

2013 Potato Cultivar Yield and Postharvest Quality Evaluations

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WSU Potato Research Group

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2013 Potato Cultivar Yield and Postharvest Quality Evaluations

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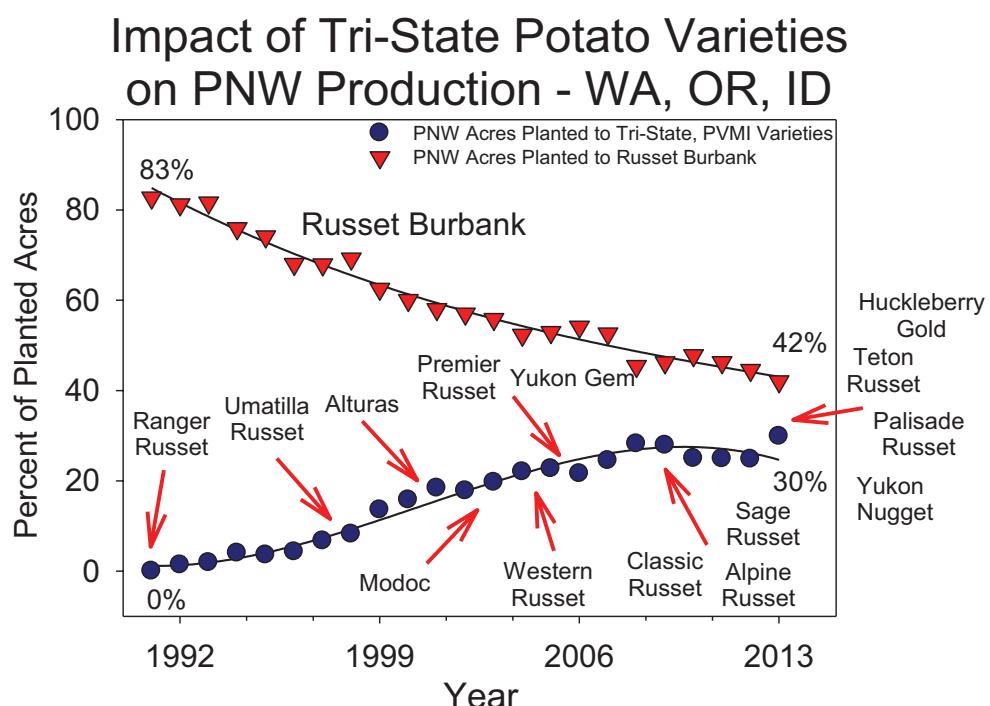
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INTRODUCTION

The 2013 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 (PVTI) is a nonprofit organization that licenses and promotes Tri-State varieties. PVTI 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.pvti.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, Alpine Russet, Bannock Russet, Clearwater Russet, Blazer Russet are examples of russet cultivars released from the Tri-State program that have greatly benefited the United States and Northwest potato industry, being the 3rd, 4th, 7th, 17th, 19th, 20th, and 25th most widely grown cultivars in the United States in 2013, respectively, with Tri-State varieties representing over 22%, or 233,000 acres, of the fall crop nationally. (NASS, Crop Production, November, 2013). Ranger Russet, Umatilla Russet, and Alturas were the 3rd, 4th, and 5th most widely grown cultivars in the PNW (ID, OR, WA) in 2013, respectively, and accounted for 24% of the PNW planted acreage. Varieties recently released by the Tri-State program are now produced on 154,400 acres in the Pacific Northwest with value to growers estimated at approximately \$558 million. Compared with 2012, the 2013 US farm-gate value of Tri-State varieties increased by approximately \$63 million.



FRESH MARKET MERIT - NEWEST LINES 2012-2013

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

EARLY HARVEST - Fresh Market Merit Scores			
Entry	Mean	2013	2012
1 A06021-1T	3.9	3.9	-
2 A06029-4T	3.5	3.5	-
3 A05084-11	3.3	3.3	-
4 A07001-7TE	2.8	2.8	-
5 A03141-6	2.8	2.8	-
6 A06003-3TE	2.4	1.3	3.5
7 A05052-3TE	2.0	1.3	2.7
8 A06084-1TE	1.9	2.3	1.4
9 Shepody	1.8	1.8	-
10 Russet Norkotah	1.5	1.7	1.4
11 AOR06070-1KF	1.4	1.4	-
12 Ranger Russet	1.3	1.3	1.4
13 A03921-2	1.3	1.3	1.4
14 AO03123-2	1.3	1.5	1.0
15 A0012-5	1.3	1.7	0.8
16 A0073-2	1.2	1.3	1.0
17 Russet Burbank	0.9	0.9	0.9

LATE HARVEST - Fresh Market Merit Scores			
Entry	Mean	2013	2012
1 A06021-1T	3.5	3.5	-
2 A06914-3CR	3.3	3.3	-
3 AO03123-2	2.8	3.5	2.1
4 A03921-2	2.4	1.6	3.1
5 A03141-6	2.1	2.1	-
6 A06084-1TE	2.1	3.4	0.8
7 Ranger Russet	1.8	1.1	1.4
8 Russet Norkotah	1.7	2.0	1.2
9 A0073-2	1.5	1.5	1.4
10 AOR06070-1KF	1.4	1.4	-
11 Russet Burbank	1.4	1.1	0.5
12 A06029-4T	1.3	1.3	-
13 A07001-7TE	1.2	1.2	-
14 A0012-5	1.2	0.5	1.9
15 A05084-11	1.2	1.2	-
16 A05052-3TE	1.0	1.1	0.8
17 A06003-3TE	0.8	0.8	0.8

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

FRESH MARKET MERIT - ADVANCED LINES 2010-2013

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

EARLY HARVEST - Fresh Market Merit Scores					
Entry	Mean	2013	2012	2011	2010
1 CO03276-5RU	3.5	3.3	3.8	-	-
2 A02062-1TE	3.4	5.0	2.6	4.0	1.9
3 A03158-2TE	3.2	2.9	2.5	4.4	-
4 AO02060-3	2.5	2.8	1.1	3.1	3.1
5 Shepody	2.3	2.3	-	-	-
6 AO01114-4	2.3	1.6	3.1	3.0	1.4
7 AC00395-2RU	2.2	2.3	2.1	-	-
8 Ranger Russet	2.0	1.7	1.6	2.2	2.3
9 OR05039-4	1.9	1.8	0.9	3.0	-
10 POR06V12-3	1.9	2.8	1.0	-	-
11 Russet Norkotah	1.7	2.0	1.3	2.0	1.5
12 Russet Burbank	1.6	1.2	0.5	2.8	1.9
13 A02424-83LB	1.4	1.8	1.1	-	-
14 A02138-2	1.3	0.4	1.4	2.1	-
15 A02507-2LB	1.0	0.6	0.6	2.0	-

LATE HARVEST - Fresh Market Merit Scores					
Entry	Mean	2013	2012	2011	2010
1 A03158-2TE	3.4	3.0	2.8	4.5	-
2 POR06V12-3	3.2	4.1	2.3	-	-
3 AC00395-2RU	2.7	1.9	3.5	-	-
4 A02507-2LB	2.7	1.8	2.9	3.3	-
5 OR05039-4	2.4	2.2	1.5	3.5	-
6 Ranger Russet	2.3	0.9	1.8	2.9	3.9
7 AO01114-4	2.1	1.0	1.4	2.3	3.5
8 AO02060-3	1.9	0.9	1.1	2.8	2.8
9 Russet Burbank	1.8	0.6	0.9	2.7	3.3
10 Russet Norkotah	1.7	1.0	1.2	2.0	2.5
11 A02424-83LB	1.3	0.6	2.0	-	-
12 A02138-2	1.1	0.4	0.6	2.3	-
13 AOTX98152-3RU	1.0	1.0	-	-	-

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

PROCESS MARKET MERIT - NEWEST LINES

2012-2013

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

EARLY HARVEST - Process Market Merit Scores			
Entry	Field Performance Mean	Field Performance Only*	
		2013	2012
1	A03921-2	3.5	3.7
2	A06029-4T	3.5	3.5
3	A05084-11	3.4	3.4
4	A06003-3TE	3.3	2.7
5	A06021-1T	3.2	3.2
6	Russet Norkotah	3.2	3.3
7	A07001-7TE	3.1	3.1
8	Shepody	2.8	2.8
9	AOR06070-1KF	2.7	2.7
10	A05052-3TE	2.5	3.0
11	Ranger Russet	2.5	2.7
12	A03141-6	2.4	2.4
13	Russet Burbank	2.2	1.6
14	AO03123-2	2.0	2.2
15	A06084-1TE	1.9	2.2
16	A0073-2	1.8	1.5
17	A0012-5	1.4	1.6
			1.2

* 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.

LATE HARVEST - Process Market Merit Scores						
Field & Postharvest Processing Performance						
Entry	All Years		2013		2012	
	Field Mean	Post Harvest Mean	Field	Post Harv	Field	Post Harv
1	A03141-6	4.6	4.5	4.6	4.5	-
2	AO03123-2	4.2	4.5	4.7	4.6	3.8
3	Ranger Russet	3.8	3.2	3.7	3.2	4.0
4	A03921-2	3.8	4.2	3.3	4.2	4.1
5	A0073-2**	3.7	4.0	3.5	3.5	3.9
6	A06021-1T	3.2	2.6	3.2	2.6	-
7	A05052-3TE	3.1	3.7	3.4	3.9	2.9
8	A0012-5**	3.1	4.4	1.4	4.0	4.8
9	AOR06070-1KF	2.8	4.0	2.8	4.0	-
10	A06084-1TE	2.5	3.9	3.3	3.9	1.8
11	A06914-3CR	dropped		-	-	-
12	A06029-4T	2.0	3.1	2.0	3.1	-
13	Russet Burbank	1.8	1.7	2.5	1.6	1.0
14	A05084-11	1.6	2.4	1.6	2.4	-
15	A06003-3TE	1.4	2.1	1.4	1.5	1.4
16	A07001-7TE	1.4	2.7	1.4	2.7	-

**A0012-5 and 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, these varieties and their fries would be unacceptable.

***For more information on all of these cultivars, see the Early and Late Harvest Tri-State Trial sections in this book.

PROCESS MARKET MERIT - ADVANCED LINES

2010-2013

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

		Field Performance Only*				
Entry	Field Performance Mean	Field Performance Only*				2010
		2013	2012	2011	2010	
1 A03158-2TE	3.3	2.5	3.3	4.2	-	
2 Ranger Russet	3.3	2.7	3.0	4.0	3.5	
3 A02424-83LB	3.3	3.8	2.7	-	-	
4 AC00395-2RU	3.1	3.1	3.1	-	-	
5 AO01114-4	3.0	1.5	2.6	3.8	4.2	
6 AO02060-3	3.0	2.9	1.8	3.1	4.4	
7 CO03276-5RU	2.9	2.8	3.0	-	-	
8 A02138-2	2.8	2.0	3.1	3.3	-	
9 A02062-1TE	2.7	4.0	2.7	2.2	2.0	
10 OR05039-4	2.7	2.2	2.1	3.8	-	
11 POR06V12-3	2.6	2.6	2.7	-	-	
12 Shepody	2.6	2.6	-	-	-	
13 Russet Burbank	2.5	1.4	1.0	4.0	3.6	
14 Russet Norkotah	2.5	2.0	2.1	3.2	2.6	
15 A02507-2LB	1.9	0.9	1.6	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.

LATE HARVEST - Process Market Merit Scores												
Field & Postharvest Processing Performance												
Entry	All Years		Post		2013		2012		2011		2010	
	Field Mean	Post Harvest Mean	Post Field	Post Harv								
	1 POR06V12-3	4.5	4.0	4.9	4.4	4.1	3.5	-	-	-	-	-
2 Ranger Russet	4.4	3.6	4.4	3.8	4.6	3.1	4.5	4.1	4.3	3.5		
3 AC00395-2RU	4.4	fresh	4.0	fresh	4.8	2.1	-	-	-	-	-	
4 A02507-2LB	4.0	4.5	3.7	4.4	4.2	4.7	4.1	4.4	-	-	-	
5 A02424-83LB	3.5	3.2	2.9	2.4	4.2	3.9	-	-	-	-	-	
6 A03158-2TE	3.3	3.3	3.4	2.3	3.4	3.1	3.3	4.6	-	-	-	
7 OR05039-4	3.3	3.7	3.9	2.7	2.8	3.6	3.2	4.8	-	-	-	
8 AO02060-3	3.2	3.9	2.7	2.9	2.7	3.9	3.9	4.8	3.7	4.1		
9 AO01114-4	3.0	3.8	1.9	3.0	3.0	4.2	4.1	4.3	2.9	3.5		
10 Russet Burbank	2.6	2.5	1.7	1.9	1.6	1.9	3.5	3.9	3.6	2.4		
11 A02138-2	1.8	4.5	1.5	3.9	1.8	4.7	2.2	4.8	-	-		
12 AOTX98152-3RU	0.9	fresh	0.9	fresh	-	-	-	-	-	-		

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

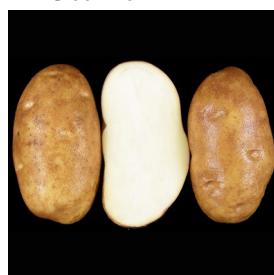
Newest Lines - 2013 Tri-State Trials			
Clone	Fresh Market Appearance		Tuber Appearance Comments
	2013	2012	
Early Harvest Tri-State			
Ranger Russet	2.3	2.3	Pointy ends, irregular shape.
Russet Burbank	2.3	1.7	Some rot, a bit rough.
Russet Norkotah	2.7	2.3	Lots of US 2's, shape a bit irregular.
Shepody	2.0	-	White skin, irregular shape.
A0012-5	3.0	2.7	Short, plump, some skinny.
A0073-2	3.0	2.0	Not an early variety, small.
A03141-6	4.0	-	Typy*, good skin set, some pointy, smaller.
A03921-2	2.0	2.3	Good length, some pointy, spotty russet, low yield.
A05052-3TE	2.3	4.0	Smaller, ugly skin.
A05084-11	3.0	-	Plump, short, spotty russetting.
A06003-3TE	2.3	3.7	Irregular shapes, rough, some cracks.
A06021-1T	4.0	-	Typy*, great skin set. Uniform shape and size.
A06029-4T	3.0	-	Round, plump, a lot of skinning.
A06084-1TE	3.7	3.0	Smaller, typy*.
A07001-7TE	3.0	-	Long and skinny, spotty russetting.
AO03123-2	3.0	3.3	Not an early variety. Small.
AOR06070-1KF	2.3	-	Bad skin, spotty russet, irregular shape. DISCARD!
Late Harvest Tri-State			
Ranger Russet	1.0	2.8	Long, skinny, irregular shapes.
Russet Burbank	1.5	2.5	Irregular shapes, irregular russetting.
A0012-5	2.0	2.3	Plump, short, irregular shapes, poor skin set.
A0073-2	2.0	2.5	Shape a bit irregular, spotty russetting, pre-scab.
A03141-6	2.5	-	Long, deep eyes, irregular shapes, some points.
A03921-2	2.5	3.0	Ugly skin, good shape, pre-scab.
A05052-3TE	2.3	2.3	Irregular shapes, bad skin, pre-scab.
A05084-11	3.0	-	Too round, plump, DISCARD!!
A06003-3TE	2.0	2.5	Short, round, plump, cracks.
A06021-1T	3.5	-	Flat, long, some irregular shape, typy.
A06029-4T	2.0	-	Round and ugly, DISCARD!
A06084-1TE	3.5	2.5	Long, flat, and mostly typy.
A06914-3CR	4.0	-	Typy*, many small.
A07001-7TE	3.0	-	Irregular shape, smaller.
AO03123-2	3.0	3.0	Long, skinny, light skin.
AOR06070-1KF	1.0	-	Irregular shape, bad shape, DISCARD!
Russet Norkotah	4.0	3.3	Typy*, uniform shape, nice skin.

*Typy - Visually appealing, uniform tuber shape

A06021-1T



AO03123-2



A07001-7TE



At-Harvest Grading Comments & Fresh Market Appearance

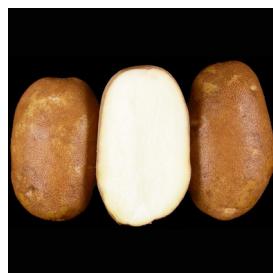
Advanced Lines - 2013 Regional Trials				
Clone	Fresh Market			Tuber Appearance Comments*
	Appearance	1-5 (5 = Best)		
Clone	2013	2012	2011	Tuber Appearance Comments*
<u>Early Harvest Regional</u>				
Ranger Russet	2.7	2.0	3.0	Irregular shapes, good length.
Russet Burbank	2.7	1.0	3.0	Some typy*, many cracks and knobs.
Russet Norkotah	3.5	2.7	3.7	Typy*, non uniform russetting, good length.
Shepody	2.0	-	-	Large, irregular shape, low tuber number.
A02062-1TE	4.0	3.0	3.3	Typy*, flat, a few points, ok skin set.
A02138-2	2.0	2.0	3.0	Round, nice chipper, softballs, DISCARD!
A02424-83LB	2.7	2.3	-	Smaller, white smooth skin. Some rhizoc and scab.
A02507-2LB	2.0	2.0	3.3	Short, small, some points, not early.
A03158-2TE	3.0	2.7	4.0	Mostly typy*, large size range.
AC00395-2RU	3.0	3.0	-	Typy*, a bit short.
AO01114-4	3.7	3.0	4.3	Small, typy*, not early.
AO02060-3	3.0	2.3	3.7	Some short, skinny, not early. Spotty russetting.
CO03276-5RU	4.0	4.0	-	Typy*, a bit flat, good skin set.
OR05039-4	2.0	2.7	2.3	Skinny, long, low tuber number.
POR06V12-3	4.0	3.0	-	Looks like Norkotah, typy*.
<u>Late Harvest Regional</u>				
Ranger Russet	1.0	2.8	3.8	Long, skinny, irregular shapes.
Russet Burbank	1.0	1.8	3.0	Ugly, non uniform shape.
A02138-2	1.0	2.8	2.3	Round, DISCARD!
A02424-83LB	1.8	1.8	-	Ugly skin, non uniform shape.
A02507-2LB	2.8	3.3	3.1	Round, small ones.
A03158-2TE	3.0	3.0	3.5	Some irregular shapes, a bit bumpy.
AO01114-4	3.8	3.5	3.3	Uniform shape, typy, and a bit short.
AO02060-3	2.8	2.5	2.6	Short, shape nonuniform.
OR05039-4	2.8	2.0	3.4	Long, ugly skin, but could be good processor.
POR06V12-3	4.0	3.3	-	Best of show, fresh appearance standout.
Russet Norkotah	3.5	3.3	3.8	Nice skin, typy*.
AOTX98152-3RU	3.0	-	-	Smaller and round.
AC00395-2RU	2.7	3.0	-	Bit short, bit flat, mostly typy*.

*Typy - Visually appealing, uniform tuber shape

A03158-2TE



POR06V12-3



AO02060-3



2013 Tri-State Specialty Potato Clones - Washington State University

2013 Tri-State Specialty Trial						
US #1 Yield			Fresh Market		(See also Tri-State Specialty Section near end of book)	
US#1	2013 Yield	0-6 oz 6-10oz	Appearance			
CWT/A	-----%-----	5 = best	Comments			
Red Skin/White Flesh*						
Chieftain	622	58	35	4.0	Good shape, uniform size. Some skinning.	
NDA050237B-1R	401	69	22	4.0	Bad skinning, nice color.	
Red or Purple Skin/Yellow Flesh						
A05180-3PY	485	59	33	4.0	Uniform size, nice purple color.	
Yellow Flesh						
Yukon Gold	376	48	40	4.0	Larger, excellent skin set, some sticky stolons**.	
A02267-1Y	534	54	38	3.3	Great skin and set, purple eyes, irregular shapes.	
A05182-7RY	405	81	18	3.5	Smaller, good skin set, champagne with pink eyes.	
POR02PG12-1	250	86	14	4.0	Nice shape and size, some skinning.	
POR07PG20-2	276	97	3	3.0	Champagne with pink eyes.	
POR07PG3-1	294	83	15	3.7	Irregular shape and size, ok skin.	

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

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

Chieftain



NDA050237B-1R



A05180-3PY



Yukon Gold



A02267-1Y



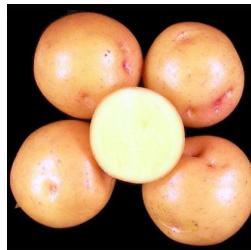
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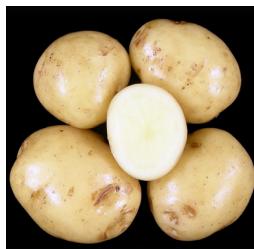
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POR07PG3-1



2013 Early Harvest Tri-State Trial

Summaries

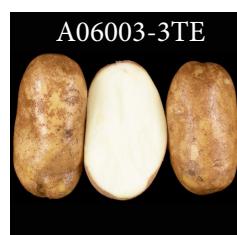
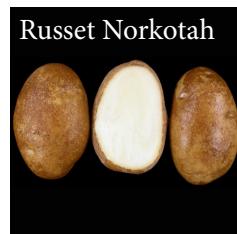
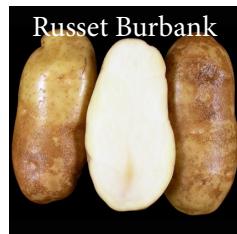
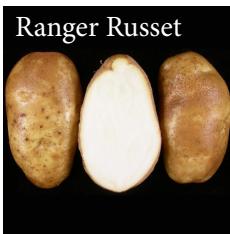
ENTRY	TOTAL YIELD			US # 1's*	US # 2's*	Culls*	CARTON YIELD		PROCESS YIELD		
	CWT/A	STATS**	Tons/A	> 4 oz	> 4 oz	& < 4 oz	% of Total Yield	100-50 count (US 1's 7-18 oz)	Tons/A	% of Total Yield	US 1's and 2's > 6 oz
Ranger Russet	462	ABCD	23.1	73	4	23	30	6.5	48	10.4	
Russet Burbank	314	GH	15.7	57	5	37	26	3.8	41	6.1	
Russet Norkotah	425	ABCDEF	21.3	63	6	31	20	3.9	39	7.9	
Shepody	301	FGH	15.1	79	5	15	57	8.0	73	10.7	
A0012-5	270	GH	13.5	79	0	21	42	5.3	50	6.4	
A0073-2	178	H	8.9	18	3	79	4	0.4	9	0.9	
A03141-6	483	ABC	24.1	70	1	30	24	5.4	38	8.6	
A03921-2	326	EFG	16.3	75	1	24	33	5.0	50	7.6	
A05052-3TE	392	BCDEF	19.6	60	0	40	18	3.3	29	5.3	
A05084-11	522	A	26.1	92	0	8	64	15.7	76	18.6	
A06003-3TE	356	CDEFG	17.8	66	6	28	35	5.8	48	8.3	
A06021-1T	448	ABCDE	22.4	80	0	19	44	9.3	58	12.2	
A06029-4T	489	AB	24.5	88	0	12	60	13.8	70	16.4	
A06084-1TE	395	ABCDEF	19.8	48	2	50	11	2.1	20	3.6	
A07001-7TE	454	ABCDE	22.7	79	1	20	45	9.6	56	11.8	
AO03123-2	343	DEFG	17.2	45	1	54	12	1.9	20	3.0	
AOR06070-1KF	347	DEFG	17.4	75	3	22	36	5.8	52	8.5	

ENTRY	US # 1 YIELD					> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%)				
	> 4 oz CWT/A	STATS**	Tons/A	> 4 oz	4-7 oz*	7-14 oz*	> 14 oz*				
						%					
Ranger Russet	338	BCD	16.9	59	40	1	1.071	0	0	0	
Russet Burbank	181	E	9.1	55	43	2	1.068	7	3	0	
Russet Norkotah	270	CDE	13.5	69	31	0	1.071	0	0	0	
Shepody	256	CDE	12.8	27	57	16	1.060	0	0	0	
A0012-5	214	E	10.7	47	53	0	1.066	0	0	0	
A0073-2	39	F	1.9	80	20	0	1.070	0	0	0	
A03141-6	336	BCD	16.8	65	35	0	1.073	13	0	0	
A03921-2	246	CDE	12.3	56	41	2	1.084	0	0	0	
A05052-3TE	235	DE	11.7	70	30	0	1.078	0	0	0	
A05084-11	480	A	24.0	30	64	6	1.070	0	0	0	
A06003-3TE	236	DE	11.8	47	51	2	1.064	0	0	3	
A06021-1T	360	BC	18.0	45	52	3	1.073	0	0	0	
A06029-4T	435	AB	21.8	30	61	9	1.072	0	0	0	
A06084-1TE	187	E	9.3	76	24	0	1.074	0	0	0	
A07001-7TE	358	BC	17.9	43	55	2	1.068	0	0	0	
AO03123-2	154	EF	7.7	73	24	3	1.070	0	0	0	
AOR06070-1KF	263	CDE	13.2	53	46	1	1.077	0	0	0	

* Percent values may not total 100% due to rounding

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

ENTRY	30 DAY STAND	40 DAY STAND	60 DAY STAND	STEMS PER PLANT	AVERAGE TUBER WEIGHT NUMBER		Skin Set	Tuber Shape	BRUISE (%) (8-12 oz tubers)	
	% Emerged	% Emerged	% Emerged	Above Ground	Ounces	Tubers/Plant	1 = Poor 5 = Good	1 = Round 5 = Long	BLACKSPOT	SHATTER
Ranger Russet	18	84	98	1.8	5.1	8.8	3	4	7	0
Russet Burbank	0	44	95	1.6	4.8	6.3	4	3	27	3
Russet Norkotah	2	47	98	2.0	4.6	9.0	4	4	7	0
Shepody	0	42	92	1.4	6.6	4.2	3	3	0	0
A0012-5	0	42	85	1.5	5.2	5.1	3	2	3	10
A0073-2	0	16	85	1.6	2.7	6.1	3	4	0	20
A03141-6	4	62	94	2.2	4.5	10.4	4	3	0	10
A03921-2	9	67	91	2.3	5.2	6.1	4	4	5	10
A05052-3TE	2	53	89	2.0	4.0	9.5	2	4	7	3
A05084-11	11	71	91	1.4	7.2	7.1	3	2	4	17
A06003-3TE	4	64	89	1.7	5.1	6.7	3	3	0	7
A06021-1T	2	76	83	1.6	5.5	8.0	4	4	10	20
A06029-4T	44	98	98	1.3	6.9	7.0	3	2	3	3
A06084-1TE	44	78	96	2.2	3.8	10.5	4	4	2	0
A07001-7TE	2	53	94	1.6	5.3	8.3	3	4	0	23
AO3123-2	11	53	96	2.4	3.3	10.1	3	3	0	0
AOR06070-1KF	4	58	93	2.1	5.2	6.4	3	3	0	37



2013 Late Harvest Tri-State Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's*	US # 2's*	Culls*	CARTON YIELD		PROCESS YIELD		
	CWT/A	STATS**	Tons/A	> 4 oz	> 4 oz	& < 4 oz	% of Total Yield	100-50 count (US 1's 7-18 oz)	Tons/A	% of Total Yield	Tons/A
Ranger Russet	827	BCD	41.3	68	20	12	55	15.5	77	31.8	
Russet Burbank	746	CDE	37.3	75	8	17	64	17.8	72	26.7	
A0012-5	708	DEF	35.4	85	5	10	51	15.4	83	29.4	
A0073-2	663	EFG	33.1	86	2	12	69	19.5	75	25.0	
A03141-6	871	ABC	43.5	85	5	10	73	27.1	80	34.6	
A03921-2	864	ABC	43.2	86	2	12	61	22.5	81	35.1	
A05052-3TE	643	EFG	32.1	83	3	14	63	16.9	69	22.4	
A05084-11	643	EFG	32.1	89	3	8	71	20.2	81	26.1	
A06003-3TE	517	G	25.8	73	2	25	73	13.8	66	17.2	
A06021-1T	685	DEF	34.2	91	3	6	76	23.5	87	29.8	
A06029-4T	765	CDE	38.3	90	1	8	67	23.2	84	32.3	
A06084-1TE	783	CDE	39.2	87	3	10	67	22.8	77	30.1	
A06914-3CR	739	CDEF	37.0	84	1	14	58	18.2	69	26.4	
A07001-7TE	593	FG	29.6	80	2	18	57	13.6	58	17.7	
AO03123-2	941	AB	47.1	86	4	10	67	27.2	78	36.6	
AOR06070-1KF	992	A	49.6	82	4	13	45	18.5	81	40.5	
Russet Norkotah	663	EFG	33.2	80	2	18	55	14.7	59	19.6	

ENTRY	US # 1 YIELD					> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%)				
	> 4 oz CWT/A	STATS**	Tons/A	> 4 oz	4-7 oz*	7-14 oz*	> 14 oz*				
						%					
Ranger Russet	563	CDE	28.1	20	39	41	1.083	0	0	0	0
Russet Burbank	558	CDE	27.9	23	50	27	1.074	5	3	0	0
A0012-5	601	BCDE	30.1	12	36	52	1.071	18	0	0	0
A0073-2	570	CDE	28.5	24	51	24	1.085	5	0	0	0
A03141-6	744	AB	37.2	18	57	25	1.084	36	0	0	0
A03921-2	740	AB	37.0	12	41	47	1.094	0	3	18	
A05052-3TE	535	DE	26.7	28	48	24	1.087	3	0	0	
A05084-11	573	CDE	28.6	18	51	30	1.079	0	0	0	
A06003-3TE	380	F	19.0	18	54	28	1.068	0	0	8	
A06021-1T	622	BCDE	31.1	12	49	38	1.080	3	0	0	
A06029-4T	695	ABC	34.7	14	52	34	1.087	0	0	3	
A06084-1TE	680	ABCD	34.0	24	53	22	1.077	0	0	0	
A06914-3CR	630	BCDE	31.5	31	46	23	1.070	0	0	0	
A07001-7TE	479	EF	24.0	40	51	9	1.073	0	0	10	
AO03123-2	811	A	40.6	23	54	23	1.085	0	0	0	
AOR06070-1KF	821	A	41.0	10	31	59	1.091	4	0	0	
Russet Norkotah	532	DEF	26.6	43	48	9	1.069	0	0	0	

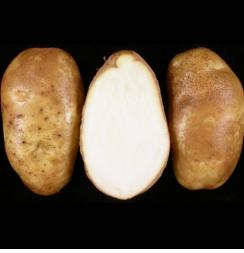
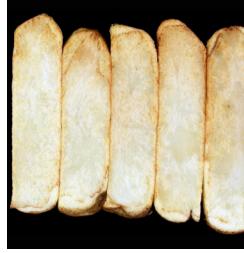
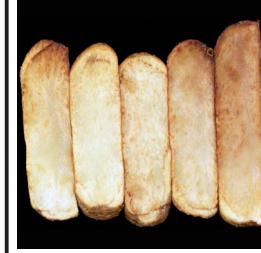
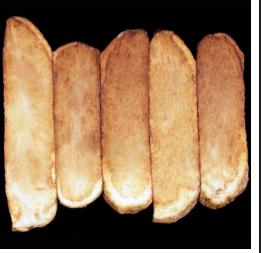
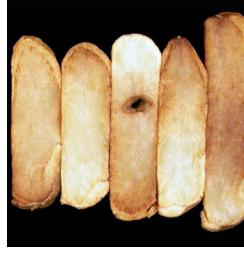
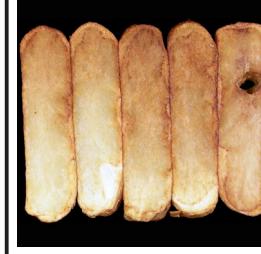
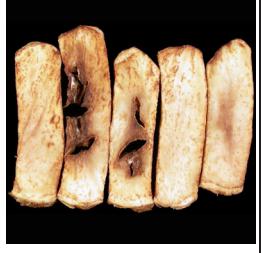
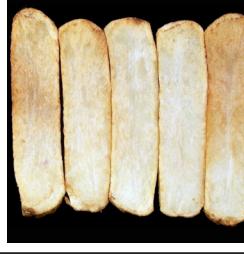
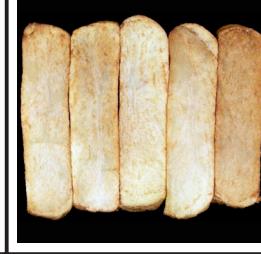
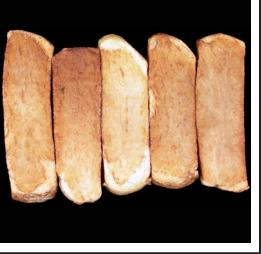
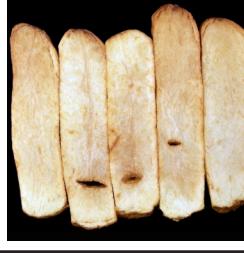
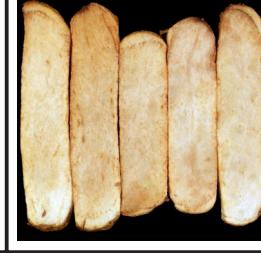
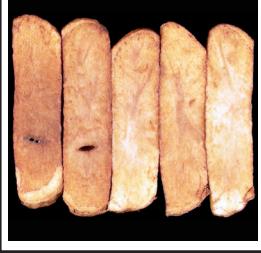
* Percent values may not total 100% due to rounding

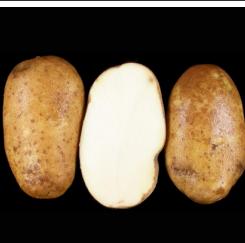
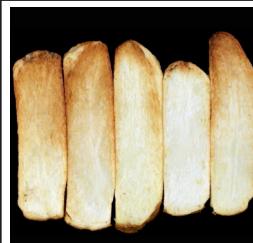
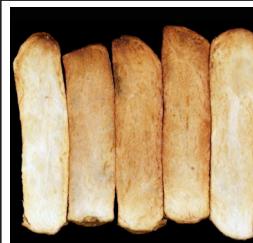
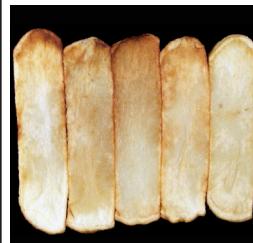
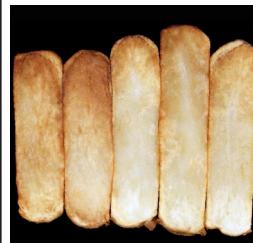
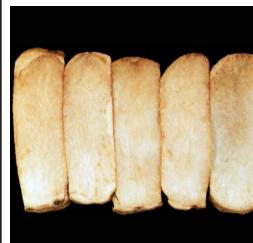
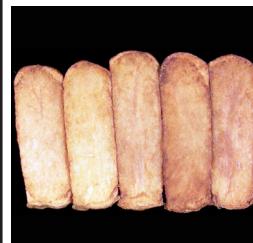
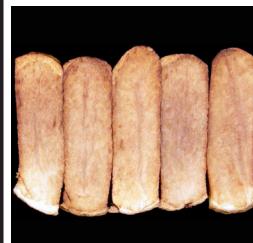
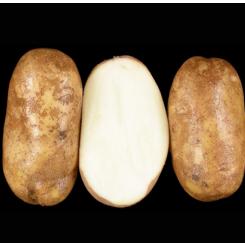
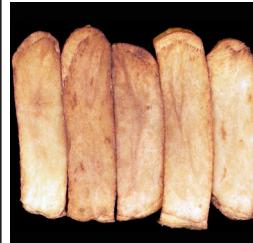
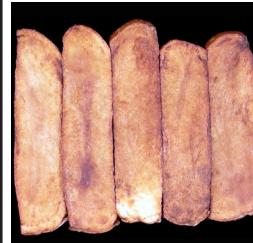
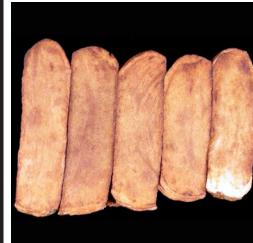
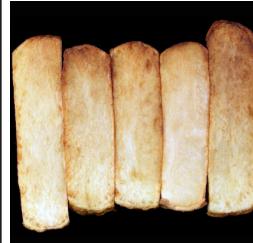
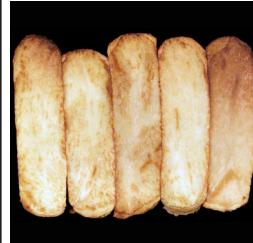
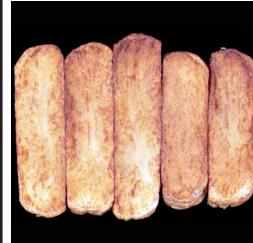
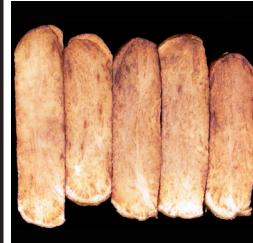
**Numbers followed by the same letter are not significantly different at the 5% level using Tukey's HSD Test

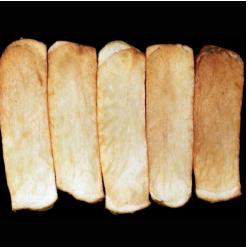
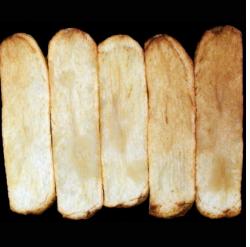
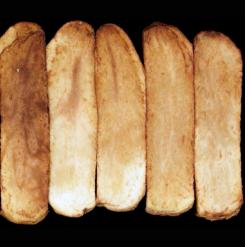
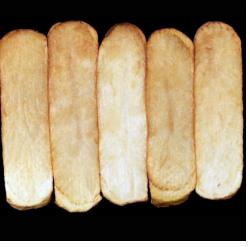
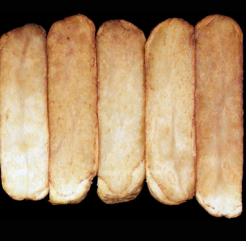
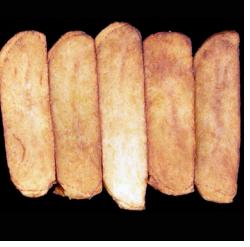
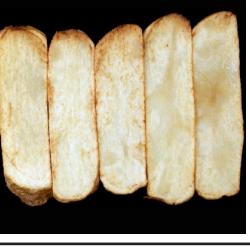
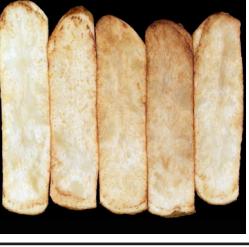
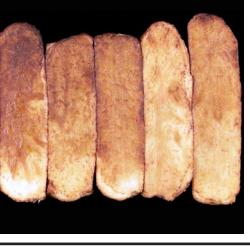
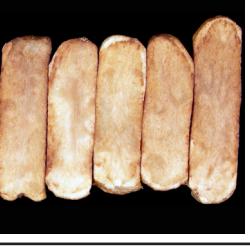
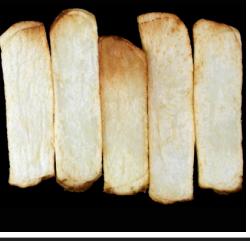
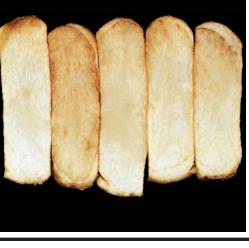
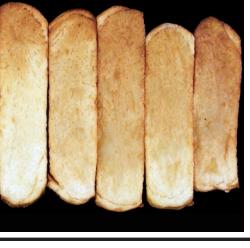
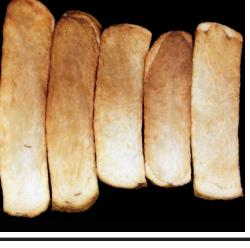
ENTRY	30 DAY STAND	40 DAY STAND	60 DAY STAND	STEMS PER PLANT	AVERAGE TUBER WEIGHT		SKIN SET	TUBER SHAPE	BRUISE (%)	
	% Emerged	% Emerged	% Emerged		Above Ground	Ounces			1 = Poor 5 = Good	1 = Round 5 = Long
Ranger Russet	88	98	98	2.1	8.1	8.3	3	5	29	11
Russet Burbank	76	93	95	1.9	7.6	8.0	4	4	23	46
A0012-5	0	44	84	1.7	10.1	5.7	2	2	5	62
A0073-2	4	73	85	1.8	7.6	7.1	4	3	15	68
A03141-6	43	94	94	2.3	7.7	9.2	4	3	21	44
A03921-2	14	86	91	2.0	10.8	6.5	3	4	34	61
A05052-3TE	3	65	85	2.2	7.0	7.4	4	3	17	44
A05084-11	3	70	91	1.7	8.6	6.1	4	2	8	29
A06003-3TE	4	73	89	1.6	7.3	5.7	3	3	21	37
A06021-1T	0	43	83	1.5	9.2	6.0	4	4	16	24
A06029-4T	36	93	96	1.6	8.9	7.0	4	2	44	44
A06084-1TE	84	96	96	2.4	7.4	8.6	4	4	21	42
A06914-3CR	68	95	95	2.0	6.6	9.1	4	4	9	48
A07001-7TE	3	84	94	1.8	5.6	8.4	3	4	7	57
AO03123-2	5	90	96	2.4	7.5	10.1	4	5	8	50
AOR06070-1KF	53	93	93	2.5	10.5	7.7	3	3	23	88
Russet Norkotah	80	98	98	2.6	5.7	9.4	4	4	3	22



In a rush to beat the rain, a new plot sprayer starts to take shape.

Tubers	48° F Storage	44° F Storage	40° F Storage	40° F Recon.	
Ranger Russet					
Russet Burbank					
A0012-5					
A0073-2					
A03141-6					

Tubers	48° F Storage	44° F Storage	40° F Storage	40° F Recon.	
A03921-2					
A05052-3TE					
A05084-11					
A06003-3TE					
A06021-1T					

Tubers	48° F Storage	44° F Storage	40° F Storage	40° F Recon.	
A06029-4T					
A06084-1TE					
A07001-7TE					
AO03123-2					
AOR06070-1KF					

2013 Late Harvest Tri-State Trial

Accumulated Total Postharvest Rating of Clones

Clone	WA		ID		OR		3 State av.
	Rating Total §	Discard §§	Rating Total §	Discard §§	Rating Total §	Discard §§	Rating Total
5 A03141-6	33.9		30.6		34.8		33.1
15 AOR06070-1KF	30.6		33.9		31.8		32.1
6 A03921-2	31.6		29.2		34.6		31.8
14 AO03123-2	34.8		28.6		31.9		31.8
3 A0012-5	30.4	Sp. Gr.	25.6		36.4		30.8
12 A06084-1TE	29.4	Sp.Gr.	32.4		29.7	Sp.Gr.	30.5
4 A0073-2	26.5		29.1		33.6		29.7
7 A05052-3TE	29.9		23.4		29.0		27.4
1 Ranger Russet	24.3		25.1		32.4		27.3
10 A06021-1T	19.6	Sp.Gr.	31.5		27.2		26.1
11 A06029-4T	23.2		23.1		29.2		25.2
13 A07001-7TE	20.4	Sp.Gr.	23.5	Sp.Gr.	25.0		23.0
8 A05084-11	18.1	Sp.Gr.	No Sample		23.7	Sp.Gr.	20.9
9 A06003-3TE	11.7	Sp.Gr.	21.3		21.6	Sp.Gr.	18.2
2 Russet Burbank	12.0	44 F	12.1	Sp.Gr.	12.2	Sp.Gr.	12.1
	25.1		24.6		28.9		26.2

§ maximum rating possible = 38

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

Overall Postharvest Performance of Clones Compared to Russet Burbank.

Clone	WA	ID	OR	Average
1 Ranger Russet	H	H	H	H
3 A0012-5	H	H	H	H
4 A0073-2	H	H	H	H
5 A03141-6	H	H	H	H
6 A03921-2	H	H	H	H
7 A05052-3TE	H	H	H	H
8 A05084-11	H	No Sample	H	H
9 A06003-3TE	L	H	H	H
10 A06021-1T	H	H	H	H
11 A06029-4T	H	H	H	H
12 A06084-1TE	H	H	H	H
13 A07001-7TE	H	H	H	H
14 AO03123-2	H	H	H	H
15 AOR06070-1KF	H	H	H	H

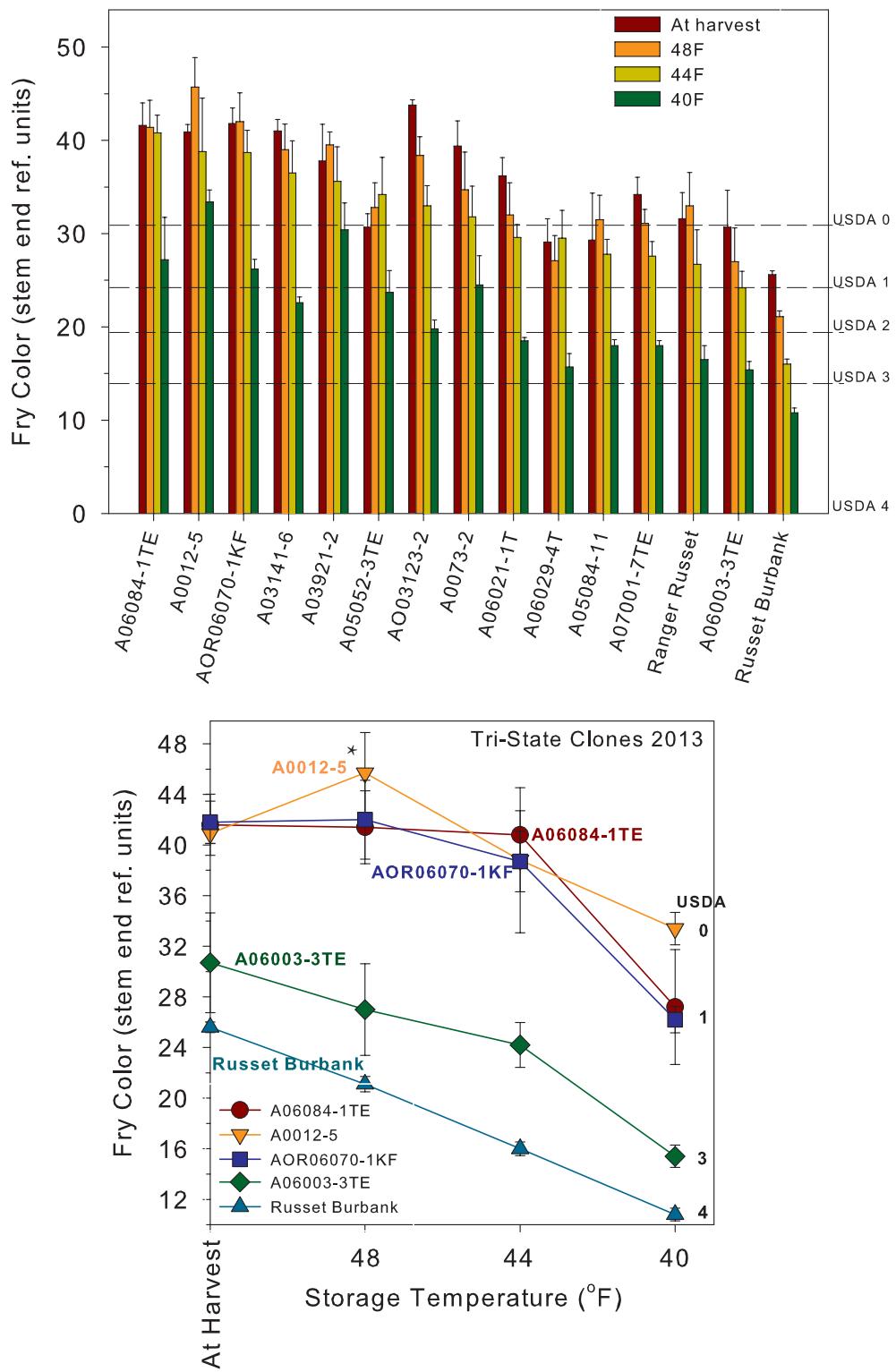
H= Higher than Russet Burbank

S= Same as Russet Burbank

L= Lower than Russet Burbank

2013 Late Harvest Tri-State Trial

Tri-State Clones 2013



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.

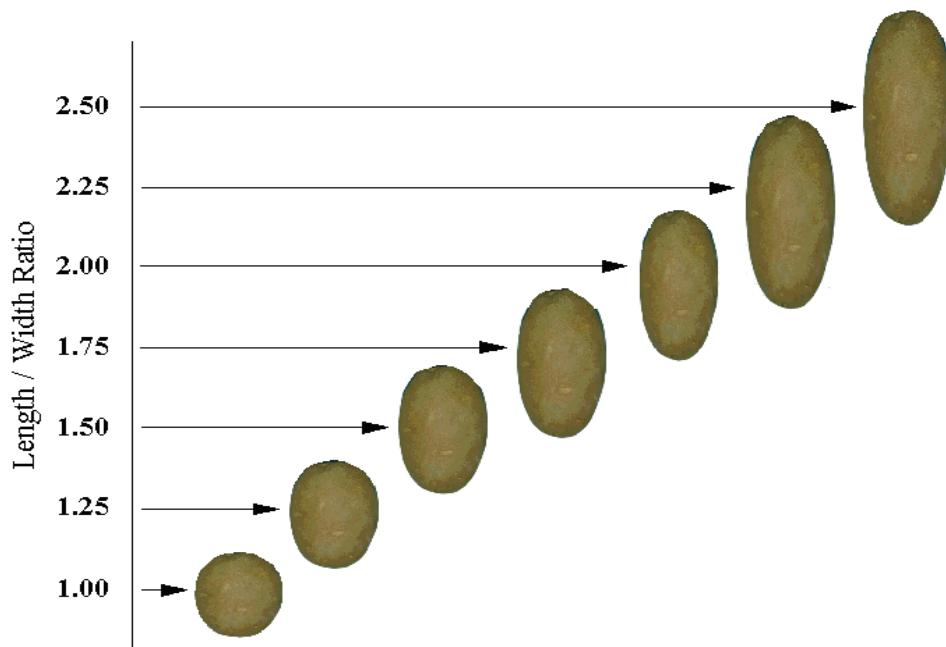
Bottom: Line graph depicting the effects of storage temperature on the change in French fry processing quality (stem end fry color) of the best (A0012-5, A06084-1TE, and AOR06070-1KF) and worst (A06003-3TE and Russet Burbank) performing clones in the Tri-State Trial. *Indicates similar performance of the clones last year.

2013 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	2.12	2.50	1.84	2.16	70	73	71	71
2 Russet Burbank	1.91	2.36	1.92	2.06	73	76	74	74
3 A0012-5	1.45	1.60	1.54	1.53	61	66	65	64
4 A0073-2	1.75	1.74	1.55	1.68	71	72	65	70
5 A03141-6	1.80	2.14	1.73	1.89	72	78	72	74
6 A03921-2	1.74	2.13	1.58	1.81	71	78	67	72
7 A05052-3TE	1.62	2.10	1.48	1.73	68	77	62	69
8 A05084-11	1.39	No Sample	1.62	1.50	59	No Sample	68	63
9 A06003-3TE	1.71	1.85	1.72	1.76	70	74	69	71
10 A06021-1T	1.77	1.80	1.78	1.78	73	73	73	73
11 A06029-4T	1.29	1.78	1.36	1.47	53	73	57	61
12 A06084-1TE	1.86	2.07	1.85	1.93	74	78	74	75
13 A07001-7TE	1.95	1.97	1.84	1.92	76	76	74	75
14 AO03123-2	2.04	2.01	1.76	1.93	76	77	72	75
15 AOR06070-1KF	1.64	2.07	1.54	1.75	68	77	65	70
Average	1.74	2.01	1.67	1.79	69	75	68	71



2013 Early Harvest Regional Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's*	US # 2's*	Culls*	CARTON YIELD		PROCESS YIELD	
	CWT/A	STATS**	Tons/A	> 4 oz	> 4 oz	Culls*	% of Total Yield	100-50 count (US 1's 7-18 oz)	Tons/A	US 1's and 2's > 6 oz
								% of Total Yield	Tons/A	% of Total Yield
Ranger Russet	479	ABC	24.0	64	4	32	27	6.4	39	9.3
Russet Burbank	364	DE	18.2	58	2	40	33	6.0	43	8.0
Russet Norkotah	421	BCD	21.0	64	2	34	25	5.2	36	7.6
Shepody	354	DE	17.7	86	3	11	63	11.1	77	13.7
A02062-1TE	477	ABC	23.9	78	3	19	43	10.2	59	14.1
A02138-2	476	ABC	23.8	58	3	39	18	4.2	30	7.4
A02424-83LB	523	A	26.2	69	7	24	26	6.8	46	12.1
A02507-2LB	317	E	15.8	62	2	36	17	2.6	32	5.0
A03158-2TE	505	AB	25.3	75	1	24	35	8.8	47	12.0
AC00395-2RU	401	CDE	20.0	72	1	27	33	6.7	41	8.6
AO01114-4	306	E	15.3	64	1	35	24	3.7	37	5.9
AO02060-3	524	A	26.2	76	0	24	37	9.7	50	13.0
CO03276-5RU	517	AB	25.9	73	1	27	30	7.8	43	11.0
OR05039-4	320	DE	16.0	84	2	14	50	8.0	61	9.9
POR06V12-3	358	DE	17.9	78	1	22	43	7.7	53	9.9

ENTRY	US # 1 YIELD					> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%)		
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	4-7 oz*	7-14 oz*		% HH	% BC	% IBS
					%				
Ranger Russet	310	ABCD	15.5	59	39	2	1.073	0	0
Russet Burbank	212	DE	10.6	43	54	3	1.074	0	3
Russet Norkotah	269	CDE	13.5	60	37	3	1.075	0	0
Shepody	305	ABCDE	15.2	23	51	26	1.062	0	0
A02062-1TE	376	ABC	18.8	46	54	1	1.069	0	0
A02138-2	279	BCDE	14.0	70	30	0	1.082	0	0
A02424-83LB	361	ABC	18.1	62	38	0	1.081	0	0
A02507-2LB	197	E	9.8	73	27	0	1.075	0	0
A03158-2TE	378	AB	18.9	53	45	2	1.069	17	0
AC00395-2RU	296	ABCDE	14.8	55	45	0	1.083	0	0
AO01114-4	198	E	9.9	62	38	0	1.077	0	0
AO02060-3	398	A	19.9	51	47	1	1.077	0	0
CO03276-5RU	376	ABC	18.8	59	40	1	1.070	0	0
OR05039-4	270	BCDE	13.5	41	53	6	1.076	0	0
POR06V12-3	282	BCDE	14.1	46	54	0	1.079	0	0

ENTRY	30 DAY STAND % Emerged	40 DAY STAND % Emerged	60 DAY STAND % Emerged	STEMS PER PLANT Above Ground	AVERAGE TUBER WEIGHT Ounces		SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers)	
					Number	Tubers/Plant			% HH	% BC
Ranger Russet	27	89	98	2.2	4.5	10.2	3	4	0	10
Russet Burbank	2	56	89	1.7	5.1	6.9	2	3	0	3
Russet Norkotah	2	51	91	2.8	4.8	8.6	4	4	0	17
Shepody	16	37	83	1.3	7.9	4.4	3	3	5	10
A02062-1TE	9	62	100	1.9	5.5	8.4	4	4	0	0
A02138-2	4	67	93	2.8	4.1	11.2	3	1	10	20
A02424-83LB	40	91	98	3.0	4.9	10.4	4	4	0	37
A02507-2LB	0	33	82	2.1	4.1	7.5	3	2	0	15
A03158-2TE	18	96	100	2.2	5.2	9.5	3	3	0	23
AC00395-2RU	9	56	96	1.7	4.7	8.2	3	3	5	10
AO01114-4	2	44	98	1.7	4.5	6.6	4	4	0	13
AO02060-3	9	84	98	2.7	5.0	10.3	4	2	10	30
CO03276-5RU	2	71	93	3.2	4.6	10.9	4	4	7	30
OR05039-4	18	67	97	2.3	6.0	5.2	4	4	0	0
POR06V12-3	2	62	100	1.8	5.0	7.0	4	4	0	30

* 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

2013 Early Harvest Regional Trial

Tubers

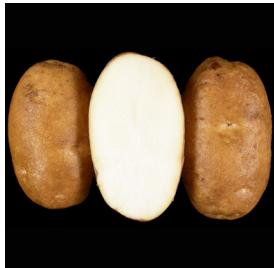
Ranger Russet



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AO01114-4



OR05039-4



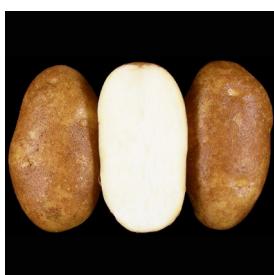
Russet Burbank



A02424-83LB



AO02060-3



AC00395-2RU



Russet Norkotah



A02507-2LB



A03158-2TE



POR06V12-3



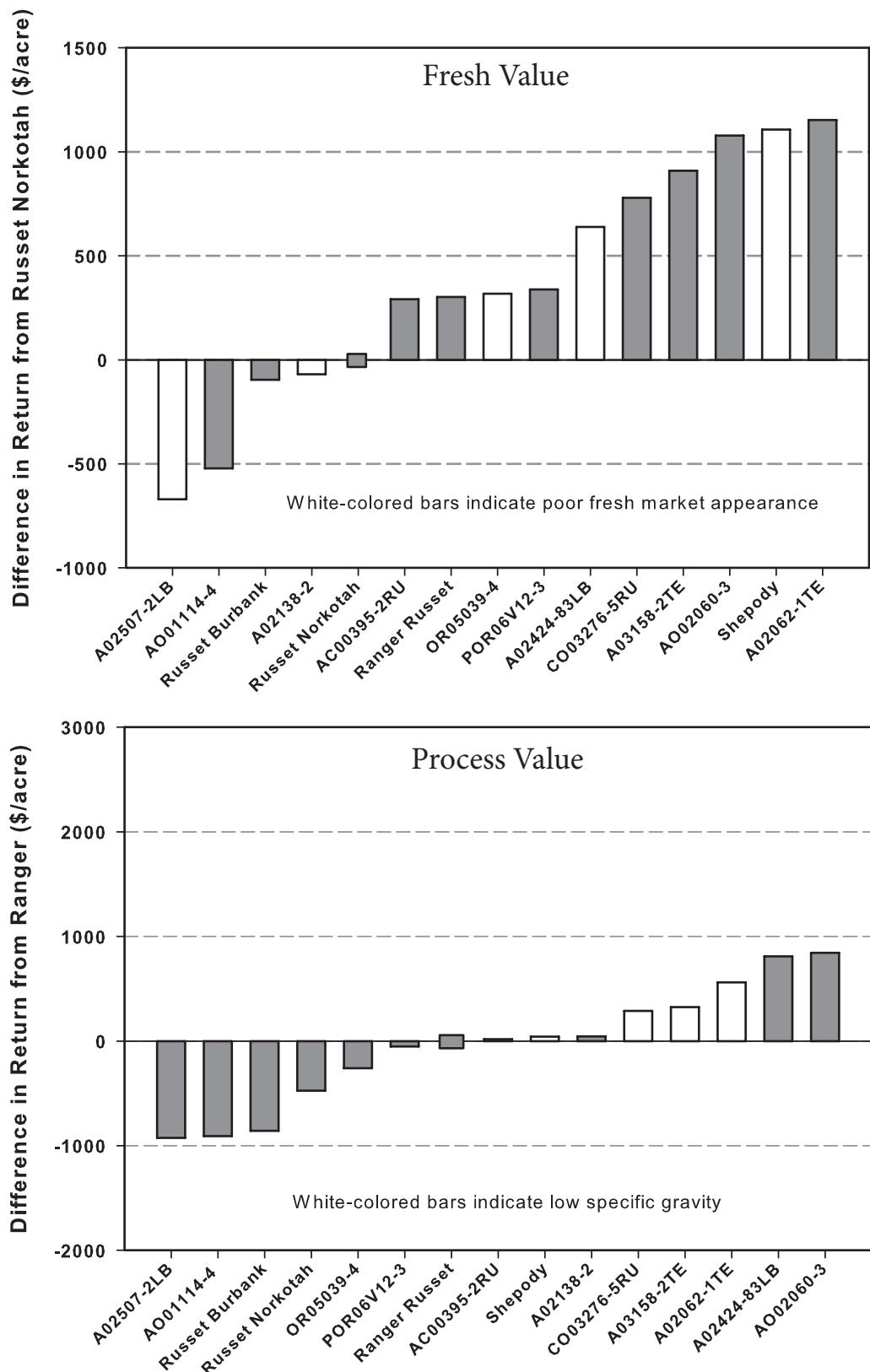


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape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



Above: Graduate students Chandler Dolezal (left) and Seth Shelton work in tandem to create 66% simulated hail damage done at Tuber Initiation.

Left: Zach Holden is covered with the remains of the 99% simulated hail damage plot.

Below: Mark Pavek and Seth Shelton test possible ways to simulate hail damage, and yes, that is a chain. Nice concept but painfully slow - you can rule that method out.



2013 Late Harvest Regional Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's*	US # 2's*	Culls*	CARTON YIELD		PROCESS YIELD	
	CWT/A	STATS**	Tons/A	> 4 oz	> 4 oz	& < 4 oz	100-50 count (US 1's 7-18 oz)	% of Total Yield	Tons/A	US 1's and 2's > 6 oz
				% of Total Yield			% of Total Yield	Tons/A	Tons/A	% of Total Yield
Ranger Russet	821	AB	41.1	66	20	14	37	15.0	75	30.6
Russet Burbank	738	BC	36.9	70	8	21	40	14.7	67	25.0
A02138-2	702	CD	35.1	77	3	20	48	16.9	62	21.7
A02424-83LB	588	F	29.4	80	9	11	51	14.9	74	21.9
A02507-2LB	756	ABC	37.8	84	7	10	62	23.3	77	29.3
A03158-2TE	844	A	42.2	79	3	18	55	23.0	70	29.7
AO01114-4	554	F	27.7	79	0	21	51	14.2	64	18.0
AO02060-3	696	CDE	34.8	82	2	16	49	17.1	70	24.6
OR05039-4	779	ABC	38.9	88	4	8	67	25.9	85	32.9
POR06V12-3	711	CD	35.5	88	2	10	61	21.8	78	27.7
Russet Norkotah	598	EF	29.9	79	1	20	44	13.1	58	17.4
AOTX98152-3RU	611	DEF	30.5	75	5	20	46	13.9	64	19.7
AC00395-2RU	749	ABC	37.4	86	0	13	61	22.8	76	28.4

ENTRY	US # 1 YIELD					> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%)				
	> 4 oz CWT/A	STATS**	Tons/A	> 4 oz	4-7 oz*	7-14 oz*	> 14 oz*	(8-12 oz tubers)	% HH	% BC	% IBS
				% -----				% HH	% BC	% IBS	
Ranger Russet	543	DEFG	27.2	23	41	36	1.085	0	0	0	
Russet Burbank	526	EFG	26.3	24	42	34	1.075	9	3	0	
A02138-2	544	CDEFG	27.2	35	56	9	1.084	0	3	6	
A02424-83LB	472	FG	23.6	27	52	21	1.081	0	0	0	
A02507-2LB	635	ABCD	31.8	23	63	14	1.094	0	0	21	
A03158-2TE	667	AB	33.4	23	56	21	1.075	8	0	6	
AO01114-4	447	G	22.3	31	55	13	1.085	0	0	0	
AO02060-3	570	BCDEF	28.5	27	46	27	1.080	6	0	3	
OR05039-4	681	A	34.1	15	58	27	1.077	0	3	0	
POR06V12-3	627	ABCD	31.4	21	53	25	1.092	0	0	0	
Russet Norkotah	473	FG	23.6	40	48	12	1.067	3	0	3	
AOTX98152-3RU	460	G	23.0	29	45	26	1.071	0	0	0	
AC00395-2RU	649	ABC	32.4	22	53	25	1.095	0	0	0	

ENTRY	30 DAY STAND	40 DAY STAND	60 DAY STAND	STEMS PER PLANT	AVERAGE TUBER WEIGHT		SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers)		
	% Emerged	% Emerged	% Emerged	Above Ground	Ounces	Tubers/Plant			% HH	% BC	BLACKSPOT
Ranger Russet	85	96	96	2.3	7.9	8.4	3	5	29	45	
Russet Burbank	64	95	96	1.8	8.0	7.5	3	3	22	47	
A02138-2	53	91	91	2.5	5.9	9.8	4	2	31	37	
A02424-83LB	45	96	98	2.8	7.3	6.7	4	3	31	44	
A02507-2LB	1	45	85	2.1	7.4	8.3	3	2	25	50	
A03158-2TE	64	98	99	2.4	7.3	9.5	4	3	33	33	
AO01114-4	0	89	96	1.9	6.5	6.9	4	3	16	56	
AO02060-3	13	94	96	2.6	7.3	7.7	4	3	21	44	
OR05039-4	44	95	98	2.0	8.7	7.3	4	4	26	32	
POR06V12-3	15	90	93	1.7	7.6	7.6	4	4	13	32	
Russet Norkotah	75	91	95	2.8	5.7	8.5	4	4	18	33	
AOTX98152-3RU	33	86	89	3.2	6.4	7.8	4	2	24	24	
AC00395-2RU	5	75	96	1.6	7.2	8.5	4	2	9	23	

* Percent values may not total 100% due to rounding

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

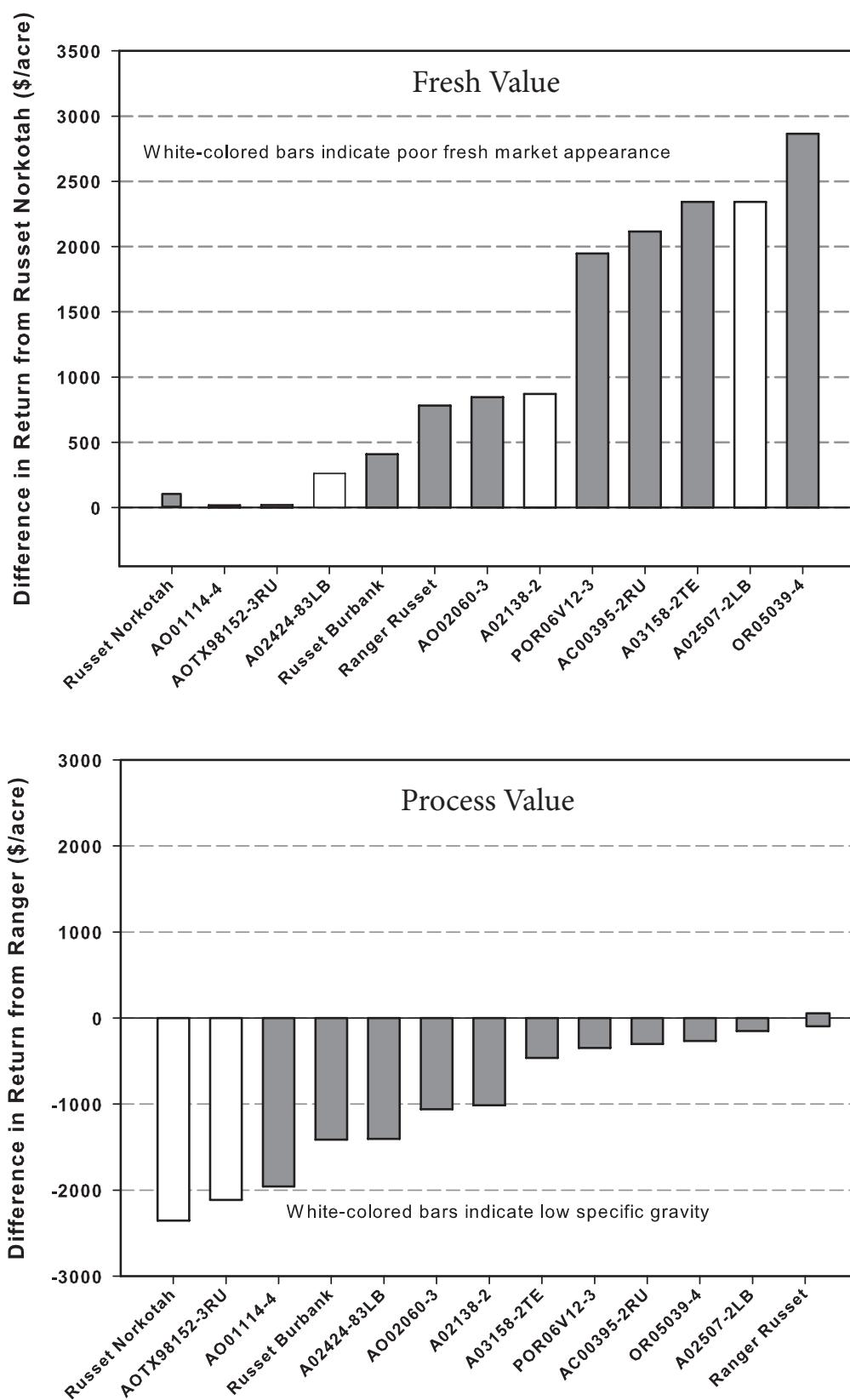
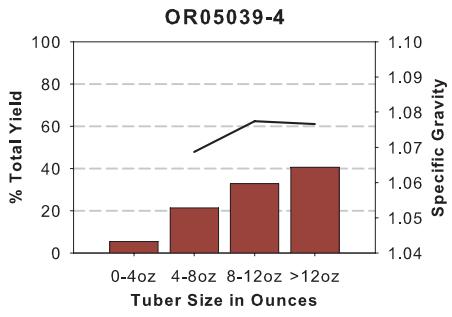
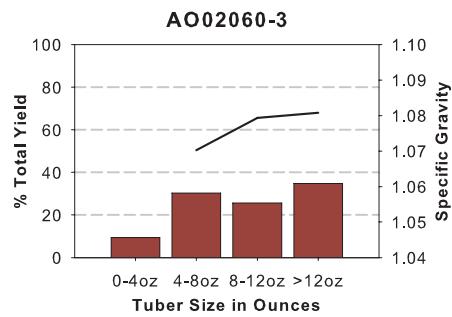
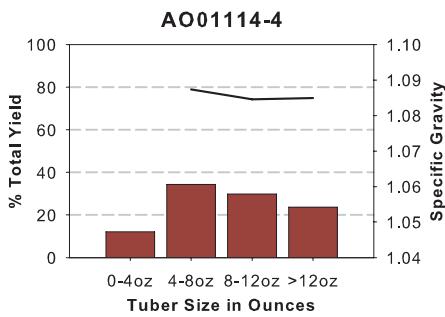
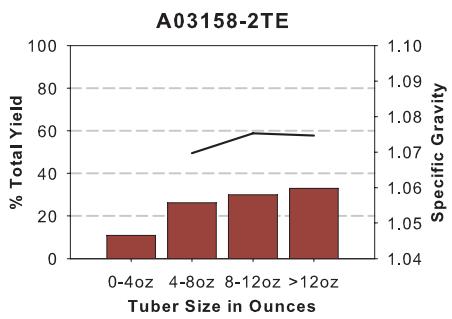
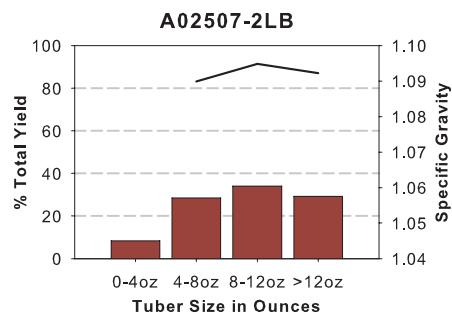
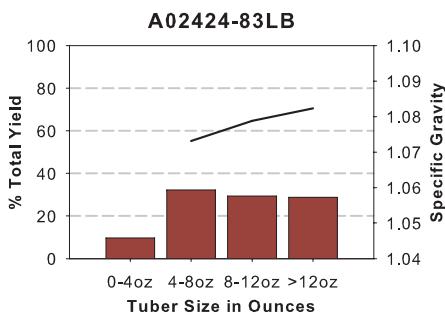
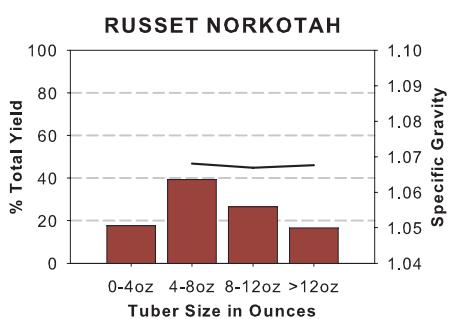
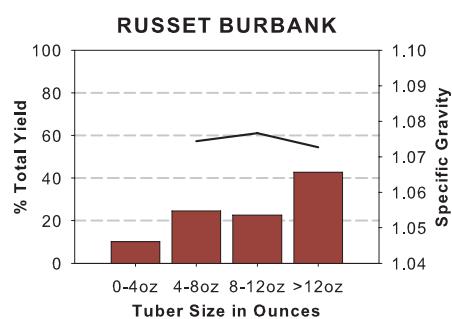
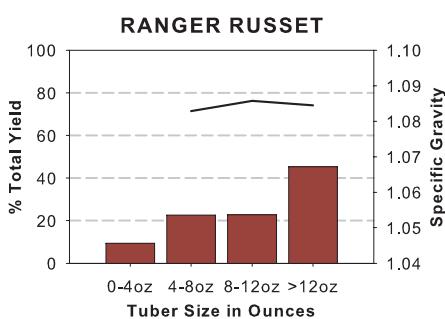
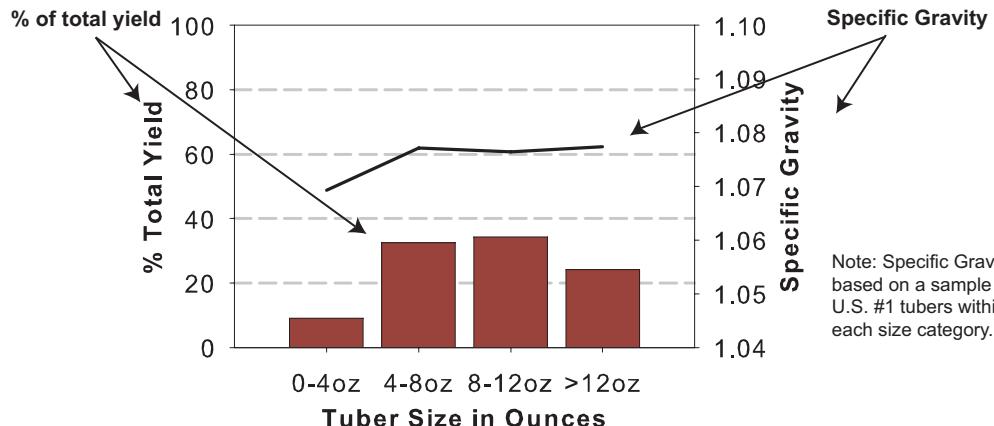


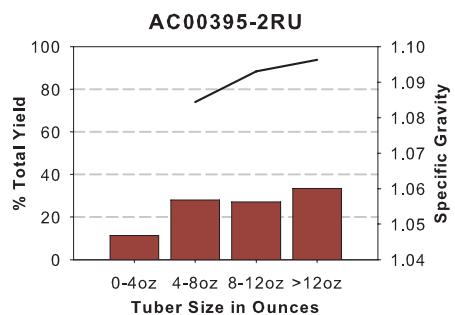
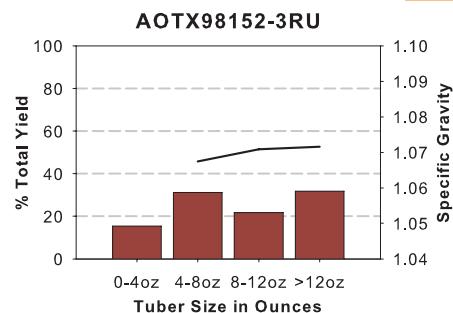
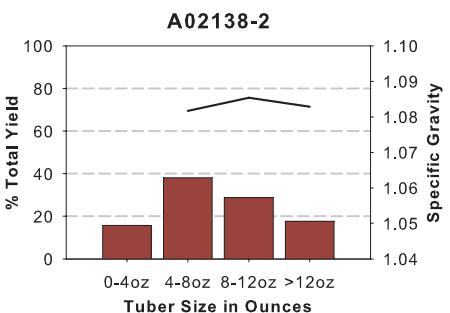
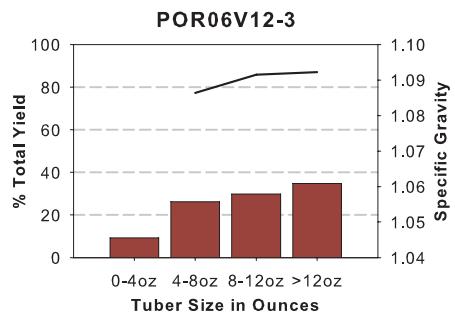
Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape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

2013 Late Harvest Regional Trial

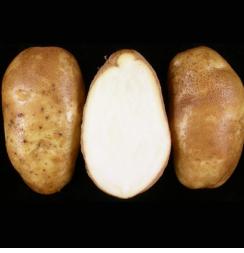
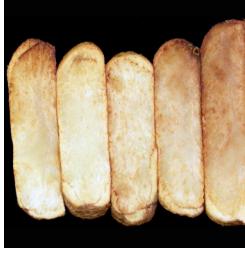
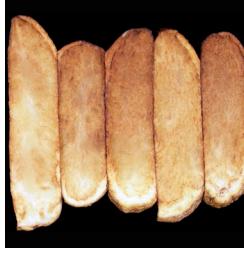
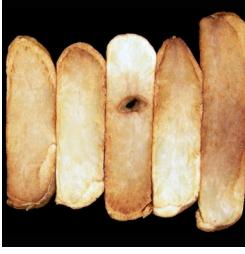
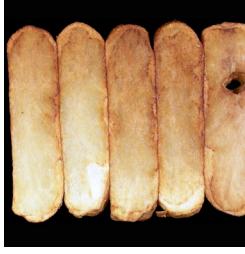
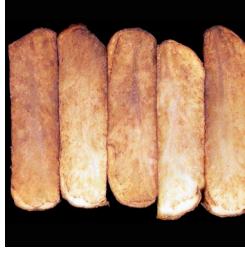
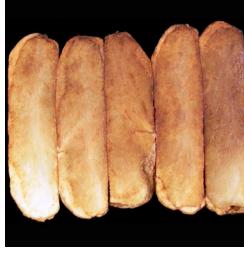
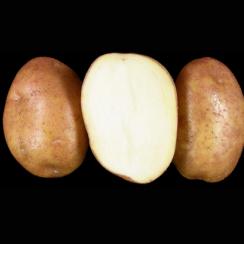
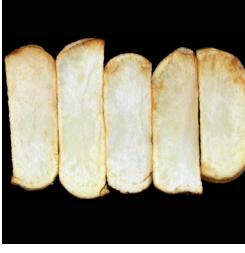
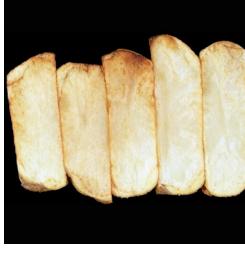
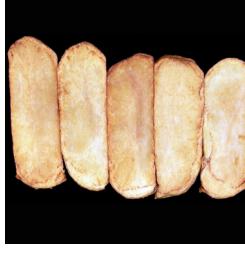
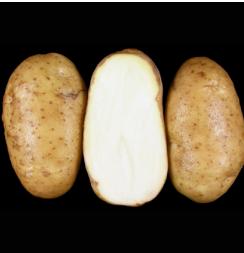
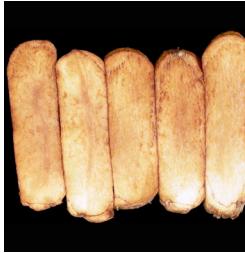
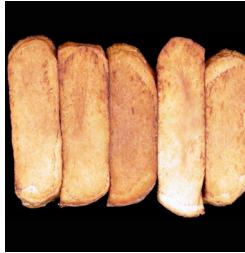
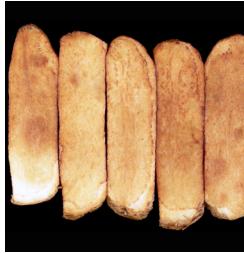
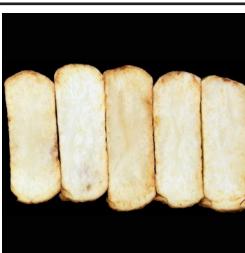
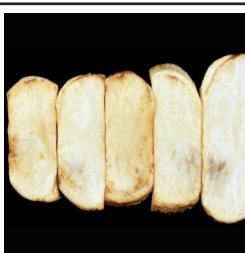
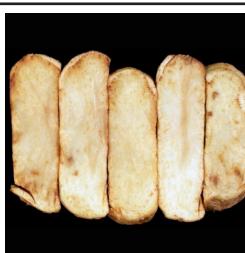
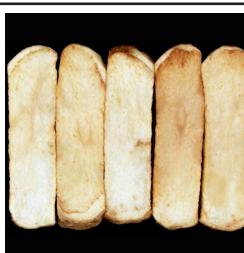
Tuber Yield and Specific Gravity Distributions

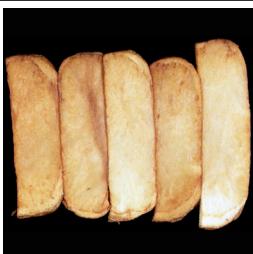
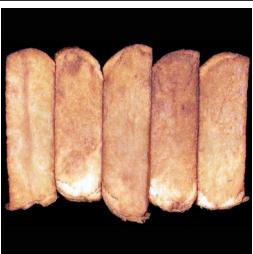
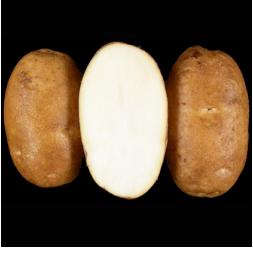
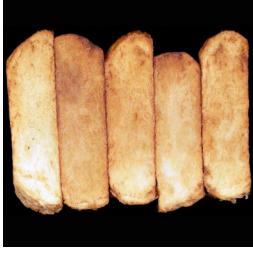
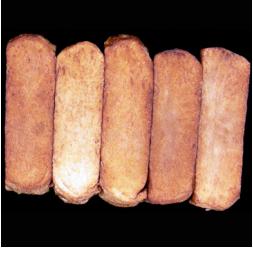
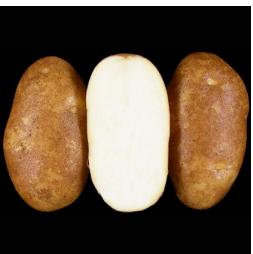
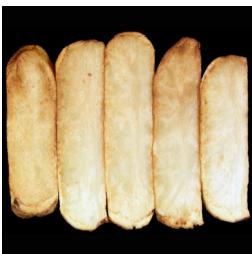
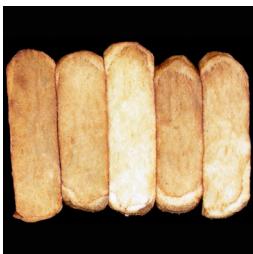
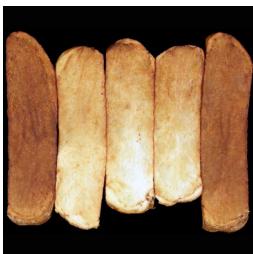
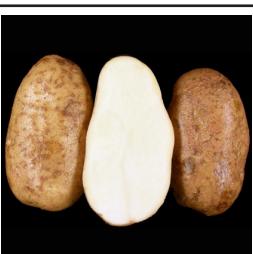
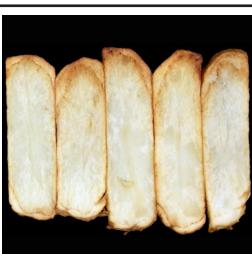
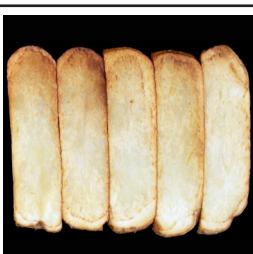
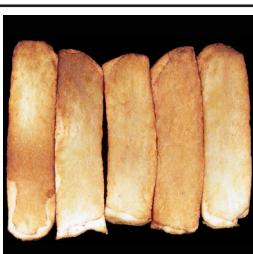
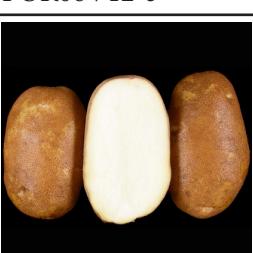
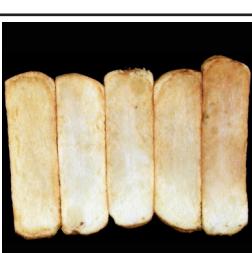
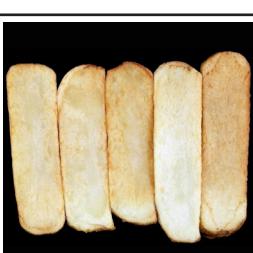
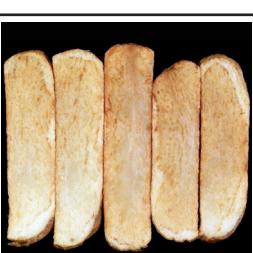
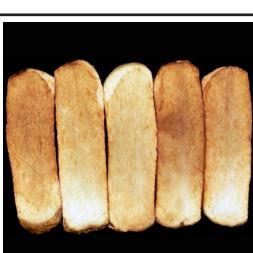
10 inch In-Row Spacing





Zach Holden (right) starts “the wave” during planting to keep moral high.

Tubers	48° F Storage	44° F Storage	40° F Storage	40° F Recon.	
Ranger Russet					
Russet Burbank					
A02138-2					
A02424-83LB					
A02507-2LB					

Tubers	48° F Storage	44° F Storage	40° F Storage	40° F Recon.	
A03158-2TE					
AO01114-4					
AO02060-3					
OR05039-4					
POR06V12-3					

Entries Retained from the 2012 Trials Currently in the Regional Trial

Harvested fall of 2012

Held at 48°F until December 18

Stored at 44°F until analysis

Two clones were advanced from the 2012 Tri-State Trial into the 2013 Regional Trial (A02424-83LB and AO01114-4). Seven clones were retained in the Regional Trial. When averaged across states, A02507-2LB (48.4 ref units) and A02138-2 (47.6 ref units) produced the lightest fries. Uniformity of fry color (photovolt DIFF ≥9) was unacceptable for seven, two and six out of eleven entries from the OR, ID and WA trials, respectively. A03158-2TE had the shortest dormancy with the longest sprouts (avg = 8") while A02507-2LB had the shortest average sprout length (1"). These results have been consistent over the last 3 years.

Clone	PHOTOVOLT READING					USDA COLOR	% REDUCING SUGAR			Sprouting	
	stem	bud	avg	DIFF			stem	bud	avg	percent	length (in.)
Washington											
1 Ranger Russet	25.5	38.8	32.2	13.3	1	1.9	0.8	1.3	100	3	
2 Russet Burbank	26.0	37.7	31.9	12.1	1	1.8	0.8	1.3	100	4	
3 A02138-2	42.5	45.4	44.0	3.8	0	0.6	0.6	0.6	100	6	
4 A02424-83LB §	36.1	48.0	42.1	12.0	0	0.9	0.5	0.7	100	5	
5 A02507-2LB	46.7	51.2	48.9	6.5	0	0.5	0.5	0.5	100	1	
6 A03158-2TE	32.9	35.5	34.2	6.7	0	1.1	1.0	1.1	100	8	
7 AC00395-2Ru	27.3	36.0	31.6	9.4	1	1.7	0.9	1.3	100	3	
8 AO01114-4 §	40.0	44.6	42.3	4.9	0	0.7	0.6	0.7	100	3	
9 AO02060-3	42.0	44.1	43.1	6.1	0	0.7	0.6	0.6	100	5	
10 OR05039-4	34.1	47.3	40.7	13.2	0	1.1	0.5	0.8	100	4	
11 POR06V12-3	33.9	50.8	42.3	16.9	0	1.1	0.5	0.8	100	4	
Average	LSD 0.05 3.4 4.1					0	0.9	0.6	0.9	100	
Idaho											
1 Ranger Russet	29.9	37.6	33.7	8.2	1	1.4	0.8	1.1	100	3.5	
2 Russet Burbank	22.0	42.3	32.1	23.1	2	2.4	0.6	1.5	100	1.5	
3 A02138-2	52.1	48.3	50.2	3.8	0	0.5	0.5	0.5	100	5	
4 A02424-83LB §	39.0	44.9	42.0	6.0	0	0.8	0.6	0.7	100	4	
5 A02507-2LB	50.4	50.8	50.6	1.4	0	0.5	0.5	0.5	100	1	
6 A03158-2TE	39.4	39.5	39.5	6.5	0	0.8	0.8	0.8	100	8	
7 AC00395-2Ru	35.3	36.0	35.6	3.2	0	1.0	0.9	1.0	100	1.5	
8 AO01114-4 §	41.5	46.8	44.1	7.1	0	0.7	0.5	0.6	100	1.5	
9 AO02060-3	43.4	45.1	44.2	2.5	0	0.6	0.6	0.6	100	3	
10 OR05039-4	35.6	48.8	42.2	13.1	0	1.0	0.5	0.7	100	5	
11 POR06V12-3	43.1	48.5	45.8	5.4	0	0.6	0.5	0.6	100	4	
Average	LSD 0.05 3.4 3.4					1	1.1	0.6	0.9	100	
Oregon											
1 Ranger Russet	24.1	38.7	31.4	14.6	2	2.1	0.8	1.4	100	4	
2 Russet Burbank	19.3	41.0	30.1	21.8	3	2.8	0.7	1.7	100	4	
3 A02138-2	47.7	49.8	48.8	3.4	0	0.5	0.5	0.5	100	10	
4 A02424-83LB §	35.9	48.1	42.0	12.2	0	0.9	0.5	0.7	100	5	
5 A02507-2LB	39.0	52.5	45.7	13.9	0	0.8	0.5	0.7	100	1.5	
6 A03158-2TE	29.6	36.6	33.1	7.2	1	1.4	0.9	1.2	100	9	
7 AC00395-2Ru	26.1	35.4	30.7	9.6	1	1.8	1.0	1.4	100	4	
8 AO01114-4 §	39.7	45.1	42.4	6.1	0	0.7	0.6	0.7	100	5	
9 AO02060-3	42.4	44.4	43.4	4.8	0	0.6	0.6	0.6	100	12	
10 OR05039-4	34.3	50.9	42.6	16.7	0	1.0	0.5	0.8	100	5	
11 POR06V12-3	36.5	45.7	41.1	9.3	0	0.9	0.6	0.7	100	5	
Average	LSD 0.05 3.6 4.9					1	1.2	0.7	0.9	100	

Date test performed:

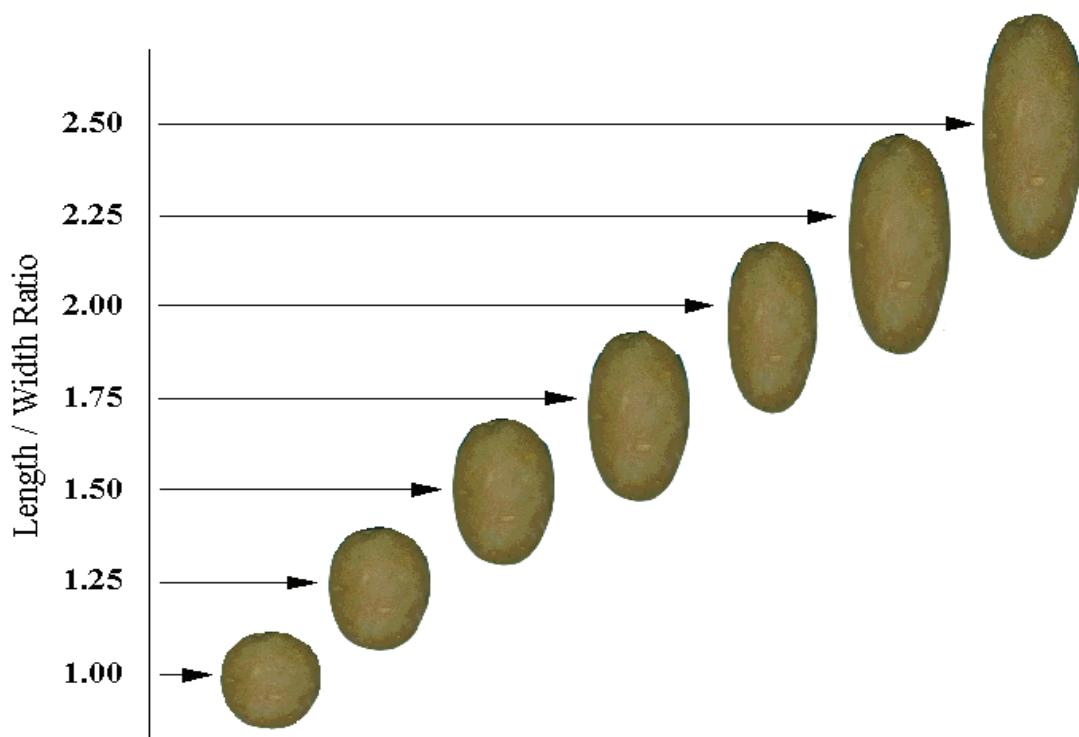
Washington	April 23	
Idaho	April 25	
Oregon	April 29	

2013 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	2.12	2.69	1.84	2.22	70	68	71	69
2 Russet Burbank	1.91	2.50	1.92	2.11	73	70	74	72
3 A02138-2	1.38	1.54	1.30	1.41	58	65	54	59
4 A02424-83LB	1.67	1.95	1.67	1.77	69	74	70	71
5 A02507-2LB	1.41	1.71	1.40	1.51	59	70	59	63
6 A03158-2TE	1.47	2.05	1.63	1.72	61	77	68	69
7 AO01114-4	1.63	1.85	1.58	1.69	69	74	66	70
8 AO02060-3	1.70	1.92	1.57	1.73	70	76	66	71
9 OR05039-4	1.88	2.18	1.89	1.99	73	77	75	75
10 POR06V12-3	1.76	1.67	1.77	1.74	72	70	72	71
Average	1.69	2.01	1.66	1.79	67	72	68	69



2013 Late Harvest Regional Trial

Accumulated Total Postharvest Rating of Clones

Clone	WA		ID		OR		3 State av.
	Rating Total §	Discard §§	Rating Total §	Discard §§	Rating Total §	Discard §§	Rating Total
10 POR06V12-3	33.7		36.9		31.9		34.2
5 A02507-2LB	33.1		33.7		34.4		33.7
3 A02138-2	29.8		36.7		33.7		33.4
1 Ranger Russet	28.8		28.5		32.5		29.9
4 A02424-83LB	18.3		34.8		35.6		29.6
7 AO01114-4	22.5		32.4		33.6		29.5
9 OR05039-4	20.5		33.5		32.3		28.8
8 AO02060-3	22.4		34.7		31.8		27.1
6 A03158-2TE	17.1	Sp. Gr.	32.9		30.5	Sp. Gr.	26.8
2 Russet Burbank	14.2	44 F	17.4	Sp. Gr.	11.8	Sp. Gr.	14.5
	24.0		32.2		30.8		28.7

§ maximum rating possible = 38

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

Overall Postharvest Performance of Clones Compared to Russet Burbank.

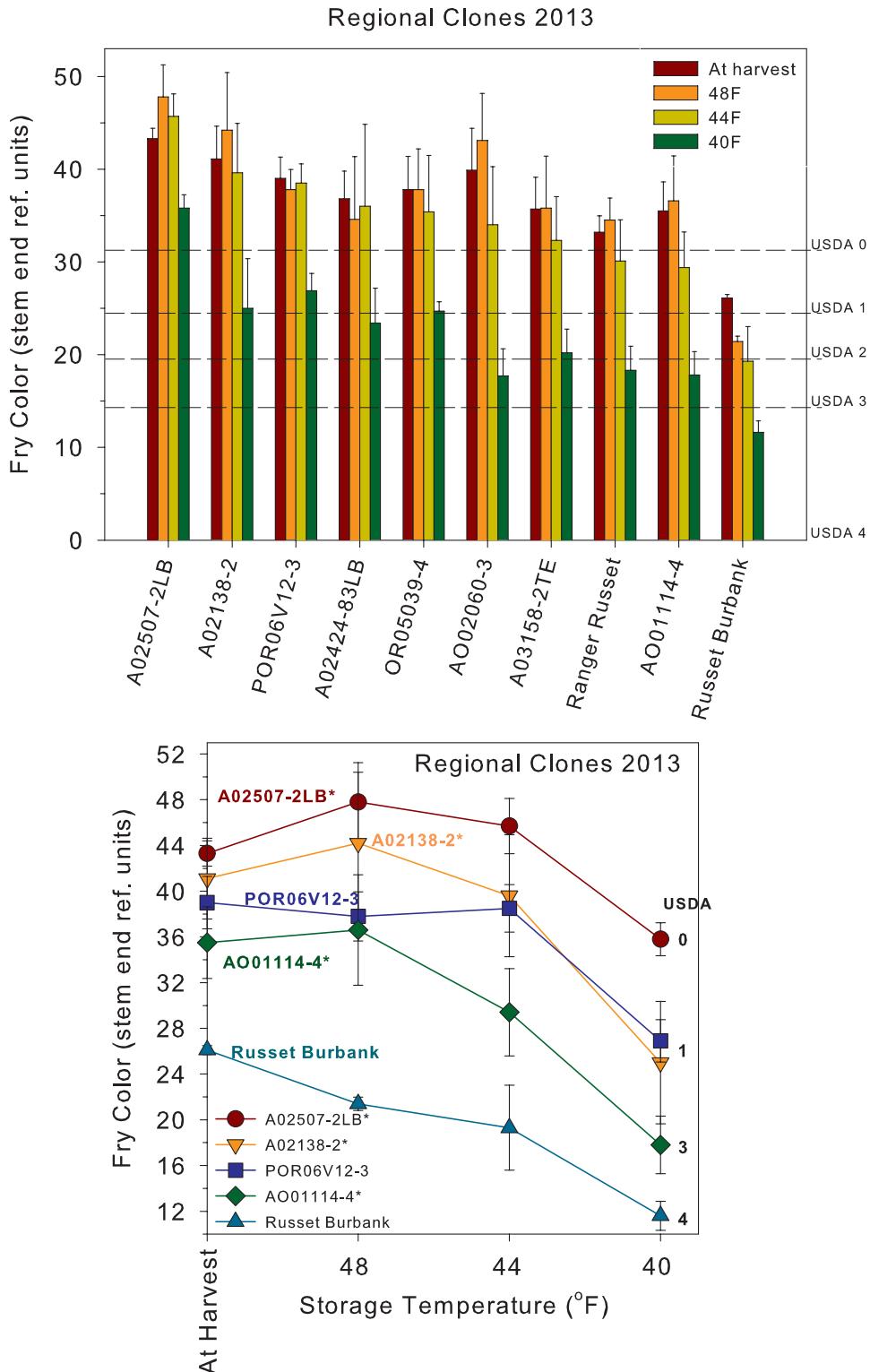
Clone	WA	ID	OR	Average
1 Ranger Russet	H	H	H	H
3 A02138-2	H	H	H	H
4 A02424-83LB	H	H	H	H
5 A02507-2LB	H	H	H	H
6 A03158-2TE	H	H	H	H
7 AO01114-4	H	H	H	H
8 AO02060-3	H	H	H	H
9 OR05039-4	H	H	H	H
10 POR06V12-3	H	H	H	H

H= Higher than Russet Burbank

S= Same as Russet Burbank

L= Lower than Russet Burbank

2013 Late Harvest Regional Trial



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

Bottom: Line graph depicting the effects of storage temperature on the change in French fry processing quality (stem end fry color) of the best (A02138-2, POR06V12-3, A02507-2LB) and worst (AO01114-4 and Russet Burbank) performing clones in the Regional Trial.
*Indicates similar performance of the clones last year.

2013 Regional Red and Specialty Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's*	US # 2's*	Culls*	EXTERNAL DEFECTS (%)			SPECIFIC GRAVITY
	CWT/A	STATS**	Tons/A	> 0 oz	> 0 oz	> 0 oz	Knobs	Malformed	Growth Cracks	
Red Skin/White Flesh										
Chieftain	654	A	32.7	95	3	2	0	1	8	2
NDA050237B-1R	410	BC	20.5	98	1	1	0	1	0	2
Purple/Yellow Flesh										
A05180-3PY	497	AB	24.8	98	0	2	0	0	9	0
Yellow Flesh										
Yukon Gold	401	BC	20.0	94	4	3	2	0	5	2
A02267-1Y	599	A	30.0	89	7	4	0	0	0	23
A05182-7RY	410	BC	20.5	99	1	1	0	0	2	0
POR02PG12-1	251	C	12.6	100	0	0	0	0	0	1
POR07PG20-2	289	C	14.5	95	1	3	0	6	0	2
POR07PG3-1	300	C	15.0	98	1	1	0	0	0	1
										1.059

ENTRY	US # 1 YIELD							INTERNAL DEFECTS (%)				
	CWT/A	STATS**	Tons/A	0-2 oz*	2-4 oz*	4-6 oz*	6-10 oz*	> 10 oz*	(6-10 oz tubers)	% HH	% BC	% IBS
Red Skin/White Flesh												
Chieftain	622	A	31.1	3	21	34	35	7	0	0	0	0
NDA050237B-1R	401	BC	20.0	12	34	23	22	9	0	0	0	0
Purple/Yellow Flesh												
A05180-3PY	485	AB	24.3	6	24	29	33	8	0	0	0	0
Yellow Flesh												
Yukon Gold	376	BC	18.8	4	21	23	40	11	0	0	0	0
A02267-1Y	534	A	26.7	5	22	27	38	8	0	0	0	0
A05182-7RY	405	BC	20.2	13	36	32	18	1	NA	NA	NA	NA
POR02PG12-1	250	C	12.5	30	38	18	14	0	10	0	0	0
POR07PG20-2	276	C	13.8	37	50	10	3	0	0	0	0	0
POR07PG3-1	294	C	14.7	22	38	23	15	2	0	0	0	0

ENTRY	SKIN SET	TUBER SHAPE	50 DAY STAND	STEMS PER PLANT	AVERAGE TUBER		SIZE UNIFORMITY	SHAPE UNIFORMITY	BRUISE (%)		Length to Width Ratio
	1 = Poor	1 = Round	STAND % Emerged	Above Ground	WEIGHT Ounces	NUMBER Tubers/Plant	1 = Poor	1 = Poor	(6-10 oz tubers)	BLACKSPOT SHATTER	1 = Round
	5 = Good	5 = Long					5 = Good	5 = Good			2 = Oblong
Red Skin/White Flesh											
Chieftain	3	1	94	1.7	4.8	8.9	3	4	0	7	1.1
NDA050237B-1R	2	1	93	1.7	3.6	7.4	4	4	0	10	1.1
Purple/White Flesh											
A05180-3PY	4	1	94	2.1	4.3	7.4	4	4	0	13	1.0
Yellow Flesh											
Yukon Gold	5	2	88	1.8	4.9	5.3	3	3	0	5	1.2
A02267-1Y	4	1	96	1.7	4.6	8.5	3	3	0	3	1.2
A05182-7RY	4	1	94	2.1	3.4	7.9	4	4	NA	NA	1.1
POR02PG12-1	4	1	89	3.5	2.7	6.3	4	4	0	30	1.2
POR07PG20-2	5	1	76	3.5	2.2	8.7	4	4	0	5	1.1
POR07PG3-1	3	1	65	2.1	3.1	6.7	3	3	0	20	1.2

* 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

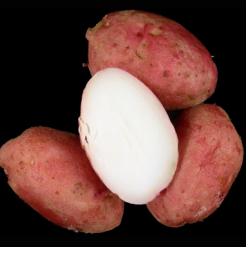
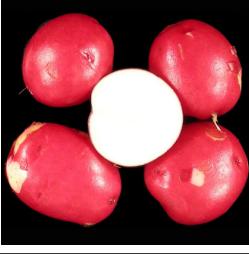
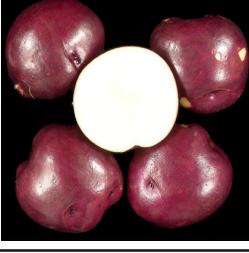
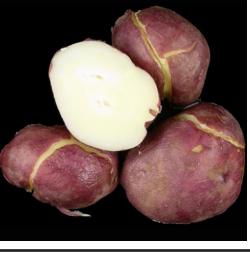
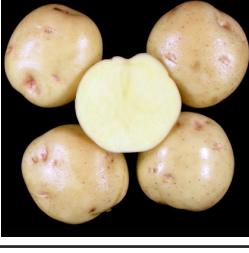
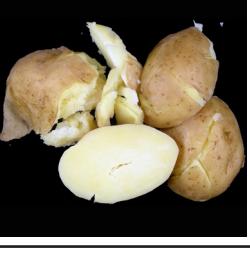
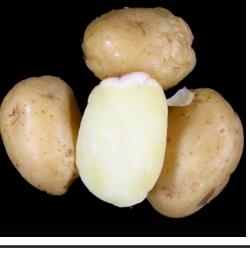
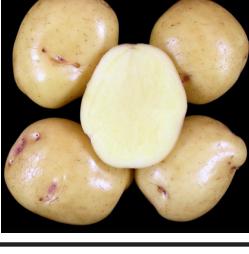
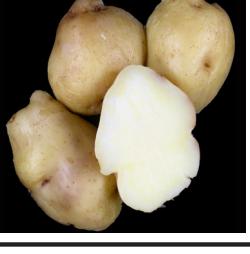
Postharvest Evaluation

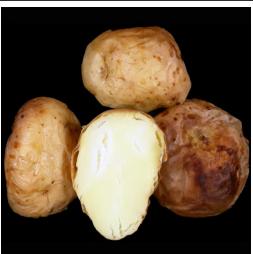
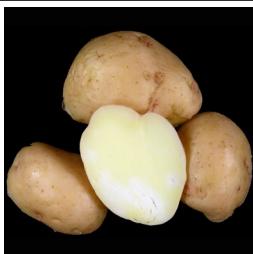
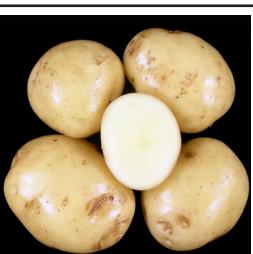
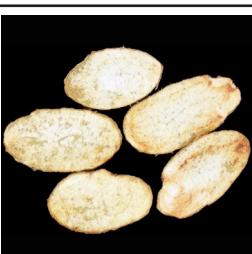
Clone	(French Fried) (3/8 x 1 1/8" slices)				(Chips)				(BOILED Cooking Time)				
	Raw	Stem	Bud	Average	After Frying	Stem	Bud	Average	Difference	USDA	SFA	Time to Breakdown (min)	
											Stem	Bud	Average
1 Chieftain	50.4	51.8	51.1	1.6	37.3	32.9	35.1	4.4	0	3.3	5.2	4.1	4.6
2 NDA050237B-1R	55.7	54.7	55.2	1.3	38.2	35.6	36.9	4.2	0	4.0	5.5	4.7	5.1
3 A05180-3PY	52.8	53.2	53.0	1.2	40.8	41.9	41.4	2.9	0	3.4	5.5	3.6	4.5
4 Yukon Gold	49.4	50.8	50.1	2.6	43.7	45.4	44.6	3.2	0	2.7	7.3	3.9	5.6
5 A02267-1Y	49.6	49.4	49.5	1.7	42.6	39.8	41.2	3.4	0	1.8	4.7	3.9	4.3
6 A05182-7RY	53.8	55.2	54.5	2.3	44.8	44.8	44.8	1.5	0	1.6	4.9	4.6	4.7
7 POR02PG12-1	44.2	44.7	44.4	1.4	32.3	34.4	33.3	2.9	0	3.2	5.2	3.8	4.5
8 POR07PG20-2	45.6	47.9	46.7	2.8	29.9	33.8	31.8	3.9	1	3.4	5.0	5.2	5.1
9 POR07PG3-1	48.9	51.7	50.3	3.6	40.0	40.1	40.1	2.1	0	1.9	4.9	4.8	4.9
LSD 0.05 *											1.4	0.9	
Average	50.0	51.0	50.5	2.0	38.8	38.8	38.8	3.2	0	2.8	5.4	4.3	4.8

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

Clone	Boiled (25 max)	Baked (25 max)	Microwaved (25 max)	Total (75 max)
4 Yukon Gold	18.9	18.7	17.7	55.3
1 Chieftain	17.7	17.6	18.7	54.0
9 POR07PG3-1	17.1	18.3	18.4	53.8
2 NDA050237B-1R	17.4	18.7	15.5	51.6
3 A05180-3PY	18.1	16.0	16.7	50.7
6 A05182-7RY	16.1	16.0	18.6	50.7
8 POR07PG20-2	17.1	16.6	17.0	50.6
7 POR02PG12-1	16.5	16.6	17.3	50.5
5 A02267-1Y	14.8	17.4	17.3	49.6

French Fried: Aug. 8
 Chipped: Aug. 8
 Boiled: Aug. 13
 Microwaved: Aug. 14
 Baked: Aug. 15
 Cooking Time: Aug. 16

Tubers	Chips	Baked	Boiled	Microwaved
Chieftain				
				
NDA050237B-1R				
				
A05180-3PY				
				
Yukon Gold				
				
A02267-1Y				
				

Tubers	Chips	Baked	Boiled	Microwaved
A05182-7RY				
				
POR0PG12-1				
				
POR07PG20-2				
				
POR07PG3-1				
				

Index of Clones and Cultivars

Early Harvest Tri-State Trial 10-11

A0012-5
A0073-2
A03141-6
A03921-2
A05052-3TE
A05084-11
A06003-3TE

A06021-1T
A06029-4T
A06084-1TE
A07001-7TE
AO03123-2
AOR06070-1KF
Ranger Russet

Russet Burbank
Russet Norkotah
Shepody

Late Harvest Tri-State Trial 12-19

A0012-5
A0073-2
A03141-6
A03921-2
A05052-3TE
A05084-11
A06003-3TE

A06021-1T
A06029-4T
A06084-1TE
A06914-3CR
A07001-7TE
AO03123-2
AOR06070-1KF

Ranger Russet
Russet Burbank
Russet Norkotah

Early Harvest Regional Trial 20-23

A02062-1TE
A02138-2
A02424-83LB
A02507-2LB
A03158-2TE
AC00395-2RU

AO01114-4
AO02060-3
CO03276-5RU
OR05039-4
POR06V12-3
Ranger Russet

Russet Burbank
Russet Norkotah
Shepody

Late Harvest Regional Trial 24-33

A02138-2
A02424-83LB
A02507-2LB
A03158-2TE
AC00395-2RU
AO01114-4

AO02060-3
AOTX98152-3RU
OR05039-4
POR06V12-3
Ranger Russet
Russet Burbank

Russet Norkotah

Tri-State Specialty Trial 34-37

A02267-1Y
A05180-3PY
A05182-7RY
Chieftain
NDA050237B-1R
POR02PG12-1

POR07PG20-2
POR07PG3-1
Yukon Gold