

2017 Potato Cultivar Yield and Postharvest Quality Evaluations

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WSU Potato Research Group



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2017 Potato Cultivar Yield and Postharvest Quality Evaluations

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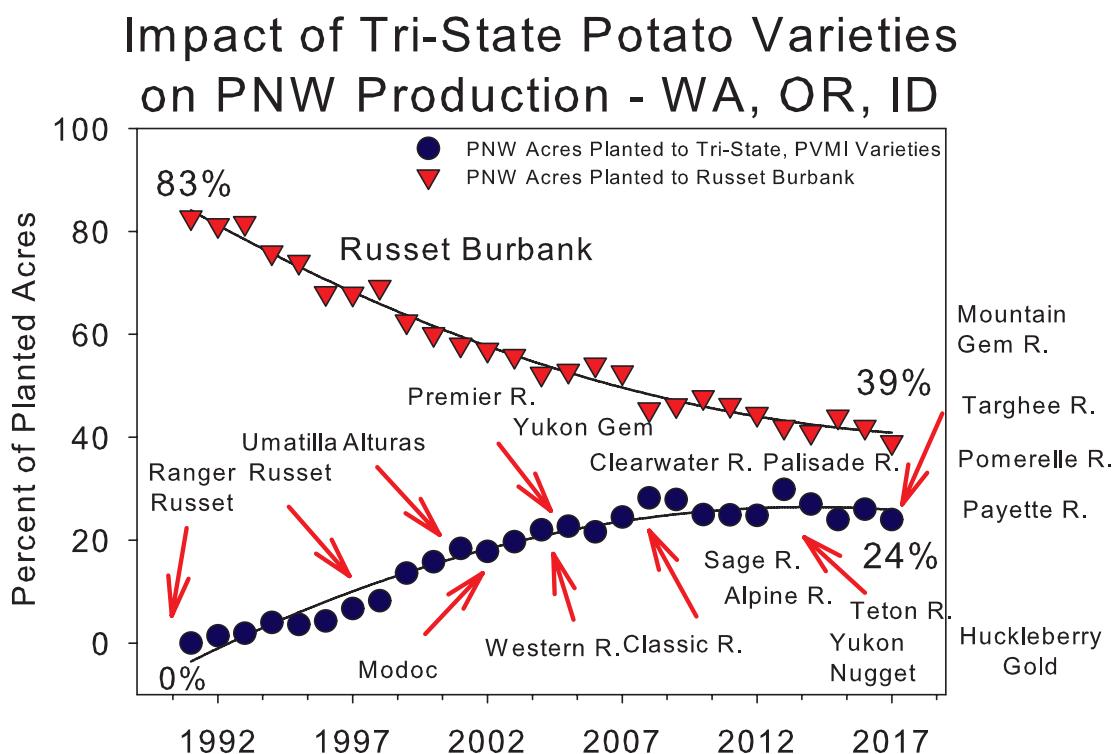
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On the cover: A drone was used this year
to take aerial photos of the potato seed lot
research trial.
Photo courtesy of Paco Gonzalez

INTRODUCTION

The 2017 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, Clearwater Russet, Bannock Russet, and Alturas, 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, 8th, 10th, and 12th most widely grown cultivars in the United States in 2017, respectively, with Tri-State varieties representing 24%, or 217,600 acres, of the fall crop nationally. (NASS, Crop Production, November 2017). Ranger Russet, Umatilla Russet, and Clearwater Russet were the 3rd, 4th, and 5th most widely grown cultivars in the PNW (ID, OR, WA) in 2017, respectively, and accounted for 23% of the PNW planted acreage. Varieties recently released by the Tri-State program are now produced on more than 138,000 acres in the Pacific Northwest with value to growers estimated at approximately \$700 million. In the past 15 years, the US farm-gate value of Tri-State varieties has increased by approximately \$130 million.



WA Multi-Year Summaries of Graduating Russet Entries and Reference Varieties												
Entry	Year	Average Tuber						Market Scores (3 = Best)				
		Early/Late ^a		US # 1 & 2		Weight ^b /Number per Plant	Bruises/Blackspot/ ^c Shatter	Internal Issues ^d	Field Performance		Post-harvest Processing Performance	
		Total Yield	>6 oz	Specific Gravity	Yield				Early/Late Fresh	Early/Late Processor		
AD3141-6	2017	GWTIA	% of Total	co/number	%				2.30/3	2.07/7	2.6	
	2016	4208T3	60	1.034	14.75/1	3/T3	none		2.30/3	2.07/7	3.5	
	2015	5208T5	61	1.035	12.45/1	2/T0	none		2.41/1	3.07/3	3.5	
	2014	4207T20	67	1.033	12.25/3	0/T4	none		2.31/5	4.24/4	4.7	
	2013	5207T1	63	1.033	13.35/0	2/T0	none		2.31/4	4.44/5	4.3	
	2012	4208T1	60	1.034	7.71/2	2/T4	30% HH	2.02/1	2.44/6	4.5		
High yield of large tubers, could be used as a Shapody early-harvest replacement. Processes well early and late, not recommended for the fresh industry. Short tubers, smaller tubers and hollow heart may be a concern. Storage dormancy may be good.												
AD05125-2	2017	4117T21	TT	1.037	7.5/0.3	3/T3	none	0.30/0	1.57/2.2	2.9		
	2016	4208T14	T5	1.034	8.0/0.2	3/T7	none	0.30/0	1.87/4.2	3.8		
	2015	3208T03	T3	1.030	8.4/0.2	4/T6	none	1.30/3	3.07/3.5	4.7		
	2014	4208T23	T3	1.035	6.3/5.0	1/T4	35% HH	2.01/1	2.47/2.9	3.5		
	2013	34208H	T6	1.035	7.5/0.1	0/T0	none	1.30/5	2.34/7	4.6		
High resistance to Blackspot bruising b/c plus. This does perform best as a late-harvest French fry processor. Due to irregular tuber shape and high hollow centers, the fresh market may not be a good option. Storage dormancy may be good.												
ACR9060T0-1 MP ^e	2017	4318T19	T3	1.101	6.0/0.1	3/T5	85% HH	1.41/4	2.07/2.0	2.9		
	2016	5208T2	61	1.035	9.2/0.3	1/T0	35% HH	1.62/0	2.67/3.7	3.7		
	2015	4208T63	64	1.035	9.4/0.3	0/T2	none	1.61/3	4.07/3.7	4.3		
	2014	5208T63	60	1.035	14.05/0	1/T2	none	1.31/4	3.17/3.1	3.8		
	2013	3418T62	61	1.031	10.2/T.7	2/T6	45% HH	1.41/4	2.77/2.6	4.0		
High specific gravity. Typically 60% of tubers are larger than 6 oz. Blackspot bruising appears to be lower than Ranger R, but hollow center is a concern. Could be used for early, medium and late-harvest French fry processing. Hollow heart is a concern.												
Ranger R ^f	2017	4208T34	61	1.034	6.1/0.3	2/T6	none	NA	2.77/2.9	2.4		
	2016	4207T66	TT	1.037	6.4/0.0	3/T3	none	NA	2.67/4.5	3.2		
	2015	4T20821	TT	1.035	7.1/0.0	1/T2	none	NA	3.07/3.8	4.9		
	2014	52408R1	T6	1.037	6.9/0.6	4/T3	35% HS/S	NA	4.37/2.5	2.6		
	2013	4T20821	T5	1.035	7.0/0.4	2/T5	none	NA	2.77/4.4	3.8		
Long, shape variable at harvest, yet uniform after illness.												
R. Burbank	2017	4208T32	TT	1.035	4.6/0.3	1/T3	10% HH, 10% BC	1.60/3	1.57/3.2	2.3		
	2016	5208T34	63	1.035	6.6/0.0	5/T7	11% BC, 10% HH	0.31/3	2.07/2.2	2.2		
	2015	4208T77	T0	1.032	7.7/0.0	4/T0	25% BC	1.31/4	2.97/2	2.7		
	2014	4208T30	63	1.037	9.4/0.0	3/T0	25% HH, 25% BC	0.30/4	1.37/1.2	2.0		
	2013	3208T36	67	1.035	6.0/1.5	2/T7	25% HH, 25% BC	1.30/6	1.37/1.7	1.9		
Shape/texture variable, often with many growth cracks and knobs.												
R. Norfolish (from research only)	2017	5180825	T6	1.035	6.3/T.7	2/T3	none	2.02/6	NA	NA		
	2016	4T30826	63	1.035	6.6/0.3	2/T2	none	2.32/5	NA	NA		
	2015	4208002	T0	1.035	7.7/T.6	2/T3	none	1.70/5	NA	NA		
	2014	4207T30	T3	1.030	7.5/0.0	2/T1	none	2.30/5	NA	NA		
	2013	3208006	58	1.037	5.7/T0.5	1/T0	25% HH, 25% BC	2.00/0	NA	NA		
Shape and skin typically very uniform, size partly typical on the small side.												
Shapody (early harvest only)	2017	413	60	1.037	0.3	T0	none	NA	3.47/NA	-		
	2016	502	62	1.032	11.19.9	2/T4	none	NA	4.37/NA	-		
	2015	467	T2	1.035	6.7	T/T	none	NA	3.47/NA	-		
	2014	523	64	1.033	9.9/5.6	1/T0	none	NA	3.67/NA	-		
	2013	354	TT	1.032	7.0/T.4	2/T0	none	NA	2.67/NA	-		
Early-harvest processing variety. Early-harvest post-harvest meat not analyzed due to fibrous and mealy texture. Typically processes acceptable & not different from the field.												

Early Harvest = 110 days to plantings, Late Harvest = 130 days.

HH = Hollow heart, BC = broken center, BS = Internal broken spot.

FRESH MARKET MERIT - NEWEST LINES 2015-2017

(5 = best) - Entries ranked by means

EARLY HARVEST - Fresh Market Merit Scores

Entry	Mean	2017	2016	2015
1 POR12NGK50-1	3.4	3.4	-	-
2 Russet NorKatah	2.5	4.3	1.6	1.8
3 A10021-5TE	2.4	2.4	-	-
4 A07769-4	2.4	2.4	-	-
5 A07088-4	2.2	2.2	-	-
6 AOR06576-1	2.1	1.2	3.1	-
7 A07705-4	2.1	2.1	-	-
8 AOR07821-1	2.0	2.3	1.7	-
9 A08422-4VRsto	1.8	1.8	-	-
10 A071012-4BF	1.7	1.9	1.5	-
11 A08422-2VRsto	1.6	1.4	1.9	-
12 Ranger Russet	1.6	1.3	2.2	1.4
13 A07088-6	1.5	1.5	1.5	-
14 A08510-1LB	0.9	0.9	-	-
15 Russet Burbank	0.8	1.1	0.9	0.6

LATE HARVEST - Fresh Market Merit Scores

Entry	Mean	2017	2016	2015
1 Russet NorKatah	2.6	2.5	2.9	2.4
2 AOR06576-1	2.4	2.4	2.4	-
3 A07769-4	2.2	2.2	-	-
4 A07705-4	2.1	2.1	-	-
5 POR12NGK50-1	1.9	1.9	-	-
6 Ranger Russet	1.8	0.9	2.7	1.7
7 A071012-4BF	1.7	1.8	1.7	-
8 AOR07821-1	1.6	1.2	1.9	-
9 A07088-4	1.4	1.4	-	-
10 A08422-2VRsto	1.2	1.2	1.3	-
11 Russet Burbank	1.1	0.9	1.2	1.3
12 A10021-5TE	0.9	0.9	-	-
13 A08510-1LB	0.7	0.7	-	-

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

FRESH MARKET MERIT - ADVANCED LINES 2013-2017

(5 = best) - Entries ranked by means

EARLY HARVEST - Fresh Market Merit Scores

Entry	Mean	2017	2016	2015	2014	2013
1 AO06191-1*	3.9	4.6	3.4	3.4	4.0	-
2 Russel Norkotah	2.7	5.0	2.5	1.7	2.3	2.0
3 CO08065-2RU	2.7	2.7	-	-	-	-
4 Ranger Russel	2.6	3.1	2.8	2.7	2.6	1.7
5 CO08231-1RU	2.5	2.5	-	-	-	-
6 A03141-6	2.4	2.5	2.4	2.3	2.2	2.8
7 AOR07781-5	2.3	2.4	2.3	-	-	-
8 A08433-4vR	2.1	2.1	-	-	-	-
9 A08009-2TE	2.1	2.1	2.3	2.0	-	-
10 TX08352-5Ru	2.0	1.0	2.2	2.8	-	-
12 CO08155-2RU/Y	1.8	1.8	-	-	-	-
13 A06030-23	1.7	1.5	0.5	3.1	-	-
14 AOR06070-1KF	1.5	1.4	1.6	1.6	1.3	1.4
15 A07061-6	1.4	0.7	2.1	-	-	-
16 A003123-2	1.3	0.9	0.9	1.2	2.0	1.5
17 COTX09022-3RuRE/Y	1.3	1.6	2.0	0.3	-	-
18 Russel Burbank	1.1	1.0	0.9	1.3	0.9	1.2

*Shatter bruise on AO06191-1 may be a concern

LATE HARVEST - Fresh Market Merit Scores

Entry	Mean	2017	2016	2015	2014	2013
1 Russel Norkotah	2.4	2.6	2.5	2.5	3.5	1.0
2 A08009-2TE	2.4	1.6	3.0	2.5	-	-
3 A003123-2	2.3	3.0	1.9	2.3	1.1	3.5
4 AO06191-1	2.3	1.6	4.4	1.8	1.5	-
5 TX08352-5Ru	2.3	2.4	2.5	1.9	-	-
6 AOR07781-5	2.2	1.4	3.0	-	-	-
7 A07061-6	2.1	2.0	2.1	-	-	-
8 A08433-4vR	1.9	1.9	-	-	-	-
9 A06030-23	1.8	1.7	0.8	2.9	-	-
10 AOR06070-1KF	1.6	1.4	2.0	1.9	1.4	1.4
11 A03141-6	1.5	0.9	1.7	1.5	1.4	2.1
12 Ranger Russel	1.4	1.0	2.2	1.8	1.3	0.9
13 CO08231-1RU	1.1	1.1	-	-	-	-
14 CO08155-2RU/Y	1.0	1.0	-	-	-	-
15 COTX09022-3RuRE/Y	0.9	1.3	1.4	0.1	-	-
16 Russel Burbank	0.9	0.9	1.3	1.4	0.4	0.6
17 CO08065-2RU	0.9	0.9	-	-	-	-

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 2015-2017

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

Entry	Field Performance Mean	Field Performance Only		
		2017	2016	2015
1 A10021 STE	4.7	4.7		
2 A07769 4	4.6	4.5		
3 Shepady	4.1	5.0	4.3	2.9
4 A08422 4WResto	4.0	4.0		
5 POR12NQ450 1	3.7	3.7		
6 A07098 4	3.6	3.5		
7 Ranger Russet	3.6	3.7	2.7	4.0
8 ACR07821 11	3.2	3.5	2.9	
9 A08422 2WResto	2.9	2.7	3.0	
10 A07098 6	2.9	3.3	2.4	
11 ACR06576 1	2.8	2.2	3.3	
12 A07705 4	2.7	2.7		
13 Russet Norkotah	2.7	3.4	2.0	2.6
14 A071012 48F	2.6	2.2	3.0	
15 Russet Burbank	2.6	3.4	2.6	1.3
16 A08510 1U8	2.3	2.3		

*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.

Entry	Field & Postharvest Processing Performance									
	All Years		(Washington only)							
	Field	Harvest	WA Post1		2017		2016		2015	
Entry	Field Mean	Harvest Mean	Field	Harv	Field	Harv	Field	Harv	Field	Harv
1 A07769 4	4.6	2.6	4.6	2.6						
2 A07705 4	4.3	na	4.3	na						
3 Ranger Russet	3.6	3.6	3.1	2.6	3.8	3.9	4.1	4.4		
4 A07098 4	3.4	2.8	3.4	2.8						
5 ACR06576 1	3.2	2.1	3.2	na	3.3	2.1				
6 POR12NQ450 1	3.2	2.9	3.2	2.9						
7 ACR07821 11	2.9	2.6	4.1	1.7	1.8	3.3				
8 A071012 48 F	2.7	1.8	2.4	1.7	3.0	1.8				
9 A08422 2WResto	2.6	2.9	2.4	1.7	2.9	2.8				
10 Russet Burbank	2.4	2.3	2.7	2.2	3.1	2.4	1.3	2.2		
11 A10021 STE	2.3	3.4	2.3	3.4						
12 A08510 1U8	1.6	2.9	1.6	2.9						
13 Russet Norkotah	1.6	na	1.5	na						

For more information on these cultivars, see the Early and Late Harvest Tri-State Trial Sections in this Book. The dash (" - ") indicates the clone was not yet entered into the trial. Varieties with 'fresh' were designated for direct processing or fresh market only and are indicated with "na".

PROCESS MARKET MERIT - ADVANCED LINES 2013-2017

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

Entry	Field Performance Mean	Field Performance Only*				
		2017	2016	2015	2014	2013
1 A08141 6	4.0	5.0	3.9	4.3	4.4	2.4
2 A08077815	3.7	4.9	2.5			
3 A08181 1	3.6	3.2	3.9	3.6		
4 Shepody	3.5	3.4	4.3	3.4	3.8	2.6
5 Ranger Russet	3.2	2.7	2.6	3.6	4.3	2.7
6 A0806070 1KF	3.1	2.9	2.8	4.0	3.1	2.7
7 Russet Norkotah	3.0	4.0	3.1	3.3	2.6	2.0
8 TX08352 SRu	2.9	1.5	4.3	2.8		
9 A08009 2TE	2.8	1.6	3.5	3.4		
10 A08433 4VR	2.8	2.8				
11 A08123 2	2.3	1.5	1.8	3.6	2.4	2.2
12 CO08156 2RU/Y	2.2	2.2				
13 A07061 6	2.1	1.1	3.2			
14 CO TX08022 3RUY/Y	2.0	2.9	2.3	0.8		
15 CO08231 1RU	1.9	1.9				
16 CO08065 2RU	1.9	1.9				
17 Russet Burbank	1.8	1.6	2	2.9	1.3	1.4
18 A08030 23	1.7	1.0	1.3	2.8		

*Postharvest values are not given for the Early Harvest Trial because all varieties typically fly well when delivered directly from the field and cold storage is not typical. The dash ('-') indicates the entry was not yet entered into the trial.

Entry	Field & Postharvest Processing Performance													
	All Years (WA, Post)		(Washington only)		2017		2016		2015		2014		2013	
	Field Mean	Harvest Mean	Field Post	Harv	Field	Harv								
1 A08141 6	4.0	4.0	2.7	2.9	3.9	3.6	4.1	4.7	4.6	4.3	4.6	4.5		
2 A08433 4VR	3.7	2.0	3.7	2.0										
3 A08009 2TE	3.7	na	3.7	na										
4 Ranger Russet	3.6	3.4	2.9	2.4	4.6	3.2	3.8	4.9	2.6	2.8	4.4	3.8		
5 A08123 2	3.5	3.9	2.2	2.9	4.2	3.8	3.5	4.7	2.9	3.5	4.7	4.6		
6 A08077815	3.2	3.4	2.4	2.8	4.0	4.0								
7 A08181 1	3.1	3.7	2.8	3.0	4.0	3.0	2.4	4.7	3.1	3.9				
8 A0806070 1KF	3.0	3.7	2.0	2.9	3.7	3.7	3.7	4.3	3.1	3.8	2.8	4.0		
9 A08030 23	2.4	4.4	2.1	4.1	1.7	4.3	3.4	4.9						
10 A07061 6	2.3	2.6	3.3	2.4	1.3	2.8								
11 Russet Burbank	2.1	2.2	3.2	2.3	3.2	2.2	1.2	2.7	1.2	2.0	1.7	1.9		
12 CO08065 2RU	1.7	3.1	1.7	3.1										
13 CO08231 1RU	1.6	na	1.6	na										
14 CO08156 2RU/Y	1.6	2.4	1.6	2.4										
15 TX08352 SRu	1.6	2.3	1.2	na	2.1	na	1.5	2.3						
16 Russet Norkotah	1.3	na	1.3	na										
17 CO TX08022 3RUY/Y	0.9	na	1.0	na	1.6	na	0.2	na						

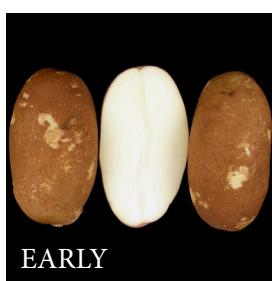
For more information on these cultivars, see the Early and Late Harvest Regional Trial Sections in this Book. Varieties with 'fresh' were designated for direct processing or fresh market only and are indicated with "na".

At-Harvest Grading Comments & Fresh Market Appearance

Newest Lines - 2017 Tri-State Trials				
Clone	Fresh Market Appearance 1-5 (5 = Best)		Tuber Appearance Comments*	
	2017	2016		
Early Harvest Tri-State				
Ranger Russet	2.3	2.7	Shape a bit irregular, lots of points.	
Russet Burbank	2.0	2.0	Shapes a bit irregular, cracks, UGLY.	
Russet Norkotah	4.0	3.7	Mostly typy, dark russet.	
Shepody	3.0	2.0	Typical Shepody, light skin, plump.	
A07088-6	2.3	2.0	A lot of short ones, not an early variety.	
A07098-4	2.0	-	Light skin, large range of shapes.	
A071012-4BF	2.0	2.0	Highly irregular shapes, light russet, not early. DISCARD	
A07705-4	3.0	-	Light russet, wide range in size, not early.	
A07769-4	3.0	-	Smaller, short and plump.	
A08422-2VRsto	2.7	3.0	Short, light russetting, small, not early.	
A08422-4VRsto	2.0	-	Many pears, not early.	
A08510-1LB	2.7	-	Small, round, light russet.	
A10021-5TE	2.3	-	Irregular shapes, bad skin, long and skinny.	
AOR06576-1	2.3	3.3	Not early, light russet, irregular shapes.	
AOR07821-1	3.3	2.3	Nice dark russet, typy, but a bit short.	
POR12NCK50-1	4.0	-	Looked like Norkotah, but smaller. Dark russet, typy.	
Late Harvest Tri-State				
Ranger Russet	2.0	3.0	Large, shape a bit irregular.	
Russet Burbank	1.7	2.5	Many irregular shapes.	
Russet Norkotah	4.0	3.5	Mostly typy.	
A07098-4	2.0	-	Light skin, most had good length, a few were round.	
A071012-4BF	2.5	2.0	Short and plump.	
A07705-4	2.0	-	Many pears with irregular shapes.	
A07769-4	2.3	-	Plump, some long, some short.	
A08422-2VRsto	2.0	2.8	Most too short, irregular shapes.	
A08510-1LB	1.0	-	Too small, many round, DISCARD!	
A10021-5TE	1.8	-	Mostly typy, but really bad skin. (Road mapping)	
AOR06576-1	3.0	2.0	Long, good length, somewhat typy.	
AOR07821-1	2.0	2.0	Some very irregular shapes, lumpy, oval.	
POR12NCK50-1	3.0	-	Blocky, shape mostly uniform.	

*Typy - Visually appealing, uniform tuber shape.

POR12NCK50-1



AOR06576-1



POR12NCK50-1



R. Norkotah



At-Harvest Grading Comments & Fresh Market Appearance

Clone	Advanced Lines - 2017 Regional Trials			Tuber Appearance Comments*	
	Fresh Market Appearance				
	2017	2016	2015		
	1-5 (5 = Best)				
Early Harvest Regional					
Ranger Russet	3.0	4.0	3.0	Mostly typy, good size, a bit pointy.	
Russet Burbank	2.7	2.3	2.5	Irregular shape, poor skin set.	
Russet Norkotah	4.0	3.3	2.5	Typy, nice size and skin set.	
Shepody	3.0	1.7	2.0	Large, light color skin, poor skin set.	
A03141-6	2.7	2.3	2.0	Non uniform shape and russetting.	
A06030-23	3.7	2.0	4.0	Typy, light eyes, dark skin, smaller.	
A07061-6	2.0	2.0	-	Small, not early, ugly.	
A08009-2TE	3.3	3.0	4.0	Mostly typy, good skin set, smaller.	
A08433-4VR	2.3	-	-	Nonuniform shape and size, ugly.	
A003123-2	2.7	2.7	3.0	Not early, small, irregular shapes.	
A06191-1	4.0	4.0	4.0	Typy with nice skin.	
AOR06070-1KF	2.3	2.3	1.7	Shape not uniform, lumpy.	
AOR07781-5	2.7	3.3	-	Large, deep eyes, bumpy.	
CO08065-2RU	3.7	-	-	Lots of cracks, smaller.	
CO08155-2RU/Y	2.7	-	-	Elephant hide on 20%, not an early variety.	
CO08231-1RU	3.3	-	-	Not early, typy, small and round.	
COTX09022-3RuRE/Y	2.0	2.0	1.0	Round pink eyes, russetting is ugly, discard!	
TX08352-5Ru	3.7	3.7	4.0	Small, typy, good skin set.	
Late Harvest Regional					
Ranger Russet	2.3	3.3	2.0	Long, shape a bit irregular.	
Russet Burbank	2.3	2.7	2.8	Many irregular shapes.	
Russet Norkotah	4.0	3.0	4.0	Mostly typy.	
A03141-6	1.3	1.8	1.8	Large, round, and lumpy! Ugly.	
A06030-23	3.5	3.0	4.0	Mostly typy, uniform shape, nice skin.	
A07061-6	2.0	2.0	-	Light russetting with buff skin, mostly round.	
A08009-2TE	2.5	3.5	3.0	Some typy, a bit short, some irregular shapes.	
A08433-4VR	1.3	-	-	Short, oval, flat, look like river rocks.	
A003123-2	3.0	2.0	3.3	Good length, a few round tubers.	
A06191-1	3.3	4.0	4.0	Large tubers, typy, nice skin and uniform size.	
AOR06070-1KF	1.3	2.0	2.5	Very irregular shaped, DISCARD.	
AOR07781-5	2.5	3.8	-	Somewhat typy, non uniform shape and size.	
CO08065-2RU	1.7	-	-	Bad skin, with lots of cracks.	
CO08155-2RU/Y	2.0	-	-	Small, severe elephant hide.	
CO08231-1RU	2.5	-	-	Many short ones, irregular shapes.	
COTX09022-3RuRE/Y	2.0	1.5	1.0	Round russet with pink eyes. Maybe a chipper?	
TX08352-5Ru	4.0	3.0	4.0	Looks like Russet Norkotah, but smaller.	

*Typy - Visually appealing, uniform tuber shape

AO06191-1



A06030-23



AO06191-1



A06030-23



2017 Tri-State Specialty Potato Clones - Washington State University

2017 Tri-State Specialty Trial						
<u>US #1 Yield</u>	2017		Fresh	(See also Tri-State Specialty Section near end of book)		
	US#1	Market				
	Yield	0-6oz 6-10oz	Appearance			
	CWT/A	-----%	5 = best		Comments	
<u>Red Skin/White Flesh*</u>						
Chieftain	649	42	42	4.0	Typy, uniform size. Deep red color.	
<u>Yellow Flesh</u>						
Yukon Gold	479	25	33	3.0	Lots of rhizoc, large tubers.	
A06336-2Y	421	77	22	3.3	Small, a bit flat, some rhizoc.	
A06336-5Y	475	96	3	4.0	Nice, uniform shape and size.	
<u>Fingerling</u>						
LaRatte	108	77	0	3.0	Light skin, long and pointy.	
POR11PG62-3	216	96	0	3.0	Lots of irregular shapes, small.	

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

Chieftain



LaRatte



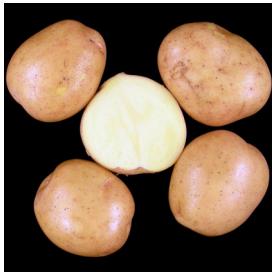
A06336-2Y



Yukon Gold



A06336-5Y



POR11PG62-3



2017 Alternative Inputs Research Trial Applications



2017 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	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		% of Total Yield
Ranger Russet	439	FG	22.0	76	10	14	37	8.1	63	13.9
Russet Burbank	501	CDEF	25.1	59	13	29	34	8.5	54	13.6
Russet Norkotah	549	ABCD	27.5	88	2	11	48	13.2	65	17.8
Shepody	503	BCDEF	25.1	89	4	8	60	15.0	83	21.1
A07088-6	494	CDEF	24.7	79	2	19	37	9.2	48	11.9
A07098-4	595	A	29.8	85	2	13	46	13.6	62	18.5
A071012-4BF	478	DEFG	23.9	85	3	12	55	13.1	69	16.4
A07705-4	502	CDEF	25.1	70	1	29	25	6.3	39	9.7
A07769-4	579	AB	29.0	85	1	14	48	13.8	64	18.7
A08422-2VRsto	468	EFG	23.4	74	0	26	27	6.2	40	9.3
A08422-4VRsto	540	ABCDE	27.0	91	0	8	65	17.6	74	19.9
A08510-1LB	416	G	20.8	56	0	44	17	3.6	23	4.8
A10021-5TE	569	ABC	28.5	84	3	13	52	14.9	66	18.9
AOR06576-1	518	BCDE	25.9	76	2	23	25	6.5	38	9.9
AOR07821-1	535	ABCDE	26.8	76	6	18	43	11.4	59	15.9
POR12NCK50-1	473	DEFG	23.7	79	1	19	42	10.0	55	13.2

ENTRY	US # 1 YIELD					> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%)			
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	> 4 oz	4-7 oz*		7-14 oz*	> 14 oz*	(8-12 oz tubers)	
					%					
Ranger Russet	334	EF	16.7	50	46	1.097	0	0	0	0
Russet Burbank	294	FG	14.7	39	52	1.089	0	3	0	0
Russet Norkotah	481	ABC	24.1	44	50	1.097	0	0	0	0
Shepody	448	ABCD	22.4	19	54	1.091	0	0	0	0
A07088-6	392	DE	19.6	53	44	1.099	0	0	0	0
A07098-4	509	A	25.4	46	52	1.082	0	0	0	0
A071012-4BF	407	CDE	20.4	35	53	1.097	0	0	0	0
A07705-4	349	EF	17.5	62	36	1.074	0	0	0	0
A07769-4	493	AB	24.7	44	56	1.079	0	0	0	0
A08422-2VRsto	346	EF	17.3	63	35	1.081	0	0	0	0
A08422-4VRsto	493	AB	24.7	28	65	1.087	2	2	0	0
A08510-1LB	234	G	11.7	70	30	1.086	0	0	0	0
A10021-5TE	480	ABC	24.0	38	55	1.086	0	0	0	0
AOR06576-1	392	DE	19.6	67	33	1.099	0	2	0	0
AOR07821-1	409	BCDE	20.4	44	51	1.096	0	2	0	0
POR12NCK50-1	376	DEF	18.8	47	50	1.093	0	0	0	0

ENTRY	40 DAY STAND	50 DAY STAND	60 DAY STAND	STEMS PER PLANT	AVERAGE TUBER WEIGHT Ounces		Skin Set	Tuber Shape	Bruise (%) (8-12 oz tubers)	
	% Emerged	% Emerged	% Emerged	Above Ground	Tubers/Plant	1 = Poor 5 = Good	1 = Round 5 = Long	Blackspot	Shatter	
Ranger Russet	89	96	98	2.1	6.4	7.1	3	3	2	2
Russet Burbank	49	82	100	2.1	6.4	8.6	3	3	3	0
Russet Norkotah	62	84	98	2.3	6.5	8.8	3	4	0	0
Shepody	38	73	100	1.9	8.9	6.0	3	3	0	0
A07088-6	53	96	100	2.4	5.9	8.8	3	2	0	2
A07098-4	16	89	100	2.5	6.3	9.8	3	2	0	6
A071012-4BF	64	93	100	2.0	7.3	7.0	3	2	0	2
A07705-4	16	91	96	2.5	4.8	10.9	3	3	0	0
A07769-4	9	82	100	2.7	6.3	9.6	3	3	0	3
A08422-2VRsto	13	73	98	1.7	5.0	9.7	4	3	0	0
A08422-4VRsto	4	82	98	1.7	7.7	7.4	3	2	0	19
A08510-1LB	7	73	96	2.6	4.1	10.7	3	3	0	0
A10021-5TE	7	84	100	2.9	6.7	8.8	3	4	0	7
AOR06576-1	24	98	100	2.6	5.1	10.6	2	3	2	0
AOR07821-1	11	84	96	2.3	6.2	9.0	4	3	2	24
POR12NCK50-1	11	89	100	2.4	5.7	8.6	3	4	2	0

* Percent values may not total 100% due to rounding

2017 Seed Lot Disease Readings



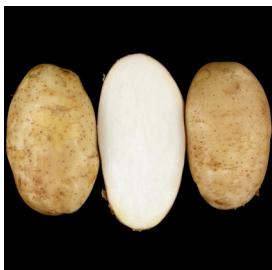
2017 Early Harvest Tri-State Trial

Tubers

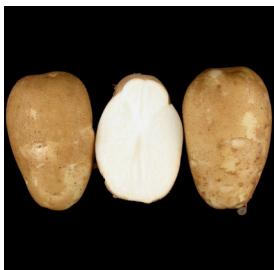
Ranger Russet



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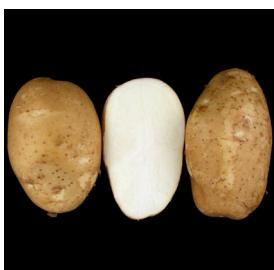
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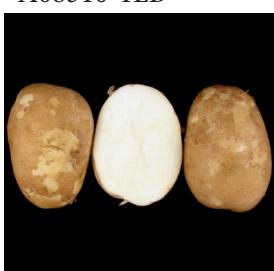
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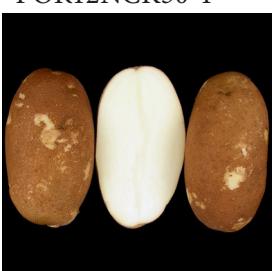
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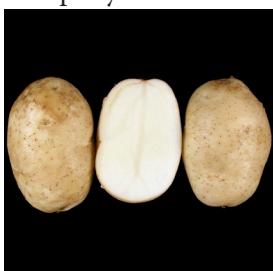
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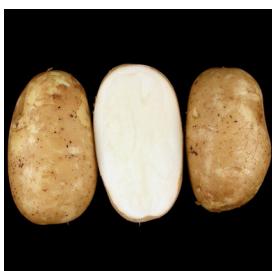
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Shepody



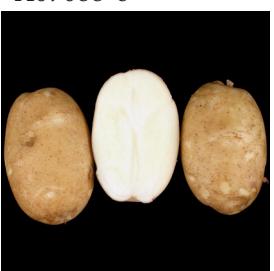
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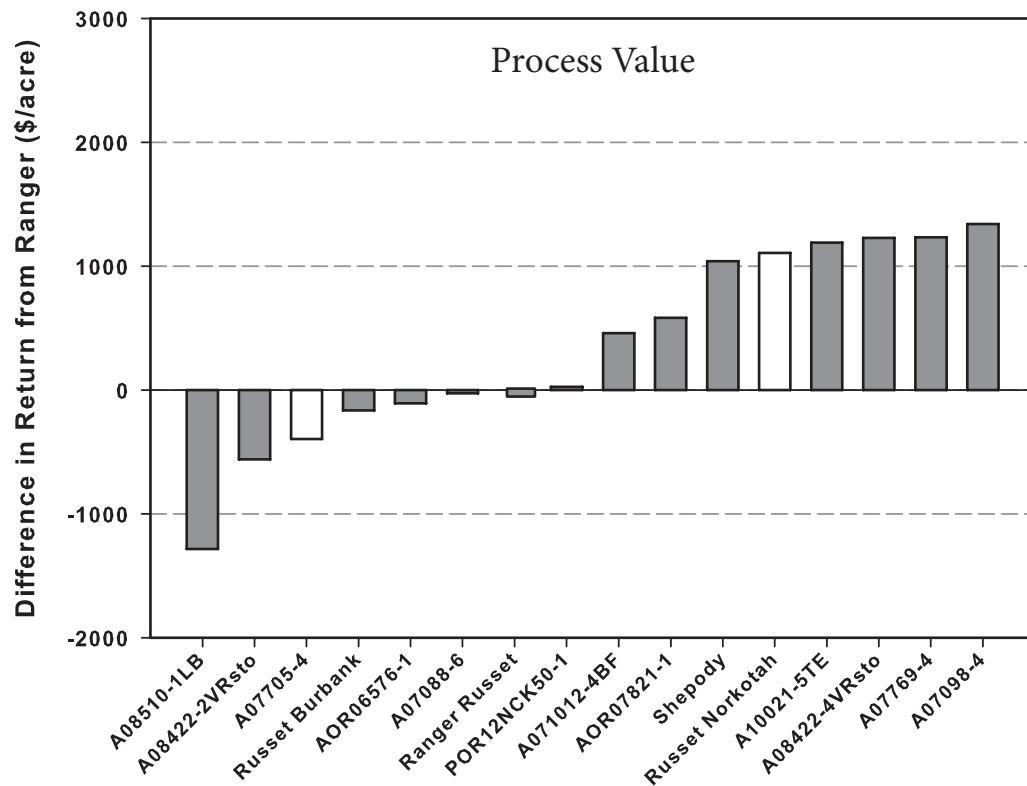
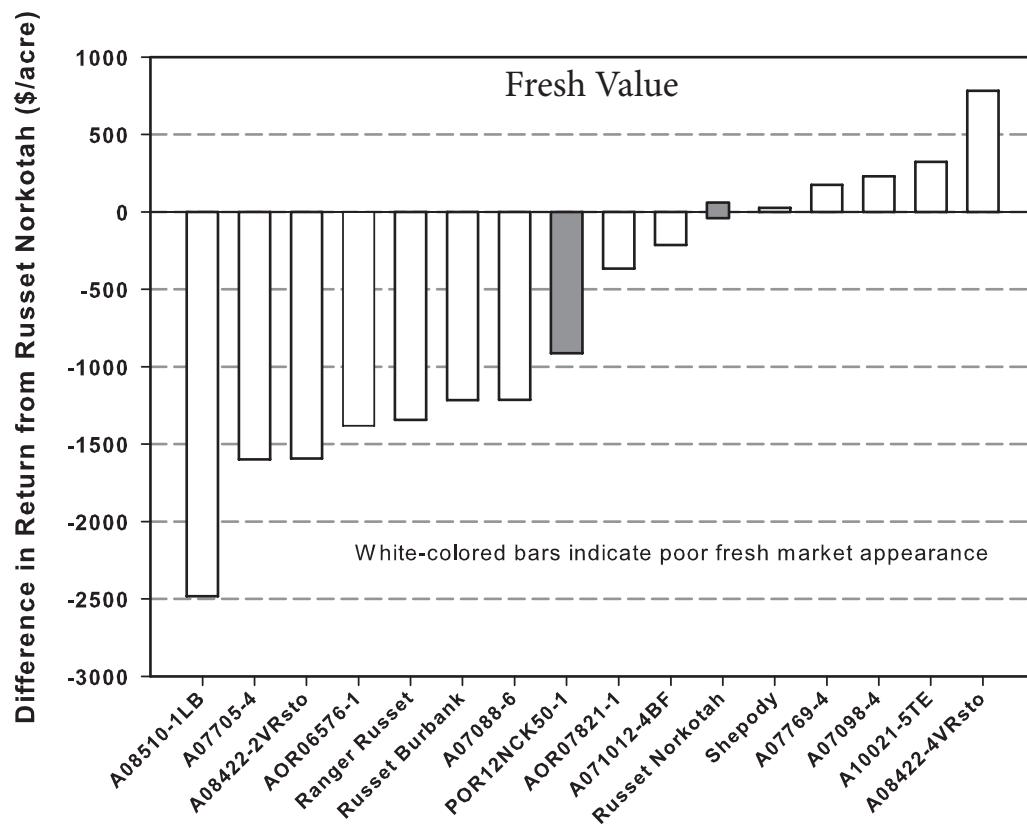


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. **Figure 2 (Bottom).** Difference in gross return per acre (Process Market) from Ranger Russet calculated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

2017 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				100-50 count (US 1's 7-18 oz)	Tons/A	US 1's and 2's > 6 oz	Tons/A			
							% of Total Yield						
Ranger Russet	721	EF	36.0	82	11	7	66	19.7	82	29.7			
Russet Burbank	747	CDEF	37.3	85	8	8	69	21.7	82	30.6			
Russet Norkotah	724	DEF	36.2	92	1	6	70	23.5	80	28.9			
A07098-4	845	B	42.2	91	2	7	74	28.4	82	34.6			
A071012-4BF	851	B	42.5	91	6	3	71	27.5	88	37.5			
A07705-4	1027	A	51.3	92	1	6	72	33.9	82	42.2			
A07769-4	969	A	48.5	93	2	5	79	35.7	90	43.3			
A08422-2VRsto	790	BCDE	39.5	88	4	8	82	28.4	86	34.0			
A08510-1LB	670	F	33.5	86	1	14	62	17.8	67	22.6			
A10021-5TE	797	BCDE	39.9	90	3	7	67	24.1	82	32.9			
AOR06576-1	820	BCD	41.0	92	1	7	76	28.6	85	34.7			
AOR07821-1	949	A	47.4	91	5	5	61	26.1	87	41.4			
POR12NCK50-1	807	BCD	40.3	92	2	6	73	27.0	86	34.8			

ENTRY	US # 1 YIELD					> 4 oz SPECIFIC GRAVITY	INTERNAL DEFECTS (%)			
	> 4 oz CWT/A	STATS**	> 4 oz Tons/A	> 4 oz	4-7 oz*	7-14 oz*	> 14 oz*			
				%	%	%	%	%	%	%
Ranger Russet	596	FG	29.8	21	54	26	1.088	0	0	0
Russet Burbank	632	EFG	31.6	21	54	25	1.092	5	0	0
Russet Norkotah	669	DEF	33.5	24	55	21	1.075	0	0	0
A07098-4	768	C	38.4	22	65	13	1.084	0	0	0
A071012-4BF	774	C	38.7	16	51	33	1.099	0	0	0
A07705-4	946	A	47.3	21	59	20	1.082	0	0	3
A07769-4	906	AB	45.3	11	59	29	1.083	0	0	0
A08422-2VRsto	694	CDE	34.7	14	64	22	1.083	0	0	8
A08510-1LB	575	G	28.7	33	51	16	1.090	0	0	0
A10021-5TE	716	CDE	35.8	16	51	33	1.085	0	0	0
AOR06576-1	756	C	37.8	15	61	23	1.080	0	0	0
AOR07821-1	861	B	43.0	14	46	40	1.093	0	0	0
POR12NCK50-1	743	CDE	37.1	14	55	32	1.090	0	0	0

ENTRY	40 DAY STAND	50 DAY STAND	60 DAY STAND	STEMS PER PLANT	AVERAGE TUBER WEIGHT		Skin Set	Tuber Shape	Bruise (%)	
	% Emerged	% Emerged	% Emerged	Above Ground	Ounces	Tubers/Plant	1 = Poor	1 = Round	(8-12 oz tubers)	BLACKSPOT SHATTER
							5 = Good	5 = Long		
Ranger Russet	69	86	94	2.1	9.2	6.8	4	4	3	5
Russet Burbank	25	85	93	2.2	8.7	7.5	4	3	5	40
Russet Norkotah	30	90	98	2.3	8.6	7.3	4	3	3	3
A07098-4	53	94	95	2.4	8.4	8.8	4	3	5	54
A071012-4BF	41	83	91	2.1	10.4	7.1	4	3	0	10
A07705-4	11	95	100	2.9	8.6	10.4	4	3	0	20
A07769-4	13	93	100	2.8	10.3	8.2	4	3	0	68
A08422-2VRsto	26	94	98	1.5	9.1	7.5	4	2	0	10
A08510-1LB	6	31	94	2.7	6.9	8.5	4	2	0	20
A10021-5TE	8	90	95	2.9	9.9	7.0	4	4	3	21
AOR06576-1	13	88	96	1.9	9.2	7.8	4	4	0	38
AOR07821-1	20	76	94	2.4	10.6	7.8	4	3	3	67
POR12NCK50-1	25	88	100	1.9	9.5	7.4	4	3	5	32

* Percent values may not total 100% due to rounding

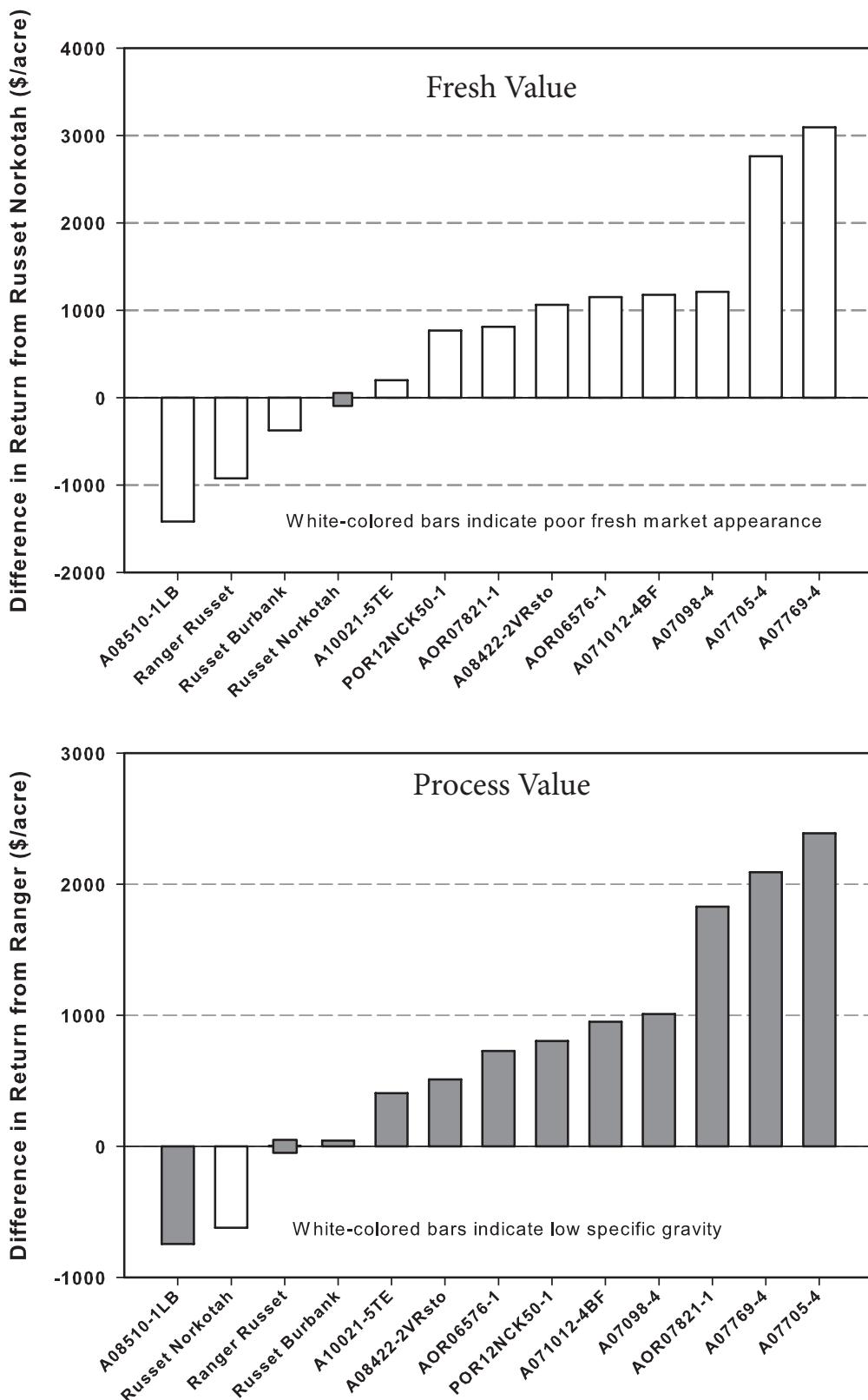
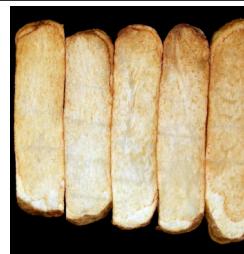
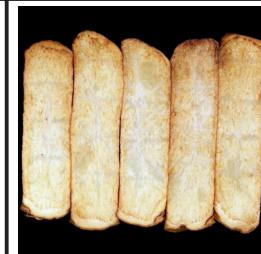
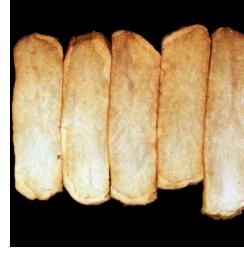
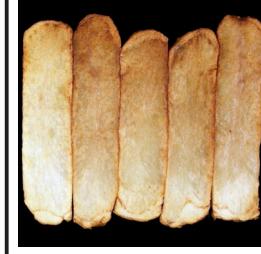
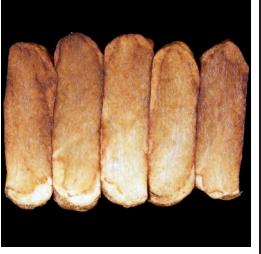
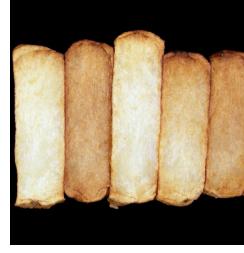
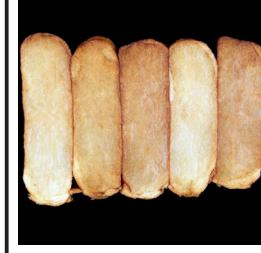
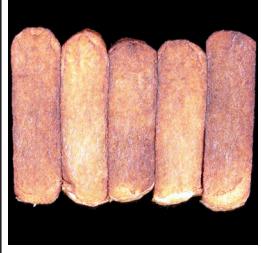
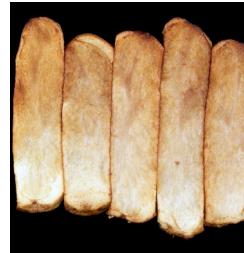
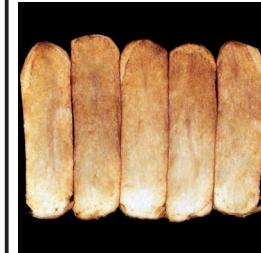
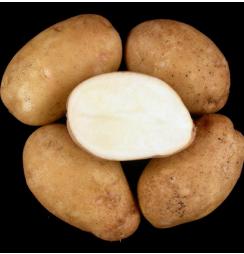
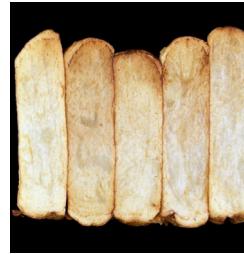
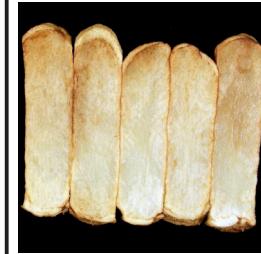
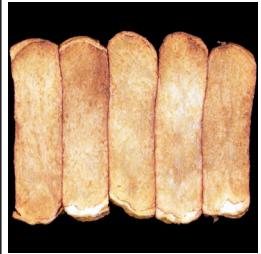
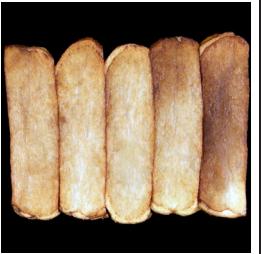
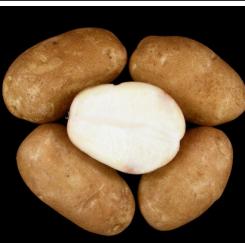
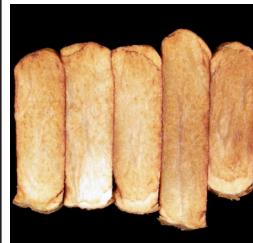
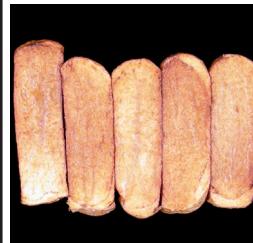
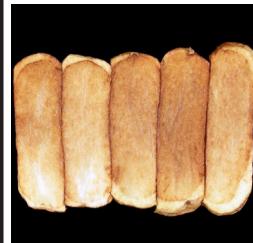
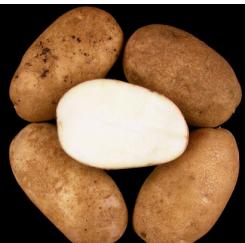
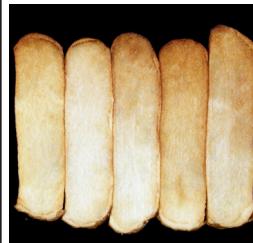
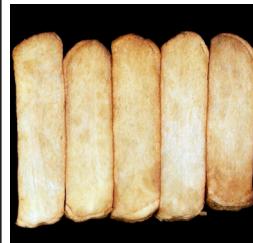
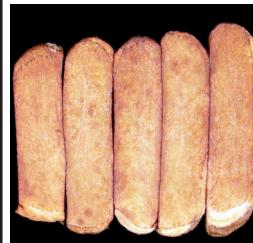
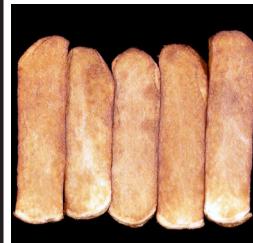
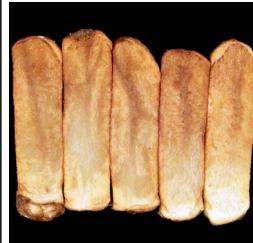
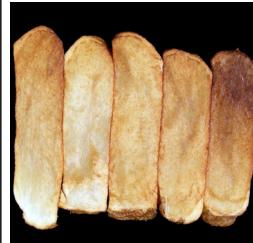
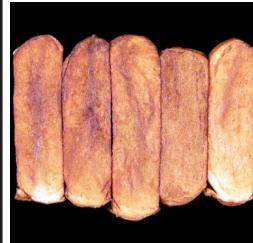
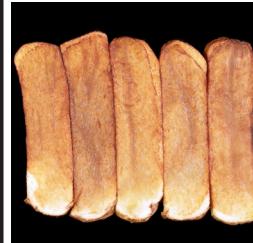
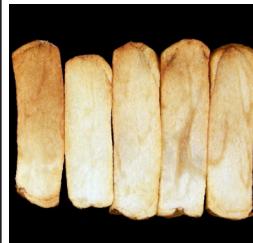
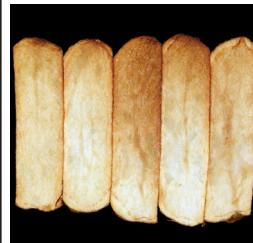
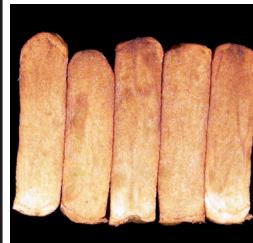
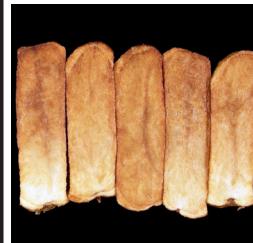
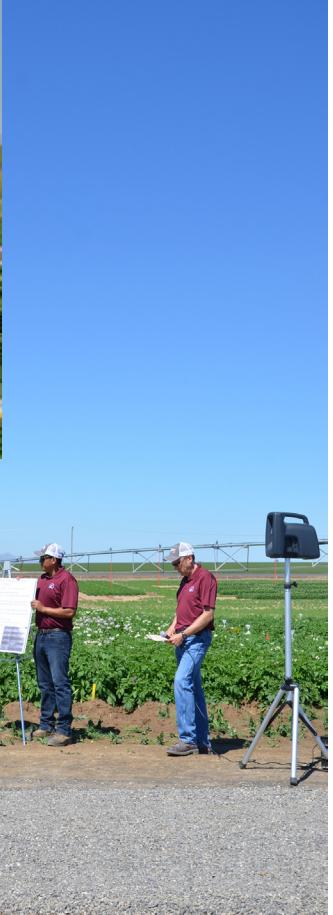


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to undesirable shape or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

Tubers	48° F Storage	44° F Storage	40° F Storage	40° F Recon.	
Ranger Russet					
Russet Burbank					
A07098-4					
A071012-4BF					
A07769-4					

Tubers	48° F Storage	44° F Storage	40° F Storage	40° F Recon.	
A08422-2VRsto					
A08510-1LB					
A10021-5TE					
AOR07821-1					
POR12NCK50-1					

2017 WSU POTATO FIELD DAY



2017 Late Harvest Tri-State Trial

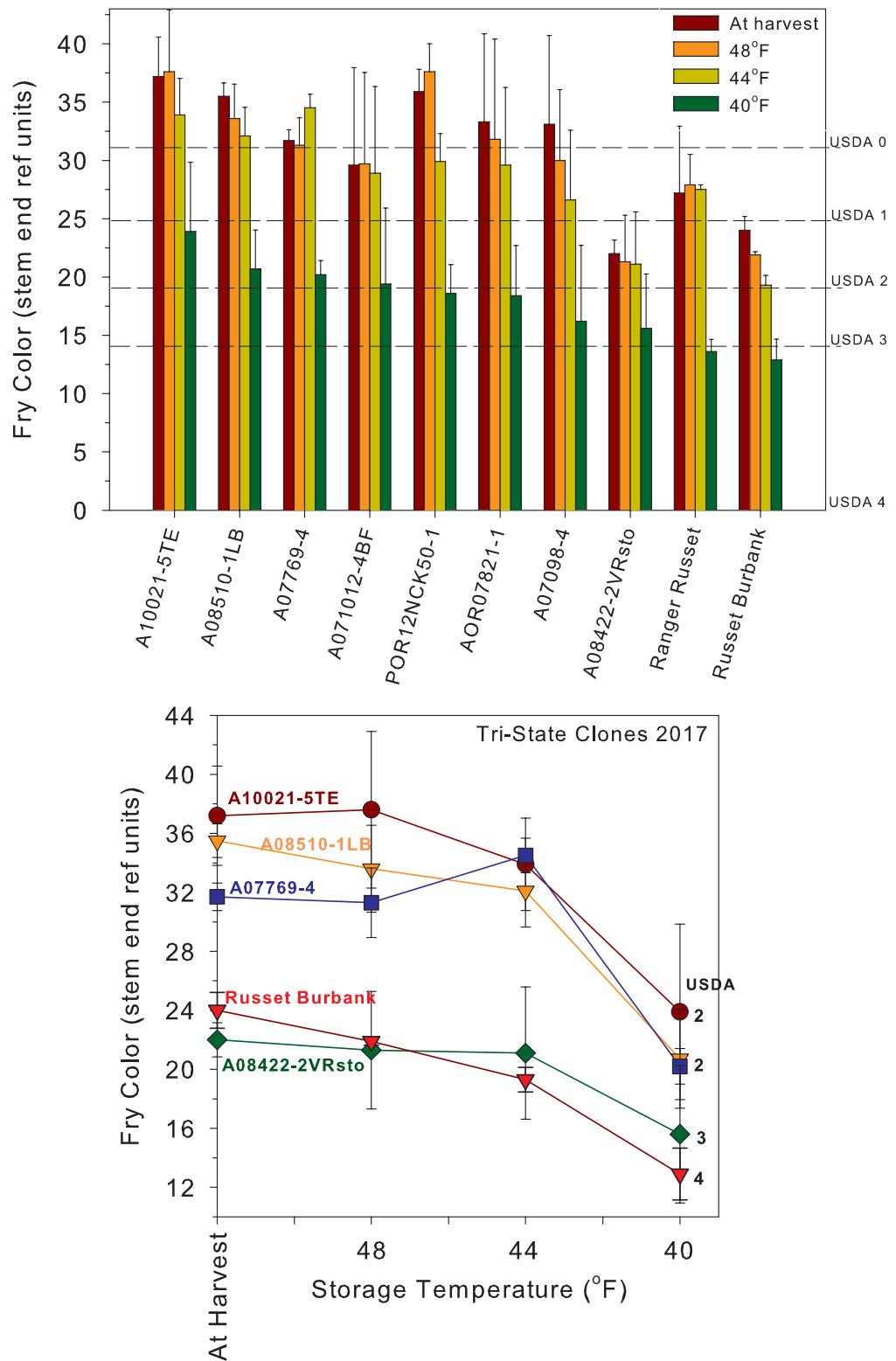
Accumulated Total Postharvest Rating of Clones

Clone	WA		ID		OR		3 State av. Rating Total
	Rating Total §	Discard §§	Rating Total §	Discard §§	Rating Total §	Discard §§	
8 A10021-5TE	25.5		30.8		18.5	Sp. Gr.	24.9
7 A08510-1LB	21.6	40°F	26.5		25.6		24.6
10 POR12NCK50-1	21.7		28.5		22.7		24.3
5 A07769-4	19.7		24.2		21.2	Sp. gr.	21.7
4 A071012-4BF	13.2	40°F	31.7		18.0		21.0
9 AOR07821-1	13.0	40°F	29.0		20.4		20.8
3 A07098-4	21.4	40°F	31.6		6.7	Sp. Gr., 40°F	19.9
1 Ranger Russet	19.4	40°F	No Sample		14.5	Sp. Gr., 40°F	17.0
6 A08422-2VRsto	12.9	40°F	22.1		11.4	Sp. Gr., 40°F	15.5
2 Russet Burbank	17.0	40°F	13.8 Sp. Gr., 40°F		14.1	Sp. Gr., 40°F	15.0
	18.5		26.2		17.3		20.5



Stand count data for all trials is collected several times throughout May and early June by the WSU Potato Team.

2017 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 40°F-stored tubers. High reflectance values indicate light colored fries.

Bottom: Line graph depicting the effects of storage temperature on change in French fry processing quality (stem end fry color) of the most cold sweetening resistant (A10021-5TE, A08510-1LB, and A07769-4) and susceptible (A08422-2VRsto and Russet Burbank) clones in the Tri-State Trial. *Indicates similar performance of the clones last year.

2017 Late Harvest Tri-State Trial

Tuber Shape and Associated French Fry Yields

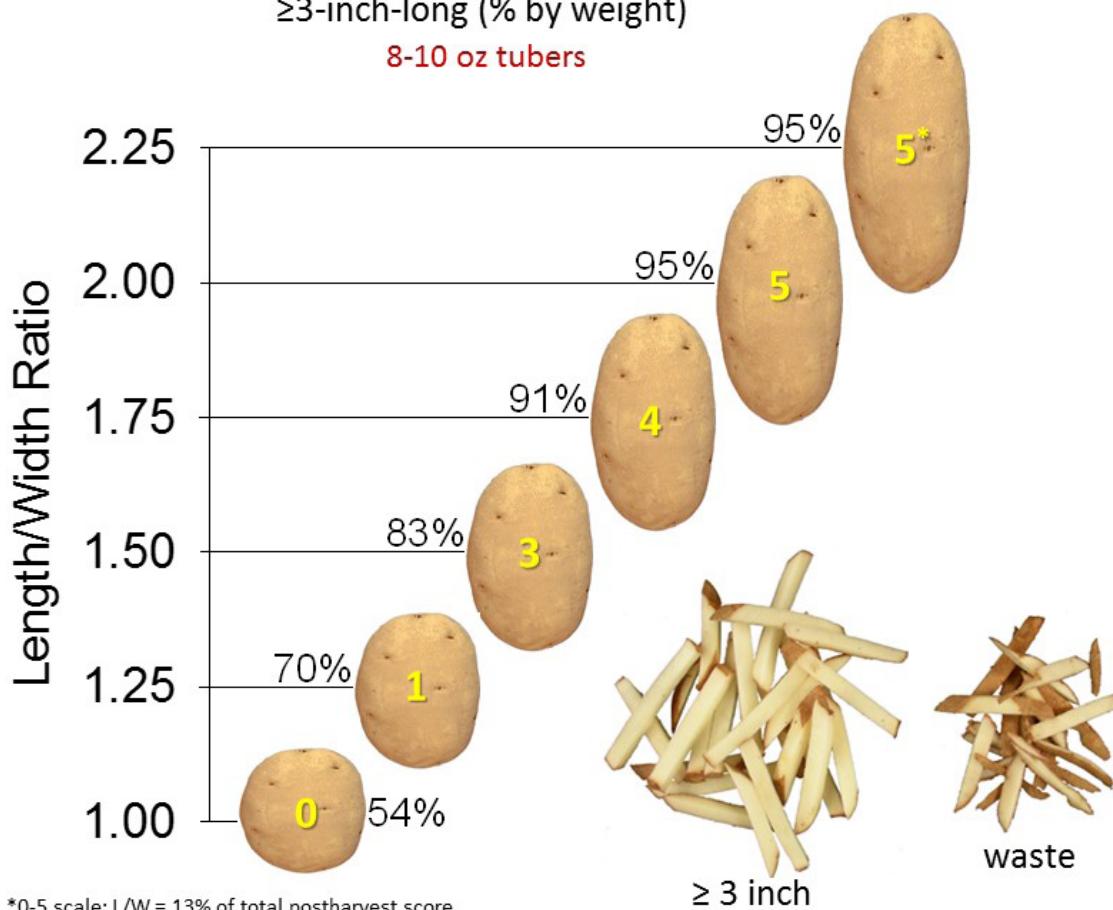
(8- to 10-oz Tubers)

Clone	WA	Length to width ratio		OR	rtg §	3 State Avg.
		ID	rtg §			
1 Ranger Russet	1.64	3	No Sample	2.47	5	2.05
2 Russet Burbank	1.69	4	2.38	5	5	2.05
3 A07098-4	1.57	3	1.80	5	4	1.72
4 A071012-4BF	1.55	3	2.06	5	4	1.79
5 A07769-4	1.50	3	2.03	5	5	1.80
6 A08422-2VRsto	1.57	3	1.65	4	5	1.73
7 A08510-1LB	1.44	2	2.12	5	2	1.64
8 A10021-5TE	1.84	5	1.96	5	5	1.94
9 AOR07821-1	1.62	3	1.72	4	4	1.67
10 POR12NCK50-1	1.61	3	2.06	5	5	1.82
Average	1.60		1.98		1.88	1.82

French Fry Yield vs Tuber L/W Ratio

≥3-inch-long (% by weight)

8-10 oz tubers



2017 Early Harvest Regional Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's* > 4 oz	US # 2's* > 4 oz	Culls* & < 4 oz	CARTON YIELD		PROCESS YIELD	
	CWT/A	Tons/A	% of Total Yield				100-50 count (US 1's 7-18 oz)		% of Total Yield	Tons/A
							% of Total Yield	Tons/A		
Ranger Russet	453	BCD	22.7	79	4	17	44	10.0	58	13.3
Russet Burbank	428	CD	21.4	53	4	43	21	4.5	37	7.9
Russet Norkotah	545	A	27.2	85	1	14	48	13.0	62	16.8
Shepody	476	ABCD	23.8	87	4	9	63	15.0	80	19.1
A03141-6	439	BCD	22.0	90	2	7	68	15.0	80	17.6
A06030-23	418	D	20.9	81	1	18	27	5.7	41	8.6
A07061-6	485	ABCD	24.3	52	3	45	17	4.1	23	5.7
A08009-2TE	438	BCD	21.9	69	2	29	25	5.4	37	8.2
A08433-4VR	532	A	26.6	74	5	21	35	9.3	53	14.1
AO03123-2	411	D	20.5	58	1	41	14	2.8	28	5.7
AO06191-1	439	BCD	22.0	89	0	11	59	13.0	72	15.8
AOR06070-1KF	437	BCD	21.8	78	2	20	42	9.2	51	11.4
AOR07781-5	499	ABC	25.0	80	10	10	55	13.7	73	18.3
CO08065-2RU	497	ABC	24.9	71	1	29	31	7.7	44	10.9
CO08155-2RU/Y	509	AB	25.5	66	4	30	31	7.9	42	10.7
CO08231-1RU	477	ABCD	23.8	76	2	21	32	7.7	50	11.9
COTX09022-3RuRE/Y	513	AB	25.6	80	1	19	38	9.8	53	13.7
TX08352-5Ru	474	ABCD	23.7	52	0	48	10	2.4	21	5.0

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)		
				%						
Ranger Russet	360	BC	18.0	43	53	4	1.075	0	0	0
Russet Burbank	227	E	11.3	54	35	11	1.066	0	0	0
Russet Norkotah	460	A	23.0	43	53	4	1.076	0	0	0
Shepody	415	AB	20.8	22	52	25	1.077	0	0	0
A03141-6	398	AB	19.9	23	64	12	1.084	0	0	0
A06030-23	338	BCD	16.9	66	33	1	1.070	23	5	0
A07061-6	256	DE	12.8	68	30	3	1.070	0	0	0
A08009-2TE	304	CDE	15.2	64	36	0	1.067	0	0	0
A08433-4VR	394	AB	19.7	52	45	4	1.062	0	0	0
AO03123-2	239	E	12.0	77	23	0	1.069	0	0	0
AO06191-1	393	AB	19.7	34	62	4	1.075	0	0	0
AOR06070-1KF	345	BC	17.3	47	43	10	1.080	0	0	0
AOR07781-5	400	AB	20.0	29	63	8	1.084	0	0	0
CO08065-2RU	351	BC	17.5	56	40	4	1.079	6	0	0
CO08155-2RU/Y	340	BCD	17.0	53	45	2	1.071	0	0	0
CO08231-1RU	363	BC	18.2	57	40	3	1.070	0	0	0
COTX09022-3RuRE/Y	410	AB	20.5	51	44	5	1.079	0	0	0
TX08352-5Ru	244	E	12.2	80	20	0	1.061	0	0	0

* Percent values may not total 100% due to rounding

ENTRY	40 DAY STAND	50 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	64	89	100	2.2	6.1	7.7	3	4	4	0
Russet Burbank	18	73	100	2.5	4.8	9.4	3	3	0	0
Russet Norkotah	33	100	100	2.4	6.3	9.1	4	4	0	0
Shepody	27	89	100	1.6	8.3	6.0	3	3	7	0
A03141-6	11	82	100	1.9	7.9	5.8	2	4	0	0
A06030-23	0	93	100	2.2	5.4	8.1	4	4	14	9
A07061-6	36	91	100	3.7	4.1	12.4	3	3	6	0
A08009-2TE	4	96	100	3.1	4.7	9.7	3	4	0	5
A08433-4VR	20	89	93	1.7	5.6	9.8	3	3	0	0
AO03123-2	4	96	100	2.2	4.2	10.3	3	4	5	0
AO06191-1	0	87	100	1.6	7.1	6.5	4	4	3	23
AOR06070-1KF	36	96	100	2.5	5.8	7.9	3	3	5	48
AOR07781-5	16	93	100	2.7	7.2	7.2	3	4	0	10
CO08065-2RU	13	89	100	2.5	5.6	9.3	4	4	2	28
CO08155-2RU/Y	18	93	100	2.4	5.1	10.5	4	4	0	0
CO08231-1RU	4	87	100	2.2	5.4	9.2	3	3	0	3
COTX09022-3RuRE/Y	24	87	96	2.8	5.7	9.4	4	1	0	3
TX08352-5Ru	2	58	87	2.5	3.9	12.8	3	4	0	10



Zach Holden and Alex Cruz collect petiole and soil samples in a Phosphorus study.

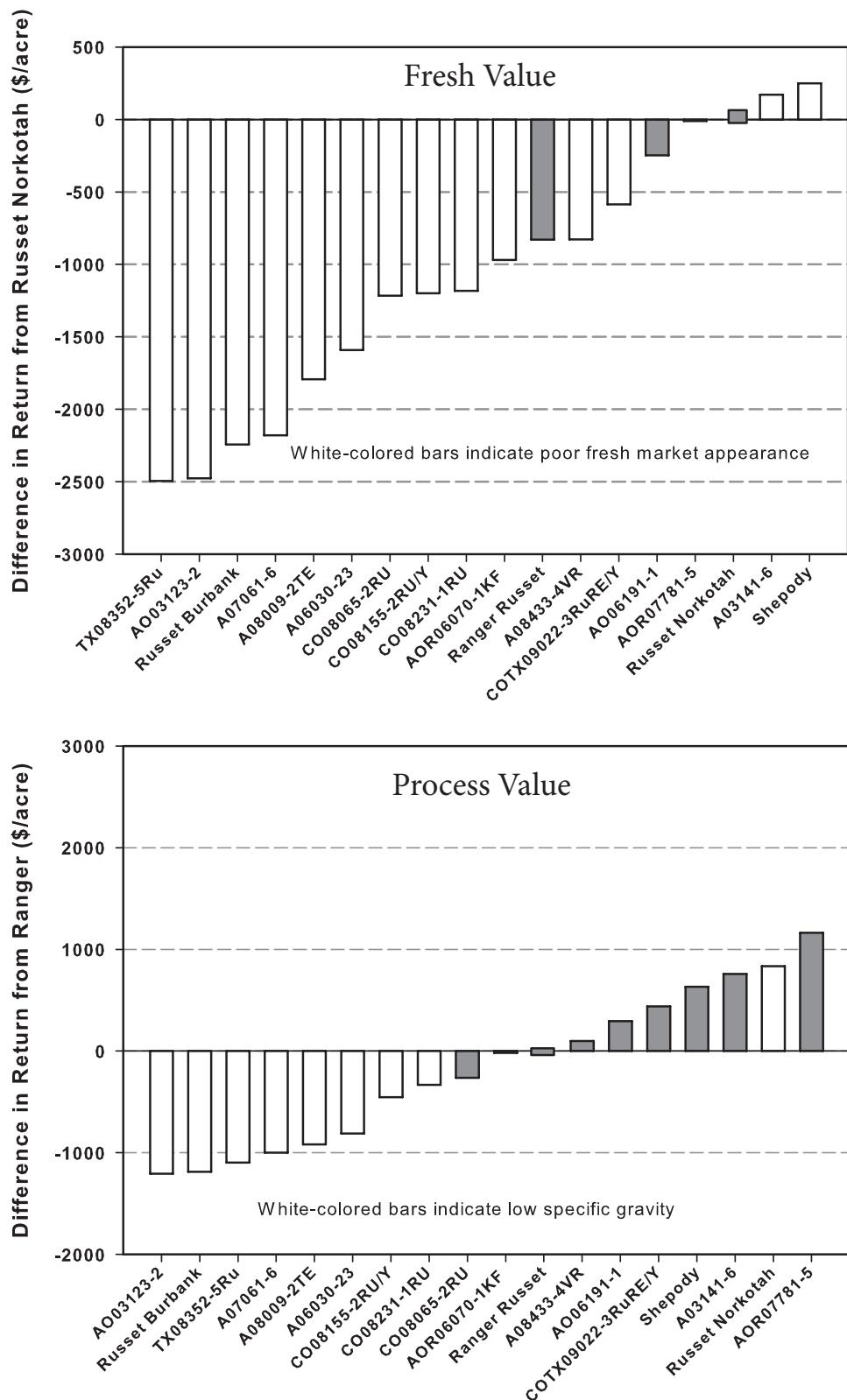


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape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

2017 Early Harvest Regional Trial

Tubers

Ranger Russet



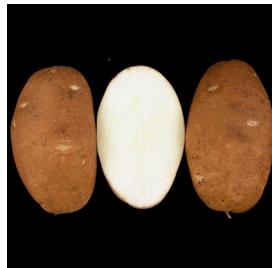
A06030-23



A08009-2TE



CO08065-2RU



Russet Burbank



A07061-6



A08433-4VR



TX08352-5Ru



Russet Norkotah



AO03123-2



AOR07781-5



COTX09022-3RuRE/Y



Shepody



AO06191-1



A03141-6



AOR06070-1KF



CO08155-2RU/Y



CO08231-1RU



2017 Late Harvest Regional Trial

Summaries

ENTRY	TOTAL YIELD			US # 1's*	US # 2's*	Culls*	CARTON YIELD		PROCESS YIELD				
	CWT/A	STATS**	Tons/A				100-50 count (US 1's 7-18 oz)	Tons/A	US 1's and 2's > 6 oz	Tons/A			
							% of Total Yield						
Ranger Russet	754	CDEF	37.7	85	6	9	63	23.8	81	30.5			
Russet Burbank	752	CDEF	37.6	83	7	10	57	21.6	77	28.8			
Russet Norkotah	685	FG	34.2	87	4	9	60	20.7	76	26.2			
A03141-6	873	B	43.6	92	2	6	49	21.4	93	40.3			
A06030-23	634	G	31.7	90	1	10	63	20.1	77	24.3			
A07061-6	981	A	49.1	88	3	8	64	31.2	78	38.2			
A08009-2TE	862	B	43.1	87	5	8	66	28.6	82	35.2			
A08433-4VR	844	BC	42.2	88	4	8	65	27.5	85	35.8			
AO03123-2	721	EFG	36.1	90	1	9	62	22.3	77	27.9			
AO06191-1	695	FG	34.7	92	1	6	55	19.1	89	31.0			
AOR06070-1KF	819	BCD	40.9	90	1	10	59	24.3	79	32.5			
AOR07781-5	794	BCDE	39.7	90	4	7	63	25.0	84	33.4			
CO08065-2RU	738	DEF	36.9	87	0	13	59	21.9	74	27.4			
CO08155-2RU/Y	721	EFG	36.1	82	4	14	48	17.4	62	22.4			
CO08231-1RU	795	BCDE	39.7	85	1	13	55	21.7	71	28.2			
COTX09022-3RuRE/Y	847	B	42.4	93	1	7	71	30.1	84	35.7			
TX08352-5Ru	804	BCDE	40.2	86	0	14	45	18.0	60	24.6			

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*		
				%				% HH	% BC
Ranger Russet	639	FGHI	32.0	22	58	20	1.089	0	0
Russet Burbank	624	GHI	31.2	25	59	16	1.088	10	13
Russet Norkotah	598	HI	29.9	28	59	13	1.076	0	0
A03141-6	803	AB	40.1	4	28	68	1.094	0	0
A06030-23	569	I	28.5	26	59	15	1.085	5	0
A07061-6	869	A	43.4	26	62	12	1.082	0	0
A08009-2TE	752	BCD	37.6	21	66	14	1.086	0	0
A08433-4VR	742	BCDE	37.1	14	55	31	1.081	0	0
AO03123-2	649	EFGHI	32.4	25	59	15	1.097	0	0
AO06191-1	639	FGHI	31.9	9	37	54	1.092	0	0
AOR06070-1KF	733	BCDEF	36.6	20	54	25	1.094	8	0
AOR07781-5	713	BCDEFG	35.6	19	54	27	1.099	0	0
CO08065-2RU	641	FGHI	32.0	23	57	20	1.096	0	0
CO08155-2RU/Y	588	HI	29.4	41	54	5	1.074	0	0
CO08231-1RU	678	DEFGH	33.9	28	52	20	1.070	0	0
COTX09022-3RuRE/Y	785	ABC	39.3	16	60	24	1.089	0	0
TX08352-5Ru	698	CDEF	34.9	48	49	3	1.066	0	0

* Percent values may not total 100% due to rounding

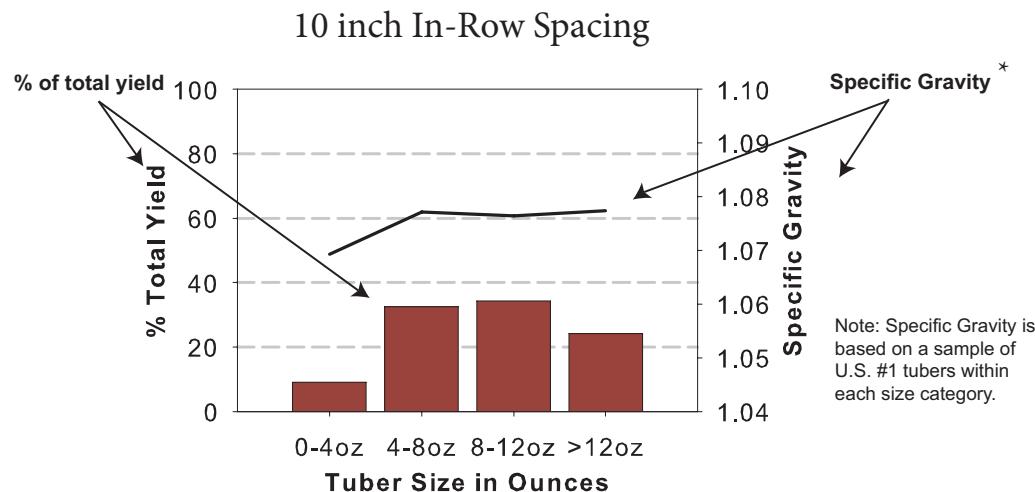
ENTRY	40 DAY STAND	50 DAY STAND	60 DAY STAND	STEMS PER PLANT	AVERAGE TUBER WEIGHT		SKIN SET 1 = Poor 5 = Good	TUBER SHAPE 1 = Round 5 = Long	BRUISE (%) (8-12 oz tubers)	
	% Emerged	% Emerged	% Emerged	Above Ground	Ounces	Tubers/Plant			BLACKSPOT	SHATTER
Ranger Russet	59	93	99	2.3	8.3	7.9	4	4	33	48
Russet Burbank	31	78	96	2.1	8.2	8.0	4	4	13	53
Russet Norkotah	45	95	99	2.8	7.7	7.7	4	4	23	43
A03141-6	45	94	96	1.8	14.7	5.1	2	3	5	79
A06030-23	3	86	100	2.2	7.9	7.0	4	3	23	75
A07061-6	56	94	95	3.1	7.6	11.2	3	2	8	65
A08009-2TE	29	98	100	2.6	8.1	9.2	4	3	8	55
A08433-4VR	23	86	99	1.4	9.2	8.0	4	3	0	58
AO03123-2	10	95	100	2.5	7.5	8.3	4	4	3	73
AO06191-1	1	75	94	1.3	11.7	5.1	4	3	13	80
AOR06070-1KF	51	95	96	2.4	8.8	8.1	3	3	3	85
AOR07781-5	55	94	93	3.4	9.2	7.5	4	3	0	85
CO08065-2RU	40	96	100	2.3	8.4	7.7	4	3	8	78
CO08155-2RU/Y	39	88	90	2.5	6.5	9.7	4	4	3	25
CO08231-1RU	30	98	99	2.6	7.2	9.6	4	2	5	45
COTX09022-3RuRE/Y	50	94	95	2.6	8.9	8.3	4	1	20	70
TX08352-5Ru	0	69	96	2.7	6.2	11.1	4	4	20	68



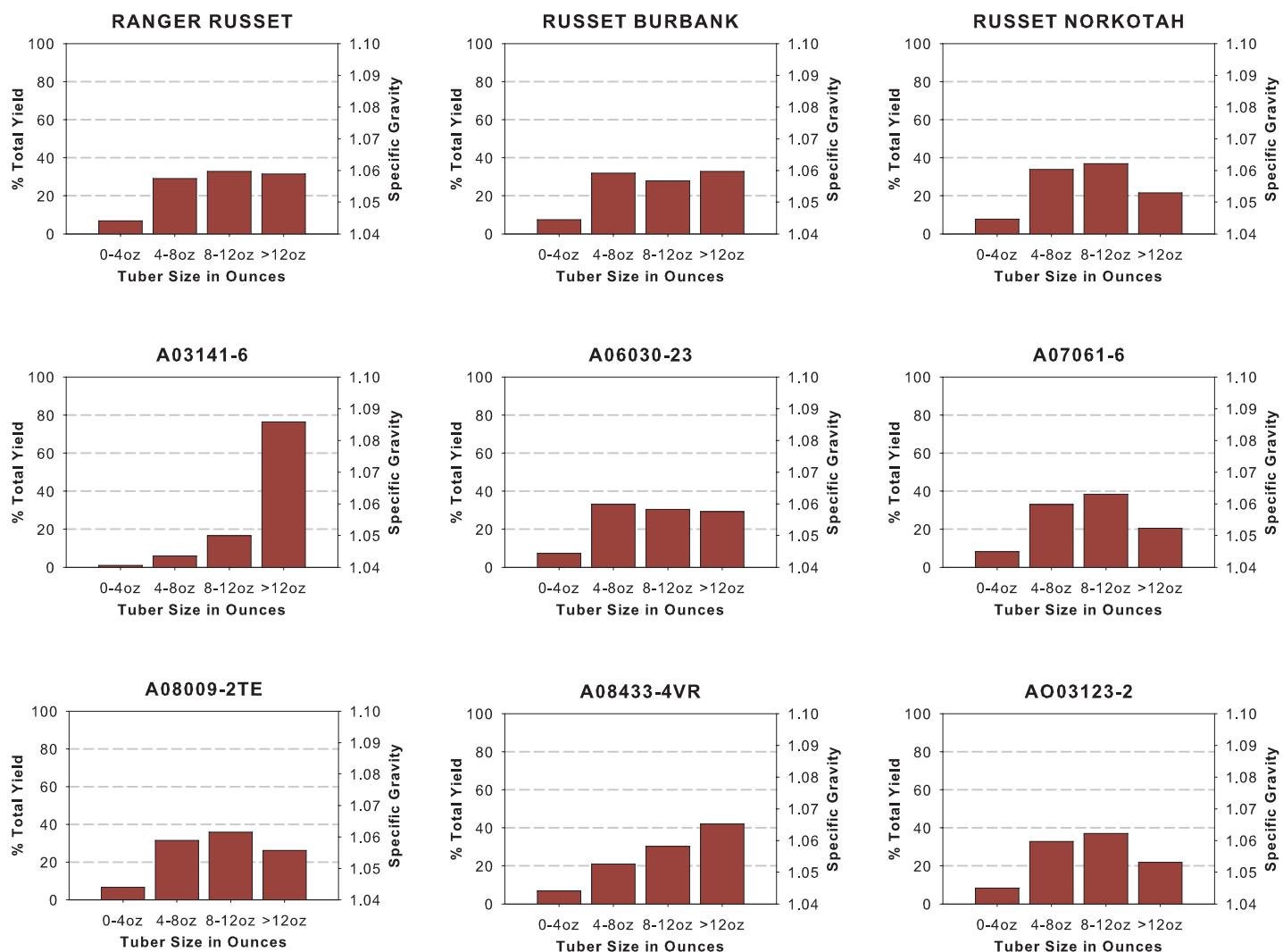
Graduate Student Alejandro Cruz applies a fertilizer treatment to research plots in June.

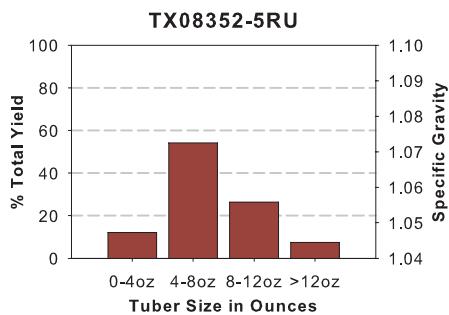
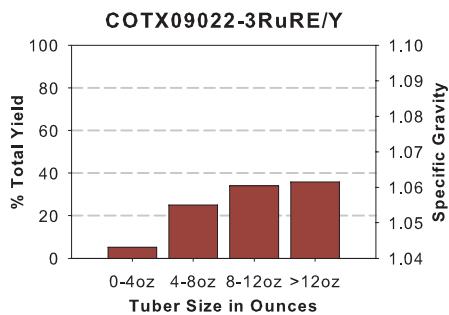
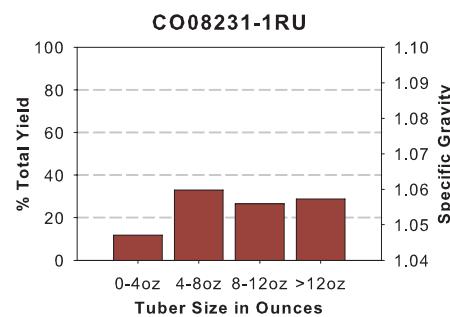
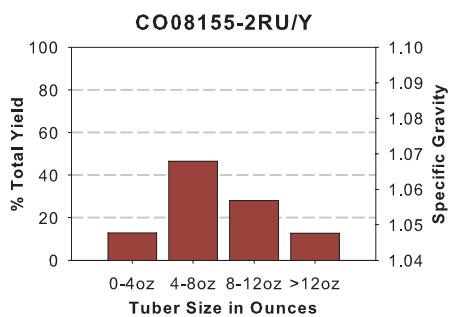
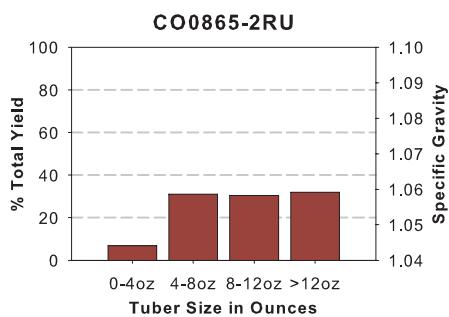
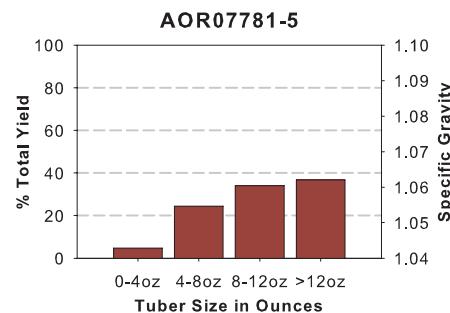
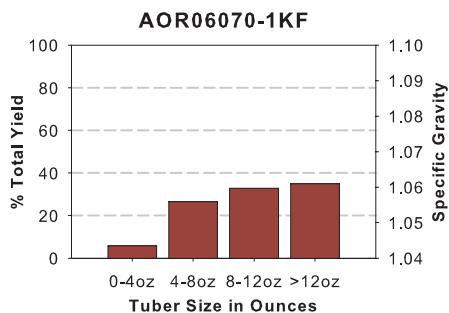
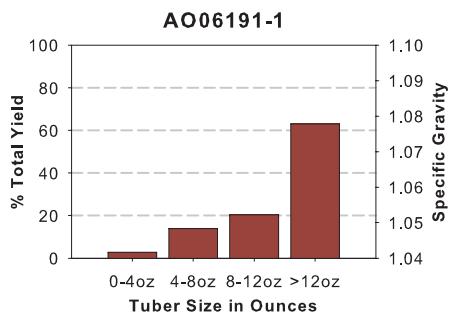
2017 Late Harvest Regional Trial

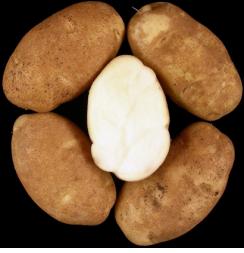
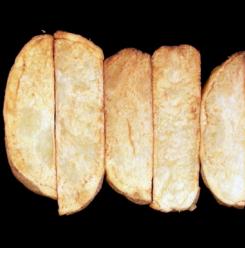
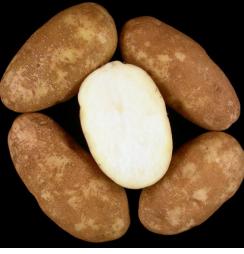
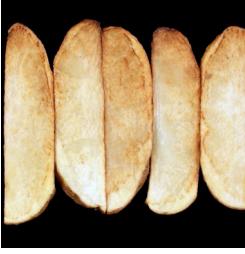
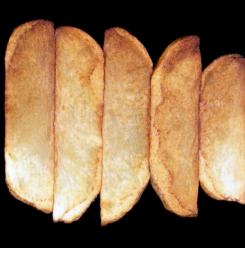
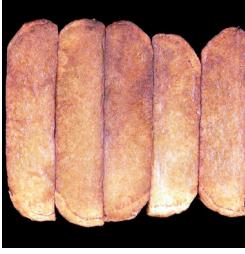
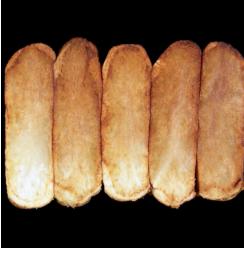
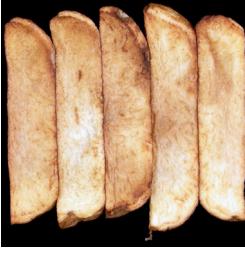
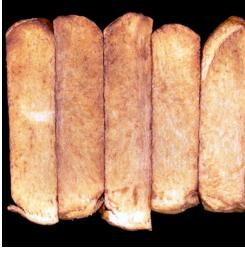
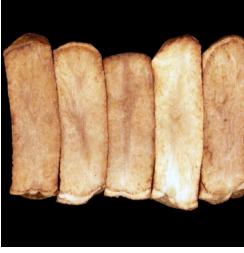
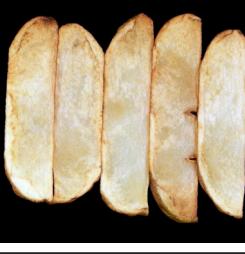
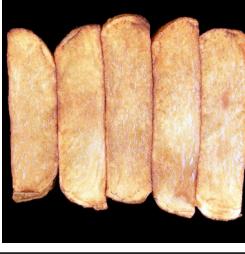
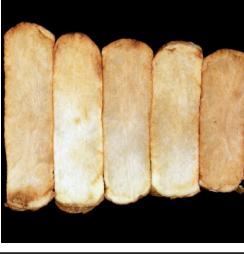
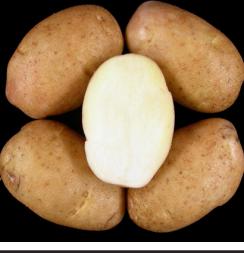
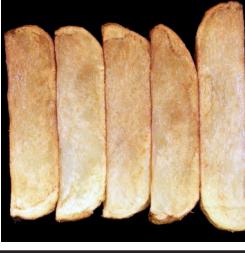
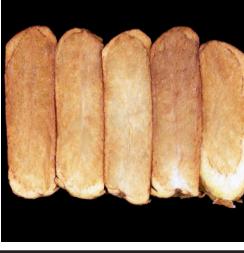
Tuber Yield and Specific Gravity Distributions

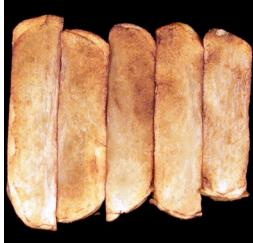
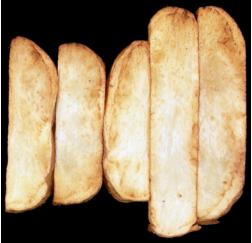
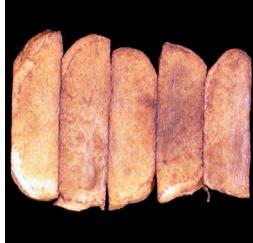
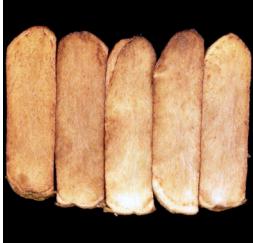
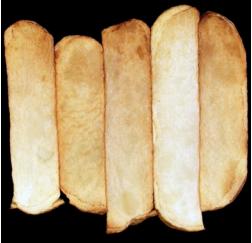
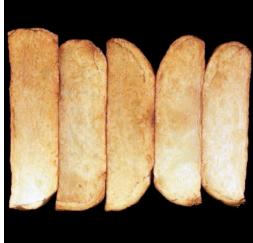
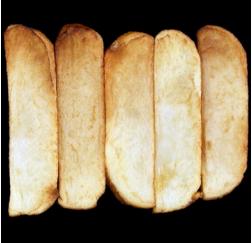
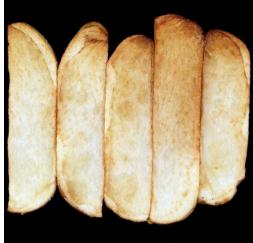
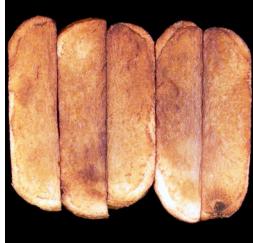
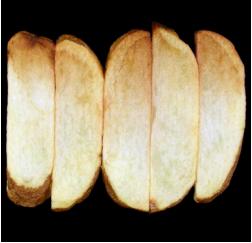
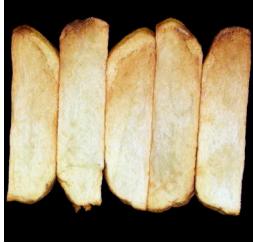
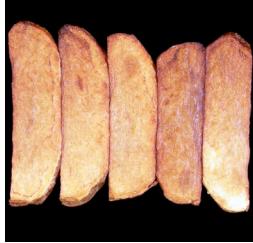
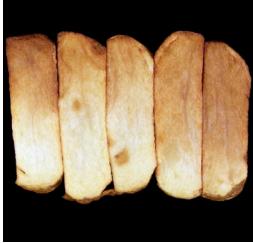


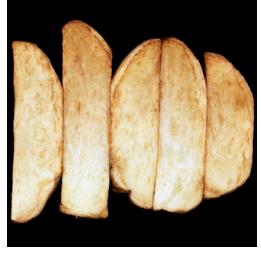
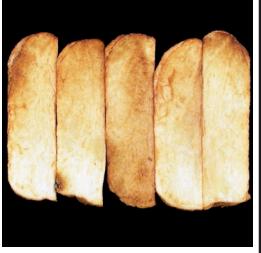
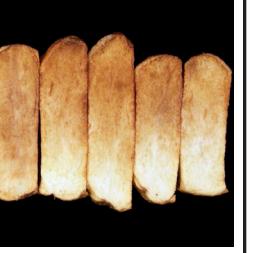
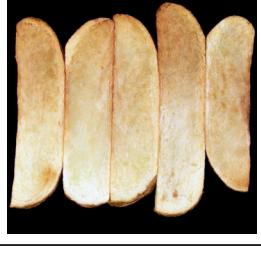
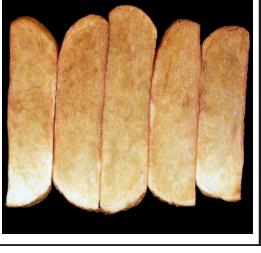
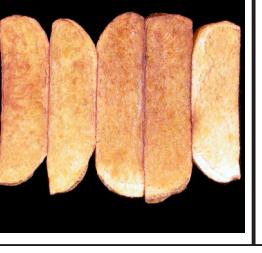
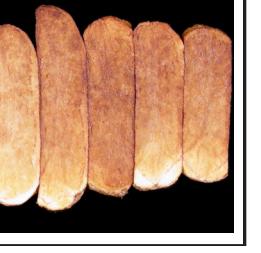
*Specific Gravities data missing from graphs as only one size was tested in 2017.





Tubers	48° F Storage	44° F Storage	40° F Storage	40° F Recon.	
Ranger Russet					
Russet Burbank					
A03141-6					
A06030-23					
A07061-6					

Tubers	48° F Storage	44° F Storage	40° F Storage	40° F Recon.	
A08433-4VR					
AO03123-2					
AO06191-1					
AOR06070-1KF					
AOR07781-5					

Tubers	48° F Storage	44° F Storage	40° F Storage	40° F Recon.
CO08065-2RU				
				
CO08155-2RU/Y				
				



Graduate Student Francisco "Paco" Gonzalez takes a reading from his Neutron Probe in a trial measuring water use of new and existing cultivars.

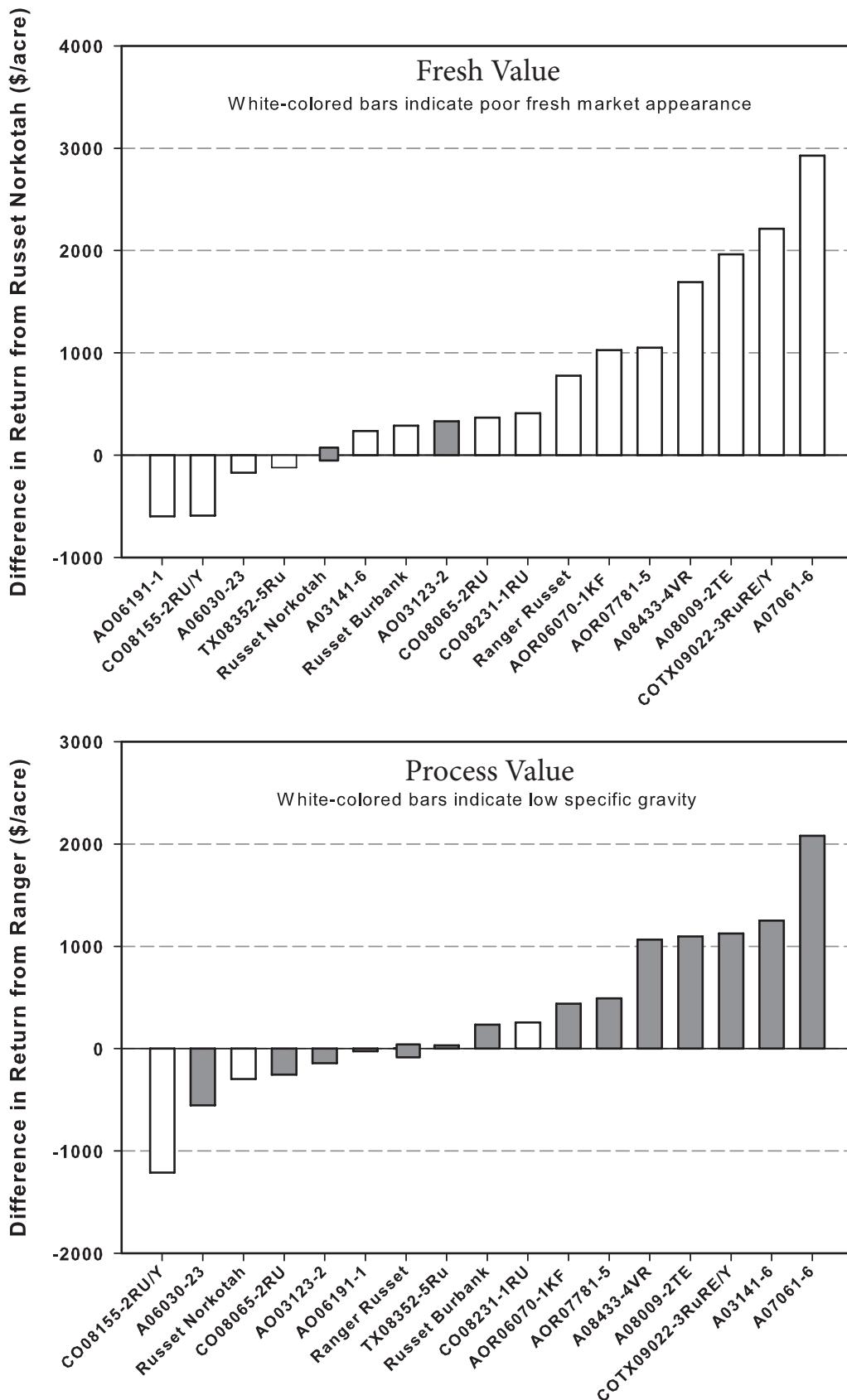


Figure 1 (Top). Difference in gross return per acre (Fresh Market) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with the white-colored bars may not appeal to fresh market consumers due to the undesirable shape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

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

Entries Retained from the 2016 Trials Currently in the Regional Trial

Harvested fall of 2016

Held at 48°F until December 14

Stored at 44°F until analysis

A06030-23, A07061-6 & AOR07781-5 were advanced from the 2016 Tri-State Trial into the 2017 Regional Trial. When averaged across states, AO03123-2 (47.2 ref units) and A03141-6 (46.7) and AOR06070-1KF (51.4) were the highest fries. A03141-6 produced the lightest fries in 2015 (49.9) & the 2nd highest in 2016 (52.7) & again this year (46.7). Uniformity of fry color was unacceptable for WA & OR entry AOR07781-5. Both checks from WA had unacceptable fry color differences. When grown in WA some fries from AOR06070-1KF were mottled. All entries had 100% sprouting. The most dormant was AO06191-1 for the 2nd year 0.5 in 2016 & 0.29 nch sprouts this season.

Clone	PHOTOVOLT READING					USDA COLOR			% REDUCING SUGAR			Sprouting	
	stem	bud	avg	DIFF		stem	bud	avg	percent	length (in.)			
Washington													
1 Ranger Russet	28.4	39.1	33.7	10.9	1	1.6	0.8	1.2	100	3.5			
2 Russet Burbank	31.8	42.3	37.1	10.9	0	1.2	0.6	0.9	100	3.0			
3 A03141-6	47.4	48.2	47.8	2.9	0	0.5	0.5	0.5	100	2.0			
4 A06030-23 §	48.5	42.4	45.5	6.3	0	0.5	0.6	0.6	100	6.0			
5 A07061-6 §	36.7	44.0	40.4	7.6	0	0.9	0.6	0.7	100	4.5			
6 AO03123-2	44.2	47.5	45.9	5.3	0	0.6	0.5	0.6	100	3.5			
7 AO06191-1	36.3	44.2	40.2	7.9	0	0.9	0.6	0.8	100	0.3			
8 AOR06070-1KF	44.9	45.4	45.1	3.6	0	0.6	0.6	0.6	100	7.0			
9 AOR07781-5 §	39.8	46.5	43.2	9.0	0	0.7	0.5	0.6	100	3.5			
LSD 0.05													
Average	38.8	44.0	41.4	7.7	0	0.7	0.5	0.7	100				
Idaho													
1 Ranger Russet	33.7	38.6	36.1	7.0	0	1.1	0.8	0.9	100	4.0			
2 Russet Burbank	38.2	43.4	40.8	6.3	0	0.8	0.6	0.7	100	0.1			
3 A03141-6	48.3	43.6	46.0	4.7	0	0.5	0.6	0.6	100	1.0			
4 A06030-23 §	50.3	46.3	48.3	5.8	0	0.5	0.5	0.5	100	3.0			
5 A07061-6 §	41.8	45.1	43.4	4.9	0	0.7	0.6	0.6	100	3.0			
6 AO03123-2	50.0	48.4	49.2	5.4	0	0.5	0.5	0.5	100	0.5			
7 AO06191-1	39.5	43.4	41.5	4.7	0	0.8	0.6	0.7	100	0.1			
8 AOR06070-1KF	44.0	45.1	44.6	3.2	0	0.6	0.6	0.6	100	5.0			
9 AOR07781-5 §	46.2	47.4	46.8	5.3	0	0.5	0.5	0.5	100	2.0			
LSD 0.05													
Average	43.6	44.6	44.1	5.2	0	0.7	0.6	0.6	100				
Oregon													
1 Ranger Russet	30.0	28.9	29.5	3.2	1	1.4	1.5	1.4	100	4.0			
2 Russet Burbank	31.9	33.6	32.8	5.3	0	1.2	1.1	1.2	100	5.5			
3 A03141-6	44.7	47.8	46.3	6.1	0	0.6	0.5	0.6	100	2.0			
4 A06030-23 §	45.2	40.2	42.7	6.8	0	0.6	0.7	0.6	100	0.5			
5 A07061-6 §	38.9	38.9	38.9	4.0	0	0.8	0.8	0.8	100	4.5			
6 AO03123-2	43.2	49.7	46.4	6.6	0	0.6	0.5	0.6	100	2.0			
7 AO06191-1	35.5	39.1	37.3	4.0	0	1.0	0.8	0.9	100	0.5			
8 AOR06070-1KF	44.6	49.0	46.8	5.2	0	0.6	0.5	0.6	100	2.0			
9 AOR07781-5 §	40.0	47.8	43.9	9.3	0	0.7	0.5	0.6	100	2.0			
LSD 0.05													
Average	39.3	41.7	40.5	5.6	0	0.8	0.8	0.8	100				

§ Advanced from 2015 Tri-State Trial.

Date test performed:

Washington May 1

Idaho May 2

Oregon May 3

2017 Late Harvest Regional Trial

Accumulated Total Postharvest Rating of Clones

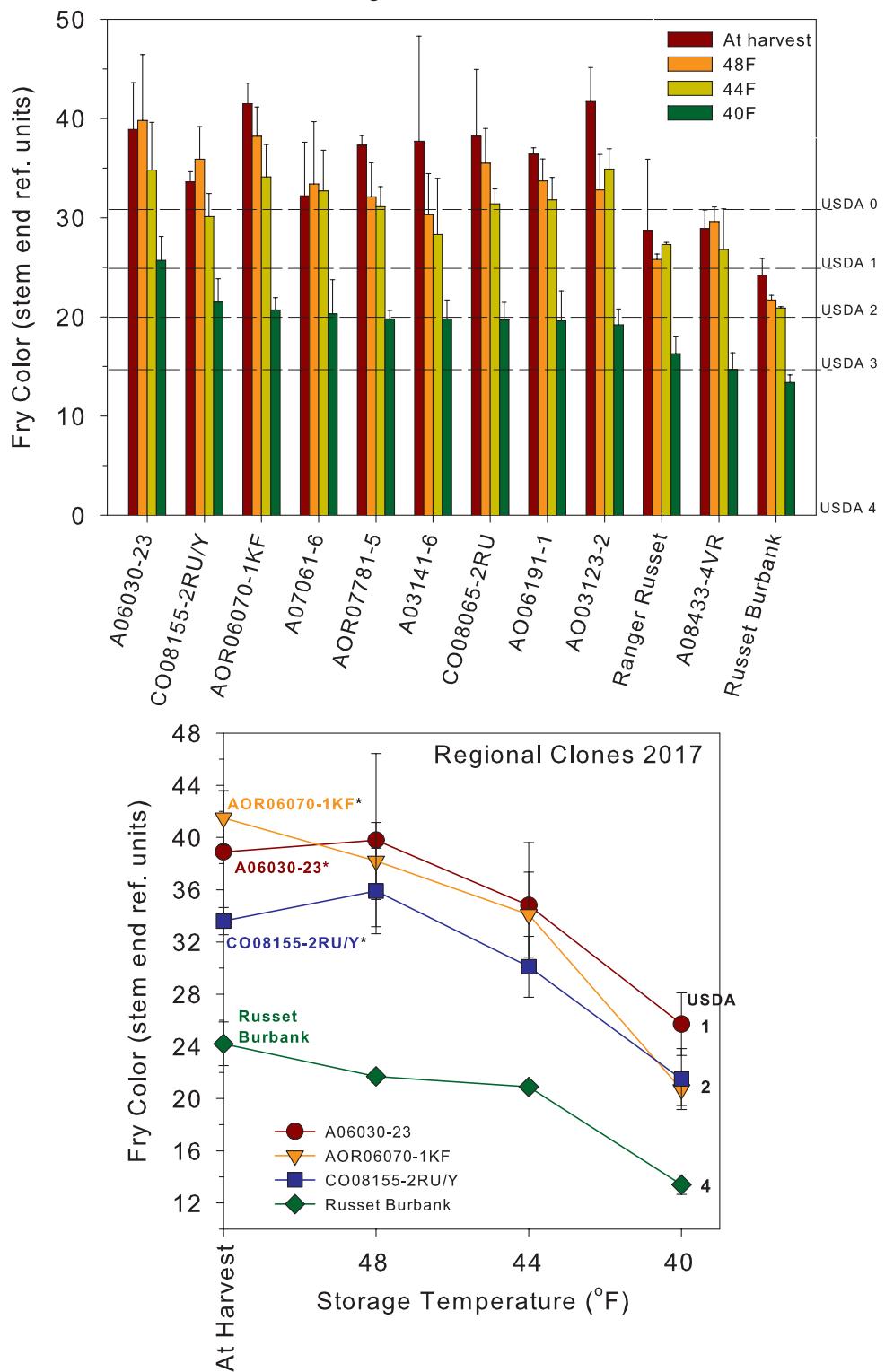
Clone	WA		ID		OR		3 State av. Rating Total
	Rating Total §	Discard §§	Rating Total §	Discard §§	Rating Total §	Discard §§	
9 AOR06070-1KF	22.4		31.0		27.6		27.0
4 A06030-23	30.8		22.5		27.4	Sp. Gr.	26.9
7 AO03123-2	22.3		27.7		28.8		26.3
11 CO08065-2RU	23.4		22.2		28.7		24.8
8 AO06191-1	22.5		No Sample		25.4		24.0
12 CO08155-2RU/Y	17.9	Sp. Gr.	26.3	40°F	22.2	Sp. Gr.	22.1
5 A07061-6	18.3		32.9		15.2	Sp. Gr.	22.1
10 AOR07781-5	21.5		No Sample		22.6		22.1
6 A08433-4VR	15.1	40°F	22.7		18.4		18.7
3 A03141-6	21.6		14.0		No Sample		17.8
1 Ranger Russet	18.5		No Sample		14.1	Sp. Gr., 40°F	16.3
2 Russet Burbank	17.2	40°F	12.8	Sp. Gr., 40°F	13.9	Sp. Gr., 40°F	14.6
	21.0		23.6		22.2		21.9



Zach Holden directs the planting operation of a 2017 WSU potato research trial.

2017 Late Harvest Regional Trial

Regional Clones 2017



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 40°F-stored tubers. High reflectance values indicate light colored fries.

Bottom: Line graph depicting the effects of storage temperature on change in French fry processing quality (stem end fry color) of the most cold sweetening resistant (A06030-23, AOR06070-1KF, and CO08155-2RU/Y) and susceptible (Russet Burbank) clones in the Regional Trial. *Indicates similar performance of the clones last year.

2017 Late Harvest Regional Trial

Tuber Shape and Associated French Fry Yields

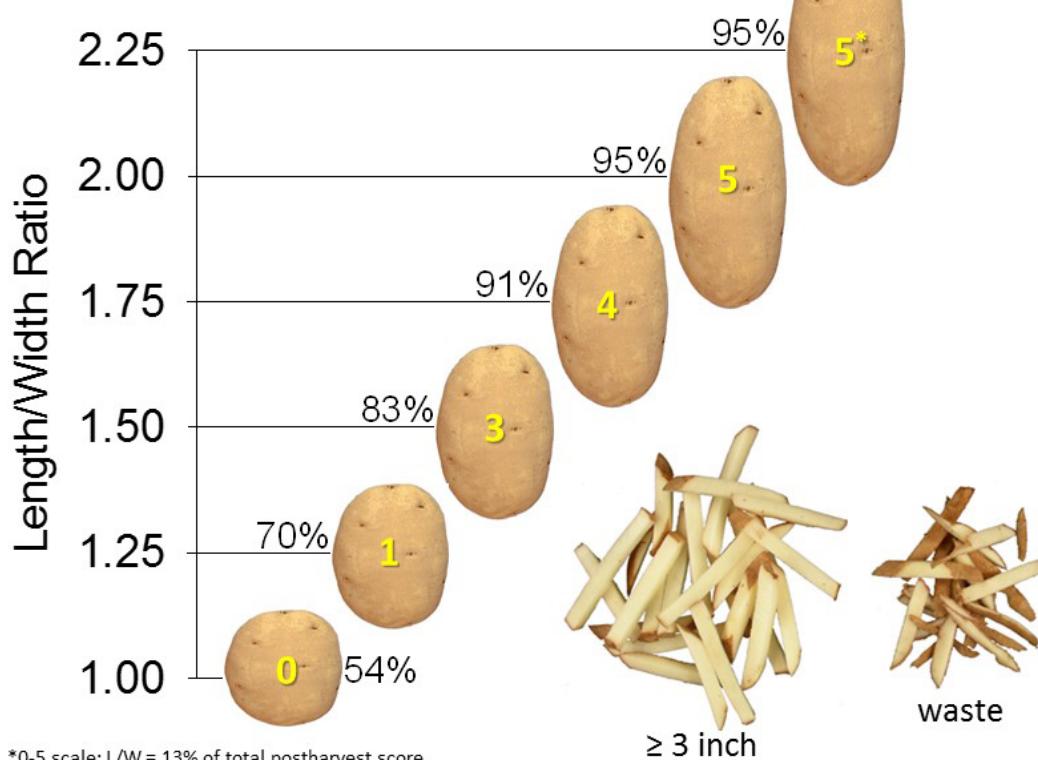
(8- to 10-oz Tubers)

Clone	WA	rtg §	Length to width ratio			rtg §	3 State Avg.
			ID	rtg §	OR		
1 Ranger Russet	1.67	4	No Sample		2.47	5	2.07
2 Russet Burbank	1.76	4	2.29	5	2.09	5	2.05
3 A03141-6	1.57	3	1.92	5	No Sample		1.75
4 A06030-23	1.61	3	1.90	5	1.78	4	1.76
5 A07061-6	1.53	3	1.65	4	1.57	3	1.59
6 A08433-4VR	1.60	3	2.10	5	1.71	4	1.80
7 AO03123-2	1.81	5	1.53	3	1.87	5	1.74
8 AO06191-1	1.49	2	No Sample		1.78	4	1.63
9 AOR06070-1KF	1.59	3	2.37	5	1.79	4	1.92
10 AOR07781-5	1.62	3	No Sample		1.83	5	1.72
11 CO08065-2RU	1.62	3	1.84	5	1.72	4	1.73
12 CO08155-2RU/Y	1.95	5	2.20	5	1.73	4	1.96
Average	1.65		1.98		1.85		1.81

French Fry Yield vs Tuber L/W Ratio

≥3-inch-long (% by weight)

8-10 oz tubers



2017 Tri-State Specialty Trial

Summaries

ENTRY	TOTAL YIELD		US # 1's*	US # 2's*	Culls*	EXTERNAL DEFECTS			
	CWT/A	Tons/A	> 0 oz	> 0 oz	> 0 oz	1 = Severe	5 =None	Growth Knobs	Cracks
Red Skin/White Flesh									
Chieftain	665	33.3	84	0	16	5.0	4.0	5.0	
Yellow Flesh									
Yukon Gold	506	25.3	84	0	16	5.0	4.3	4.3	
A06336-2Y	454	22.7	56	3	41	5.0	5.0	3.7	
A06336-5Y	486	24.3	27	0	73	5.0	5.0	5.0	
Fingerling									
LaRatte	120	6.0	13	1	86	5.0	5.0	5.0	
POR11PG62-3	239	11.9	6	2	91	5.0	5.0	5.0	

ENTRY	US # 1 YIELD						
	CWT/A	Tons/A	0-2 oz*	2-4 oz*	4-6 oz*	6-10 oz*	> 10 oz*
Red Skin/White Flesh							
Chieftain	649	32.4	2	12	28	42	15
Yellow Flesh							
Yukon Gold	479	23.9	2	9	14	33	42
A06336-2Y	421	21.1	6	33	38	22	1
A06336-5Y	475	23.8	14	58	24	3	0
Fingerling							
LaRatte	108	5.4	53	23	0	0	23
POR11PG62-3	216	10.8	46	47	2	0	4

ENTRY	Skin Set	Tuber Shape			60 Day Stand % Emerged	Stems per Plant Above Ground	Average Tuber Weight Ounces	Size Uniformity	Shape Uniformity
	1 = Poor	1 = Round	60 Day Stand	Stems per Plant					
	5 = Good	5 = Long	% Emerged	Above Ground					
Red Skin/White Flesh									
Chieftain	2.5	1.0	88	2.1			5.4	8.5	4.0
Yellow Flesh									
Yukon Gold	3.3	1.0	100	2			6.8	5.2	2.0
A06336-2Y	4.0	1.0	95	2			3.7	8.6	3.0
A06336-5Y	4.0	1.0	93	2			2.7	12.6	4.0
Fingerling									
LaRatte	4.0	5.0	88	2			1.6	5.0	4.0
POR11PG62-3	4.0	3.3	100	2			1.9	8.9	4.0

* Percent values may not total 100% due to rounding

Overall Culinary Evaluations

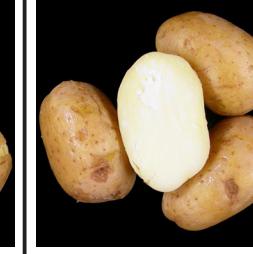
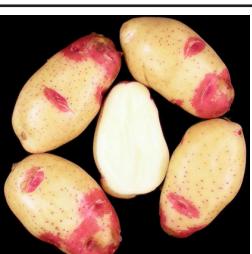
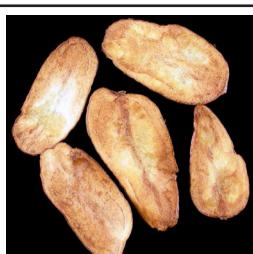
Clone	Boiled (25 max)	Baked (25 max)	Microwaved (25 max)	Total (75 max)
1 Yukon Gold	17.4	20.8	19.8	57.9
5 POR11PG62-3	18.0	17.5	21.5	57.0
4 LaRatte	19.5	17.2	19.9	56.5
2 A06336-2Y	17.4	19.6	18.9	55.8
3 A06336-5Y	17.1	18.8	18.8	54.7

Chipped: Aug. 21
 Boiled: Aug. 15
 Microwaved: Aug. 16
 Baked: Aug. 17
 Cooking Time: Aug. 11

Chipping and Boiling Evaluations

Clone	(Chips)		(BOILED Cooking Time)		
	Av of 6 raters	SFA	Time to Breakdown (min)	Stem	Bud
1 Yukon Gold	4.8		6.3	4.3	5.3
2 A06336-2Y	3.4		4.7	4.0	4.4
3 A06336-5Y	3.9		5.7	4.6	5.1
4 LaRatte	3.6		5.7	4.9	5.3
5 POR11PG62-3	3.8		5.0	3.8	4.4
LSD 0.05 *			1.5	0.5	
Average	3.9		5.5	4.3	4.9

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

Tubers	Chips	Baked	Boiled	Microwaved
A06336-2Y				
				
A06336-5Y				
				
LaRatte				
				
POR11PG62-3				
				

2017 Washington Tri-State Specialty Trial

Specialty Clone Culinary Evaluation

Boiled

Clone	Flavor	After Cooking		Tuber Center	Sloughing	Total Rating
		Darkening	Texture			
1 Yukon Gold	2.8	4.7	3.4	3.5	3.0	17.4
2 A06336-2Y	3.5	4.2	2.5	4.3	3.0	17.4
3 A06336-5Y	2.4	4.5	2.8	4.2	3.2	17.1
4 LaRatte	3.3	4.5	3.3	3.6	4.8	19.5
5 POR11PG62-3	3.5	4.0	2.7	3.9	3.9	18.0
LSD 0.05	ns	0.4	ns	ns	0.6	ns
Average	3.1	4.4	2.9	3.9	3.6	17.9

Oven Baked

Clone	Flavor	After cooking		Tuber Center	Skin Rating	Total Rating
		Darkening	Texture			
1 Yukon Gold	3.5	4.4	3.6	4.8	4.6	20.8
2 A06336-2Y	3.4	4.4	3.1	4.5	4.3	19.6
3 A06336-5Y	3.5	4.4	1.9	4.1	4.9	18.8
4 LaRatte	2.0	3.6	4.4	4.5	2.7	17.2
5 POR11PG62-3	2.5	4.0	3.9	3.8	3.4	17.5
	1.3	0.8	1.1	1.0	1.2	ns
Average	3.0	4.2	3.4	4.3	4.0	18.8

Microwaved

Clone	Flavor	After cooking		Tuber Center	Skin Rating	Total Rating
		Darkening	Texture			
1 Yukon Gold	3.8	4.4	3.7	3.5	4.4	19.8
2 A06336-2Y	3.6	4.6	2.4	3.4	4.9	18.9
3 A06336-5Y	3.0	4.6	3.3	3.4	4.5	18.8
4 LaRatte	3.4	3.6	4.0	4.1	4.8	19.9
5 POR11PG62-3	4.0	4.4	3.9	4.5	4.7	21.5
	ns	0.5	0.9	ns	ns	ns
Average	3.6	4.3	3.5	3.8	4.7	19.8

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

Index of Clones and Cultivars

Early Harvest Tri-State Trial 12-15

A07088-6	A08422-4VRsto	Ranger Russet
A07098-4	A08510-1LB	Russet Burbank
A071012-4BF	A10021-5TE	Russet Norkotah
A07705-4	AOR06576-1	Shepody
A07769-4	AOR07821-1	
A08422-2VRsto	POR12NCK50-1	

Late Harvest Tri-State Trial 16-23

A07098-4	AOR06576-1
A071012-4BF	AOR07821-1
A07705-4	POR12NCK50-1
A07769-4	Ranger Russet
A08422-2VRsto	Russet Burbank
A08510-1LB	Russet Norkotah
A10021-5TE	

Early Harvest Regional Trial 24-27

A03141-6	AOR06070-1KF	Russet Burbank
A06030-23	AOR07781-5	Russet Norkotah
A07061-6	CO08065-2RU	Shepody
A08009-2TE	CO08155-2RU/Y	TX08352-5Ru
A08433-4VR	CO08231-1RU	
AO03123-2	COTX09022-3RuRE/Y	
AO06191-1	Ranger Russet	

Late Harvest Regional Trial 28-39

A03141-6	AO06191-1	COTX09022-3RuRE/Y
A06030-23	AOR06070-1KF	Ranger Russet
A07061-6	AOR07781-5	Russet Burbank
A08009-2TE	CO08065-2RU	Russet Norkotah
A08433-4VR	CO08155-2RU/Y	TX08352-5Ru
AO03123-2	CO08231-1RU	

Tri-State Specialty Trial 40-43

A06336-2Y	Yukon Gold
A06336-5Y	
Chieftain	
LaRatte	
POR11PG62-3	