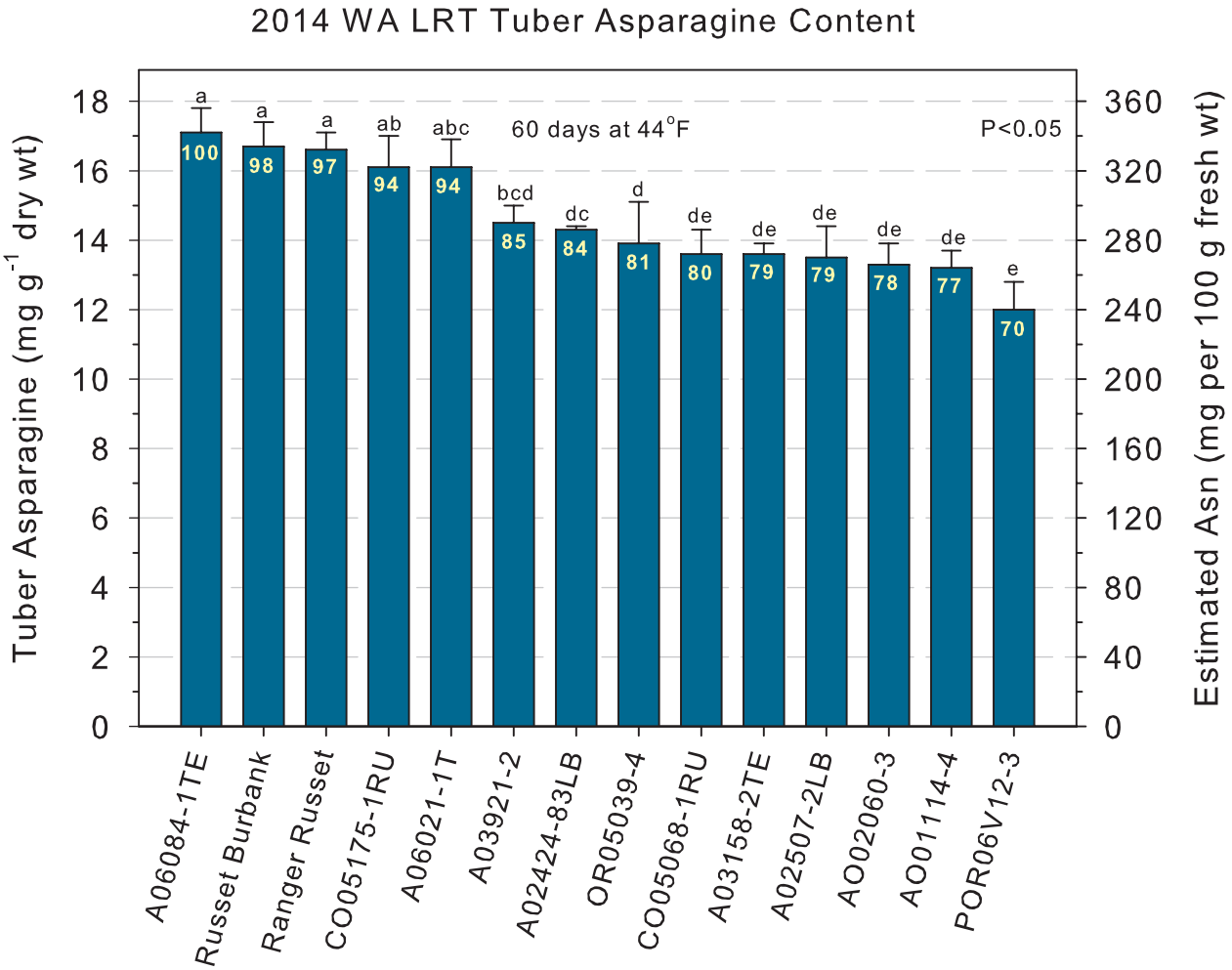
2014 Late Harvest Regional Trial

Accumulated Total Postharvest Ratings of Clones

Clone	WA Rating Total §	WA Discard §§	ID Rating Total §	ID Discard §§	OR Rating Total §	OR Discard §§	3 State av. Rating Total
4 A02507-2LB	36.4		30.6		36.0		34.3
11 CO05068-1RU	29.3		28.9		30.2		29.5
6 A03921-2	26.3		26.3		30.9		27.8
8 A06084-1TE	25.2	Sp. Gr.	30.0	Sp. Gr.	27.6	Sp. Gr.	27.6
13 OR05039-4	26.7		25.2		29.3		27.1
9 AO01114-4	27.5		26.2		26.9		26.9
14 POR06V12-3	26.7		26.6		26.7		26.7
10 AO02060-3	23.0		25.4		24.6	Sp. Gr.	24.3
3 A02424-83LB	19.1	Sp. Gr.	26.2		27.3		24.2
1 Ranger Russet	20.9		22.2		28.5		23.9
12 CO05175-1RU	20.9		24.3		24.4	Sp. Gr.	23.2
7 A06021-1T	16.1	Sp. Gr.	26.1		26.1		22.8
5 A03158-2TE	20.1	Sp. Gr.	18.0		21.9	Sp. Gr.	20.0
2 Russet Burbank	15.1		10.9	Sp. Gr. 44°F	12.6	Sp. Gr.	12.9
	23.8		24.8		26.6		25.1

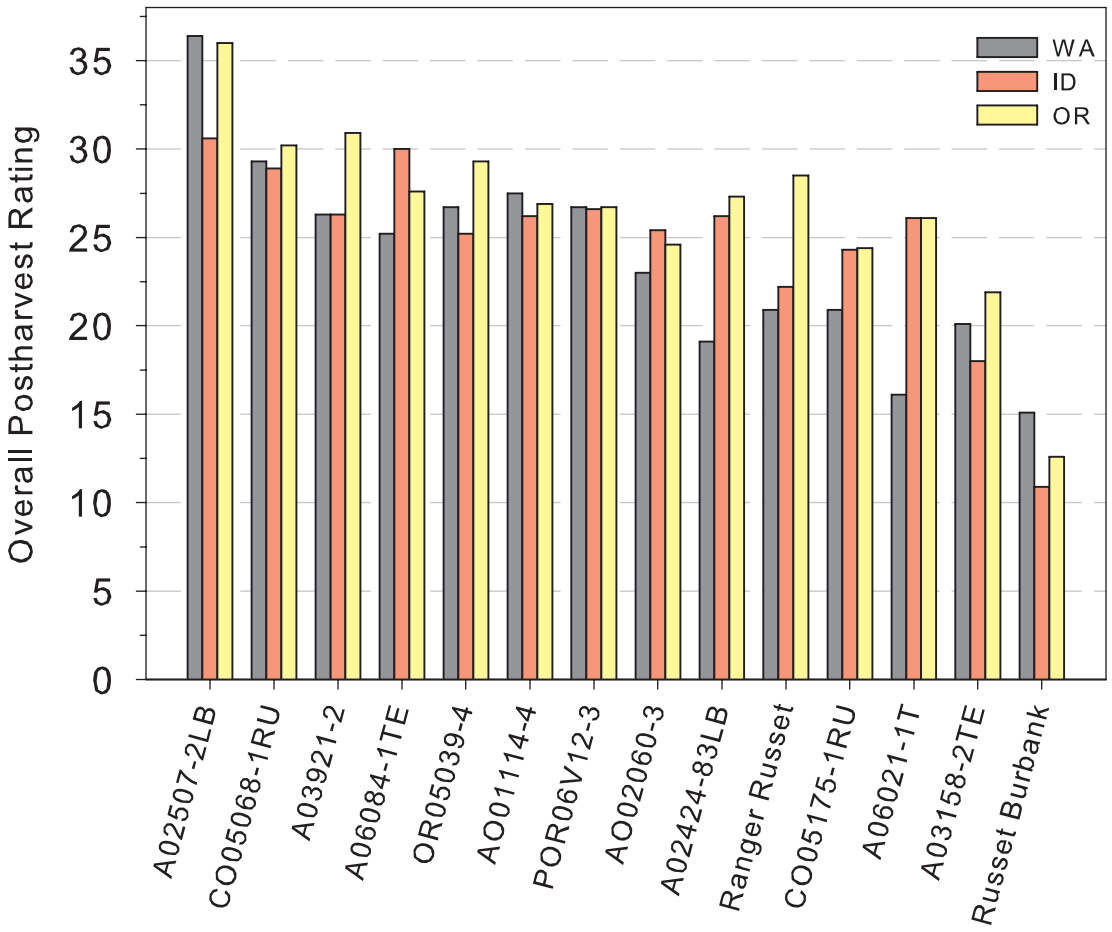
§ maximum rating possible = 38

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



2014 Late Harvest Regional Trial

Late Harvest Regional Postharvest Ratings



2014 Late Harvest Regional Trial

Prior to Storage

Clone	PHOTOVOLT READING stem	bud	av	rtg §	DIFF	USDA COLOR	SPECIFIC GRAVITY	rtg
Washington								
1 Ranger Russet	22.7	40.2	31.4	**3-**	17.5	2	1.082	**4**
2 Russet Burbank	22.7	48.4	35.6	**4-**	25.6	2	1.079	**2**
3 A02424-83LB	26.7	45.5	36.1	**4-**	19.0	1	1.075	**0**
4 A02507-2LB	46.7	50.2	48.4	**5+**	5.7	0	1.087	**5**
5 A03158-2TE	30.4	45.9	38.2	**4-**	17.7	1	1.069	**0**
6 A03921-2	30.0	43.3	36.7	**4-**	13.9	1	1.094	**2**
7 A06021-1T	27.5	45.2	36.3	**4-**	17.8	1	1.073	**0**
8 A06084-1TE	41.2	50.9	46.1	**5-**	10.2	0	1.071	**0**
9 AO01114-4	36.4	44.4	40.4	**4+**	8.6	0	1.085	**5**
10 AO02060-3	37.1	48.9	43.0	**5-**	11.9	0	1.077	**1**
11 CO05068-1RU	35.1	44.2	39.6	**4-**	10.4	0	1.090	**4**
12 CO05175-1RU	32.5	49.5	41.0	**5-**	17.0	0	1.076	**1**
13 OR05039-4	41.4	49.3	45.4	**5-**	9.4	0	1.079	**2**
14 POR06V12-3	40.5	52.6	46.6	**5-**	12.1	0	1.089	**4**
		LSD 0.05	*3.4*		*5.4*		*0.004*	
Average	33.6	47.0	40.3		14.1	1	1.080	
Idaho								
1 Ranger Russet	38.1	42.7	40.4	**4+**	5.8	0	1.084	**5**
2 Russet Burbank	28.4	46.7	37.6	**4-**	20.9	1	1.068	**0**
3 A02424-83LB	44.6	49.4	47.0	**5+**	6.1	0	1.089	**4**
4 A02507-2LB	48.8	49.1	49.0	**5+**	3.4	0	1.084	**5**
5 A03158-2TE	40.3	46.0	43.1	**5-**	9.0	0	1.076	**1**
6 A03921-2	42.1	40.7	41.4	**5+**	4.9	0	1.091	**4**
7 A06021-1T	42.1	45.6	43.9	**5+**	5.5	0	1.086	**5**
8 A06084-1TE	54.0	52.5	53.2	**5+**	3.2	0	1.073	**0**
9 AO01114-4	49.0	50.3	49.6	**5+**	4.1	0	1.086	**5**
10 AO02060-3	51.7	52.1	51.9	**5+**	3.2	0	1.076	**1**
11 CO05068-1RU	38.8	41.8	40.3	**4+**	5.5	0	1.085	**5**
12 CO05175-1RU	42.9	42.9	42.9	**5+**	7.8	0	1.080	**3**
13 OR05039-4	47.0	50.5	48.8	**5+**	5.2	0	1.081	**4**
14 POR06V12-3	40.7	49.3	45.0	**5+**	8.8	0	1.086	**5**
		LSD 0.05	*3.2*		*3.3*		*0.005*	
Average	43.5	47.1	45.3		6.7	0	1.082	
Oregon								
1 Ranger Russet	31.8	47.4	39.6	**4-**	16.6	0	1.085	**5**
2 Russet Burbank	19.7	48.8	34.2	**3-**	29.1	2	1.075	**0**
3 A02424-83LB	27.8	48.7	38.2	**4-**	20.9	1	1.088	**5**
4 A02507-2LB	43.9	50.9	47.4	**5+**	8.7	0	1.089	**4**
5 A03158-2TE	39.6	52.9	46.2	**5-**	13.4	0	1.071	**0**
6 A03921-2	40.0	52.2	46.1	**5-**	12.6	0	1.098	**1**
7 A06021-1T	33.6	47.9	40.7	**5-**	14.4	0	1.077	**1**
8 A06084-1TE	37.5	50.6	44.1	**5-**	13.1	0	1.075	**0**
9 AO01114-4	28.2	41.9	35.0	**3-**	13.7	1	1.081	**4**
10 AO02060-3	43.7	52.9	48.3	**5-**	9.2	0	1.075	**0**
11 CO05068-1RU	36.1	46.9	41.5	**5-**	11.1	0	1.102	**1**
12 CO05175-1RU	28.0	51.5	39.8	**4-**	23.5	1	1.071	**0**
13 OR05039-4	40.2	48.7	44.4	**5-**	9.4	0	1.078	**2**
14 POR06V12-3	44.0	54.0	49.0	**5-**	10.1	0	1.097	**1**
		LSD 0.05	*3.4*		*5.8*		*0.005*	
Average	35.3	49.7	42.5		14.7	0	1.083	

Date test performed:

Washington	Sept. 17	Sept. 15
Idaho	Sept. 23	Sept. 22
Oregon	Oct. 3	Oct. 1

§ 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.

2014 Late Harvest Regional Trial

Stored at 48°F after Arrival

Clone	FRENCH FRY TASTE PANEL rating	BRUISE POTENTIAL (percent) stem	bud	[color 5=darkest] stem	bud	SOFT ROT INDEX (percent) stem	bud
Washington							
1 Ranger Russet	**2.9**	96	50	4.3	2.1	15	18
2 Russet Burbank	**3.1**	75	25	3.0	1.5	20	23
3 A02424-83LB	**3.1**	58	4	2.4	1.1	10	11
4 A02507-2LB	**3.4**	54	67	2.6	3.1	24	17
5 A03158-2TE	**3.1**	33	33	1.8	1.8	17	14
6 A03921-2	**3.3**	75	33	2.9	1.7	15	12
7 A06021-1T	**3.1**	71	8	3.0	1.2	17	17
8 A06084-1TE	**3.2**	50	42	2.3	2.2	17	17
9 AO01114-4	**3.5**	58	25	2.2	1.5	15	11
10 AO02060-3	**3.0**	50	46	2.3	2.0	16	12
11 CO05068-1RU	**3.3**	83	63	3.1	2.4	15	12
12 CO05175-1RU	**2.9**	58	58	2.3	2.2	13	17
13 OR05039-4	**3.7**	17	0	1.4	1.0	11	10
14 POR06V12-3	**3.7**	0	0	1.0	1.0	13	15
LSD 0.05	*0.3*	*29*	*29*			*5*	*5*
Average	3.2	55.7	32.4	2.5	1.8	15.4	14.9
Idaho							
1 Ranger Russet	**3.2**	79	17	3.0	1.3	11	11
2 Russet Burbank	**2.9**	17	17	1.3	1.0	11	10
3 A02424-83LB	**3.2**	45	45	2.0	1.2	7	7
4 A02507-2LB	**3.6**	75	63	2.8	2.5	13	13
5 A03158-2TE	**3.0**	38	13	1.8	1.3	8	6
6 A03921-2	**3.3**	67	8	2.5	1.2	14	12
7 A06021-1T	**3.1**	75	17	2.8	1.3	11	13
8 A06084-1TE	**4.0**	17	4	1.4	1.1	17	14
9 AO01114-4	**3.2**	0	0	1.0	1.0	9	10
10 AO02060-3	**3.4**	8	8	1.2	1.2	17	18
11 CO05068-1RU	**2.9**	54	54	2.2	2.2	9	10
12 CO05175-1RU	**3.3**	21	25	1.5	1.5	10	13
13 OR05039-4	**3.2**	0	0	1.0	1.0	9	7
14 POR06V12-3	**3.6**	17	8	1.4	1.2	17	15
LSD 0.05	*0.3*	*28*	*24*			*6*	*5*
Average	3.3	36.6	19.9	1.8	1.4	11.7	11.5
Oregon							
1 Ranger Russet	**3.5**	96	13	4.2	1.3	11	9
2 Russet Burbank	**2.6**	71	17	2.8	1.3	9	11
3 A02424-83LB	**3.3**	63	17	2.5	1.3	6	9
4 A02507-2LB	**4.0**	13	25	1.6	2.0	9	10
5 A03158-2TE	**2.9**	4	0	1.1	1.0	7	8
6 A03921-2	**3.9**	83	29	2.8	1.6	7	7
7 A06021-1T	**3.1**	13	8	1.3	1.2	9	8
8 A06084-1TE	**3.6**	83	13	3.3	1.4	11	9
9 AO01114-4	**2.9**	25	8	1.5	1.2	7	7
10 AO02060-3	**3.6**	13	0	1.3	1.0	11	8
11 CO05068-1RU	**3.2**	79	50	2.8	2.0	8	6
12 CO05175-1RU	**3.4**	25	21	1.5	1.4	8	10
13 OR05039-4	**3.3**	13	0	1.3	1.0	5	7
14 POR06V12-3	**3.7**	46	58	2.0	2.3	8	9
LSD 0.05	*0.3*	*25*	*24*			*3*	*2*
Average	3.4	44.6	1.4	2.1	1.4	8.2	8.4

Date test performed:

Washington	Oct. 17	Oct. 24	Nov. 6
Idaho	Oct. 20	Oct. 29	Nov. 7
Oregon	Oct. 21	Oct. 31	Nov. 18

2014 Late Harvest Regional Trial

Stored at 48°F for 60 Days

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg	SPROUTING (%)	length (in)
Washington											
1 Ranger Russet	24.8	49.5	37.1	**4-**	24.7	1	2.0	0.5	**4**	87	1.00
2 Russet Burbank	16.2	42.1	29.1	**2-**	25.9	3	3.4	0.7	**2**	27	0.13
3 A02424-83LB	26.9	42.4	34.7	3-	15	1	1.7	0.6	**4**	100	0.50
4 A02507-2LB	49.6	55.1	52.3	**5+**	6.4	0	0.5	0.5	**5**	53	0.25
5 A03158-2TE	26.8	34.1	30.5	**3+**	7.4	1	1.7	1.1	**4**	100	1.50
6 A03921-2	40.6	50.8	45.7	**5-**	10.2	0	0.7	0.5	**5**	20	0.25
7 A06021-1T	26.3	41.1	33.7	**3-**	14.9	1	1.8	0.7	**4**	7	0.13
8 A06084-1TE	32.5	50.8	41.7	**5-**	18.3	0	1.2	0.5	**5**	100	1.50
9 AO01114-4	27.2	38.2	32.7	**3-**	11.1	1	1.7	0.8	**4**	40	0.13
10 AO02060-3	30.2	41.8	36.0	**4-**	13.7	1	1.4	0.7	**4**	100	1.00
11 CO05068-1RU	40.5	46.6	43.6	**5+**	7.1	0	0.7	0.5	**5**	100	1.50
12 CO05175-1RU	24.3	46.7	35.5	**4-**	22.4	2	2.0	0.5	**4**	100	0.50
13 OR05039-4	36.0	45.6	40.8	**5-**	9.5	0	0.9	0.6	**5**	87	0.25
14 POR06V12-3	29.0	47.4	38.2	**4-**	18.4	1	1.5	0.5	**4**	93	0.50
		LSD 0.05	*3.4*		*5.4*					*19*	
Average	30.8	45.2	38.0		14.7	1	1.5	0.6		72	
Idaho											
1 Ranger Russet	20.9	43.8	32.3	**3-**	22.8	2	2.5	0.6	**3**	87	0.25
2 Russet Burbank	16.1	41.3	28.7	**2-**	25.2	3	3.4	0.7	**2**	0	
3 A02424-83LB	30.8	43.2	37.0	**4-**	15.5	0	1.3	0.6	**4**	100	0.25
4 A02507-2LB	38.1	49.9	44.0	**5-**	11.8	0	0.8	0.5	**5**	0	
5 A03158-2TE	25.7	34.3	30.0	**2-**	10.1	1	1.9	1.0	**3**	87	0.25
6 A03921-2	30.6	44.9	37.8	**4-**	14.8	0	1.3	0.6	**4**	7	0.13
7 A06021-1T	26.7	35.3	31.0	**3-**	11.2	1	1.7	1.0	**4**	0	
8 A06084-1TE	50.6	52.0	51.3	**5+**	4.0	0	0.5	0.5	**5**	7	0.13
9 AO01114-4	27.5	43.1	35.3	**3-**	15.6	1	1.6	0.6	**4**	0	
10 AO02060-3	29.9	43.4	36.7	**4-**	13.5	1	1.4	0.6	**4**	93	0.25
11 CO05068-1RU	33.7	38.3	36.0	**4+**	7.9	0	1.1	0.8	**5**	93	0.25
12 CO05175-1RU	24.5	43.7	34.1	**3-**	19.3	1	2.0	0.6	**4**	40	0.25
13 OR05039-4	28.5	49.4	38.9	**4-**	20.9	1	1.5	0.5	**4**	0	
14 POR06V12-3	28.6	41.9	35.3	**3-**	13.3	1	1.5	0.7	**4**	73	0.25
		LSD 0.05	*3.7*		*5.3*					*17*	
Average	29.4	43.2	36.3		14.7	1	1.6	0.7		38	
Oregon											
1 Ranger Russet	31.1	49.0	40.0	**4-**	18.0	0	1.3	0.5	**5**	100	1.00
2 Russet Burbank	18.0	43.6	30.8	**3-**	25.7	3	3.0	0.6	**3**	0	
3 A02424-83LB	31.9	46.0	38.9	**4-**	14.8	0	1.2	0.5	**5**	93	0.50
4 A02507-2LB	52.5	54.8	53.6	**5+**	4.0	0	0.5	0.5	**5**	54	0.13
5 A03158-2TE	32.6	42.7	37.7	**4-**	15.5	0	1.2	0.6	**5**	100	0.75
6 A03921-2	48.6	52.8	50.7	**5+**	6.5	0	0.5	0.5	**5**	7	0.13
7 A06021-1T	34.8	41.1	37.9	**4+**	8.7	0	1.0	0.7	**5**	0	
8 A06084-1TE	43.4	52.0	47.7	**5+**	8.6	0	0.6	0.5	**5**	87	0.50
9 AO01114-4	33.4	42.9	38.2	**4-**	10.1	0	1.1	0.6	**5**	0	
10 AO02060-3	37.7	47.4	42.6	**5-**	9.7	0	0.8	0.5	**5**	100	0.75
11 CO05068-1RU	45.1	47.0	46.0	**5+**	3.5	0	0.6	0.5	**5**	93	0.50
12 CO05175-1RU	38.3	55.7	47.0	**5-**	17.4	0	0.8	0.5	**5**	57	0.50
13 OR05039-4	45.7	52.6	49.2	**5+**	7.6	0	0.6	0.5	**5**	20	0.50
14 POR06V12-3	37.2	46.2	41.7	**5-**	9.7	0	0.9	0.5	**5**	100	0.50
		LSD 0.05	*4.3*		*5.5*					*17*	
Average	37.9	48.1	43.0		11.4	0	1.0	0.6		58	

Date test performed:

Washington	Dec. 1	Dec. 1	Dec. 21
Idaho	Dec. 7	Dec. 7	Dec. 21
Oregon	Dec. 12	Dec. 12	Dec. 21

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

2014 Late Harvest Regional Trial

Stored at 44°F for 60 Days

Clone	PHOTOVOLT READING stem	bud	average	rtg §	DIFF	USDA COLOR	% REDUCING SUGAR stem	bud	rtg
Washington									
1 Ranger Russet	21.6	42.5	32.0	**3-**	20.9	2	2.4	0.6	**3**
2 Russet Burbank	18.8	36.3	27.5	**2-**	17.6	3	2.9	0.9	**3**
3 A02424-83LB	31.1	41.0	36.1	**4-**	10.5	0	1.3	0.7	**4**
4 A02507-2LB	43.6	52.3	47.9	**5+**	8.7	0	0.6	0.5	**5**
5 A03158-2TE	24.8	29.4	27.1	**2+**	6.7	1	2.0	1.4	**3**
6 A03921-2	34.5	47.3	40.9	**5-**	13.1	0	1.0	0.5	**5**
7 A06021-1T	22.5	31.3	26.9	**2-**	9.0	2	2.3	1.3	**3**
8 A06084-1TE	32.8	48.4	40.6	**5-**	15.6	0	1.1	0.5	**5**
9 AO01114-4	30.3	36.5	33.4	**3+**	7.2	1	1.4	0.9	**4**
10 AO02060-3	27.5	34.8	31.2	**3+**	8.8	1	1.6	1.0	**4**
11 CO05068-1RU	33.4	43.4	38.4	**4-**	10.5	0	1.1	0.6	**5**
12 CO05175-1RU	25.0	42.6	33.8	**3-**	17.8	1	1.9	0.6	**4**
13 OR05039-4	32.1	42.7	37.4	**4-**	10.7	0	1.2	0.6	**5**
14 POR06V12-3	31.1	44.1	37.6	**4-**	13.1	0	1.3	0.6	**5**
		LSD 0.05	*3.2*		*5.1*				
Average	29.2	40.9	35.1		12.1	1	1.6	0.8	
Idaho									
1 Ranger Russet	21.2	37.9	29.5	**2-**	16.7	2	2.5	0.8	**3**
2 Russet Burbank	14.1	34.4	24.3	**1-**	21.2	4	3.8	1.0	**2**
3 A02424-83LB	27.4	40.1	33.7	**3-**	13.6	1	1.7	0.7	**4**
4 A02507-2LB	29.9	44.1	37.0	**4-**	14.6	1	1.4	0.6	**4**
5 A03158-2TE	22.8	28.6	25.7	**2+**	8.7	2	2.3	1.5	**3**
6 A03921-2	28.3	41.7	35.0	**3-**	13.4	1	1.6	0.7	**4**
7 A06021-1T	25.0	31.3	28.2	**2+**	7.0	1	2.0	1.3	**3**
8 A06084-1TE	44.4	54.3	49.3	**5-**	11.0	0	0.6	0.5	**5**
9 AO01114-4	28.0	37.2	32.6	**3-**	10.5	1	1.6	0.9	**4**
10 AO02060-3	28.4	37.0	32.7	**3+**	8.5	1	1.5	0.9	**4**
11 CO05068-1RU	25.8	36.7	31.3	**3-**	11.0	1	1.9	0.9	**4**
12 CO05175-1RU	24.3	39.2	31.7	**3-**	14.9	2	2.0	0.8	**4**
13 OR05039-4	22.4	42.6	32.5	**3-**	20.6	2	2.3	0.6	**3**
14 POR06V12-3	29.0	41.2	35.1	**3-**	12.2	1	1.5	0.7	**4**
		LSD 0.05	*3.7*		*5.2*				
Average	26.5	39.0	32.8		13.1	1	1.9	0.9	
Oregon									
1 Ranger Russet	36.2	46.8	41.5	**5-**	12.0	0	0.9	0.5	**5**
2 Russet Burbank	15.9	39.9	27.9	**2-**	24.0	3	3.4	0.7	**2**
3 A02424-83LB	32.6	41.6	37.1	**4-**	13.4	0	1.2	0.7	**5**
4 A02507-2LB	53.4	53.0	53.2	**5+**	3.5	0	0.6	0.6	**5**
5 A03158-2TE	29.2	42.8	36.0	**4-**	14.3	1	1.5	0.6	**4**
6 A03921-2	48.7	52.8	50.8	**5+**	5.9	0	0.5	0.5	**5**
7 A06021-1T	33.4	36.1	34.7	**3+**	6.6	0	1.1	0.9	**4**
8 A06084-1TE	34.1	50.3	42.2	**5-**	16.2	0	1.1	0.5	**5**
9 AO01114-4	33.0	41.0	37.0	**4+**	8.3	0	1.1	0.7	**5**
10 AO02060-3	32.2	41.3	36.8	**4-**	10.4	0	1.2	0.7	**5**
11 CO05068-1RU	42.8	49.1	45.9	**5+**	7.6	0	0.6	0.5	**5**
12 CO05175-1RU	36.5	53.6	45.0	**5-**	17.2	0	0.9	0.5	**5**
13 OR05039-4	41.4	52.5	47.0	**5-**	11.0	0	0.7	0.5	**5**
14 POR06V12-3	39.5	48.9	44.2	**5-**	11.5	0	0.8	0.5	**5**
		LSD 0.05	*3.9*		*5.4*				
Average	36.4	46.4	41.4		11.6	0	1.1	0.6	

Date test performed:

Washington	Dec. 2	Dec. 2
Idaho	Dec. 8	Dec. 8
Oregon	Dec. 15	Dec. 15

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

2014 Late Harvest Regional Trial

Stored at 40°F for 60 Days and Reconditioned

		PHOTOVOLT(60 Days at 40°F)					PHOTOVOLT AFTER RECONDITIONING (21 days at 60°F)				
Clone	SPROUTING (%)	stem	bud	average	DIFF	USDA COLOR	stem	bud	average	DIFF	USDA COLOR
Washington											
1 Ranger Russet	0	14.7	30.0	22.3	15.5	3	26.1	45.7	35.9	19.5	1
2 Russet Burbank	0	11.4	25.4	18.4	14.0	4	18.1	36.8	27.5	18.7	3
3 A02424-83LB	0	23.3	35.7	29.5	12.3	2	32.2	47.1	39.6	15.0	0
4 A02507-2LB	0	35.4	46.4	40.9	11.7	0	42.8	49.9	46.3	9.8	0
5 A03158-2TE	0	16.5	20.0	18.3	5.8	3	22.5	26.6	24.6	7.3	2
6 A03921-2	0	25.6	42.0	33.8	16.4	1	43.1	48.5	45.8	10.7	0
7 A06021-1T	0	16.8	22.5	19.7	6.1	3	27.1	32.6	29.8	6.7	1
8 A06084-1TE	0	25.2	36.1	30.6	10.9	1	43.7	49.2	46.5	7.3	0
9 AO01114-4	No Sample	19.0	24.6	21.8	5.6	3	35.1	45.1	40.1	11.4	0
10 AO02060-3	0	17.7	20.3	19.0	5.2	3	39.0	50.3	44.7	11.2	0
11 CO05068-1RU	0	22.3	29.1	25.7	8.5	2	33.1	46.2	39.6	13.2	0
12 CO05175-1RU	0	14.5	29.0	21.7	14.4	3	21.5	48.7	35.1	27.2	2
13 OR05039-4	0	25.2	33.4	29.3	8.5	1	33.4	44.8	39.1	11.4	0
14 POR06V12-3	0	23.5	34.3	28.9	10.8	2	28.9	49.5	39.2	20.5	1
LSD 0.05	*ns*			*3.0*	*4.7*				*4.4*	*5.2*	
Average	0	20.8	30.6	25.7	10.4	2	31.9	44.3	38.1	13.6	1
Idaho											
1 Ranger Russet	0	17.8	29.2	23.5	11.4	3	25.1	43.1	34.1	18.9	1
2 Russet Burbank	0	12.2	22.0	17.1	10.0	4	15.7	39.4	27.5	23.6	3
3 A02424-83LB	0	22.1	34.0	28.0	13.0	2	25.6	29.4	27.5	9.6	1
4 A02507-2LB	0	26.9	36.2	31.6	10.6	1	20.7	29.2	24.9	9.2	2
5 A03158-2TE	0	17.2	22.3	19.8	6.6	3	18.0	21.7	19.9	6.3	3
6 A03921-2	0	24.6	31.5	28.0	8.7	1	25.7	30.6	28.1	6.2	1
7 A06021-1T	0	19.8	21.7	20.8	4.1	2	18.9	23.1	21.0	5.9	3
8 A06084-1TE	0	30.8	37.5	34.2	9.0	0	33.1	41.8	37.5	10.1	0
9 AO01114-4	0	20.6	29.0	24.8	8.4	2	25.9	39.8	32.8	14.3	1
10 AO02060-3	0	17.3	21.0	19.1	4.3	3	23.8	35.9	29.8	12.5	2
11 CO05068-1RU	0	22.1	29.9	26.0	7.8	2	22.0	31.0	26.5	9.3	2
12 CO05175-1RU	0	19.0	29.5	24.2	10.5	3	26.6	42.2	34.4	15.9	1
13 OR05039-4	0	17.7	28.7	23.2	10.9	3	24.2	39.9	32.0	15.7	2
14 POR06V12-3	0	23.6	30.7	27.1	7.2	2	28.9	35.6	32.3	8.5	1
LSD 0.05	*ns*			*3.1*	*4.5*				*3.5*	*5.2*	
Average	0	20.8	28.8	24.8	8.8	2	23.9	34.5	29.2	11.9	2
Oregon											
1 Ranger Russet	0	20.3	33.8	27.0	16.3	2	26.5	39.6	33.0	13.1	1
2 Russet Burbank	0	12.3	26.0	19.2	13.7	4	13.1	34.6	23.9	21.6	4
3 A02424-83LB	0	23.7	31.3	27.5	7.7	2	28.2	39.1	33.6	12.2	1
4 A02507-2LB	0	40.2	48.4	44.3	8.1	0	43.4	45.2	44.3	6.4	0
5 A03158-2TE	0	21.5	25.1	23.3	5.4	2	22.5	34.0	28.3	13.7	2
6 A03921-2	0	39.5	48.4	43.9	9.0	0	38.6	47.8	43.2	9.6	0
7 A06021-1T	No Sample	26.3	25.6	26.0	3.3	1	25.2	33.6	29.4	8.9	1
8 A06084-1TE	0	28.9	42.8	35.8	13.9	1	33.1	46.6	39.8	13.5	0
9 AO01114-4	0	21.4	25.9	23.6	5.3	2	25.6	39.0	32.3	13.4	1
10 AO02060-3	No Sample	23.0	27.5	25.2	5.1	2	29.3	44.0	36.6	14.8	1
11 CO05068-1RU	0	34.1	40.5	37.3	7.1	0	37.5	44.5	41.0	7.4	0
12 CO05175-1RU	No Sample	21.5	41.4	31.5	19.9	2	29.0	52.7	40.8	23.7	1
13 OR05039-4	0	36.4	46.9	41.6	10.7	0	33.8	51.6	42.7	17.8	0
14 POR06V12-3	0	31.9	47.0	39.4	15.1	0	41.3	46.5	43.9	7.0	0
LSD 0.05	*ns*			*3.3*	*4.5*				*4.5*	*6.0*	
Average	0	27.2	36.5	31.8	10.1	1	30.5	42.8	36.6	13.1	1

Date test performed:

Washington	Dec. 22	Dec. 3	Dec. 19
Idaho	Dec. 22	Dec. 9	Dec. 19
Oregon	Dec. 22	Dec. 15	Dec. 19

Entries Retained from the 2013 Trials Currently in the Regional Trial

Harvested fall of 2013 Held at 48°F until December 21 Stored at 44°F until analysis

Four clones were advanced from the 2013 Tri-State Trial into the 2014 Regional Trial (A03921-2, A06021-1T, A06084-1TE & AO03123-2). Seven clones were retained in the Regional Trial. When averaged across states, A02507-2LB (51.9 ref units) and POR06V12-3 (50.1 ref units) produced the lightest fries. Uniformity of fry color was unacceptable for eleven of the thirteen entries. A02507-2LB & POR06V12-3 were the only two entries to produce uniform fries from all three states. A03158-2TE had the shortest dormancy with the longest sprouts (9") while A02507-2LB (1") had the shortest average sprout length (these results have been consistent over the last 4 years).

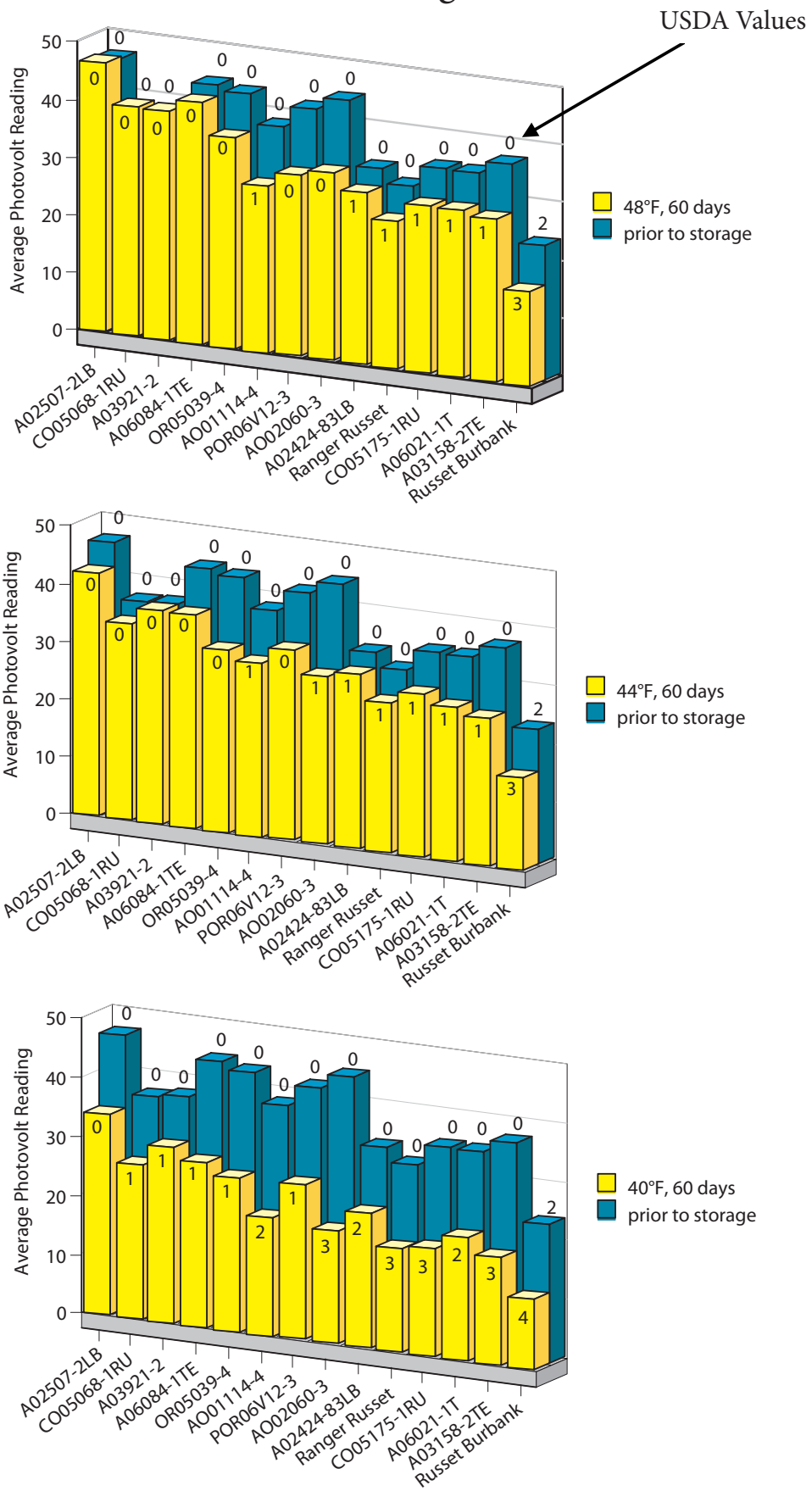
	PHOTOVOLT READING				USDA	% REDUCING SUGAR			Sprouting	
Clone	stem	bud	avg	DIFF	COLOR	stem	bud	avg	percent	length (in.)
Washington										
1 Ranger Russet	27.3	40.4	33.8	15.9	1	1.7	0.7	1.2	100	4
2 Russet Burbank	22.5	46.0	34.2	23.5	2	2.3	0.5	1.4	100	5
3 A02424-83LB	34.1	47.4	40.7	13.3	0	1.1	0.5	0.8	100	5.5
4 A02507-2LB	51.7	52.7	52.2	3.7	0	0.5	0.5	0.5	100	1.5
5 A03158-2TE	36.7	43.0	39.8	12.3	0	0.9	0.6	0.8	100	9
6 A03921-2 §	41.4	49.5	45.4	8.9	0	0.7	0.5	0.6	100	4.5
7 A06021-1T §	27.5	41.8	34.7	14.3	1	1.6	0.7	1.2	100	2
8 A06084-1TE §	43.6	50.1	46.8	7.9	0	0.6	0.5	0.6	100	6.5
9 AO01114-4	33.7	47.0	40.4	13.3	0	1.1	0.5	0.8	100	3
10 AO02060-3	34.2	44.8	39.5	12.1	0	1.0	0.6	0.8	100	4.5
11 AO03123-2 §	46.5	49.2	47.8	6.1	0	0.5	0.5	0.5	100	2
12 OR05039-4	29.5	46.8	38.2	17.3	1	1.4	0.5	1.0	100	3
13 POR06V12-3	47.0	53.2	50.1	6.8	0	0.5	0.6	0.5	100	4.5
		LSD 0.05	*4.0*	*5.4*						
Average	36.6	47.1	41.8	12.0	0	0.9	0.5	0.8	100	
Idaho										
1 Ranger Russet	28.1	40.6	34.3	12.5	1	1.6	0.7	1.1	100	4
2 Russet Burbank	23.5	46.7	35.1	23.6	2	2.2	0.5	1.3	100	1
3 A02424-83LB	42.8	51.6	47.2	11.7	0	0.6	0.5	0.6	100	4
4 A02507-2LB	51.3	55.3	53.3	4.6	0	0.5	0.5	0.5	100	1
5 A03158-2TE	38.0	39.1	38.6	7.0	0	0.8	0.8	0.8	100	6
6 A03921-2	42.3	51.5	46.9	9.2	0	0.6	0.5	0.6	100	2.5
7 A06021-1T	33.2	44.7	38.9	11.5	0	1.1	0.6	0.8	100	0.5
8 A06084-1TE	52.6	54.1	53.4	3.9	0	0.5	0.5	0.5	100	5
9 AO01114-4	35.0	46.2	40.6	11.2	0	1.0	0.5	0.8	100	1.5
10 AO02060-3	43.0	49.7	46.3	6.9	0	0.6	0.5	0.6	100	2.5
11 AO03123-2	40.6	51.7	46.1	13.1	0	0.7	0.5	0.6	100	1.5
12 OR05039-4	39.3	49.7	44.5	10.8	0	0.8	0.5	0.6	100	3
13 POR06V12-3	48.5	53.0	50.8	4.8	0	0.5	0.6	0.5	100	3.5
		LSD 0.05	*3.6*	*4.7*						
Average	37.7	47.5	42.6	11.4	1	1.1	0.6	0.8	100	
Oregon										
1 Ranger Russet	27.0	42.0	34.5	15.0	1	1.7	0.7	1.2	100	4
2 Russet Burbank	22.0	42.3	32.2	20.2	2	2.4	0.6	1.5	100	4
3 A02424-83LB	33.5	46.7	40.1	16.4	0	1.1	0.5	0.8	100	4
4 A02507-2LB	48.0	52.4	50.2	5.4	0	0.5	0.5	0.5	100	1.5
5 A03158-2TE	40.0	45.1	42.6	7.8	0	0.7	0.6	0.6	100	13
6 A03921-2	43.5	53.4	48.5	9.9	0	0.6	0.6	0.6	100	8.5
7 A06021-1T	29.8	35.0	32.4	7.9	1	1.4	1.0	1.2	100	2.5
8 A06084-1TE	29.2	44.9	37.0	15.7	1	1.5	0.6	1.0	100	7
9 AO01114-4	30.9	45.4	38.2	14.5	0	1.3	0.6	0.9	100	9
10 AO02060-3	43.3	42.7	43.0	5.1	0	0.6	0.6	0.6	100	6
11 AO03123-2	39.2	47.3	43.3	8.8	0	0.8	0.5	0.6	100	4
12 OR05039-4	36.5	46.9	41.7	11.5	0	0.9	0.5	0.7	100	4.5
13 POR06V12-3	49.2	49.4	49.3	6.9	0	0.5	0.5	0.5	100	3.5
		LSD 0.05	*4.5*	*5.7*						
Average	36.3	45.7	41.0	11.2	0	1.1	0.6	0.8	100	

§ Advanced from 2013 Tri-State Trial.

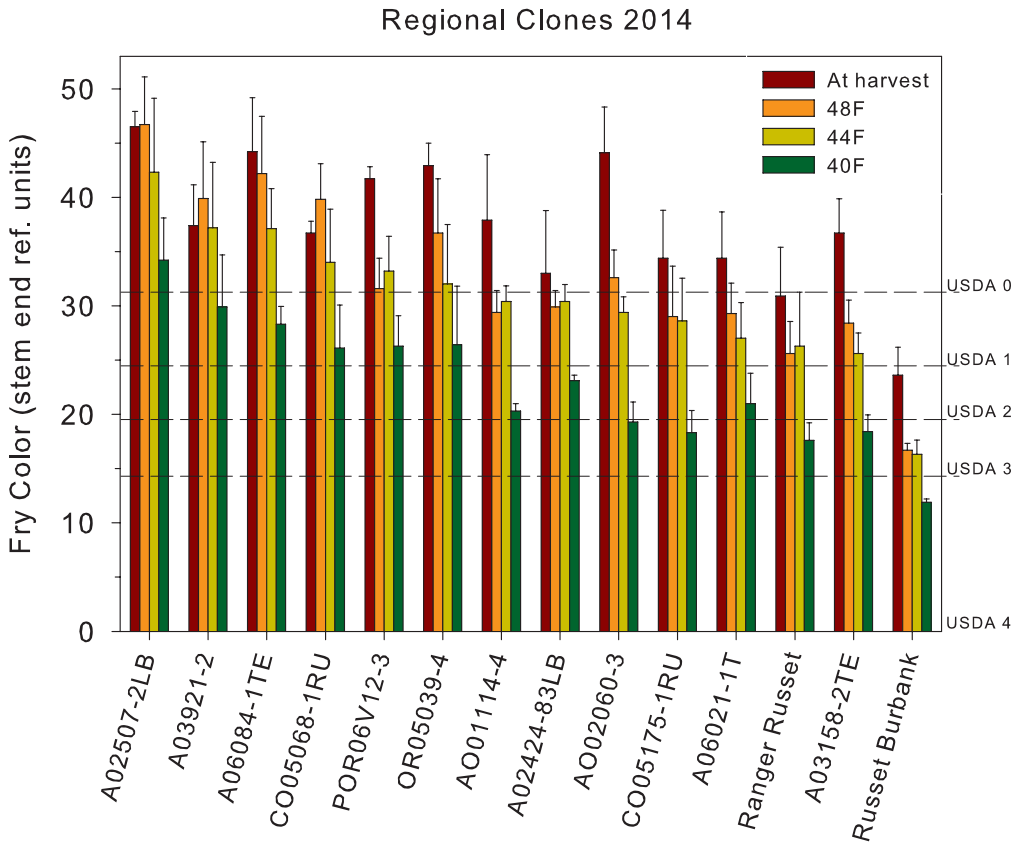
Date test performed:
Washington April 29
Idaho April 30
Oregon May 1

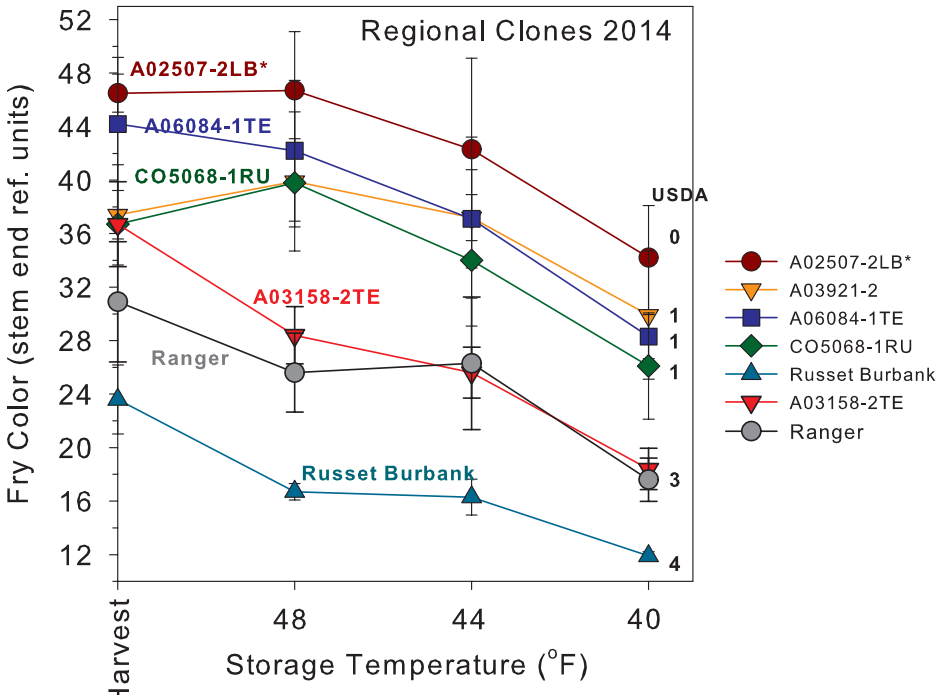
2014 Late Harvest Regional Trial

Regional Trial - 3 State Average of Stem End



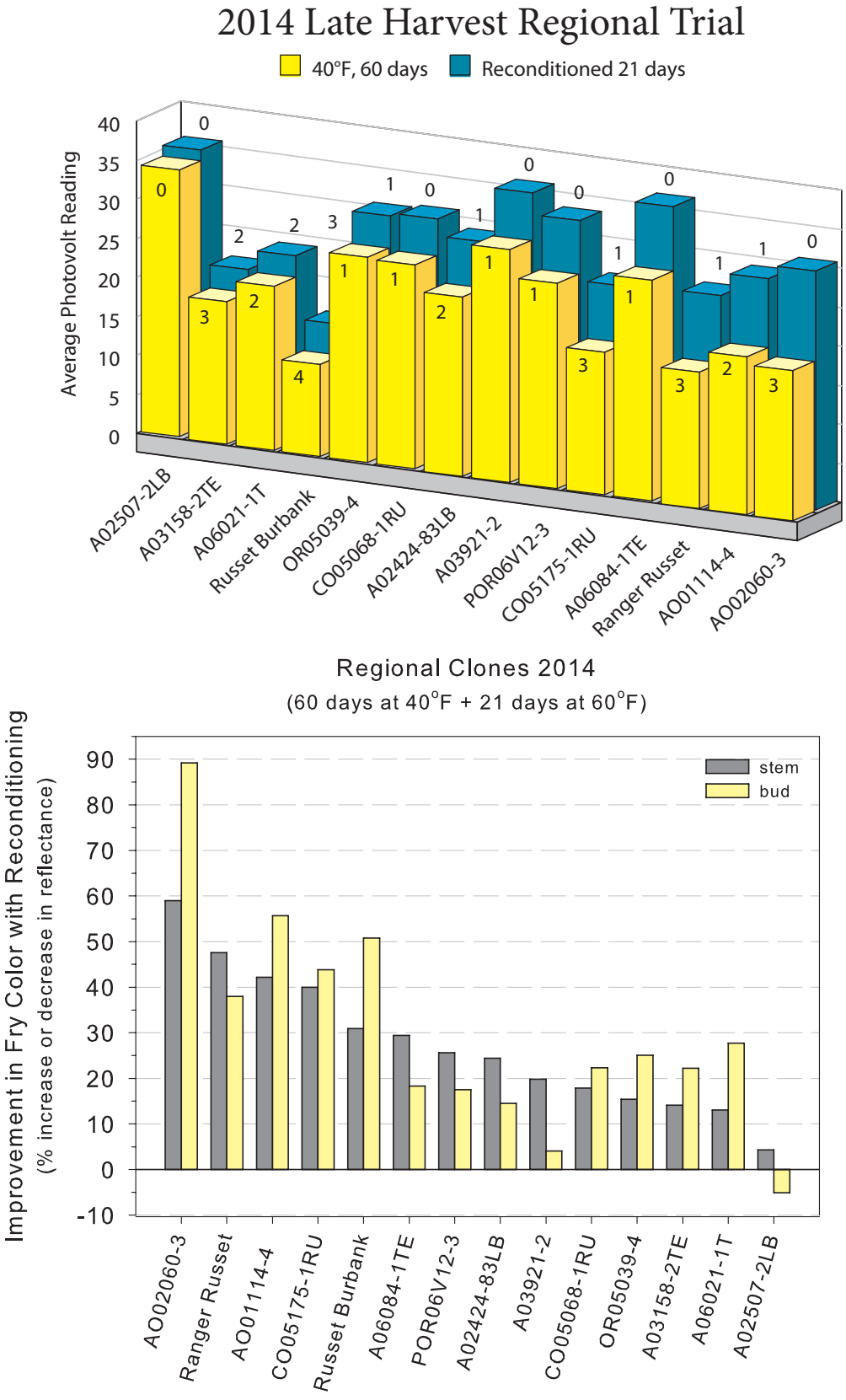
2014 Late Harvest Regional Trial





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 (A02507-2LB, A06084-1TE, A03921-2, and CO5068-1RU) and worst (AO3158-2TE, Ranger Russet, and Russet Burbank) performing clones in the Regional Trial. *Indicates similar performance of the clones last year.



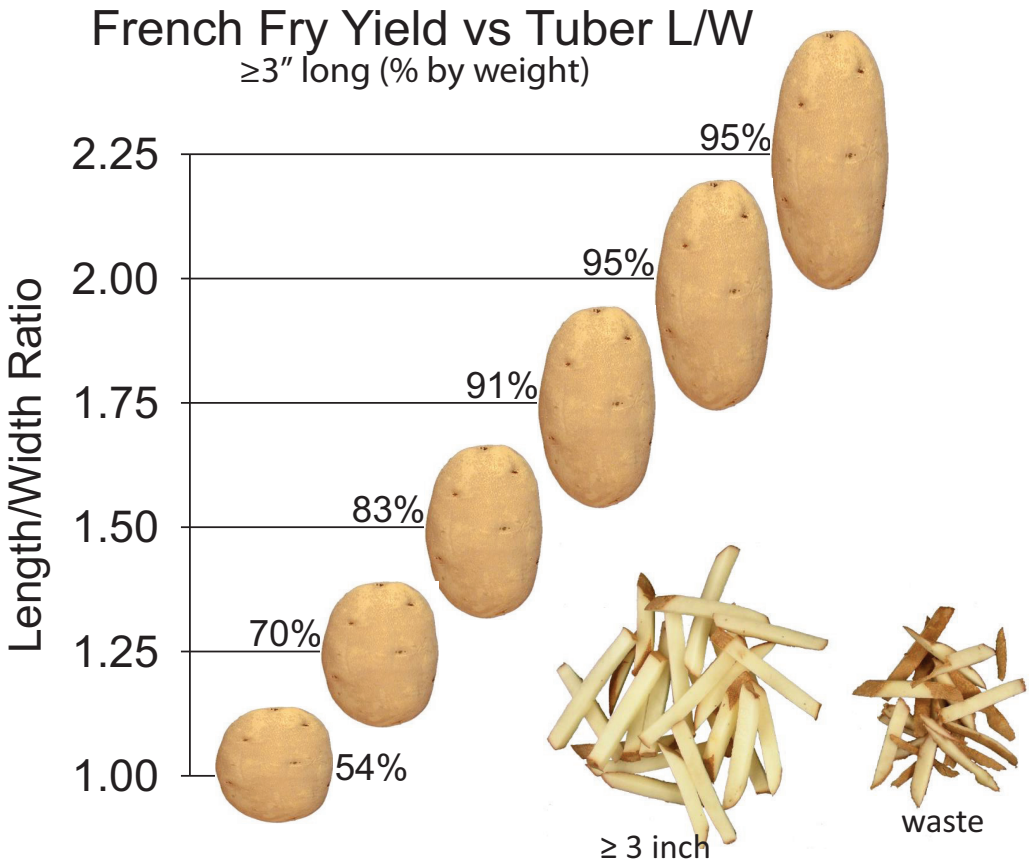
Reconditioning abilities of clones in the 2014 Regional Trial (3-state averages). Clones were stored at 40°F for 60 days after harvest and then reconditioned at 60°F for 21 days. Top: Stem end fry color before and after reconditioning. Numbers in bars indicate the USDA color rating of the stem end. Bottom: Percent improvement of stem and bud end fry color with reconditioning.

2014 Late Harvest Regional Trial

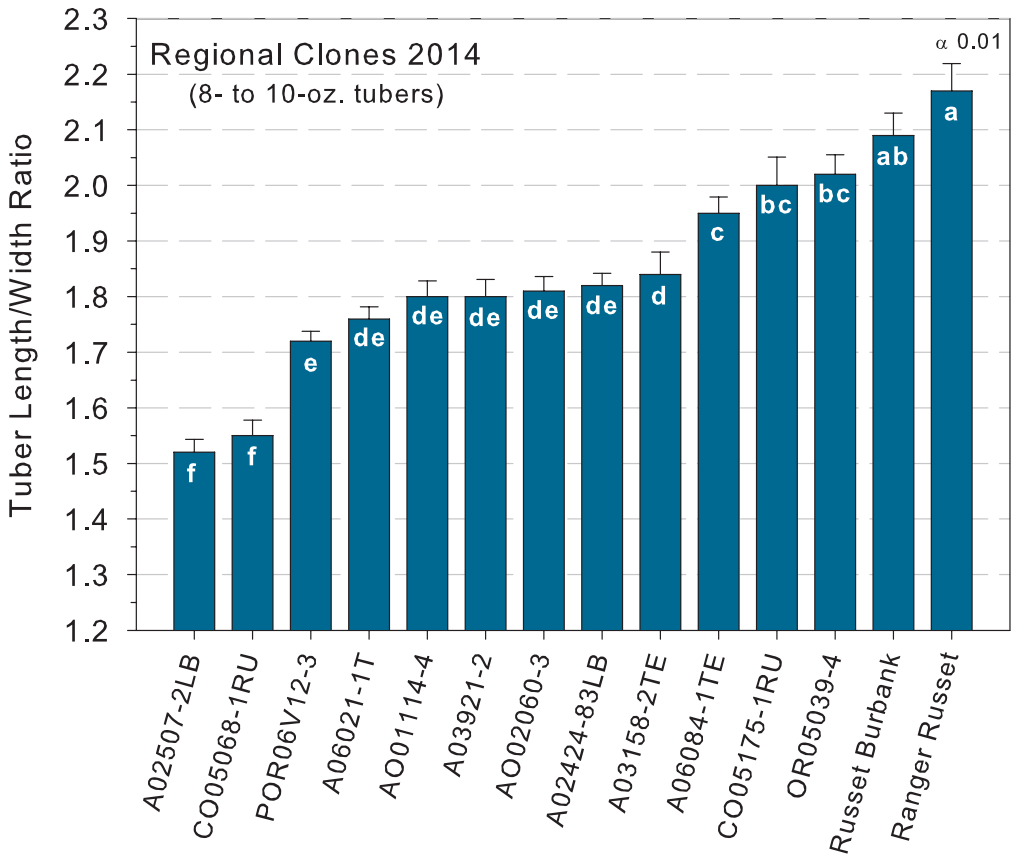
Tuber Shape and Associated French Fry Yields

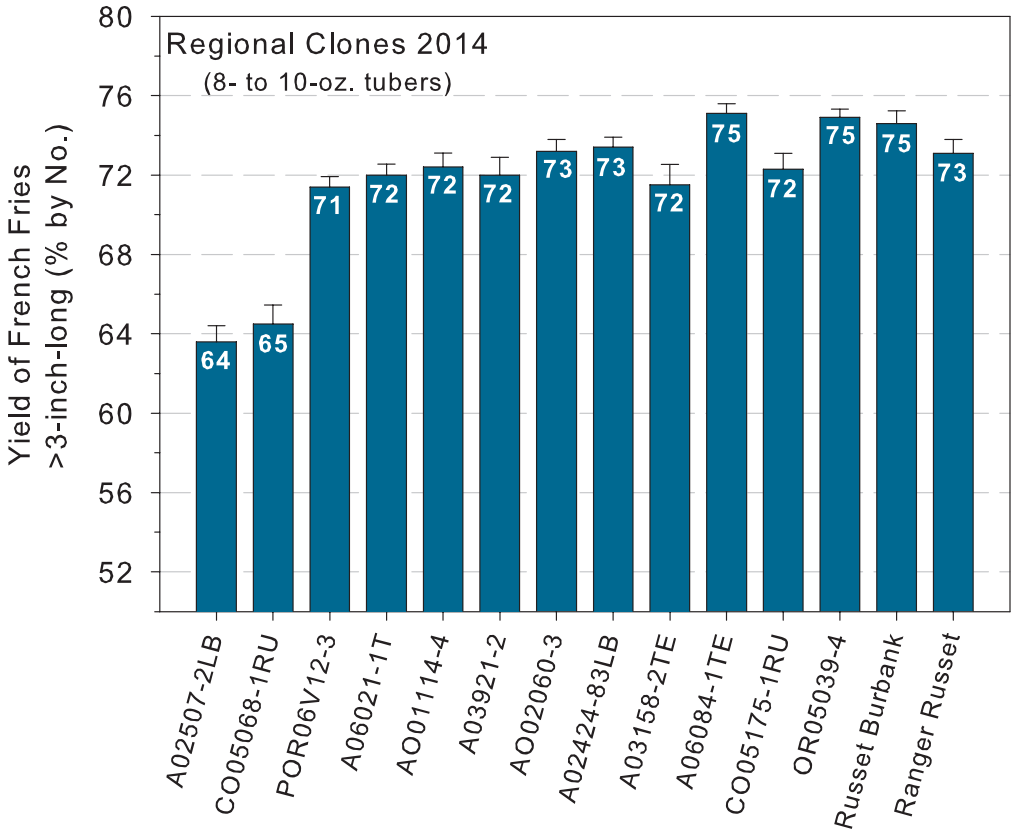
(8- to 10-oz Tubers)

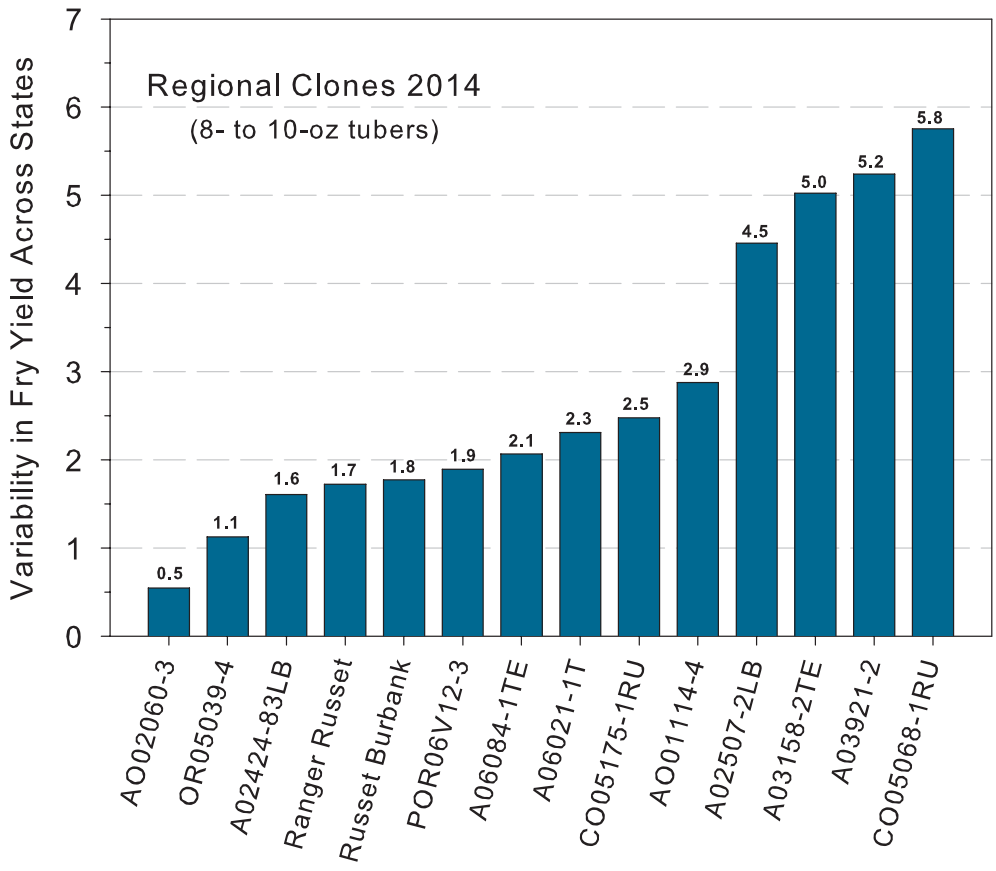
Clone	Length to width ratio				Yield of 3" or longer fries (% by number)			
	WA	ID	OR	3 State Avg.	WA	ID	OR	3 State Avg.
1 Ranger Russet	1.89	2.59	2.03	2.17	73	71	75	73
2 Russet Burbank	1.90	2.34	2.03	2.09	72	76	75	75
3 A02424-83LB	1.81	1.92	1.73	1.82	73	76	72	73
4 A02507-2LB	1.41	1.70	1.43	1.52	60	70	61	64
5 A03158-2TE	1.56	2.09	1.88	1.84	65	77	73	72
6 A03921-2	1.55	2.02	1.83	1.80	65	77	74	72
7 A06021-1T	1.68	1.92	1.69	1.76	70	75	71	72
8 A06084-1TE	1.78	2.16	1.92	1.95	73	78	75	75
9 AO01114-4	1.70	1.96	1.75	1.80	70	76	71	72
10 AO02060-3	1.80	1.83	1.81	1.81	73	74	72	73
11 CO05068-1RU	1.43	1.80	1.43	1.55	60	73	60	65
12 CO05175-1RU	1.67	2.29	2.06	2.01	69	75	73	72
13 OR05039-4	1.84	2.35	1.87	2.02	71	76	75	74
14 POR06V12-3	1.64	1.80	1.73	1.72	69	74	72	71
Average	1.69	2.06	1.80	1.85	69	75	71	72



2014 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, CO05068-1RU had a length to width ratio of 1.55 (see previous page), resulting in 65% of the tuber yielding French fries that were ≥3 inches in length. However, tuber shape varied across production regions (above), resulting in fry yields ranging from 59% to 71% (65 ± 5.8%).

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

2014 Tri-State Specialty Trial

Location: WSU Research Center – Othello, WA
Planting Date: March 31 Vine Kill Date: July 21
Harvest Date: August 5 Days Grown: 112
In-Row Spacing: 8 Inch

The Tri-State Specialty trial is a part of the overall Tri-State Trial effort. This trial consists of clones with unique color and attributes which are primarily evaluated for fresh market suitability. This year's trial compared 2 local reference varieties to 8 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-Purple/Yellow flesh: COA07365-4RY
Yellow flesh: NDA08145-1CB-1CY, A05182-7RY

Suggested Discards:.A05180-3PY

Standcounts

- 50 Day
  Full emergence: POR07PG3-1, A05182-7RY, NDA081451CB-1CY, and A05180-3PY were 90% or higher.
  Poor emergence: NDA050237B-1R (65%) and POR07PG20-2 (79%).

Plant and Tuber Growth & Development

- 50 Day Stems per plant
  Most: POR07PG20-2 (2.8); A05180-3PY and POR07PG3-1 (2.5 each).
  Fewest: Yukon Gold (1.7) and A05182-7RY (1.8).

- Average Tuber Number Per Plant
  Most: A05182-7RY (13.0) and NDA081451CB-1CY (12.2).
  Fewest: Yukon Gold (5.5) and NDA050237B-1R (7.0).

- Average Tuber Size (oz)
  Largest: Yukon Gold (7.2), Chieftain (5.3), and A02267-1Y (5.1).
  Smallest: POR07PG20-2 (3.1) and A05182-7RY (3.4).

Yield Data

- Total Yield and U.S. #1 Yield
  Highest: Chieftain had the highest total (721 CWT/A) and the highest U.S. #1 yield (685 CWT/A).
  Lowest: POR07PG20-2 had the lowest total (418 CWT/A) and U.S. #1 yield (403 CWT/A).

- % U.S. #1's
  Highest: NDA081451CB-1CY (99%); all others were 94% or greater.

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

- External Defects
  Most entries were free of external defects.

- Internal Defects
  All entries were free of internal defects.

- Bruise
  Highest Blackspot: Chieftain (30%) and POR07PG20-2 (27%).
  Highest Shatter: POR07PG20-2 and NDA081451CB-1CY (each 33%); Yukon Gold (30%).

Postharvest Analysis

- The top scoring clones were Chieftain and A02267-1Y with 55 and 54.6 points in the 2014 culinary evaluations, respectively. A05180-3PY has reddish-purple skin and creamy flesh. Chieftain and NDA050237B-1R have white flesh and red skin. COA07365-4RY has red skin and yellow flesh.

- The specialty entries, POR07PG20-2 and A05182-7RY, have pinkish yellow skin with yellow flesh while Yukon Gold, A02267-1Y, POR07PG3-1 and NDA081451CB-1CY have yellow skin and flesh. As in previous years, culinary scores were high with all entries receiving 67 to 73% of total points possible.

- A02267-1Y produced the lightest French fries (USDA 1) while POR07PG20-2 produced the darkest fries (USDA 4). Fries from all other entries were rated as USDA 2 or 3.

- Following the same trend as when French fried, A02267-1Y produced the lightest chips with a SFA rating of 3.1. Chips from all other entries were darker with ratings ranging from 4.1 to 5 on the SFA scale.

- The range in ratings of baked samples in the 2014 trial was relatively narrow (16.4-18.8 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"; those rated as pasty were NDA050237B-1R and A05180-3PY. The flavor of most of the baked samples was rated "bland" while A02267-1Y and POR07PG20-2 received "good" ratings. Tuber centers of baked samples received acceptable ratings of "mushy" for all entries. Skins of the baked samples were also rated as acceptable ("steamy") for all entries except Chieftain and A05180-3PY which were rated as "crispy".

- All entries showed slight to moderate sloughing when boiled. POR07PG20-2 also had moderate after cooking darkening. All other entries had slight after cooking darkening when boiled. The texture of all boiled samples was favorably rated as "creamy". With exception of NDA081451CB-1CY which was unacceptable, the flavor of all boiled samples was rated as either "good" or "bland". The tuber center of all entries was rated as "mushy".

- Cooking time for boiled samples was assessed again 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 5.5 min to fully cook compared with 4.6 min for bud end cores. Cooking times (stem end) ranged from 4.6 min (POR07PG3-1) to 6.4 min (Chieftain).

All entries cooked relatively quickly this year with averages of stem and bud ends ranging from 4.4 minutes (A02267-1Y, 2nd yr.) to 5.8 (Chieftain).

- Microwaving produced "slight" or "moderate" after cooking darkening in all entries. The texture of all microwaved samples was favorably rated as "creamy" or "fluffy" except NDA050237B-1R which was "pasty". The flavor ratings for all entries ranged from "bland" to "good" except for NDA050237B-1R which was unacceptable and received a "somewhat raw" tuber center rating for the 2nd year. All other entries received "mushy" tuber center ratings.

Seth Shelton, Rhett Spear, and Josh Rodriguez do their best to keep up with the harvester. The only way not to miss creamer-size tubers is to do it the old fashioned way... by hand.

2014 Regional Red and Specialty Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's* > 0 oz	US # 2's* > 0 oz	Culls* > 0 oz	EXTERNAL DEFECTS (%)				SPECIFIC GRAVITY
	CWT/A	STATS**	Tons/A	% of Total Yield			Knobs	Malformed	Growth Cracks	Green	
Red Skin/White Flesh											
Chieftain	721	*A*	36.0	95	0	5	0	0	3	1	1.072
NDA050237B-1R	499	*BC*	24.9	96	1	3	0	0	2	1	1.062
Red-Purple/White Flesh											
A05180-3PY	701	*AB*	35.0	96	0	4	0	0	2	0	1.066
COA07365-4RY	566	*CD*	28.3	97	0	2	0	2	0	0	1.068
Yellow Flesh											
Yukon Gold	574	*CD*	28.7	94	1	5	0	1	3	0	1.085
A02267-1Y	664	*AB*	33.2	94	2	3	0	0	0	2	1.063
A05182-7RY	642	*ABC*	32.1	95	0	4	0	0	0	0	1.073
POR07PG20-2	418	*E*	20.9	96	1	2	0	0	0	1	1.062
POR07PG3-1	581	*CD*	29.0	98	1	0	0	0	0	0	1.073
NDA081451CB-1CY	635	*BC*	31.8	99	0	1	0	0	0	0	1.082

ENTRY	US # 1 YIELD			0-2 oz*	2-4 oz*	4-6 oz*	6-10 oz*	> 10 oz*	INTERNAL DEFECTS (%) (6-10 oz tubers)		
	CWT/A	STATS**	Tons/A	%					% HH	% BC	% IBS
Red Skin/White Flesh											
Chieftain	685	*A*	34.3	4	19	27	41	9	0	0	0
NDA050237B-1R	479	*CD*	24.0	6	20	25	39	10	0	0	0
Red-Purple/White Flesh											
A05180-3PY	673	*A*	33.7	5	25	33	29	8	0	0	0
COA07365-4RY	550	*BC*	27.5	6	32	32	24	5	0	0	0
Yellow Flesh											
Yukon Gold	540	*BC*	27.0	2	10	18	38	33	0	0	0
A02267-1Y	627	*AB*	31.4	3	23	26	40	8	0	0	0
A05182-7RY	612	*AB*	30.6	11	45	32	12	0	0	0	0
POR07PG20-2	403	*D*	20.2	18	48	24	9	2	0	0	0
POR07PG3-1	571	*B*	28.6	11	35	26	22	6	0	0	0
NDA081451CB-1CY	627	*AB*	31.4	9	42	32	16	1	0	0	0

ENTRY	SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	50 DAY STAND % Emerged	STEMS PER PLANT Above Ground	AVERAGE TUBER WEIGHT Ounces	AVERAGE TUBER NUMBER Tubers/Plant	SIZE UNIFORMITY 1 = Poor 5 = Good	SHAPE UNIFORMITY 1 = Poor 5 = Good	BRUISE (%) (6-10 oz tubers) BLACKSPOT	BRUISE (%) (6-10 oz tubers) SHATTER	Length to Width Ratio 1 = Round 2 = Oblong
Red Skin/White Flesh											
Chieftain	4	2	86	2.3	5.3	9.5	3	3	30	23	1.2
NDA050237B-1R	3	1	65	2.3	4.9	7.0	3	3	3	20	1.1
Red-Purple/White Flesh											
A05180-3PY	3	1	90	2.5	4.8	10.1	3	3	17	17	1.0
COA07365-4RY	4	1	86	2.2	4.3	9.2	3	4	20	23	1.1
Yellow Flesh											
Yukon Gold	5	2	85	1.7	7.2	5.5	2	3	23	30	1.2
A02267-1Y	4	2	85	2.0	5.1	9.1	3	2	23	23	1.2
A05182-7RY	4	1	94	1.8	3.4	13.0	4	4	0	23	1.1
POR07PG20-2	5	1	79	2.8	3.1	9.4	4	4	27	33	1.0
POR07PG3-1	4	1	97	2.5	3.8	10.7	3	2	20	28	1.0
NDA081451CB-1CY	5	1	94	2.3	3.6	12.2	4	4	23	33	1.0

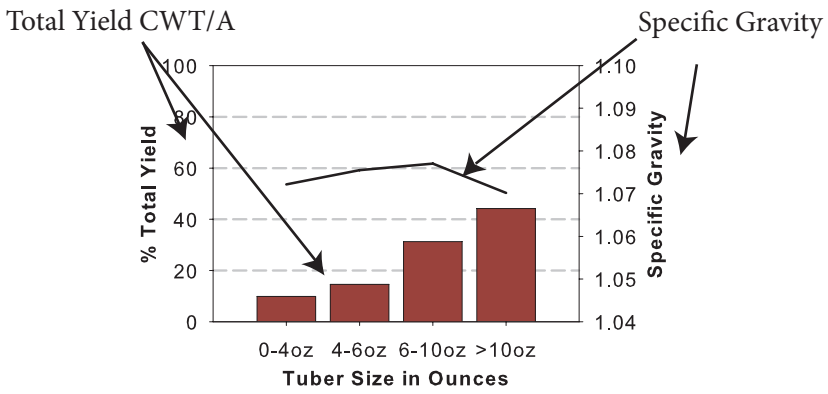
* Percent values may not total 100% due to rounding
**Numbers w/in each color/entry category followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

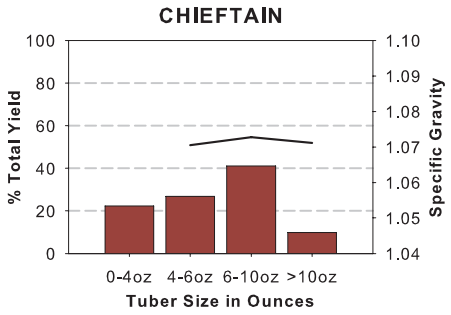
2014 Regional Red and Specialty Trial

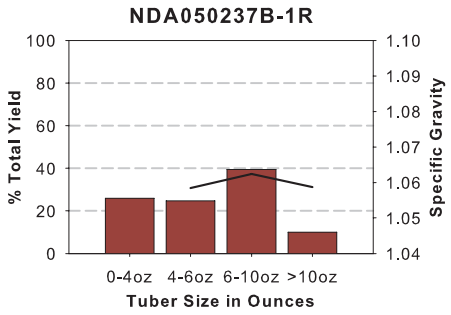
Tuber Yield and Specific Gravity Distributions

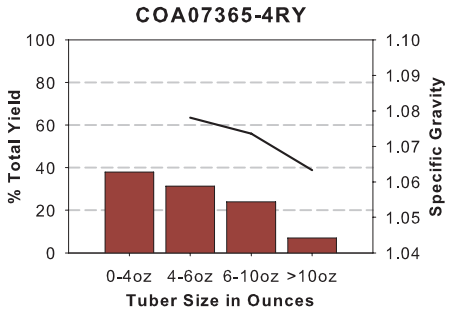
Note: Specific Gravity is based on a sample of U.S. #1 tubers within each size category

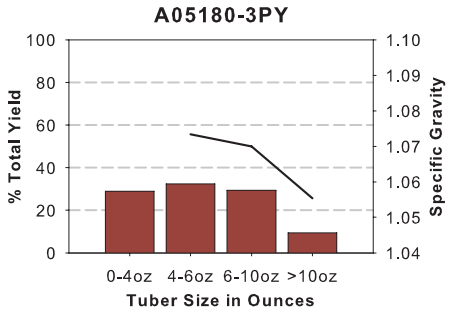
8 inch In-Row Spacing

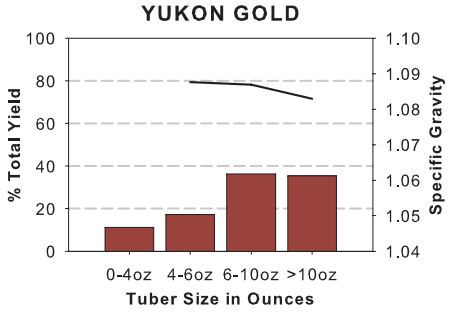


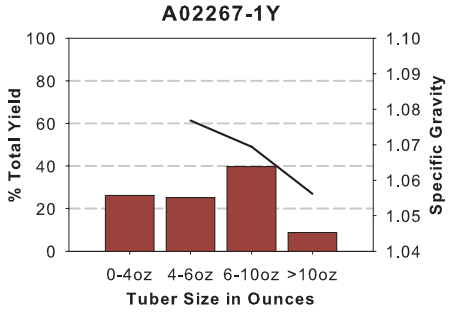


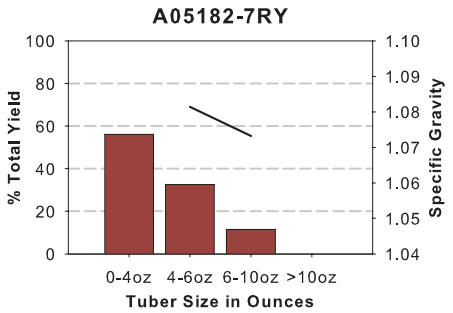


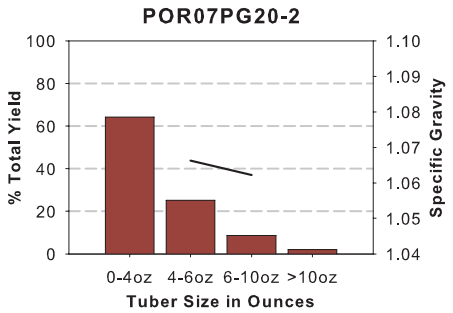


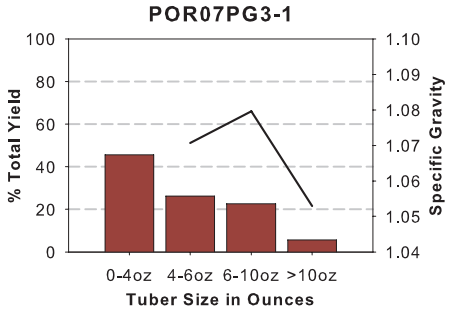


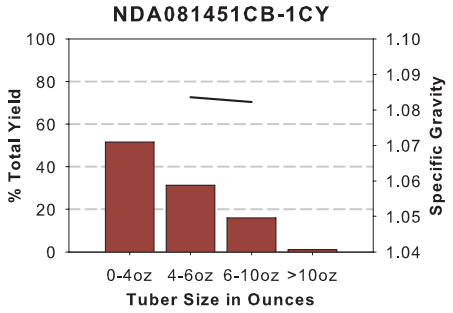




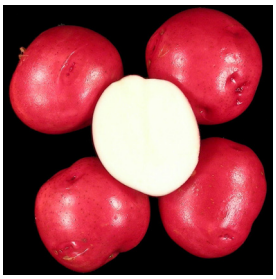


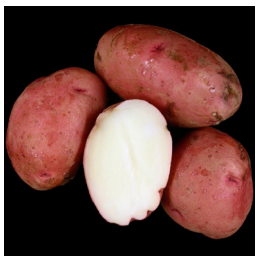
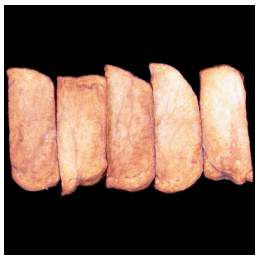
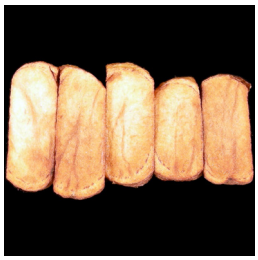
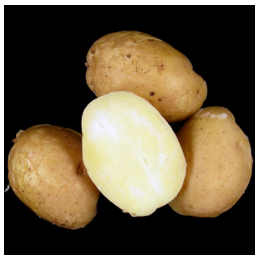


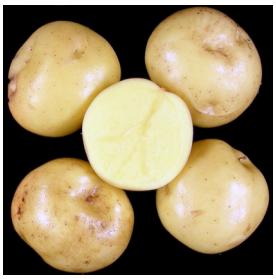
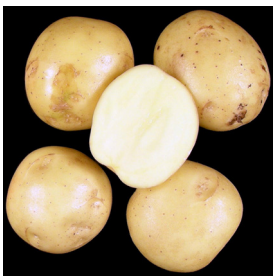


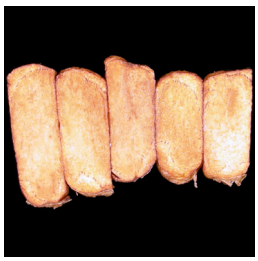
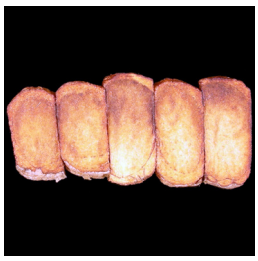
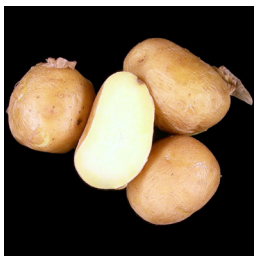
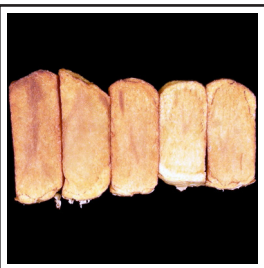
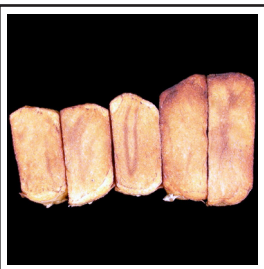


Rudy Garza (left), Josh Rodriguez (right), and Rhett Spear (back), cut seed by hand.

Tubers	WA Tri-State Specialty Trial Comments
Chieftain	
	**Tubers:** Round to oblong tubers. Good skin set; moderate eye depth. **Fry color:** light, uniform. **Baked:** slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, crispy skin. Boiled: moderate sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** slight after cooking darkening, fluffy texture, good flavor, mushy tuber center, fully cooked skin.
NDA050237B-1R	
	**Tubers:** Round tubers. Fair skin set; moderate eye depth. **Fry color:** light, uniform. **Baked:** slight after cooking darkening, pasty texture, bland flavor, mushy tuber center, steamy skin. **Boiled:** slight sloughing, slight after cooking darkening, creamy texture, good flavor, mushy tuber center. **Microwaved:** slight after cooking darkening, pasty texture, unacceptable flavor, mushy tuber center, steamy skin.
A05180-3PY	
	**Tubers:** Round tubers. Fair skin set; deep eyes. **Fry color:** light, uniform. **Baked:** slight after cooking darkening, pasty texture, bland flavor, mushy tuber center, crispy skin. **Boiled:** slight sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
COA07365-4RY	
	**Tubers:** Round tubers. Good skin set; shallow eyes. **Fry color:** light, uniform. **Baked:** slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin. **Boiled:** moderate sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, fully cooked skin.
Yukon Gold	
	**Tubers:** Round to oblong tubers. Very good skin set; moderate eye depth. **Fry color:** light, uniform. **Baked:** slight after cooking darkening, fluffy texture, bland flavor, mushy tuber center, steamy skin. **Boiled:** moderate sloughing, slight after cooking darkening, creamy 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
Chieftain				
				
NDA050237B-1R				
				
A05180-3PY				
				
COA07365-4RY				
				
Yukon Gold				
				

Tubers	WA Tri-State Specialty Trial Comments
A02267-1Y	
	**Tubers:** Round to oblong 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:** moderate sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** slight after cooking darkening, creamy texture, good flavor, mushy tuber center, fully cooked skin.
A05182-7RY	
	**Tubers:** Round tubers. Good skin set; shallow eyes. **Fry color:** light, uniform. **Baked:** slight after cooking darkening, fluffy texture, bland flavor, mushy tuber center, steamy skin. **Boiled:** slight sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
POR07PG20-2	
	**Tubers:** Round tubers. Good skin set; shallow eyes. **Fry color:** light, uniform. **Baked:** moderate after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin. **Boiled:** slight sloughing, moderate after cooking darkening, creamy texture, good flavor, mushy tuber center. **Microwaved:** moderate after cooking darkening, creamy texture, bland flavor, mushy tuber center, fully cooked skin.
POR07PG3-1	
	**Tubers:** Round tubers. Good skin set; moderate eye depth. **Fry color:** light, uniform. **Baked:** moderate after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin. **Boiled:** slight sloughing, slight after cooking darkening, creamy texture, bland flavor, mushy tuber center. **Microwaved:** slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin.
NDA081451CB-1CY	
	**Tubers:** Round tubers. Good skin set; shallow eyes. **Fry color:** light, uniform. **Baked:** slight after cooking darkening, creamy texture, bland flavor, mushy tuber center, steamy skin. **Boiled:** severe sloughing, slight after cooking darkening, creamy texture, unacceptable flavor, mushy tuber center. **Microwaved:** slight after cooking darkening, creamy texture, good flavor, mushy tuber center, steamy skin.

Chips	Fries	Baked	Boiled	Microwaved
A02267-1Y				
				
A05182-7RY				
				
POR07PG20-2				
				
POR07PG3-1				
				
NDA081451CB-1CY				
				

Frying Evaluation

	(French Fried)			(3/8 x 1 1/8" slices)						(Chips)	(BOILED Cooking Time)		
	Raw				After Frying					Av of 7 raters	Time to Breakdown (min)		
Clone	Stem	Bud	Average	Difference	Stem	Bud	Average	Difference	USDA	SFA	Stem	Bud	Average
1 Chieftain	55.3	54.4	54.9	1.6	21.9	25.1	23.5	3.7	2	4.9	6.4	5.3	5.8
2 NDA050237B-1R	58.1	59.5	58.8	2.6	17.1	20.2	18.6	4.0	3	5.0	6.0	5.0	5.5
3 A05180-3PY	56.0	54.6	55.3	4.0	19.1	18.3	18.7	2.9	3	5.0	5.3	4.7	5.0
4 COA07365-4RY	54.7	53.2	53.9	2.3	21.2	21.6	21.4	3.2	2	5.0	6.2	5.0	5.6
5 Yukon Gold	53.8	54.0	53.9	3.5	15.9	26.7	21.3	11.9	3	5.0	5.4	4.6	5.0
6 A02267-1Y	57.1	54.7	55.9	3.3	25.8	42.5	34.1	17.2	1	3.1	4.8	4.0	4.4
7 A05182-7RY	59.6	59.5	59.5	3.2	19.0	24.6	21.8	5.6	3	4.7	4.7	4.5	4.6
8 POR07PG20-2	48.3	47.0	47.6	2.5	11.2	20.6	15.9	9.5	4	5.0	5.7	4.5	5.1
9 POR07PG3-1	53.4	51.5	52.5	2.3	23.7	29.1	26.4	6.4	2	4.1	4.6	4.4	4.5
10 NDA081451CB-1CY	56.1	55.5	55.8	1.7	20.6	24.5	22.6	6.4	2	5.0	5.7	4.3	5.0
*LSD 0.05 **			*1.9*	*1.5*			*2.7*	*3.6*			*1.6*	*1.0*	
Average	55.2	54.4	54.8	2.7	19.6	25.3	22.4	7.1	3	4.7	5.5	4.6	5.0

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

Culinary Evaluation

	Clone	Boiled (25 max)	Baked (25 max)	Microwaved (25 max)	Total (75 max)
1	Chieftain	17.3	17.7	20.0	55.0
6	A02267-1Y	16.8	18.5	19.3	54.6
5	Yukon Gold	17.5	18.2	17.8	53.5
4	COA07365-4RY	17.1	17.6	18.2	52.9
7	A05182-7RY	16.9	17.9	17.9	52.7
8	POR07PG20-2	18.5	16.9	17.1	52.5
10	NDA081451CB-1CY	14.3	18.8	18.2	51.4
3	A05180-3PY	17.4	16.6	17.1	51.0
9	POR07PG3-1	16.4	16.4	17.9	50.7
2	NDA050237B-1R	18.9	16.7	14.6	50.2

French Fried:	Aug. 19
Chipped:	Aug. 19
Boiled:	Aug. 18
Microwaved:	Aug. 20
Baked:	Aug. 22
Cooking Time:	Aug. 20

2014 Washington Regional Red and Specialty Trial

Red Clone Culinary Evaluation

Boiled

	Clone	Flavor	After Cooking Darkening	Texture	Tuber Center	Sloughing	Total Rating
1	Chieftain	3.0	4.2	3.2	3.8	3.0	17.3
2	NDA050237B-1R	3.7	4.2	3.1	3.9	4.0	18.9
3	A05180-3PY	3.2	3.7	3.0	3.9	3.6	17.4
4	COA07365-4RY	2.8	3.9	3.2	4.0	3.2	17.1
	LSD 0.05	*0.8*	*0.5*	*ns*	*ns*	*0.5*	*1.8*
	Average	3.2	4.0	3.1	3.9	3.4	17.7

Oven Baked

	Clone	Flavor	After Cooking Darkening	Texture	Tuber Center	Skin Rating	Total Rating
1	Chieftain	3.4	4.3	3.3	3.7	3.0	17.7
2	NDA050237B-1R	2.9	4.1	2.2	3.7	3.7	16.7
3	A05180-3PY	3.2	3.8	2.2	4.0	3.3	16.6
4	COA07365-4RY	3.2	3.8	2.8	3.6	4.2	17.6
	LSD 0.05	*ns*	*0.5*	*0.7*	*ns*	*0.9*	*ns*
	Average	3.2	4.0	2.6	3.7	3.6	17.1

Microwaved

	Clone	Flavor	After Cooking Darkening	Texture	Tuber Center	Skin Rating	Total Rating
1	Chieftain	3.5	4.4	3.6	3.9	4.5	20.0
2	NDA050237B-1R	2.4	3.6	2.3	2.3	4.1	14.6
3	A05180-3PY	2.8	3.9	3.1	3.1	4.2	17.1
4	COA07365-4RY	3.4	4.1	2.9	3.1	4.7	18.2
	LSD 0.05	*0.9*	*0.8*	*0.8*	*1.0*	*0.6*	*1.6*
	Average	3.0	4.0	3.0	3.1	4.4	17.5

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

2014 Washington Regional Red and Specialty Trial

Specialty Clone Culinary Evaluation

Boiled

Clone	Flavor	After Cooking Darkening	Texture	Tuber Center	Sloughing	Total Rating
5 Yukon Gold	3.0	4.3	3.4	3.8	3.0	17.5
6 A02267-1Y	3.3	3.5	2.7	4.0	3.3	16.8
7 A05182-7RY	2.7	4.1	2.9	3.5	3.7	16.9
8 POR07PG20-2	4.3	3.1	2.8	3.9	4.4	18.5
9 POR07PG3-1	2.6	3.8	2.5	3.8	3.7	16.4
10 NDA081451CB-1CY	1.9	3.8	3.1	3.2	2.4	14.3
LSD 0.05	*0.7*	*0.4*	*0.7*	*0.6*	*0.5*	*3.5*
Average	3.0	3.7	2.9	3.7	3.4	16.7

Oven Baked

Clone	Flavor	After Cooking Darkening	Texture	Tuber Center	Skin Rating	Total Rating
5 Yukon Gold	3.3	3.9	3.5	3.6	3.8	18.2
6 A02267-1Y	4.1	3.7	2.8	3.9	3.9	18.5
7 A05182-7RY	3.1	4.1	3.5	3.7	3.5	17.9
8 POR07PG20-2	3.6	2.7	2.7	3.8	4.2	16.9
9 POR07PG3-1	3.1	3.3	2.6	3.7	3.8	16.4
10 NDA081451CB-1CY	3.4	3.9	3.3	3.7	4.4	18.8
	0.8	*0.5*	*0.7*	*ns*	*0.9*	*ns*
Average	3.4	3.6	3.1	3.8	3.9	17.8

Microwaved

Clone	Flavor	After Cooking Darkening	Texture	Tuber Center	Skin Rating	Total Rating
5 Yukon Gold	3.1	4.1	2.9	3.3	4.4	17.8
6 A02267-1Y	3.7	4.2	3.2	3.6	4.5	19.3
7 A05182-7RY	2.9	4.2	2.8	3.7	4.4	17.9
8 POR07PG20-2	3.4	2.6	2.7	3.8	4.6	17.1
9 POR07PG3-1	2.9	3.6	3.4	3.7	4.3	17.9
10 NDA081451CB-1CY	3.7	4.1	3.4	2.6	4.4	18.2
	ns	*0.7*	*ns*	*0.8*	*ns*	*ns*
Average	3.3	3.8	3.0	3.5	4.4	18.0

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

Above: The ability to change in-row spacing on the fly, as shown here by Zach Holden, enables the WSU Potato Group to provide growers with cultural management recommendations specific to WA.

Above: Sometimes you just have to plant by hand for accuracy (Left to Right, Rhett Spear, Chandler Dolezal, and Rudy Garza).

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