Oregon State University OSU Klamath Basin Research and Extension Center

2011

Klamath Basin Potato Variety Development Summary

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Table of Contents

Notes from Project Leader

The year 2011 was a busy and eventful year for potatoes at KBREC. Seed production and single-hill clone selection which had been the focal mission of OSU potato efforts at Central Oregon was relocated to my program. This added to our workload and required a significant capital investment to modify our storage facility, modify harvesting and grading equipment, and improve facilities (electrical, lighting and heating) to accommodate this added responsibility. Despite all these challenges, I'm grateful for the confidence our Tri-state Cooperators have in our abilities to handle this important task. In a tenuous budgetary environment at OSU, these added responsibilities have made KBREC a key component in our Tri-state partnership.

Introduction

Since its inception in 1985, the Tri-State variety development program has primarily focused on the development of processing and dual-purpose (process and fresh) russets. Recent breeding efforts have focused more on improving genetic resistance to various pests and diseases as a means of lowering production costs. During the past decade, Oregon has been the lead state in the release of eleven russet varieties. Although the development of russet varieties remains the primary focus, recent efforts have included red-skinned and specialty-type selections. Many of these selections offer unique skin and/or flesh color combinations along with enhanced nutritional qualities including elevated antioxidant and Vitamin C content. In total, more than 30 new varieties have been released by the Tri-State variety development program since 1985. More recently Klamath Basin growers have identified the need for chipping potatoes suitable for export markets. Trials were initiated in 2008, with funding from the Oregon Potato Commission, to identify acceptable chipping varieties using advanced selections and recently released varieties from the Tri-State, Southwest, North-central, and Eastern breeding programs. This past season was the fourth year of this continued effort.

During the 2011 growing season, Klamath Basin Research and Extension Center (KBREC) assumed the responsibilities of supplying seed potatoes for statewide, tri-state and regional variety development and breeding efforts. Roughly ten acres were planted, and 1,117 clones were harvested in the fall of 2011. Most of this material will be shipped to cooperators for trialing in the 2012 season.

Screening for resistance to various species of nematodes and related diseases is being accomplished at several locations. KBREC routinely screens selections for resistance to root-knot nematode (*Meloidogyne chitwoodi* and *Meloidogyne hapla*) and corky ringspot disease (CRS) resulting from infection of Tobacco rattle virus which is vectored by stubby-root (*Paratrichodorus* spp.) nematodes. Other cooperating sites within the Tri-State area also work on resistant screening and other production limitations most suited to their respective location. The overall objective is that future releases will offer genetic resistance to many economically important pests and diseases which will help reduce production inputs as these costs continue to rise.

The Klamath Basin Research and Extension Center (KBREC) also serves as an initial field screening location for first-generation selections of russet, specialty, and chipping clones (single-hills). Second-year evaluations of four-hill red/specialty and chip selections also take place in Klamath; however, russet selections are currently sent to the Central Oregon Agricultural Research Center (COARC). Breeding progeny are supplied by programs at the USDA Agricultural Research Service (ARS) facility in Prosser, Washington, and Aberdeen, Idaho, as well as, Oregon State University (OSU), Colorado State University, and North Dakota State University.

The purpose of this summary booklet is to report the results of our variety trial efforts. In 2011, KBREC participated in the following research trials: Russet Preliminary Yield 2 (PYT-2), Statewide Russet, Tri-state Russet, Western Regional Russet, Red/Specialty PYT- 1, Statewide Specialty, Tri-state Specialty, Western Regional Red/Specialty, PYT-1 Chip, modified Western Regional Chip Trial, and a Chip Seed Spacing Trial. A brief summary of weather during the growing season, insect trapping results, single-hill selections, and specialty 4-hill selections are also included in this research summary.

Acknowledgements

The ultimate goal of variety development at OSU-KBREC and cooperating Tri-state partners is the development and commercialization of new potato varieties to benefit the Northwest potato industry. The effect of the Tri-state Potato Variety Development Program on the Northwest potato industry has been substantial. The fresh market industry, French fry processors and chippers have incorporated many varieties developed through this program into their businesses. Ranger Russet, Western Russet, Umatilla Russet, and Alturas are examples of russet cultivars released from the Tri-State program that have greatly benefited the Northwest potato industry. Certified seed acreage of Tristate advanced selections and released varieties totaled nearly 18,650 acres in 2010 which comprised about 17% of all seed certified in the United States. As expected, recently released russet varieties have found greater adoption by Northwest processors compared to fresh market usage in the Klamath Basin. However, several varieties have found fresh market niches in the Klamath Basin including GemStar Russet, Premier Russet, and most recently Classic Russet.

Varieties recently released by the Tri-State program are now produced on over 140,000 acres in the Pacific Northwest with value to growers estimated at approximately $505 million. This impact is expected to increase. A recent economic analysis of the Tri-state breeding effort revealed that every dollar invested in the program results in a $39 return (Araji and Love, 2002). The current focus of Tri-state variety development efforts is to develop improved varieties that increase quality and production efficiency while decreasing fertilizer and pesticide inputs.

The success of OSU-KBREC potato variety development is made possible with funding from USDA CREES, USDA ARS, and the generous support of the Oregon Potato Commission. In addition, the Klamath Potato Growers Association annually contributes to OSU-KBREC research and Extension activities.

References

Araji, A.A. and S. Love. 2002. The economic impact of investment in the Pacific Northwest potato variety development program. **Amer. J. Potato Res.** 79:411-420.

Special Acknowledgment

OSU-KBREC copied the design and layout for this publication from the WSU Potato Cultivar Yield and Postharvest Quality Evaluation publication. This is an excellent publication which provides a vast amount of data in a 'grower friendly' venue. The publication below, by the Washington State University Potato Research Group, can be found at the listed website.

Mark Pavek, Rick Knowles, Zach Holden, Nora Fuller. 2009. Washington State University Potato Research Group, Pullman, WA. **2011 Potato Cultivar Yield and Postharvest Quality Evaluations.** http://www.potatoes.wsu.edu

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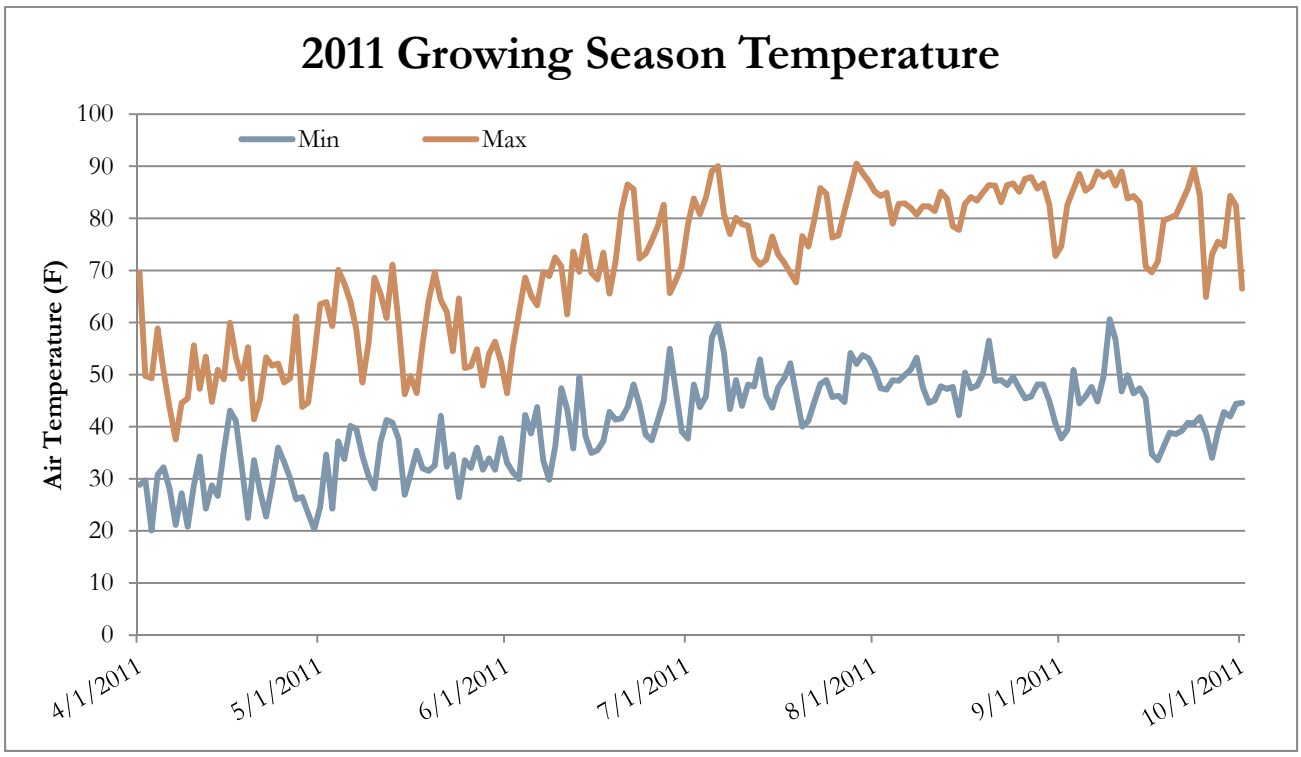
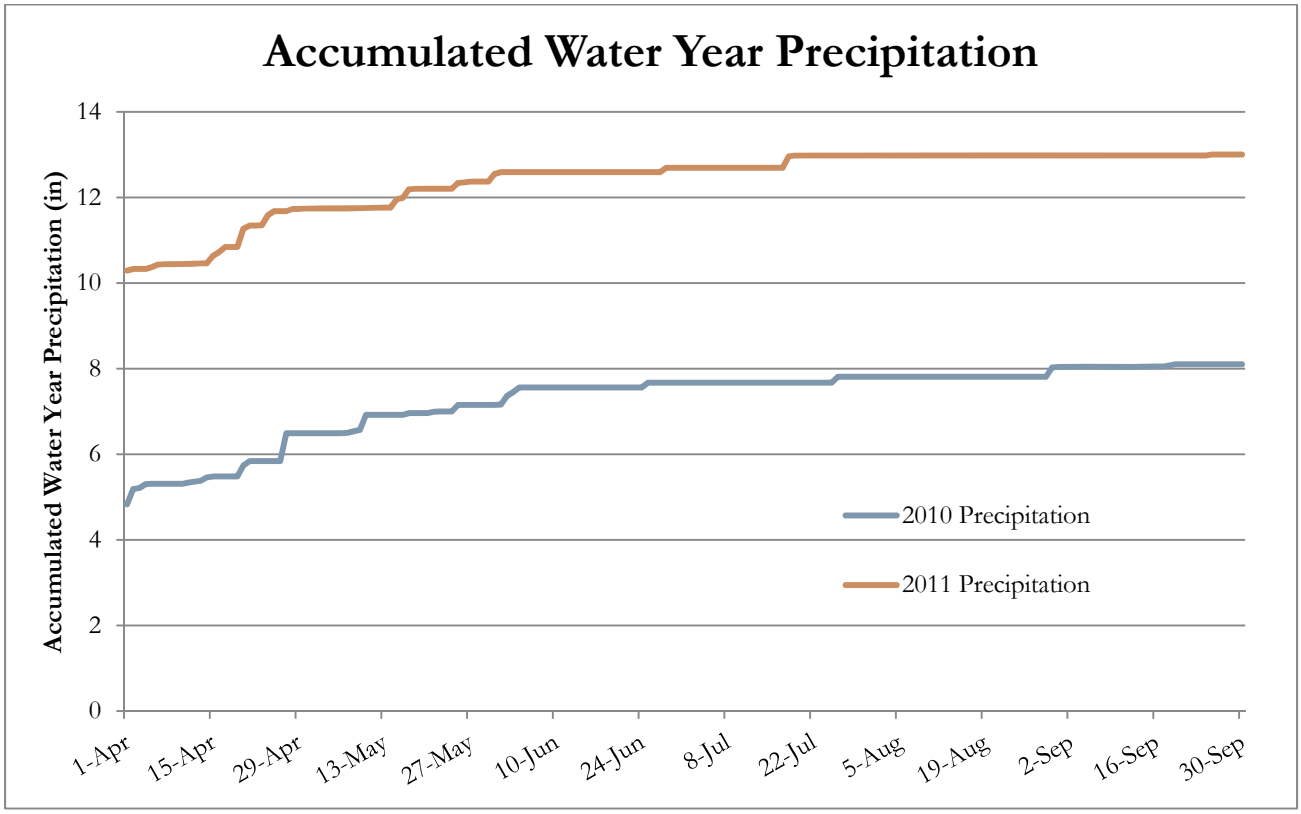
Commissions and Associations

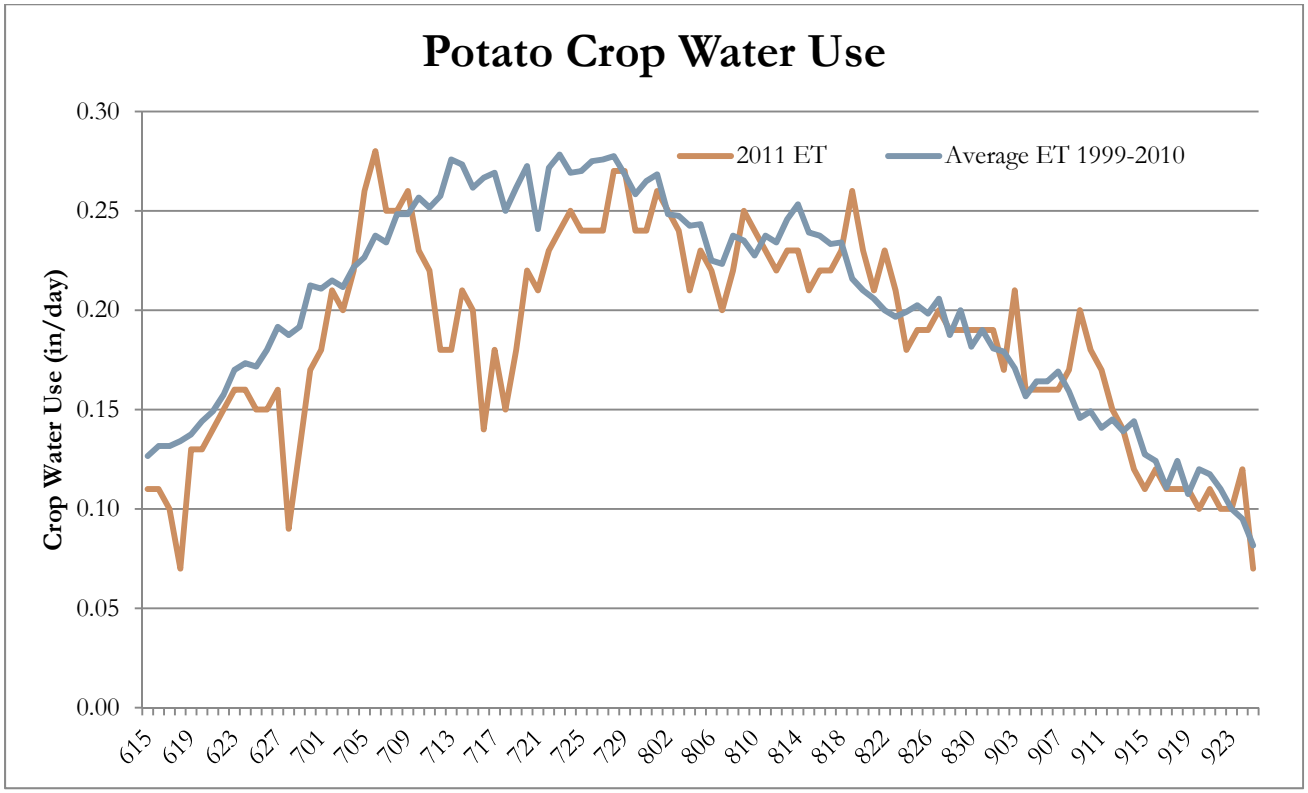
Bill Brewer, Jennifer Fletcher, Judy Schwartz, Oregon Potato Commission, Portland, OR

Klamath Potato Growers Association, Klamath Falls, OR

Weather Data

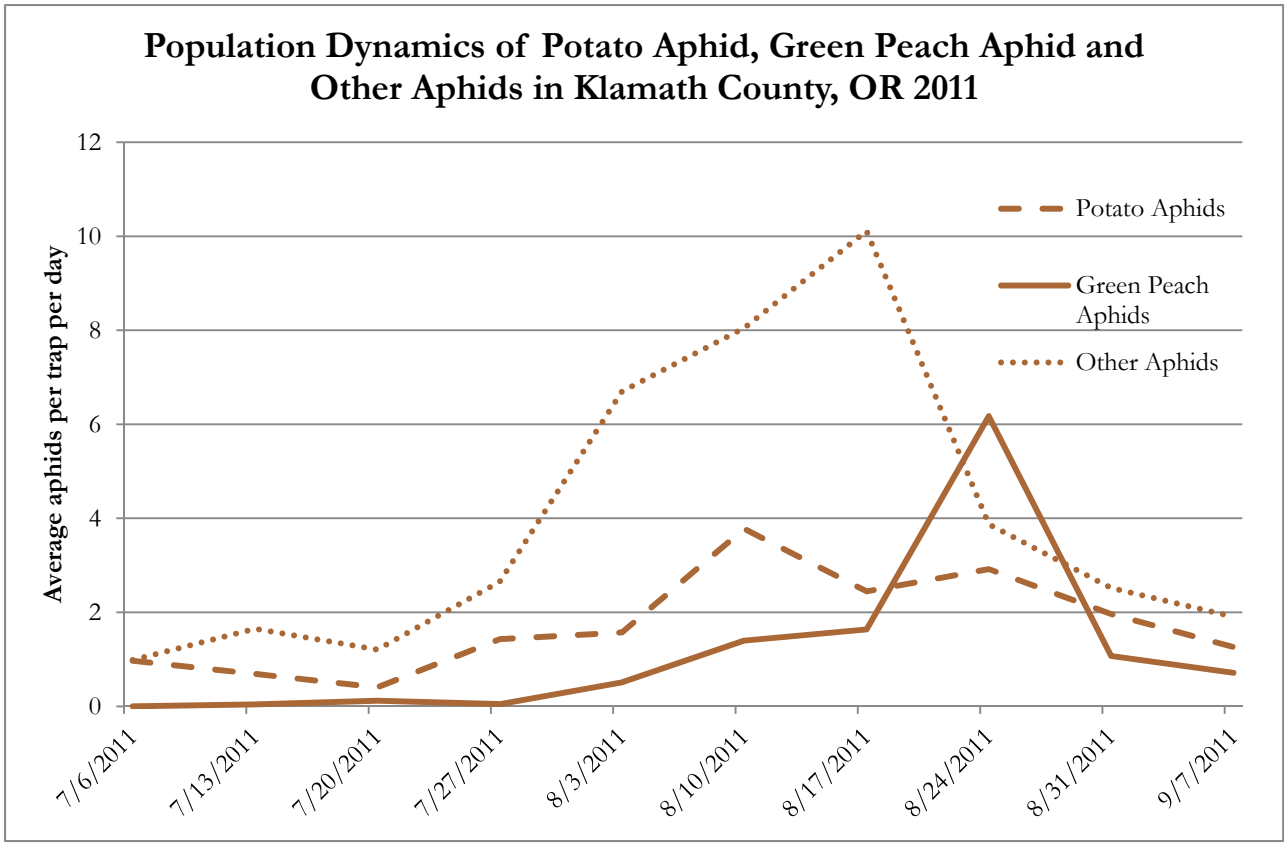


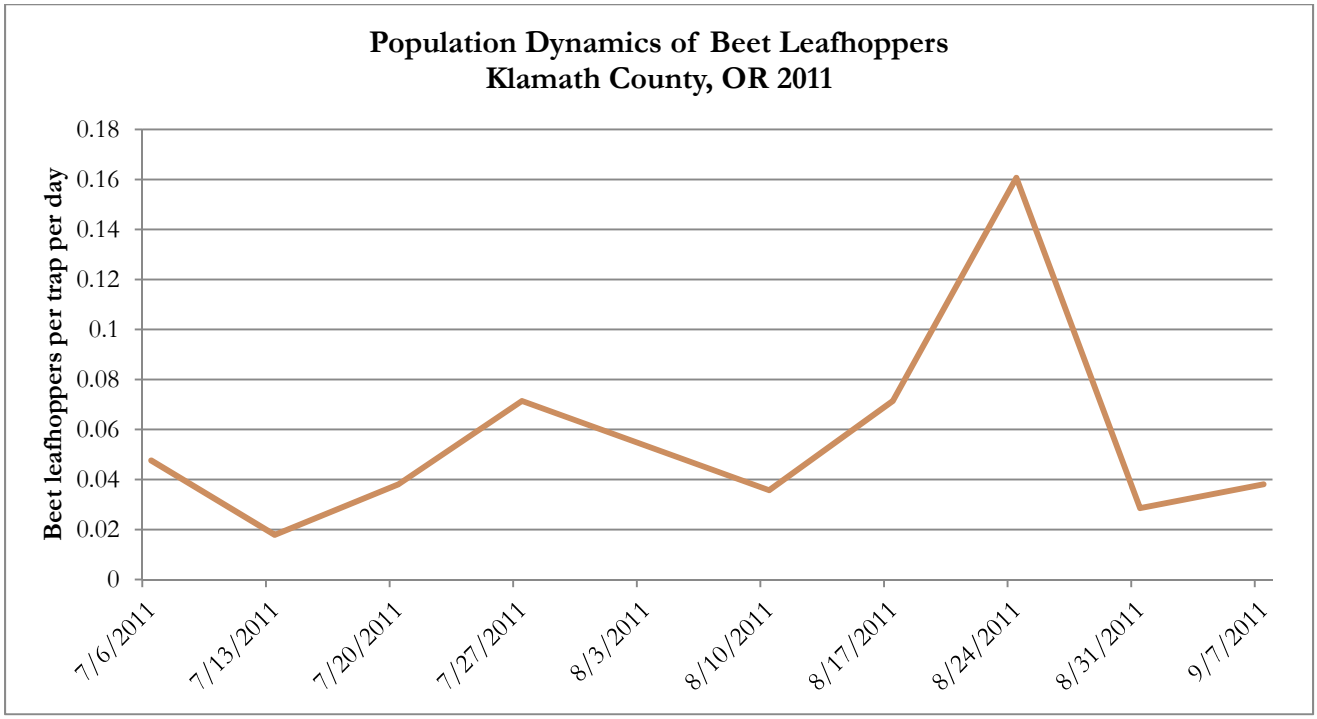


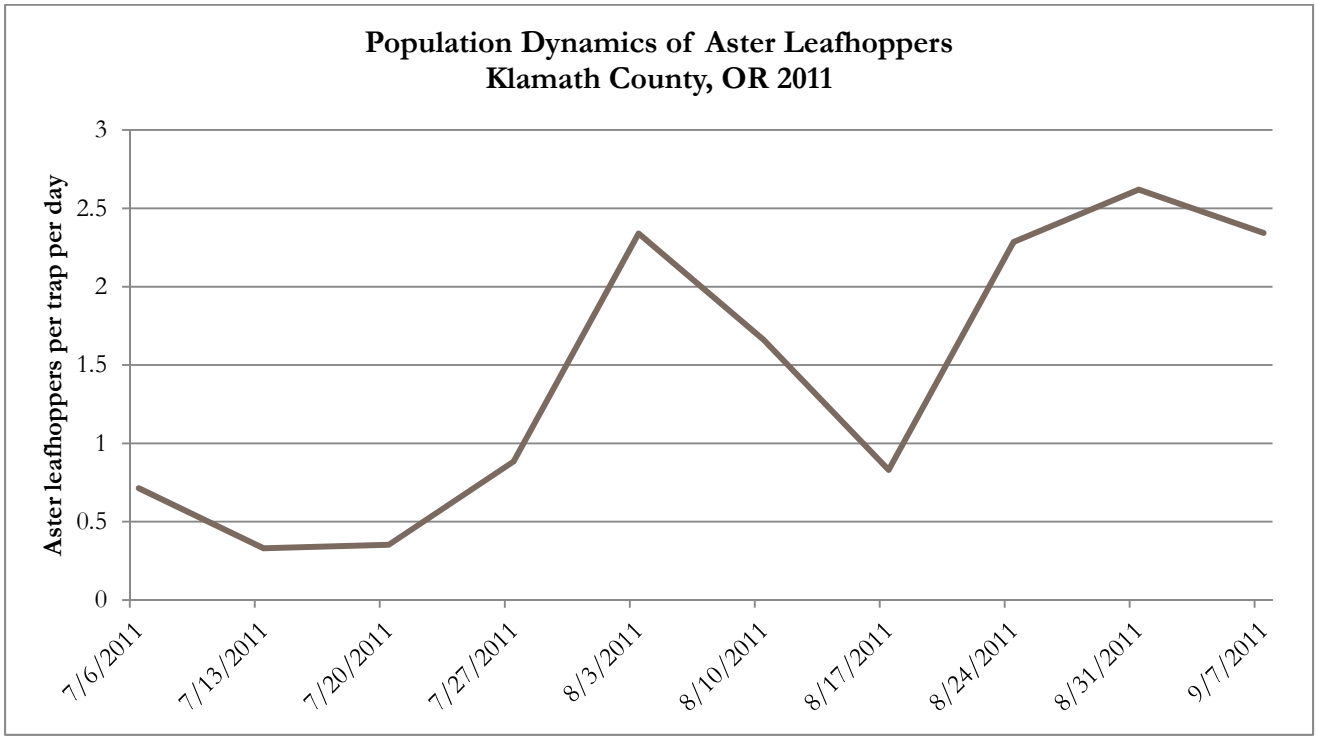

Potato Crop Water Use
Crop Water Use (in/day)
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2011 ET
Average ET 1999-2010
615
619
623
627
701
705
709
713
717
721
725
729
802
806
810
814
818
822
826
830
903
907
911
915
919
923

2011 Insect Trapping Results

Potato tuberworm was first detected in the Klamath Basin in late-August of 2005. KBREC initiated an extensive trapping program the following year (2006) and have continued this effort annually. In 2011, we continued our trapping efforts of aphids, leafhoppers, and psyllids. Sixteen pheromone Delta traps (tuber moth), nine yellow water-pan traps (aphids), and sixteen sticky cards (leafhoppers and psyllids) were placed in growers' fields shortly after crop emergence. Traps were checked weekly during the growing season and results were tabulated and made available to growers, crop consultants, and other industry personnel electronically in newsletter titled *Potato Bytes*. This newsletter was also published on the KBREC website at http://oregonstate.edu/dept/kbrec/. Collected data provided Basin producers with pertinent information to improve pest management strategies. Potato tuberworm has not been found despite an extensive six-year trapping program. We did collect some psyllid species but no potato psyllids were collected in 2011. The following graphs show population dynamic trends for aphids and leafhoppers throughout the growing season.




Population Dynamics of Beet Leafhoppers
Klamath County, OR 2011
Beet leafhoppers per trap per day
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
7/6/2011
7/13/2011
7/20/2011
7/27/2011
8/3/2011
8/10/2011
8/17/2011
8/24/2011
8/31/2011
9/7/2011


Population Dynamics of Aster Leafhoppers
Klamath County, OR 2011
Aster leafhoppers per trap per day
3
2.5
2
1.5
1
0.5
0
7/6/2011
7/13/2011
7/20/2011
7/27/2011
8/3/2011
8/10/2011
8/17/2011
8/24/2011
8/31/2011
9/7/2011

Guide to Clone Designation

Example: AC99375-1RU		
	AC99375-1RU	Breeding Program (**A**berdeen, ID)
	A**C**99375-1RU	Selection Site (**C**olorado)
	AC**99**375-1RU	Year of Cross (19**99**)
	AC99**375**-1RU	Cross Number (**375**)
	AC99375-**1**RU	Tuber Selection (**1**)
	AC99375-1**RU**	Russet (**Ru**)

Location Codes

Designation	Breeding Program	Selection Program	Other
A	**A**berdeen, Idaho	**A**berdeen, Idaho	
AO	**A**berdeen, Idaho	**O**regon	
AOA	**A**berdeen, Idaho	**O**regon	**A**berdeen, Idaho
ATX	**A**berdeen, Idaho	**Tex**as	
BTX	**B**eltsville, Maryland	**T**exas	
CO	**C**olorado		
MWTX	**M**adison, **W**isconsin	**Tex**as	
NDA	**N**orth **D**akota	**A**berdeen, Idaho	
NY	**N**ew **Y**ork		
OR	**O**regon		
PA	**P**rosser, Washington	**A**berdeen, Idaho	
POR	**P**rosser, Washington	**Or**egon	
TC	**T**exas	**C**olorado	
TE	**Te**tonia, Idaho		
TXA	**T**exas	**A**berdeen, Idaho	
TXNS	**Tex**as		**N**orkotah **S**train

Miscellaneous Designations

B	Chuck **B**rown's Cross
LS	**L**ow **S**ugar
P/P	**P**urple skin/**P**urple flesh
R	**R**ed skin
R/R	**R**ed skin/**R**ed flesh
R/Y	**R**ed skin/**Y**ellow flesh
Ru	**Ru**sset
W/Y	**W**hite skin/**Y**ellow flesh
LB	**L**ate **B**light resistance
PW/Y	**P**urple skin with **W**hite eyes/ **Y**ellow flesh
P/Y	**P**urple skin/**Y**ellow flesh
P/PW	**P**urple skin/**P**urple and **W**hite flesh

Single-hill Results

Approximately forty-eight thousand (47,724) greenhouse-produced seedling tubers were planted at a remote site in the Yonna Valley area on June 6, 2011. Located about 25 miles east of Klamath Falls, soils are very sandy with approximately 1.0 percent organic matter and a pH of 7.0. The location provides good isolation from other potato production areas and intensively fumigated soils allows us to harvest very clean material for seed increase. Progeny included 241 families from Oregon State University; 31 from USDA, Prosser, WA; and 233 from USDA, Aberdeen, Idaho. Several crosses included russet parents with virus, late blight and potato tuber worm resistance. Some Idaho progeny were chipping types with several families containing cold-sweetening resistant genes. Others included at least one parent with pigmented flesh color.

Tuber families were lifted with a two-row, level-bed digger on October 5. A selection team including researchers, extension agents, growers and industry personnel selected desirable clones from various families immediately after lifting. As expected, selection was based primarily on external appearance; however, internal evaluation was performed on a limited number of selections. All selected material was retained at the Klamath Basin Research and Extension Center in Klamath Falls, OR. It will be stored in our potato facility, increased for seed, and undergo further selection next season. The following table outlines the number of single-hills provided by each breeding program and selection rate.

Location	General Cross Types	Number of Progeny Planted	Number of Progeny Selected	% Selection Rate
Oregon State University	Disease resistance, mixed type	25,450	488	1.92
ARS Aberdeen, ID	Disease resistance, russet	18,639	169	0.91
ARS Prosser, WA	Disease resistance, pigmented	3,635	39	1.07
Total		**47,724**	**696**	**1.46**

Preliminary Yield (PYT-1) Russet Screening

Six-hundred nine (609) selections from 2010 single-hills were planted in 20-hill seed increase plots at KBREC. Potato tubers were lifted using a two-row, level-bed digger on October 4, 2011. A team of about 20 research and industry personnel selected 47 clones for further evaluation based on market potential and possible disease resistance. Tubers from these selections were retained and stored at KBREC for seed increase. This material will be evaluated in a Preliminary Yield Trial (PYT-2 Russet) conducted at KBREC and other locations throughout the Pacific Northwest in 2012.

Preliminary Yield (PYT-1) Specialty Screening

Ninety-nine (99) selections from 2010 single-hills were planted in 20-hill seed increase plots at KBREC. Potato tubers were lifted using a two-row, level-bed digger on October 4, 2011. A team of about 20 research and industry personnel selected 23 clones for further evaluation based on market potential and possible disease resistance. Tubers from these selections were retained and stored at KBREC for seed increase. This material will be evaluated in a Preliminary Yield Trial (PYT-2 Specialty) conducted at KBREC and other locations throughout the Pacific Northwest in 2012.

Preliminary Yield (PYT-1) Chip Screening

Fifty-nine (59) chip selections from 2010 single-hills were planted in 20-hill seed increase plots at KBREC. Potato tubers were lifted using a two-row, level-bed digger on October 4, 2011. Research and industry personnel selected 14 clones for further evaluation based on chipping potential and possible cold sweetening resistance. Seed of these selections was hand collected and stored at the KBREC potato facilities. This material will be evaluated in a Preliminary Yield Trial (PYT-2 Chip) conducted at KBREC and other locations throughout the Pacific Northwest in 2012. KBREC will also be increasing seed for future evaluation.

Fresh Market Value – Methods

Graphs showing the difference in gross returns per acre (Fresh Market Value) compared to Russet Norkotah are provided for all entries in both the Tri-state and Western Regional Russet Trials. Values were calculated by subtracting the gross return of Russet Norkotah from the gross return of each particular entry. Net packing shed returns to growers were calculated using a four-year average (2004-2007) of fresh potato prices in the Columbia Basin and a packing shed cost of $5.75/cwt. Consultations with several growers and shippers confirmed that these assumptions were valid comparisons to actual prices observed in the Klamath Basin. Assessing the fresh value of a given entry is difficult as packing sheds utilize various tuber sizes to meet current market orders. For example, all tubers that meet 90 or 100 count carton specifications are sometimes used to fill 5 and 10 lb. bale orders. As expected, these types of scenarios are not accounted for in our assumptions. In addition, this type of economic analysis does not account for consumer preference. As such, entries which appear to lack fresh market appeal are highlighted as white bars. The table below lists point prices per tuber size and grade with associated pack fees for grade and size categories used.

KBREC Grade Size	Markets/Packaging[1]	Range of Tuber Sizes for Each Package Type	Four Year Columbia Basin Avg. $/cwt	Packaging and Handling
4-8 oz.	20% to 90 and 100 count	7-9.5 oz.	$14.13	$5.75
	80% to 10 lb. poly bags	4-7 oz.	$9.15	$5.75
8-12 oz.	70, 80, and 90 count	8.5-12.5 oz.	$16.45	$5.75
>12-20 oz.	50 and 60 count	12.5-18 oz.	$17.33	$5.75
<4 oz. and culls	bulk culls	<4 and cull	$1.15	$5.75
No. 2	100 lb burlap sacks	10-20 oz.	$8.60	$5.75

[1]Count = tuber number per 50 lb. carton.

2011 Replicated Trial Cultural Information

Location: Klamath Falls, OR

Soil Type: Poe fine sandy loam, pH 6.8

Planting Date: May 23 for statewide trials, May 25 for PYT2 trials and May 26 for Regional trials

Vine Kill Date: September 12 by rolling of vines and with labeled rates of Reglone and Pro AMS

Harvest Date: October 5 for statewide trials, October 7 for regional trials and October 12 for PYT2 trials

Irrigation: Solid-set sprinkler + natural precipitation = 15.4 inches

Plot Length: 20 hills for PYT2 Russet trial, 40 hills for PYT2 Specialty trial and 25 hills for statewide and regional trials

In-row spacing: 9.25 inches

Row spacing: 36 inches

Number of Reps: 4 reps for statewide and regional trials and 1 rep for PYT2 trials

Fertilizer: 170-75-100-205S

Weed Control:
Cultivation
Matrix (pre and post emergence)
Prowl H2O
Outlook
Eptam 7E

Insecticides:
Admire Pro (in-furrow at planting)
Leverage (aerial)
Endigo (aerial)
Movento (aerial 2X)
Assail 70 WP
Fulfill

Fungicides:
Moncut (in-furrow at planting)
Ridomil Gold Bravo (aerial 2X)

Nematode Control: Soil fumigation with Vapam and Vydate in irrigation

General Comments: Environmental conditions during the growing season were generally favorable, though fields were planted later than normal due to an unusually cool and wet spring. Yields were similar to historic averages. Tuber quality was lower than normal with a higher incidence of impact bruise and tuber rhizoctonia.

2011 Preliminary Yield (PYT-2) Russet Trial

Location: Klamath Falls, OR
Planting Date: May 25
Harvest Date: October 12
Fertility: 170-75-100-205S

Vine Kill Date: September 12
Days to Vine kill: 111
In-Row Spacing: 9.25 inch

The PYT-2 Russet Trial evaluates recently selected clones, often only three years removed from single-hill selection. Retained entries are further evaluated in replicated trials at several Oregon locations before advancing (if applicable) to the Tri-state trial which includes testing locations in Washington and Idaho. Three standard varieties and 117 selections were evaluated with 19 retained for further evaluation in 2012. All selections were based on visual observation for marketability and yield. **Only retained selections are listed in the following tables.**

Clone	Male Parent	Female Parent
OR08014-1	PA99N12-1	A00082-6
OR08014-4	PA99N12-1	A00082-6
OR08040-1	CO97087-2RU	PA00N15-2
OR08055-1	CO97087-2RU	A98082-17
AO06030-5	A99133-6	Premier Russet
AO06103-1	A99049/50-14	A93005-10
AO06187-1	A98345-1	AOA95154-1
AO06191-1	A99134-1	AC92009-4RU
AO07010-1	A99006-2TE	A01054-4
AO07469-2	A01263-4LB	Stirling
COO07025-1KF	AC00033-2RU	CO99053-3RU
COO07092-2KF	CO99199-1RU	AC00033-2RU
COO07240-1KF	AC00487-1RU	CO97087-2RU
AO06092-1KF	A99007-2	A98345-1
AO071020-4KF	A85331-7	Highland Russet
AO06783-1KF	A96953-13	PA03NM5-3
AO06732-1KF	A93575-4	Western Russet
AO06929-3KF	A01749-1	A00715-8
AO061003-1KF	PA03NM3-4	A99031-1TE

2011 Statewide Russet Trial

Location: Klamath Falls, OR
Planting Date: May 23
Harvest Date: October 5
Fertility: 170-75-100-205S
Vine Kill Date: September 12
Days to Vine kill: 109
In-Row Spacing: 9.25 inch

The Statewide Russet Trial evaluates selections retained from the PYT-2 Russet Trial at three locations in Oregon. As mentioned earlier, selections retained from this trial are advanced to the Tri-state Trial which includes testing locations in Washington and Idaho. Testing locations in Oregon represent diverse climatic conditions (hot, long-season and cool, short-season) which allow for the retention of selections that exhibit stability over diverse climatic locations. The following is a summary of the KBREC field results.

Stand Counts

- **30 Day**
  Fast emergence: Ranger Russet (99%) and AO06344-2KF (97%).
  Slow emergence: OR07076-2 (55%), POR08BD1-3 (74%).

- **45 Day**
  Poor emergence: OR07076-2 (86%) and POR08BD1-3 (86%).
  All other entries had greater than 90% final emergence.

Plant Tuber Growth and Development

- **Average Tuber Number Per Plant**
  Most: POR08BDPS6-1 (11.5) and AO06344-2KF (11.2).
  Least: AO05281-6KF (5.1), AO06064-2KF (5.1) and AO05015-6KF (5.2).

- **Average Tuber Size (oz.)**
  Largest: AO05281-6KF (9.7) and AO05015-6KF (9.4).
  Smallest: POR08BDPS6-1 (3.9), AO05015-3KF (4.8), and AO06344-2KF (4.8).

- **Undersized Tubers (<4 oz.) cwt/Acre**
  Most: POR08BDPS6-1 (223) and AO05015-3KF (147).
  Least: AO05281-6KF (11), OR07076-2 (21) and AO06064-2KF (22).

Yield and Economic Data

- **Total Yield (cwt/Acre)**
  Highest: AO06344-2KF (606) and AO05287-2KF (589).
  Lowest: POR08BD1-3 (361) and OR04062-3 (442).

- **US No. 1 Yield (cwt/Acre)**
  Highest: AO05278-1 (434) and AO05281-6KF (4333).
  Lowest: AO05268-1KF (95) and OR07076-2 (116).

- **Carton Yield (8-20 oz.) cwt/Acre**
  Highest: AO05281-6KF (318) and AO05287-2KF (278).
  Lowest: AO05268-1KF (33), POR08BDPS6-1 (67) and OR07076-2 (70).

Tuber Defect Incidence Percentage (40 tuber sample of 8-12 oz. tubers)

- **Hollow Heart**
  Notable Defects: POR08BDPS1-1 (23%), AO05278-1 (15%) and POR08BD1-3 (10%).

- **Stem End Browning**
  Notable Defects: POR06V12-3 (10%).

Entry	Total Yield		US # 1s* > 4 oz.	US # 2s* > 4 oz.	Culls* & <4 oz.	Carton Yield 100-50 count (US 1's 8-20 oz)	
	(cwt/A)	stats**	% of total yield			% of total yield	(cwt/A)
Ranger	536	ABCD	67	17	16	36	193
Russet Burbank	566	ABC	61	15	24	28	157
Russet Norkotah	524	ABCD	68	13	19	35	184
AO03123-2	492	BCD	64	11	25	28	138
AO05015-3KF	497	BCD	49	12	38	19	96
AO05015-6KF	538	ABCD	56	22	23	33	175
AO05268-1KF	492	BCD	19	43	37	7	33
AO05278-1	537	ABCD	81	3	17	48	258
AO05281-1KF	576	ABC	70	6	24	37	211
AO05281-6KF	539	ABCD	80	5	14	59	318
AO05286-1KF	533	ABCD	75	9	16	40	215
AO05287-2KF	589	AB	70	8	23	47	278
AO06001-3KF	474	CD	70	16	14	44	208
AO06007-2KF	489	BCD	58	17	25	34	166
AO06064-2KF	501	ABCD	64	20	16	44	220
AO06068-2KF	519	ABCD	64	14	23	41	215
AO06070-1KF	528	ABCD	65	8	27	31	164
AO06139-2	477	CD	71	12	17	42	199
AO06344-2KF	606	A	70	0	30	40	242
AO06454-1	516	ABCD	76	6	18	43	221
OR04062-3	442	DE	71	7	22	36	158
OR07076-2	457	DE	25	52	22	15	70
POR06V12-3	529	ABCD	57	14	28	25	133
POR08BD1-3	361	E	72	11	17	40	143
POR08BDPS1-1	518	ABCD	69	11	20	38	197
POR08BDPS6-1	524	ABCD	51	5	44	13	67
POR08NCKP2-1	450	DE	59	22	19	39	173

Entry	US # 1 Yield					8-12 oz	Internal Defects (%) 8-12 oz. tubers****			
	>4 oz.		%			Specific				
	(cwt/A)	STATS**	4-8 oz.	8-12 oz.	>12 oz.	Gravity	HH	IBS	BS	SEB
Ranger	360	ABCDEF	36	27	37	1.085	0	0	13	0
Russet Burbank	344	ABCDEFG	54	36	9	1.090	5	0	10	5
Russet Norkotah	356	ABCDEF	45	31	24	1.080	3	0	5	0
AO03123-2	316	CDEFG	56	33	11	1.089	0	0	3	0
AO05015-3KF	246	G	61	30	9	1.079	0	0	15	5
AO05015-6KF	300	EFG	23	33	45	1.073	5	0	0	0
AO05268-1KF	95	H	66	27	7	1.071	0	0	10	0
AO05278-1	434	A	38	38	24	1.091	15	0	13	0
AO05281-1KF	404	ABCD	45	32	24	1.089	0	3	8	3
AO05281-6KF	433	A	20	38	42	1.083	0	5	10	0
AO05286-1KF	399	ABCDE	45	38	17	1.077	0	0	5	0
AO05287-2KF	412	ABC	27	35	39	1.081	0	0	20	0
AO06001-3KF	334	ABCDEFG	36	34	30	1.075	0	0	10	0
AO06007-2KF	286	FG	39	33	27	1.089	3	0	5	8
AO06064-2KF	322	BCDEFG	24	47	29	1.087	3	0	23	3
AO06068-2KF	330	BCDEFG	28	37	35	1.079	0	10	23	0
AO06070-1KF	346	ABCDEFG	53	35	13	1.098	3	0	23	0
AO06139-2	338	ABCDEFG	40	37	23	1.078	0	0	0	0
AO06344-2KF	422	AB	41	34	25	1.077	0	0	3	0
AO06454-1	392	ABCDE	44	40	16	1.086	0	0	10	0
OR04062-3	314	CDEFG	50	37	14	1.094	5	3	5	3
OR07076-2	116	H	35	37	28	1.075	5	0	3	5
POR06V12-3	303	DEFG	56	31	13	1.094	0	0	18	10
POR08BD1-3	260	FG	45	42	13	1.086	10	15	20	0
POR08BDPS1-1	358	ABCDEF	43	41	15	1.097	23	0	8	0
POR08BDPS6-1	267	FG	75	19	7	1.094	3	0	33	8
POR08NCKP2-1	264	FG	32	42	26	1.082	3	0	10	0

Entry	Stand %	Average Tuber		Length/ Width Ratio	Vine Vigor (1-5 large)	Shatter Bruise (1-5 none)	Skin Color (1-5 dark)	Russeting (1-5 hvy)	Uniformity (1-5 ex.)
		Wt. (oz.)	No. tubers/plant						
Ranger	97	8.0	5.9	2.26	3.1	4.1	4.0	4.0	3.6
Russet Burbank	100	5.4	9.0	1.76	4.4	4.5	3.9	3.9	3.7
Russet Norkotah	98	5.7	7.9	1.84	3.8	4.1	4.4	4.8	3.9
AO03123-2	96	5.4	8.1	1.84	3.0	4.3	4.0	4.0	3.9
AO05015-3KF	95	4.8	9.3	2.04	3.3	4.3	4.0	4.0	3.4
AO05015-6KF	94	9.4	5.2	2.06	2.9	4.3	3.9	4.0	3.9
AO05268-1KF	92	5.3	9.1	1.80	3.3	4.0	1.0	1.0	2.0
AO05278-1	93	6.4	7.8	1.74	3.3	4.3	4.3	4.8	4.1
AO05281-1KF	95	6.5	8.0	1.99	3.4	4.3	3.0	3.0	4.0
AO05281-6KF	92	9.7	5.1	1.69	3.0	3.3	3.0	3.0	3.9
AO05286-1KF	92	6.4	7.7	1.83	2.9	4.5	3.0	3.1	3.9
AO05287-2KF	96	7.7	6.8	1.87	3.8	4.1	2.8	2.9	4.1
AO06001-3KF	95	7.5	5.6	1.91	2.7	3.2	4.0	4.2	3.8
AO06007-2KF	96	6.1	7.1	1.70	2.9	3.9	4.8	5.0	3.3
AO06064-2KF	96	8.6	5.1	1.83	2.8	3.5	3.9	4.0	3.4
AO06068-2KF	95	8.2	5.7	2.14	2.7	4.0	3.8	4.0	3.4
AO06070-1KF	98	5.6	8.2	1.66	3.6	3.5	4.0	4.0	4.1
AO06139-2	95	6.7	6.4	1.88	2.9	3.9	4.0	4.1	4.1
AO06344-2KF	95	4.8	11.2	1.12	4.1	3.3	1.0	1.0	3.9
AO06454-1	100	5.8	7.6	1.20	2.8	4.3	4.3	4.2	4.2
OR04062-3	95	5.5	7.3	1.63	2.3	3.6	4.5	4.9	4.1
OR07076-2	86	8.2	5.6	1.85	2.1	4.0	5.0	5.0	2.7
POR06V12-3	95	5.7	8.9	1.83	3.0	4.1	4.5	5.0	3.8
POR08BD1-3	86	5.9	6.1	1.56	2.3	3.8	5.0	5.0	3.8
POR08BDPS1-1	96	5.8	7.9	1.62	3.6	4.1	4.4	4.8	4.2
POR08BDPS6-1	100	3.9	11.5	1.51	3.5	4.5	4.3	5.0	4.3
POR08NCKP2-1	94	6.5	6.2	1.84	2.4	3.9	5.0	17.3	3.1

*Percent values may not total 100% due to rounding

**Entries showing the same letter are not significantly different at the 5% level

***Entries retained for further testing in 2011

********Internal Defects: HH=hollow heart, BC=brown center, IBS=internal brown spot, BS=black spot bruise, SEB=stem end browning, VD=vascular discoloration, HB=hard bite, CRS=corky ring-spot

Entry	2011 KBREC- Statewide Russet Comments
Ranger	Typy, some crooks, fair
Russet Burbank	Typy, small
Russet Norkotah	Slightly rough, small, nice
AO03123-2	Typy, small, short/blocky, keep?
AO05015-3KF	Small, skinny, Pointy stem end, drop
AO05015-6KF	Growth cracks bad, herbicide damage?, keep?
AO05268-1KF	Total junk, pears, drop
AO05278-1	Real typy, very nice, keep
AO05281-1KF	Process only, typy, blotchy skin, keep?
AO05281-6KF	Big, low set, green end, drop
AO05286-1KF	Process only, typy, small, keep?
AO05287-2KF	Process type, green-end, keep?
AO06001-3KF	Typy, crook, drop
AO06007-2KF	Dark, coarse, pointy stem end, drop
AO06064-2KF	Flat, pointy, crook, *Rhizoctonia*, drop
AO06068-2KF	Big, process, fair
AO06070-1KF	Typy, small, low yield, drop
AO06139-2	Growth cracks, thumb nail cracks, typy, keep?
AO06344-2KF	Smooth, chip, keep?
AO06454-1	Very nice, typy, keep
OR04062-3	Typy, coarse, small, drop
OR07076-2	Pointy stem end, No 2's, junk, drop
POR06V12-3	small, b's/bales, drop
POR08BD1-3	Too dark, coarse, small, drop
POR08BDPS1-1	Small, lenticels, drop
POR08BDPS6-1	Short, small, coarse, drop
POR08NCKP2-1	Pointy stem end, crook, drop

2011 Tri-state Russet Trial

Location: Klamath Falls, OR
Planting Date: May 26
Harvest Date: October 7
Fertility: 170-75-100-205S
Vine Kill Date: September 12
Days to Vine kill: 110
In-Row Spacing: 9.25 inch

The Tri-state Russet Trial evaluates advanced selections originating from both Oregon and Idaho statewide trials. Entries are evaluated for both fresh market and processing potential in various locations in Washington, Idaho, and Oregon. Disposition of entries in this trial are determined by the Tri-state Technical Committee and if retained, advance to the Western Regional Russet Trial. The following is a summary of the KBREC field results.

Stand Counts

- **30 Day**
  Fast emergence: A02138-2 (99%), Ranger Russet (97%) and A03158-2TE (97%).
  Slow emergence: A99029-3E (70%).

- **45 Day**
  Poor emergence: AO02060-3 (87%).
  All other entries had at least 90% final emergence.

Plant Tuber Growth and Development

- **Average Tuber Number Per Plant**
  Most: Russet Burbank (7.8), A02144-2 (7.3) and AO02060-3 (7.3).
  Least: Russet Norkotah (4.6), A99029-3E (4.7) and AO01114-4 (4.7).

- **Average Tuber Size (oz.)**
  Largest: A99029-3E (8.4), A03131-4TE (8.4), AO01114-4 (8.4) and A03158-2TE (8.1).
  Smallest: A02144-2 (5.8) and Russet Burbank (5.9).

- **Undersized Tubers (<4 oz.) cwt/Acre**
  Most: A02144-2 (103) and Russet Burbank (92).
  Least: AO01114-4 (28), A99029-3E (30) and A02062-1TE (30).

Yield and Economic Data

- **Total Yield (cwt/Acre)**
  Highest: A03131-4TE (573) and Ranger Russet (562).
  Lowest: OR05039-4 (437), AO01114-4 (442) and A99029-3E (447).

- **US No. 1 Yield (cwt/Acre)**
  Highest: A03131-4TE (487) and A98196-5 (438).
  Lowest: A99029-3E (250) and A02138-2 (291).

- **Percent US No. 1**
  Highest: A03131-4TE (85%) and A98196-5 (84%).
  Lowest: A99029-3E (56%) and Russet Burbank (60%).

- **Carton Yield (8-20 oz.) cwt/Acre**
  Highest: A03131-4TE (344) and A98196-5 (309).
  Lowest: Russet Burbank (134), A02144-2 (140) and A99029-3E (143).

- **Gross Return ($/acre)**
  Fresh Market Highest: A03131-4TE, A98196-5 and A03158-2TE.
  Fresh Market Lowest: A02144-2, Russet Burbank and A02138-2.

Tuber Defect Incidence (40 tuber sample of 8-12 oz. tubers)

- **Hollow Heart**
  Notable Defects: Russet Burbank (15%)

- **Stem-end Browning**
  Notable Defects: A02138-2 (5%).

Entry	Total Yield		US # 1s* > 4 oz.	US # 2s* > 4 oz.	Culls* & <4 oz.	Carton Yield 100-50 count (US 1's 8-20 oz)	
	(cwt/A)	STATS**	% of Total Yield			% of Total Yield	(cwt/A)
Ranger Russet	562	*NS*	68	17	14	40	226
Russet Burbank	514	*NS*	60	12	28	26	134
Russet Norkotah	513	*NS*	71	15	13	45	230
A98196-5	518	*NS*	84	6	9	60	309
A99029-3E	447	*NS*	56	22	22	32	143
A02062-1TE	450	*NS*	79	13	8	53	240
A02138-2	452	*NS*	64	14	22	37	166
A02144-2	487	*NS*	64	8	28	29	140
A02507-2LB	482	*NS*	67	17	15	45	216
A03131-4TE	573	*NS*	85	7	8	60	344
A03158-2TE	524	*NS*	81	8	12	51	268
AO01114-4	442	*NS*	80	7	14	51	227
AO02060-3	502	*NS*	68	13	19	38	193
OR05039-4	437	*NS*	75	9	16	49	214

*Percent values may not total 100% due to rounding
**Entries showing the same letter are not significantly different at the 5% level

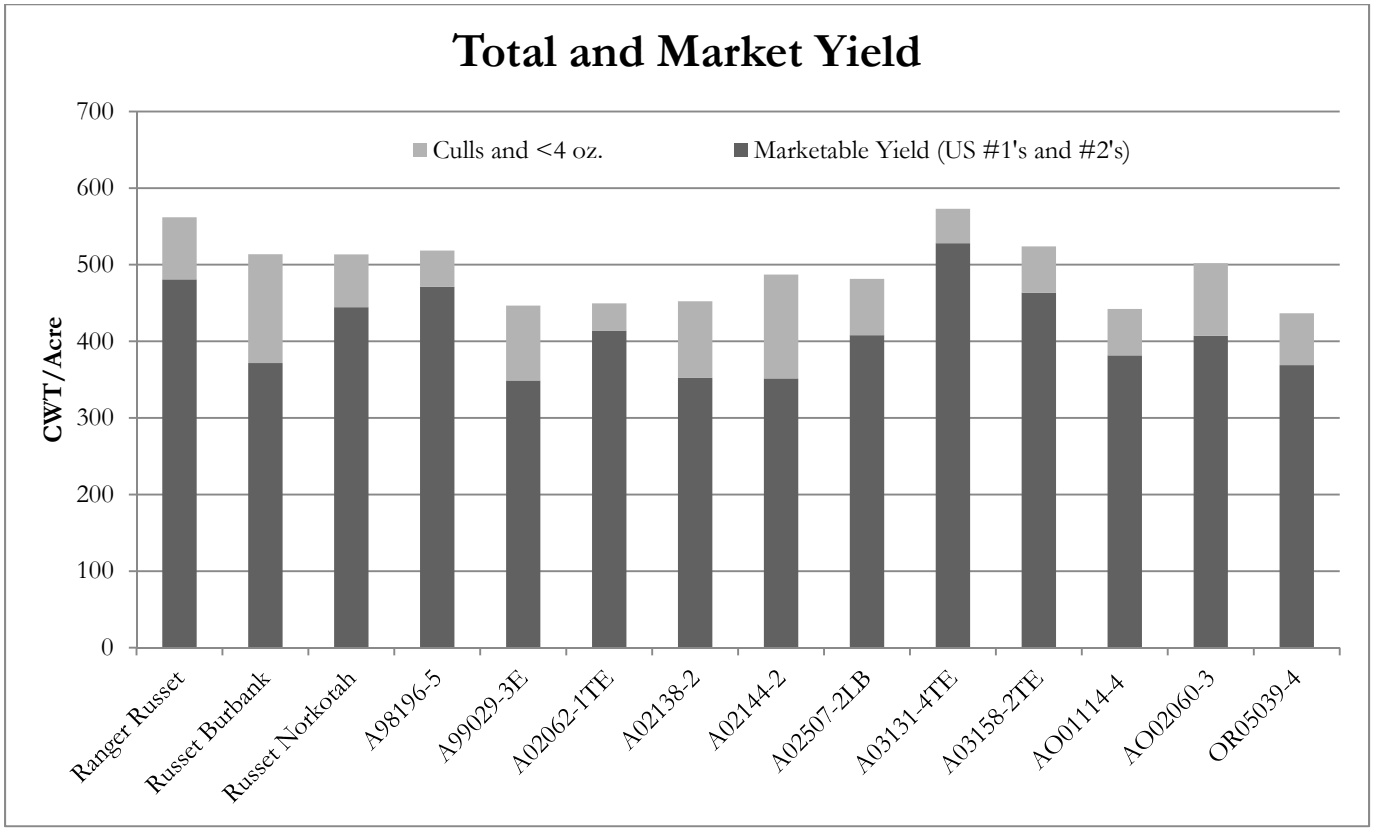
Entry	US # 1 Yield					8-12 oz Specific Gravity	Internal Defects (%) 8-12 oz. tubers***			
	>4 oz. (cwt/A)	STATS**	%* 4-8 oz.	8-12 oz.	>12 oz.		HH	IBS	BS	SEB
Ranger Russet	383	ABCD	29	30	40	1.078	3	0	25	3
Russet Burbank	310	CDE	55	35	9	1.088	15	0	18	0
Russet Norkotah	366	BCDE	24	35	40	1.074	5	3	10	0
A98196-5	438	AB	27	45	27	1.088	0	0	25	0
A99029-3E	250	E	28	38	34	1.087	0	3	23	3
A02062-1TE	354	BCDE	30	41	29	1.084	0	0	18	3
A02138-2	291	DE	41	42	17	1.088	0	0	40	5
A02144-2	310	CDE	55	40	5	1.088	0	3	20	0
A02507-2LB	324	BCDE	28	37	35	1.084	0	0	20	0
A03131-4TE	487	A	20	42	38	1.074	0	0	20	0
A03158-2TE	424	ABC	28	32	40	1.086	0	0	15	3
AO01114-4	352	BCDE	26	35	39	1.087	0	0	20	0
AO02060-3	342	BCDE	38	40	22	1.086	0	0	10	3
OR05039-4	329	BCDE	35	45	20	1.084	0	0	15	0

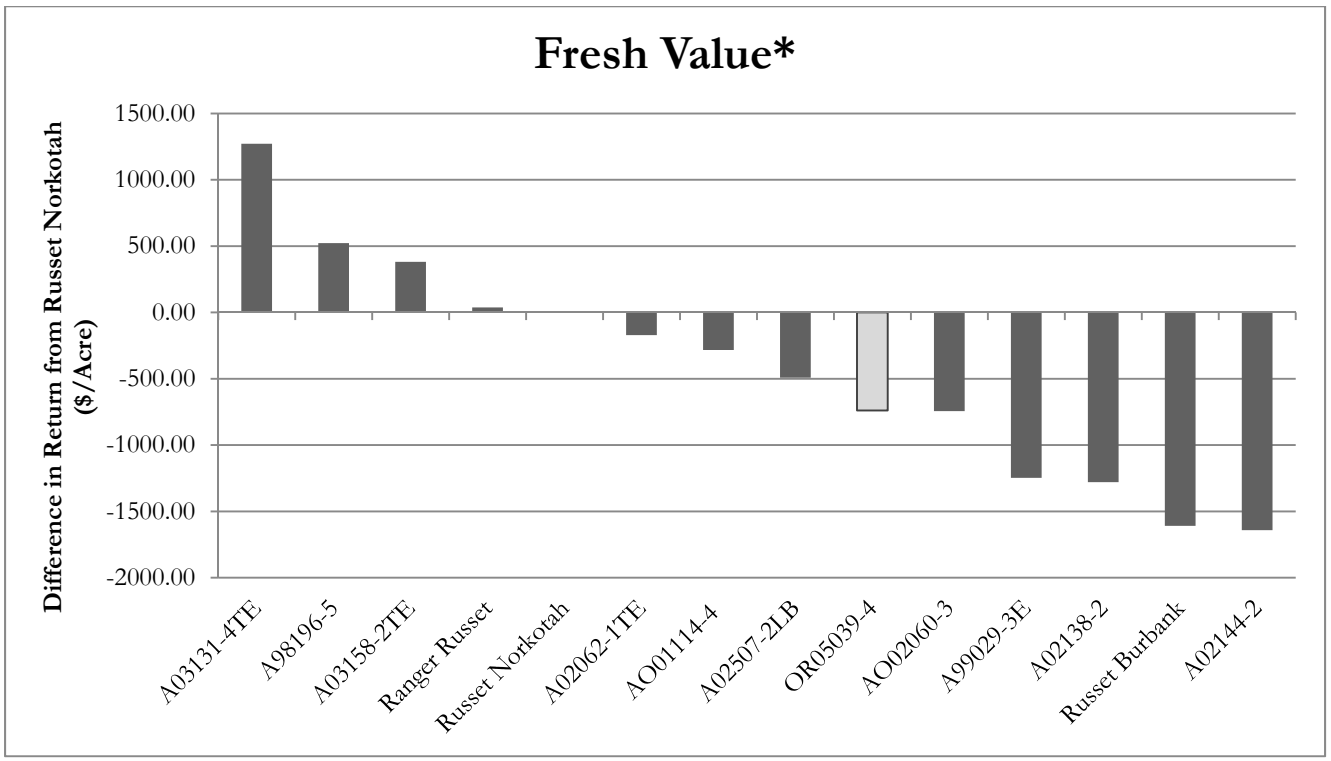
*Percent values may not total 100% due to rounding

**Entries showing the same letter are not significantly different at the 5% level

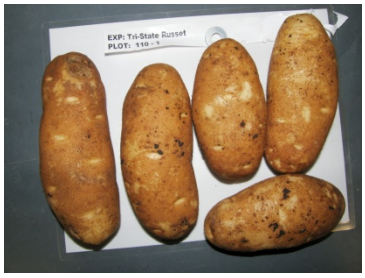
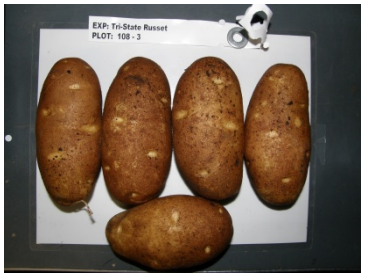
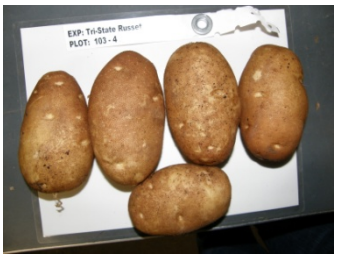
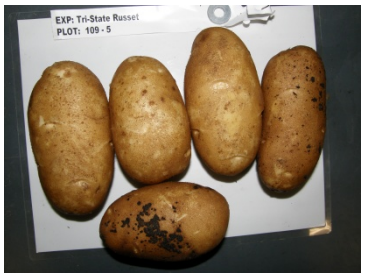
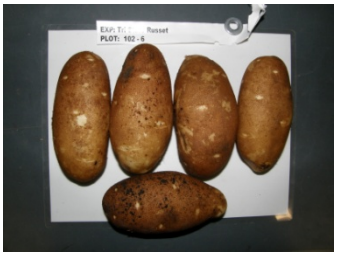
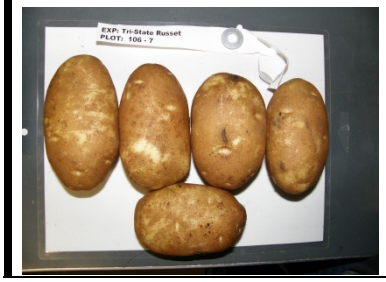
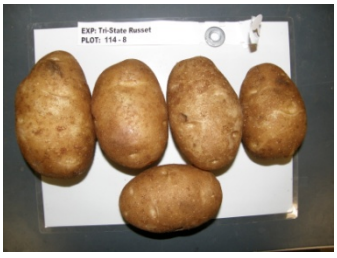
***Internal Defects: HH=hollow heart, BC=brown center, IBS=internal brown spot, BS=black spot bruise, SEB=stem end browning, VD=vascular discoloration, HB=hard bite, CRS=corky ring-spot

Entry	Stand %	Average Tuber Wt. (oz.)	Average Tuber Number tubers/plant	Length/ Width Ratio	Vine Vigor (1-5 large)	Shatter Bruise (1-5 none)	Skin Color (1-5 dark)	Russeting (1-5 hvy)	Uniformity (1-5 ex.)
Ranger Russet	97	7.9	6.3	2.25	3.4	4.1	4.0	3.9	3.1
Russet Burbank	96	5.9	7.8	1.69	3.9	4.4	4.0	4.3	3.1
Russet Norkotah	90	7.8	4.6	1.98	3.6	4.4	4.5	4.6	3.8
A98196-5	96	7.9	5.8	1.63	3.1	4.1	4.3	4.5	4.1
A99029-3E	97	8.4	4.7	1.85	2.3	3.8	3.3	2.5	2.8
A02062-1TE	94	7.9	5.1	2.01	2.9	4.1	4.5	4.6	4.0
A02138-2	99	6.2	6.3	1.59	3.1	3.6	3.8	3.9	3.3
A02144-2	97	5.8	7.3	1.67	3.0	3.6	4.0	4.3	3.8
A02507-2LB	96	7.6	5.7	1.76	2.3	2.6	4.3	4.8	3.6
A03131-4TE	96	8.4	6.1	1.52	3.8	3.6	4.3	4.9	3.9
A03158-2TE	97	8.1	5.6	1.88	3.0	4.4	4.0	4.0	4.3
AO01114-4	97	8.4	4.7	1.67	3.3	3.9	4.0	4.1	4.1
AO02060-3	87	6.8	7.3	1.85	3.6	4.1	4.0	4.4	4.0
OR05039-4	98	7.3	5.2	2.09	3.5	3.9	1.0	1.8	3.6

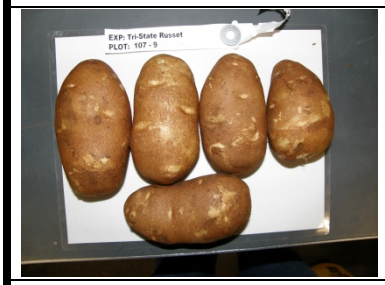

Total and Market Yield
Culls and <4 oz.
Marketable Yield (US #1's and #2's)
CWT/Acre
700
600
500
400
300
200
100
0
Ranger Russet
Russet Burbank
Russet Norkotah
A98196-5
A99029-3E
A02062-1TE
A02138-2
A02144-2
A02507-2LB
A03131-4TE
A03158-2TE
AO01114-4
AO02060-3
OR05039-4



*Difference in gross return per acre (Fresh Value) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with white-colored bars may not appeal to fresh market consumers due to the undesirable shape or appearance. Refer to page 8 for parameters used to collect gross return to growers.

Entry	2011 KBREC-Tri-State Russet Comment	Entry	2011 KBREC-Tri-State Russet Comment
Ranger Russet		**Russet Burbank**	
	Crook, long, process only		Small, knobby, fair
Russet Norkotah		**A98196-5**	
	Typy, nice		Typy, small, ok
A99029-3E		**A02062-1TE**	
	Process, growth cracks, poor		Pointy, long, fresh?
A02138-2		**A02144-2**	
	Short, growth cracks, MS, drop		Short, small, drop

A02507-2LB

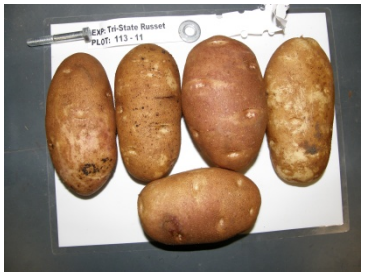


Knobby, pointy, shatter, drop

A03131-4TE

Round, heavy hide, fair

A03158-2TE

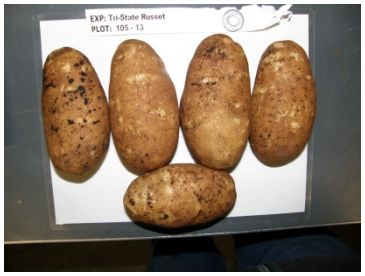


Typy, uniform, nice

AO01114-4

Real nice, typy

AO02060-3



Typy, growth cracks, fair

OR05039-4

Process, fair

2011 Western Regional Russet Trial

Location: Klamath Falls
Planting Date: May 26
Harvest Date: October 7
Fertility: 170-75-100-205S
Vine Kill Date: September 12
Days to Vine kill: 110 days
In-Row Spacing: 9.25 inch

Regional Trials are evaluated at multiple locations in Oregon, Washington, Idaho, Colorado, Texas, and California. Entries graduating from Tri-state and Southwestern (CO, TX, CA) trials are included. Entry disposition is determined by the Western Regional Technical Committee. Entries are typically evaluated for three years (if applicable) before graduating. Upon graduation, sponsoring states (state making initial selection) determine if the selection will be eligible for commercial release and assume the lead role in acquiring Plant Variety Protection (PVP). Three standard varieties and 14 selections were evaluated at KBREC. In most circumstances, a period of 12 to 15 years is required to release a variety following the actual breeding cross and advancement through the Regional Trial. The following is a summary of the KBREC field results.

Stand Counts

- **30 Day**
  Fast emergence: A01010-1 (97%), AOTX96265-2Ru (97%), A02060-3TE (96%), AO96305-3 (96%).
  Slow emergence: CO99100-1RU (82%).

- **45 Day**
  Poor emergence: CO99100-1RU (87%).
  All other entries had greater than 90% emergence.

Plant Tuber Growth and Development

- **Average Tuber Number Per Plant**
  Most: AC99375-1RU (10.7), PA00N14-2 (8.3).
  Least: Russet Norkotah (5.9), AO00057-2 (6.1), CO99100-1RU (6.1), CO99053-3RU (6.2).

- **Average Tuber Size (oz.)**
  Largest: CO99053-3RU (7.8), Russet Norkotah (7.7), and CO99100-1RU (7.7).
  Smallest: AC99375-1RU (4.9), Russet Burbank (5.3), CO99053-4RU (5.3), and PA00N14-2 (5.3).

- **Undersized Tubers (<4 oz.) cwt/Acre**
  Most: AC99375-1RU (147), and Russet Burbank (106).
  Least: CO99053-3RU (32), CO99100-1RU (34), and Russet Norkotah (40).

Yield and Economic Data

- **Total Yield (cwt/Acre)**
  Highest: A98345-1 (589), A02060-3TE (568), and A01025-4 (561).
  Lowest: AO00057-2 (436), CO99053-4RU (451), and Russet Burbank (460).

- **US No. 1 Yield (cwt/Acre)**
  Highest: A98345-1 (442), A02060-3TE (409), and AO96305-3 (409).
  Lowest: Russet Burbank (262), CO99053-4RU (264), and CO99100-1RU (288).

- **Percent US No. 1**
  Highest: A01010-1 (79%), PA00N14-2 (76%), A98345-1 (75%), and AO00057-2 (75%),
  Lowest: Russet Burbank (57%), CO99053-4RU (59%), Ranger Russet (60%), and CO99100-1RU (60%).

- **Carton Yield (8-20 oz.) cwt/Acre**
  Highest: A98345-1 (272), A01025-4 (254), and CO99053-3RU (254).
  Lowest: Russet Burbank (126), CO99053-4RU (150), and PA00N14-2 (150).

- **Gross Return ($/acre)**
  Fresh Market Highest: A98345-1, CO99053-3RU, and A01025-4.
  Fresh Market Lowest: Russet Burbank, CO99053-4RU, and AC99375-1RU.

Tuber Defect Incidence (40 tuber sample of 8-12 oz. tubers)

- **Hollow Heart**
  Notable Defects: Russet Burbank (20%), A02060-3TE (10%), and CO99053-4RU (10%).

- **Stem-end Browning**
  Notable Defects: AOTX96265-2Ru (45%), and Russet Burbank (8%).

Entry	Total Yield		US # 1s* > 4 oz.	US # 2s* > 4 oz.	Culls* & <4 oz.	Carton Yield 100-50 count (US 1's 8-20 oz)	
	(cwt/A)	STATS**	% of Total Yield			% of Total Yield	(cwt/A)
Ranger Russet	509	*NS*	60	20	20	61	186
Russet Burbank	460	*NS*	57	14	29	48	126
Russet Norkotah	508	*NS*	68	18	14	69	236
A98345-1	589	*NS*	75	8	17	62	272
A00324-1	479	*NS*	64	18	19	57	175
A01010-1	518	*NS*	79	6	15	59	240
A01025-4	561	*NS*	72	13	16	63	254
A02060-3TE	568	*NS*	72	8	20	61	250
AC99375-1RU	576	*NS*	63	4	33	49	178
AO00057-2	436	*NS*	75	10	15	63	206
AO02183-2	549	*NS*	66	12	22	60	216
AO96305-3	553	*NS*	74	9	17	59	240
AOTX96265-2Ru	507	*NS*	72	6	22	61	224
CO99053-3RU	531	*NS*	69	19	11	69	254
CO99053-4RU	451	*NS*	59	20	21	57	150
CO99100-1RU	477	*NS*	60	25	14	73	210
PA00N14-2	483	*NS*	76	5	19	41	150

*Percent values may not total 100% due to rounding

**Entries showing the same letter are not significantly different at the 5% level

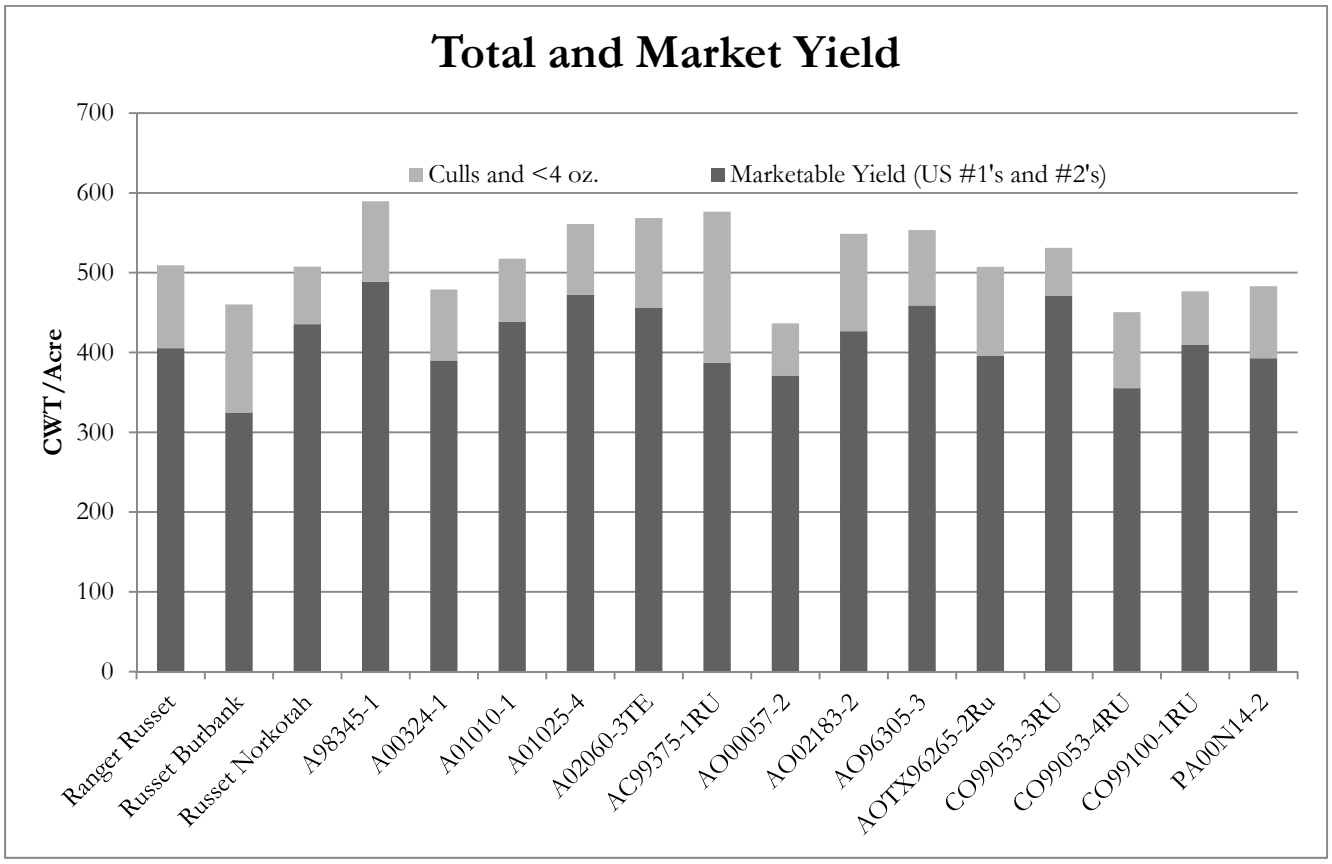
Entry	US # 1 Yield					8-12 oz Specific Gravity	Internal Defects (%) 8-12 oz. tubers***			
			%*							
	>4 oz. (cwt/A)	STATS**	4-8 oz.	8-12 oz.	>12 oz.		HH	IBS	BS	SEB
Ranger Russet	306	CDEF	33	32	35	1.085	0	3	15	5
Russet Burbank	262	F	52	36	12	1.086	20	0	13	8
Russet Norkotah	343	ABCDEF	25	39	37	1.072	0	0	20	3
A98345-1	442	A	36	37	27	1.096	0	0	28	0
A00324-1	306	CDEF	39	34	27	1.078	0	0	28	0
A01010-1	407	AB	41	43	16	1.081	0	5	15	0
A01025-4	402	ABC	37	39	25	1.084	0	0	30	3
A02060-3TE	409	AB	38	38	24	1.090	10	3	30	0
AC99375-1RU	362	ABCDE	50	35	15	1.100	0	3	35	3
AO00057-2	328	BCDEF	37	40	23	1.089	0	0	33	0
AO02183-2	361	ABCDEF	36	36	28	1.094	0	0	30	5
AO96305-3	409	AB	39	37	24	1.089	0	0	25	0
AOTX96265-2Ru	367	ABCD	39	40	21	1.087	0	0	15	45
CO99053-3RU	368	ABCD	25	42	34	1.085	10	0	8	0
CO99053-4RU	264	EF	43	36	21	1.078	0	0	15	0
CO99100-1RU	288	DEF	19	34	47	1.082	8	0	20	3
PA00N14-2	367	ABCD	59	35	5	1.087	0	0	30	0

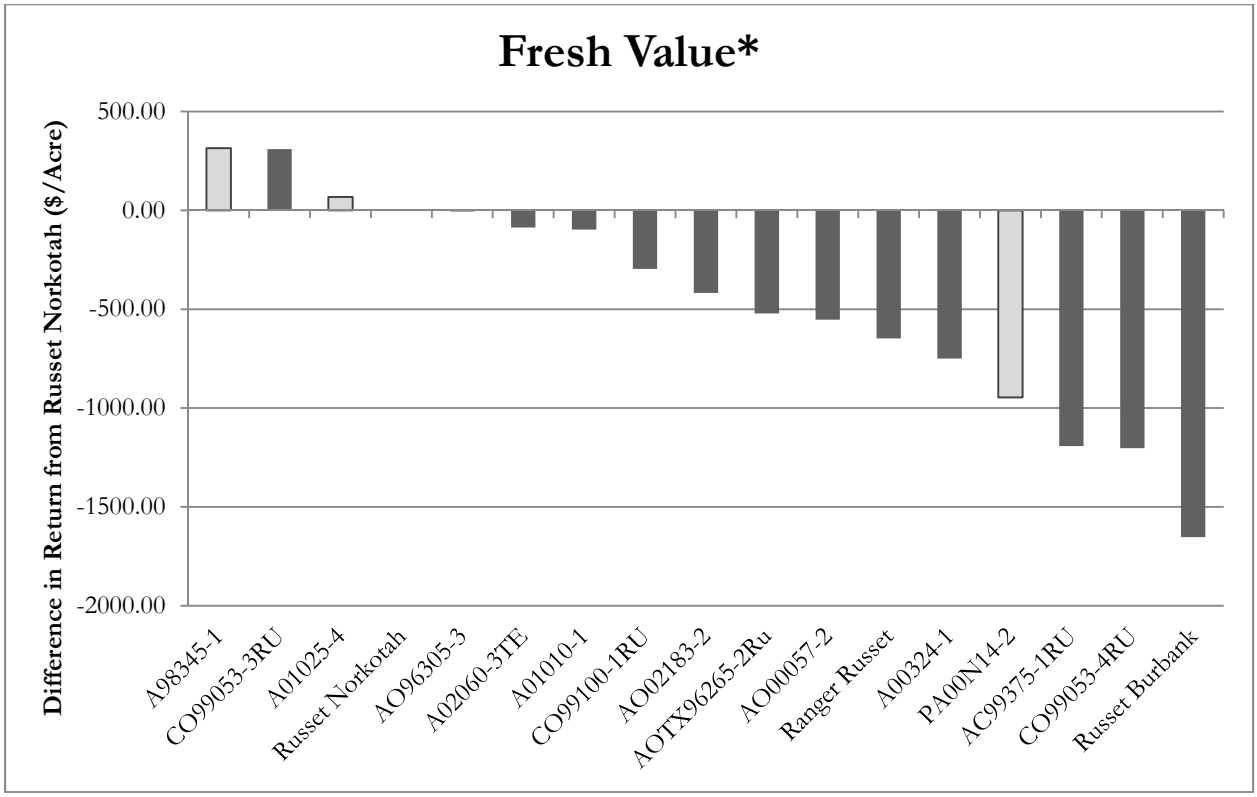
*Percent values may not total 100% due to rounding

**Entries showing the same letter are not significantly different at the 5% level

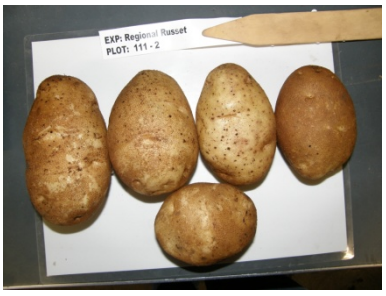
*******Internal Defects: HH=hollow heart, BC=brown center, IBS=internal brown spot, BS=black spot bruise, SEB=stem end browning, VD=vascular discoloration, HB=hard bite, CRS=corky ring-spot,

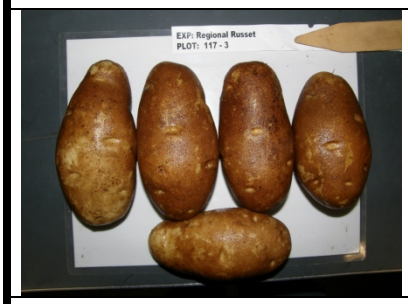
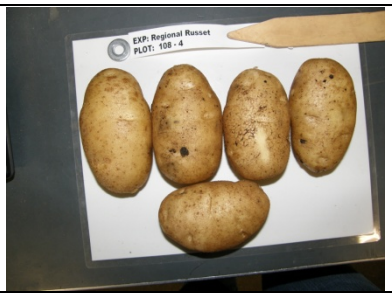
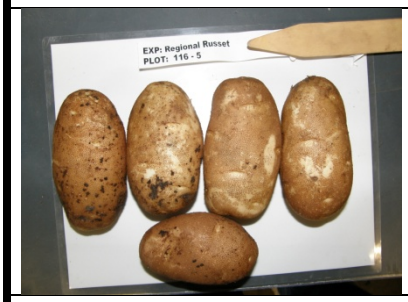
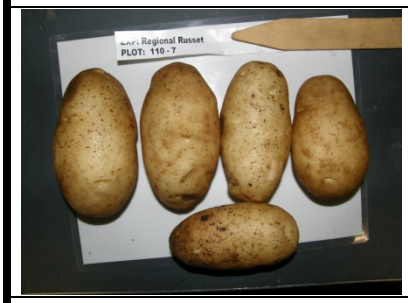
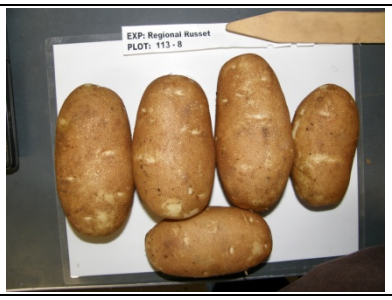
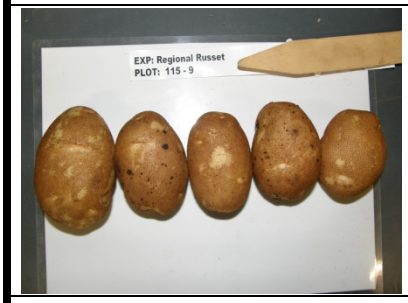
Entry	Stand %	Average Tuber		Length / Width Ratio	Vine Vigor (1-5 large)	Shatter Bruise (1-5 none)	Skin Color (1-5 dark)	Russeting (1-5 hvy)	Uniformity (1-5 ex.)
		Wt. (oz.)	Number tubers/plant						
Ranger Russet	94	7.2	6.6	2.19	3.0	4.1	4.0	4.0	3.5
Russet Burbank	96	5.3	7.7	1.61	3.0	4.4	4.0	4.1	3.6
Russet Norkotah	95	7.7	5.9	1.94	3.3	4.4	4.5	4.6	3.7
A98345-1	96	6.7	7.8	1.56	4.5	3.4	2.0	2.3	3.9
A00324-1	95	6.1	7.0	1.84	3.0	3.8	4.0	4.1	3.8
A01010-1	97	5.9	7.6	1.60	3.8	3.5	4.5	5.0	3.8
A01025-4	95	5.9	8.6	1.82	4.0	3.8	1.5	2.0	3.6
A02060-3TE	96	6.5	7.9	1.89	2.3	4.1	4.0	4.0	4.1
AC99375-1RU	93	4.9	10.7	1.59	3.8	4.0	4.0	4.3	3.9
AO00057-2	94	6.4	6.1	1.71	2.5	4.1	4.0	4.6	3.9
AO02183-2	95	6.7	7.3	2.31	3.0	4.1	4.0	4.1	4.0
AO96305-3	96	6.7	7.3	2.00	3.0	4.1	4.0	3.5	4.3
AOTX96265-2Ru	97	5.8	7.7	1.50	3.5	3.3	4.5	4.3	3.9
CO99053-3RU	95	7.8	6.2	1.70	2.8	4.0	4.0	5.0	3.1
CO99053-4RU	95	5.3	7.7	1.99	4.0	4.1	4.0	4.1	3.9
CO99100-1RU	87	7.7	6.1	1.80	4.0	3.6	4.0	4.4	3.4
PA00N14-2	93	5.3	8.3	2.19	3.0	4.3	3.6	3.5	4.3

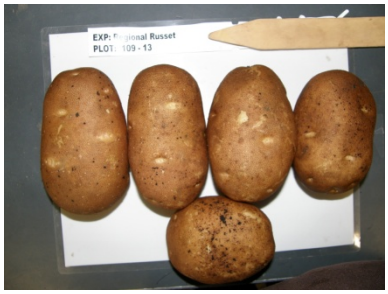
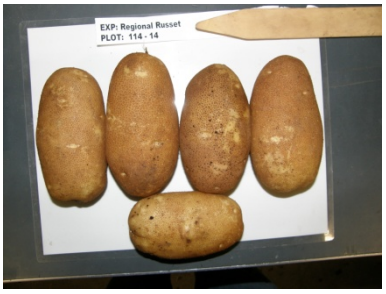
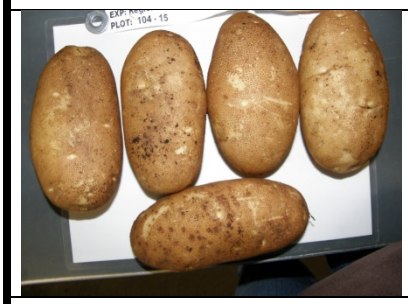
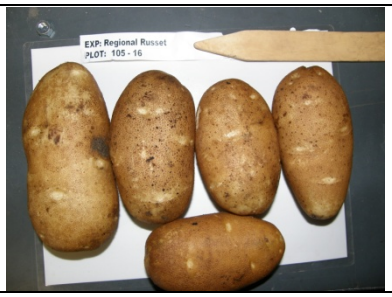
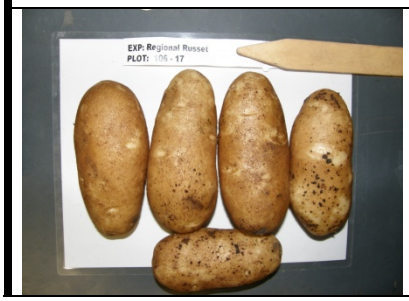




*Difference in gross return per acre (Fresh Value) from Russet Norkotah calculated by subtracting the gross return of Russet Norkotah from the gross return of the particular entry. Entries with white-colored bars may not appeal to fresh market consumers due to the undesirable shape or appearance. Refer to page 8 for parameters used to collect gross return to growers.

Entry	2011 KBREC-Regional Russet Comment	Entry	2011 KBREC-Regional Russet Comment
Ranger Russet		**Russet Burbank**	
	Typy Ranger, crook		Typy, small

Russet Norkotah	**A98345-1**
 Typy, rough RN	 Typy, process, ?
A00324-1	**A01010-1**
 Growth cracks, Rz bad, fair	 Round/short, coarse, drop
A01025-4	**A02060-3TE**
 Process, typy, ok	 Real typy, nice, keep
AC99375-1RU	**AO00057-2**
 B size, small, drop	 Small, short, blocky, typy
AO02183-2	**AO96305-3**
 Blocky, long, Rz bad	 Typy, growth cracks, nice

AOTX96265-2Ru	**CO99053-3RU**
 Short, blocky, shatter, drop	 Flat, coarse, big, drop
CO99053-4RU	**CO99100-1RU**
 Typy, small, drop	 Coarse, big, pointy stem-end
PA00N14-2	
 Small, typy, process	

2011 Preliminary Yield (PYT-2) Specialty Trial

Location: Klamath Falls
Planting Date: May 25
Harvest Date: October 12
Fertility: 170-75-100-205S
Vine Kill Date: September 12
Days to Vine kill: 111 days
In-Row Spacing: 9.25 inch

The PYT-2 Specialty Trial evaluates recently selected clones, often only two years removed from single-hill selection. Retained entries are further evaluated in replicated trials at several Oregon locations before advancing (if applicable) to the Tri-state trial which includes testing locations in Washington and Idaho. Three standard varieties and 12 selections were evaluated with 4 retained for further evaluation in 2012.

Clone	Male Parent	Female Parent
OR08178-1	POR00LB6-2	Carola
POR09PG57-1	Alaska 8-8	ORO04198-1
POR09NCKL3-1	PA98N5-2	POR05PG26-11
PA07NC27-2Y	PA03NM10-4	A99433-5Y

2011 Statewide Specialty Trial

Location: Klamath Falls
Planting Date: May 23
Harvest Date: October 5
Fertility: 170-75-100-205S

Vine Kill Date:
Days to Vine kill: 113 days
In-Row Spacing: 9.25 inch

The Statewide Specialty Trial evaluates selections retained from the PYT-2 Specialty Trial at two locations in Oregon. As mentioned earlier, selections retained from this trial are advanced to the Tri-state Trial which includes testing locations in Washington and Idaho. Testing locations in Oregon represent diverse climatic conditions (hot, long-season and cool, short-season) which allow for the retention of selections that exhibit stability over multiple locations. The following is a summary of the KBREC field results.

Stand Counts

- **30 Day**
  Fast emergence: OR07179-1 (98%), Purple Majesty (97%), C-2604-1 (97%), and OR05112-1 (97%).
  Slow emergence: OR04077-1 (72%).

- **45 Day**
  Poor emergence: OR04077-1 (88%).
  All other entries had greater than 90% final emergence.

Plant Tuber Growth and Development

- **Average Tuber Number Per Plant**
  Most: POR02PG12-1 (16.5), and OR07242-5 (15.0).
  Least: Yukon Gold (4.8), Red LaSoda (7.4), and OR07227-1 (7.7).

- **Average Tuber Size (oz.)**
  Largest: Yukon Gold (8.0), and Red LaSoda (7.3).
  Smallest: POR02PG12-1 (1.7), OR04077-1 (2.4), and POR07PG21-1 (2.8).

- **C Size Tubers (≤ 1.875 inch diameter and <4 oz.) cwt/Acre**
  Most: POR02PG12-1 (205), OR07179-1 (153), POR05PG26-11 (143), and OR07242-5 (139).
  Least: Yukon Gold (10), Red LaSoda (15), and OR07227-1 (29).

- **B Size Tubers (1.875-2.25 inch diameter and <4 oz.) cwt/Acre**
  Most: OR07309-1 (147), OR07242-5 (146), and OR05112-1 (140).
  Least: Yukon Gold (23), Red LaSoda (37), and OR07227-1(42).

Yield Data

- **Total Yield (cwt/Acre)**
  Highest: OR07242-5 (581), Red LaSoda (577), and OR07309-1 (553).
  Lowest: POR02PG12-1 (298), POR07PG21-1 (303), and OR04077-1 (351).

- **US No. 1 Yield (cwt/Acre)**
  Highest: OR07309-1 (528), OR07242-5 (525), and POR07PG3-1 (488).
  Lowest: POR02PG12-1 (277), POR07PG21-1 (279), and OR04077-1 (307).

- **% U.S. #1s**
  Highest: OR04206-3 (96%), OR07179-1 (95%), and OR07309-1 (95%).
  Lowest: Red LaSoda (59%), OR07227-1 (78%), and Purple Majesty (83%).

Tuber Defect Incidence (40 tuber sample)

- **External Defects:** Moderate greening observed in POR07PG3-1. Red LaSoda and OR07227-1 tubers had a high incidence of growth cracks. OR04077-1 tubers showed high resistance to tuber *Rhizoctonia.*

- **Internal Defects**:
  Stem-end Browning: POR07PG20-2 (80%), AO03545-2 (18%) and C-2604-1 (10%).
  Hollow Heart: OR07309-1 had hollow heart in 10% of tubers.

Entry	Skin Color	Primary skin color rating (1-5 dark)	Total Yield		US # 1's > 0 oz.	Culls > 0 oz.	External Defects (1-5 none)			
			(cwt/A)	STATS**	% of Total Yield*		Green	Growth crack	MS/ Knobs	Rhizoc.
Yukon Gold	Yellow	2.0	426	EFG	93	7	4.0	4.9	5.0	3.5
All Blue	---	---	---	---	---	---	---	---	---	---
Purple Majesty	Purple	4.0	526	ABCD	83	17	---	4.3	3.8	4.5
Red LaSoda	White	1.0	577	A	59	41	3.5	1.3	3.5	3.8
C-2604-1	White	1.5	461	BCDEF	89	11	4.0	4.3	4.5	2.8
OR04077-1	Yellow	2.3	351	GH	88	12	4.5	5.0	5.0	5.0
OR04206-3	White	1.6	474	BCDEF	96	4	4.3	4.6	4.9	3.8
OR07179-1	Yellow	3.0	385	FGH	95	5	4.0	5.0	5.0	4.1
OR07227-1	White	1.5	473	BCDEF	78	22	3.6	3.4	4.0	3.0
OR07242-5	Yellow	2.5	581	A	90	10	3.6	4.4	4.4	4.1
OR07286-1	Yellow	2.8	497	ABCDE	88	12	3.6	4.5	4.6	3.1
OR07309-1	Yellow	2.5	553	AB	95	5	3.9	5.0	4.9	4.0
POR07PG3-1	Yellow	2.5	535	ABC	91	9	3.3	5.0	4.8	3.4
POR07PG20-2	Yellow	4.0	434	DEFG	94	6	3.6	5.0	4.9	3.8
POR07PG21-1	Yellow	2.1	303	H	92	8	4.3	4.8	4.5	2.8
AO03545-2	Yellow	1.9	376	FGH	91	9	4.0	4.3	4.8	3.4
OR05112-1	Yellow	2.0	466	BCDEF	85	15	3.9	4.9	4.8	3.4
POR05PG26-11	Yellow	2.5	450	CDEF	90	10	3.5	4.1	5.0	2.8
POR02PG12-1	White	1.4	298	H	93	7	4.4	4.8	5.0	4.0

Entry	US # 1 Yield								Specific Gravity	Internal Defects (%)****			
			%*										
	(cwt/A)	STATS**	C size	B size	4-6 oz.	6-10 oz.	10-14 oz.	>14 oz.		HH	IBS	SEB	HB
Yukon Gold	396	DE	3	6	14	39	25	13	1.086	0	0	8	0
All Blue	---	---	---	---	---	---	---	---	---	---	---	---	---
Purple Majasty	437	BCD	16	22	27	28	7	0	1.081	3	0	0	0
Red LaSoda	342	EFGH	4	11	22	39	19	5	1.075	0	3	0	0
C-2604-1	410	CDE	26	33	26	14	0	0	1.077	0	10	10	0
OR04077-1	307	FGH	41	22	23	13	1	0	1.092	0	0	0	0
OR04206-3	453	ABCD	17	21	28	28	7	0	1.071	0	0	0	0
OR07179-1	366	DEFG	42	29	22	6	1	0	1.092	0	3	0	0
OR07227-1	367	DEF	8	11	18	38	18	6	1.083	0	0	0	0
OR07242-5	525	AB	27	28	23	20	2	0	1.084	0	3	0	0
OR07286-1	436	CD	18	22	30	26	4	0	1.069	0	0	3	0
OR07309-1	528	A	22	28	30	18	3	0	1.077	10	0	0	0
POR07PG3-1	488	ABC	19	26	25	23	6	1	1.078	0	0	0	0
POR07PG20-2	406	CDE	25	25	24	23	3	0	1.067	0	0	80	0
POR07PG21-1	279	GH	38	33	19	10	0	0	1.096	0	0	0	0
AO03545-2	341	EFGH	31	29	26	12	2	0	1.079	0	0	18	0
OR05112-1	396	DE	21	35	36	8	0	0	1.076	0	0	3	0
POR05PG26-11	406	CDE	35	30	23	11	0	0	1.091	0	0	3	0
POR02PG12-1	277	H	74	19	6	1	0	0	1.082	0	0	0	0

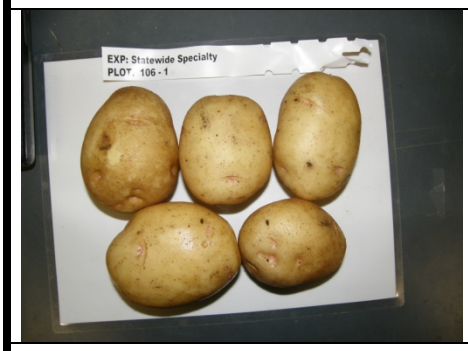
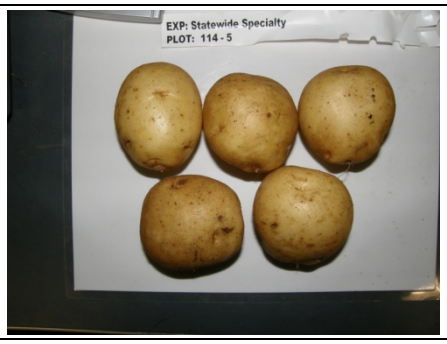
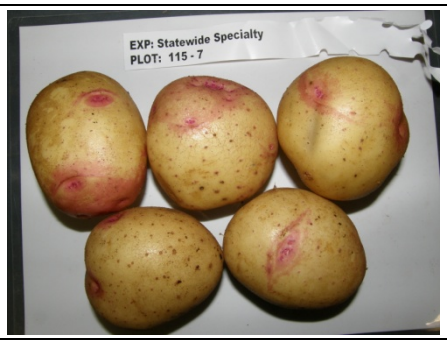
Entry	Stand %	Average Tuber		Vine Vigor (1-5 large)	Shatter Bruise (1-5 none)	Russeting (1-5 hvy)	Size uniformity (1-5 ex.)	Shape uniformity (1-5 ex.)	Eye Depth (1-5 shal.)
		Wt. (oz.)	Number tubers/plant						
Yukon Gold	94	8.0	4.8	3.5	4.3	1.1	3.6	4.3	4.3
All Blue	---	---	---	---	---	---	---	---	---
Purple Majesty	97	4.4	10.4	3.5	5.0	1.5	3.5	2.8	3.8
Red LaSoda	91	7.3	7.4	3.3	3.9	1.0	3.3	2.5	2.3
C-2604-1	98	3.0	13.5	2.5	3.5	1.1	4.4	4.0	3.6
OR04077-1	88	2.4	13.8	3.0	4.5	1.0	4.3	4.5	4.8
OR04206-3	94	3.7	11.7	3.8	4.1	1.0	3.9	4.5	4.5
OR07179-1	98	2.9	11.7	3.0	3.9	2.1	4.6	4.0	3.3
OR07227-1	98	5.3	7.7	4.0	3.4	1.0	3.5	3.4	4.4
OR07242-5	95	3.7	15.0	4.0	4.6	1.0	4.4	4.1	3.5
OR07286-1	94	4.1	11.0	4.5	3.4	1.3	3.8	3.6	4.1
OR07309-1	94	3.6	13.9	5.0	4.8	1.3	4.8	4.4	3.8
POR07PG3-1	96	3.6	13.4	4.0	4.4	1.0	3.9	4.1	4.0
POR07PG20-2	94	3.2	12.5	3.3	4.5	1.1	4.4	4.4	3.9
POR07PG21-1	91	2.8	10.5	2.8	4.9	1.4	4.4	3.9	4.9
AO03545-2	93	3.2	10.8	2.5	4.0	1.5	4.5	4.4	4.0
OR05112-1	97	3.3	12.6	2.5	4.8	1.4	3.5	3.4	4.1
POR05PG26-11	94	2.9	13.9	3.8	4.1	1.0	4.5	3.9	4.0
POR02PG12-1	93	1.7	16.5	3.0	3.8	1.4	5.0	4.0	3.1

*Percent values may not total 100% due to rounding

**Entries showing the same letter are not significantly different at the 5% level

***Entries retained for further testing in 2011

********Internal Defects: HH=hollow heart, BC=brown center, IBS=internal brown spot, SEB=stem end browning, VD=vascular discoloration, HB=hard bite, CRS=corky ring-spot

Entry	2011 KBREC-Statewide Specialty Comment	Entry	2011 KBREC-Statewide Specialty Comment
Yukon Gold		**Purple Majesty**	
	Smooth, few MS, nice		Bronze, culls
Red LaSoda		**C-2604-1**	
	Junk, deep eyes, GC, drop		Sprouts, IB, pears, drop
OR04077-1		**OR04206-3**	
	Var. mix, very smooth, nice, keep		Smooth, nice, 37-2, keep?
OR07179-1		**OR07227-1**	
	Skin feather, TNC, poor, drop		Lenticel scar, junk, use?, drop

OR07242-5

Smooth, lenticel scar, drop

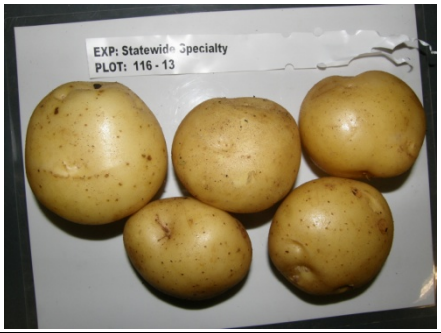
OR07286-1

MS, Yukon look alike, IB, keep?

OR07309-1

Smooth, nice, IB, small, keep

POR07PG3-1

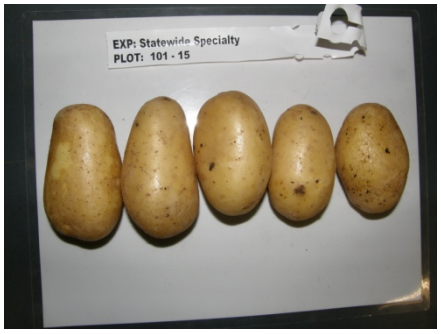


smooth, sprouts, drop

POR07PG20-2

Dark yellow, IB, sprouts, keep?

POR07PG21-1



MS, IB, pear, drop

AO03545-2

Dull, bronzing, fair, drop

OR05112-1

MS, pty rot, crook, drop

POR05PG26-11		POR02PG12-1	
	IB, smooth, small, drop		Process only, IB, BB's, drop

2011 Tri-State Specialty Trial

Location: Klamath Falls
Planting Date: May 26
Harvest Date: October 7
Fertility: 170-75-100-205S
Vine Kill Date: September 12
Days to Vine kill: 110 days
In-Row Spacing: 9.25 inch

The Tri-state Specialty Trial evaluates advanced selections originating from both statewide trials in Oregon and Idaho. Entries are evaluated for both fresh market and processing potential at various locations in Washington, Idaho, and Oregon. Disposition of entries in this trial are determined by the Tri-state Technical Committee and if retained, advance to the Western Regional Russet Trial. The following is a summary of the KBREC field results.

Stand Counts

- **30 Day**
  Fast emergence: NDA070942-1CY (99%), A02267-5PY (98%), COA05100-2 (97%), and Dk Red Norland (96%).
  Slow emergence: A05175-7RY (76%), and Yukon Gold (82%).

- **45 Day**
  Full emergence: Dk Red Norland and NDA070942-1CY.
  Poor emergence: A05175-7RY (91%), and Yukon Gold (93%).
  All other entries had at least 94% emergence.

Plant Tuber Growth and Development

- **Average Tuber Number Per Plant**
  Most: NDA070942-1CY (16.1), COA05100-2 (15.9), and A05201-1Y (15.2).
  Least: Dk Red Norland (7.1), Yukon Gold (7.4), and A05175-7RY (9.9).

- **Average Tuber Size (oz.)**
  Largest: Dk Red Norland (7.1), Yukon Gold (6.4), and A02267-1Y (4.9).
  Smallest: COA05100-2 (3.5), NDA070942-1CY (3.7), and NDA8512C-1R (3.7).

  C Size Tubers (<1.875 inch diameter and <4 oz.) cwt/Acre
  Most: COA05100-2 (98), A05173-6P (95), and A05201-1Y (91).
  Least: Dk Red Norland (12), Yukon Gold (18), A05175-7RY (35), and A02267-1Y (35).

- **B Size Tubers (1.875-2.25 inch diameter and <4 oz.) cwt/Acre**
  Most: A02267-5PY (118), NDA070942-1CY (113), and A05201-1Y (112).
  Least: Yukon Gold (17), Dk Red Norland (27), and A05175-7RY (53).

Yield Data

- **Total Yield (cwt/Acre)**
  Highest: A05201-1Y (740), NDA070942-1CY (696), and COA05100-2 (631).
  Lowest: NDA8512C-1R (447), Yukon Gold (491), and A05175-7RY (522).

- **US No. 1 Yield (cwt/Acre)**
  Highest: A05201-1Y (688), COA05100-2 (589), and NDA070942-1CY (574).
  Lowest: NDA8512C-1R (365), Yukon Gold (438), and A05175-7RY (461).

- **% U.S. #1s**
  Highest: A02267-5PY (93%), A05201-1Y (93%), COA05100-2 (93%), and A05173-6P (91).
  Lowest: NDA8512C-1R (82%), NDA070942-1CY (82%), and A05173-2R (85%).

Tuber Defect Incidence (40 tuber sample)

- **External Defects:** High Incidence of growth cracks observed in NDA070942-1CY, NDA8512C-1R and A05173-2R tubers. A05173-6P tubers showed moderate to high resistance to tuber *Rhizoctonia.*

- **Internal Defects:** Tubers from A02267-5PY had13% internal brown spot and 10% stem-end browning. Tubers from A05175-7RY had 10% hollow heart.

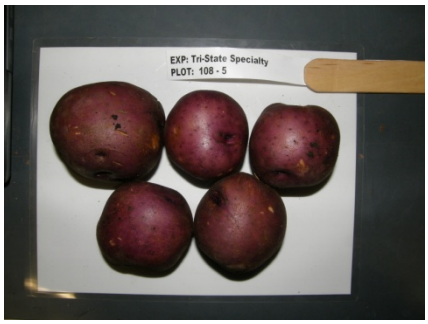
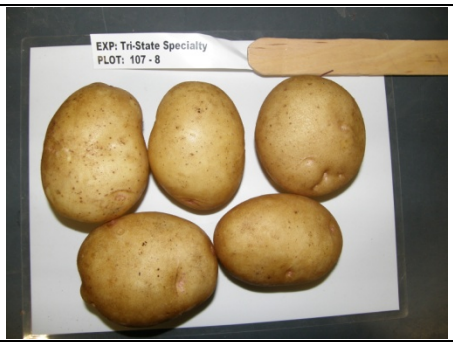
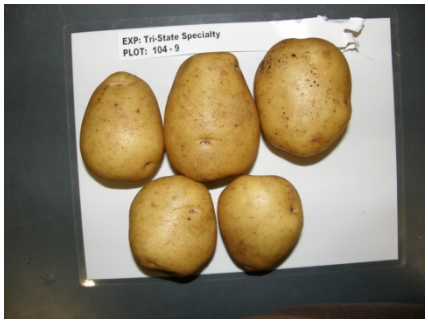
Entry	Skin Color	Skin color rating (1-5 dark)	Flesh Color	Total Yield		US # 1's > 0 oz.	Culls > 0 oz.	External Defects (1-5 none)			
				(cwt/A)	STATS**	% of Total Yield*		Green	Growth crack	MS/ Knobs	Rhiz.
Dk Red Norland	RED	2.6	White	591	BCD	87	13	4.4	3.9	4.3	4.3
A05173-6P	PURPLE	3.9	White	561	CDE	91	9	4.0	4.0	4.5	4.6
NDA050237B-1R	---	---	---	---	---			---	---	---	---
NDA8512C-1R	RED	3.8	White	447	E	82	18	4.3	2.5	5.0	4.1
A02267-5PY	PURPLE	3.0	Yellow	573	BCD	93	7	4.3	4.1	4.3	4.3
A05173-2R	PINK/RED	---	White	608	BCD	85	15	4.1	3.1	5.0	4.5
A05175-7RY	RED/YELLOW	---	Yellow	522	CDE	88	12	3.4	4.1	4.8	3.3
Yukon Gold	YELLOW	1.9	Yellow	491	DE	89	11	4.1	4.5	4.4	4.5
A02267-1Y	YELLOW	2.5	Yellow	621	ABC	86	14	3.5	4.3	4.4	3.1
A05201-1Y	YELLOW	3.1	Yellow	740	A	93	7	4.6	4.3	5.0	4.5
COA05100-2	YELLOW	3.5	Yellow	631	ABC	93	7	4.5	4.1	4.9	4.5
NDA070942-1CY	RED	1.0	Yellow	696	AB	82	18	3.9	2.0	4.6	3.6

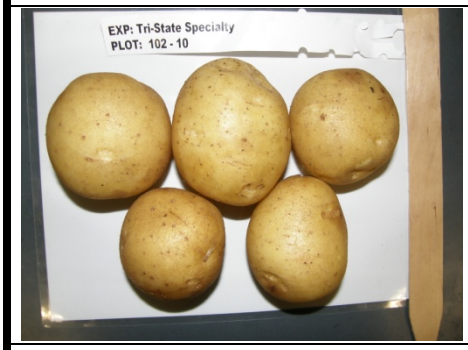
*Percent values may not total 100% due to rounding
**Entries showing the same letter are not significantly different at the 5% level

Entry	US # 1 Yield		%*						Specific Gravity	Internal Defects (%) ***			
	(cwt/A)	STATS**	C size	B size	4-6 oz.	6-10 oz.	10-14 oz.	>14 oz.		HH	IBS	SEB	HB
Dk Red Norland	513	BCD	2	5	16	40	27	9	1.068	0	3	0	0
A05173-6P	512	BCD	19	21	25	26	7	2	1.071	0	0	0	0
NDA050237B-1R	---	---	---	---	---	---	---	---	---	---	---	---	---
NDA8512C-1R	365	E	16	28	26	26	4	0	1.077	0	0	3	0
A02267-5PY	533	BCD	12	22	24	33	8	0	1.085	0	13	10	0
A05173-2R	515	BCD	10	18	23	34	14	1	1.064	0	0	8	0
A05175-7RY	461	CDE	8	12	18	32	20	10	1.075	10	0	0	0
Yukon Gold	438	DE	4	4	13	38	20	22	1.082	0	3	0	0
A02267-1Y	534	BCD	7	15	28	33	14	3	1.078	3	8	3	0
A05201-1Y	688	A	13	16	23	33	11	4	1.079	0	0	3	0
COA05100-2	589	AB	17	17	33	21	11	1	1.067	0	0	0	0
NDA070942-1CY	574	ABC	13	20	27	31	9	0	1.076	0	3	0	0

*Percent values may not total 100% due to rounding
**Entries showing the same letter are not significantly different at the 5% level
***Internal Defects: HH=hollow heart, BC=brown center, IBS=internal brown spot, SEB=stem end browning, VD=vascular discoloration, HB=hard bite, CRS=corky ring-spot

Entry	Stand %	Average Tuber		Vine Vigor (1-5 large)	Shatter Bruise (1-5 none)	Russeting (1-5 hvy)	Size uniformity (1-5 ex.)	Shape uniformity (1-5 ex.)	Eye Depth (1-5 shal.)
		Wt. (oz.)	Number tubers/plant						
Dk Red Norland	100	7.1	7.1	4.3	4.3	1.4	3.9	3.4	3.0
A05173-6P	97	3.9	12.3	3.8	4.4	1.5	3.8	4.0	3.6
NDA050237B-1R	---	---	---	---	---	---	---	---	---
NDA8512C-1R	94	3.7	11.1	3.0	2.4	1.5	4.1	3.8	4.3
A02267-5PY	94	4.0	12.9	4.0	4.4	1.5	4.3	4.1	4.0
A05173-2R	95	4.0	13.7	3.3	4.4	1.0	3.9	4.1	4.3
A05175-7RY	91	4.9	9.9	3.0	4.4	1.3	3.9	3.8	4.0
Yukon Gold	93	6.4	7.4	3.8	4.8	1.1	3.9	4.0	4.4
A02267-1Y	96	4.9	11.5	4.0	4.5	1.0	3.8	3.6	3.0
A05201-1Y	95	4.6	15.2	4.9	4.5	1.9	4.0	4.1	4.1
COA05100-2	97	3.5	15.9	4.3	5.0	2.1	4.3	4.1	4.4
NDA070942-1CY	100	3.7	16.1	5.0	4.4	1.0	4.0	3.9	4.0

Entry	2011 KBREC-Tri-State Specialty Comment	Entry	2011 KBREC-Tri-State Specialty Comment
Dark Red Norland		**A05173-6P**	
	70% bronze cull, smooth		Bronzing, MS, ok
NDA8512C-1R		**A02267-5PY**	
	GC, SB, 50% bronze cull		40% bronze cull, smooth, fair
A05173-2R		**A05175-7RY**	
	GC, smooth, ok		inconsistant R/Y, smooth, drop
Yukon Gold		**A02267-1Y**	
	smooth, few MS		Smooth, MS, IB

A05201-1Y	**COA05100-2**
 Lenticel scar, no shine, ok	 Russeted yellow, keep
NDA070942-1CY	
 GC, pale pink, smooth, drop	

2011 Regional Specialty Trial

Location: Klamath Falls
Planting Date: May 26
Harvest Date: October 7
Fertility: 170-75-100-205S
Vine Kill Date: September 12
Days to Vine kill: 110 days
In-Row Spacing: 9.25 inch

Regional Trials are evaluated at multiple locations in Oregon, Washington, Idaho, Colorado, Texas, and California. Entries graduating from Tri-state and Southwestern (CO, TX, CA) trials are included in this trial. Entry disposition is determined by the Western Regional Technical Committee. Entries are typically evaluated for two years (if applicable) before graduating. Upon graduation, sponsoring states (state making initial selection) determine if the selection will be eligible for commercial release and assume the lead role in acquiring Plant Variety Protection (PVP). Four standard varieties and 14 selections were evaluated. The following is a summary of the KBREC field results.

Stand Counts

- **30 Day**
  Fast emergence: Red LaSoda (98%), Dk Red Norland (96%), ATTX98510-1R/Y (96%), CO01399-10P/Y (96%), and Purple Majesty (96%).
  Slow emergence: ATC00293 -1W/Y (64%), CO00291-5R (71%), and CO99076-6R (73%).

- **45 Day**
  Full emergence: Dk Red Norland.
  Poor emergence: OR04131-2 (85%), CO99076-6R (87%), CO99256-2R (89%), and Yukon Gold (89%).

Plant Tuber Growth and Development

- **Average Tuber Number Per Plant**
  Most: POR05PG56-1 (16.0), A99331-2RY (14.3), and Purple Majesty (14.0).
  Least: Yukon Gold (6.4), ATC00293 -1W/Y (7.0), and ATTX98453-6R (7.6).

- **Average Tuber Size (oz.)**
  Largest: Red LaSoda (8.3), Yukon Gold (8.1), and COTX01403-4R/Y (7.4).
  Smallest: OR04131-2 (2.8), **POR05PG56**-1 (3.1), and A99331-2RY (3.6).

- **C Size Tubers (< 1.875 inch diameter and <4 oz.) cwt/Acre**
  Most: POR05PG56-1 (177), OR04131-2 (122), and Purple Majesty (116).
  Least: Yukon Gold (15), Red LaSoda (17), Dk Red Norland (23), and COTX01403-4R/Y (23).

- **B Size Tubers (1.875-2.25 inch diameter and <4 oz.) cwt/Acre**
  Most: POR05PG56-1 (130), A99331-2RY (98), and OR04131-2 (87).
  Least: COTX01403-4R/Y (21), Yukon Gold (22), and Red LaSoda (30).

Yield Data

- **Total Yield (cwt/Acre)**
  Highest: Red LaSoda (835), ATTX98510-1R/Y (717), and CO01399-10P/Y (686).
  Lowest: OR04131-2 (374), CO00291-5R (396), and CO99076-6R (452).

- **US No. 1 Yield (cwt/Acre)**
  Highest: Red LaSoda (656), CO01399-10P/Y (645), and ATTX98510-1R/Y (635).

Lowest: OR04131-2 (345), CO00291-5R (356), and CO99076-6R (373).

- **% U.S. #1s**
  Highest: OR04036-5 (95%), CO01399-10P/Y (94%), CO99256-2R (93%), and A99331-2RY (93%).
  Lowest: COTX01403-4R/Y (74%), Red LaSoda (78%), Dk Red Norland (81%), and ATTX01178-1R (81%).

Tuber Defect Incidence (40 tuber sample)

- **External Defects:** Moderate greening observed in COTX01403-4R/Y and ATTX01178-1R tubers. Red LaSoda and CO99076-6R tubers had a moderate incidence of growth cracks. Yukon Gold and Red LaSoda tubers showed moderate to high resistance to tuber *Rhizoctonia.*

- **Internal Defects:**
  Hollow Heart: ATC00293 -1W/Y (13%) and A99433-5Y (10%).
  Stem-end Browning: ATTX01178-1R (8%) andCO99256-2R (8%).

Entry	Skin Color	Primary skin color rating (1-5 dark)	Flesh Color	Total Yield		US # 1's* > 0 oz.	Culls* > 0 oz.	External Defects (1-5 none)			
				(cwt/A)	STATS**	% of Total Yield		Green	Growth crack	MS/ Knobs	Rhiz.
Dk Red Norland	Red	2.8	White	640	BCDE	81	19	4.3	3.5	4.1	4.4
Red LaSoda	Red	2.5	White	835	A	78	22	3.5	3.3	3.3	4.8
ATTX01178-1R	Red	3.3	White	622	CDEF	81	19	3.4	3.9	4.9	4.0
ATTX98453-6R	Red	3.0	White	482	EFGH	85	15	3.9	3.6	4.5	4.1
CO00291-5R	Red	4.5	White	396	GH	90	10	4.1	4.4	5.0	3.8
CO99076-6R	Red	4.4	White	452	FGH	83	17	4.3	3.4	4.3	4.4
CO99256-2R	Red	4.6	White	602	EFG	93	7	4.1	4.6	5.0	3.1
OR04131-2	Red	4.1	White	374	H	92	8	4.3	5.0	4.6	4.4
A99331-2RY	Red/Yellow	2.3	Yellow	556	FGH	93	7	3.5	4.9	4.9	4.4
ATTX98510-1R/Y	Red	2.8	Yellow	717	B	89	11	3.9	3.9	4.8	4.1
CO01399-10P/Y	Purple	3.5	Yellow	686	BC	94	6	4.5	4.1	4.8	4.5
COTX01403-4R/Y	Red	2.6	Yellow	648	B	74	26	3.3	3.6	4.4	4.4
Purple Majesty	Purple	4.5	Purple	639	BCD	90	10	5.0	4.3	4.6	4.3
POR05PG56-1	Purple	3.0	Purple	555	DEFG	92	8	---	4.8	4.9	4.0
Yukon Gold	Yellow	1.9	Yellow	540	EFG	91	9	4.4	4.9	4.6	5.0
A99433-5Y	Yellow	2.9	White	513	EFGH	91	9	4.0	4.8	5.0	2.0
ATC00293-1W/Y	Yellow	3.0	Yellow	494	FGH	83	17	3.8	4.3	4.5	2.9
OR04036-5	Yellow	3.1	Yellow	621	EFGH	95	5	4.5	5.0	4.9	3.9

*Percent values may not total 100% due to rounding
**Entries showing the same letter are not significantly different at the 5% level

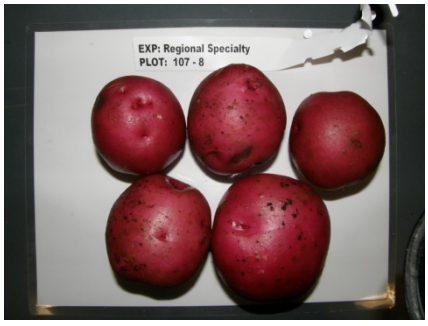
Entry	US # 1 Yield								Specific Gravity	Internal Defects (%) ***			
			%*										
	(cwt/A)	STATS**	C size	B size	4-6 oz.	6-10 oz.	10-14 oz.	>14 oz.		HH	IBS	VD	SEB
Dk Red Norland	519	BCDEF	4	6	18	44	23	4	1.070	3	0	3	0
Red LaSoda	656	A	3	5	14	45	24	10	1.072	0	0	0	0
ATTX01178-1R	504	DEFG	5	9	21	34	16	15	1.066	0	0	3	8
ATTX98453-6R	410	EFG	6	11	20	33	23	7	1.070	0	0	0	0
CO00291-5R	356	G	13	15	27	30	13	2	1.071	0	0	0	5
CO99076-6R	373	FG	8	13	16	39	18	6	1.079	0	0	0	3
CO99256-2R	557	DEFG	13	13	26	31	12	4	1.078	0	3	0	8
OR04131-2	345	G	35	25	23	17	0	0	1.076	0	0	3	0
A99331-2RY	519	FG	19	19	23	28	10	2	1.076	0	0	0	0
ATTX98510-1R/Y	635	ABC	11	13	19	31	18	8	1.071	3	0	0	5
CO01399-10P/Y	645	AB	11	13	26	33	14	3	1.073	3	3	5	0
COTX01403-4R/Y	480	ABCDE	5	4	16	36	19	21	1.064	0	0	0	0
Purple Majesty	573	ABCD	20	15	30	21	10	3	1.080	0	0	0	0
POR05PG56-1	511	CDEFG	35	25	29	9	1	1	1.077	0	0	0	5
Yukon Gold	491	DEFG	3	4	12	34	30	17	1.084	0	0	0	3
A99433-5Y	468	EFG	11	15	27	31	14	3	1.092	10	0	0	0
ATC00293 -1W/Y	411	G	6	8	21	36	17	11	1.076	13	3	3	0
OR04036-5	588	DEFG	8	13	28	37	12	2	1.064	0	0	0	5

*Percent values may not total 100% due to rounding

**Entries showing the same letter are not significantly different at the 5% level

*******Internal Defects: HH=hollow heart, BC=brown center, IBS=internal brown spot, SEB=stem end browning, VD=vascular discoloration, HB=hard bite, CRS=corky ring-spot

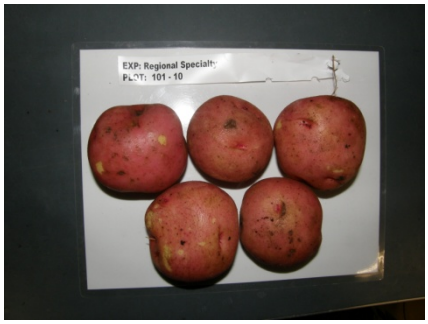
Entry	Stand %	Average Tuber		Vine Vigor (1-5 large)	Shatter Bruise (1-5 none)	Russeting (1-5 hvy)	Size uniformity (1-5 ex.)	Shape uniformity (1-5 ex.)	Eye Depth (1-5 shal.)
		Wt. (oz.)	Number tubers/plant						
Dk Red Norland	100	5.9	9.8	4.3	3.9	1.5	4.0	3.6	3.6
Red LaSoda	98	8.3	8.8	3.6	4.6	1.5	3.9	3.4	2.6
ATTX01178-1R	98	6.0	9.3	3.1	2.5	1.1	4.3	4.5	4.4
ATTX98453-6R	93	5.9	7.6	2.8	3.4	2.1	3.5	3.6	4.1
CO00291-5R	93	4.2	9.1	2.8	3.6	1.3	4.0	4.3	4.1
CO99076-6R	87	5.6	8.0	2.9	4.3	1.1	3.9	4.0	4.4
CO99256-2R	89	4.7	12.2	2.6	3.3	1.4	3.9	3.6	4.4
OR04131-2	85	2.8	13.3	2.9	4.0	1.1	4.5	4.5	4.3
A99331-2RY	94	3.6	14.3	3.3	4.6	1.5	4.0	4.6	4.1
ATTX98510-1R/Y	98	4.6	13.6	3.6	4.0	1.5	3.4	3.6	3.3
CO01399-10P/Y	97	5.0	12.3	3.4	5.0	1.8	4.3	4.5	4.1
COTX01403-4R/Y	93	7.4	8.1	4.0	4.1	1.5	2.6	2.8	3.9
Purple Majesty	96	4.0	14.0	4.0	4.4	1.9	2.5	2.5	4.0
POR05PG56-1	97	3.1	16.0	3.1	4.4	1.5	4.0	4.0	4.0
Yukon Gold	89	8.1	6.4	3.5	4.5	1.1	4.1	4.4	4.5
A99433-5Y	98	4.6	9.7	3.0	4.1	2.0	4.0	4.0	4.0
ATC00293 -1W/Y	92	6.6	7.0	2.9	3.5	1.8	3.5	4.0	4.0
OR04036-5	97	4.9	11.3	3.4	3.4	1.4	4.1	4.1	4.3

Entry	2011 KBREC-Regional Specialty Comment	Entry	2011 KBREC-Regional Specialty Comment
Dark Red Norland		**Red LaSoda**	
	70% bronze, lumpy, junk		Lumpy, large, poor
ATTX01178-1R		**ATTX98453-6R**	
	Impact bruise, junk		SB, IB, poor, drop
CO00291-5R		**CO99076-6R**	
	IB, smooth, fair		Growth cracks, shiny, keep?
CO99256-2R		**OR04131-2**	
	Dull skin, dark red, fair		Small, low bronze, keep

A99331-2RY

Smile, nice, ok

ATTX98510-1R/Y



Dull, flat, drop

CO01399-10P/Y

Bronze, good shape, keep

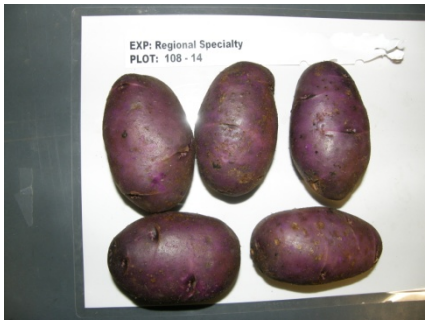
COTX01403-4R/Y

Large, pale, junk, drop

Purple Majesty

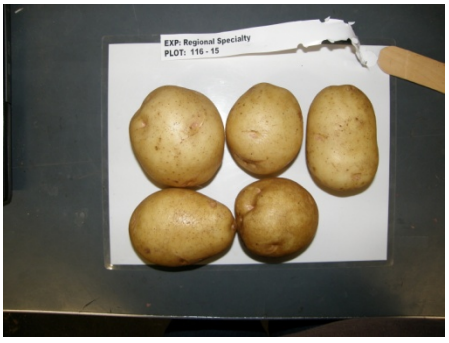
Total cull, 100% bronze, junk

POR05PG56-1



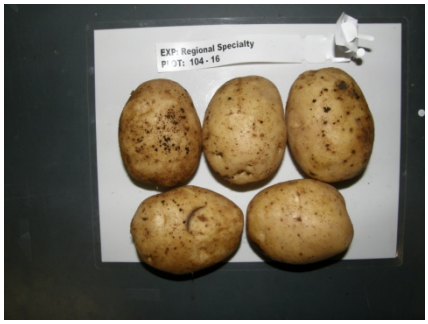
Small, green?, fair

Yukon Gold



Smooth, pretty, keep

A99433-5Y



Poor skin, lenticel scar, drop

ATC00293 -1W/Y		OR04036-5	
	Rot, IB, lenticel scar, ok		IB, smooth, drop?

2011 Preliminary Yield (PYT-2) Chip Trial

Location: Klamath Falls
Planting Date: May 25
Harvest Date: October 12
Fertility: 170-75-100-205S
Vine Kill Date: September 12
Days to Vine kill: 111 days
In-Row Spacing: 9.25 inch

The PYT-2 Chip Trial evaluates recently selected clones, often only two years removed from single-hill selection. Retained entries are further evaluated in replicated trials at several Oregon locations before advancing (if applicable) to the Tri-state trial which includes testing locations in Washington and Idaho. Twelve selections were evaluated with six retained for further evaluation.

Clone	Male Parent	Female Parent
NDOR071109C-1	ND 7799C-1	ND 860-2
NDOR071109C-2	ND 7799C-1	ND 860-2
NDOR071204CB-5	ND 028734B-1	ND 028799C-2
NDOR071227CB-1	ND 028888CB-1	ND 860-2
NDOR071282CB-2	ND 039077B-3	ND 028799C-2
NDOR071282CB-4	ND 039077B-3	ND 028799C-2

2011 Chip Trial

Location:
Planting Date: Vine Kill Date:
Harvest Date: Days to Vine kill:
Fertility: In-Row Spacing: 9 inch

Chipping potatoes comprise a significant portion of Klamath Basin acreage and identification of public varieties suitable for export remains a high priority for Basin producers. Trials initiated in 2008 have continued annually with funding from the Oregon Potato Commission. The mission has been to identify acceptable chipping varieties for export markets using advanced selections and recently released varieties from the Tri-State, Southwest, North-central, and Eastern breeding programs. In 2011 eighteen varieties and advanced chipping selections were evaluated for yield, grade, processing quality, and storability to determine their suitability to meet existing export demands for raw product. Tubers from each replication were placed in long-term commercial storage with processing evaluations conducted by Baley-Trotman Farms. Results for 2011 are listed below. *At the end of the 2011 Chip Trial summary is the final processing information from the storage of 2010 entries. Likewise, the 2011 processing data will be included in the 2012 report.*

Stand Counts

- **30 Day**
  Fast emergence: Chipeta (100%), NY138 (Weneta) (99%), AC01151-5W (97%), Marcy (97%), and NY139 (Lamoka) (97%).
  Slow emergence: Atlantic (83%), CO00197-3W (83%), CO00270-7W (85%), and NY115 (85%).

- **45 Day**
  Full emergence: Chipeta (100%).
  Poor emergence: CO00197-3W (86%), NY115 (87%), and Atlantic (88%).
  All other entries had greater than 90% emergence.

Plant Tuber Growth and Development

- **Average Tuber Number Per Plant**
  Most: AC01151-5W (12.5), CO02024-9W (11.3), A01143-3C (10.9), W2133-1 (Nicolet) (10.9).
  Least: Atlantic (6.6), NY140 (6.6), NY138 (Weneta) (7.2).

- **Average Tuber Size (oz.)**
  Largest: NY140 (8.9), Chipeta (6.9), NY138 (Weneta) (6.6), and Mega Chip (6.6).
  Smallest: CO00188-4W (3.8), AC01151-5W (4.1), and CO02024-9W (4.4).

- **Undersized Tubers (<4 oz.) cwt/Acre**
  Most: AC01151-5W (136), A01143-3C (129), and CO00188-4W (122).
  Least: NY140 (29), NY138 (Weneta) (44), and Chipeta (49).

Yield Data

- **Total Yield (cwt/Acre)**
  Highest: Marcy (654), NY140 (639), and Chipeta (610).
  Lowest: CO00188-4W (386), CO00270-7W (421), and NY115 (435).

- **Marketable Yield >4 oz. (cwt/Acre)**
  Highest: NY140 (591), Marcy (567), and Chipeta (535).

Lowest: CO00188-4W (249), CO00270-7W (332), and Mega Chip (362).

- **% Marketable Yield >4 oz.**
  Highest: NY140 (92%), NY138 (Weneta) (91%), and Chipeta (88%).
  Lowest: CO00188-4W (64%), AC01151-5W (67%), and Mega Chip (67%).

Tuber Defect Incidence (40 tuber sample)

- **External Defects:** CO00197-3W and NY139 (Lamoka) had a moderate amount of green tubers. Mega Chip had problems with growth cracks.

- **Internal Defects**
  Black Spot Bruise: CO00197-3W (45%), Atlantic (30%), AC01151-5W (20%), Marcy (18%), NY138 (Weneta) (13%), W2133-1 (Nicolet) (13%), W2310-3 (Tundra) (13%), CO00188-4W (10%), NY139 (Lamoka) (10%), and NY140 (10%).

  Hard-bite: NY138 (Weneta) (18%), NY139 (Lamoka) (15%), Mega Chip (15%), and Atlantic (10%).

Entry	Total Yield		> 4 oz.*	< 4 oz.*	Culls*	Skin color rating (1-5 dark)	Rhizoctonia (1-5none)
	(cwt/A)	STATS**	% of Total Yield				
Atlantic	478	BCDE	79	11	10	2.3	2.3
Chipeta	610	AB	88	8	4	1.9	4.1
A01143-3C	572	ABC	74	23	3	1.4	3.5
AC01151-5W	589	AB	67	23	10	1.0	4.3
CO00188-4W	386	E	64	32	4	1.5	4.0
CO00197-3W	527	ABCD	74	21	6	1.6	3.5
CO00270-7W	421	DE	79	18	3	1.0	4.1
CO02024-9W	551	ABCD	72	22	6	1.4	3.4
CO02033-1W	550	ABCD	85	12	3	1.1	3.0
CO02321-4W	551	ABCD	80	14	6	1.1	2.6
Marcy	654	A	87	12	2	2.8	4.4
NY115	435	CDE	85	14	1	1.0	4.0
NY138 (Weneta)	560	ABCD	91	8	1	1.1	4.1
NY139 (Lamoka)	574	ABC	79	15	5	1.1	3.9
NY140	639	A	92	5	3	1.5	2.4
Mega Chip	538	ABCD	67	10	23	1.4	3.4
W2133-1 (Nicolet)	592	AB	81	17	2	2.3	4.4
W2310-3 (Tundra)	522	ABCDE	87	10	3	1.8	4.6

*Percent values may not total 100% due to rounding
**Numbers followed by the same letter are not significantly different at the 5% level

Entry	Yield US # 1 (>4 oz.)						External Defects (1-5 none)			
			%*							
	(cwt/A)	STATS**	4-6 oz.	6-10 oz.	10-14 oz.	>14 oz.	Green	Growth crack	MS/ Knobs	Shatter
Atlantic	379	DEFG	19	36	25	21	3.9	3.9	3.8	2.9
Chipeta	535	ABC	17	38	28	16	4.0	4.0	4.5	3.3
A01143-3C	424	CDEF	41	47	12	0	4.4	4.4	5.0	3.3
AC01151-5W	393	DEF	30	45	20	5	3.6	3.6	5.0	4.8
CO00188-4W	249	G	50	37	13	0	4.1	5.0	5.0	4.3
CO00197-3W	388	DEFG	29	38	26	7	3.4	4.6	4.8	4.1
CO00270-7W	332	FG	25	45	23	7	4.3	5.0	5.0	3.8
CO02024-9W	398	CDEF	43	43	13	1	3.6	4.9	4.9	3.9
CO02033-1W	467	ABCDEF	30	44	19	7	3.8	4.8	4.9	1.8
CO02321-4W	440	BCDEF	28	39	21	12	3.9	4.8	5.0	4.8
Marcy	567	AB	25	46	19	10	4.5	5.0	4.8	4.6
NY115	371	EFG	24	37	29	10	4.5	5.0	5.0	4.5
NY138 (Weneta)	511	ABCD	18	44	28	11	3.9	5.0	5.0	4.5
NY139 (Lamoka)	454	ABCDEF	31	45	19	5	3.4	4.9	4.5	4.9
NY140	591	A	10	29	29	32	3.6	4.6	4.9	4.1
Mega Chip	362	EFG	22	44	29	5	3.5	2.5	2.8	4.3
W2133-1 (Nicolet)	478	ABCDE	35	47	14	5	4.0	4.8	5.0	2.8
W2310-3 (Tundra)	454	ABCDEF	22	44	28	7	4.1	5.0	5.0	3.8

*Percent values may not total 100% due to rounding

**Numbers followed by the same letter are not significantly different at the 5% level

Entry	Stand %	Average Tuber		Specific Gravity	Internal Defects (%)*						
		Wt. (oz.)	Number tubers/plant		HH	BC	BS	IBS	SEB	VD	HB
Atlantic	88	6.3	6.6	1.090	3	3	30	5	0	3	10
Chipeta	100	6.9	7.4	1.090	0	0	5	0	0	5	8
A01143-3C	94	4.8	10.9	1.091	0	0	5	0	3	3	0
AC01151-5W	97	4.1	12.5	1.082	0	0	20	3	0	0	3
CO00188-4W	91	3.8	9.5	1.081	0	0	10	5	0	0	3
CO00197-3W	86	4.9	10.6	1.086	0	0	45	8	3	5	8
CO00270-7W	91	5.0	7.9	1.079	0	0	3	0	0	0	5
CO02024-9W	94	4.4	11.3	1.083	3	3	8	8	3	0	8
CO02033-1W	93	5.7	8.8	1.095	5	0	3	0	0	0	5
CO02321-4W	91	5.7	9.1	1.094	0	0	8	3	0	0	5
Marcy	97	6.0	9.5	1.085	3	0	18	3	0	0	5
NY115	87	5.8	7.3	1.083	0	0	3	0	0	3	3
NY138 (Weneta)	99	6.6	7.2	1.089	0	0	13	5	0	5	18
NY139 (Lamoka)	97	5.2	9.7	1.097	0	0	10	0	3	5	18
NY140	94	8.9	6.6	1.085	5	0	10	0	0	0	3
Mega Chip	94	6.6	7.4	1.095	0	3	3	0	0	3	15
W2133-1 (Nicolet)	92	5.0	10.9	1.091	0	3	13	0	0	0	0
W2310-3 (Tundra)	95	6.1	7.6	1.094	0	0	13	0	0	0	0

*Internal Defects: HH=hollow heart, BC=brown center, BS= black spot bruise, IBS=internal brown spot, SEB=stem end browning, VD=vascular discoloration, HB=hard bite

Entry	Vine Vigor (1-5 large)	Length/ Width Ratio	Russeting (1-5 hvy)	Size uniformity (1-5 ex.)	Shape uniformity (1-5 ex.)	Eye Depth (1-5 shal.)
Atlantic	4.3	1.12	2.4	3.0	2.9	4.1
Chipeta	4.0	1.15	1.9	3.4	3.6	4.1
A01143-3C	3.8	1.06	1.1	4.1	4.4	4.4
AC01151-5W	3.8	1.12	1.0	3.0	4.0	4.5
CO00188-4W	4.8	1.11	1.4	3.9	4.5	4.5
CO00197-3W	3.8	1.18	1.4	3.5	3.9	4.3
CO00270-7W	3.3	1.09	1.0	4.1	4.8	4.5
CO02024-9W	3.5	1.07	1.1	3.8	3.9	4.5
CO02033-1W	4.0	1.15	1.1	4.1	4.0	4.4
CO02321-4W	4.3	1.08	1.1	4.0	4.6	4.0
Marcy	4.8	1.16	2.8	4.1	4.1	4.5
NY115	3.8	1.14	1.0	3.8	4.5	4.4
NY138 (Weneta)	3.0	1.12	1.1	4.1	4.5	4.5
NY139 (Lamoka)	4.8	1.08	1.1	3.6	4.4	4.6
NY140	4.5	1.12	1.4	3.8	4.1	4.6
Mega Chip	3.8	1.09	1.3	3.3	2.1	2.0
W2133-1 (Nicolet)	3.8	1.04	2.0	2.6	3.8	4.5
W2310-3 (Tundra)	3.8	1.14	1.5	3.6	4.1	4.1

2010 Chip Processing Results

Chip processing data from storage was included in the 2010 report. The processing results of the 2010 Chip Variety Trial are included in the following graphs. Potatoes were processed in December 2010 and again in April 2011. *Likewise, 2011 processing data will be included in the 2012 report.*

Entry	Specific Gravity[1]			TDF %[2]		Sugars[3]			
						dextrose		sucrose	
	Field	Short-term Storage	Long-term Storage	Dec.	Apr.	Dec.	Apr.	Dec.	Apr.
Atlantic	1.095	1.096	1.093	22.8	21.7	0.058	---	0.30	---
Chipeta	1.088	1.083	1.083	23.0	15.6	0.009	---	0.34	---
A00188-3C	1.089	1.085	1.089	6.7	4.5	0.003	---	0.21	---
A01143-3C	1.090	1.088	1.090	16.4	3.3	0.008	---	0.25	---
CO00188-4W	1.086	1.088	1.086	15.9	23.4	0.006	---	0.21	---
CO00197-3W	1.087	1.087	1.086	39.4	37.4	0.021	---	0.22	---
CO00270-7W	1.083	1.081	1.082	6.2	12.3	0.014	---	0.21	---
NY138	1.085	1.085	1.086	8.8	17.1	0.020	---	0.25	---
NY115	1.089	1.089	1.088	10.7	12.7	0.003	---	0.19	---
NY140	1.086	1.084	1.085	29.0	17.2	0.008	---	0.24	---
Marcy	1.083	1.081	1.081	25.7	10.2	0.015	---	0.25	---
Mega Chip	1.096	1.093	1.092	32.9	29.3	0.027	---	0.30	---
W2310-3	1.092	1.089	1.090	19.0	15.4	0.009	---	0.21	---
W2133	1.090	1.088	1.083	15.0	6.8	0.009	---	0.21	---
W5015-12	1.095	1.092	1.089	18.8	10.8	0.006	---	0.23	---
W2717-5	1.094	1.090	1.093	18.4	20.9	0.079	---	0.43	---

[1]Specific gravity measured out of field and storage for both 2 and 6 months at 50^0 F.

[2] % Total Defects = % of finished chips out of grade; includes internal & external defects (e.g. HH, Green, Dark Color, etc.)

[3]Percent fresh weight basis measured after storage for 2 and 6 months at 50^0 F.

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