

# RECCS



## 2014 POTATO VARIETY DEVELOPMENT IN TULELAKE, CA

Three variety trials were grown at the Intermountain Research and Extension Center during 2014. Trials were categorized by their market type and included russet, specialty and chip. Trial results are summarized in this report.

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## 2014 Annual Progress Report Potato Variety Development in Tulelake

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*Tables and variety notes were prepared by Kevin Nicholson and Skyler Peterson*

Three potato variety trials were conducted at the Intermountain Research and Extension Center (IREC) in Tulelake, CA. Trials were categorized by market type and included a Russet trial with 19 entries, a Specialty trial with 23 entries, and a Chipping trial with 7 entries. Entries included selections from the Western Regional (WR) variety development program, Southwest Regional (SWR) variety development program, and varieties of local interest.

**Growing Conditions:** Planting occurred within a week of the five year average. Harvest occurred a week earlier compared to the five year average (October 5<sup>th</sup>). Air and soil temperatures were warmer than normal in early spring, but they were similar to normal in the summer and fall. Trials were planted in a field with a known history of Verticillium wilt, and early die symptoms were observed in all trials. Weather data can be found at: <http://www.cimis.water.ca.gov/cimis/welcome.jsp> Station # 91.

## Late Russet Variety Trial

The Late Russet Variety Trial is a combination of sixteen entries from the Western Regional Variety Trial (WR) and three entries from the Southwest Regional Trial (SWR). Merit scoring and culls were evaluated considering fresh market standards, given most Russets grown in Tulelake, CA are sold for fresh market. Data was collected for several vine and tuber characteristics. Important characteristics for the local area include total and percent US No. 1 yield, fresh merit score, tuber shape uniformity, low internal and external defects, and Verticillium wilt resistance. See Tables 1-4 for Russet results and Figure 1 for entry pictures and comments.

### Trial Information

<b>Location:</b>	Intermountain Research and Extension Center, Tulelake, CA
<b>Soil Type:</b>	Tulebasin mucky silty clay loam
<b>Planting Date:</b>	May 19 <sup>th</sup> 2014
<b>Vine Kill Date:</b>	September 5 <sup>th</sup>
<b>Days to Vine Kill:</b>	109
<b>Harvest Date:</b>	September 29 <sup>th</sup> 2014
<b>Irrigation:</b>	Solid-set sprinklers; applied water + precipitation = 24.14 inches
<b>Plot Length:</b>	18.3 Feet
<b>In-Row Spacing:</b>	10 Inches
<b>Row Spacing:</b>	36 Inch
<b>Number of Reps:</b>	4
<b># of Fertilizer/Acre:</b>	204N 40P205 110K20 34S
<b>Seed Treatment:</b>	Maxim 4FS and Fir Bark Dust
<b>Weed Control:</b>	Matrix (pre-plant), Prowl H20 and Outlook (post-plant)
<b>Insecticides:</b>	Admire Pro (in furrow)
<b>Fungicides:</b>	Bravo Weather Stick, Omega F500, Quadris
<b>Vine Kill Method:</b>	Rolling and with labeled rates of Reglone

## Results

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### Potato Stand

- Highest: A03158-2TE (99%), AO01114-4 (99%) and OR05039-4 (99%)  
Lowest: A02507-2LB (91%), AO02060-3 (94%), A03921-2 (95%) and CO06057-3RU (95%)

### Tuber Count and Size

- **Tubers Per Plant**  
Highest: CO03276-5RU (8.4), CO06057-3RU (7.6) and Russet Norkotah SWR (6.6)  
Lowest: AO01114-4 (4.3), CO05175-1RU (4.7) and OR05039-4 (4.7)
- **Average Tuber Size (oz.)**  
Largest: A03158-2TE (8.4), CO05175-1RU (7.5) and OR05039-4 (7.5)  
Smallest: CO06057-3RU (4.9), A02424-83LB (5.2) and CO03276-5RU (5.3)
- **Undersized Tubers <4oz. (cwt/acre)**  
Most: CO03276-5RU (93), CO06057-3RU (89) and Russet Norkotah SWR (73)  
Least: OR05039-4 (23), CO05175-1RU (26), A03158-2TE (28) and CO05068-1RU (29)

### Yield

- **Total Yield (cwt/acre)**  
Highest: CO03276-5RU (479), A03158-2TE (450) and Ranger Russet (446)  
Lowest: A02507-2LB (335), AO01114-4 (340), A02424-83LB (348) and AC05039-2RU (353)
- **U.S. No. 1's Yield (cwt/acre)**  
Highest: A03158-2TE (391), CO05068-1RU (379) and CO03276-5RU (368)  
Lowest: A02507-2LB (251), POR06V12-3 (259), A02424-83LB (261) and CO06057-3RU (265)

### Tuber Defects

- **Hollow Heart**  
Notable Entries: CO06057-3RU and CO05175-1RU (32.5%), AO01114-4 (22.5%)  
and CO05068-1RU (20%)
- **Greening**  
Notable Entries: A03921-2 (8.2%)
- **Black-Spot Bruise**  
Notable Entries: Ranger Russet (10%), A03158-2TE (7.5%), CO05068-1RU (7.5%)  
and AO02060-3 (5%)

### Potato Early Dying Susceptibility

- **Area Under the Disease Progress Curve**  
Most Susceptible: Russet Norkotah WR (1344), Russet Norkotah SWR (1267) and  
AC05039-2RU (1213)  
  
Least Susceptible: A02507-2LB (101), CO05068-1RU (148) and A02424-83LB (173)

**Table 1. Tuber Yield and Size of Experimental and Standard Russet Skinned Potato Entries.**

Clone/Variety	Trial	Tuber Yield (cwt/A)									
		U.S. No. 1's (cwt)							2's + culls	Total Yield	% 1's
		Total 1's	>14oz	10- 14oz	6-10oz	4-6oz	<4oz				
Ranger Russet	WR	329	53	80	126	70	38	79	446	74	
Russet Burbank	WR	282	36	60	118	68	57	42	381	74	
Russet Norkotah	WR	333	66	85	128	53	33	22	387	86	
A02424-83LB	WR	261	4	25	124	107	67	21	348	75	
A02507-2LB	WR	251	19	48	119	65	41	43	335	75	
A03158-2TE	WR	391	137	108	104	43	28	31	450	87	
A03921-2	WR	288	58	80	105	45	32	49	369	78	
A06021-1T	WR	329	30	97	137	64	40	12	381	86	
A06084-1TE	WR	321	33	86	132	69	42	36	398	80	
AO01114-4	WR	294	49	84	113	48	30	16	340	86	
AO02060-3	WR	291	48	85	104	53	33	52	376	77	
CO03276-5RU	WR	368	23	58	175	112	93	19	479	77	
CO05068-1RU	WR	379	42	102	165	70	29	31	440	86	
CO05175-1RU	WR	310	56	91	116	48	26	39	376	82	
OR05039-4	WR	314	37	97	138	42	23	40	377	84	
POR06V12-3	WR	259	31	46	115	68	61	37	357	72	
Russet Norkotah	SWR	285	15	53	132	84	73	28	386	74	
AC05039-2RU	SWR	272	30	62	112	69	42	39	353	77	
CO06057-3RU	SWR	265	9	36	122	99	89	30	384	69	
<b>Mean</b>		<b>306</b>	<b>41</b>	<b>73</b>	<b>126</b>	<b>67</b>	<b>46</b>	<b>35</b>	<b>388</b>	<b>79</b>	
<b>95% CI</b>		<b>25</b>	<b>15</b>	<b>13</b>	<b>15</b>	<b>13</b>	<b>8</b>	<b>20</b>	<b>25</b>	<b>4</b>	

**Table 2. External Tuber Characteristics of Experimental and Standard Russet Skinned Potato Entries.**

Clone/Variety	Trial	Merit Score <sup>1</sup>	Russeting <sup>2</sup>	Eye Depth <sup>3</sup>	Tuber Shape <sup>4</sup>	Shape Uniformity <sup>5</sup>	Length/Width Ratio <sup>6</sup>
Ranger Russet	WR	2.6	3.5	3.0	4.9	3.6	2.4
Russet Burbank	WR	3.1	3.4	4.3	4.0	4.1	2.1
Russet Norkotah	WR	3.5	3.6	3.0	3.8	3.8	2.0
A02424-83LB	WR	2.1	1.3	3.9	4.0	3.9	2.0
A02507-2LB	WR	3.0	3.4	4.1	3.6	3.8	1.9
A03158-2TE	WR	3.4	3.6	2.9	3.9	3.6	2.0
A03921-2	WR	2.6	2.3	4.8	3.8	4.0	1.8
A06021-1T	WR	4.0	3.6	3.9	3.1	4.0	1.8
A06084-1TE	WR	3.6	4.1	3.6	3.9	4.0	2.1
AO01114-4	WR	3.5	3.5	3.3	3.6	4.1	1.9
AO02060-3	WR	3.1	3.5	3.4	3.9	3.5	2.1
CO03276-5RU	WR	3.3	3.6	3.6	4.1	3.8	2.1
CO05068-1RU	WR	3.4	2.9	3.3	3.1	4.0	1.6
CO05175-1RU	WR	3.4	3.4	3.1	3.4	3.5	1.8
OR05039-4	WR	2.0	1.4	3.9	4.0	4.0	2.1
POR06V12-3	WR	3.9	3.9	3.6	3.9	3.9	2.0
Russet Norkotah	SWR	4.5	4.3	3.6	3.5	3.8	1.8
AC05039-2RU	SWR	3.5	3.4	3.8	3.6	3.9	1.8
CO06057-3RU	SWR	3.3	3.4	3.9	4.0	3.6	2.1
<b>Mean</b>		<b>3.3</b>	<b>3.3</b>	<b>3.6</b>	<b>3.8</b>	<b>3.8</b>	<b>2.0</b>
<b>95% CI</b>		<b>0.4</b>	<b>0.4</b>	<b>0.6</b>	<b>0.4</b>	<b>NS</b>	<b>0.1</b>

<sup>1</sup> 1=Worst, 5=Best - Fresh Market Russet Merit Score takes into account multiple factors including; tuber shape, eye depth, russeting, and shape uniformity

<sup>2</sup> 1=Light, 5=Heavy

<sup>3</sup> 1=Deep, 5=Shallow

<sup>4</sup> 1=Round, 5=Oblong

<sup>5</sup> 1= Non Uniform, 5=Very Uniform

<sup>6</sup> Ratio of 10 tubers measured from each plot, 8-16 oz in size.

**Table 3. Tuber Defects of Experimental and Standard Russet Skinned Potato Entries.**

Clone/Variety	Trial	Hollow Heart <sup>1</sup> (%)	Stem End Necrosis <sup>1</sup> (%)	Vascular Discoloration <sup>1</sup> (%)	Black Spot Bruise <sup>1</sup> (%)	Knobs <sup>2</sup> (%)	Growth Crack <sup>2</sup> (%)	Irregular Shaped <sup>2</sup> (%)	Green <sup>2</sup> (%)
Ranger Russet	WR	0.0	10.0	7.5	10.0	1.3	0.6	8.3	1.4
Russet Burbank	WR	15.0	15.0	0.0	2.5	1.8	0.9	3.5	0.8
Russet Norkotah	WR	12.5	5.0	0.0	0.0	1.4	0.7	1.9	1.2
A02424-83LB	WR	0.0	15.0	10.0	0.0	0.5	0.2	2.1	2.9
A02507-2LB	WR	0.0	5.0	2.5	2.5	2.2	0.9	6.9	0.5
A03158-2TE	WR	5.0	15.0	0.0	7.5	0.9	1.4	2.5	1.2
A03921-2	WR	5.0	2.5	7.5	0.0	1.5	0.7	2.9	8.2
A06021-1T	WR	5.0	15.0	7.5	0.0	0.1	0.0	1.3	2.8
A06084-1TE	WR	0.0	15.0	5.0	2.5	3.6	0.4	3.5	1.5
AO01114-4	WR	22.5	7.5	0.0	0.0	0.5	0.8	1.2	1.2
AO02060-3	WR	5.0	2.5	2.5	5.0	0.8	3.1	5.5	1.4
CO03276-5RU	WR	0.0	2.5	0.0	2.5	0.3	0.1	1.6	1.4
CO05068-1RU	WR	20.0	2.5	2.5	7.5	0.6	1.0	2.5	1.6
CO05175-1RU	WR	32.5	2.5	0.0	0.0	1.0	1.9	4.7	1.8
OR05039-4	WR	0.0	7.5	2.5	0.0	0.5	2.5	3.0	2.0
POR06V12-3	WR	7.5	0.0	0.0	0.0	3.2	0.8	1.8	1.7
Russet Norkotah	SWR	15.0	5.0	5.0	2.5	0.9	0.8	2.5	0.9
AC05039-2RU	SWR	0.0	7.5	2.5	2.5	1.0	0.7	7.9	4.0
CO06057-3RU	SWR	32.5	0.0	0.0	0.0	0.8	1.1	4.9	0.2
<b>Mean</b>		<b>9.3</b>	<b>7.1</b>	<b>2.9</b>	<b>2.4</b>	<b>1.2</b>	<b>1.0</b>	<b>3.6</b>	<b>1.9</b>
<b>95% CI</b>		<b>9.5</b>	<b>8.1</b>	<b>NS</b>	<b>NS</b>	<b>1.1</b>	<b>1.0</b>	<b>1.6</b>	<b>NS</b>

<sup>1</sup> 10 tubers evaluated from each plot, the tubers were 8-16 oz.

<sup>2</sup> Percent of total tubers.

**Table 4. Disease Susceptibility, Stand, Tuber Set, Average Tuber Size and Specific Gravity of Experimental and Standard Russet Skinned Potato Entries.**

Clone/Variety	Trial	Early Dying A.U.D.P.C. <sup>1</sup>	% Stand	Tubers/Plant	Avg. Tuber Size (oz.)	Specific Gravity
Ranger Russet	WR	254	98	6.1	6.9	1.098
Russet Burbank	WR	308	98	6.0	6.0	1.088
Russet Norkotah	WR	1344	97	5.1	7.2	1.077
A02424-83LB	WR	173	96	6.4	5.2	1.096
A02507-2LB	WR	101	91	5.6	6.0	1.098
A03158-2TE	WR	331	99	5.0	8.4	1.086
A03921-2	WR	363	95	5.1	7.1	1.106
A06021-1T	WR	466	96	5.6	6.6	1.087
A06084-1TE	WR	376	97	5.9	6.4	1.089
AO01114-4	WR	560	99	4.3	7.3	1.102
AO02060-3	WR	418	94	5.2	7.0	1.093
CO03276-5RU	WR	642	98	8.4	5.3	1.089
CO05068-1RU	WR	148	97	5.8	7.2	1.106
CO05175-1RU	WR	254	98	4.7	7.5	1.088
OR05039-4	WR	419	99	4.7	7.5	1.098
POR06V12-3	WR	309	96	5.5	6.3	1.093
Russet Norkotah	SWR	1267	98	6.6	5.4	1.075
AC05039-2RU	SWR	1213	98	5.5	6.0	1.088
CO06057-3RU	SWR	753	95	7.6	4.9	1.092
<b>Mean</b>		<b>510</b>	<b>97</b>	<b>5.7</b>	<b>6.5</b>	<b>1.092</b>
<b>95% CI</b>		<b>169</b>	<b>3</b>	<b>0.4</b>	<b>0.5</b>	<b>0.004</b>

<sup>1</sup> Area Under Disease Progress Curve based on foliar early-dying ratings taken 80, 92, and 99 days after planting.

Figure 1. 2014 Late Russet Trial Entries.

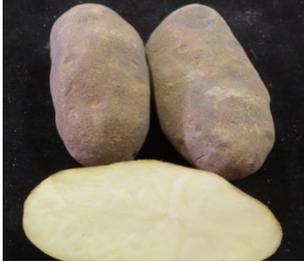
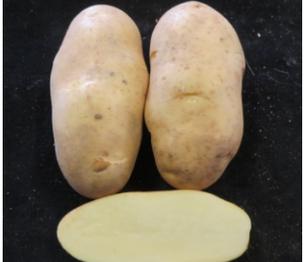
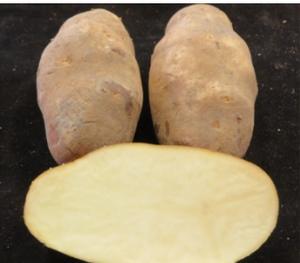
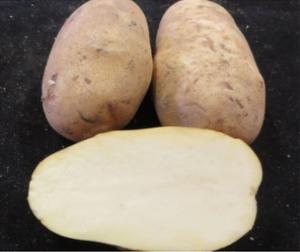
Entry	Tulelake Notes	Entry	Tulelake Notes
<b>Ranger Russet (WR)</b>	 <ul style="list-style-type: none"> <li>• Long, oblong tubers</li> <li>• Medium eye depth</li> <li>• 0% hollow heart</li> <li>• Low percent US #1's (74%)</li> <li>• Lumpy</li> </ul>	<b>Russet Burbank (WR)</b>	 <ul style="list-style-type: none"> <li>• Yields were lower than average</li> <li>• Average total yield (381 CWT)</li> <li>• Low percent US # 1's (74%)</li> <li>• High hollow heart (15%)</li> <li>• Lumpy</li> </ul>
<b>Russet Norkotah (WR)</b>	 <ul style="list-style-type: none"> <li>• Susceptible to early-dying</li> <li>• 7.2 oz. avg. tuber size</li> <li>• 5.1 tubers /plant</li> <li>• Average yield (387 CWT)</li> </ul>	<b>A02424-83LB (WR)</b>	 <ul style="list-style-type: none"> <li>• Light russeting</li> <li>• Smallest average tuber size of trial (5.2 oz.)</li> <li>• Resistant to early-dying</li> <li>• High vascular discoloration (10%)</li> <li>• Scab</li> </ul>
<b>A02507-2LB (WR)</b>	 <ul style="list-style-type: none"> <li>• Shallow eyes</li> <li>• Resistant to early dying</li> <li>• Low total yield (335 CWT)</li> <li>• Low US #1 yield (251 CWT)</li> <li>• Very lumpy</li> </ul>	<b>A03158-2TE (WR)</b>	 <ul style="list-style-type: none"> <li>• Largest average tuber size (8.4 oz./tuber)</li> <li>• High US #1's (87%)</li> <li>• High total yield (450 CWT)</li> <li>• Lumpy</li> </ul>
<b>A03921-2 (WR)</b>	 <ul style="list-style-type: none"> <li>• Shallow eyes</li> <li>• Low merit score (2.6 out of 5)</li> <li>• Light russeting</li> <li>• 8.2 % green tubers of trial (highest of trial)</li> </ul>	<b>A06021-1T (WR)</b>	 <ul style="list-style-type: none"> <li>• Uniform shape</li> <li>• High US #1's (86%)</li> <li>• 15% stem-end necrosis</li> </ul>

Figure 1. 2014 Late Russet Trial Entries Continued.

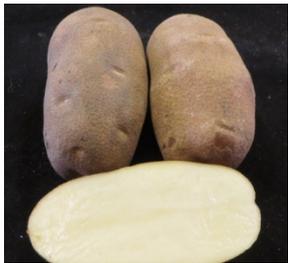
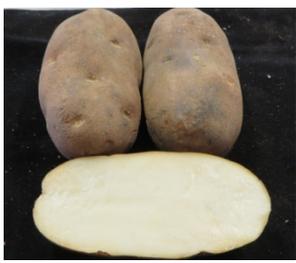
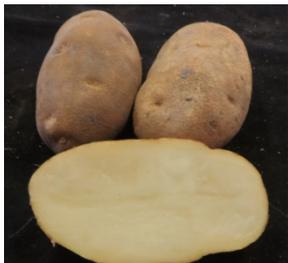
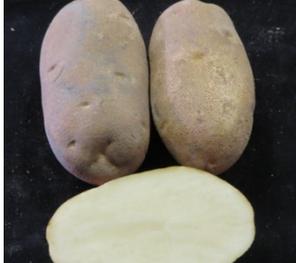
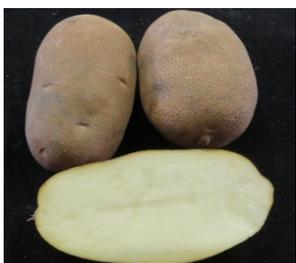
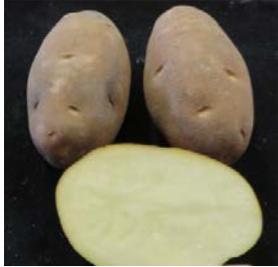
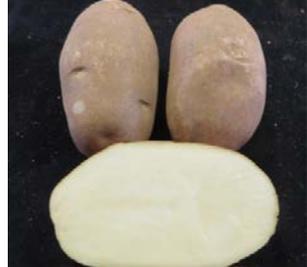
Entry	Tulelake Notes	Entry	Tulelake Notes
A06084-1TE (WR)	 <ul style="list-style-type: none"> <li>• Uniform shape</li> <li>• 15% stem-end necrosis</li> <li>• 80% US #1's (321 CWT)</li> </ul>	AO01114-4 (WR)	 <ul style="list-style-type: none"> <li>• Large average tuber size (7.3 oz./tuber)</li> <li>• High percent US#1's (86%)</li> <li>• High hollow heart (22.5%)</li> </ul>
AO02060-3 (WR)	 <ul style="list-style-type: none"> <li>• Low percent US #1's (77%)</li> <li>• High cull and US #2 yield (52 CWT)</li> <li>• Moderate resistance to early-dying</li> </ul>	CO03276-5RU (WR)	 <ul style="list-style-type: none"> <li>• Small average tuber size (5.3 oz./tuber)</li> <li>• High tuber set (8.4 tubers/plant)</li> <li>• 77% US #1's</li> <li>• Highest total yield of trial (479 CWT)</li> </ul>
CO05068-1RU (WR)	 <ul style="list-style-type: none"> <li>• High percent hollow heart (20%)</li> <li>• Resistant to early-dying</li> <li>• 86% US #1's (379 CWT)</li> <li>• Lumpy</li> </ul>	CO05175-1RU (WR)	 <ul style="list-style-type: none"> <li>• Low tuber set (4.7 tubers/plant)</li> <li>• Shallow eyes</li> <li>• 32.5 % hollow heart (highest in trial)</li> </ul>
OR05039-4 (WR)	 <ul style="list-style-type: none"> <li>• Low fresh merit score (2.0 out of 5)</li> <li>• Light russeting</li> <li>• 84% US #1's (314 CWT/A)</li> <li>• Scab</li> </ul>	POR06V12-3 (WR)	 <ul style="list-style-type: none"> <li>• 72% US #1's</li> <li>• Moderate resistance to early-dying</li> <li>• No stem-end necrosis</li> </ul>

Figure 1. 2014 Late Russet Trial Entries Continued.

Entry	Tulelake Notes	Entry	Tulelake Notes
<b>Russet Norkotah (SWR)</b> 	<ul style="list-style-type: none"> <li>• High hollow heart (15%)</li> <li>• Susceptible to early-dying</li> <li>• Good fresh merit score (4.5 out of 5)</li> <li>• Low US # 1's (74%)</li> </ul>	<b>AC05039-2RU (SWR)</b> 	<ul style="list-style-type: none"> <li>• Uniform tuber shape</li> <li>• Shallow eyes</li> <li>• Susceptible to early-dying</li> <li>• 77% US #1's (272 CWT)</li> </ul>
<b>CO06057-3RU (SWR)</b> 	<ul style="list-style-type: none"> <li>• High tuber set (7.6 tubers/plant)</li> <li>• Low average tuber size (4.9 oz./tuber)</li> <li>• 32.5% hollow heart, (highest in trial)</li> <li>• Low US #1 yield (265 CWT)</li> </ul>		

## Red/Specialty Variety Trial

The Red/Specialty Trial included seventeen entries from the Western Regional Variety Trial (WR) and six entries from the Southwest Regional Trial (SWR). Red and specialty type potatoes are an expanding segment of the Klamath Basin potato industry. Organic certified acreage is also increasing in these categories. Important vine and tuber characteristics for fresh market red/specialty types include: skin and flesh color, fresh merit score, tuber shape, tuber uniformity, tubers per plant, and average tuber size. See Tables 5-10 for Red/Specialty trial results and Figure 2 for entry pictures and comments.

### Trial Information

<b>Location:</b>	Intermountain Research and Extension Center, Tulelake, CA
<b>Soil Type:</b>	Tulebasin mucky silty clay loam
<b>Planting Date:</b>	May 19 <sup>th</sup> 2014
<b>Vine Kill Date:</b>	September 5 <sup>th</sup>
<b>Days to Vine Kill:</b>	109
<b>Harvest Date:</b>	September 26 <sup>th</sup> 2014
<b>Irrigation:</b>	Solid-set sprinklers; applied water + precipitation = 24.14 inches
<b>Plot Length:</b>	18.3 Ft
<b>In-Row Spacing:</b>	10 Inches
<b>Row Spacing:</b>	36 Inch
<b>Number of Reps:</b>	4
<b># of Fertilizer/Acre:</b>	204N 40P205 110K20 34S
<b>Seed Treatment:</b>	Maxim 4FS and Fir Bark Dust
<b>Weed Control:</b>	Matrix (pre-plant), Prowl H20 and Outlook (post-plant)
<b>Insecticides:</b>	Admire Pro (in furrow)
<b>Fungicides:</b>	Bravo Weather Stick, Omega F500, Quadris
<b>Vine Kill Method:</b>	Rolling and with labeled rates of Reglone

## Results

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### Potato Stand

- Highest: Chieftan (100) and CO05079-4P/PW (100)
- Lowest: NDTX5438-11R (83), Yukon Gold WR (90), CO05228-4R (94) and Yukon Gold SWR (94)

### Tuber Count and Size

- **Tubers Per Plant**  
Highest: A05182-7RY (12.1), ATTX98444S-16R/Y (11) and NDA081451CB-1CY (10.8)  
Lowest: Red LaSoda (5.3), Yukon Gold SWR (5.3), Yukon Gold-WR (5.6) and Chieftan (6.5)
- **Average Tuber Size (oz.)**  
Largest: Yukon Gold (7.6), Chieftan (7.5), Red LaSoda (7.5) and Yukon Gold-SWR (7.2)  
Smallest: CO05037-2R/Y (2.7), ATTX98444S-16R/Y (3.6) and CO04067-8R/Y (3.6)

### Yield

- **Total Yield (cwt/acre)**  
Highest: NDA081451CB-1CY (558), CO05028-4P/PY (541) and Chieftan (532)  
Lowest: CO05037-2R/Y (287), CO05228-4R (355) and AC05175-3P/Y (353)
- **4-10 oz Yield (cwt/acre)**  
Highest: NDA081451CB-1CY (390), CO05028-4P/PY (351) and A05180-3PY (307)  
Lowest: CO05037-2R/Y (85), CO04067-8R/Y (145) and Yukon Gold SWR (181)
- **Undersized Tubers- <4 oz. (cwt/acre)**  
Most: ATTX98444S-16R/Y (212), CO04067-8R/Y (204) and CO05037-2R/Y (192)  
Least: Yukon Gold WR (29), Yukon Gold SWR (37) and Red LaSoda (40)

### Tuber Defects

- **Hollow Heart**  
Notable Entries: CO05028-11P/RWP (22.5%), CO04099-3W/Y (15%) and Yukon Gold SWR/WR (12.5%)
- **Stem End Necrosis**  
Notable Entries: Yukon Gold WR/SWR (17.5%) and CO05079-4P/PW (17.5%)
- **Vascular Discoloration**  
Notable Entries: CO05037-2R/Y (20%)

### Early Dying Susceptibility

- **Area Under the Disease Progress Curve**  
Most Susceptible: AC05175-3P/Y (1238), CO05037-3W/Y (1178) and CO04067-8R/Y (909)  
Least Susceptible: NDA050237B-1R (117), NDA081451CB-1CY (170) and ATX05202S-3W/Y (195)

**Table 5. Skin and Flesh Characteristics of Specialty Entries.**

Clone/Variety	Trial	Skin Color	Skin Darkness <sup>1</sup>	Flesh Color	Flesh Darkness <sup>1</sup>
Chieftan	WR	Red	1.9	White	1.0
Red LaSoda	WR	Red	1.6	White	1.4
CO05228-4R	WR	Red	3.4	White	1.0
NDA050237B-1R	WR	Red	2.9	White	1.0
NDTX5438-11R	WR	Red	2.6	White	1.0
A05180-3PY	WR	Purple	4.1	Yellow	2.8
ATTX98444S-16R/Y	WR	Red	2.6	Yellow	3.5
CO04067-8R/Y	WR	Red	2.1	Yellow	3.9
CO05037-2R/Y	WR	Red	2.6	Yellow	3.4
AC05175-3P/Y	WR	Purple	4.3	Yellow	3.0
Yukon Gold	WR	White	1.8	Yellow	3.0
A02267-1Y	WR	Yellow	1.9	Yellow	2.8
A05182-7RY	WR	Yellow	1.6	Yellow	2.6
ATX05202S-3W/Y	WR	White	1.9	Yellow	3.3
CO04099-3W/Y	WR	White	2.1	Yellow	3.5
CO05037-3W/Y	WR	White	2.0	Yellow	3.5
NDA081451CB-1CY	WR	Yellow	1.8	Yellow	3.3
Yukon Gold	SWR	Yellow	2.0	Yellow	2.9
CO05035-1PW/Y	SWR	Purple	2.4	Yellow	3.1
Purple Majesty	SWR	Purple	4.5	Purple	5.0
CO05028-4P/PY	SWR	Purple	3.6	Purple	5.0
CO05028-11P/RWP	SWR	Purple	2.8	Purple	4.6
CO05079-4P/PW	SWR	Purple	4.6	Purple	5.0
<b>Mean</b>					<b>3.0</b>
<b>95% CI</b>					<b>0.5</b>

<sup>1</sup>1=Light, 5=Dark; Reds and purples were rated using red/purple color scale. Yellows were rated using a white/yellow color scale. All varieties were rated using the same internal flesh darkness scale.

**Table 6. Tuber Yield and Size of Experimental and Standard Specialty Potato Entries.**

Clone/Variety	Tuber Yield (cwt/A)					Culls	Total Yield
	>14oz	10-14oz	6-10oz	4-6oz	<4oz		
Chieftan	82	128	170	71	43	37	532
Red LaSoda	52	70	125	59	40	76	422
CO05228-4R	1	7	78	113	148	8	355
NDA050237B-1R	4	18	101	118	114	10	363
NDTX5438-11R	15	44	153	81	57	9	360
A05180-3PY	16	55	190	117	87	39	506
ATTX98444S-16R/Y	0	6	61	140	212	13	432
CO04067-8R/Y	0	3	47	98	204	45	397
CO05037-2R/Y	0	4	35	50	192	6	287
AC05175-3P/Y	0	9	95	116	127	6	353
Yukon Gold	74	83	136	58	29	37	416
A02267-1Y	2	27	156	119	101	28	433
A05182-7RY	0	17	112	134	152	18	432
ATX05202S-3W/Y	3	24	115	135	132	23	432
CO04099-3W/Y	3	19	119	144	136	16	436
CO05037-3W/Y	1	5	77	113	180	11	386
NDA081451CB-1CY	0	22	196	194	126	19	558
Yukon Gold	47	89	121	60	37	36	391
CO05035-1PW/Y	36	102	193	83	47	17	479
Purple Majesty	4	17	91	118	170	42	442
CO05028-4P/PY	2	37	193	158	120	31	541
CO05028-11P/RWP	5	44	167	133	93	23	465
CO05079-4P/PW	2	25	144	129	141	34	476
<b>Mean</b>	<b>15</b>	<b>37</b>	<b>125</b>	<b>111</b>	<b>117</b>	<b>25</b>	<b>430</b>
<b>95% CI</b>	<b>11</b>	<b>13</b>	<b>22</b>	<b>15</b>	<b>15</b>	<b>11</b>	<b>39</b>

Table 7. Tuber Size Distribution of Experimental and Standard Specialty Potato Entries.

Clone/Variety	% Of Total Tubers					Culls
	>14oz	10-14oz	6-10oz	4-6oz	<4oz	
Chieftan	7	15	31	20	22	5
Red LaSoda	6	11	28	21	25	10
CO05228-4R	0	1	12	26	60	1
NDA050237B-1R	0	2	17	29	49	3
NDTX5438-11R	2	6	32	26	32	3
A05180-3PY	1	5	22	26	41	5
ATTX98444S-16R/Y	0	1	7	23	66	3
CO04067-8R/Y	0	0	4	15	72	9
CO05037-2R/Y	0	1	11	19	68	2
AC05175-3P/Y	0	1	15	28	54	1
Yukon Gold	8	12	32	21	19	7
A02267-1Y	0	3	23	27	40	7
A05182-7RY	0	1	15	26	54	4
ATX05202S-3W/Y	0	3	17	29	46	5
CO04099-3W/Y	0	2	17	30	48	4
CO05037-3W/Y	0	0	10	23	64	3
NDA081451CB-1CY	0	2	23	34	37	4
Yukon Gold	5	14	28	21	24	8
CO05035-1PW/Y	3	12	35	24	22	4
Purple Majesty	0	1	12	23	58	6
CO05028-4P/PY	0	3	24	30	38	5
CO05028-11P/RWP	1	4	25	30	35	4
CO05079-4P/PW	0	2	19	25	49	5
Mean	2	4	20	25	44	5
95% CI	1	2	4	4	7	2

**Table 8. External Tuber Characteristics of Experimental and Standard Specialty Potato Entries.**

Clone/Variety	Trial	Merit Score <sup>1</sup>	Eye Depth <sup>2</sup>	Tuber Shape <sup>3</sup>	Shape Uniformity <sup>4</sup>	Length/Width Ratio <sup>5</sup>
Chieftan	WR	3.3	3.4	2.9	3.8	1.3
Red LaSoda	WR	3.0	2.8	2.8	3.6	1.2
CO05228-4R	WR	3.8	3.8	1.5	4.0	1.0
NDA050237B-1R	WR	3.5	4.0	1.9	3.9	1.0
NDTX5438-11R	WR	3.8	3.8	1.8	3.9	1.1
A05180-3PY	WR	3.1	3.6	2.3	3.5	1.1
ATTX98444S-16R/Y	WR	3.5	3.3	2.6	3.3	1.1
CO04067-8R/Y	WR	3.3	3.9	2.1	3.4	1.1
CO05037-2R/Y	WR	3.5	3.6	4.8	4.1	2.0
AC05175-3P/Y	WR	3.5	2.9	1.4	3.9	1.1
Yukon Gold	WR	3.4	3.8	3.1	3.5	1.2
A02267-1Y	WR	3.0	3.4	2.5	3.0	1.1
A05182-7RY	WR	3.3	3.6	2.3	3.8	1.1
ATX05202S-3W/Y	WR	3.8	4.4	2.8	3.8	1.2
CO04099-3W/Y	WR	3.5	3.4	3.0	3.5	1.1
CO05037-3W/Y	WR	3.0	3.4	2.1	3.5	1.1
NDA081451CB-1CY	WR	3.6	3.9	1.6	4.0	1.1
Yukon Gold	SWR	3.8	3.1	3.3	3.5	1.2
CO05035-1PW/Y	SWR	3.3	3.9	3.1	3.8	1.3
Purple Majesty	SWR	3.4	4.1	3.3	3.6	1.9
CO05028-4P/PY	SWR	2.9	3.0	3.3	3.1	1.4
CO05028-11P/RWP	SWR	3.6	3.8	2.4	3.1	1.3
CO05079-4P/PW	SWR	3.1	3.4	4.0	3.6	1.6
Mean		<b>3.4</b>	<b>3.6</b>	<b>2.6</b>	<b>3.6</b>	<b>1.2</b>
95% CI		<b>NS</b>	<b>0.6</b>	<b>0.6</b>	<b>NS</b>	<b>0.1</b>

<sup>1</sup> 1=Worst, 5=Best - Specialty Merit Score takes into account multiple factors important to the Specialty market including tuber shape, eye depth, and shape uniformity

<sup>2</sup> 1=Deep, 5=Shallow

<sup>3</sup> 1=Round, 5=Oblong

<sup>4</sup> 1= No Uniformity, 5=Very Uniform

<sup>5</sup> Ratio of 10 tubers measured from each plot

Table 9. Tuber Defects of Experimental and Standard Specialty Potato Entries.

Clone/Variety	Trial	Hollow Heart <sup>1</sup> (%)	Black Spot Bruise <sup>1</sup> (%)	Stem End Necrosis <sup>1</sup> (%)	Vascular Discoloration <sup>1</sup> (%)	Knobs <sup>2</sup> (%)	Growth Cracks <sup>2</sup> (%)	Irregular Shape <sup>2</sup> (%)	Green <sup>2</sup> (%)	Total Cull <sup>2</sup> (%)
Chieftan	WR	0.0	10.0	7.5	0.0	1.1	1.7	1.8	0.6	5
Red LaSoda	WR	0.0	0.0	2.5	2.5	2.3	3.6	2.1	1.7	10
CO05228-4R	WR	0.0	2.5	5.0	0.0	0.1	0.3	0.9	0.2	1
NDA050237B-1R	WR	0.0	0.0	5.0	0.0	0.5	1.3	0.0	1.0	3
NDTX5438-11R	WR	0.0	0.0	2.5	5.0	0.3	0.4	0.9	1.0	3
A05180-3PY	WR	0.0	0.0	12.5	0.0	0.3	3.9	0.4	0.6	5
ATTX98444S-16R/Y	WR	0.0	2.5	7.5	2.5	0.4	0.3	1.1	0.8	3
CO04067-8R/Y	WR	2.5	2.5	12.5	5.0	0.1	7.9	0.5	0.2	9
CO05037-2R/Y	WR	0.0	0.0	10.0	20.0	0.0	0.0	1.1	0.9	2
AC05175-3P/Y	WR	0.0	0.0	5.0	0.0	0.1	0.1	0.7	0.7	1
Yukon Gold	WR	12.5	0.0	17.5	2.5	0.3	0.0	4.3	2.4	7
A02267-1Y	WR	0.0	0.0	7.5	5.0	0.6	0.0	2.3	4.6	7
A05182-7RY	WR	0.0	2.5	10.0	0.0	0.8	0.0	1.2	2.4	4
ATX05202S-3W/Y	WR	2.5	2.5	10.0	0.0	1.1	0.5	1.1	2.0	5
CO04099-3W/Y	WR	15.0	2.5	0.0	0.0	0.4	0.0	0.9	2.7	4
CO05037-3W/Y	WR	0.0	2.5	5.0	0.0	0.3	0.3	0.5	1.8	3
NDA081451CB-1CY	WR	0.0	2.5	7.5	0.0	0.3	0.2	0.4	3.3	4
Yukon Gold	SWR	12.5	0.0	17.5	0.0	1.3	0.5	4.8	1.0	8
CO05035-1PW/Y	SWR	0.0	2.5	10.0	2.5	1.0	0.2	1.6	1.0	4
Purple Majesty	SWR	0.0	0.0	5.0	2.5	1.1	0.5	3.8	0.2	6
CO05028-4P/PY	SWR	2.5	2.5	10.0	7.5	0.7	1.2	2.1	0.9	5
CO05028-11P/RWP	SWR	22.5	0.0	2.5	7.5	0.6	2.7	0.3	0.3	4
CO05079-4P/PW	SWR	5.0	0.0	17.5	5.0	0.4	0.4	4.3	0.1	5
Mean		3.3	1.5	8.4	2.9	0.6	1.1	1.6	1.3	5
95% CI		4.9	NS	NS	5.6	0.6	1.2	0.9	NS	2

<sup>1</sup> 10 tubers evaluated from each plot. Tubers were 6-10 oz.

<sup>2</sup> Percent of total tubers.

**Table 10. Disease Susceptibility, Stand, Tuber Set, Average Tuber Size and Specific Gravity of Experimental and Standard Specialty Potato Entries.**

Clone/Variety	Trial	Early Die Rating <sup>1</sup>	% Stand	Tubers/Plant	Avg. Tuber Size (oz.)	Specific Gravity
Chieftan	WR	398	100	6.5	7.5	1.080
Red LaSoda	WR	356	99	5.3	7.5	1.082
CO05228-4R	WR	484	94	8.8	3.9	1.080
NDA050237B-1R	WR	117	99	7.6	4.4	1.073
NDTX5438-11R	WR	348	83	7.0	5.7	1.070
A05180-3PY	WR	320	97	8.8	5.5	1.081
ATTX98444S-16R/Y	WR	355	99	11.0	3.6	1.089
CO04067-8R/Y	WR	909	98	10.3	3.6	1.083
CO05037-2R/Y	WR	784	99	10.2	2.7	1.090
AC05175-3P/Y	WR	1238	99	7.8	4.2	1.065
Yukon Gold	WR	934	90	5.6	7.6	1.091
A02267-1Y	WR	591	97	8.5	4.9	1.080
A05182-7RY	WR	204	98	12.1	3.7	1.081
ATX05202S-3W/Y	WR	195	98	8.8	4.7	1.089
CO04099-3W/Y	WR	376	98	9.4	4.4	1.093
CO05037-3W/Y	WR	1178	97	10.0	3.7	1.076
NDA081451CB-1CY	WR	170	99	10.8	4.8	1.094
Yukon Gold	SWR	855	94	5.3	7.2	1.092
CO05035-1PW/Y	SWR	325	95	6.9	6.7	1.081
Purple Majesty	SWR	728	98	10.2	4.1	1.082
CO05028-4P/PY	SWR	331	97	10.3	5.0	1.078
CO05028-11P/RWP	SWR	377	98	8.4	5.2	1.074
CO05079-4P/PW	SWR	230	100	9.7	4.5	1.087
<b>Mean</b>		<b>513</b>	<b>97</b>	<b>8.7</b>	<b>5.0</b>	<b>1.082</b>
<b>95% CI</b>		<b>134</b>	<b>3</b>	<b>1.6</b>	<b>0.4</b>	<b>0.004</b>

<sup>1</sup> Area Under Disease Progress Curve based on foliar early-dying ratings taken 80, 92, and 99 days after planting

Figure 2. 2014 Red/ Specialty Trial Entries.

Entry	Tulelake Notes	Entry	Tulelake Notes
Chieftan (WR)	 <ul style="list-style-type: none"> <li>• High total yield (532 CWT)</li> <li>• Highest avg. tuber size (7.5 oz.)</li> <li>• 53% tubers greater than 6 oz</li> <li>• 10% Black-spot bruise</li> </ul>	Red LaSoda (WR)	 <ul style="list-style-type: none"> <li>• Low tuber set (5.3 tubers/plant)</li> <li>• High avg. tuber size (7.5 oz.)</li> <li>• High percent cull due to oversized lumpy tubers (10%)</li> <li>• Deep eye</li> </ul>
CO05228-4R (WR)	 <ul style="list-style-type: none"> <li>• Low total yield (355 CWT)</li> <li>• High fresh merit score (3.8 out of 5)</li> <li>• Low avg. tuber size (3.9 oz.)</li> <li>• Uniform shape</li> <li>• Dark red skin</li> </ul>	NDA050237B-1R (WR)	 <ul style="list-style-type: none"> <li>• Round tuber shape</li> <li>• Deep red skin</li> <li>• Shallow eyes</li> <li>• Resistant to early-dying</li> </ul>
NDTX5438-11R (WR)	 <ul style="list-style-type: none"> <li>• Low total yield (360 CWT)</li> <li>• Uniform shape</li> <li>• High fresh merit score (3.8 out of 5)</li> </ul>	A05180-3PY (WR)	 <ul style="list-style-type: none"> <li>• High yield (506 CWT)</li> <li>• High stem-end necrosis (12.5%)</li> <li>• Low specific gravity (1.08)</li> </ul>
ATTX98444S-16R/Y (WR)	 <ul style="list-style-type: none"> <li>• High tuber set 11.0 tubers/plant</li> <li>• Low avg. tuber size (3.6 oz.)</li> </ul>	CO04067-8R/Y (WR)	 <ul style="list-style-type: none"> <li>• High tuber set (10.3 tubers/plant)</li> <li>• Susceptible to early-dying</li> <li>• Low avg. tuber size (3.6 oz.)</li> <li>• Shallow eyes</li> <li>• Dark yellow flesh</li> </ul>

Figure 2. 2014 Red Specialty Trial Entries Continued.

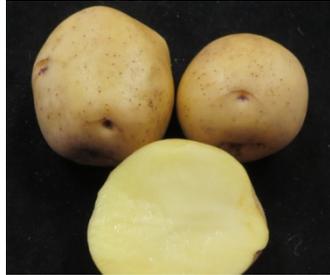
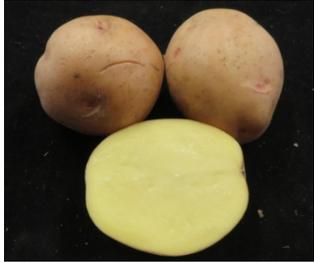
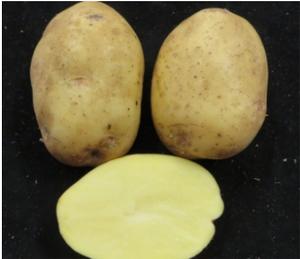
Entry	Tulelake Notes	Entry	Tulelake Notes
CO05037-2R/Y (WR)	 <ul style="list-style-type: none"> <li>• High percent vascular discoloration (20%)</li> <li>• Lowest avg. tuber size (2.7 oz.)</li> <li>• High tuber set (10.2 per plant)</li> </ul>	AC05175-3P/Y (WR)	 <ul style="list-style-type: none"> <li>• Susceptible to early-dying (1238)</li> <li>• Low avg. tuber size (4.2 oz.)</li> <li>• Low yield (353 CWT)</li> <li>• Uniform shape</li> <li>• Dark purple skin</li> </ul>
Yukon Gold (WR)	 <ul style="list-style-type: none"> <li>• Shallow eyes</li> <li>• Low tuber set (5.6 tubers/plant)</li> <li>• High avg tuber size (7.6 oz.)</li> <li>• Susceptible to early-dying (934)</li> </ul>	A02267-1Y (WR)	 <ul style="list-style-type: none"> <li>• Total yield (433 CWT)</li> <li>• Low fresh merit score (3.0 out of 5)</li> <li>• 5% Vascular discoloration</li> </ul>
A05182-7RY (WR)	 <ul style="list-style-type: none"> <li>• Highest tuber set of trial (12.0 tubers/plant)</li> <li>• Low avg. tuber size (3.7 oz.)</li> <li>• 10% Stem end necrosis</li> <li>• Resistant to early dying (204)</li> </ul>	ATX05202S-3W/Y (WR)	 <ul style="list-style-type: none"> <li>• Resistant to early-dying (195)</li> <li>• Uniform round tubers</li> <li>• Average total yield (432 CWT)</li> </ul>
CO04099-3W/Y (WR)	 <ul style="list-style-type: none"> <li>• High hollow heart (15%)</li> <li>• More prominent pink eye than Yukon Gold</li> <li>• Average yield (436 CWT)</li> <li>• Darker yellow than Yukon Gold</li> </ul>	CO05037-3W/Y (WR)	 <ul style="list-style-type: none"> <li>• Susceptible to early-dying (1178)</li> <li>• High tuber set (10.0 tubers/plant)</li> <li>• Low avg. tuber size (3.7 oz.)</li> <li>• Round tuber</li> <li>• Darker yellow than Yukon Gold</li> </ul>

Figure 2. 2014 Red Specialty Trial Entries Continued.

Entry	Tulelake Notes	Entry	Tulelake Notes
NDA081451CB-1CY (WR)	 <ul style="list-style-type: none"> <li>• High tuber set (10.8 tubers/plant)</li> <li>• Uniform shape</li> <li>• Shallow eyes</li> <li>• Highest total yield (558 CWT)</li> <li>• Resistant to early-dying (170)</li> </ul>	Yukon Gold (SWR)	 <ul style="list-style-type: none"> <li>• High fresh merit score (3.8 out of 5)</li> <li>• High percent stem-end necrosis (17.5%)</li> <li>• High hollow heart (12.5%)</li> <li>• Higher than average total percent cull (8%)</li> </ul>
CO05035-1PW/Y (SWR)	 <ul style="list-style-type: none"> <li>• Resistant to early-dying (325)</li> <li>• Shallow eyes</li> <li>• 50% of tubers &gt; 6 oz.</li> </ul>	Purple Majesty (SWR)	 <ul style="list-style-type: none"> <li>• Oblong tubers (1.9 L/W ratio)</li> <li>• High tuber set (10.2 tubers/plant)</li> <li>• Shallow eyes</li> <li>• 58% tubers &lt; 4 oz.</li> </ul>
CO05028-4P/PY (SWR)	 <ul style="list-style-type: none"> <li>• High yield (541 CWT)</li> <li>• High tuber set (10 tubers/plant)</li> <li>• Deeper eyes than Purple Majesty</li> <li>• High incidence of purple/yellow flesh</li> </ul>	CO05028-11P/RWP (SWR)	 <ul style="list-style-type: none"> <li>• Highest hollow heart of trial (22.5 %)</li> <li>• Non uniform (2.4 out of 5)</li> <li>• Low specific gravity (1.074)</li> <li>• Internal color lighter than Purple Majesty</li> </ul>
CO05079-4P/PW (SWR)	 <ul style="list-style-type: none"> <li>• High tuber set (9.7 tubers per plant)</li> <li>• High percent stem-end necrosis (17.5%)</li> <li>• Oblong (1.6 L/W)</li> <li>• Deeper eyes than Purple Majesty</li> </ul>		

## Chipping Potato Variety Trial

In recent years, expanding markets have created a need for public chip varieties. The 2014 Chipping Trial included seven entries from the Western Regional Variety Trial (WR). Important characteristics for processing chippers include: total yield, tubers per plant, tuber shape, tuber uniformity, average tuber size, and specific gravity. See Tables 11-14 for Chipping Trial results and Figure 3 for entry pictures and comments.

### Trial Information

<b>Location:</b>	Intermountain Research and Extension Center, Tulelake, CA
<b>Soil Type:</b>	Tulebasin mucky silty clay loam
<b>Planting Date:</b>	May 19 <sup>th</sup> 2014
<b>Vine Kill Date:</b>	September 5 <sup>th</sup>
<b>Days to Vine Kill:</b>	109
<b>Harvest Date:</b>	September 26 <sup>th</sup> 2014
<b>Irrigation:</b>	Solid-set sprinklers; applied water + precipitation = 24.14 inches
<b>Plot Length:</b>	18.3 feet
<b>In-Row Spacing:</b>	10 Inches
<b>Row Spacing:</b>	36 inches
<b>Number of Reps:</b>	4
<b># of Fertilizer/Acre:</b>	204N 40P205 110K20 34S
<b>Seed Treatment:</b>	Maxim 4FS and Fir Bark Dust
<b>Weed Control:</b>	Matrix (pre-plant), Prowl H2O and Outlook (post-plant)
<b>Insecticides:</b>	Admire Pro (in furrow)
<b>Fungicides:</b>	Bravo Weather Stick, Omega F500, Quadris
<b>Vine Kill Method:</b>	Rolling and with labeled rates of Reglone

## Results

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### Stand Counts

Highest: AC03452-2W (99%) and CO03243-3W (99%)  
 Lowest: AC05153-1W (94%) and AC00206-2W (95%)

### Tuber Count and Size

- **Tubers per Plant**

Highest: AC03452-2W (7.7), AC00206-2W (7.4) and AC05153-1W (7)  
 Lowest: Chipeta (5.3), A02138-2 (6.3) and Atlantic (6.5)

- **Average Tuber Size (oz.)**

Largest: Chipeta (7.1), CO03243-3W (6.8) and Atlantic (6.7)  
 Smallest: AC05153-1W (5.2), AC00206-2W (5.6) and AC03452-2W (6.2)

### Yield

- **Total Yield (cwt/acre)**

Highest: AC03452-2W (512.5), CO03243-3W (500.6) and Atlantic (456.9)  
 Lowest: AC05153-1W (374.9), Chipeta (397) and A02138-2 (421.6)

- **4-14 oz. (cwt/acre)**

Highest: AC03452-2W (419), CO03243-3W (387) and AC00206-2W (348)  
 Lowest: AC05153-1W (268), Chipeta (283) and A02138-2 (285)

- **% 4-14 oz. (cwt/acre)**

Highest: AC03452-2W (82%), AC00206-2W (80%) and CO03243-3W (77%)  
 Lowest: A02138-2 (68%), Chipeta (71%) and AC05153-1W (72%)

- **Undersized Tubers- <4 oz. (cwt/acre)**

Most: AC05153-1W (78.8), AC00206-2W (68.1) and A02138-2 (57.2)  
 Least: Chipeta (33.6), CO03243-3W (43.2) and AC03452-2W (48.7)

### Specific Gravity

Highest: Atlantic (1.1), A02138-2 (1.094) and Chipeta (1.091)  
 Lowest: AC03452-2W (1.083); AC00206-2W (1.089), AC05153-1W (1.089) and CO03243-3W (1.089)

### Early Dying Susceptibility

- **Area Under the Disease Progress Curve**

Most Susceptible: AC05153-1W (884) and Atlantic (521)  
 Least Susceptible: CO03243-3W (186), Chipeta (189) and AC03452-2W (231)

Table 11. Tuber Yield and Size of Experimental and Standard Chipping Potato Entries.

Clone/Variety	Trial	Tuber Yield (cwt/A)						Total Yield
		>14oz	10-14oz	6-10oz	4-6oz	<4oz	Culls	
Atlantic	WR	39	96	168	72	50	33	457
Chipeta	WR	45	64	150	69	34	35	397
A02138-2	WR	62	75	136	75	57	18	422
AC00206-2W	WR	5	52	188	108	68	15	436
AC03452-2W	WR	15	56	238	124	49	30	513
AC05153-1W	WR	13	48	136	84	79	15	375
CO03243-3W	WR	38	93	203	91	43	33	501
Mean		31	69	174	89	54	26	443
95% CI		12	23	24	14	10	8	30

Table 12. Tuber Yield and Size of Experimental and Standard Chipping Potato Entries.

Clone/Variety	Trial	Merit Score <sup>1</sup>	Eye Depth <sup>2</sup>	Tuber Shape <sup>3</sup>	Shape Uniformity <sup>4</sup>	Length/Width Ratio <sup>5</sup>
Atlantic	WR	4.1	3.6	1.8	4.1	1.03
Chipeta	WR	3.9	3.6	2.0	3.8	0.97
A02138-2	WR	3.8	4.0	5.0	3.8	1.77
AC00206-2W	WR	4.3	4.0	1.4	4.3	0.99
AC03452-2W	WR	4.1	3.4	1.6	4.1	1.00
AC05153-1W	WR	3.8	3.4	1.5	4.3	1.03
CO03243-3W	WR	4.3	3.6	1.6	4.4	1.06
Mean		4.0	3.7	2.1	4.1	1.12
95% CI		NS	0.3	0.2	0.3	0.10

<sup>1</sup> 1=Worst, 5=Best - Chipper Merit Score takes into account multiple factors including; tuber shape, eye depth, and shape uniformity

<sup>2</sup> 1=Deep, 5=Shallow

<sup>3</sup> 1=Round, 5=Oblong

<sup>4</sup> 1= No Uniformity, 5=Very Uniform

<sup>5</sup> Ratio of 10 tubers measured from each plot

Table 13. Tuber Defects of Experimental and Standard Chipping Potato Entries.

Clone/Variety	Trial	Hollow Heart <sup>1</sup> (%)	Black Spot Bruise <sup>1</sup> (%)	Stem End Necrosis <sup>1</sup> (%)	Vascular Discoloration <sup>1</sup> (%)	Knobs <sup>2</sup> (%)	Growth Cracks <sup>2</sup> (%)	Green <sup>2</sup> (%)
Atlantic	WR	2.5	2.5	10.0	0.0	1.4	1.6	4.0
Chipeta	WR	0.0	0.0	0.0	0.0	1.6	0.4	3.5
A02138-2	WR	2.5	2.5	5.0	2.5	1.1	0.4	1.8
AC00206-2W	WR	0.0	0.0	2.5	2.5	0.0	0.6	3.1
AC03452-2W	WR	2.5	0.0	0.0	2.5	1.4	1.6	2.5
AC05153-1W	WR	0.0	2.5	12.5	2.5	0.9	0.9	3.3
CO03243-3W	WR	5.0	0.0	15.0	5.0	0.1	3.5	3.5
Mean		1.8	1.1	6.4	2.1	0.9	1.3	3.1
95% CI		NS	NS	NS	NS	0.8	1.2	NS

<sup>1</sup> 10 tubers evaluated from each plot in the 6-10oz tuber category.

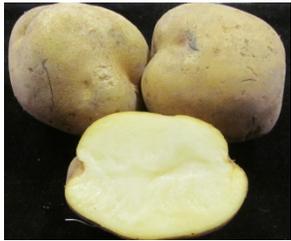
<sup>2</sup> Percent of total tubers.

Table 14. Disease Susceptibility, Stand, Tuber Set, Average Tuber Size and Specific Gravity of Experimental and Standard Chipping Potato Entries.

Clone/Variety	Trial	Early Die Rating A.U.D.P.C. <sup>1</sup>	% Stand	Tubers/Plant	Avg. Tuber Size (oz.)	Specific Gravity
Atlantic	WR	521	97	6.5	6.7	1.100
Chipeta	WR	189	97	5.3	7.1	1.091
A02138-2	WR	309	97	6.3	6.4	1.094
AC00206-2W	WR	295	95	7.4	5.6	1.089
AC03452-2W	WR	231	99	7.7	6.2	1.083
AC05153-1W	WR	884	94	7.0	5.2	1.089
CO03243-3W	WR	186	99	6.8	6.8	1.089
Mean		374	97	6.7	6.3	1.091
95% CI		86	NS	0.5	0.4	0.003

<sup>1</sup> Area Under Disease Progress Curve based on foliar early-dying ratings taken 80, 92, and 99 days after planting

Figure 3. 2014 Chipper Trial Entries.

Entry	Tulelake Notes	Entry	Tulelake Notes
Atlantic (WR)	 <ul style="list-style-type: none"> <li>• High merit score (4.1 out of 5)</li> <li>• Highest specific gravity of trial (1.100)</li> <li>• 10% Stem end necrosis</li> <li>• High percent green tubers (4%)</li> </ul>	Chipeta (WR)	 <ul style="list-style-type: none"> <li>• Shallow eyes</li> <li>• Specific gravity (1.091)</li> <li>• Total yield (397 CWT)</li> </ul>
A02138-2 (WR)	 <ul style="list-style-type: none"> <li>• Oblong tubers (1.77 L/W ratio)</li> <li>• 62 CWT of &gt; 14 oz. tubers (highest in trial)</li> <li>• Russet type</li> </ul>	AC00206-2W (WR)	 <ul style="list-style-type: none"> <li>• Shallow eyes</li> <li>• 5 CWT of &gt; 14 oz tubers (lowest in trial)</li> <li>• High merit score (4.3 out of 5)</li> </ul>
AC03452-2W(WR)	 <ul style="list-style-type: none"> <li>• Uniform</li> <li>• Highest total yield (513 CWT)</li> <li>• Highest tuber set of trial (7.7 tubers/plant)</li> <li>• Low specific gravity (1.083)</li> </ul>	AC05153-1W (WR)	 <ul style="list-style-type: none"> <li>• Lowest avg. tuber size (5.2 oz.)</li> <li>• High percent stem-end necrosis (12.5%)</li> <li>• Susceptible to early-dying in trial (884)</li> </ul>
CO03243-3W (WR)	 <ul style="list-style-type: none"> <li>• High percent stem-end necrosis (15%)</li> <li>• Round tubers</li> <li>• High total yield (501 CWT)</li> <li>• Uniform</li> </ul>		

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