2013 POTATO VARIETY DEVELOPMENT IN TULELAKE, CA

Three potato variety trials were grown at the Intermountain Research and Extension Center during 2013. Trials were categorized by their market type and included russet, specialty and chip. Trial results are summarized in this report.

Table of Contents

Acknowledgements 2

Introduction 2

Late Russet Variety Trial

- **Cultural Information** 3
- **Summary** 3-4
- **Tables** 5-8
- **Tulelake Entry Comments** 9-11

Red/Specialty Variety Trial

- **Cultural Information** 12
- **Summary** 12-13
- **Tables** 14-18
- **Tulelake Entry Comments** 19-20

Chipper Variety Trial

- **Cultural Information** 21
- **Summary** 21-22
- **Tables** 23-26
- **Tulelake Entry Comments** 27-28

Storage Information 29

University of California
Agriculture and Natural Resources
Intermountain Research & Extension Center

RESEARCH REPORT
Number 159, 2013

2013 Annual Progress Report
Potato Variety Development in Tulelake

Rob Wilson: Center Director/Farm Advisor
Email: rgwilson@ucanr.edu
Phone: (530) 667-5117
Fax: (530) 667-5265

Darrin Culp: Superintendent of Agriculture
Email: daculp@ucanr.edu
Phone: (530) 667-5117

Kevin Nicholson: Staff Research Associate II
Email: kwnicholson@ucanr.edu

Tables and variety notes were prepared by Kevin Nicholson and Rob Wilson

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 24 entries, a Specialty trial with 16 entries, and a Chipping trial with 15 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: 2013 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 a cool, wet spring. Average air temperature for May, June, July, August and September were 53°, 61°, 69°, 63° and 56° F respectively. Average six inch soil temperature for May, June, July, August and September were 58°, 66°, 73°, 69° and 63° F respectively. Averaged across entries, yield in all three trials was 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 thirteen entries from the Western Regional Variety Trial (WR) and eleven 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

Location:	Intermountain Research and Extension Center, Tulelake, CA
Soil Type:	Tulebasin mucky silty clay loam
Planting Date:	May 15, 2013
Vine Kill Date:	August 30, 2013
Days to Vine Kill:	105
Harvest Date:	October 1, 2013
Irrigation:	Solid-set sprinklers; applied water + precipitation = 21.63 inches
Plot Length:	20.7 Feet
In-Row Spacing:	11.3 Inches
Row Spacing:	36 Inch
Number of Reps:	4
Fertilizer per Acre:	139 lbs N, 40 lbs P205, 100 lbs K20, 36 lbs S
Seed Treatment:	Agri-Fill Premium Fir Bark Dust, Maxim 4FS
Weed Control:	Cultivation, Prowl, Outlook, Roundup (pre-emergence), and Matrix (post-emergence)
Insecticides:	Admire Pro (in-furrow at planting) and Movento
Fungicides:	Quadris in-Furrow, Quadris and Bravo Weatherstik
Fumigation:	Vapam
Vine Kill Method:	Rolling and with labeled rates of Reglone

Results

Potato Stand

- Highest: AO01114-4 (100%), AO02060-3 (100%), Russet Norkotah-SWR (100%) and CO05132-2RU (100%)
  Lowest: AOTX98152-3RU (93%), CO05175-1RU (93%) and A02507-2LB (85%)

Tuber Count and Size

- **Tubers Per Plant**
  Highest: CO05189-2RU (9.0), A02138-2 (8.3), Russet Burbank-WR (8.0) and CO05040-1RU (8.0)
  Lowest: CO05132-2RU (3.9) and CO05189-3RU (4.2) and AO01114-4 (4.3)

- **Average Tuber Size (oz.)**
  Largest: CO05189-3RU (8.1), CO05132-2RU (7.2) and CO05175-1RU (7.2)
  Smallest: CO05040-1RU (4.3), CO05189-2RU (4.7), A02424-83LB (4.8) and R. Burbank (4.8)

- **Undersized Tubers <4oz. (cwt/acre)**
  Most: CO05189-2RU (106) and CO05040-1RU (99)
  Least: OR05039-4 (21) and CO05132-2RU (23)

Yield and Return

- **Total Yield (cwt/acre)**
  Highest: CO05152-5RU (431) and Russet Norkotah-SWR (414)
  Lowest: AO01114-4 (268), CO05132-2RU (271) and AOTX98152-3RU (300)

- **U.S. No. 1's Yield (cwt/acre)**
  Highest: A03158-2TE (346), Russet Norkotah-SWR (340) and CO05152-5RU (336)
  Lowest: A02507-2LB (173) and CO5040-1RU (183)

- **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: A03158-2TE ($2651)
  Lowest: CO05040-1RU ($465)

Tuber Defects

- **Hollow Heart**
  Notable Entries: CO05024-11RU (43%) and CO05149-3RU (60%)

- **Stem End Necrosis**
  Notable Entries: CO05110-6RU (18%) and A02424-83LB (15%)

- **Black-Spot Bruise**
  Notable Entries: CO05175-1RU (5%) and CO05110-6RU (8%)

Verticillium Wilt Susceptibility Rating

- **Rating, August 26th (0=0 symptoms, 9=90-100% of plants show symptoms of disease)**
  Most Susceptible: Russet Norkotah-WR (9.0), CO05189-2RU (8.0), CO05024-11RU (7.5), CO05152-5RU (7.5), CO05110-6RU (7.4) and CO05149-3RU (7.3)

  Least Susceptible: A02507-2LB (3.4), CO05068-1RU (4.5), AC00395-2RU (4.8) and CO05175-1RU (4.8)

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

		Tuber Yield (cwt/A)									
		U.S. No. 1's (cwt)									
Clone/Variety	Trial	Total 1's	>16oz	12-16oz	8-12oz	4-8oz	<4oz	2's + culls	Total Yield	% 1's	Pack-out Revenue[1] $
Ranger Russet	WR	294	3	27	108	154	61	38	393	75	1,745
Russet Burbank	WR	250	4	11	58	177	86	26	363	69	1,054
Russet Norkotah	WR	298	11	47	96	145	48	44	390	76	1,910
A02138-2	WR	260	7	23	65	166	93	21	375	69	1,241
A02424-83LB	WR	225	1	10	41	173	75	35	335	67	823
A02507-2LB	WR	173	0	11	59	102	41	57	301	57	625
A03158-2TE	WR	346	31	67	116	133	37	29	412	84	2,651
AC00395-2RU	WR	240	1	14	55	169	74	9	322	74	1,129
AO01114-4	WR	214	17	32	72	92	32	22	268	80	1,506
AO02060-3	WR	311	13	55	99	144	47	36	394	79	2,108
AOTX98152-3RU	WR	199	6	17	61	115	60	42	300	66	954
POR06V12-3	WR	262	5	24	75	160	51	35	347	75	1,443
OR05039-4	WR	259	2	34	100	123	21	27	308	84	1,812
Russet Norkotah	SWR	340	24	56	115	144	34	40	414	82	2,459
CO05024-11RU	SWR	239	16	33	79	111	48	41	328	73	1,498
CO05040-1RU	SWR	183	1	7	35	140	99	35	316	58	465
CO05068-1RU	SWR	308	24	59	98	127	38	27	373	83	2,273
CO05110-6RU	SWR	293	8	54	98	133	42	16	351	83	2,083
CO05132-2RU	SWR	219	19	42	77	81	23	30	271	80	1,644
CO05149-3RU	SWR	264	10	34	93	127	39	36	339	78	1,721
CO05152-5RU	SWR	336	3	32	125	176	46	49	431	78	2,083
CO05175-1RU	SWR	233	31	44	67	91	29	39	302	77	1,668
CO05189-2RU	SWR	274	4	24	57	190	106	6	386	71	1,249
CO05189-3RU	SWR	258	62	56	67	73	29	28	315	82	2,151
Mean		**262**	**13**	**34**	**80**	**135**	**52**	**33**	**347**	**75**	**1,596**
95% CI		**25**	**6**	**11**	**16**	**18**	**7**	**10**	**25**	**3**	**243**

[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 and 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]
Ranger Russet	WR	3.3	3.5	3.0	4.4	3.4	2.00
Russet Burbank	WR	3.5	3.9	3.0	3.8	3.5	1.79
Russet Norkotah	WR	4.0	4.3	2.8	4.1	3.6	1.97
A02138-2	WR	3.4	2.6	3.0	3.9	3.5	1.45
A02424-83LB	WR	2.0	1.5	3.8	4.3	2.8	1.93
A02507-2LB	WR	2.1	2.9	4.0	3.9	2.3	1.77
A03158-2TE	WR	4.3	3.6	2.0	4.0	4.1	1.85
AC00395-2RU	WR	4.1	4.0	2.8	3.9	4.1	1.79
AO01114-4	WR	3.1	3.5	3.0	3.6	3.9	1.66
AO02060-3	WR	3.8	3.3	3.3	3.8	3.6	1.98
AOTX98152-3RU	WR	3.2	3.0	3.5	3.3	2.8	1.77
POR06V12-3	WR	3.1	4.5	3.5	4.3	3.1	1.94
OR05039-4	WR	3.4	1.8	3.0	4.4	4.0	1.96
Russet Norkotah	SWR	3.6	4.4	2.5	3.9	3.6	1.82
CO05024-11RU	SWR	3.0	4.4	3.3	3.4	3.0	1.71
CO05040-1RU	SWR	3.0	3.8	2.5	4.3	3.1	1.97
CO05068-1RU	SWR	3.9	3.1	2.5	3.9	4.3	1.75
CO05110-6RU	SWR	2.9	3.8	2.3	3.6	3.1	1.73
CO05132-2RU	SWR	2.8	4.4	4.0	3.9	3.0	1.78
CO05149-3RU	SWR	2.9	2.9	3.8	4.6	3.6	2.23
CO05152-5RU	SWR	3.8	3.9	3.3	3.8	3.5	1.81
CO05175-1RU	SWR	3.0	3.4	3.0	3.9	2.8	1.81
CO05189-2RU	SWR	4.3	3.0	4.0	4.0	4.3	1.82
CO05189-3RU	SWR	2.9	4.3	4.0	2.9	2.9	1.56
Mean		**3.3**	**3.5**	**3.0**	**3.9**	**3.4**	**1.84**
95% CI		**1.0**	**1.0**	**0.5**	**0.3**	**0.6**	**0.08**

Rating Scales (Tubers evaluated were 8-16 oz. 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 and 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] (%)
Ranger Russet	WR	0	13	28	0	0.8	2.2	4.0	0.9
Russet Burbank	WR	3	8	15	3	1.8	1.3	1.2	0.8
Russet Norkotah	WR	5	0	8	0	2.7	1.8	2.9	1.7
A02138-2	WR	3	5	8	3	0.7	0.2	1.1	0.6
A02424-83LB	WR	0	15	15	0	1.9	0.7	1.8	2.1
A02507-2LB	WR	0	10	8	0	7.9	3.0	4.9	2.8
A03158-2TE	WR	3	8	20	0	1.0	2.0	1.4	1.7
AC00395-2RU	WR	8	8	15	0	0.2	0.5	0.1	1.2
AO01114-4	WR	8	5	10	0	1.6	1.5	0.8	1.8
AO02060-3	WR	3	5	8	0	1.1	2.1	1.0	1.4
AOTX98152-3RU	WR	3	3	10	0	1.9	3.0	2.9	1.8
POR06V12-3	WR	5	0	3	0	1.8	0.2	1.8	3.0
OR05039-4	WR	0	0	18	0	1.7	1.5	1.1	1.8
Russet Norkotah	SWR	5	0	10	0	1.8	1.4	2.5	0.9
CO05024-11RU	SWR	43	8	5	0	0.1	1.0	5.5	1.6
CO05040-1RU	SWR	3	13	20	0	1.2	2.3	4.3	1.1
CO05068-1RU	SWR	10	8	13	0	0.6	1.2	2.0	1.4
CO05110-6RU	SWR	5	18	10	8	0.4	1.5	0.9	1.1
CO05132-2RU	SWR	3	13	8	0	2.9	4.2	0.6	1.0
CO05149-3RU	SWR	60	3	5	0	0.2	2.3	3.4	2.0
CO05152-5RU	SWR	3	8	13	0	0.9	4.0	0.9	0.9
CO05175-1RU	SWR	15	5	0	5	0.7	1.2	5.6	2.6
CO05189-2RU	SWR	0	0	15	0	0.2	0.7	0.1	0.5
CO05189-3RU	SWR	0	8	13	0	0.6	0.6	2.1	0.9
Mean		**8**	**7**	**11**	**1**	**1.4**	**1.7**	**2.2**	**1.5**
95% CI		**7**	**7**	**9**	**1**	**0.9**	**1.0**	**1.2**	**1.0**

[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 and Specific Gravity of Experimental and Standard Russet Skinned Potato Entries.

Clone/Variety	Trial	Verticillium wilt Rating[1] 8/16/2013	Verticillium wilt Rating[1] 8/26/2013	% Stand	Tubers/Plant	Avg. Tuber Size (oz.)	Specific Gravity
Ranger Russet	WR	3.8	5.4	98	7.4	5.7	1.093
Russet Burbank	WR	4.3	7.1	98	8.0	4.8	1.087
Russet Norkotah	WR	7.1	9.0	99	6.7	6.2	1.076
A02138-2	WR	4.8	7.3	95	8.3	5.0	1.098
A02424-83LB	WR	3.9	6.0	99	7.3	4.8	1.099
A02507-2LB	WR	1.8	3.4	85	6.0	6.2	1.088
A03158-2TE	WR	4.5	6.5	98	6.3	7.0	1.087
AC00395-2RU	WR	3.0	4.8	98	7.0	4.9	1.103
AO01114-4	WR	4.1	6.6	100	4.3	5.6	1.100
AO02060-3	WR	4.5	6.3	100	6.4	6.4	1.093
AOTX98152-3RU	WR	5.0	6.7	93	6.3	5.3	1.081
POR06V12-3	WR	3.5	5.3	97	6.5	5.7	1.096
OR05039-4	WR	4.9	6.4	98	4.7	6.9	1.093
Russet Norkotah	SWR	6.8	8.8	100	6.2	7.1	1.075
CO05024-11RU	SWR	6.0	7.5	99	5.7	6.1	1.081
CO05040-1RU	SWR	3.8	5.4	97	8.0	4.3	1.086
CO05068-1RU	SWR	2.9	4.5	99	5.7	6.9	1.099
CO05110-6RU	SWR	5.0	7.4	96	6.1	6.3	1.083
CO05132-2RU	SWR	4.0	5.9	100	3.9	7.2	1.085
CO05149-3RU	SWR	5.5	7.3	97	5.8	6.3	1.087
CO05152-5RU	SWR	5.8	7.5	97	7.2	6.4	1.089
CO05175-1RU	SWR	2.6	4.8	93	4.7	7.2	1.084
CO05189-2RU	SWR	6.0	8.0	97	9.0	4.7	1.079
CO05189-3RU	SWR	5.4	7.3	98	4.2	8.1	1.067
Mean		**4.5**	**6.4**	**97**	**6.3**	**6.1**	**1.080**
95% CI		**0.8**	**0.6**	**2**	**0.4**	**0.2**	**0.003**

[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. 2013 Late Russet Trial Entries.

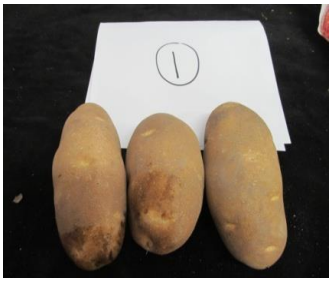
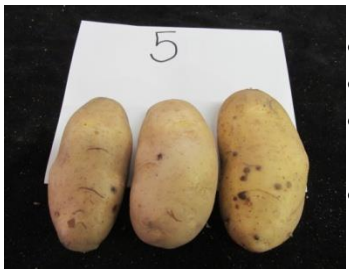
Entry	Tulelake Notes	Entry	Tulelake Notes
Ranger Russet (WR)		**Russet Burbank (WR)**	
	• Moderately resistant to vert. • Long • Deep eyes • 28% vascular discoloration • Specific gravity 1.093		• High yield of 4-8 oz. size • 4.8 oz. average tuber size • Irregular • High tuber set
Russet Norkotah (WR)		**A02138-2 (WR)**	
	• Nice • Uniform • 76% US No. 1's • Good fresh merit score • Vert. susceptible		• Lumpy • Light russeting • Prone to shatter • Blocky shape • High tuber set
A02424-83LB (WR)		**A02507-2LB (WR)**	
	• Prone to shatter • Poor appearance • 15% vascular discoloration • Low fresh merit score		• Poor Appearance • Skins easily • Low US No. 1 yield • Low pack-out revenue • Irregular • High cull yield
A03158-2TE (WR)		**AC00395-2RU (WR)**	
	• Nice • Uniform • 7 oz. average tuber size • 20% vascular discoloration • High yield and pack-out revenue		• Very nice • Uniform • High yield 4-8 oz. size • High fresh merit score • 1.103 specific gravity

Figure 1. 2013 Late Russet Trial Entries Continued.

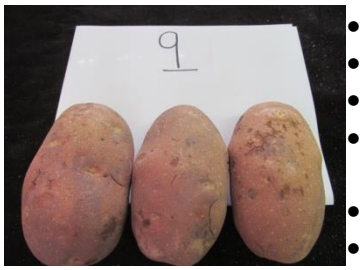
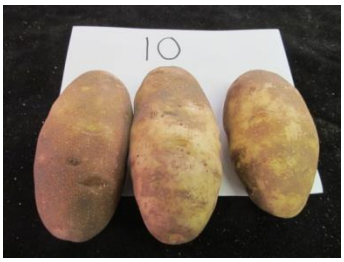
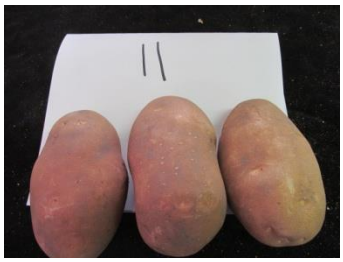
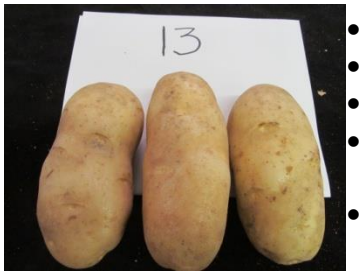
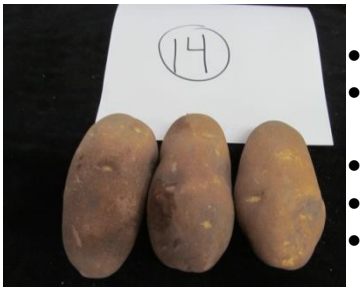
Entry	Tulelake Notes	Entry	Tulelake Notes
AO01114-4 (WR)		**AO02060-3 (WR)**	
	• Fair • Skin Cracking • Low tuber set • 1.100 specific gravity • Uniform shape • Low total yield		• Fair • Skinning • High total yield • Good fresh merit score • Long
AOTX98152-3RU (WR)		**POR06V12-3 (WR)**	
	• Lumpy • Skinning • 1.081 specific gravity • Growth cracks • Irregular shape • Low US No. 1 yield		• Heavy russet • Irregular shape • L/W ratio of 1.94 • Low internal defects • Moderate vert. resistance
OR05039-4 (WR)		**Russet Norkotah (SWR)**	
	• Nice white • Uniform • Shatter • Low tuber set (4.7 per plant) • 18% vascular discoloration		• High total yield • High pack-out revenue • 82% US No. 1's • Heavy russet • Vert. susceptible
CO05024-11RU (SWR)		**CO05040-1RU (SWR)**	
	• Heavy russet • Lumpy • 43% hollow heart • 1.081 specific gravity		• Long • Deep eyes • Low total yield • 58% US No. 1's • 20% vascular discoloration • Moderate vert. resistance

Figure 1. 2013 Late Russet Trial Entries Continued.

Entry	Tulelake Notes	Entry	Tulelake Notes
CO05068-1RU (SWR)		**CO05110-6RU (SWR)**	
	• Skinning • Nice • High US No. 1 yield • 83% US No. 1's • Uniform • Good fresh merit score • Vert. resistance		• Irregular • Fair • 83% US No. 1's • High pack-out revenue • Low fresh merit score • 18% stem end necrosis
CO05132-2RU (SWR)		**CO05149-3RU (SWR)**	
	• Pear shape • Low yield • Low fresh merit score • Heavy russeting • High percent knobs • Low tuber set (3.9 tubers per plant)		• L/W ratio of 2.23 • Very long • Low fresh merit score • 60% hollow heart
CO05152-5RU (SWR)		**CO05175-1RU (SWR)**	
	• Shatter • Irregular • High yield • Good fresh merit score • Good tuber set (7.2 tubers per plant)		• Irregular • Lumpy • 15% hollow heart • Vert. resistance • Low tuber set (4.7 tubers per plant)
CO05189-2RU (SWR)		**CO05189-3RU (SWR)**	
	• Skinning • Shatter • 1.079 specific gravity • High tuber set (9.0 tubers per plant) • Low cull and No. 2 yield		• Flat • Irregular • 1.067 specific gravity • Low tuber set (4.2 tubers per plant) • Good size distribution

Red/Specialty Variety Trial

The Red/Specialty Trial included sixteen 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: skin and flesh color, fresh merit score, tuber shape, tuber uniformity, tubers per plant, and average tuber size. See Tables 5-9 for Red/Specialty trial results and Figure 2 for entry pictures and comments.

Trial Information

Location:	Intermountain Research and Extension Center, Tulelake, CA
Soil Type:	Tulebasin mucky silty clay loam
Planting Date:	May 15, 2013
Vine Kill Date:	August 30, 2013
Days to Vine Kill:	105
Harvest Date:	September 27, 2013
Irrigation:	Solid-set sprinklers; applied water + precipitation = 21.63 inches
Plot Length:	20 Ft
In-Row Spacing:	9.1 Inches
Row Spacing:	36 Inch
Number of Reps:	4
Fertilizer per Acre:	139 lbs N, 40 lbs P205, 100 lbs K20, 36 lbs S
Seed Treatment:	Agri-Fill Premium Fir Bark Dust, Maxim 4FS
Weed Control:	Cultivation, Prowl, Outlook, Roundup (pre-emergence) and Matrix (post-emergence)
Insecticides:	Admire Pro (in-furrow at planting); Movento
Fungicides:	Quadris in-Furrow, Quadris and Bravo Weatherstik
Fumigation:	Vapam
Vine Kill Method:	Rolling and with labeled rates of Reglone

Results

Potato Stand

- Good: A02267-1Y (100%) and CO05211-4R (100%)
- Poor: CO04159-1R (65%) and ATTX01180-1R/Y (86%)

Tuber Count and Size

- **Tubers Per Plant**
  Highest: CO05037-3W/Y (10.0), CO04067-8R/Y (9.8) and CO4099-3W/Y (9.1)
  Lowest: Red LaSoda–WR (5.2) and Red LaSoda-SWR (5.4)

  Average Tuber Size (oz.)
  Largest: Red LaSoda–WR (7.4) and Red LaSoda-SWR (6.9)
  Smallest: CO05037-2R/Y (2.8), CO4067-8R/Y (3.6) and CO05211-4R (3.6)

- **Undersized Tubers- <4 oz. (cwt/acre)**
  Most: CO05037-3W/Y (182) and CO04067-8R/Y (171)
  Least: Red LaSoda-WR (44) and RedLasoda-SWR (47)

Yield

- **Total Yield (cwt/acre)**
  Highest: Chieftan (523) and RedLasoda-WR (436)
  Lowest: CO05037-2R/Y (214) and CO04159-1R (229)

- **U.S. No. 1's Yield (cwt/Acre)**
  Highest: Chieftan (502), CO04099-3W/Y (396) and CO05037-3W/Y (392)
  Lowest: CO05037-2R/Y (209) and CO04159-1R (221)

Tuber Defects

- **Hollow Heart**
  Notable Entries: Yukon Gold-WR (5%)

- **Stem End Necrosis**
  Notable Entries: Chieftan (13%), Yukon Gold-WR (13%) and CO04067-8R/Y (13%)

- **Black-spot Bruise**
  Notable Entries: Yukon Gold-SWR (13%) and CO04067-8R/Y (10%)

Verticillium Wilt Susceptibility Rating

- **Rating, August 26th (0=0 symptoms, 9=90-100% of plants show symptoms of disease)**
  Most Susceptible: AC05175-3P/Y (9), CO05037-3W/Y (8.8) and CO04159-1R (8.8)
  Least Susceptible: A02267-1Y (5.8) and Red LaSoda-WR (5.9)

Table 5. Skin and Flesh Characteristics of Specialty Entries.

Clone/Variety	Trial	Skin Color	Skin Darkness[1]	Flesh Color	Flesh Darkness[1]
Chieftan	WR	**Red**	3.25	**White**	1.00
Red LaSoda	WR	**Red**	3.25	**White**	1.25
NDTX5438-11R	WR	**Red**	4.00	**White**	1.13
CO04159-1R	WR	**Red**	4.00	**White**	1.38
CO04067-8R/Y	WR	**Red**	3.75	**Yellow**	2.88
Yukon Gold	WR	**Yellow**	3.13	**Yellow**	2.75
A02267-1Y	WR	**Yellow**	3.50	**Yellow**	3.00
CO04099-3W/Y	WR	**White**	3.75	**Yellow**	3.25
Yukon Gold	SWR	**Yellow**	3.25	**Yellow**	2.63
AC05175-3P/Y	SWR	**Purple**	5.00	**Yellow**	2.88
ATTX01180-1R/Y	SWR	**Red**	4.00	**Yellow**	2.68
CO05037-2R/Y	SWR	**Red**	3.88	**Yellow**	3.00
CO05037-3W/Y	SWR	**White**	3.50	**Yellow**	3.13
Red LaSoda	SWR	**Red**	3.63	**White**	1.25
CO05211-4R	SWR	**Red**	4.25	**White**	1.13
CO05228-4R	SWR	**Red**	4.00	**White**	1.00
Mean			**3.75**		**2.00**
95% CI			**0.25**		**0.30**

[1]**1=Light, 5=Dark**

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

		Tuber Yield (cwt/A)								
		U.S. No. 1's (cwt/A)								
Clone/Variety	Trial	Total 1's	>14oz	10-14oz	6-10oz	4-6oz	<4oz	Culls	Total Yield	% 1's
Chieftan	WR	502	14	95	194	118	80	20	523	96
Red LaSoda	WR	311	27	67	117	56	44	125	436	72
NDTX5438-11R	WR	376	9	32	159	103	74	18	394	95
CO04159-1R	WR	221	0	8	67	66	80	8	229	97
CO04067-8R/Y	WR	323	0	1	42	109	171	62	384	84
Yukon Gold	WR	361	23	47	133	80	79	21	382	95
A02267-1Y	WR	377	0	12	124	124	118	29	407	93
CO04099-3W/Y	WR	396	1	14	67	138	157	11	407	97
Yukon Gold	SWR	334	34	54	112	76	57	50	384	87
AC05175-3P/Y	SWR	386	7	25	124	116	116	8	394	98
ATTX01180-1R/Y	SWR	325	11	13	88	96	118	13	339	96
CO05037-2R/Y	SWR	209	0	0	2	38	169	5	214	98
CO05037-3W/Y	SWR	392	0	6	68	136	182	11	402	97
Red LaSoda	SWR	358	54	66	123	68	47	65	423	85
CO05211-4R	SWR	267	0	2	44	67	135	18	285	94
CO05228-4R	SWR	294	1	10	63	97	123	13	307	96
Mean		**340**	**11**	**28**	**97**	**94**	**109**	**30**	**369**	**92**
95% CI		**30**	**8**	**14**	**7**	**9**	**11**	**11**	**30**	**2**

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

Clone/Variety	Trial	Merit Score[1]	Eye Depth[2]	Tuber Shape[3]	Shape Uniformity[4]	Length/ Width Ratio[5]
Chieftan	WR	3.8	3.0	2.1	3.8	1.24
Red LaSoda	WR	3.5	2.8	2.3	3.5	1.14
NDTX5438-11R	WR	3.9	3.5	1.5	4.0	1.02
CO04159-1R	WR	3.8	3.8	1.6	4.0	1.07
CO04067-8R/Y	WR	3.3	3.8	1.8	3.8	1.08
Yukon Gold	WR	3.9	3.8	1.9	4.0	1.13
A02267-1Y	WR	4.0	3.5	2.1	4.0	1.06
CO04099-3W/Y	WR	3.9	3.8	2.1	3.5	1.16
Yukon Gold	SWR	4.0	3.8	1.5	4.0	1.10
AC05175-3P/Y	SWR	4.0	3.0	2.3	4.0	1.08
ATTX01180-1R/Y	SWR	4.0	3.8	2.5	3.5	1.17
CO05037-2R/Y	SWR	4.0	4.0	4.0	4.0	1.96
CO05037-3W/Y	SWR	3.9	4.3	1.6	4.0	1.13
Red LaSoda	SWR	3.5	2.8	2.0	3.5	1.11
CO05211-4R	SWR	3.4	3.8	2.6	3.5	1.22
CO05228-4R	SWR	3.9	3.5	2.1	4.0	1.07
Mean		**3.8**	**3.5**	**2.1**	**3.8**	**1.17**
95% CI		**0.2**	**0.3**	**0.7**	**0.3**	**0.04**
		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 and 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] (%)
Chieftan	WR	0	0	13	15	0.6	1.2	0.1	0.5	2.4
Red LaSoda	WR	0	8	5	10	6.3	5.5	0.9	2.6	15
NDTX5438-11R	WR	3	5	0	5	0.1	1.4	0.6	1.2	3.2
CO04159-1R	WR	3	0	8	10	1.0	1.1	0.2	1.0	3.3
CO04067-8R/Y	WR	0	10	13	18	2.4	8.2	0.2	1.1	12.0
Yukon Gold	WR	5	0	13	10	2.5	1.0	0.2	0.4	4.0
A02267-1Y	WR	0	5	3	10	1.9	0.4	0.7	3.6	6.6
CO04099-3W/Y	WR	0	3	5	8	0.5	0.5	0.2	1.5	2.8
Yukon Gold	SWR	3	13	8	13	3.9	4.7	0.2	1.1	9.9
AC05175-3P/Y	SWR	0	0	3	8	0.4	0.7	0.4	0.5	2.0
ATTX01180-1R/Y	SWR	0	0	7	90	0.3	0.9	0.8	0.9	2.9
CO05037-2R/Y	SWR	0	0	5	95	0.0	0.2	0.0	0.8	2.0
CO05037-3W/Y	SWR	0	0	0	13	0.6	0.4	0.0	1.2	2.2
Red LaSoda	SWR	0	0	0	8	2.4	3.7	0.8	1.9	9.0
CO05211-4R	SWR	0	5	10	48	1.9	1.5	0.3	1.4	5.2
CO05228-4R	SWR	3	0	0	10	0.3	1.8	0.2	1.7	4.0
Mean		**1**	**3**	**6**	**23**	**1.6**	**2.1**	**0.4**	**1.3**	**5.4**
95% CI		**NS**	**5**	**NS**	**12**	**0.6**	**1.7**	**0.4**	**0.7**	**1.4**

[1] **10 tubers evaluated from each plot in the 6-10oz tuber**

[2] **Percent of tubers pulled with defects from total tuber count**

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

Clone/Variety	Trial	Verticillium wilt Rating[1] 8/16/2013	Verticillium wilt Rating[1] 8/26/2013	% Stand	Tubers/Plant	Avg. Tuber Size (oz.)	Specific Gravity
Chieftan	WR	4.3	7.3	98	7.9	5.7	1.080
Red LaSoda	WR	3.4	5.9	96	5.2	7.4	1.077
NDTX5438-11R	WR	4.8	7.0	88	7.0	5.4	1.077
CO04159-1R	WR	6.1	8.8	65	7.2	4.1	1.080
CO04067-8R/Y	WR	5.4	7.5	91	9.8	3.6	1.083
Yukon Gold	WR	5.4	7.5	90	6.6	5.4	1.076
A02267-1Y	WR	3.5	5.8	100	7.8	4.4	1.073
CO04099-3W/Y	WR	5.0	6.8	94	9.1	4.0	1.081
Yukon Gold	SWR	5.5	7.8	96	5.6	6.0	1.073
AC05175-3P/Y	SWR	7.9	9.0	94	7.7	4.6	1.081
ATTX01180-1R/Y	SWR	4.0	6.7	86	8.0	4.1	1.077
CO05037-2R/Y	SWR	5.4	7.5	99	6.5	2.8	1.075
CO05037-3W/Y	SWR	6.1	8.8	93	10.0	3.7	1.078
Red LaSoda	SWR	5.8	7.3	96	5.4	6.9	1.085
CO05211-4R	SWR	4.1	6.3	100	6.7	3.6	1.074
CO05228-4R	SWR	4.9	7.0	97	6.8	3.9	1.081
Mean		**5.1**	**7.3**	**92**	**7.3**	**4.7**	**1.078**
95% CI		**0.6**	**0.5**	**3**	**0.5**	**0.2**	**NS**

[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. 2013 Red/ Specialty Trial Entries.

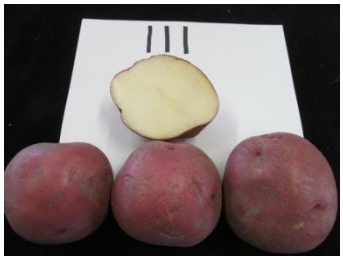
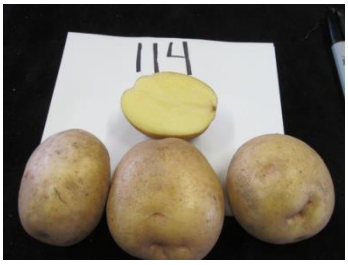
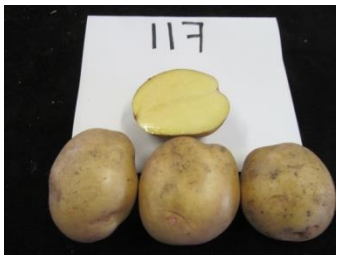
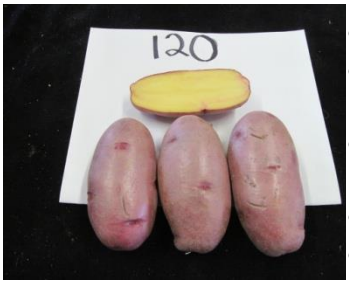
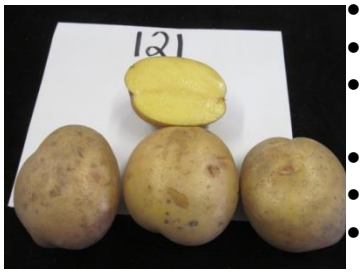
Entry	Tulelake Notes	Entry	Tulelake Notes
Chieftan (WR)		**Red LaSoda (WR)**	
	• White flesh • Very high yield • Good fresh merit score • Good tuber set (7.9 tubers per plant) • Low percentage of culls		• High cull yield • 72% No. 1 yield • Deep eyes • High percentage of knobs • High percentage of growth crack • Moderate vert. resistance
NDTX5438-11R (WR)		**CO04159-1R (WR)**	
	• Dark skin color • 95% No. 1 yield • Good fresh merit score • Very round • Low internal defects • Low culls		• Dark skin color • Poor stand (65%) • Very round • Small average tuber size (4.1 oz. per tuber) • 97% No. 1 yield
CO04067-8R/Y (WR)		**Yukon Gold (WR)**	
	• Yellow flesh • High yield <4 oz. • 18% vascular discoloration • 8.2% tubers with growth cracks • Low fresh merit score		• 95% No. 1 yield • 13% stem end necrosis • Uniform • Good fresh merit score
A02267-1Y (WR)		**CO04099-3W/Y (WR)**	
	• Smaller size profile than Yukon Gold • High fresh merit score • Moderate vert. resistance		• Darker yellow compared to Yukon Gold • Small size profile • Low internal defects • 97% No. 1 yield • High tuber set (9.1 tubers per plant)

Figure 2. 2013 Red Specialty Trial Entries Continued.

Entry	Tulelake Notes	Entry	Tulelake Notes
Yukon Gold (SWR)		**AC05175-3P/Y (SWR)**	
	• Higher percent cull compared to WR Yukon Gold • 13% Black spot bruise • Good fresh merit score • Larger average tuber size (6.0 oz.)		• Dark purple skin • 98% No. 1 yield • Low cull yield • Low internal defects • High fresh merit score • Very round
ATTX01180-1R/Y (SWR)		**CO05037-2R/Y (SWR)**	
	• Dark red skin • 96% No. 1 yield • 90% vascular discoloration • High fresh merit score • Small average tuber size (4.1 oz.)		• Smooth red skin • Low total yield • 95% vascular discoloration • Small average tuber size (2.8 oz.) • Long • Good fresh merit score
CO05037-3W/Y (SWR)		**Red LaSoda (SWR)**	
	• Nice yellow flesh • High yield • Low internal defects • Low percent culls • 97% No. 1 yield • High tuber set (10 tubers per plant)		• Large size profile • Low internal defects • High percent of knobs and growth cracks • Deep eyes
CO05211-4R (SWR)		**CO05228-4R (SWR)**	
	• Dark red skin color • 48% vascular discoloration • Low yield • Small average tuber size (3.6 oz.) • Moderate vert. resistance		• Very round • Dark skin color • Small average tuber size (3.9 oz.) • Uniform • Good fresh merit score

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 2013 Chipping Trial included eleven entries from the Western Regional Variety Trial (WR) and four entries from the Southwest Regional Trial (SWR). Important characteristics for processing chippers include: total yield, tubers per plant, tuber shape, tuber uniformity, average tuber size, and specific gravity. See Tables 10-13 for Chipping Trial results and Figure 3 for entry pictures and comments.

Trial Information

Location:	Intermountain Research and Extension Center, Tulelake, CA
Soil Type:	Tulebasin mucky silty clay loam
Planting Date:	May 13, 2013
Vine Kill Date:	August 30, 2013
Days to Vine Kill:	107
Harvest Date:	September 27, 2013
Irrigation:	Solid-set sprinklers; applied water + precipitation = 21.63 inches
Plot Length:	20 feet
In-Row Spacing:	9.1 Inches
Row Spacing:	36 inches
Number of Reps:	4
Fertilizer per Acre:	139 lbs N, 40 lbs P205, 100 lbs K20, 36 lbs S
Seed Treatment:	Agri-Fill Premium Fir Bark Dust, Maxim 4FS
Weed Control:	Cultivation, Prowl, Outlook, Roundup (pre-emergence), and Matrix (post-emergence)
Insecticides:	Admire Pro (in-furrow at planting), Movento
Fungicides:	Quadris in-Furrow, Quadris and Bravo Weatherstik
Fumigation:	Vapam
Vine Kill Method:	Rolling and with labeled rates of Reglone

Results

Stand Counts

- Good: CO02024-9W (98%) and AC05153-1W (98%)
- Poor: CO02321-4W (88%) and AC03433-1W (91%)

Tuber Count and Size

- **Tubers per Plant**
  Highest: CO02024-9W (10.2) and AC01151-5W (8.8)
  Lowest: Chipeta-SWR (4.9) and Chipeta-WR (5.5)

- **Average Tuber Size (oz.)**
  Largest: Chipeta-SWR (7.0) and Chipeta-WR (6.3)
  Smallest: A00188-3C (4.1), CO02024-9W (3.5) and AC05153-1W (3.8)

- **Undersized Tubers- <4 oz. (cwt/acre)**
  Most: CO02024-9W (214) and AC05153-1W (151)
  Least: Chipeta–SWR (35) and Chipeta-WR (48)

Yield

- **Total Yield (cwt/acre)**
  Highest: Atlantic (454) and CO02321-4W (447)
  Lowest: CO02033-1W (344) and A00188-3C (346)

- **U.S. No. 1's Yield - 4-14 oz. (cwt/acre)**
  Highest: Atlantic (358), CO02321-4W (352) and AC03452-2W (330)
  Lowest: CO02024-9W (196) and AC05153-1W (195)

- **% Yield in the 4-14 oz. Size Class (cwt/acre)**
  Highest: CO03243-3W (80%) and Chipeta-SWR (82%)
  Lowest: AC05153-1W (55%), A00188-3C (61%), CO02033-1W (62%) and AC01151-5W (63%)

Specific Gravity

- Highest: CO02033-1W (1.100), AO0188-3C (1.096) and Atlantic-WR (1.095)
- Lowest: AC00206-2W and AC03452-2W (1.087)

Tuber Defects

- **Hollow Heart**
  Notable Entries: AC03433-1W (33%) and CO02024-9W (10%)

- **Black-spot Bruise**
  Notable Entries: Chipeta-WR (5%) and CO02024-9W (5%)

Disease Susceptibility Rating

- **Verticillium Wilt Rating, August 26th (0=0 symptoms, 9=90-100% of plants show symptoms of disease)**
  Highest: AC05153-1W (8.5), CO05061-6W (8.3) and Atlantic-SWR (7.5)
  Lowest: Chipeta-WR (3.0), Chipeta-SWR (3.8) and AC03433-1W (4.0)

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

		Tuber Yield (cwt/A)								
		U.S. No. 1's (cwt)								
Clone/Variety	Trial	Total 1's	>14oz	10-14oz	6-10oz	4-6oz	<4oz	Culls	Total Yield	% 1's
Atlantic	WR	358	20	51	162	125	83	14	454	79
Chipeta	WR	296	31	65	120	79	48	38	382	77
A00188-3C	WR	210	3	14	87	107	127	9	346	61
AC00206-2W	WR	278	4	34	136	105	79	13	370	75
AC01151-5W	WR	263	1	19	118	126	127	27	417	63
AC03433-1W	WR	267	1	20	134	112	75	18	360	74
AC03452-2W	WR	330	8	41	157	125	82	14	426	78
CO02024-9W	WR	196	0	2	49	145	214	7	416	47
CO02033-1W	WR	212	0	8	95	109	122	10	344	62
CO02321-4W	WR	352	12	42	167	131	86	9	447	79
CO03243-3W	WR	313	15	35	150	113	74	7	394	80
Atlantic	SWR	286	13	47	133	92	72	14	372	77
Chipeta	SWR	309	40	88	125	56	35	36	379	82
AC05153-1W	SWR	195	0	12	73	110	151	6	353	55
CO05061-6W	SWR	265	1	11	103	150	113	4	382	69
Mean		**275**	**10**	**32**	**121**	**112**	**99**	**15**	**389**	**70**
95% CI		**27**	**6**	**11**	**15**	**14**	**16**	**10**	**26**	**4**

Table 11. External Tuber Characteristics of Experimental and 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	WR	3.9	2.0	3.8	2.0	3.9	1.07
Chipeta	WR	3.8	2.0	3.9	2.0	3.9	1.12
A00188-3C	WR	3.6	1.8	4.0	1.9	4.0	1.05
AC00206-2W	WR	4.0	1.5	4.1	1.9	4.0	1.01
AC01151-5W	WR	3.8	1.5	3.9	2.0	3.8	1.10
AC03433-1W	WR	3.6	1.9	4.0	2.0	3.8	1.00
AC03452-2W	WR	4.0	1.4	3.6	1.8	43	0.99
CO02024-9W	WR	3.6	1.5	4.0	2.1	3.6	1.07
CO02033-1W	WR	3.0	1.6	3.9	2.3	3.3	1.12
CO02321-4W	WR	4.0	1.9	4.0	2.0	4.0	1.05
CO03243-3W	WR	4.0	1.5	3.7	1.7	4.2	1.03
Atlantic	SWR	4.0	2.0	4.0	2.3	4.0	1.10
Chipeta	SWR	3.5	2.0	3.9	2.3	3.6	1.13
AC05153-1W	SWR	3.5	1.6	3.8	2.0	3.5	1.06
CO05061-6W	SWR	4.0	2.0	3.4	1.8	4.0	0.98
Mean		**3.8**	**1.8**	**3.9**	**2**	**3.8**	**1.05**
95% CI		**0.3**	**0.2**	**0.3**	**0.3**	**0.2**	**0.03**

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 and 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] (%)	Green[2] (%)	Shatter[3]
Atlantic	WR	3	0	3	8	0.4	0.1	2.7	4.0
Chipeta	WR	0	5	0	0	1.6	0.4	4.8	3.8
A00188-3C	WR	0	0	5	8	1.5	0.5	0.8	3.5
AC00206-2W	WR	5	0	0	15	0.4	0.3	2.7	3.6
AC01151-5W	WR	0	0	3	10	1.3	0.9	3.5	3.8
AC03433-1W	WR	33	0	3	3	0.8	1.1	3.1	3.5
AC03452-2W	WR	0	0	3	5	0.9	0.8	0.8	4.0
CO02024-9W	WR	10	5	5	3	0.1	0.1	1.7	3.6
CO02033-1W	WR	0	3	8	15	0.9	0.1	1.7	2.6
CO02321-4W	WR	0	3	3	0	0.2	0.0	1.9	4.0
CO03243-3W	WR	0	0	3	3	0.8	0.2	0.8	4.3
Atlantic	SWR	3	3	3	5	1.0	0.2	2.7	4.0
Chipeta	SWR	0	0	3	5	3.1	0.4	2.3	3.8
AC05153-1W	SWR	0	3	0	5	0.6	0.1	0.9	3.0
CO05061-6W	SWR	0	0	8	10	0.2	0.2	0.7	4.3
Mean		**4**	**1**	**3**	**6**	**0.9**	**0.4**	**2.1**	**3.7**
95% CI		**6**	**NS**	**5**	**8**	**0.7**	**0.4**	**1.4**	**0.4**

[1] 10 tubers evaluated from each plot in the 6-10oz tuber
[2] Percent of tubers pulled with defects from total tuber count
[3] Visual evaluation of shatter, 1-5 rating, 5 being no shatter.

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

Clone/Variety	Trial	Verticillium wilt Rating[1] 8/16/2013	Verticillium wilt Rating[1] 8/26/2013	% Stand	Tubers/Plant	Avg. Tuber Size (oz.)	Specific Gravity
Atlantic	WR	5.0	6.5	94	7.6	5.4	1.095
Chipeta	WR	2.0	3.0	93	5.5	6.3	1.090
A00188-3C	WR	2.9	4.5	93	7.7	4.1	1.096
AC00206-2W	WR	5.8	7.0	92	6.7	5.0	1.087
AC01151-5W	WR	2.6	5.3	92	8.8	4.3	1.089
AC03433-1W	WR	3.3	4.0	91	6.7	5.0	1.089
AC03452-2W	WR	4.0	4.8	97	7.0	5.3	1.087
CO02024-9W	WR	3.9	5.5	98	10.2	3.5	1.088
CO02033-1W	WR	4.3	7.0	92	7.7	4.1	1.100
CO02321-4W	WR	4.4	5.8	88	8.2	5.2	1.092
CO03243-3W	WR	3.0	4.3	92	6.7	5.3	1.089
Atlantic	SWR	5.0	7.5	94	6.3	5.3	1.093
Chipeta	SWR	2.9	3.8	93	4.9	7.0	1.090
AC05153-1W	SWR	5.5	8.5	98	7.9	3.8	1.089
CO05061-6W	SWR	5.8	8.3	93	7.9	4.4	1.089
Mean		**4.0**	**5.7**	**93**	**7.0**	**4.9**	**1.091**
95% CI		**0.6**	**0.9**	**NS**	**0.5**	**0.2**	**0.004**

[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. 2013 Chipper Trial Entries.

Entry	Tulelake Notes	Entry	Tulelake Notes
Atlantic (WR)		**Chipeta (WR)**	
	• Good size distribution • High yield • Good tuber set (7.6 tubers per plant) • 1.095 specific gravity		• High amount of 6-10 oz. yield • 4.8% green • Good vert. resistance • 1.090 specific gravity
A00188-3C (WR)		**AC00206-2W (WR)**	
	• Round • Low yield • Moderate vert. resistance • Small average tuber size (4.1 oz.) • 1.096 specific gravity		• Good process merit score • High amount of 6-10 oz. yield • Round • 15% vascular discoloration
AC01151-5W (WR)		**AC03433-1W (WR)**	
	• High total yield • High yield of <4 oz. tubers • 10% vascular discoloration • High tuber set (8.8 tubers per plant)		• Low yield • Round • Shallow eyes • 33% hollow heart • Shatter • Moderate vert. resistance
AC03452-2W (WR)		**CO02024-9W (WR)**	
	• High yield • Good size distribution • Low culls • Good process merit score • Moderate vert. resistance		• High <4 oz. tuber yield • Low process merit score • 10% hollow heart • Low average tuber size (3.5 oz.)

Figure 3. 2013 Chipper Trial Entries Continued.

Entry	Tulelake Notes	Entry	Tulelake Notes
CO02033-1W (WR)		**CO02321-4W (WR)**	
	• Low yield • Low process merit score • Severe shatter • 1.100 specific gravity • Small average tuber size (4.1 oz.)		• High yield • Good size distribution • Good process merit score • High tuber set (8.2 tubers per plant) • 1.092 specific gravity
CO03243-3W (WR)		**Atlantic (SWR)**	
	• 80% No. 1 yield • Good size distribution • Uniform • Good process merit score • Moderate vert. resistance		• High yield of 6-10 oz. tubers • Little irregular • Low shatter • 1.093 specific gravity
Chipeta (SWR)		**AC05153-1W (SWR)**	
	• 82% No. 1 yield • Lower process merit score • Good size distribution • High amount of knobs • Low tuber set • Vert. resistance		• Low yield • High amount of <4 oz. yield • Round • Low process merit score • Small average tuber size (3.8 oz.)
CO05061-6W (SWR)			
	• Round • Good process merit score • 10% vascular discoloration • Small average tuber size (4.4 oz.) • 1.089 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 40^0F for 180 days with evaluations at approximately 60, 120, and 180 days after harvest. Chipper varieties were stored in a separate bin at 50^0F 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.