

RECCS

A stylized landscape graphic featuring a blue sky, a yellow ground, and rolling hills in shades of green, purple, and blue. A white plant stalk with three leaves is positioned on the right side of the landscape.

2012 POTATO VARIETY DEVELOPMENT IN TULELAKE, CA

Three potato variety trials were grown at the Intermountain Research and Extension Center during 2012. Trials were categorized by their market type and included russet, specialty and chip. Trial results are summarized in this report.

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2012 Annual Progress Report Potato Variety Development in Tulelake

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Three potato variety trials were conducted at the Intermountain Research & Extension Center (IREC) in Tulelake, CA. Trials were categorized by market type and included a Russet trial with 24 entries, a Specialty trial with 35 entries, and a Chipping trial with 19 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: 2012 growing conditions were near optimal for potato production in Tulelake, CA. Planting and harvest dates were similar to the long-term average, even though we had cool, wet spring. Average air temperature for May, June, July, August, and September were 53°, 57°, 65°, 66° and 60° F respectively. A killing frost occurred on October 4. Average six inch soil temperature for May, June, July, August, and September were 57°, 63°, 71°, 71° and 64° F respectively. Averaged across entries, yield in all three trials was higher than normal. 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>

Late Russet Variety Trial

The Late Russet Variety Trial is a combination of sixteen entries from the Western Regional Variety Trial (WR), five entries from the Southwest Regional Trial (SWR) and three entries of local interest. 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 Verticillium wilt resistance, total and percent US No. 1 yield, tuber shape uniformity, low internal and external defects, and fresh merit score. See Tables 1-4 for Russet results and Figure 1 for entry pictures and comments.

Trial Information

Location:	Intermountain Research & Extension Center, Tulelake, CA
Soil Type:	Tulebasin mucky silty clay loam
Planting Date:	May 16
Vine Kill Date:	September 14: Roll vines and application of Reglone at labeled rate
Days to Vine Kill:	118 days
Harvest Date:	October 10
Irrigation:	Solid-set sprinklers; applied water + precipitation = 19.94 inches
Plot Length:	40 hills
In-Row Spacing:	11.3 inches
Row Spacing:	36 inches
Number of Reps:	4 replications
Fertilizer per Acre:	199 lbs N - 73 lbs P2O5 - 16 lbs K2O - 31 lbs S
Seed Treatment:	Agri-Fill Premium Fir Bark Dust
Weed Control:	Cultivation, Matrix and Sencor (post-emergence)
Insecticides:	Admire Pro (in-furrow at planting)
Fungicides:	Moncut (in-furrow at planting), Bravo WS and Manzate (foliar applications)
Fumigation:	Vapam

Results

Potato Stand

- Only three entries had below 90 percent stand; CO04233-1RU (88%), Classic Russet (83%) and A000-1TE (82%).

Tuber Count and Size

- **Tubers Per Plant**
Highest: A02138-2 (11.0), A01010-1 (10.8) and CO04220-7RU (10.6)
Lowest: AO00057-2 (6.5), Classic (6.9) and Russet Norkotah WR (7.0)
- **Average Tuber Size (oz.)**
Largest: Classic (8.9), AO00057-2 (7.6) and A02507-2LB (7.3)
Smallest: CO04233-1RU (4.2) and Russet Norkotah SWR (4.3)
- **Undersized Tubers <4oz. (cwt/acre)**
Most: A02138-2 (138), CO04220-7RU (133) and Russet Norkotah SWR (111)
Least: Classic (23), A02507-2LB (34) and AO00057-2 (39)

Yield and Return

- **Total Yield (cwt/acre)**
Highest: AO02183-2 (576), AC00395-2RU (576) and A03158-2TE (558)
Lowest: CO04233-1RU (291), Russet Norkotah SWR (333) and AOTX02136-1RU (384)
- **U.S. No. 1's Yield (cwt/acre)**
Highest: AO02183-2 (513), AC00395-2RU (495) and A03158-2TE (481)
Lowest: CO04233-1RU, Russet Norkotah SWR (215) and AOTX2136-1RU (310)
- **Pack-out Return (\$/acre)**
Return was calculated using a four year average of fresh market potato prices in the Columbia Basin and a packing shed cost of \$5.75/cwt.
Highest: Classic (\$4004), AO02183-2 (\$3916) and A03158-2TE (\$3674)
Lowest: CO04233-1RU (\$516), Russet Norkotah SWR (\$747) and CO04220-7RU (\$1233)

Tuber Defects

- **Hollow Heart**
Notable Entries: CO03276-4RU (45%) and CO04220-7RU (20%)
- **Stem End Necrosis**
Notable Entries: CO03276-4RU (10%)
- **Black-Spot Bruise**
Notable Entries: Classic (53%), Clearwater (43%) and A0008-1TE (28%)

Verticillium Wilt Susceptibility Rating

- **Rating, August 21st (0=0 symptoms, 9=90-100% of plants show symptoms of disease)**
Most Susceptible: Russet Norkotah SWR (9.0), Russet Norkotah WR (8.8), CO03187-1RU (8.3) and AOTX02136-1RU (7.8)

Least Susceptible: AC00395-2RU (1.8), A02507-2LB (3.0) and AO00057-2 (3.0)

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

Clone/Variety	Trial	Tuber Yield (cwt/A)									Pack-out Revenue ¹ \$	
		U.S. No. 1's (cwt)							2's + culls	Total		% 1's
		Total 1's	>16oz	12- 16oz	8-12oz	4-8oz	<4oz	Total				
Russet Norkotah	SWR	215	4	9	40	162	111	7	333	64	747	
AOTX02136-1RU	SWR	310	8	34	98	172	68	6	384	81	1,935	
CO04211-4RU	SWR	327	8	13	74	232	90	5	423	77	1,618	
CO04220-7RU	SWR	313	9	12	54	238	133	7	453	69	1,233	
CO04233-1RU	SWR	180	0	8	29	143	108	3	291	62	516	
Ranger Russet	WR	445	30	63	145	208	66	14	525	85	3,162	
Russet Burbank	WR	351	25	46	116	164	53	37	440	80	2,369	
Russet Norkotah	WR	321	15	37	101	169	64	7	393	82	2,090	
A01010-1	WR	430	4	13	106	306	105	8	543	79	2,163	
A02138-2	WR	345	4	13	61	268	138	8	491	70	1,348	
A02507-2LB	WR	456	25	79	177	174	34	22	512	89	3,616	
A03158-2TE	WR	481	32	81	175	194	62	14	558	86	3,674	
AC00395-2RU	WR	495	27	67	158	243	63	17	576	86	3,477	
AO00057-2	WR	420	60	88	142	130	39	23	483	87	3,520	
AO02060-3	WR	386	8	39	122	217	57	10	453	85	2,499	
AO02183-2	WR	513	32	79	182	220	46	17	576	89	3,916	
AO96305-3	WR	362	7	24	114	216	67	6	435	83	2,195	
CO03202-1RU	WR	430	33	90	134	173	56	36	522	82	3,191	
CO03276-4RU	WR	356	9	24	104	219	67	13	435	82	2,093	
Classic	IREC	443	94	120	128	101	23	40	506	87	4,004	
A0008-1TE (Teton R.)	IREC	379	16	41	133	190	57	17	454	84	2,571	
Clearwater	IREC	438	27	58	149	204	53	19	509	86	3,143	
CO03276-5RU	WR	428	22	47	110	249	80	6	513	83	2,679	
CO03187-1RU	WR	335	10	29	79	217	94	8	437	77	1,779	
Mean		382	21	46	114	200	72	15	469	81	2,481	
95% CI		40	14	17	26	24	9	8	39	3	445	

¹ Pack-Out Revenue per Acre= Gross Revenue using the 4 year average for Columbia Basin Carton and Bag Prices - \$5.75/CWT Packing and Handling Charges

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

Clone/Variety	Trial	Merit Score ¹	Russeting ²	Eye Depth ³	Tuber Shape ⁴	Shape Uniformity ⁵	Length/Width Ratio ⁶
Russet Norkotah	SWR	3.8	4.1	3.6	3.8	3.9	1.81
AOTX02136-1RU	SWR	3.2	3.4	3.8	3.9	3.3	2.04
CO04211-4RU	SWR	3.4	3.6	3.8	3.4	3.6	1.55
CO04220-7RU	SWR	3.1	3.4	3.4	3.7	3.3	1.92
CO04233-1RU	SWR	3.2	3.3	3.7	3.4	3.4	1.72
Ranger Russet	WR	3.4	3.6	3.2	4.5	4.2	2.20
Russet Burbank	WR	3.3	3.5	3.3	3.9	3.2	1.97
Russet Norkotah	WR	4.1	4.2	3.6	4.1	4.1	1.98
A01010-1	WR	3.9	4.0	3.5	3.8	3.8	1.84
A02138-2	WR	2.9	3.7	3.4	3.2	3.6	1.54
A02507-2LB	WR	3.2	3.6	3.9	3.8	3.2	1.76
A03158-2TE	WR	3.8	3.9	3.3	3.9	4.2	1.99
AC00395-2RU	WR	3.3	3.8	3.7	3.8	3.5	1.79
AO00057-2	WR	3.9	4.0	3.8	3.8	4.2	1.87
AO02060-3	WR	3.8	3.5	4.1	3.8	3.8	2.05
AO02183-2	WR	3.8	3.8	3.9	4.2	4.3	2.09
AO96305-3	WR	3.3	3.0	4.3	4.2	3.8	2.18
CO03202-1RU	WR	3.5	3.6	3.9	4.2	3.6	2.15
CO03276-4RU	WR	3.4	3.6	4.0	4.0	3.3	2.05
Classic	IREC	3.6	3.4	4.0	3.9	3.6	1.93
A0008-1TE (Teton R.)	IREC	3.6	3.6	3.9	3.9	3.8	2.05
Clearwater	IREC	4.1	3.9	3.9	4.1	4.2	2.01
CO03276-5RU	WR	3.6	3.7	3.9	4.2	3.7	2.28
CO03187-1RU	WR	3.6	3.5	3.6	4.3	3.5	2.13
Mean		3.5	3.6	3.7	3.9	3.7	1.95
95% CI		0.4	0.3	0.3	0.2	0.5	0.09

Rating Scales (Tubers evaluated were 8-16oz size)

¹ 1=Worst, 5=Best - Fresh Market Russet Merit Score takes into account multiple factors important to fresh market appeal including tuber shape, eye depth, russeting, and shape uniformity

² 1=Light, 5= Heavy

³ 1=Deep, 5= Shallow

⁴ 1=Round, 5= Oblong

⁵ 1= Non Uniform, 5= Very Uniform

⁶ Ratio of 10 tubers measured from each plot

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

Clone/Variety	Trial	Hollow Heart ¹ (%)	Stem End Necrosis ¹ (%)	Vascular Discoloration ¹ (%)	Black Spot Bruise ¹ (%)	Knobs ² (%)	Growth Cracks ² (%)	Irregular Shaped ² (%)	Green ² (%)
Russet Norkotah	SWR	15	0	0	0	1.2	0.0	0.0	0.2
AOTX02136-1RU	SWR	10	5	0	0	0.7	0.0	0.1	0.5
CO04211-4RU	SWR	3	0	0	3	0.3	0.0	0.0	0.4
CO04220-7RU	SWR	20	8	0	0	0.7	0.0	0.1	0.7
CO04233-1RU	SWR	0	0	5	0	0.3	0.1	0.0	0.3
Ranger Russet	WR	0	5	0	13	1.6	0.0	0.1	0.9
Russet Burbank	WR	0	5	3	8	2.1	1.4	0.0	0.9
Russet Norkotah	WR	15	3	3	3	0.5	0.0	0.2	0.3
A01010-1	WR	0	0	0	15	0.8	0.2	0.2	0.6
A02138-2	WR	0	0	0	5	1.1	0.1	0.0	0.2
A02507-2LB	WR	0	0	0	5	2.7	0.0	0.3	0.4
A03158-2TE	WR	3	3	0	3	1.1	0.1	0.0	0.6
AC00395-2RU	WR	13	0	0	5	1.4	0.2	0.3	1.1
AO00057-2	WR	3	0	0	3	2.1	0.0	0.0	0.9
AO02060-3	WR	3	8	0	5	0.5	0.3	0.0	0.7
AO02183-2	WR	3	0	3	3	1.6	0.4	0.0	0.9
AO96305-3	WR	0	0	0	0	0.9	0.1	0.1	0.0
CO03202-1RU	WR	5	0	0	13	2.1	0.1	0.4	2.2
CO03276-4RU	WR	45	10	0	15	0.7	0.2	0.0	0.2
Classic	IREC	13	3	0	53	2.5	0.4	0.0	2.8
A0008-1TE (Teton R.)	IREC	8	0	0	28	1.9	0.5	0.0	0.3
Clearwater	IREC	5	0	0	43	1.2	0.0	0.0	2.3
CO03276-5RU	WR	3	0	0	18	0.7	0.0	0.1	0.5
CO03187-1RU	WR	3	3	0	0	0.5	0.0	0.1	0.3
Mean		7	2	1	10	1.2	0.2	0.1	0.8
95% CI		9	5	NS	15	0.8	0.3	NS	0.7

¹ 10 tubers evaluated from each plot in the 12-16oz and/or 8-12oz tubers

² Percent of tubers pulled with defects from total tuber count

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

Clone/Variety	Trial	Verticillium wilt Rating ¹ 8/14/2012	Verticillium wilt Rating ¹ 8/21/2012	% Stand	Tubers/Plant	Avg. Tuber Size (oz.)	Specific Gravity
Russet Norkotah	SWR	9.0	9.0	98	7.9	4.3	1.079
AOTX02136-1RU	SWR	8.3	7.8	98	7.1	5.6	1.079
CO04211-4RU	SWR	7.0	6.5	100	8.5	5.1	1.086
CO04220-7RU	SWR	4.8	4.8	96	10.6	4.5	1.089
CO04233-1RU	SWR	7.8	7.0	88	8.1	4.2	1.085
Ranger Russet	WR	3.3	4.0	99	8.6	6.2	1.095
Russet Burbank	WR	5.0	5.3	95	7.2	6.5	1.092
Russet Norkotah	WR	8.5	8.8	97	7.0	5.8	1.075
A01010-1	WR	3.0	3.5	100	10.8	5.1	1.097
A02138-2	WR	3.5	4.5	100	11.0	4.5	1.100
A02507-2LB	WR	2.0	3.0	95	7.5	7.3	1.097
A03158-2TE	WR	3.5	5.5	100	8.4	6.8	1.089
AC00395-2RU	WR	1.0	1.8	98	9.2	6.4	1.109
AO00057-2	WR	3.3	3.0	99	6.5	7.6	1.095
AO02060-3	WR	5.5	5.5	99	7.7	6.0	1.094
AO02183-2	WR	2.5	4.0	100	8.4	7.0	1.099
AO96305-3	WR	3.3	5.3	99	7.9	5.6	1.095
CO03202-1RU	WR	3.3	4.3	97	8.0	6.8	1.092
CO03276-4RU	WR	7.3	7.0	95	8.2	5.7	1.088
Classic	IREC	2.0	3.3	83	6.9	8.9	1.090
A0008-1TE (Teton R.)	IREC	4.3	6.3	82	9.0	6.2	1.085
Clearwater	IREC	2.3	3.5	96	8.4	6.5	1.091
CO03276-5RU	WR	5.8	7.3	100	9.1	5.8	1.088
CO03187-1RU	WR	8.0	8.3	98	8.8	5.1	1.081
Mean		4.7	5.4	96	8.4	6.0	1.090
95% CI		0.6	0.8	3	0.6	0.4	---

¹ Verticillium wilt Rating- 0= 0 Symptoms, 1= Trace, 2= 1-5% of plants show symptoms of disease, 3= 5-10%, 4= 10-20%, 5= 20-40%, 6= 40-60%, 7= 60-75%, 8= 75-90%, 9= 90-100%

Figure 1. 2012 Late Russet Trial Entries.









Entry	Tulelake Notes	Entry	Tulelake Notes
Ranger Russet (WR)	 <ul style="list-style-type: none"> • High total yield • Moderately resistant to vert. • Uniform • Long 	Russet Burbank (WR)	 <ul style="list-style-type: none"> • Medium yield • Low internal defects • Specific gravity 1.092
Russet Norkotah (WR/SWR)	 <ul style="list-style-type: none"> • High vert. Susceptibility • Low total yield • High fresh merit score • 15% hollow heart 	A01010-1 (WR)	 <ul style="list-style-type: none"> • High tuber set • Moderate vert. Resistance • Low internal defects • Low external defects • Susceptible to brown-spot
A02183-2 (WR)	 <ul style="list-style-type: none"> • High amount of <4 oz. tubers • High tuber set • Low internal defects • Round • Low fresh merit score 	A02507-2LB (WR)	 <ul style="list-style-type: none"> • Moderate to good resistance to vert. • High pack-out revenue • 89% US #1's • Specific gravity 1.097 • Susceptible to brown-spot
A03158-2TE (WR)	 <ul style="list-style-type: none"> • High total yield • Good pack-out revenue • Uniform 	AC00395-2RU (WR)	 <ul style="list-style-type: none"> • High vert. Resistance • High US #1 Yield • High tuber set

Figure 1. 2012 Late Russet Trial Entries Continued.





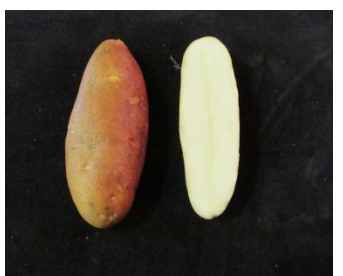


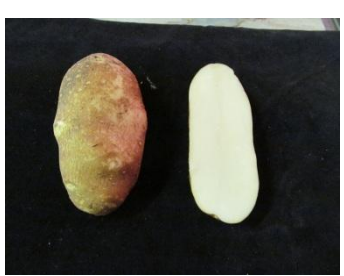







Entry	Tulelake Notes	Entry	Tulelake Notes
AO00057-2 (WR)	 <ul style="list-style-type: none"> • Large size profile • Low amount of internal defects • Good shape • Uniform 	AO02060-3 (WR)	 <ul style="list-style-type: none"> • Shallow eyes • Long
AO02183-2 (WR)	 <ul style="list-style-type: none"> • High total and US #1 yield • Long • Very uniform • High pack-out revenue • Moderate vert. resistance 	AO96305-3 (WR)	 <ul style="list-style-type: none"> • Small average tuber size • Long • Low internal defects • Susceptible to brown-spot
CO03202-1RU (WR)	 <ul style="list-style-type: none"> • High yield • Long • Moderate resistance to vert. 	CO03276-4RU (WR)	 <ul style="list-style-type: none"> • Vert. Susceptible • Low tubers/plant • 45% hollow heart
Classic (IREC)	 <ul style="list-style-type: none"> • High pack-out revenue • 87% US #1's • High black spot bruise incidence- 53% • High hollow heart 	A0008-1TE (Teton Russet IREC)	 <ul style="list-style-type: none"> • High tuber set • High incidence black-spot bruise • Susceptible to brown-spot

Figure 1. 2012 Late Russet Trial Entries Continued.

Entry	Tulelake Notes	Entry	Tulelake Notes
Clearwater (IREC)	 <ul style="list-style-type: none"> • Moderate resistance vert. • Good uniformity • High total yield • High incidence of black-spot bruise 	CO03276-5RU (WR)	 <ul style="list-style-type: none"> • Vert. Susceptible • High number of tubers/plant • High incidence of black-spot bruise • High total yield • Long
CO03187-1RU (WR)	 <ul style="list-style-type: none"> • Small average tuber size • Long • Low internal defects • Low pack-out revenue 	AOTX02136-1RU (SWR)	 <ul style="list-style-type: none"> • Low yield • Low average tuber size • Moderate hollow heart • Not uniform • Vert. susceptible
CO04211-4RU (SWR)	 <ul style="list-style-type: none"> • Small average tuber size • Round shape 	CO04220-7RU (SWR)	 <ul style="list-style-type: none"> • Moderate vert. Resistance • High tuber set • Low average tuber size • 20% hollow heart
CO04233-1RU (SWR)	 <ul style="list-style-type: none"> • Very low yield • Small • Round • Poor pack-out revenue 		

Red/Specialty Variety Trial

The Red/Specialty Trial included fifteen entries from the Western Regional Variety Trial (WR), seventeen entries from the Southwest Regional Trial (SWR) and one entry of local interest. Red and specialty type potatoes are a small but expanding segment of the Klamath Basin potato industry. Organic certified acreage is also increasing in these categories. Klamath Basin growers produce tubers with good color, shape and tasting qualities. Important vine and tuber characteristics for fresh market red/specialty types include: tubers per plant, average tuber size, skin and flesh color, tuber shape, tuber uniformity, and fresh merit score. See Tables 5-9 for Red/Specialty trial results and Figure 2 for entry pictures and comments.

Trial Information

Location:	Intermountain Research & Extension Center, Tulelake, CA
Soil Type:	Tulebasin mucky silty clay loam
Planting Date:	May 17
Vine Kill Date:	September 14: Roll vines and application of Reglone at labeled rate
Days to Vine Kill:	117 days
Harvest Date:	October 11
Irrigation:	Solid-set sprinklers; applied water + precipitation = 19.94 inches
Plot Length:	48 hills
In-Row Spacing:	9.1 inches
Row Spacing:	36 inches
Number of Reps:	4 replications
Fertilizer per Acre:	199 lbs N - 73 lbs P2O5 - 16 lbs K2O - 31 lbs S
Seed Treatment:	Agri-Fill Premium Fir Bark Dust
Weed Control:	Cultivation (pre-emergence), Matrix (post-emergence)
Insecticides:	Admire Pro (in-furrow at planting)
Fungicides:	Moncut (in-furrow at planting), Bravo WS and Manzate (foliar applications)
Fumigation:	Vapam

Results

Potato Stand

- **Poor:** CO04159-1R (63%) and CO00291-5R (70%)
- All other entries had greater than 82 percent stand

Tuber Count and Size

- **Tubers Per Plant**
Highest: CO04029-5W/Y (12.8), CO04013-1W/Y (12.6) and CO04188-4R/Y (12.0)
Lowest: ATTX98453-6R (6.4) and Yukon Gold WR (6.4)

Average Tuber Size (oz.)

Largest: COTX01403-4R/Y (7.8), ATTX98453-6R (7.4) and Red LaSoda WR (6.9)
Smallest: CO04063-4R/R (2.7) and POR04PG56-1 (3.2)

- **Undersized Tubers- <4 oz. (cwt/acre)**
Most: CO04063-4R/R (283), POR04PG56-1 (260) and CO04099-3W/Y (259)
Least: COTX01403-4R/Y (41), ATTX98453-6R (43) and Yukon Gold WR (47)

Yield

- **Total Yield (cwt/acre)**
Highest: ATX03564-1Y/Y (652), Red LaSoda SWR (646) and CO04021-2R/Y (646)
Lowest: CO04159-1R (347), CO04063-4R/R (349) and Banana (359)
- **U.S. No. 1's Yield (cwt/Acre)**
Highest: AC03534-2R/Y (635), Red LaSoda SWR (630) and CO04021-2R/Y (622)
Lowest: CO04159-1R (340) and CO04063-4R/R (347)

Tuber Defects

- **Hollow Heart**
Notable Entries: Red LaSoda SWR (65%), CO04013-1W/Y (53%) and CO04099-3W/Y (45%)
- **Stem End Necrosis**
Notable Entries: POR04PG56-1 (25%) and COTX04015-3AW/Y (23%)
- **Black-spot Bruise**
Notable Entries: ATX03564-1Y/Y (18%) and CO00291-5R (10%)

Verticillium Wilt Susceptibility Rating

- **Rating, August 21st (0=0 symptoms, 9=90-100% of plants show symptoms of disease)**
Most Susceptible: COTX02172-1R (9.0), COTX02293-4R (8.8), Dark Red Norland (8.5) and Banana (8.5)

Least Susceptible: CO00291-5R (2.5), CO04099-4W/Y (2.8) and CO04063-4R/R (3.0)

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

Clone/Variety	Trial	Skin Color	Skin Darkness ¹	Flesh Color	Flesh Darkness ¹
Red/White Flesh					
Dark Red Norland	SWR	Red	3.6	White	1.5
Dark Red Norland	WR	Red	3.5	White	1.6
Red LaSoda	SWR	Red	3.1	White	1.6
Red LaSoda	WR	Red	2.6	White	1.8
ATX98453-3R	SWR	Red	2.9	White	1.4
CO04159-1R	SWR	Red	3.9	White	1.9
COTX02172-1R	SWR	Red	3.5	White	1.9
COTX02293-4R	SWR	Red	3.6	White	1.5
ATTX98453-6R	WR	Red	3.4	White	1.8
CO00277-2R	WR	Red	4.0	White	1.4
CO00291-5R	WR	Red	4.1	White	1.6
OR04131-2	WR	Red	4.0	White	1.5
Red-Purple/Yellow Flesh					
ACO3534-2R/Y	SWR	Red	3.5	Yellow	2.3
CO04067-8R/Y	SWR	Red	3.4	Yellow	3.1
CO04188-4R/Y	SWR	Red	3.8	Yellow	3.4
ATTX98468-5R/Y	WR	Red	2.5	Yellow	2.8
CO04021-2R/Y	WR	Red	3.9	Yellow	3.0
COTX01403-4R/Y	WR	Red	2.8	Yellow	2.4
Red-Purple/Red-Purple Flesh					
Purple Majesty	SWR	Purple	4.5	Purple	4.4
Purple Majesty	WR	Purple	4.5	Purple	4.3
CO04056-3P/PW	SWR	Purple	4.3	Purple	4.4
CO04063-4R/R	SWR	Red	3.9	Red	3.9
POR04PG56-1	WR	Purple	3.4	Purple/White	3.3
Yellow Flesh					
Yukon Gold	SWR	Yellow	3.9	Yellow	3.0
Yukon Gold	WR	Yellow	3.5	Yellow	2.9
CO04029-5W/Y	SWR	Yellow	3.1	Yellow	3.1
CO04099-3W/Y	SWR	Yellow	4.0	Yellow	3.8
CO04099-4W/Y	SWR	Yellow	3.6	Yellow	3.1
COTX04015-3AW/Y	SWR	Yellow	3.9	Yellow	3.4
ATX03564-1Y/Y	WR	Yellow	3.5	Yellow	2.6
CO04013-1W/Y	WR	Yellow	3.6	Yellow	3.2
OR04036-5	WR	Yellow	3.4	Yellow	2.9
POR02PG37-2	IREC	Yellow	3.6	Yellow	3.1
Fingerling					
Banana	SWR	Yellow	3.1	Yellow	2.1
CO03134-4RF/RW	SWR	Red	4.0	Pink/White	3.1
Mean			3.6		3.0
95% CI			0.3		0.4

¹1=Light, 5=Dark

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

Clone/Variety	Trial	Tuber Yield (cwt/A)							Culls	Total	% 1's
		U.S. No. 1's (cwt)					<4oz				
		Total 1's	>14oz	10-14oz	6-10oz	4-6oz					
Red/White Flesh											
Dark Red Norland	SWR	503	23	63	231	130	56	9	512	98.2	
Dark Red Norland	WR	431	31	80	191	82	48	21	452	95.5	
Red LaSoda	SWR	630	58	123	250	133	65	17	646	97.4	
Red LaSoda	WR	609	68	124	251	110	56	18	627	97.1	
ATX98453-3R	SWR	474	59	98	175	83	59	25	499	95.1	
CO04159-1R	SWR	340	1	18	132	98	90	7	347	98.0	
COTX02172-1R	SWR	520	4	30	131	160	194	2	522	99.6	
COTX02293-4R	SWR	385	1	10	110	140	124	10	396	97.4	
ATTX98453-6R	WR	501	101	123	167	67	43	12	514	97.6	
CO00277-2R	WR	528	67	120	186	89	66	12	540	97.7	
CO00291-5R	WR	363	1	49	144	98	71	13	376	96.7	
OR04131-2	WR	363	0	9	68	127	159	5	368	98.7	
Red-Purple/Yellow Flesh											
ACO3534-2R/Y	SWR	635	28	84	243	167	112	10	645	98.4	
CO04067-8R/Y	SWR	475	1	9	102	173	190	6	481	98.8	
CO04188-4R/Y	SWR	478	1	2	67	153	255	5	483	98.9	
ATTX98468-5R/Y	WR	613	55	88	223	145	102	20	633	96.9	
CO04021-2R/Y	WR	622	45	137	264	115	61	24	646	96.3	
COTX01403-4R/Y	WR	547	117	125	185	79	41	36	583	93.8	
Red-Purple/Red-Purple Flesh											
Purple Majesty	SWR	510	4	25	107	163	212	17	527	96.8	
Purple Majesty	WR	462	12	33	122	137	158	23	486	95.2	
CO04056-3P/PW	SWR	407	0	8	86	143	169	5	411	98.9	
CO04063-4R/R	SWR	347	0	0	7	57	283	2	349	99.5	
POR04PG56-1	WR	393	0	3	33	97	260	7	400	98.3	
Yellow Flesh											
Yukon Gold	SWR	430	12	80	189	94	55	6	436	98.6	
Yukon Gold	WR	389	27	83	148	84	47	8	397	98.0	
CO04029-5W/Y	SWR	518	0	15	114	169	220	4	522	99.2	
CO04099-3W/Y	SWR	475	0	1	49	166	259	4	479	99.2	
CO04099-4W/Y	SWR	519	2	35	171	160	151	10	529	98.1	
COTX04015-3AW/Y	SWR	540	14	49	188	155	134	22	563	96.1	
ATX03564-1Y/Y	WR	621	29	110	242	137	102	31	652	95.2	
CO04013-1W/Y	WR	508	3	10	96	160	240	5	512	99.1	
OR04036-5	WR	477	2	9	130	180	158	6	484	98.7	
POR02PG37-2	IREC	409	3	29	128	121	129	15	424	96.4	
Fingerling											
Banana	SWR	---	---	---	---	---	---	---	359	---	
CO03134-4RF/RW	SWR	---	---	---	---	---	---	---	444	---	
Mean		489	9	42	146	142	149	11	484	97.8	
95% CI		36	16	16	24	20	16	6	36	1.1	

Table 7. External Tuber Characteristics of Experimental & Standard Specialty Potato Entries.

Clone/Variety	Trial	Merit Score ¹	Eye Depth ²	Tuber Shape ³	Shape Uniformity ⁴	Length/Width Ratio ⁵
Red/White Flesh						
Dark Red Norland	SWR	3.4	3.5	2.9	3.4	1.31
Dark Red Norland	WR	3.6	2.8	3.0	3.3	1.23
Red LaSoda	SWR	3.6	2.9	2.9	3.8	1.16
Red LaSoda	WR	3.6	2.3	2.5	3.5	1.17
ATX98453-3R	SWR	3.9	3.1	2.3	3.8	1.09
CO04159-1R	SWR	4.0	3.4	2.0	3.8	1.04
COTX02172-1R	SWR	3.1	3.6	2.8	3.1	1.27
COTX02293-4R	SWR	3.9	3.1	2.1	3.5	1.14
ATTX98453-6R	WR	3.6	4.0	2.9	3.8	1.10
CO00277-2R	WR	3.3	3.5	1.9	3.3	1.06
CO00291-5R	WR	3.3	3.6	2.5	3.4	1.19
OR04131-2	WR	3.9	3.6	2.7	3.9	1.10
Red-Purple/Yellow Flesh						
ACO3534-2R/Y	SWR	3.9	3.8	2.4	3.8	1.08
CO04067-8R/Y	SWR	3.9	3.1	2.3	3.6	1.15
CO04188-4R/Y	SWR	4.0	3.1	1.6	4.0	1.02
ATTX98468-5R/Y	WR	4.1	3.1	2.3	4.0	1.09
CO04021-2R/Y	WR	3.8	3.8	2.9	3.4	1.51
COTX01403-4R/Y	WR	3.8	3.8	2.9	3.1	1.28
Red-Purple/Red-Purple Flesh						
Purple Majesty	SWR	3.3	3.1	3.9	3.3	1.80
Purple Majesty	WR	3.0	3.3	4.0	3.0	1.93
CO04056-3P/PW	SWR	3.3	3.1	3.5	3.5	1.86
CO04063-4R/R	SWR	3.8	3.8	2.9	3.4	1.19
POR04PG56-1	WR	3.0	3.8	3.9	3.3	1.59
Yellow Flesh						
Yukon Gold	SWR	4.1	4.1	2.5	3.5	1.21
Yukon Gold	WR	4.4	3.8	2.5	3.8	1.18
CO04029-5W/Y	SWR	4.3	3.5	1.8	4.0	1.03
CO04099-3W/Y	SWR	4.1	3.6	2.1	4.0	1.12
CO04099-4W/Y	SWR	4.3	2.8	2.1	3.9	1.10
COTX04015-3AW/Y	SWR	3.8	3.4	3.3	3.1	1.33
ATX03564-1Y/Y	WR	3.6	3.8	3.3	2.9	1.54
CO04013-1W/Y	WR	3.9	3.9	2.1	3.9	1.10
OR04036-5	WR	3.8	3.1	3.8	3.5	1.61
POR02PG37-2	IREC	3.5	3.6	3.1	3.3	1.29
Fingerling						
Banana	SWR	3.5	4.0	4.0	3.3	3.07
CO03134-4RF/RW	SWR	2.8	4.0	4.0	3.0	2.61
Mean		3.8	3.6	2.9	3.5	1.10
95% CI		0.4	0.6	0.5	0.5	0.06

Rating Scales

¹ 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

² 1=Deep, 5= Shallow

³ 1=Round, 5= Oblong

⁴ 1= No Uniformity, 5= Very Uniform

⁵ Ratio of 10 tubers measured from each plot

Table 8. Tuber Defects of Experimental & Standard Specialty Potato Entries.

Clone/Variety	Trial	Hollow Heart ¹ (%)	Black Spot Bruise ¹ (%)	Stem End Necrosis ¹ (%)	Vascular Discoloration ¹ (%)	Knobs ² (%)	Growth Cracks ² (%)	Rot ² (%)	Green ² (%)	Total Cull ² (%)
Red/White Flesh										
Dark Red Norland	SWR	5	3	8	0	0.39	0.13	0.13	2.60	3.25
Dark Red Norland	WR	3	3	3	0	0.91	1.04	0.00	2.99	4.94
Red LaSoda	SWR	65	0	0	0	1.30	0.26	0.39	1.82	3.77
Red LaSoda	WR	38	0	5	0	0.65	1.04	0.00	2.73	4.42
ATX98453-3R	SWR	0	8	8	3	0.26	7.67	0.00	2.60	10.53
CO04159-1R	SWR	33	0	3	0	0.52	0.26	0.00	2.73	3.51
COTX02172-1R	SWR	0	0	10	10	0.26	0.13	0.00	0.65	1.04
COTX02293-4R	SWR	18	0	18	5	0.65	1.30	0.00	3.51	5.46
ATTX98453-6R	WR	0	5	10	0	0.13	1.04	0.13	2.73	4.03
CO00277-2R	WR	10	3	5	0	1.17	0.65	0.13	1.43	3.38
CO00291-5R	WR	5	10	3	3	0.78	2.08	0.26	2.73	5.85
OR04131-2	WR	3	5	8	3	1.17	0.78	0.00	0.65	2.60
Red-Purple/Yellow Flesh										
ACO3534-2R/Y	SWR	0	3	18	3	2.21	0.26	0.13	0.91	3.51
CO04067-8R/Y	SWR	8	0	10	0	1.04	0.78	0.00	1.17	2.99
CO04188-4R/Y	SWR	5	3	13	0	1.30	0.26	0.26	1.04	2.86
ATTX98468-5R/Y	WR	5	8	18	3	1.95	0.52	0.00	4.16	6.63
CO04021-2R/Y	WR	13	3	10	13	2.21	0.13	0.26	5.07	7.67
COTX01403-4R/Y	WR	38	0	0	3	3.77	0.78	0.26	4.03	8.84
Red-Purple/Red-Purple Flesh										
Purple Majesty	SWR	10	3	8	3	3.51	0.39	0.13	0.52	4.55
Purple Majesty	WR	8	3	8	10	4.68	0.00	0.26	0.26	5.20
CO04056-3P/PW	SWR	13	3	0	3	1.17	0.13	0.26	0.13	1.69
CO04063-4R/R	SWR	18	3	5	10	0.26	0.26	0.00	0.91	1.43
POR04PG56-1	WR	0	5	25	0	1.04	0.13	0.00	1.04	2.21
Yellow Flesh										
Yukon Gold	SWR	13	3	10	0	1.17	0.39	0.00	0.52	2.08
Yukon Gold	WR	13	0	8	0	1.17	0.00	0.13	1.30	2.60
CO04029-5W/Y	SWR	8	5	13	5	0.39	0.26	0.00	1.82	2.47
CO04099-3W/Y	SWR	45	8	0	0	0.91	0.00	0.00	1.30	2.21
CO04099-4W/Y	SWR	3	5	8	0	0.39	0.39	0.00	4.16	4.94
COTX04015-3AW/Y	SWR	3	3	23	0	4.29	0.00	0.13	4.81	9.23
ATX03564-1Y/Y	WR	0	18	8	0	5.46	0.00	0.00	6.24	11.70
CO04013-1W/Y	WR	53	5	3	0	0.91	0.00	0.13	1.56	2.60
OR04036-5	WR	0	5	10	3	1.30	0.00	0.13	1.17	2.60
POR02PG37-2	IREC	20	8	5	0	2.21	0.26	0.00	4.16	6.63
Fingerling										
Banana	SWR	0	0	5	0	---	---	---	---	---
CO03134-4RF/RW	SWR	0	0	0	100	---	---	---	---	---
Mean		13	5	8	9	1.82	0.13	0.05	2.70	4.71
95% CI		10	NS	10	5	0.96	0.97	NS	1.56	1.87

¹ 10 tubers evaluated from each plot in the 6-10oz tubers

² Percent of tubers pulled with defects from total tuber count

Table 9. Disease Susceptibility, Stand, Tuber Set, Average Tuber Size, & Specific Gravity of Experimental & Standard Specialty Potato Entries.

Clone/Variety	Trial	Verticillium wilt Rating ¹ 8/14/2012	Verticillium wilt Rating ¹ 8/21/2012	% Stand	Tubers/Plant	Avg. Tuber Size (oz.)	Specific Gravity
Red/White Flesh							
Dark Red Norland	SWR	6.5	7.5	93	7.7	6.0	1.067
Dark Red Norland	WR	7.3	8.5	90	6.6	6.5	1.071
Red LaSoda	SWR	3.3	4.3	98	8.4	6.5	1.082
Red LaSoda	WR	4.8	4.5	95	8.1	6.9	1.084
ATX98453-3R	SWR	6.0	6.5	88	7.5	6.4	1.084
CO04159-1R	SWR	6.8	7.4	63	9.9	4.7	1.077
COTX02172-1R	SWR	6.8	9.0	93	11.3	4.2	1.069
COTX02293-4R	SWR	8.5	8.8	97	7.8	4.3	1.068
ATTX98453-6R	WR	3.5	4.8	91	6.4	7.4	1.074
CO00277-2R	WR	4.8	6.0	84	8.1	6.7	1.080
CO00291-5R	WR	3.0	2.5	70	8.7	5.2	1.074
OR04131-2	WR	5.3	6.3	85	9.5	3.8	1.078
Red-Purple/Yellow Flesh							
ACO3534-2R/Y	SWR	4.8	4.8	91	10.9	5.5	1.067
CO04067-8R/Y	SWR	5.0	7.0	91	11.2	4.0	1.082
CO04188-4R/Y	SWR	5.8	7.0	96	12.0	3.5	1.082
ATTX98468-5R/Y	WR	4.8	5.5	95	9.7	5.7	1.076
CO04021-2R/Y	WR	5.4	4.3	84	9.8	6.6	1.084
COTX01403-4R/Y	WR	6.5	7.5	94	6.7	7.8	1.077
Red-Purple/Red-Purple Flesh							
Purple Majesty	SWR	6.8	6.8	93	11.9	4.0	1.082
Purple Majesty	WR	5.8	7.5	95	9.6	4.5	1.079
CO04056-3P/PW	SWR	4.5	4.5	83	10.7	3.9	1.084
CO04063-4R/R	SWR	2.8	3.0	97	10.9	2.7	1.074
POR04PG56-1	WR	7.0	8.3	94	11.3	3.2	1.079
Yellow Flesh							
Yukon Gold	SWR	6.3	6.5	92	6.6	6.1	1.087
Yukon Gold	WR	6.3	8.3	82	6.4	6.3	1.089
CO04029-5W/Y	SWR	5.3	6.8	89	12.8	3.9	1.071
CO04099-3W/Y	SWR	4.0	4.5	99	11.6	3.5	1.094
CO04099-4W/Y	SWR	2.8	2.8	93	10.3	4.6	1.104
COTX04015-3AW/Y	SWR	6.3	6.0	97	10.0	4.9	1.091
ATX03564-1Y/Y	WR	4.0	3.3	93	10.2	5.8	1.082
CO04013-1W/Y	WR	3.8	3.5	94	12.6	3.6	1.098
OR04036-5	WR	6.8	7.3	92	10.3	4.2	1.069
POR02PG37-2	IREC	5.8	6.3	89	8.5	4.7	1.083
Fingerling							
Banana	SWR	7.5	8.5	95	---	---	1.088
CO03134-4RF/RW	SWR	4.0	4.8	96	---	---	1.097
Mean		5.2	5.7	93	9.9	4.8	1.088
95% CI		1.1	0.8	5.9	0.9	0.3	---

¹ Verticillium wilt Rating- 0= 0 Symptoms, 1= Trace, 2= 1-5% of plants show symptoms of disease, 3= 5-10%, 4= 10-20%, 5= 20-40%, 6= 40-60%, 7= 60-75%, 8= 75-90%, 9= 90-100%

Figure 2. 2012 Red/ Specialty Trial Entries.









Entry	Tulelake Notes	Entry	Tulelake Notes
Dark Red Norland (WR/SWR)	 <ul style="list-style-type: none"> • Low internal defects • Good skin color • Vert. Susceptible • Susceptible to brown-spot 	Red LaSoda (WR/SWR)	 <ul style="list-style-type: none"> • High total yield • Light red skin • 65% hollow heart • Deep eyes
ATX98453-3R (SWR)	 <ul style="list-style-type: none"> • Light red skin • Growth cracks • 10% culls • Round 	CO04159-1R (SWR)	 <ul style="list-style-type: none"> • Low total yield • Dark red skin • 33% hollow heart • Round • Good fresh merit score
COTX02172-1R (SWR)	 <ul style="list-style-type: none"> • High yield • 10% vascular discoloration • IPS • High tuber set • Small average tuber size • Vert. susceptible 	COTX02293-4R (SWR)	 <ul style="list-style-type: none"> • Low yield • 18% hollow heart • 18% stem-end necrosis • Vert. Susceptible • Large average tuber size
ATTX98453-6R (WR)	 <ul style="list-style-type: none"> • Good size distribution • Moderate vert. Resistance • Low tubers set • Susceptible to brown-spot 	CO00277-2R (WR)	 <ul style="list-style-type: none"> • Good size distribution • Dark red skin • Round shape

Figure 2. 2012 Red Specialty Trial Entries Continued.









Entry	Tulelake Notes	Entry	Tulelake Notes
CO00291-5R (WR)	 <ul style="list-style-type: none"> • Low total yield • Dark skin color • Vert. resistant • Poor stand 	OR04131-2 (WR)	 <ul style="list-style-type: none"> • Low yield • Dark skin color • Low defects • Uniform • Small average tuber size
ACO3534-2R/Y (SWR)	 <ul style="list-style-type: none"> • High yield • 18% stem-end necrosis • Round • Good tuber set 	CO04067-8R/Y (SWR)	 <ul style="list-style-type: none"> • Nice yellow flesh • Good tuber set • Small average tuber size • Susceptible to brown-spot
CO04188-4R/Y (SWR)	 <ul style="list-style-type: none"> • Dark skin and flesh color • Round shape • High tuber set • Small average tuber size • Susceptible to brown-spot 	ATTX98468-5R/Y (WR)	 <ul style="list-style-type: none"> • High yield • Good size distribution • Cream yellow flesh • 18% stem-end necrosis
CO04021-2R/Y (WR)	 <ul style="list-style-type: none"> • High yield • Good size distribution • Oblong • Dark skin • Moderate vert. resistance 	COTX01403-4R/Y (WR)	 <ul style="list-style-type: none"> • High yield • Light skin and flesh color • 38% hollow heart • High cull percent • Large average tuber size

Figure 2. 2012 Red Specialty Trial Entries Continued.










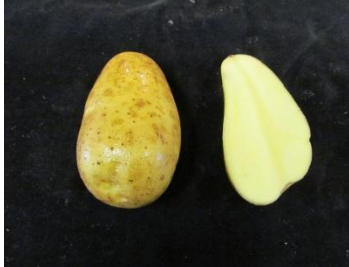





Entry	Tulelake Notes	Entry	Tulelake Notes
Purple Majesty (WR/SWR)	 <ul style="list-style-type: none"> • Dark skin and flesh • Oblong • Irregular • Good tuber set 	CO04056-3P/PW (SWR)	 <ul style="list-style-type: none"> • Dark skin and flesh • Low percent of culls • Oblong • Moderate vert. resistance • Small average tuber size
CO04063-4R/R (SWR)	 <ul style="list-style-type: none"> • Low yield • Purple/red skin and flesh • 18% hollow heart • Low total cull • Small average tuber size • High tuber set 	POR04PG56-1 (WR)	 <ul style="list-style-type: none"> • Low yield • Light purple skin and flesh • 25% stem-end necrosis • Low total cull • High tuber set • Small average tuber size
Yukon Gold (WR/SWR)	 <ul style="list-style-type: none"> • Low total cull • Uniform • Low tuber set • Large average tuber size • Susceptible to brown-spot 	CO04029-5W/Y (SWR)	 <ul style="list-style-type: none"> • High yield • Low total cull • Uniform • High tuber set • Small average tuber size
CO04099-3W/Y (SWR)	 <ul style="list-style-type: none"> • Dark yellow skin and flesh • 45% hollow heart • Low total cull • Uniform • High tuber set • Small average tuber size 	CO04099-4W/Y (SWR)	 <ul style="list-style-type: none"> • High yield • Low internal defects • High tuber set • Uniform

Figure 2. 2012 Red Specialty Trial Entries Continued.

Entry	Tulelake Notes	Entry	Tulelake Notes
COTX04015-3AW/Y (SWR)	 <ul style="list-style-type: none"> • High yield • Good size distribution • 23% stem-end necrosis • High percentage of culls • Good tuber set 	ATX03564-1Y/Y (WR)	 <ul style="list-style-type: none"> • Irregular • High yield • Light yellow flesh • High percent cull • Oblong • High tuber set
CO04013-1W/Y (WR)	 <ul style="list-style-type: none"> • 53% hollow heart • Low percent cull • Uniform • High tuber set • Small average tuber size 	OR04036-5 (WR)	 <ul style="list-style-type: none"> • Low internal defects • Low percent culls • Oblong • High tuber set • Susceptible to brown-spot
POR02PG37-2 (IREC)	 <ul style="list-style-type: none"> • Good size distribution • 20% hollow heart • More tubers/plant than Yukon Gold • Small average tuber size • Susceptible to brown-spot 	Banana (SWR)	 <ul style="list-style-type: none"> • Low yield • Light yellow flesh • Low internal defects • Very long • Vert. susceptible
CO03134-4RF/RW (SWR)	 <ul style="list-style-type: none"> • Pink/white flesh • 100% vascular discoloration • Moderate vert. resistance • Susceptible to brown-spot 		

Chipping Potato Variety Trial

A large portion of chipping acreage in the Tulelake area is comprised of proprietary varieties grown under contract. In recent years, expanding markets have created a need for publically released chip varieties. The 2012 Chipping Trial included ten entries from the Western Regional Variety Trial (WR), four entries from the Southwest Regional Trial (SWR) and five entries of local interest. Important characteristics for processing chippers include: tubers per plant, average tuber size, total yield, tuber shape, tuber uniformity, fry quality, and specific gravity. See Tables 10-13 for Chipping Trial results and Figure 3 for entry pictures and comments.

Trial Information

Location:	Intermountain Research & Extension Center, Tulelake, CA
Soil Type:	Tulebasin mucky silty clay loam
Planting Date:	May 16
Vine Kill Date:	September 14: Roll vines and application of Reglone at labeled rate
Days to Vine Kill:	118 days
Harvest Date:	October 10
Irrigation:	Solid-set sprinklers; applied water + precipitation = 19.94 inches
Plot Length:	40 hills
In-Row Spacing:	9.1 inches
Row Spacing:	36 inches
Number of Reps:	4 replications
Fertilizer per Acre:	199 lbs N - 73 lbs P2O5 - 16 lbs K2O - 31 lbs S
Seed Treatment:	Agri-Fill Premium Fir Bark Dust
Weed Control:	Cultivation (pre-emergence), Matrix and Sencor (post-emergence)
Insecticides:	Admire Pro (in-furrow at planting)
Fungicides:	Moncut (in-furrow at planting), Bravo WS and Manzate (foliar applications)
Fumigation:	Vapam

Results

Stand Counts

- All entries had greater than 89% total stand.

Tuber Count and Size

- **Tubers per Plant**
Highest: Lady Lenora (11.7), Lady Claire (11.5) and CO02024-9W (9.5)
Lowest: Chipeta WR (5.2) and Atlantic WR (6.7)
- **Average Tuber Size (oz.)**
Largest: Chipeta WR (9.0), Chipeta SWR (7.7) and A01143-3C (6.6)
Smallest: Lady Lenora (3.1), Lady Claire (3.3) and Lamoka (4.3)
- **Undersized Tubers- <4 oz. (cwt/acre)**
Most: Lady Lenora (278), Lady Claire (274) and Lamoka (152)
Least: Chipeta WR (22), AC03433-1W (43) and CO02321-4W (61)

Yield

- **Total Yield (cwt/acre)**
Highest: Chipeta SWR (594), AC03452-2W (566) and AC01151-5W (557)
Lowest: AC00206-2W (394), Lady Lenora (412), and A01143-3C (429)
- **U.S. No. 1's Yield - 4-14 oz. (cwt/acre)**
Highest: Chipeta SWR (548), AC03452-2W (493) and Chipeta WR (484)
Lowest: Lady Lenora (134), Lady Claire (176) and AC00206-2W (311)
- **% Yield in the 4-14 oz. Size Class (cwt/acre)**
Highest: Chipeta SWR (92%), Chipeta (91%), AC03452-2W (87%) and CO03243-3W (87%)
Lowest: Lady Lenora (31%), Lady Claire (39%) and Lamoka (66%)

Specific Gravity

- Highest: Atlantic SWR (1.101), Lamoka (1.101) and Lady Lenora (1.100)
- Lowest: AC01151-5W (1.086), AC00206-2W (1.091) and AC03433-1W (1.091)

Tuber Defects

- **Hollow Heart**
Notable Entries: CO02033-1W (20%) and AC00206-2W (18%)
- **Black-spot Bruise**
Notable Entries: CO02024-9W (13%)

Disease Susceptibility Rating

- **Verticillium Wilt Rating, August 21st (0=0 symptoms, 9=90-100% of plants show symptoms of disease)**
Highest: Lady Lenora (8.8) and Lady Claire (8.3)
Lowest: AC01151-5W (2.8), A00188-3C (3.0) and AC03433-1W (3.0)

Table 10. Tuber Yield & Size of Experimental & Standard Chipping Potato Entries.

Clone/Variety	Trial	Tuber Yield (cwt/A)								Total	% 1's
		U.S. No. 1's (cwt)						Culls			
		Total 1's	>14oz	10-14oz	6-10oz	4-6oz	<4oz				
Atlantic	SWR	384	35	76	165	109	65	11	461	83	
Chipeta	SWR	548	101	144	224	79	37	10	594	92	
AC00206-2W	SWR	311	1	30	170	111	72	10	394	79	
AC03452-2W	SWR	493	3	36	275	179	65	8	566	87	
Atlantic	WR	388	55	106	135	92	52	62	502	77	
Chipeta	WR	484	146	126	168	43	22	26	532	91	
A00188-3C	WR	325	11	32	128	154	149	11	485	67	
A01143-3C	WR	324	22	60	151	90	71	34	429	76	
AC01151-5W	WR	422	14	57	214	137	102	33	557	76	
AC03433-1W	WR	397	35	71	177	113	43	35	475	83	
CO02024-9W	WR	402	11	35	197	158	106	18	527	76	
CO02033-1W	WR	385	10	29	183	164	107	10	503	77	
CO02321-4W	WR	437	18	79	217	123	61	11	509	86	
CO03243-3W	WR	479	46	64	240	130	68	4	551	87	
Lamoka	IREC	316	7	17	117	175	152	6	474	66	
Nicolet	IREC	367	13	22	184	147	106	6	479	77	
Tundra	IREC	356	2	27	180	147	109	10	475	75	
Lady Claire	IREC	176	0	0	34	142	274	4	454	39	
Lady Lenora	IREC	134	0	5	28	101	278	1	412	31	
Mean		375	28	53	168	126	102	16	494	75	
95% CI		37	25	18	23	23	17	10	35	4	

Table 11. External Tuber Characteristics of Experimental & Standard Chipping Potato Entries.

Clone/Variety	Trial	Merit Score ¹	Russeting ²	Eye Depth ³	Tuber Shape ⁴	Shape Uniformity ⁵	Length/Width Ratio ⁶
Atlantic	SWR	3.7	1.7	3.9	2.3	3.9	1.06
Chipeta	SWR	3.8	1.9	4.0	2.2	3.9	1.14
AC00206-2W	SWR	4.1	1.3	4.1	1.8	4.1	1.01
AC03452-2W	SWR	4.1	1.2	3.5	2.1	3.9	1.04
Atlantic	WR	3.9	2.0	4.0	2.2	3.8	1.07
Chipeta	WR	3.8	1.9	4.1	2.2	3.9	1.15
A00188-3C	WR	3.7	1.2	4.3	2.0	4.1	1.03
A01143-3C	WR	3.5	1.8	3.9	2.7	3.5	1.13
AC01151-5W	WR	3.9	1.6	4.1	2.2	3.7	1.13
AC03433-1W	WR	3.7	1.8	4.0	2.2	4.0	1.06
CO02024-9W	WR	3.4	1.0	4.0	2.3	3.4	1.10
CO02033-1W	WR	3.3	1.6	3.9	2.5	3.8	1.07
CO02321-4W	WR	3.9	1.8	3.9	2.2	3.9	1.10
CO03243-3W	WR	4.1	1.6	4.1	1.7	4.1	1.07
Lamoka	IREC	3.7	1.3	4.0	2.2	3.7	1.20
Nicolet	IREC	4.0	1.6	4.1	1.9	4.1	1.03
Tundra	IREC	3.2	1.7	4.1	2.8	3.6	1.16
Lady Claire	IREC	3.5	1.6	3.9	2.6	3.7	1.27
Lady Lenora	IREC	3.5	1.5	3.7	2.6	3.6	1.17
Mean		3.7	1.6	4.0	2.2	3.8	1.10
95% CI		NS	0.4	0.2	0.3	0.3	0.04

Rating Scales

¹ 1=Worst, 5=Best - Chipper Merit Score takes into account multiple factors important to the chip market including tuber shape, eye depth, and shape uniformity

² 1=Light, 5= Heavy

³ 1=Deep, 5= Shallow

⁴ 1=Round, 5= Oblong

⁵ 1= No Uniformity, 5= Very Uniform

⁶ Ratio of 10 tubers measured from each plot

Table 12. Tuber Defects of Experimental & Standard Chipping Potato Entries.

Clone/Variety	Trial	Hollow Heart ¹ (%)	Black Spot Bruise ¹ (%)	Stem End Necrosis ¹ (%)	Vascular Discoloration ¹ (%)	Knobs ² (%)	Growth Cracks ² (%)	Irregular Shaped ² (%)	Green ² (%)
Atlantic	SWR	0	0	0	0	0.2	0.1	0.0	2.8
Chipeta	SWR	3	8	3	3	0.2	0.0	0.0	1.9
AC00206-2W	SWR	18	0	5	3	0.0	0.1	0.0	2.4
AC03452-2W	SWR	5	0	0	0	0.4	0.0	0.2	1.0
Atlantic	WR	10	5	0	0	2.7	0.4	0.8	4.8
Chipeta	WR	5	0	3	0	0.4	0.6	0.4	3.9
A00188-3C	WR	3	0	7	3	1.0	0.2	0.0	0.6
A01143-3C	WR	5	3	3	0	0.6	0.9	0.1	4.0
AC01151-5W	WR	10	5	5	3	1.0	0.0	0.2	4.2
AC03433-1W	WR	8	3	3	0	2.2	1.1	0.1	2.9
CO02024-9W	WR	10	13	5	5	0.4	0.1	0.0	3.8
CO02033-1W	WR	20	0	0	0	0.4	0.1	0.1	1.4
CO02321-4W	WR	5	8	3	3	0.3	0.0	0.0	2.5
CO03243-3W	WR	0	5	3	0	0.1	0.1	0.0	0.9
Lamoka	IREC	3	5	0	0	0.4	0.0	0.0	1.2
Nicolet	IREC	3	0	3	5	0.3	0.0	0.0	1.0
Tundra	IREC	5	3	0	3	0.4	0.1	0.0	1.6
Lady Claire	IREC	0	3	3	0	0.6	0.0	0.0	0.0
Lady Lenora	IREC	0	8	3	0	0.2	0.1	0.0	0.0
Mean		6	3	2	1	0.6	0.2	0.1	2.1
95% CI		7	NS	NS	NS	0.7	0.3	NS	0.9

¹ 10 tubers evaluated from each plot in the 6-10oz tubers

² Percent of tubers pulled with defects from total tuber count

Table 13. Disease Susceptibility, Stand, Tuber Set, Average Tuber Size, & Specific Gravity of Experimental & Standard Chipping Potato Entries.

Clone/Variety	Trial	Verticillium wilt Rating ¹ 8/14/2012	Verticillium wilt Rating ¹ 8/21/2012	% Stand	Tubers/Plant	Avg. Tuber Size (oz.)	Specific Gravity
Atlantic	SWR	4.0	5.5	97	6.8	5.9	1.101
Chipeta	SWR	3.3	5.1	94	7.0	7.7	1.097
AC00206-2W	SWR	6.0	5.8	94	6.8	5.2	1.091
AC03452-2W	SWR	3.3	4.3	97	8.7	5.7	1.095
Atlantic	WR	4.5	5.8	89	6.7	7.1	1.097
Chipeta	WR	2.5	4.8	96	5.2	9.0	1.095
A00188-3C	WR	2.3	3.0	98	9.1	4.6	1.097
A01143-3C	WR	5.0	5.0	94	6.6	5.8	1.095
AC01151-5W	WR	2.0	2.8	93	9.4	5.4	1.086
AC03433-1W	WR	2.5	3.0	91	6.9	6.4	1.091
CO02024-9W	WR	4.3	4.3	93	9.5	5.0	1.094
CO02033-1W	WR	5.0	6.3	94	8.9	5.0	1.099
CO02321-4W	WR	3.8	4.9	93	7.6	6.1	1.093
CO03243-3W	WR	2.5	4.8	93	8.1	6.2	1.092
Lamoka	IREC	4.8	5.8	98	9.4	4.3	1.101
Nicolet	IREC	6.5	6.3	95	8.4	5.1	1.096
Tundra	IREC	3.5	6.0	95	8.6	4.9	1.099
Lady Claire	IREC	7.8	8.3	99	11.5	3.3	1.095
Lady Lenora	IREC	8.0	8.8	96	11.7	3.1	1.100
Mean		4.3	5.3	95	8.2	5.6	1.095
95% CI		0.8	0.8	NS	0.7	0.4	---

¹ Verticillium wilt Rating- 0= 0 Symptoms, 1= Trace, 2= 1-5% of plants show symptoms of disease, 3= 5-10%, 4= 10-20%, 5= 20-40%, 6= 40-60%, 7= 60-75%, 8= 75-90%, 9= 90-100%

Figure 3. 2012 Chipper Trial Entries.









Entry	Tulelake Notes	Entry	Tulelake Notes
Atlantic (WR/SWR)	 <ul style="list-style-type: none"> Moderate vert. resistance Low tuber set 10% hollow heart 	Chipeta (WR/SWR)	 <ul style="list-style-type: none"> High yield Over 90% US #1 yield Round Moderate vert. resistance
AC00206-2W(SWR)	 <ul style="list-style-type: none"> Low yield Deep eyes 18% hollow heart Low tuber set Susceptible to brown-spot 	AC03452-2W(SWR)	 <ul style="list-style-type: none"> High total yield 87% US #1's Low internal defects Moderate resistance to vert. Good tuber set
A00188-3C (WR)	 <ul style="list-style-type: none"> Small average tuber size High tuber set Uniform shape 	A01143-3C (WR)	 <ul style="list-style-type: none"> Low yield Low tuber set
AC01151-5W(WR)	 <ul style="list-style-type: none"> High total yield Good size distribution 10% hollow heart Vert. resistance 	AC03433-1W (WR)	 <ul style="list-style-type: none"> Round Large average tuber size Uniform

Figure 3. 2012 Chipper Trial Entries Continued.







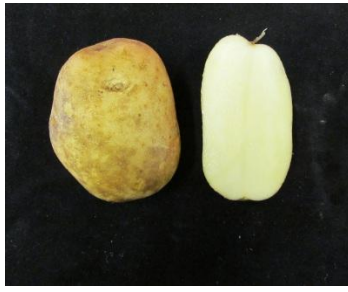


Entry	Tulelake Notes	Entry	Tulelake Notes
CO02024-9W (WR)	 <ul style="list-style-type: none"> • Irregular shape • High tuber set • Moderate vert. resistance • 13% black-spot bruise 	CO02033-1W (WR)	 <ul style="list-style-type: none"> • Good tuber set • Fair yield
CO02321-4W (WR)	 <ul style="list-style-type: none"> • Good size • Moderate vert. resistance • Nice average tuber size 	CO03243-3W (WR)	 <ul style="list-style-type: none"> • High total yield • 87% US #1's • High tuber set • Large average tuber size • Uniform shape
Lamoka (IREC)	 <ul style="list-style-type: none"> • Small average tuber size • Little oblong • Low US No 1 yield • High tuber set • Susceptible to brown-spot 	Nicolet (IREC)	 <ul style="list-style-type: none"> • Round • Good tuber set • Uniform • Fair yield
Tundra (IREC)	 <ul style="list-style-type: none"> • Irregular shape • Good tuber set • Small average tuber size • Low merit score • Susceptible to brown-spot 	Lady Claire (IREC)	 <ul style="list-style-type: none"> • Small average tuber size • High tuber set • Oblong

Figure 3. 2012 Chipper Trial Entries Continued.

Entry	Tulelake Notes	
Lady Lenora(IREC)		
	<ul style="list-style-type: none"> • Very small average tuber size • Low yield • High tuber set • High specific gravity 	

Storage

Fifty pounds of U.S. No. 1 potatoes for each plot were stored and then evaluated for shatter bruise, percent of cumulative shrink, percent of cumulative rot, turgor, and sprouting. Russet and Specialty entries were stored at 40°F for 180 days with evaluations at approximately 60, 120, and 180 days after harvest. Chipper varieties were stored in a separate bin at 50°F for 120 days and were evaluated at 60, 90 and 120 days after harvest. Sprout inhibitor was not applied during storage.

Storage evaluation results will be reported as an appendix to this report upon completion of the storage period.

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