

2010

Klamath Basin Potato Variety Development Summary



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Notes from Project Leader

The year 2010, although not as drastic as 2001, will be remembered for the difficult conditions imposed on the Klamath Basin agricultural community. Reduced precipitation and net inflows to Upper Klamath Lake, Gerber Reservoir, and Clear Lake compounded by Federal regulatory actions for threatened and endangered fish species in the watershed severely curtailed irrigation deliveries to the Klamath Irrigation Project (KIP). Only about 33% of normal irrigation supply was delivered to the KIP during the 2010 growing season. Despite this severe reduction, potato producers were able to lease land with groundwater availability and overall acreage remained relatively stable compared to the 5-year average. However, producers faced a challenging year as spring temperatures were 8 degrees F cooler than the prior 10-year average for the month of May which delayed emergence and contributed to increased problems with various soil-borne pests and disease. In addition, producers incurred higher input costs as most fields were located over 30 miles away from their base of operation. In lieu of these challenges, yields were down about 15% compared to past years; however, potato quality was very good.

Having spent the past 12 years working closely with many producers in the Klamath Basin, I could appreciate their worries and frustration as memories of the difficulties associated with the 2001 water crisis were still fresh in their memory. I'm astonished by the resiliency of Klamath Basin farmers and I'm grateful for the opportunity to serve their industry through our Research & Extension programs.

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 third year of this continued effort.

Screening for resistance to various species of nematodes and related diseases is being accomplished at several locations. The Klamath Basin Research and Extension Center (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 2010, 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. **2009 Potato Cultivar Yield and Postharvest Quality Evaluations.**
<http://www.potatoes.wsu.edu>

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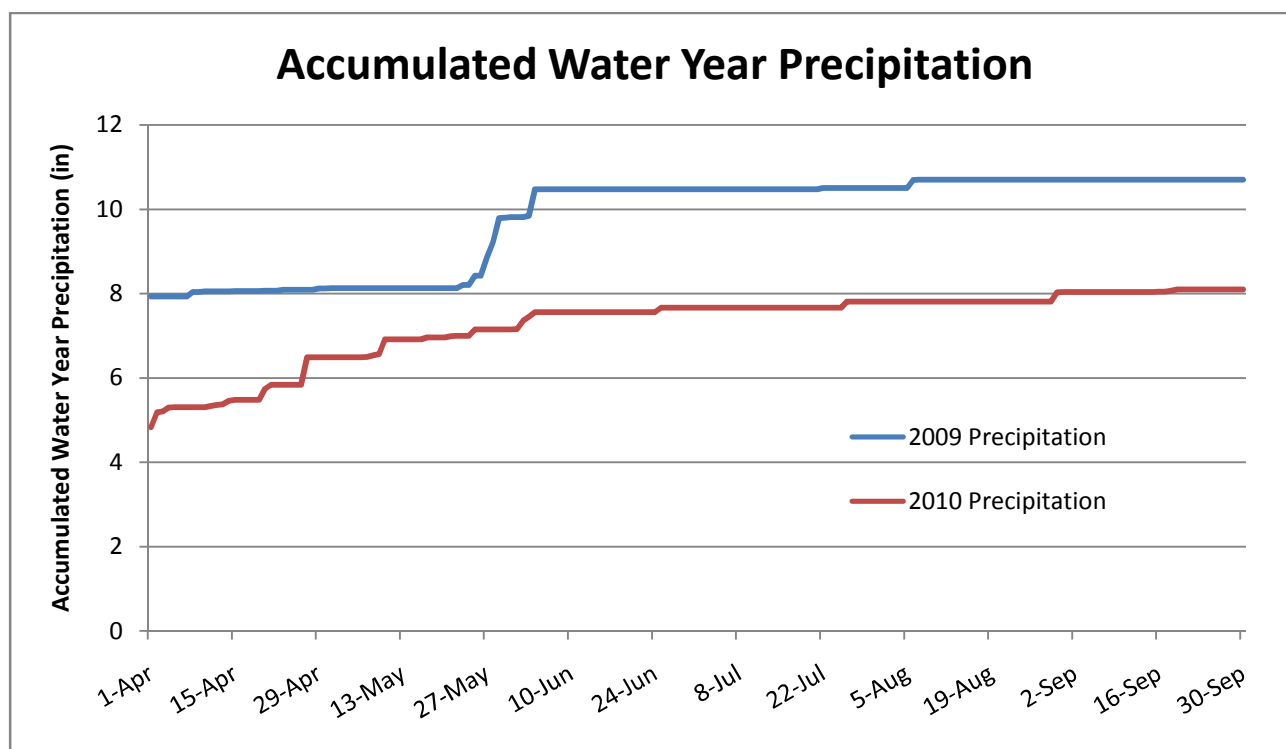
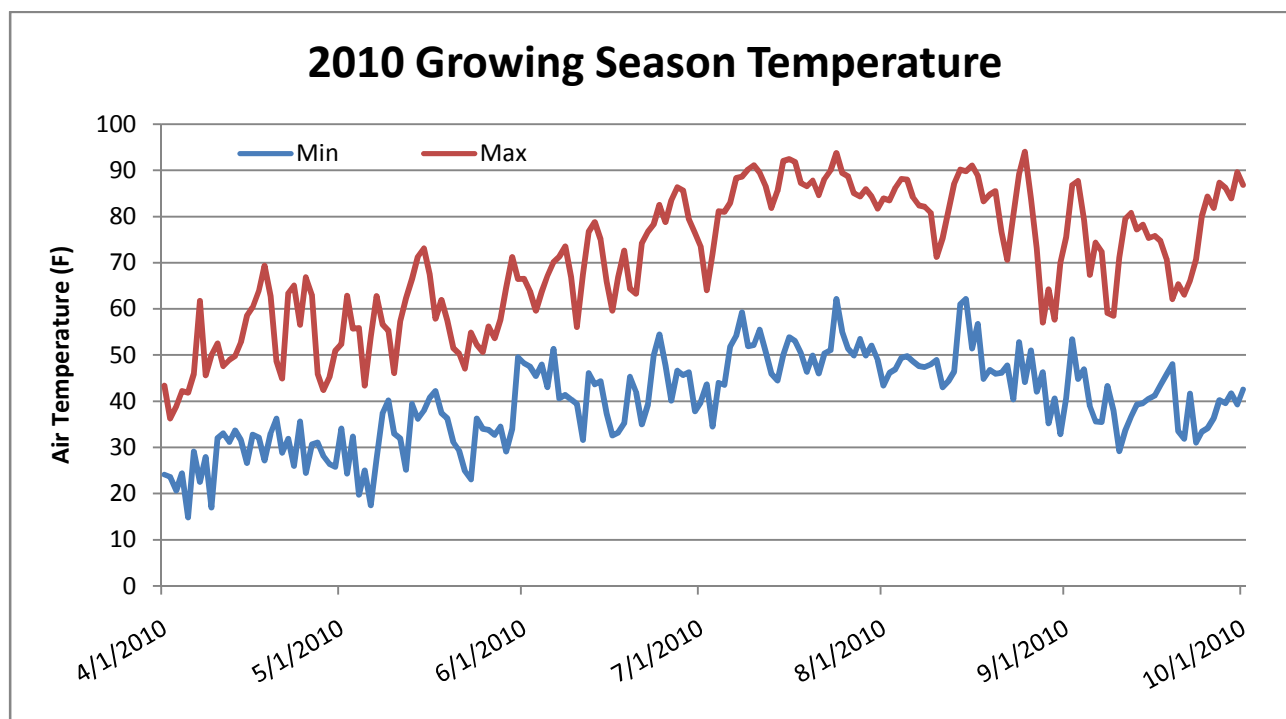
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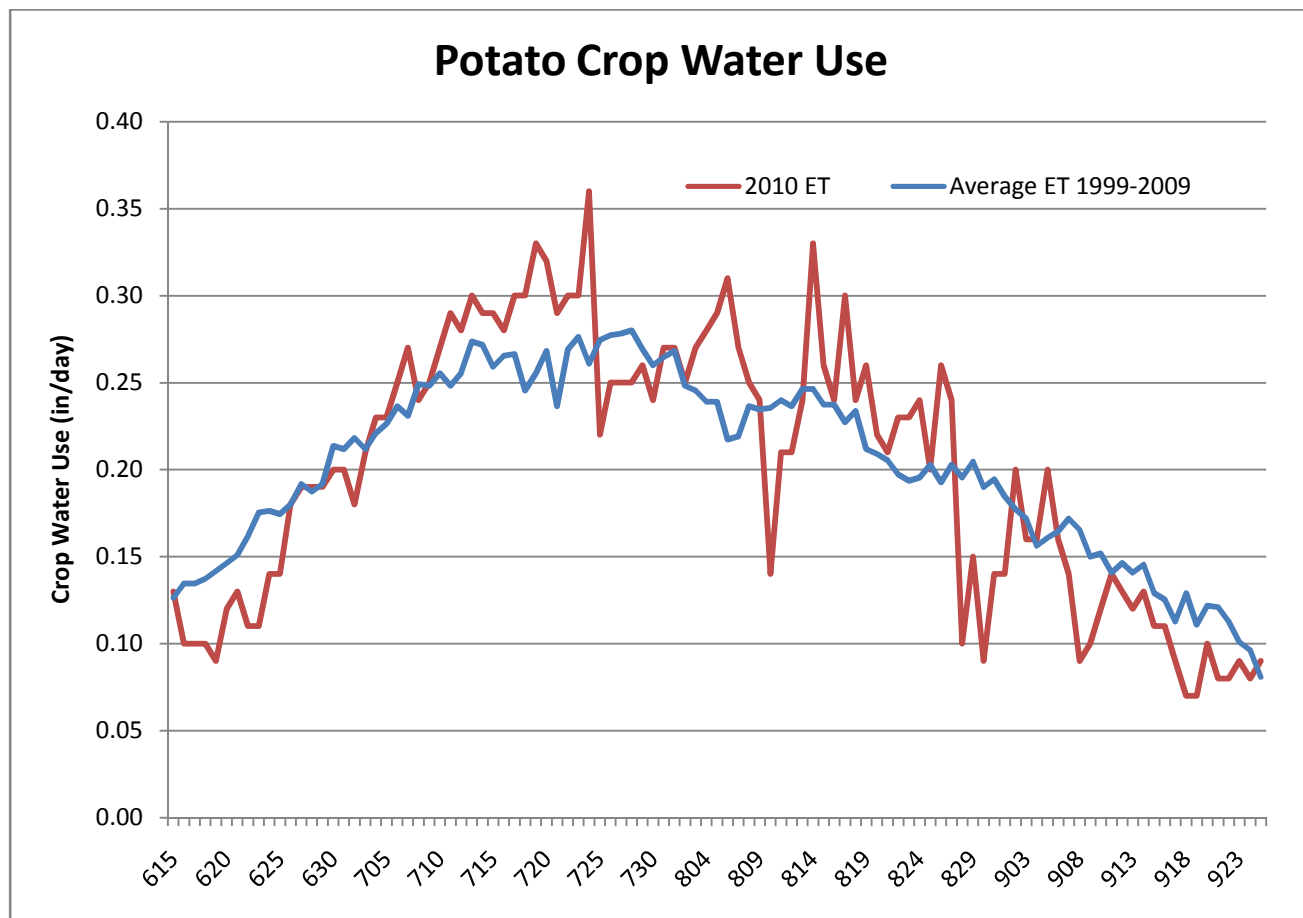
Commissions and Associations

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

Klamath Potato Growers Association, Klamath Falls, OR

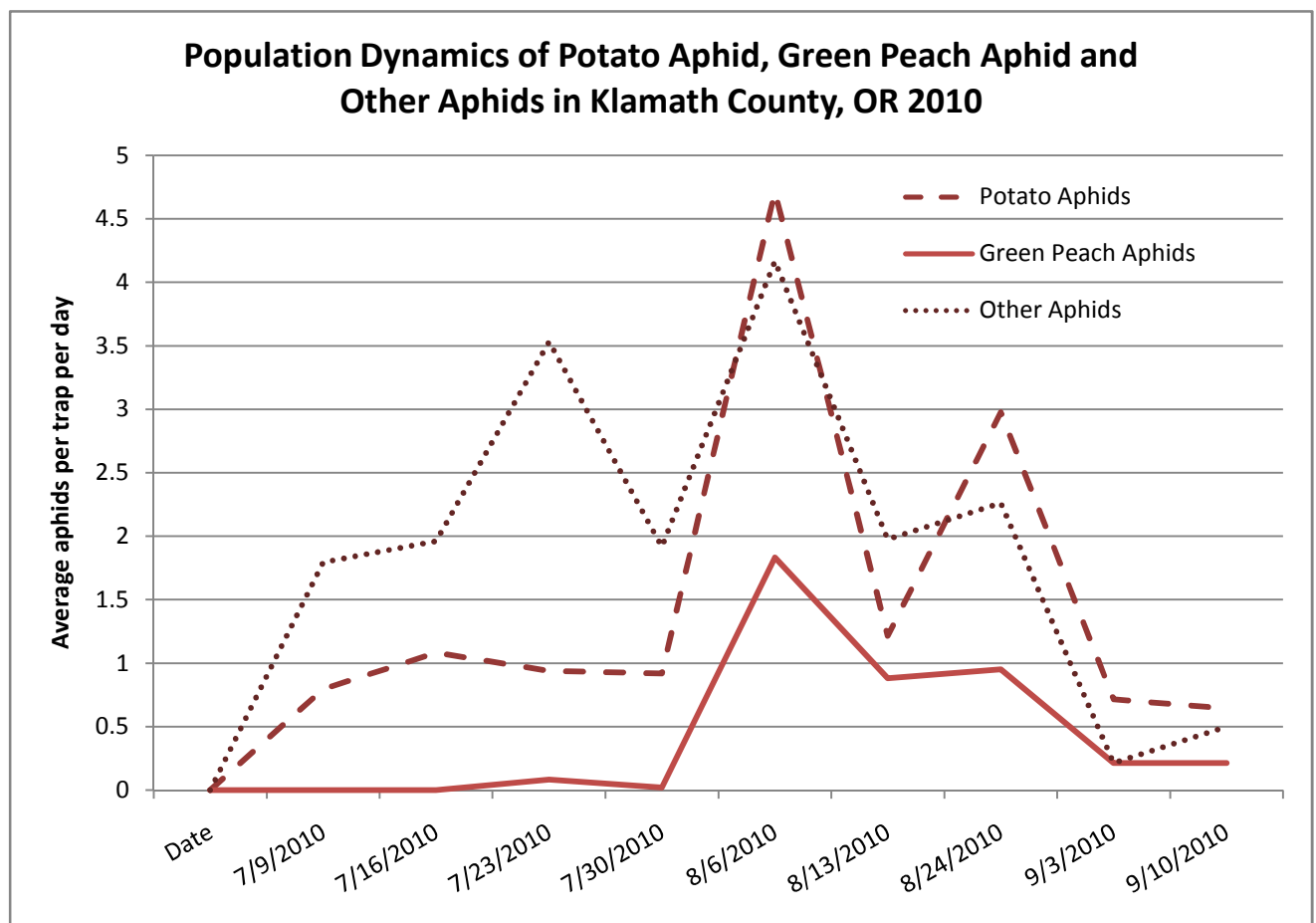
Weather Data



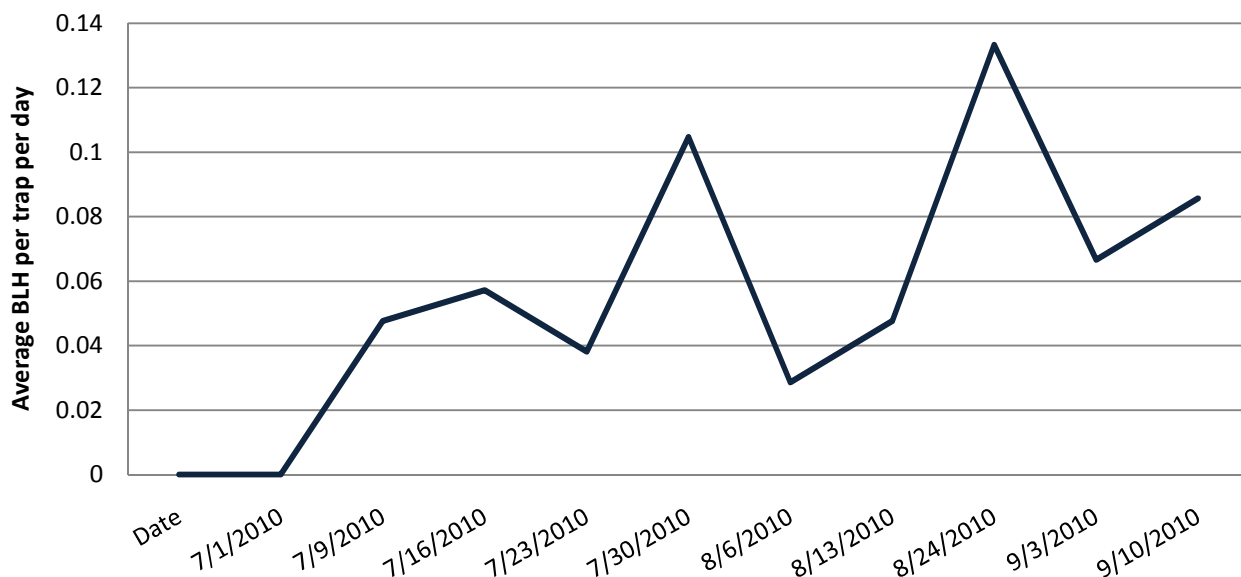


2010 Insect Trapping Results

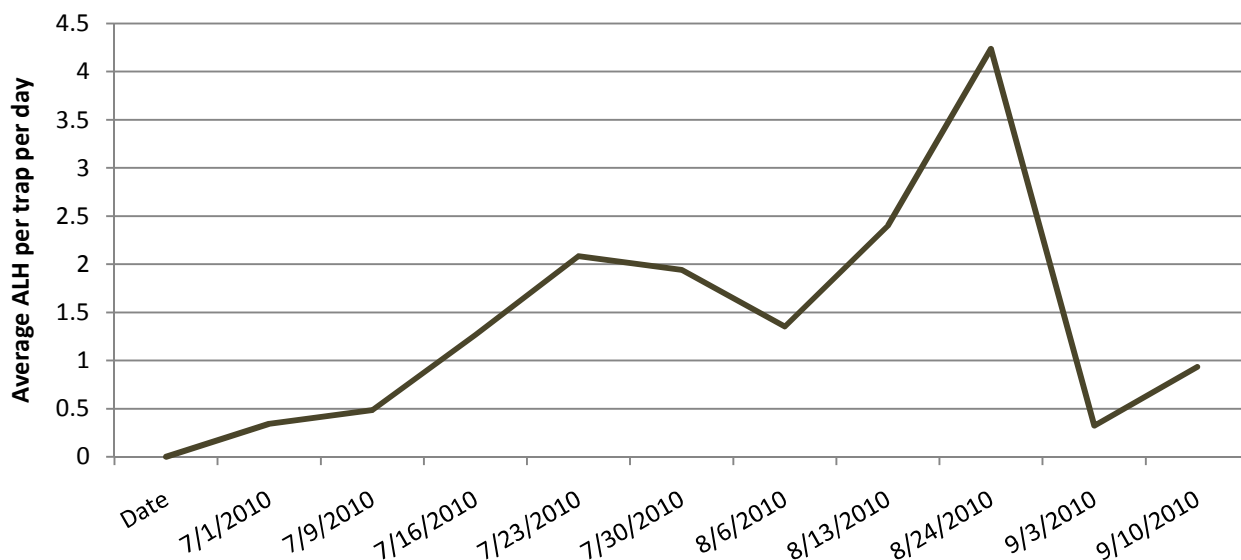
Potato tuberworm was first detected in the Klamath Basin in late-August of 2005. KBREC initiated an extensive trapping program the following year (2006) and have continued this effort annually. In 2010, we continued our trapping efforts of aphids, leafhoppers, and psyllids. Twenty pheromone Delta traps (tuber moth), seven yellow water-pan traps (aphids), and twenty 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 four-year trapping program. We did collect some psyllid species but no potato psyllids were collected in 2010. The following graphs show population dynamic trends for aphids and leafhoppers throughout the growing season.



Population Dynamics of Beet Leafhoppers in Klamath County, OR 2010



Population Dynamics of Aster Leafhoppers in Klamath County, OR 2010



Guide to Clone Designation

Example: AC99375-1RU	AC99375-1RU	Breeding Program (A berdeen, ID)
	AC99375-1RU	Selection Site (C olorado)
	AC 99 375-1RU	Year of Cross (1999)
	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	Aberdeen, Idaho	Aberdeen, Idaho	
AO	Aberdeen, Idaho	Oregon	
AOA	Aberdeen, Idaho	Oregon	Aberdeen, Idaho
ATX	Aberdeen, Idaho	Texas	
BTX	Beltsville, Maryland	Texas	
CO	Colorado		
MWTX	Madison, Wisconsin	Texas	
NDA	North Dakota	Aberdeen, Idaho	
NY	New York		
OR	Oregon		
PA	Prosser, Washington	Aberdeen, Idaho	
POR	Prosser, Washington	Oregon	
TC	Texas	Colorado	
TE	Tetonia, Idaho		
TXA	Texas	Aberdeen, Idaho	
TXNS	Texas		Norkotah Strain

Miscellaneous Designations

B	Chuck B rown's Cross
LS	Low S ugar
P/P	Purple skin/ P urple flesh
R	Red skin
R/R	Red skin/ R ed flesh
R/Y	Red skin/ Y ellow flesh
Ru	Russet
W/Y	W hite skin/ Y ellow flesh
LB	Late B light resistance
PW/Y	Purple skin with W hite eyes/ Y ellow flesh
P/Y	Purple skin/ Y ellow flesh
P/PW	Purple skin/ P urple and W hite flesh

Single-hill Results

Approximately Twenty-six thousand (26,656) greenhouse-produced seedling tubers were planted at a remote site in the Yonna Valley area on May 17, 2010. 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 64 families from Oregon State University; 56 from USDA, Prosser, WA; 90 from USDA, Aberdeen, Idaho; and 53 from Colorado State University. 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 September 30. 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
ARS Prosser, WA via OSU	Disease resistance, pigmented	3470	15	0.43
ARS Prosser, WA	Disease resistance, pigmented	2640	28	1.06
Oregon State University	Disease resistance, mixed type	6243	24	0.38
Colorado State University	Disease resistance, russet	5277	84	1.60
ARS Aberdeen, ID	Disease resistance, russet	9026	141	1.60
Total		26,656	291	1.09

Second-year 4-hill Specialty Screening

Fifty-nine (59) selections from 2009 single-hills were planted in 4-hill observational plots in the Yonna Valley area. Potato tubers were lifted using a two-row, level-bed digger on September 30, 2010. A team of about 15 research and industry personnel selected 9 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 2011.

Second-year 4-hill Chip Screening

Fifty-nine (59) chip selections from 2009 single-hills were planted in 25-hill observational and seed increase plots in the Yonna Valley area. Potato tubers were lifted using a two-row, level-bed digger on September 30, 2010. Research and industry personnel selected 16 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 2011. 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 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/Packaging¹	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

¹Count = tuber number per 50 lb. carton.

2010 Replicated Trial Cultural Information

Location:	Merrill, OR
Soil Type:	Fordney loamy fine sand; pH 5.9
Planting Date:	May 13 for all trials; PYT-2 Specialty, Statewide Spec., Regional Spec., PYT-2 Russet, Statewide Russet, Regional Russet, and Regional Modified Chip
Vine Kill Date:	September 2: Roll Vines and Rely application at labeled rate
Harvest Date:	October 1 for PYT-2 Russet and Specialty; October 11 for Statewide Russet, Regional Russet, and Tri-State Russet; October 12 for State Specialty and Regional Specialty; October 13 for Tri-State Specialty and Modified Regional Chip; October 14 for Chip Spacing Trial
Irrigation:	Solid-set sprinkler + natural precipitation = 19 inches
Plot Length:	20 hills for PYT trials, 25 hills for statewide trials
In-row spacing:	9.0 inches
Row spacing:	36 inches
Number of Reps:	4 reps for Statewide, Tri-State and Regional Trials; 2 reps for PYT Trials
Fertilizer:	160-191-185-97S-5.28Zn-1.05B
Weed Control:	Cultivation, Matrix SG and Metribuzin 75 DF (post emergence)
Insecticides:	Admire Pro (in-furrow at planting)
Fungicides:	Tops MZ (seed trt.) Quadris (in-furrow at planting) Ridomil Gold Bravo (2 aerial applications) Headline Quadris Endura
Nematode Control:	Soil fumigation with Telone

General Comments:

Despite having a cooler than normal spring, temperatures between July and September were generally favorable. Our yields were similar compared to past years, though basin yields on average were down. There was a high amount of powdery scab pressure in this location. This had a dramatic affect on tuber skin appearance of specialty and chip varieties. As a positive it also allowed us to take notes on which varieties showed resistance to powdery scab.

2010 Preliminary Yield (PYT-2) Russet Trial

Location: Merrill, OR

Planting Date: May 19

Harvest Date: October 1

Fertility: 160-191-185-97S-5.28Zn-1.05B

Vine Kill Date: September 2

Days to Vine kill: 113

In-Row Spacing: 9 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. This trial included 3 standard varieties and 122 new entries. The Oregon Potato Variety Development Team chose to advance 25 selections to the Statewide Russet Trial in 2010 and discarded the remaining selections due to poor performance. All selections were based on visual observation for marketability and yield. **Only retained selections are listed in the following tables.**

Entry	Hermiston Keep (K)	Klamath Falls Keep (K)	KBREC Notes
Russet Burbank	CTRL	CTRL	
Ranger	CTRL	CTRL	
Norkotah	CTRL	CTRL	
AO05015-3KF	K-HRM	K-KF	Lt. Russet, Not Fresh
AO05015-6KF	K-HRM	K-KF	Early season, too big, light russet, not fresh
AO05268-1KF	K-HRM	K-KF	Yellow Process, not fresh, pointy
AO05278-1	K-HRM	K-KF	Keep, nice shape, fresh potential, Increase In-row Spacing
AO05281-1KF	K-HRM	K-KF	Good length, somewhat large, keep
AO05281-6KF	K-HRM	K-KF	White process, decent shape, not fresh, Powdery scab, keep
AO05286-1KF	K-HRM	K-KF	Some erratic shape, possibly fresh
AO05287-2KF		K-KF	Fresh Potential, Nice Size/Shape
AO06001-3KF		K-KF	Smallish, nice size/shape, fresh potential
AO06007-2KF		K-KF	Fresh potential, nice skin, size/shape
AO06064-2KF		K-KF	Early, big, uniform, needs tight spacing?
AO06068-2KF	K-HRM	K-KF	Keep, good length/size, fresh?, large fresh
AO06070-1KF		K-KF	Fresh, nice shape/size, nice skin
AO06139-2		K-KF	Nice Size/Shape, Fresh
AO06344-2KF	K-HRM	K-KF	Yellow Flesh Chipper?, Nice Size/Shape, Skin
AO06406-2	K-HRM		Drop
AO06454-1	K-HRM	K-KF	Good size/shape, length, small, uniform

A0061032-1KF	K-HRM		
C-2604-1		K-KF	Keep, Baby Baker?, yellow flesh, high set, no powdery scab
OR04062-3	K-HRM	K-KF	Fair size/shape uniformity, coarse russet
OR07075-2			Nice Shape, Erratic Size, Low Yield
OR07076-2		K-KF	Nice Shape, Erratic Size, Decent Yield
OR07110-1			No Powdery Scab, nothing exciting?
OR07121-5			Nice Shape, Good Skin, Low Set

2010 Statewide Russet Trial

Location: Merrill, OR

Planting Date: May 19

Harvest Date: October 11

Fertility: 160-191-185-97S-5.28Zn-1.05B

Vine Kill Date: September 2

Days to Vine kill: 113

In-Row Spacing: 9 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. Oregon selections remain in the Statewide Trial until they complete Tri-state and Western Regional evaluation or are discarded. The following is a summary of the KBREC field results.

Stand Counts

➤ 30 Day

Slow emergence: AO00057-2 (18%), POR06V12-3 (42%) and AO03123-2 (50%).

➤ 50 Day

Poor emergence: POR06V12-3 (91%), AO05086-2 (93%) and AO05105-1 (93%).

All other entries had greater than 95% final emergence.

Plant Tuber Growth and Development

➤ Average Tuber Number Per Plant

Most: AO02183-2 (8.2) and OR04057-2 (8.2).

Least: Russet Burbank (6.9) and OR06060-1 (6.9).

➤ Average Tuber Size (oz.)

Largest: AO05086-2 (8.3) and AO03919-1 (7.9).

Smallest: AO02183-2 (4.2) and OR04057-2 (4.7).

➤ Undersized Tubers (<4 oz.) cwt/Acre

Most: AO02183-2 (78) and OR04057-2 (61).

Least: OR05039-4 (16), AO05086-2 (23) and AO03919-1 (23).

Yield and Economic Data

➤ Total Yield (cwt/Acre) - no statistical significance

Highest: AO00057-2 (484), OR06060-1 (484) and Ranger Russet (482).

Lowest: AO0114-4 (384) and AO02183-2 (412).

➤ US No. 1 Yield (cwt/Acre)

Highest: AO00057-2 (411) and AO05086-2 (393).

Lowest: AO05105-1 (261), AO02183-2 (291) and Russet Burbank (311).

- **Carton Yield (8-20 oz.) cwt/Acre**
Highest: AO00057-2 (280) and AO96305-3 (264).
Lowest: AO02183-2 (138) and AO05105-1 (156).

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

- **Hollow Heart**
Notable Defects: AO05086-2 (38%), AO05105-1 (23%) and Russet Norkotah (18%).
- **Stem End Browning**
Notable Defects: AO05021-3 (18%), AO03340-2 (13%) and Russet Burbank (13%).

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)
Russet Burbank	461	NS	68	15	17	37	170
Ranger Russet	482	NS	80	11	9	48	230
Russet Norkotah	457	NS	84	7	9	50	230
AO96305-3***	423	NS	89	3	8	62	264
AO00057-2***	484	NS	85	4	11	58	280
AO02183-2***	412	NS	71	7	22	34	138
AO01114-4***	384	NS	82	4	14	51	196
AO02060-3***	468	NS	83	2	14	53	247
OR04057-2	453	NS	67	13	20	39	177
OR05039-4***	414	NS	87	7	6	63	259
POR06V12-3***	458	NS	78	8	13	54	246
AO03123-2***	422	NS	78	7	15	47	200
AO03340-2	476	NS	68	18	14	42	201
AO03919-1	446	NS	71	10	19	46	204
AO05021-3	455	NS	74	17	8	46	209
AO05086-2	478	NS	82	6	12	52	246
AO05105-1	475	NS	55	35	10	33	156
AO05560-7	428	NS	75	10	15	42	180
OR06060-1	484	NS	77	11	13	46	224

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Entry	US # 1 Yield					8-12 oz	Internal Defects (%) 8-12 oz. tubers****			
	>4 oz.	STATS**	%			Specific				
	(cwt/A)		4-8 oz.	8-12 oz.	>12 oz.	Gravity	HH	IBS	BS	SEB
Russet Burbank	311	FGH	45	37	18	1.085	0	0	5	13
Ranger	385	ABC	31	31	38	1.087	0	0	0	0
Norkotah	382	ABCD	30	31	38	1.077	18	0	0	0
AO96305-3***	377	ABCD	30	41	29	1.089	0	0	0	0
AO00057-2***	411	A	32	34	34	1.081	0	5	0	0
AO02183-2***	291	GH	52	34	14	1.086	3	0	0	0
AO01114-4***	316	FG	33	31	36	1.092	13	0	5	0
AO02060-3***	391	AB	33	33	34	1.086	0	0	0	0
OR04057-2	304	GH	42	36	23	1.085	0	0	0	0
OR05039-4***	360	ABCDEF	28	39	33	1.088	0	0	0	0
POR06V12-3***	359	BCDEF	26	31	43	1.087	10	0	0	0
AO03123-2***	331	DEFG	37	38	25	1.082	0	0	0	0
AO03340-2	325	EFG	37	35	28	1.074	3	0	0	13
AO03919-1	318	FG	30	35	35	1.088	0	3	0	0
AO05021-3	338	CDEFG	36	35	29	1.084	0	0	0	18
AO05086-2	393	AB	24	26	50	1.080	38	0	0	0
AO05105-1	261	H	29	26	45	1.081	23	3	0	5
AO05560-7	321	EFG	44	33	23	1.093	0	0	0	0
OR06060-1	371	ABCDE	37	35	28	1.085	10	0	3	0

Entry	Stand %	Average Tuber		Length/ Width Ratio	Vine Vigor (1-5 large)	Vine Maturity (1-5 late)	Skin Color (1-5 dark)	Russetting (1-5 hvy)	Shape (1-5 long)	Uniformity (1-5 ex.)
		Wt. (oz.)	No. tubers/plant							
Russet Burbank	97	5.7	6.9	1.88	4.4	3.1	4.0	4.1	4.0	3.7
Ranger	97	8.3	5.7	2.16	3.0	3.8	4.1	4.4	5.0	3.7
Norkotah	99	6.6	5.8	1.67	3.4	2.3	4.5	4.5	4.1	4.1
AO96305-3***	100	6.4	5.5	2.10	3.0	3.3	3.5	3.5	4.5	4.5
AO00057-2***	97	6.6	6.2	1.79	3.0	4.3	4.3	4.5	4.0	4.2
AO02183-2***	100	4.2	8.2	2.13	3.8	3.8	4.3	4.4	5.0	4.1
AO01114-4***	99	6.3	5.1	1.71	4.0	3.3	4.0	4.1	4.0	4.1
AO02060-3***	98	6.0	6.5	1.90	3.8	3.0	4.0	4.3	4.4	4.3
OR04057-2	98	4.7	8.1	1.75	4.3	3.1	4.1	5.0	4.4	3.8
OR05039-4***	98	7.3	4.8	2.05	3.9	3.5	2.0	2.4	5.0	4.4
POR06V12-3***	91	6.4	6.5	1.81	2.8	4.5	4.5	4.9	4.3	3.8
AO03123-2***	97	5.7	6.4	1.84	3.1	3.9	3.5	3.6	4.1	4.2
AO03340-2	97	6.5	6.3	1.99	3.0	3.0	4.8	4.8	4.6	3.7
AO03919-1	98	7.9	4.7	1.92	3.3	4.8	3.5	3.3	4.4	3.6

AO05021-3	97	6.7	6.0	1.85	3.0	2.9	4.4	4.9	4.1	4.1
AO05086-2	93	8.3	5.2	1.73	3.9	3.1	4.0	4.9	4.4	4.0
AO05105-1	93	7.4	5.8	1.75	3.4	4.0	4.0	4.0	4.5	3.2
AO05560-7	96	5.9	6.4	2.00	3.4	3.0	4.0	3.9	4.4	3.9
OR06060-1	95	6.1	6.9	1.68	3.5	3.9	4.0	4.8	4.3	3.8

*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	2010 KBREC- Statewide Russet Comments
Russet Burbank	Blocky, small, ok
Ranger	Hooky crooky, humpy bumpy
Norkotah	Typy, nice, keep
AO96305-3***	Beautiful, uniform, skinning, keep
AO00057-2***	Blocky, fresh potential, little flat, keep
AO02183-2***	Typy, uniform, long, small, too long, keep
AO01114-4***	TNC, blocky, typy, nice, low yield, keep
AO02060-3***	Blocky, beautiful, best of trial, keep
OR04057-2	Pointy, rough skin, flat, not fresh, drop
OR05039-4***	Typy, uniform, process, keep
POR06V12-3***	Heavy russet, flat, process? keep?
AO03123-2***	Real nice, typy, blocky, keep
AO03340-2	Pointy stem end, growth cracks, poor, drop
AO03919-1	Irregular, some knobby, drop?
AO05021-3	Heavy russet, uniform, process?
AO05086-2	Big, heavy russet, process?
AO05105-1	Dimpled and dented, irregular, junk, drop
AO05560-7	Brows, nice shape, not fresh
OR06060-1	Dimpled and dented, process, not fresh, ok

2010 Tri-state Russet Trial

Location: Merrill, OR

Planting Date: May 19

Harvest Date: October 11

Fertility: 160-191-185-97S-5.28Zn-1.05B

Vine Kill Date: September 2

Days to Vine kill: 113

In-Row Spacing: 9 inch

The Tri-state Russet Trial evaluates advanced selections originating from both Oregon and Idaho. Entries are evaluated for both fresh market and processing potential 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: A98134-2 (97%) and A01025-4 (96%).

Slow emergence: A02062-1TE (46%), AO02183-2 (63%) and A01124-3 (66%).

➤ 50 Day

Full emergence: A02062-1TE (100%) and AO02183-2 (100%).

Poor emergence: All entries had greater than 96% final emergence.

Plant Tuber Growth and Development

➤ Average Tuber Number Per Plant

Most: A98134-2 (10), AO02183-2 (8.2) and A02060-3TE (8.0).

Least: AO0114-4 (5.3), A02062-1TE (5.7) and Ranger Russet (5.7).

➤ Average Tuber Size (oz.)

Largest: Ranger Russet (7.7), Russet Norkotah (6.8) and AO01114-4 (6.8).

Smallest: A98134-2 (4.3), PA03NM5-1 (5.1) and AO02183-2 (5.2).

➤ Undersized Tubers (<4 oz.) cwt/Acre

Most: A98134-2 (78), Russet Burbank (74) and AO02183-2 (73).

Least: AO01114-4 (27), Ranger Russet (34) and Russet Norkotah (35).

Yield and Economic Data

➤ Total Yield (cwt/Acre)

Highest: A01025-4 (580), A02060-3TE (541) and Ranger Russet (521).

Lowest: AO01114-4 (421), A02062-1TE (424) and PA03NM5-1 (463).

➤ US No. 1 Yield (cwt/Acre)

Highest: AO02060-3 (427), Russet Norkotah (413) and A01025-4 (398).

Lowest: PA03NM5-1 (326), Russet Burbank (344) and A02062-1TE (357).

➤ **Percent US No. 1**

Highest: AO01114-4 (86%), AO2062-1TE (84%) and AO02060-3 (84%).
Lowest: AO1025-4 (69%), PA03NM5-1(70%), and Russet Burbank (71%).

➤ **Carton Yield (8-20 oz.) cwt/Acre**

Highest: Ranger Russet (271), Russet Norkotah (268) and AO02060-3 (264).
Lowest: PA03NM5-1 (144), A98134-2 (148) and Russet Burbank (167).

➤ **Gross Return (\$/acre)**

Fresh Market Highest: Ranger Russet, Russet Norktah and AO02060-3.
Fresh Market Lowest: PA03NM5-1, Russet Burbank, A98134-2.

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

➤ **Hollow Heart**

Notable Defects: AO2062-1TE (48%), AO01114-4 (18%), and AO1124-3 (10%).

➤ **Stem-end Browning**

Notable Defects: Russet Burbank (10%) and A98134-2 (8%).

Entry	Total Yield		US # 1s*	US # 2s*	Culls*	Carton Yield 100-50 count (US 1's 8-20 oz)	
	(cwt/A)	STATS**	> 4 oz.	> 4 oz.	& <4 oz.	% of Total Yield	(cwt/A)
Ranger Russet	521	BC	75	11	13	69	271
Russet Burbank	487	CDE	71	10	19	48	167
Russet Norkotah	513	BCD	80	7	12	65	268
AO1025-4	580	A	69	12	19	61	241
AO1124-3	479	DE	79	10	11	61	229
AO2060-3TE	541	AB	72	6	21	59	229
AO2062-1TE	424	FG	84	4	11	69	246
A98134-2	517	BCD	74	9	17	39	148
AO01114-4	421	G	86	5	10	57	205
AO02060-3	507	BCD	84	3	13	62	264
AO02183-2	508	BCD	77	4	19	57	226
PA03NM5-1	463	EF	70	7	22	44	144

*Percent values may not total 100% due to rounding

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

Klamath Basin Potato Variety Development Summary | 2010

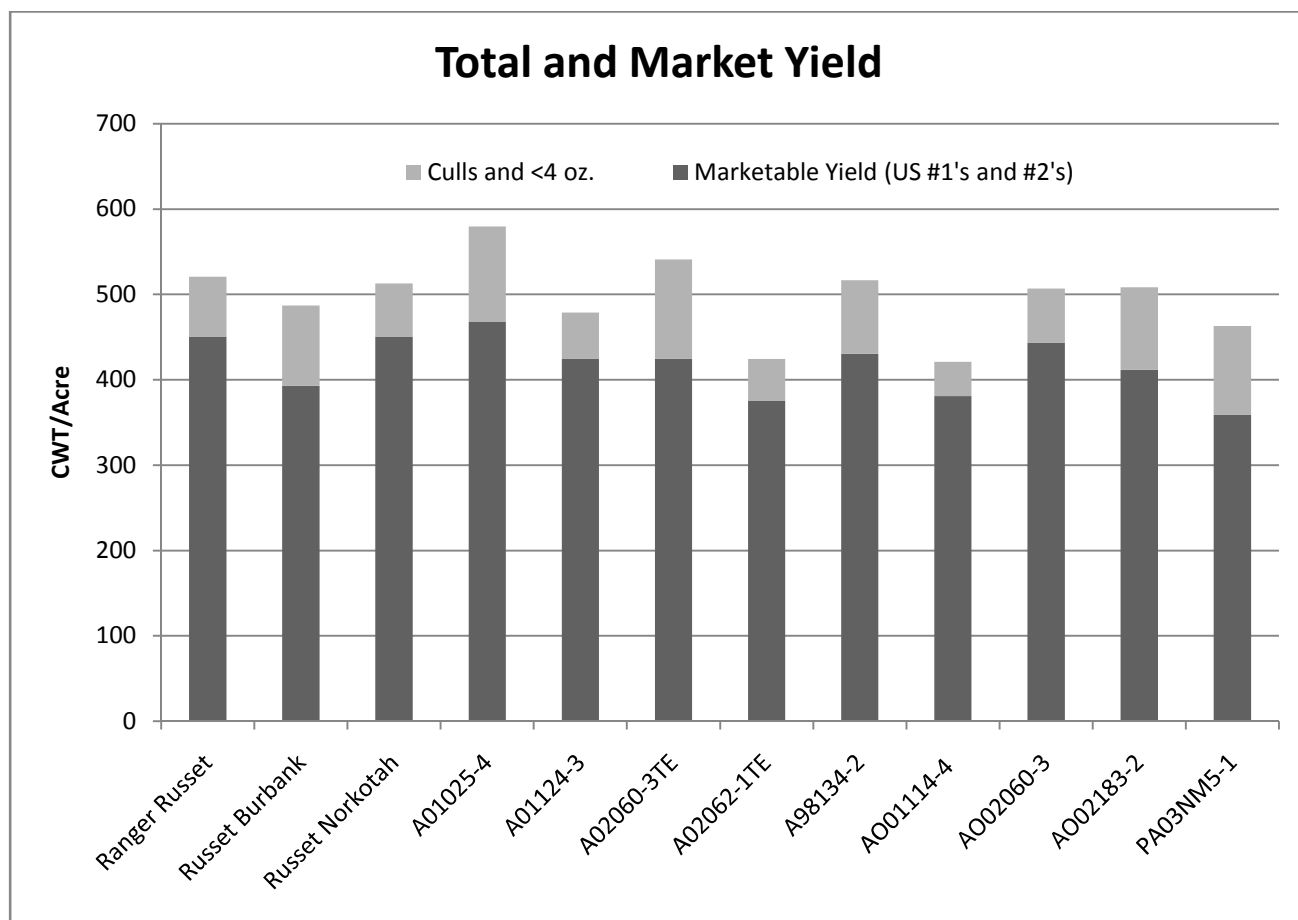
Entry	US # 1 Yield					8-12 oz Specific Gravity	Internal Defects (%) 8-12 oz. tubers***			
	>4 oz. (cwt/A)	STATS**	%*				HH	IBS	BS	SEB
			4-8 oz.	8-12 oz.	>12 oz.					
Ranger Russet	392	ABC	23	34	42	1.088	0	5	0	0
Russet Burbank	344	DE	49	34	17	1.088	3	0	0	10
Russet Norkotah	413	AB	32	37	31	1.075	8	3	0	0
A01025-4	398	ABC	30	34	36	1.081	3	0	0	0
A01124-3	377	BCD	38	36	26	1.078	10	0	0	5
A02060-3TE	391	ABC	36	37	27	1.086	48	0	0	0
A02062-1TE	357	CDE	30	40	29	1.079	0	0	0	0
A98134-2	385	ABCD	60	26	14	1.081	0	5	0	8
AO01114-4	362	CDE	38	34	28	1.093	18	3	0	0
AO02060-3	427	A	34	40	26	1.090	3	3	0	0
AO02183-2	394	ABC	39	37	24	1.090	3	0	0	5
PA03NM5-1	326	E	54	30	15	1.091	3	3	0	0

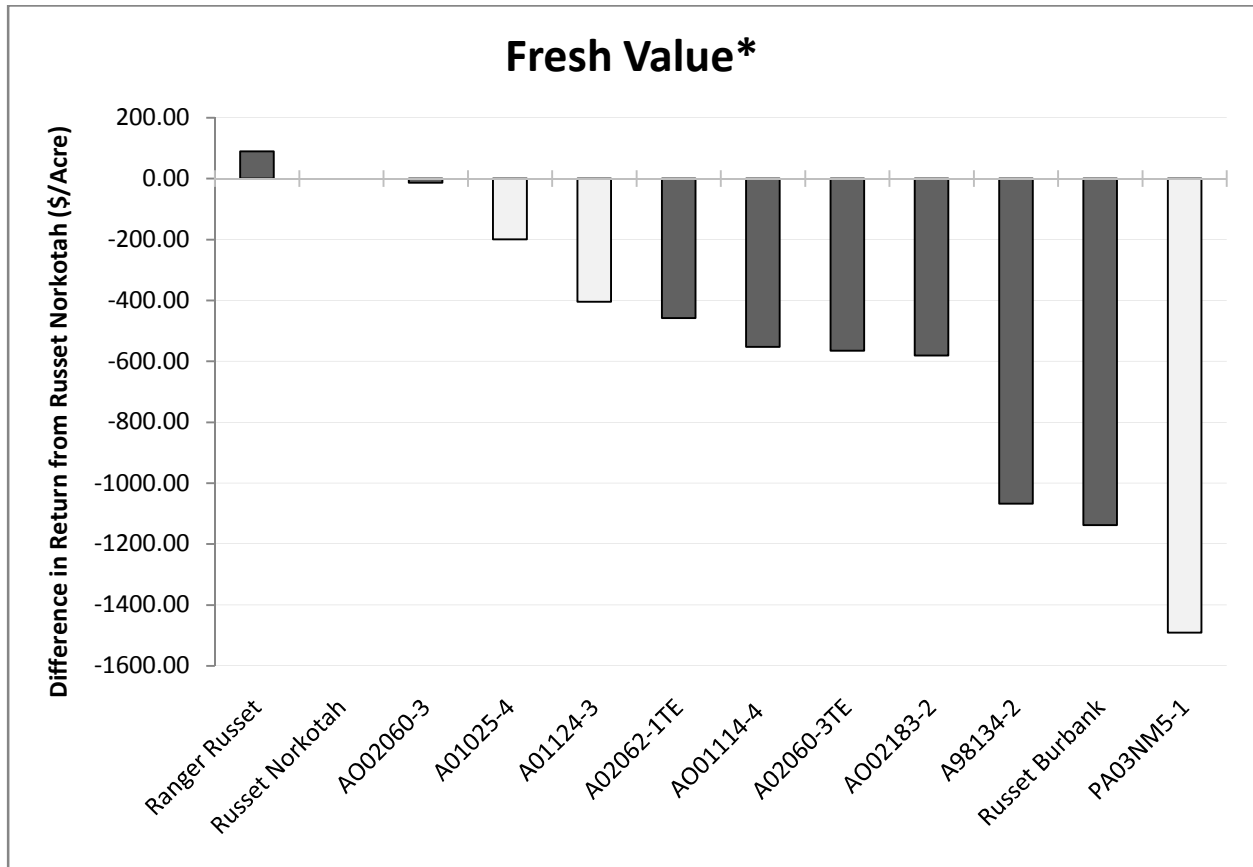
*Percent values may not total 100% due to rounding

**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		Length/ Width Ratio	Vine Vigor (1-5 large)	Vine Maturity (1-5 late)	Skin Color (1-5 dark)	Russetting (1-5 hvy)	Shape (1-5 long)	Uniformity (1-5 ex.)
		Wt. (oz.)	Number tubers/plant							
Ranger Russet	99	7.7	5.7	2.19	3.0	3.9	4.0	4.4	5.0	3.6
Russet Burbank	98	5.4	7.7	1.82	3.9	3.3	4.0	4.5	4.4	3.8
Russet Norkotah	98	6.8	6.4	1.67	3.1	2.6	4.5	4.5	4.1	4.4
A01025-4	97	6.6	7.6	1.77	4.0	3.4	2.0	3.0	4.4	3.4
A01124-3	98	6.6	6.1	1.65	3.4	3.4	4.3	4.6	4.1	3.6
A02060-3TE	99	5.7	8.0	1.76	4.0	4.0	3.6	4.1	4.1	4.1
A02062-1TE	100	6.2	5.7	2.10	2.6	3.6	4.5	4.5	5.0	4.1
A98134-2	98	4.3	10.0	1.56	4.0	3.5	3.8	4.1	3.3	3.9
AO01114-4	99	6.8	5.3	1.57	3.1	3.8	4.0	4.6	3.9	3.8
AO02060-3	99	6.4	6.7	1.85	3.1	3.3	4.1	4.4	4.1	4.5
AO02183-2	100	5.2	8.2	2.26	3.0	4.0	4.0	4.5	4.6	4.6
PA03NM5-1	96	5.1	7.9	1.61	3.8	4.1	3.6	4.0	3.8	3.6





*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	2010 KBREC- Tri-State Russet Comment	Entry	2010 KBREC- Tri-State Russet Comment
Ranger Russet		Russet Burbank	
	Long, bumpy, crooks, fair		Typy, smallish, ok

<p>Russet Norkotah</p>  <p>Nice, typy, keep</p>	<p>A01025-4</p>  <p>Light, plump, irregular, not fresh</p>
<p>A01124-3</p>  <p>Flat, lumpy, not fresh, drop</p>	<p>A02060-3TE</p>  <p>Blocky, typy, nice, keep</p>
<p>A02062-1TE</p>  <p>Some pointy, typy, bright eye, keep</p>	<p>A98134-2</p>  <p>Blocky, skinning, round, drop</p>
<p>AO01114-4</p>  <p>Thumb nail cracks, blocky, fresh?, ok</p>	<p>AO02060-3</p>  <p>Real nice, typy, keep</p>
<p>AO02183-2</p>  <p>Typy, uniform, long?, smallish, keep</p>	<p>PA03NM5-1</p>  <p>Blocky/round, process</p>

2010 Western Regional Russet Trial

Location: Merrill, OR

Planting Date: May 19

Harvest Date: October 11

Fertility: 160-191-185-97S-5.28Zn-1.05B

Vine Kill Date: September 2

Days to Vine kill: 113

In-Row Spacing: 9 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). This trial included three standard varieties and 17 new clones at the KBREC location. 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 (100%), Russet Norkotah (97%).

Slow emergence: PA99N2-1 (34%), AO00057-2 (54%) and AO96305-3 (59%).

➤ 50 Day

Full emergence: A008-1TE, A01010-1 and CO98067-7RU

Poor emergence: All entries had greater than 94% emergence.

Plant Tuber Growth and Development

➤ Average Tuber Number Per Plant

Most: AC99375-1RU (8.3), PA00N14-2 (8.0) and CO98067-7RU (7.7).

Least: AOTX96216-2Ru (3.6), AOTX96265-2Ru (4.8) and CO99100-1RU (4.9).

➤ Average Tuber Size (oz.)

Largest: AOTX96216-2Ru (12.1), A98345-1 (7.7) and AOTX96265-2Ru (7.5).

Smallest: PA00N14-2 (4.6), CO98067-7RU (4.7) and Russet Burbank (5.0).

➤ Undersized Tubers (<4 oz.) cwt/Acre

Most: PA00N14-2 (62), CO98067-7RU (62) and CO99053-4RU (54).

Least: AOTX96216-2Ru (9), AOTX96265-2Ru (17) and CO99100-1RU (21).

Yield and Economic Data

➤ Total Yield (cwt/Acre)

Highest: AC99375-1RU (518), A01010-1 (498) and A00324-1 (497).

Lowest: CO99100-1RU (398), CO99053-4RU (406) and Russet Burbank (411).

- **US No. 1 Yield (cwt/Acre)**
Highest: A01010-1 (411), A98345-1 (405) and AO00057-2 (400).
Lowest: AOTX96216-2Ru (235), CO99100-1RU (282) and Russet Burbank (292).
- **Percent US No. 1**
Highest: AOTX96265-2Ru (87%), AO96305-3 (86%), AO00057-2 (84%) and A98345-1 (84%).
Lowest: AOTX96216-2Ru (48%), PA99N82-4 (65%) and AC99375-1RU (70%).
- **Carton Yield (8-20 oz.) cwt/Acre**
Highest: AO00057-2 (290), AOTX96265-2Ru (282) and Russet Norkotah (270).
Lowest: PA00N14-2 (89), CO98067-7RU (152) and AOTX96216-2Ru (160).
- **Gross Return (\$/acre)**
Fresh Market Highest: A98345-1, AO00057-2 and AOTX96265-2Ru.
Fresh Market Lowest: PA00N14-2, CO98067-7RU and Russet Burbank.

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

- **Hollow Heart**
Notable Defects: AOTX96216-2Ru (50%), PA99N82-4 (45%), AOTX95265-1Ru (38%) and CO99053-3RU (35%).
- **Stem-end Browning**
Notable Defects: Russet Burbank (18%) and AOTX96265-2RU (10%).

Entry	Total Yield		US # 1s*	US # 2s*	Culls*	Carton Yield	
	(cwt/A)	STATS**	> 4 oz.	> 4 oz.	& <4 oz.	100-50 count (US 1's 8-20 oz)	(cwt/A)
			% of Total Yield			% of Total Yield	
Ranger Russet	482	ABCD	75	14	11	46	220
Russet Burbank	411	EF	71	16	13	40	163
Russet Norkotah	460	BCDE	82	5	13	59	270
A98345-1	482	ABCD	84	5	11	49	235
A0008-1TE	431	DEF	78	8	14	41	177
A00324-1	497	ABC	78	11	12	51	256
A01010-1	498	AB	83	7	10	47	232
AC99375-1RU	518	A	70	16	14	35	183
AO00057-2	474	ABCD	84	4	12	61	290
AO96305-3	432	DEF	86	4	10	57	247
AOTX95265-1Ru	478	ABCD	79	8	13	52	249
AOTX96216-2Ru	490	ABC	48	39	13	33	160
AOTX96265-2Ru	427	DEF	87	7	6	66	282
CO98067-7RU	443	BCDEF	72	13	15	34	152
CO99053-3RU	444	BCDEF	76	10	14	47	210

Klamath Basin Potato Variety Development Summary | 2010

CO99053-4RU	406	EF	74	11	15	42	169
CO99100-1RU	398	F	71	18	11	44	177
PA00N14-2	428	DEF	72	11	17	21	89
PA99N2-1	442	CDEF	80	8	12	50	222
PA99N82-4	490	ABC	65	17	17	40	196

*Percent values may not total 100% due to rounding

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

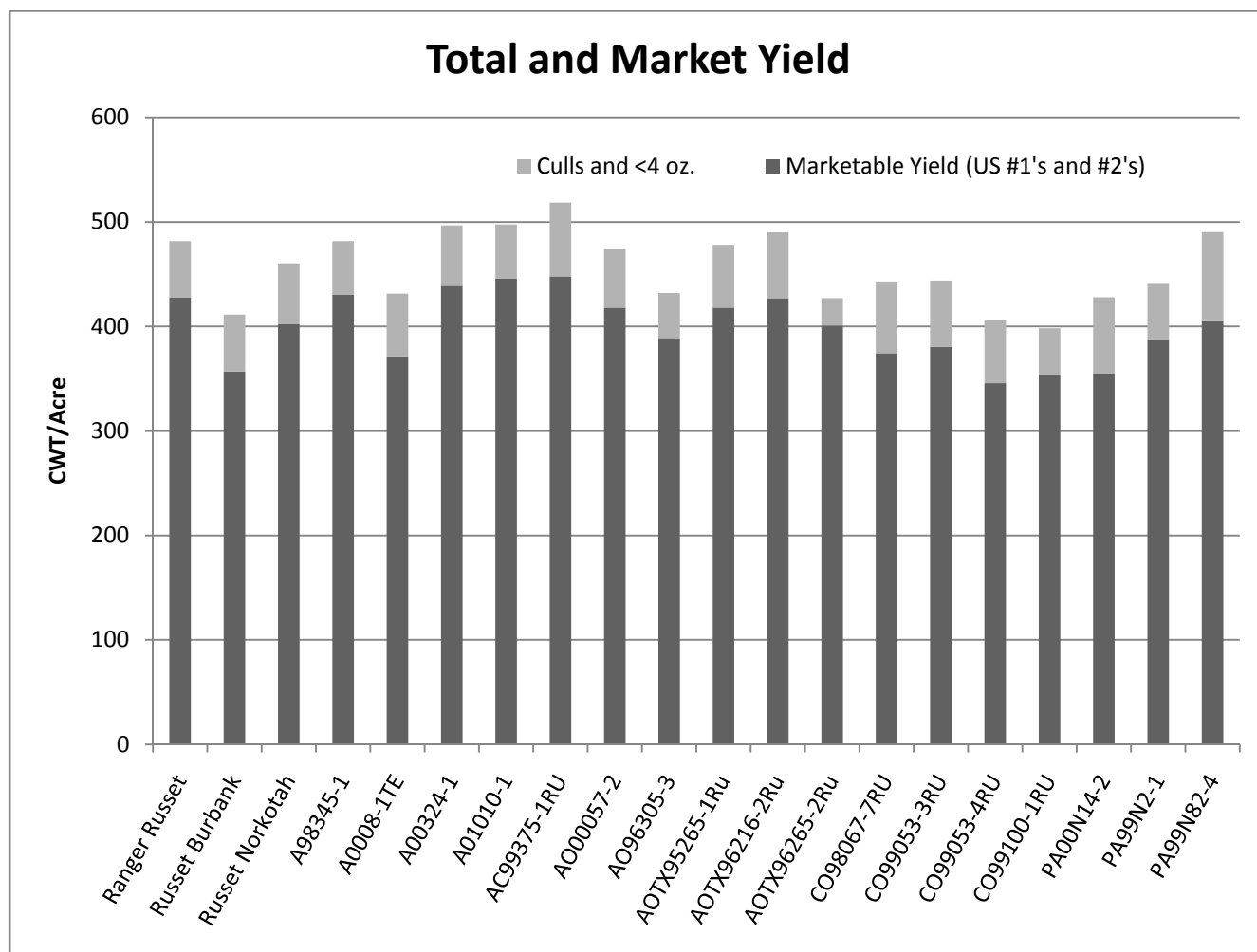
Entry	US # 1 Yield					8-12 oz Specific Gravity	Internal Defects (%) 8-12 oz. tubers***			
	>4 oz. (cwt/A)	STATS**	%*				HH	IBS	BS	SEB
			4-8 oz.	8-12 oz.	>12 oz.					
Ranger Russet	361	ABCDE	27	30	43	1.086	0	0	0	0
Russet Burbank	292	FGH	44	34	22	1.084	3	0	0	18
Russet Norkotah	377	ABC	24	39	37	1.082	3	0	3	0
A98345-1	405	A	28	31	41	1.087	0	0	0	0
A0008-1TE	337	BCDEF	45	34	22	1.081	25	0	0	0
A00324-1	385	AB	30	39	31	1.081	5	0	0	3
A01010-1	411	A	40	36	24	1.085	0	3	0	0
AC99375-1RU	365	ABCD	49	34	17	1.093	10	0	0	0
AO00057-2	400	AB	26	36	39	1.085	0	5	0	0
AO96305-3	372	ABCD	31	41	28	1.091	0	0	0	0
AOTX95265-1Ru	378	ABC	25	30	45	1.075	38	0	0	0
AOTX96216-2Ru	235	H	19	23	58	1.072	50	0	3	0
AOTX96265-2Ru	371	ABCD	22	43	35	1.091	20	0	0	10
CO98067-7RU	319	CDEFG	50	35	15	1.074	5	0	0	0
CO99053-3RU	337	BCDEFG	31	34	35	1.082	35	3	3	0
CO99053-4RU	300	EFG	38	40	22	1.080	0	0	0	0
CO99100-1RU	282	GH	27	31	42	1.079	3	0	0	5
PA00N14-2	308	DEFG	71	25	4	1.086	0	0	0	0
PA99N2-1	353	ABCDEF	35	35	30	1.081	23	5	0	0
PA99N82-4	321	CDEFG	33	29	38	1.078	45	0	0	0

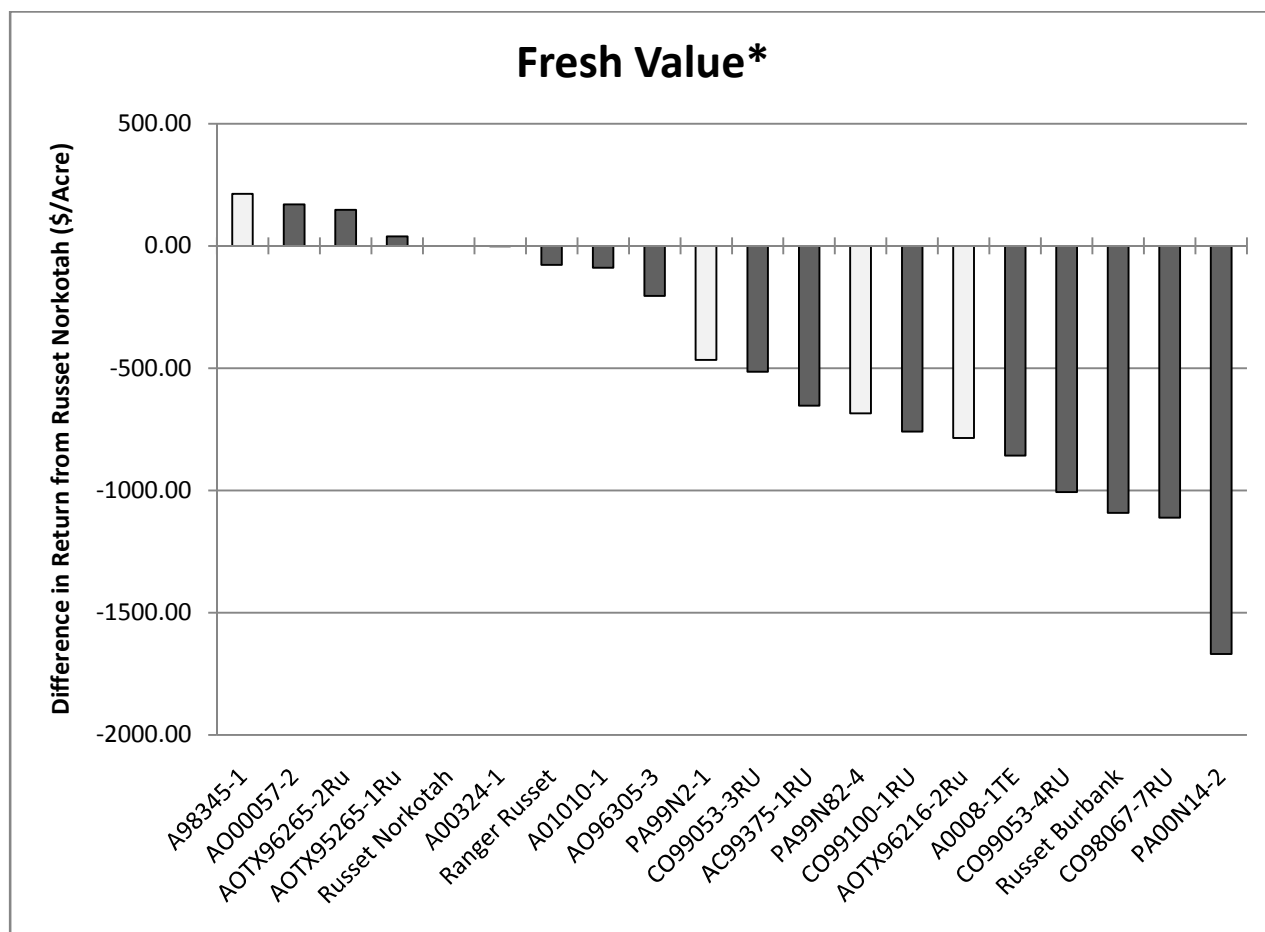
*Percent values may not total 100% due to rounding

**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		Length/ Width Ratio	Vine Vigor (1-5 large)	Vine Maturity (1-5 late)	Skin Color (1-5 dark)	Russetting (1-5 hvy)	Shape (1-5 long)	Uniformity (1-5 ex.)
		Wt. (oz.)	Number tubers/plant							
Ranger Russet	96	6.8	6.1	2.10	3.3	3.6	4.0	4.4	5.0	3.6
Russet Burbank	96	5.0	7.1	1.88	4.6	3.5	4.0	4.1	4.1	3.8
Russet Norkotah	99	6.7	5.8	1.67	2.9	2.3	4.5	4.5	4.1	4.3
A98345-1	96	7.7	5.7	1.66	4.3	4.4	2.0	2.9	4.5	3.8
A0008-1TE	100	5.4	6.7	1.69	3.1	3.0	3.6	3.9	3.8	4.2
A00324-1	99	6.7	6.2	1.81	3.4	3.5	4.0	4.5	4.3	3.9
A01010-1	100	5.8	7.1	1.86	4.3	3.9	4.0	4.5	4.4	4.2
AC99375-1RU	95	5.4	8.3	1.68	4.8	4.9	4.0	4.8	4.0	3.7
AO00057-2	98	6.5	6.1	1.71	3.3	4.3	4.0	4.5	4.0	4.4
AO96305-3	99	6.6	5.3	2.00	3.1	3.1	3.5	3.1	4.8	4.5
AOTX95265-1Ru	96	6.7	6.2	1.71	3.5	2.9	4.5	4.5	4.4	4.0
AOTX96216-2Ru	95	12.1	3.6	1.51	3.6	4.6	5.0	5.0	3.5	2.9
AOTX96265-2Ru	99	7.5	4.8	1.59	3.9	4.0	4.0	4.3	3.8	3.9
CO98067-7RU	100	4.7	7.7	1.55	3.9	2.8	4.0	4.1	3.6	3.6
CO99053-3RU	98	5.6	7.1	1.68	3.1	3.8	3.8	4.3	4.1	3.9
CO99053-4RU	94	5.2	6.8	1.96	3.0	2.1	3.5	4.0	4.4	3.6
CO99100-1RU	95	7.1	4.9	1.77	3.4	2.9	4.0	4.4	4.1	3.8
PA00N14-2	98	4.6	8.0	1.88	3.4	3.0	3.5	3.9	4.3	3.7
PA99N2-1	98	5.7	6.5	1.43	3.0	3.6	3.9	4.4	3.3	3.7
PA99N82-4	98	6.7	6.2	1.26	3.6	3.8	4.4	4.8	2.9	3.1





*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	2010 KBREC- Regional Russet Comment	Entry	2010 KBREC- Regional Russet Comment
Ranger Russet		Russet Burbank	
	Hooky crooky		Typy, nice, some pointy, ok

Russet Norkotah  <p>Nice, typy, keep</p>	A98345-1  <p>Black dot, big, process only</p>
A0008-1TE  <p>Blocky, typy, some pointy stem end, keep</p>	A00324-1  <p>Typy, skinned, flat, fair</p>
A01010-1  <p>Deep eye, typy, nice, keep</p>	AC99375-1RU  <p>Thumb nail cracks, dents, dimples, poor, IPS</p>
AO00057-2  <p>Blocky, typy, little flat, keep</p>	AO96305-3  <p>Best of trial, skinned, nice, keep</p>
AOTX95265-1Ru  <p>Russet Norkotah look alike, nice, typy, keep</p>	AOTX96216-2Ru  <p>Very bad, junk</p>

<p>AOTX96265-2Ru</p>  <p>Typy, blocky, flat, nice, keep</p>	<p>CO98067-7RU</p>  <p>Flat, dents, pear, drop</p>
<p>CO99053-3RU</p>  <p>Typy, flat, irregular size, fair</p>	<p>CO99053-4RU</p>  <p>Flat, irregular size, fair</p>
<p>CO99100-1RU</p>  <p>Dimpled and dented, rough, poor, drop</p>	<p>PA00N14-2</p>  <p>Small, typy, fair</p>
<p>PA99N2-1</p>  <p>Short, too round, flat, not fresh, drop</p>	<p>PA99N82-4</p>  <p>Dimpled and dented, junk, drop</p>

2010 Preliminary Yield (PYT-2) Specialty Trial

Location: Merrill, OR

Planting Date: May 19

Harvest Date: October 1

Fertility: 160-191-185-97S-5.28Zn-1.05B

Vine Kill Date: September 2

Days to Vine kill: 113

In-Row Spacing: 9 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. This trial included 2 standard varieties and 20 new entries. The Oregon Potato Variety Development Team chose to advance 4 selections to the Statewide Specialty Trial in 2011 and discarded the remaining selections due to poor performance or low market demand.

Entry #	Selection	Disposition and comments
1	Yukon Gold	Ugly Yukon
2	All Blue	Dumbbells
3	OR04077-1	Yellow flesh, nice skin, good size, keep
4	OR04206-2	White flesh, blotch pink eye, drop
5	OR04206-3	Smooth, large, blotch pink eye, nicer than 4, fair
6	OR04211-2	Light pink skin/Yellow flesh, drop
7	OR04222-1	Deep eyes, oblong, large, dark yellow, drop
8	OR07151-1	Yellow french fry, oblong, drop
9	OR07153-1	Red skin/Yellow flesh, very large, drop
10	OR07154-2	Ugly Pink/Yellow skin, yellow flesh, finger, drop
11	OR07175-1	Large, pointy, ugly, white, drop
12	OR07179-1	Smooth, dark yellow, deep eyes, rough skin, keep
13	OR07189-1	Yellow, pink eye, not as nice as Yukon Gold, drop
14	OR07202-1	Russet, chipper, drop
15	OR07207-1	Pink, red-flesh, chubby fingerling, drop
16	OR07227-1	Yellow, chipper?, fair
17	OR07242-5	Powdery scab, yellow flesh, smooth, fair, keep
18	OR07247-5	Oblong, smooth, not fresh, R/R, process, fair
19	OR07248-1	Purple skin/purple white flesh, oblong, ugly, drop
20	OR07283-1	Very large, oblong, yellow skin, white flesh, drop
21	OR07286-1	Rough skin, round, yellow, keep
22	OR07309-1	Smooth, Yukon Gold look alike, no scab, skin checking, keep

2010 Statewide Specialty Trial

Location: Merrill, OR

Planting Date: May 19

Harvest Date: October 12

Fertility: 160-191-185-97S-5.28Zn-1.05B

Vine Kill Date: September 2

Days to Vine kill: 113

In-Row Spacing: 9 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: POR05PG26-11 (100%), POR02PG12-1 (96%), OR04198-1 (96%) and POR07PG20-2 (96%).

Slow emergence: Yukon Gold (57%), OR05020-1 (64%) and POR07PG21-1 (65%).

➤ 50 Day

Full emergence: POR05PG26-11.

Poor emergence: All entries had greater than 90% emergence.

Plant Tuber Growth and Development

➤ Average Tuber Number Per Plant

Most: POR05PG26-11 (23.2), POR07PG20-2 (21.0), AO03545-2 (19.9) and POR02PG12-1 (19.0).

Least: Yukon Gold (5.8), Dark Red Norland (8.6) and OR05020-1 (8.9).

➤ Average Tuber Size (oz.)

Largest: Yukon Gold (7.4), Dark Red Norland (6.3) and OR05020-1 (4.6).

Smallest: POR02PG12-1 (1.5), POR05PG26-11 (1.8), POR06PG24-2 (1.8) and OR04198-1 (1.9).

➤ C Size Tubers (≤ 1.875 inch diameter and <4 oz.) cwt/Acre

Most: POR02PG12-1 (129), POR05PG26-11 (122) and POR06PG24-2 (112).

Least: Yukon Gold (8), Dark Red Norland (12) and OR05020-1 (19).

➤ B Size Tubers (1.875-2.25 inch diameter and <4 oz.) cwt/Acre

Most: POR05PG26-11 (247), AO03545-2 (243) and POR07PG20-2 (220).

Least: Yukon Gold (27), Dark Red Norland (52) and OR05020-1 (82).

Yield Data

➤ Total Yield (cwt/Acre)

Highest: Dark Red Norland (617), Purple Majesty (598), OR05112-1 (546) and POR07PG3-1 (546).

Lowest: OR04198-1 (339), POR02PG12-1 (341) and POR06PG24-2 (372).

➤ **US No. 1 Yield (cwt/Acre)**

Highest: Dark Red Norland (544), Purple Majesty (530) and POR07PG3-1 (508).

Lowest: OR04198-1 (302), POR02PG12-1 (307) and POR06PG24-2 (337).

➤ **% U.S. #1s**

Highest: POR05PG26-11 (97%) and POR07PG20-2 (96%).

Lowest: OR05112-1 (83%) and Dark Red Norland (88%).

Tuber Defect Incidence (40 tuber sample)

➤ **External Defects:** OR05112-1 was moderately misshapen. OR05112-1, OR04198-1 and POR07PG20-2 showed resistance to powdery scab. POR02PG12-1 showed moderate resistance to tuber *Rhizoctonia*.

➤ **Internal Defects:** Yukon Gold had 23% stem-end browning. POR07PG3-1 contained hard bite in 13% 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)				
							% of Total Yield*	Green	Growth crack	MS/ Knobs	Pwdry. Scab
			(cwt/A)	STATS**							
Yukon Gold	Yellow	2.1	459	DE	93	7	4.3	4.6	4.3	3.9	3.9
Dark Red Norland	Red	1.3	617	A	88	12	3.9	4.1	4.0	3.4	3.4
Purple Majesty	Purple	5.0	598	AB	89	11	4.5	4.4	3.1	4.0	4.0
POR02PG12-1***	Whit	1.1	341	G	90	10	4.3	4.3	4.0	4.3	4.4
POR05PG26-11***	Yellow	1.3	506	CD	97	3	4.1	4.8	4.8	3.4	4.0
OR05020-1	Red	3.3	469	CDE	91	9	4.1	4.1	4.4	3.5	4.1
OR05112-1***	Yellow	2.0	546	ABC	83	17	4.3	4.5	3.3	4.8	4.1
POR06PG24-2***	Yellow	2.3	372	FG	91	9	4.1	4.5	4.1	3.9	3.8
AO03545-2***	Red	3.6	521	BCD	93	7	4.5	4.3	4.5	3.6	3.4
OR04198-1***	Yellow	4.0	339	G	89	11	4.0	4.5	4.3	4.5	2.5
POR07PG3-1***	Yellow	2.0	546	ABC	93	7	3.9	4.5	4.0	2.5	4.1
POR07PG20-2***	Y/Blush	3.5	516	CD	96	4	4.3	4.5	4.8	5.0	4.3
POR07PG21-1***	Yellow	2.5	425	EF	92	8	4.1	4.8	3.9	3.8	2.9

Klamath Basin Potato Variety Development Summary | 2010

Entry	US # 1 Yield								Specific Gravity	Internal Defects (%)****			
	(cwt/A)	STATS**	%*							HH	IBS	SEB	HB
			C size	B size	4-6 oz.	6-10 oz.	10-14 oz.	>14 oz.					
Yukon Gold	426	CD	2	6	14	26	24	27	1.083	0	0	23	8
Dark Red Norland	544	A	2	10	18	35	25	10	1.069	0	0	0	3
Purple Majesty	530	AB	8	27	24	29	12	1	1.080	0	0	0	0
POR02PG12-1***	307	F	42	45	10	2	0	0	1.082	0	0	0	0
POR05PG26-11***	490	ABC	25	50	18	6	0	0	1.083	0	0	0	5
OR05020-1	428	CD	5	19	23	27	21	6	1.065	0	0	0	8
OR05112-1***	455	BCD	13	27	34	26	1	0	1.069	0	0	0	0
POR06PG24-2***	337	EF	33	51	15	0	0	0	1.079	0	0	0	0
AO03545-2***	487	ABC	16	50	25	9	0	0	1.077	0	0	0	3
OR04198-1***	302	F	20	52	23	6	0	0	1.071	0	0	0	0
POR07PG3-1***	508	AB	6	27	26	25	13	4	1.073	0	0	0	13
POR07PG20-2***	495	ABC	18	45	24	13	1	0	1.063	0	0	0	0
POR07PG21-1***	390	DE	24	38	25	10	1	1	1.090	0	0	3	3









Entry	Stand %	Average Tuber		Vine Vigor (1-5 large)	Vine Maturity (1-5 late)	Russetting (1-5 hvy)	Shape (1-5 long)	Size uniformity (1-5 ex.)	Shape uniformity (1-5 ex.)	Eye Depth (1-5 shal.)
		Wt. (oz.)	Number tubers/plant							
Yukon Gold	90	7.4	5.8	3.4	2.5	1.3	2.0	4.1	3.9	4.1
Dark Red Norland	97	6.3	8.6	3.8	2.8	1.9	2.0	4.0	3.9	3.3
Purple Majesty	96	3.8	13.6	4.1	2.6	2.3	3.4	3.3	2.9	4.0
POR02PG12-1***	99	1.5	19.0	3.4	2.1	1.1	1.4	4.6	3.9	4.1
POR05PG26-11***	100	1.8	23.2	4.0	3.3	1.4	1.0	4.4	4.6	4.5
OR05020-1	96	4.6	8.9	3.0	2.1	1.5	1.5	3.5	4.0	4.4
OR05112-1***	99	3.0	15.0	3.0	3.3	1.3	4.9	4.1	3.6	4.4
POR06PG24-2***	99	1.8	16.9	3.4	4.0	1.4	4.9	4.5	4.4	4.1
AO03545-2***	97	2.2	19.9	3.3	2.5	1.8	1.0	4.5	4.5	4.1
OR04198-1***	98	1.9	15.2	3.0	4.5	1.0	1.0	4.3	4.8	3.8
POR07PG3-1***	96	3.4	13.8	3.5	2.9	1.1	1.4	3.9	4.0	4.0
POR07PG20-2***	99	2.1	21.0	4.4	2.6	1.3	1.0	4.3	5.0	4.3
POR07PG21-1***	90	2.5	15.6	3.0	3.9	1.5	4.1	3.8	4.0	4.4



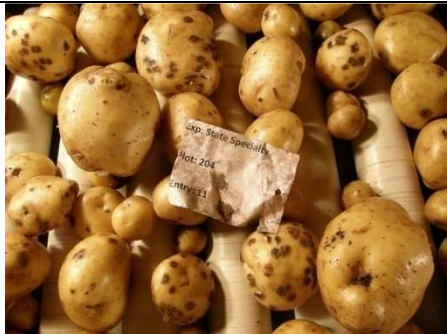


*Percent values may not total 100% due to rounding

**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	2010 KBREC- Statewide Specialty Comment	Entry	2010 KBREC- Statewide Specialty Comment
Yukon Gold		Dark Red Norland	
	Black dot, smooth, large		Pale, Rough, Big, Drop
Purple Majesty		POR02PG12-1***	
	Misshapen, ugly, black dot		Brows, small, black dot, peep
POR05PG26-11***		OR05020-1	
	Small, typy, smooth, red eye, keep		Thumb nail cracks, skinning, black dot, drop
OR05112-1***		POR06PG24-2***	
	Pointy, Pty. end Rot, Smooth, Keep?, low black dot, chubby fingerling		Sunlight turns skin reddish, nice, smooth, low black dot, keep

AO03545-2***		OR04198-1***	
	Bright, yellow flesh, smooth, low black dot, low skinning, keep		Peeping eye, smooth, black dot, dark yellow flesh, keep
POR07PG3-1***		POR07PG20-2***	
	Smooth, yellow chipper, sprouts, yellow enough? keep?		Peeping eye, smooth, low black dot, smooth, keep
POR07PG21-1***			
	Smooth, typy, moderate black dot, keep		

***Entries retained for further testing in 2011

2010 Tri-State Specialty Trial

Location: Merrill, OR

Planting Date: May 19

Harvest Date: October 13

Fertility: 160-191-185-97S-5.28Zn-1.05B

Vine Kill Date: September 2

Days to Vine kill: 113

In-Row Spacing: 9 inch

The Tri-state Specialty Trial evaluates advanced selections originating from Oregon and Idaho. Entries are evaluated for both fresh market and processing potential 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: POR05PG56-1 (99%), Dark Red Norland (97%) and A02267-5PY (92%).

Slow emergence: A03576-5Y (63%), A05177-4RY (63%), A05173-2R (68%) and AFA3976TPS-1 (68%).

➤ 50 Day

Full emergence: OR04036-5

Poor emergence: A03576-5Y (88%). All other entries had greater than 94% emergence.

Plant Tuber Growth and Development

➤ Average Tuber Number Per Plant

Most: POR05PG56-1 (20.3), A02267-5PY (16.2) and A02267-1Y (15.8).

Least: Yukon Gold (5.8), Dark Red Norland (9.5) and OR04036-5 (10.1).

➤ Average Tuber Size (oz.)

Largest: Yukon Gold (7.3), Dark Red Norland (5.4) and OR04036-5 (4.3).

Smallest: POR05PG56-1 (2.3), OR04131-2 (2.7) and A02267-5PY (2.7).

➤ C Size Tubers (<1.875 inch diameter and <4 oz.) cwt/Acre

Most: POR05PG56-1 (103), OR04131-2 (64) and A02267-5PY (55).

Least: Dark Red Norland (10), Yukon Gold (11) and OR04036-5 (22).

➤ B Size Tubers (1.875-2.25 inch diameter and <4 oz.) cwt/Acre

Most: POR05PG56-1 (264), A02267-5PY (227) and OR04031-2 (198).

Least: Yukon Gold (27), Dark Red Norland (75) and OR04036-5 (84).

Yield Data

➤ Total Yield (cwt/Acre)

Highest: NDA050237B-1R (728), A02267-1Y (623) and Dark Red Norland (603).

Lowest: OR04031-2 (491), A02267-5PY (499), Yukon Gold (500) and NDA8512C-1R (501).

Klamath Basin Potato Variety Development Summary | 2010

➤ US No. 1 Yield (cwt/Acre)

Highest: NDA050237B-1R (636), Dark Red Norland (539) and A05173-2R (538).

Lowest: AFA3976TPS-1 (425), NDA8512C-1R (450) and A03576-5Y (451).

➤ % U.S. #1s

Highest: OR04131-2 (97%), OR04036-5 (97%) and POR05PG56-1 (96%).

Lowest: AFA3976TPS-1 (83%), A03576-5Y (85%) and NDA050237B-1R (87%).

Tuber Defect Incidence (40 tuber sample)

➤ **External Defects:** AFA3976TPS-1 and Purple Majesty had a high amount of misshapen tubers. POR05PG56-1, A03576-5Y and OR04036-5 were highly resistant to powdery scab.

➤ **Internal Defects:** Yukon Gold showed 10% stem-end browning. A02267-5PY had hard bite in 10% of tubers.

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**			Green	Growth crack	MS/ Knobs	Pwdry. scab	Rhiz.
Dark Red Norland	Red	1.0	White	603	BC	89	11	4.0	4.3	4.0	3.0	3.6
NDA050237B-1R	Red	4.0	White	728	A	87	13	4.0	3.4	4.3	2.9	3.5
NDA8512C-1R	Red	4.0	White	501	EF	90	10	4.4	4.0	4.4	2.3	3.6
OR04131-2	Red	4.0	White	491	F	97	3	4.3	4.8	4.9	4.0	3.8
A02267-5PY	Purple	3.4	Yellow	499	EF	93	7	4.4	4.5	4.8	1.6	3.6
A05173-2R	Pink	1.0	Yellow	595	BCD	91	9	4.1	4.5	4.3	1.5	3.5
Purple Majesty	Purple	4.9	Purple	596	BC	90	10	4.8	4.6	3.8	4.4	4.1
POR05PG56-1	Purple	3.4	Purple	557	BCDEF	96	4	3.8	4.5	4.6	4.6	4.0
Yukon Gold	Yellow	1.4	Yellow	500	EF	91	9	4.0	4.4	4.1	3.9	4.0
A02267-1Y	Yellow	1.8	Yellow	623	B	90	10	4.0	4.8	4.1	3.1	3.1
A03576-5Y	Yellow	2.0	Yellow	531	CDEF	85	15	3.6	4.6	4.3	4.6	3.3
A05177-4RY	Yellow	1.9	Yellow	573	BCDE	88	12	3.4	4.5	4.0	3.4	3.1
AFA3976TPS-1	White	1.0	Yellow	513	EF	83	17	3.6	4.9	3.3	1.4	3.5
OR04036-5	Yellow	1.0	Yellow	520	DEF	97	3	4.1	4.6	4.5	5.0	4.1

*Percent values may not total 100% due to rounding

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

Klamath Basin Potato Variety Development Summary | 2010





Entry	US # 1 Yield								Specific Gravity	Internal Defects (%) ***			
	(cwt/A)	STATS**	%*							HH	IBS	SEB	HB
			C size	B size	4-6 oz.	6-10 oz.	10-14 oz.	>14 oz.					
Dark Red Norland	539	BC	2	14	25	36	18	6	1.066	3	0	0	0
NDA050237B-1R	636	A	4	20	30	31	10	5	1.064	0	0	0	0
NDA8512C-1R	450	DE	7	32	32	23	6	0	1.067	0	0	3	0
OR04131-2	476	CDE	13	42	32	12	1	0	1.072	0	0	0	0
A02267-5PY	465	DE	12	49	25	14	0	0	1.079	0	8	0	10
A05173-2R	538	BC	3	26	30	31	8	2	1.059	0	0	0	0
Purple Majesty	537	BC	10	28	32	20	8	2	1.076	0	0	0	0
POR05PG56-1	535	BC	19	49	25	6	1	0	1.074	0	0	0	0
Yukon Gold	452	DE	2	6	14	25	32	21	1.083	0	0	10	5
A02267-1Y	559	B	6	32	36	24	2	0	1.071	0	0	0	0
A03576-5Y	451	DE	10	25	30	22	10	4	1.069	0	0	0	0
A05177-4RY	505	BCD	8	27	31	25	8	1	1.080	0	8	0	0
AFA3976TPS-1	425	E	7	20	35	31	7	1	1.082	3	0	0	0
OR04036-5	502	BCD	4	17	33	31	12	3	1.064	0	0	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)	Vine Maturity (1-5 late)	Russetting (1-5 hvy)	Shape (1-5 long)	Size uniformity (1-5 ex.)	Shape uniformity (1-5 ex.)	Eye Depth (1-5 shal.)
		Wt. (oz.)	Number tubers/plant							
Dark Red Norland	98	5.4	9.5	4.0	3.1	2.0	2.1	3.3	3.4	4.0
NDA050237B-1R	98	4.2	14.6	3.0	5.0	1.1	1.0	4.5	4.6	4.8
NDA8512C-1R	99	3.5	12.3	3.0	2.6	1.0	1.1	4.3	4.3	4.5
OR04131-2	99	2.7	15.2	3.0	2.4	1.0	1.0	3.6	4.5	4.9
A02267-5PY	97	2.7	16.2	4.0	3.4	1.3	1.0	4.4	4.4	4.5
A05173-2R	99	4.0	12.5	3.4	3.3	1.0	2.0	3.9	3.9	4.9
Purple Majesty	95	3.7	14.7	3.5	3.1	2.5	3.3	2.8	2.3	4.3
POR05PG56-1	98	2.3	20.3	3.1	3.0	1.3	2.1	4.5	4.5	4.5
Yukon Gold	98	7.3	5.8	3.0	3.1	1.0	2.1	3.9	4.0	4.9
A02267-1Y	96	3.4	15.8	3.9	3.9	1.1	1.1	4.1	3.9	4.5
A03576-5Y	88	3.9	13.0	3.6	4.6	1.0	2.6	2.9	2.0	4.8
A05177-4RY	94	3.4	15.0	3.5	3.8	1.4	2.8	2.5	2.6	4.6
AFA3976TPS-1	97	4.1	10.8	3.0	4.9	1.0	4.0	3.3	3.1	5.0
OR04036-5	100	4.3	10.1	3.0	2.5	1.0	2.4	4.0	4.0	4.8

Entry	2010 KBREC-Tri-State Specialty Comment	Entry	2010 KBREC-Tri-State Specialty Comment
Dark Red Norland		NDA050237B-1R	
	Pale, poor skin, junk		Real nice, keep
NDA8512C-1R		OR04131-2	
	Nice, shatter bruise, black dot, fair		Nice, smooth, black dot, keep
A02267-5PY		A05173-2R	
	Nice, uniform, black dot		Skin?, mix, fair
Purple Majesty		POR05PG56-1	
	Skin checking, black dot, ugly		Black dot?, skinning, unique color, keep

Yukon Gold	A02267-1Y
 <p>Black dot, smooth, large, nice</p>	 <p>Skin checking, nice, keep</p>
A03576-5Y	A05177-4RY
 <p>Mix seed, irregular, flat, drop</p>	 <p>Mix?, irregular, poor skin, drop</p>
AFA3976TPS-1	OR04036-5
 <p>Irregular, smooth, use?</p>	 <p>Smooth, bruise?, nice, keep</p>

2010 Regional Specialty Trial

Location: Merrill, OR

Planting Date: May 19

Harvest Date: October 12

Fertility: 160-191-185-97S-5.28Zn-1.05B

Vine Kill Date: September 2

Days to Vine kill: 113

In-Row Spacing: 9 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). This trial included four standard varieties and 12 new clones. The following is a summary of the KBREC field results.

Stand Counts

➤ 30 Day

Fast emergence: Dark Red Norland (98%), COTX94216-1R (94%) and A99433-5Y (94%).

Slow emergence: POR03PG80-2 (73%).

➤ 50 Day

Full emergence: No entries had 100% emergence.

Poor emergence: All entries had greater than 92% emergence.

Plant Tuber Growth and Development

➤ Average Tuber Number Per Plant

Most: A99331-2RY (18.1), Purple Majesty (15.6) and CO00412-5W/Y (12.9).

Least: Yukon Gold (6.3), POR03PG80-2 (6.5) and Red LaSoda (7.2).

➤ Average Tuber Size (oz.)

Largest: Red Lasoda (7.1), POR03PG80-2 (7.1) and Yukon Gold (6.9).

Smallest: A99331-2RY (2.4), Purple Majesty (3.1) and COTX94216-1R (3.4).

➤ C Size Tubers (< 1.875 inch diameter and <4 oz.) cwt/Acre

Most: A99331-2RY (63), Purple Majesty (49) and COTX94216-1R (33).

Least: POR03PG80-2 (3), Red LaSoda (5), BTX2332-1R (6) and Yukon Gold (6).

➤ B Size Tubers (1.875-2.25 inch diameter and <4 oz.) cwt/Acre

Most: A99331-2RY (199), Purple Majesty (154) and COTX94218-1R (114).

Least: POR03PG80-2 (26), Yukon Gold (34) and Red LaSoda (35).

Yield Data

➤ Total Yield (cwt/Acre)

Highest: Dark Red Norland (576), Red LaSoda (572) and A00286-3Y (563).

Lowest: COTX94216-1R (412), CO99076-6R (471) and ATC00293-1W/Y (477).

Klamath Basin Potato Variety Development Summary | 2010

➤ US No. 1 Yield (cwt/Acre)

Highest: Dark Red Norland (524), A00286-3Y (523) and BTX2332-1R (521).

Lowest: COTX94216-1R (350), CO99076-6R (367) and ATC00293-1W/Y (413).

➤ % U.S. #1s

Highest: A99433-5Y (96%), A99331-2RY (95%) and CO99256-2R (94%).

Lowest: CO99076-6R (78%), Red LaSoda (81%) and COTX94216-1R (85%).

Tuber Defect Incidence (40 tuber sample)

- **External Defects:** COTX94218-1R and Red LaSoda tubers had a high incidence of growth cracks. Red LaSoda, COTX94216-1R, Purple Majesty and CO00412-5W/Y had large amounts of misshapen tubers. Two entries did show some resistance to powdery scab; CO99076-6R and POR03PG80-2.

- **Internal Defects:** Tubers from CO00412-5W/Y had 8% internal brown spot.

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)				
								Green	Growth crack	MS/ Knobs	Pwdry. scab	Rhiz.
Dark Red Norland	Red	1.4	White	576	A	91	9	3.8	4.4	4.3	3.4	3.1
Red LaSoda	Red	2.1	White	572	AB	81	19	4.1	3.9	3.5	2.1	3.8
BTX2332-1R	Red	3.5	White	561	ABC	93	7	4.0	4.1	4.4	3.0	3.8
CO99076-6R	Red	4.0	White	471	DE	78	22	4.3	2.4	4.1	4.6	3.9
CO99256-2R	Red	4.1	White	530	ABCD	94	6	4.4	4.8	4.3	3.9	3.1
COTX94216-1R	Red	4.0	White	412	E	85	15	4.4	4.4	3.5	1.9	3.1
COTX94218-1R	Red	3.5	White	508	BCDE	89	11	4.5	2.6	4.4	3.4	3.0
A99326-1PY	Purple	3.5	Yellow	490	DE	92	8	4.5	4.4	4.3	2.3	4.1
A99331-2RY	Red	2.3	Yellow	499	CDE	95	5	4.0	4.8	4.8	3.0	3.4
POR03PG80-2	Purple	3.0	Yellow	520	ABCDE	91	9	4.4	4.8	4.6	4.9	4.3
Purple Majesty	Purple	5.0	Purple	520	ABCDE	91	9	4.5	4.6	3.8	3.6	4.1
Yukon Gold	Yellow	1.0	Yellow	489	DE	91	9	4.4	5.0	4.3	3.8	3.5
A00286-3Y	Yellow	1.0	Yellow	563	ABC	93	7	4.0	4.6	4.4	3.1	2.8
A99433-5Y	Yellow	1.0	Yellow	502	CDE	96	4	4.0	4.8	4.8	1.5	2.8
ATC00293 -1W/Y	Yellow	1.8	Yellow	477	DE	87	13	3.9	4.4	4.4	1.4	3.3
CO00412-5W/Y	Yellow	3.0	Yellow	514	ABCDE	86	14	3.6	4.9	3.8	4.4	4.1

*Percent values may not total 100% due to rounding

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

Klamath Basin Potato Variety Development Summary | 2010

Entry	US # 1 Yield								Specific Gravity	Internal Defects (%) ***			
	(cwt/A)	STATS**	%*							HH	IBS	VD	SEB
			C size	B size	4-6 oz.	6-10 oz.	10-14 oz.	>14 oz.					
Dark Red Norland	524	A	2	13	21	40	19	5	1.066	0	0	0	5
Red LaSoda	462	ABC	1	8	16	29	29	18	1.069	0	0	0	0
BTX2332-1R	521	A	1	12	23	40	17	7	1.064	0	5	0	0
CO99076-6R	367	E	3	18	23	38	13	4	1.073	0	0	0	0
CO99256-2R	499	AB	5	20	30	32	11	3	1.071	0	0	0	0
COTX94216-1R	350	DE	9	28	24	25	12	0	1.068	0	0	0	0
COTX94218-1R	455	BC	6	25	32	27	9	1	1.070	0	0	0	0
A99326-1PY	452	BC	2	13	23	31	19	11	1.068	0	0	0	0
A99331-2RY	475	ABC	13	42	28	16	1	0	1.075	0	0	0	0
POR03PG80-2	472	ABC	1	6	17	31	26	20	1.068	0	0	0	0
Purple Majesty	475	ABC	10	32	32	20	5	0	1.078	0	0	0	0
Yukon Gold	445	BCD	1	8	14	27	31	19	1.082	0	0	3	5
A00286-3Y	523	A	3	16	34	33	12	2	1.072	3	0	0	0
A99433-5Y	484	AB	3	19	27	36	11	3	1.082	0	0	0	0
ATC00293 -1W/Y	413	CDE	4	21	28	35	11	2	1.071	5	0	0	0
CO00412-5W/Y	440	BCD	5	23	33	26	11	1	1.084	0	8	0	3

*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)	Vine Maturity (1-5 late)	Russetting (1-5 hvy)	Shape (1-5 long)	Size uniformity (1-5 ex.)	Shape uniformity (1-5 ex.)	Eye Depth (1-5 shal.)
		Wt. (oz.)	Number tubers/plant							
Dark Red Norland	98	5.0	10.1	3.8	3.0	2.4	1.9	3.5	3.5	4.0
Red LaSoda	97	7.1	7.2	3.0	2.8	1.5	2.1	3.4	3.4	2.4
BTX2332-1R	98	5.3	9.2	3.4	2.8	1.9	1.4	3.6	4.0	4.8
CO99076-6R	92	4.7	9.4	3.3	3.0	1.5	1.0	3.8	3.9	4.5
CO99256-2R	97	3.8	12.2	3.0	3.5	1.3	1.4	4.1	4.1	4.8
COTX94216-1R	99	3.4	10.4	3.4	2.4	2.4	1.4	3.1	3.6	4.5
COTX94218-1R	99	3.5	12.4	3.0	3.5	1.0	1.0	4.1	4.5	4.8
A99326-1PY	94	5.2	8.6	3.9	2.6	1.3	1.3	3.9	4.1	4.5
A99331-2RY	99	2.4	18.1	4.0	3.4	1.4	1.1	4.0	4.1	4.5
POR03PG80-2	96	7.1	6.5	3.3	2.4	1.3	3.4	4.0	4.0	4.5
Purple Majesty	95	3.1	15.6	3.8	2.6	2.8	2.8	3.1	3.1	4.5

Klamath Basin Potato Variety Development Summary **2010**

Yukon Gold	96	6.9	6.3	3.1	2.4	1.0	1.6	4.3	4.3	4.6
A00286-3Y	98	4.3	11.5	3.9	4.1	1.0	2.9	4.1	3.9	4.6
A99433-5Y	96	4.2	10.8	3.9	4.1	1.3	1.4	4.1	4.4	4.3
ATC00293 -1W/Y	96	4.0	10.7	3.1	3.0	1.5	2.0	3.9	3.9	4.5
CO00412-5W/Y	95	3.6	12.9	3.8	4.1	3.6	1.8	3.4	3.4	4.5

Entry	2010 KBREC- Regional Specialty Comment	Entry	2010 KBREC- Regional Specialty Comment
Dark Red Norland		Red LaSoda	
	Pale, rough, ugly, black dot		Big, lumpy, junk
BTX2332-1R		CO99076-6R	
	Shatter bruise, no skin shine, internal purple spot, drop		Growth cracks, skinning, black dot, drop
CO99256-2R		COTX94216-1R	
	Skinning, smooth, black dot, keep		Rough skin, black dot, poor

COTX94218-1R  <p>Shatter bruise, growth cracks, drop</p>	A99326-1PY  <p>Smooth, black dot, keep</p>
A99331-2RY  <p>Irregular color splash, smooth, ok</p>	POR03PG80-2  <p>Smooth, low black dot, typy, keep</p>
Purple Majesty  <p>High cull, black dot, junk</p>	Yukon Gold  <p>Nice, black dot, smooth, big, keep</p>
A00286-3Y  <p>Irregular color splash, smooth, low black dot, fair</p>	A99433-5Y  <p>Smooth, low black dot, keep</p>

ATC00293 -1W/Y



Smooth, black dot, nice, keep

CO00412-5W/Y



Scaly skin, black dot, use? process?

2010 Chip Trial

Location: Merrill, OR

Planting Date: May 19

Harvest Date: October 12

Fertility: 160-191-185-97S-5.28Zn-1.05B

Vine Kill Date: September 2

Days to Vine kill: 113

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 2010 sixteen 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 both short and long-term commercial storage with processing evaluations conducted by Baley-Trotman Farms. Results for 2010 are listed below. *At the end of the 2010 Chip Trial summary is the final processing information from the short and long term storage of 2009 entries. The short term storage data was included in the 2009 report, but long term storage data wasn't completed until after the 2009 report was published. Likewise, the 2010 long-term processing data will be included in the 2011 report.*

Stand Counts

➤ 30 Day

Fast emergence: A00188-3C (98%) and Atlantic (97%).

Slow emergence: W5015-12 (69%), W2310-3 (75%) and W2717-5 (83%).

➤ 50 Day

Full emergence: No entries had 100% emergence.

Poor emergence: All entries had greater than 93% emergence.

Plant Tuber Growth and Development

➤ Average Tuber Number Per Plant

Most: A00188-3C (12.4), W5015-12 (14.1) and W2133 (11.6).

Least: Chipeta (7.2), W2310-3 (7.8) and CO00270-7W (7.9).

➤ Average Tuber Size (oz.)

Largest: Chipeta (7.3), NY140 (6.3), W2310-3 (6.1) and NY115 (6.1).

Smallest: A00188-3C (3.2), W5015-12 (3.6) and W2717-5 (3.8).

➤ Undersized Tubers (<4 oz.) cwt/Acre

Most: A00188-3C (232), W5015-12 (210) and A01143-3C (157).

Least: Chipeta (49), NY140 (53) and NY138 (66).

Yield Data

➤ Total Yield (cwt/Acre)

Highest: NY140 (687), Marcy (617) and Mega Chip (614).
Lowest: A00188-3C (465), W2717-5 (488) and W5015-12 (527).

➤ **Marketable Yield >4 oz. (cwt/Acre)**

Highest: NY140 (587), Chipeta (533) and Marcy (518).
Lowest: A00188-3C (227), W5015-12 (294) and W2717-5 (294).

➤ **% Marketable Yield >4 oz.**

Highest: Chipeta (88%), NY138 (86%) and NY140 (85%).
Lowest: A00188-3C (49%), W5015-12 (56%) and W2717-5 (60%).

Tuber Defect Incidence (40 tuber sample)

➤ **External Defects:** NY140 had a large amount of green tubers. W2717-5 had problems with growth cracks.

➤ **Internal Defects**

Hollow Heart: Atlantic (10%).

Black Spot Bruise: CO00197-3W (28%).

Hard-bite: NY140 (23%), CO00270-7W (20%), Atlantic (18%) and NY115 (18%).

Entry	Total Yield		> 4 oz.*	< 4 oz.*	Culls*	Skin color rating (1-5 dark)	Disease Rating (1-5none)	
	(cwt/A)	STATS**	% of Total Yield				Powdery scab	Rhizoc.
Atlantic	552	BCDE	79	16	5	1.9	3.4	3.1
Chipeta	604	BC	88	8	4	1.9	1.5	2.9
A00188-3C	465	F	49	50	1	1.0	4.4	3.8
A01143-3C	548	BCDE	69	29	2	1.5	3.4	2.8
CO00188-4W	541	CDE	77	21	2	1.0	4.0	4.5
CO00197-3W	572	BCD	75	20	5	1.0	3.0	4.3
CO00270-7W	542	CDE	85	13	3	1.0	3.5	4.0
NY138	599	BCD	86	11	3	1.1	4.1	3.8
NY115	565	BCD	83	12	5	1.0	4.0	4.1
NY140	687	A	85	8	7	1.0	4.3	3.5
Marcy	617	AB	84	13	3	1.9	4.5	4.3
Mega Chip	614	ABC	75	21	4	1.1	1.3	3.5
W2310-3	559	BCDE	81	12	6	1.6	4.0	3.8
W2133	567	BCD	72	23	5	1.4	2.8	3.3
W5015-12	527	DEF	56	40	4	2.6	4.9	4.1
W2717-5	488	EF	60	28	11	1.0	3.4	3.6

*Percent values may not total 100% due to rounding

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

Klamath Basin Potato Variety Development Summary | 2010

Entry	Yield US # 1 (>4 oz.)						External Defects (1-5 none)			
	(cwt/A)	STATS**	%*				Green	Growth crack	MS/ Knobs	Shatter
			4-6 oz.	6-10 oz.	10-14 oz.	>14 oz.				
Atlantic	438	CDE	29	48	18	6	4.0	4.8	5.0	4.3
Chipeta	533	AB	12	42	23	23	4.3	4.8	5.0	4.3
A00188-3C	227	F	46	51	3	0	4.4	5.0	5.0	4.8
A01143-3C	379	E	45	47	6	3	4.3	4.8	5.0	4.5
CO00188-4W	415	DE	38	53	8	1	4.4	5.0	5.0	4.6
CO00197-3W	429	DE	34	48	15	3	4.1	4.8	5.0	4.8
CO00270-7W	459	BCDE	21	50	23	6	4.4	4.8	5.0	3.8
NY138	512	ABC	17	47	28	8	4.1	5.0	5.0	4.6
NY115	471	BCD	17	47	29	7	4.3	5.0	5.0	4.8
NY140	587	A	17	49	24	9	3.6	5.0	5.0	4.4
Marcy	518	ABC	29	53	14	5	4.1	5.0	5.0	4.8
Mega Chip	463	BCD	32	51	15	3	4.0	4.9	5.0	4.4
W2310-3	454	BCDE	21	50	20	9	4.0	4.8	5.0	4.6
W2133	409	DE	37	51	11	1	4.4	4.9	5.0	4.1
W5015-12	294	F	42	47	10	1	4.1	5.0	5.0	4.6
W2717-5	294	F	35	57	7	2	4.0	3.3	5.0	3.9

*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		Internal Defects (%)*						
		Wt. (oz.)	Number tubers/plant	Internal Defects (%)*						
				HH	BC	BS	IBS	SEB	VD	HB
Atlantic	97	5.1	9.2	10	0	0	0	0	0	18
Chipeta	98	7.3	7.2	0	0	0	0	0	0	13
A00188-3C	98	3.2	12.4	0	0	3	0	0	0	5
A01143-3C	98	4.1	11.4	0	0	3	0	0	3	13
CO00188-4W	98	4.6	9.9	0	0	5	0	0	0	8
CO00197-3W	97	4.5	10.9	0	0	28	0	0	0	3
CO00270-7W	97	5.9	7.9	0	0	3	0	0	0	20
NY138	99	6.0	8.3	0	0	3	0	0	0	8
NY115	93	6.1	8.3	0	0	0	0	0	0	18
NY140	97	6.3	9.3	0	0	0	0	0	0	23
Marcy	95	5.6	9.7	3	0	8	0	0	3	8
Mega Chip	98	4.9	10.8	0	0	0	0	0	0	5
W2310-3	98	6.1	7.8	0	0	0	0	0	0	13
W2133	96	4.2	11.6	0	0	0	0	0	0	8
W5015-12	94	3.6	14.1	0	0	0	0	0	0	0
W2717-5	97	3.8	10.9	0	0	0	0	3	3	10

*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, CRS=corky ring-spot





Entry	Vine Vigor (1-5 large)	Vine Maturity (1-5 late)	Russetting (1-5 hvy)	Shape (1-5 long)	Size uniformity (1-5 ex.)	Shape uniformity (1-5 ex.)	Eye Depth (1-5 shal.)
Atlantic	3.3	3.3	2.0	1.5	3.9	3.9	4.5
Chipeta	3.9	3.8	2.0	1.6	4.1	4.0	4.5
A00188-3C	3.0	2.6	1.0	1.0	4.8	4.8	4.9
A01143-3C	3.8	3.4	1.6	1.1	4.5	4.6	4.9
CO00188-4W	3.8	2.0	1.0	1.0	4.4	4.4	4.8
CO00197-3W	3.5	2.3	1.0	1.6	4.1	3.9	5.0
CO00270-7W	3.5	2.6	1.1	1.3	4.0	4.0	4.9
NY138	3.1	3.3	1.1	1.3	4.3	4.5	4.8
NY115	3.3	3.9	1.0	1.0	4.6	4.9	4.8
NY140	3.4	4.6	1.0	1.4	4.1	3.9	4.5
Marcy	3.4	3.9	2.3	1.9	3.8	4.0	4.8
Mega Chip	4.0	3.5	1.3	1.1	4.1	4.0	4.0
W2310-3	3.4	3.1	1.6	1.4	4.3	4.1	4.8
W2133	3.6	2.9	1.4	1.0	4.4	4.1	4.8
W5015-12	3.1	3.4	2.9	1.0	4.4	4.4	5.0
W2717-5	3.9	3.3	1.0	1.4	4.0	3.9	5.0









Entry	Specific Gravity ¹		TDF % ²	Sugars ³	
	Field	Short-term Storage		dextrose	sucrose
Atlantic	1.095	1.096	22.8	0.058	0.30
Chipeta	1.088	1.083	23.0	0.009	0.34
A00188-3C	1.089	1.085	6.7	0.003	0.21
A01143-3C	1.090	1.088	16.4	0.008	0.25
CO00188-4W	1.086	1.088	15.9	0.006	0.21
CO00197-3W	1.087	1.087	39.4	0.021	0.22
CO00270-7W	1.083	1.081	6.2	0.014	0.21
NY138	1.085	1.085	8.8	0.020	0.25
NY115	1.089	1.089	10.7	0.003	0.19
NY140	1.086	1.084	29.0	0.008	0.24
Marcy	1.083	1.081	25.7	0.015	0.25
Mega Chip	1.096	1.093	32.9	0.027	0.30
W2310-3	1.092	1.089	19.0	0.009	0.21
W2133	1.090	1.088	15.0	0.009	0.21
W5015-12	1.095	1.092	18.8	0.006	0.23
W2717-5	1.094	1.090	18.4	0.079	0.43

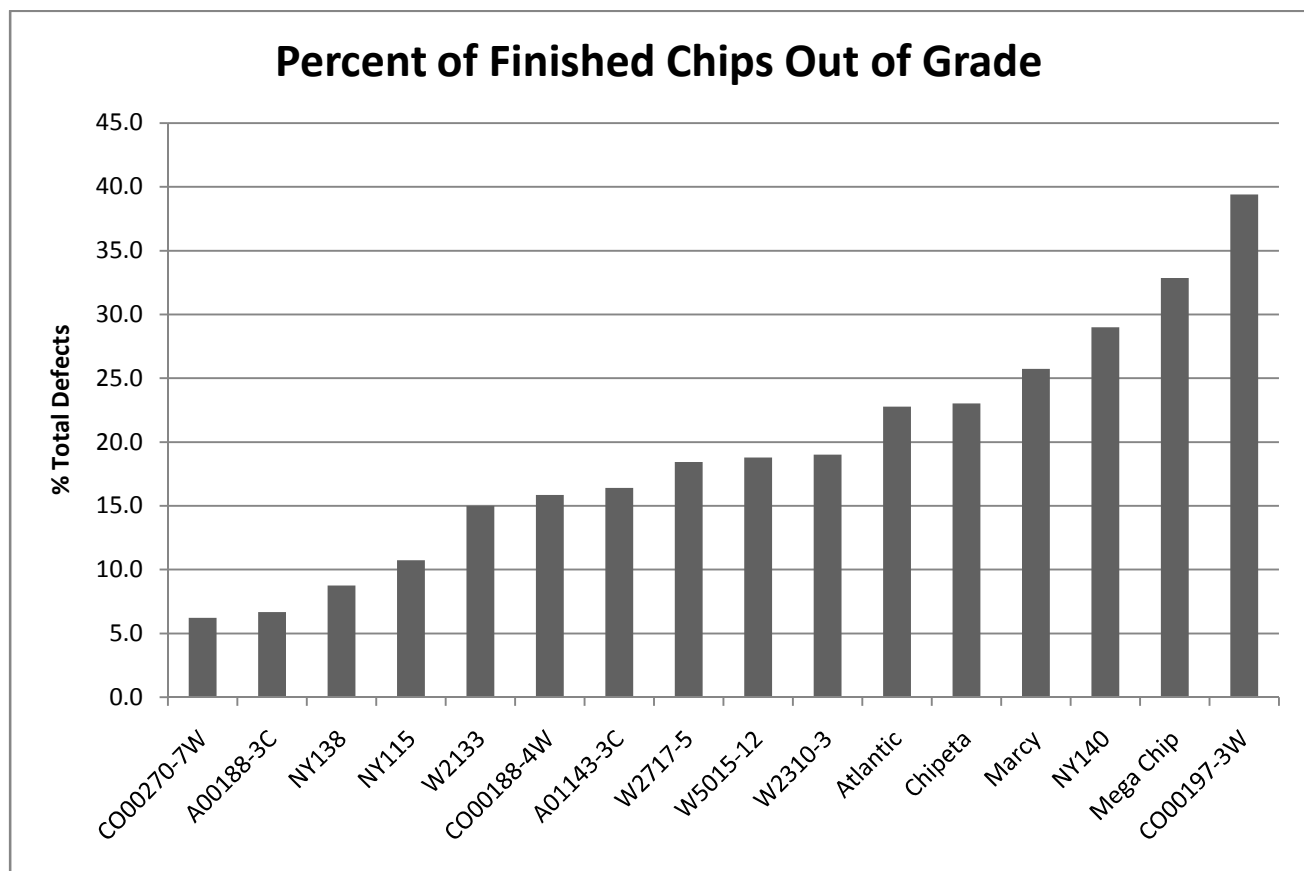
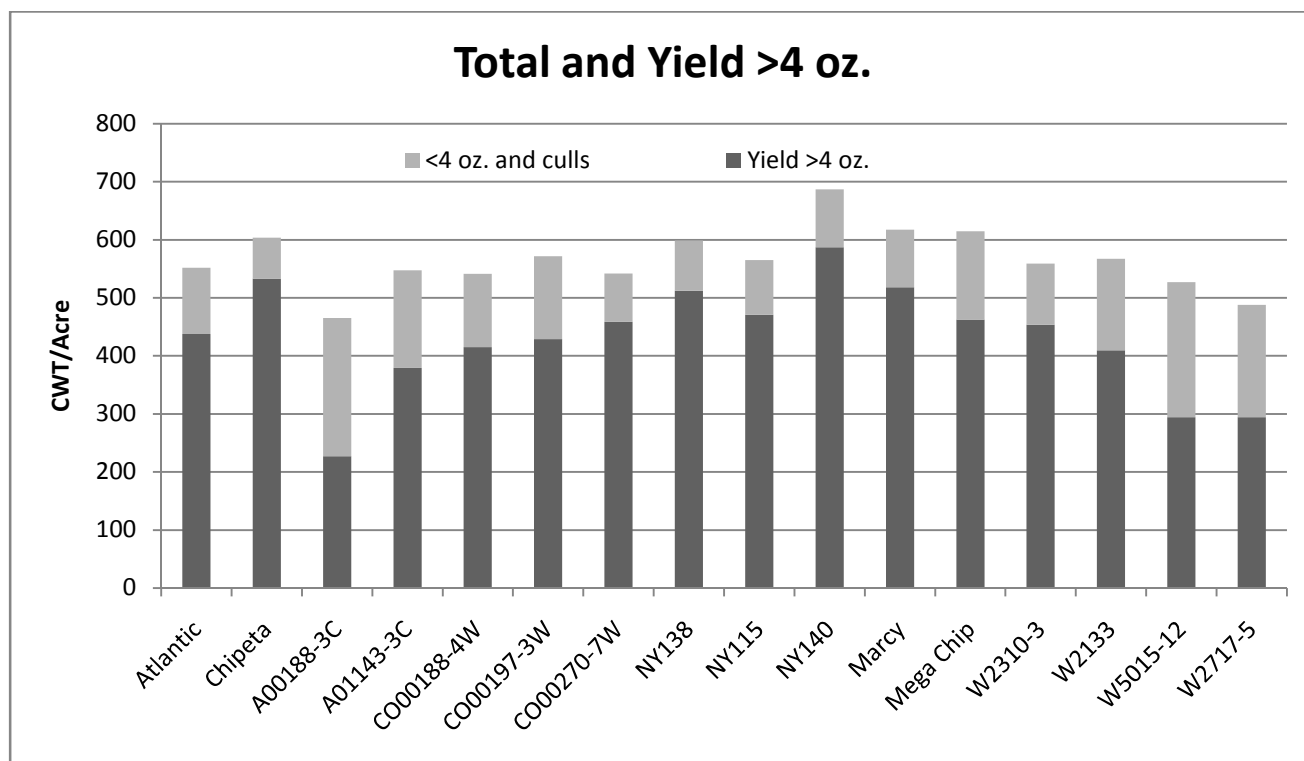
¹Specific gravity measured out of field and after storage for 2 months at 50° F.

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

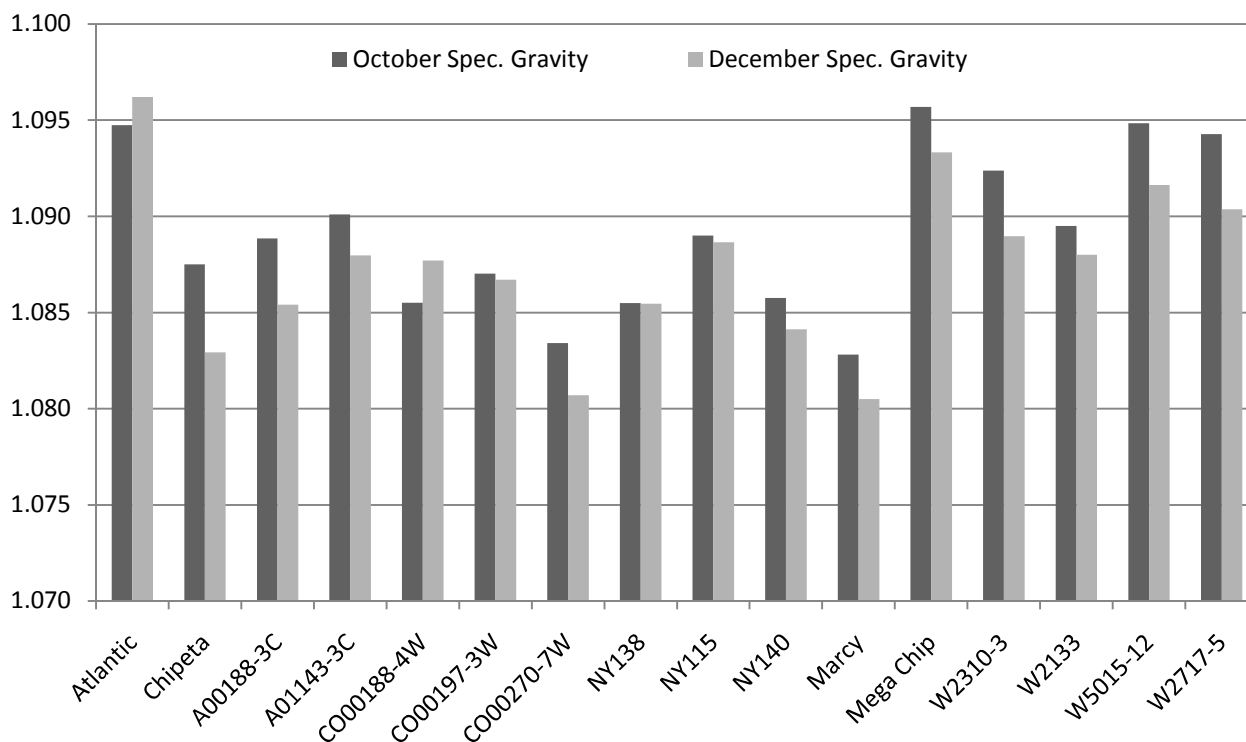
³Percent fresh weight basis measured after storage for 2 months at 50° F.

Entry	2010 KBREC- Chip Variety Trail Comment	Entry	2010 KBREC- Chip Variety Trail Comment
Atlantic		Chipeta	
	Flat, ok		Big, powdery scab, ugly
A00188-3C		A01143-3C	
	Small, good shape, keep		Small, good shape, ok
CO00188-4W		CO00197-3W	
	Nice, uniform, keep		Black dot, flat, ok
CO00270-7W		NY138	
	Some pear, smooth, nice		Nice, keep

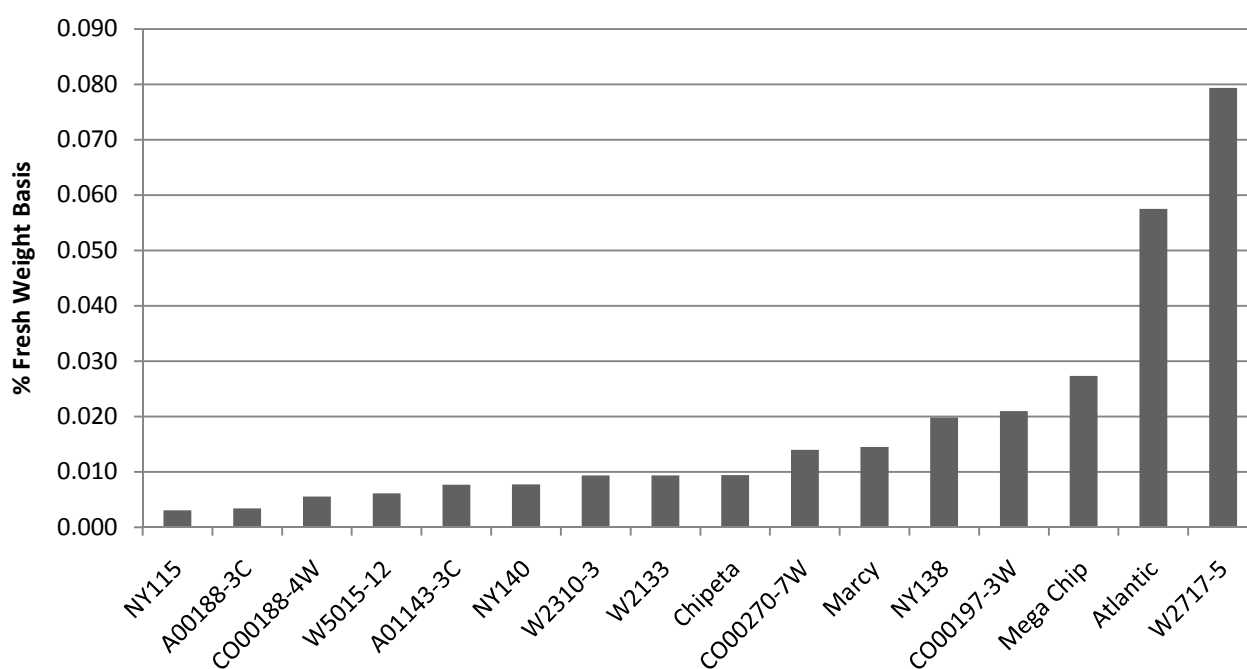
NY115	NY140
 <p>Nice, smooth, keep</p>	 <p>Flat, smooth, ok</p>
Marcy	Mega Chip
 <p>Nice, keep</p>	 <p>Lumpy, fair</p>
W2310-3	W2133
 <p>Flat, fair</p>	 <p>Small, uniform, nice</p>
W5015-12	W2717-5
 <p>Small, large set, ok</p>	 <p>Small, skin issues, drop</p>

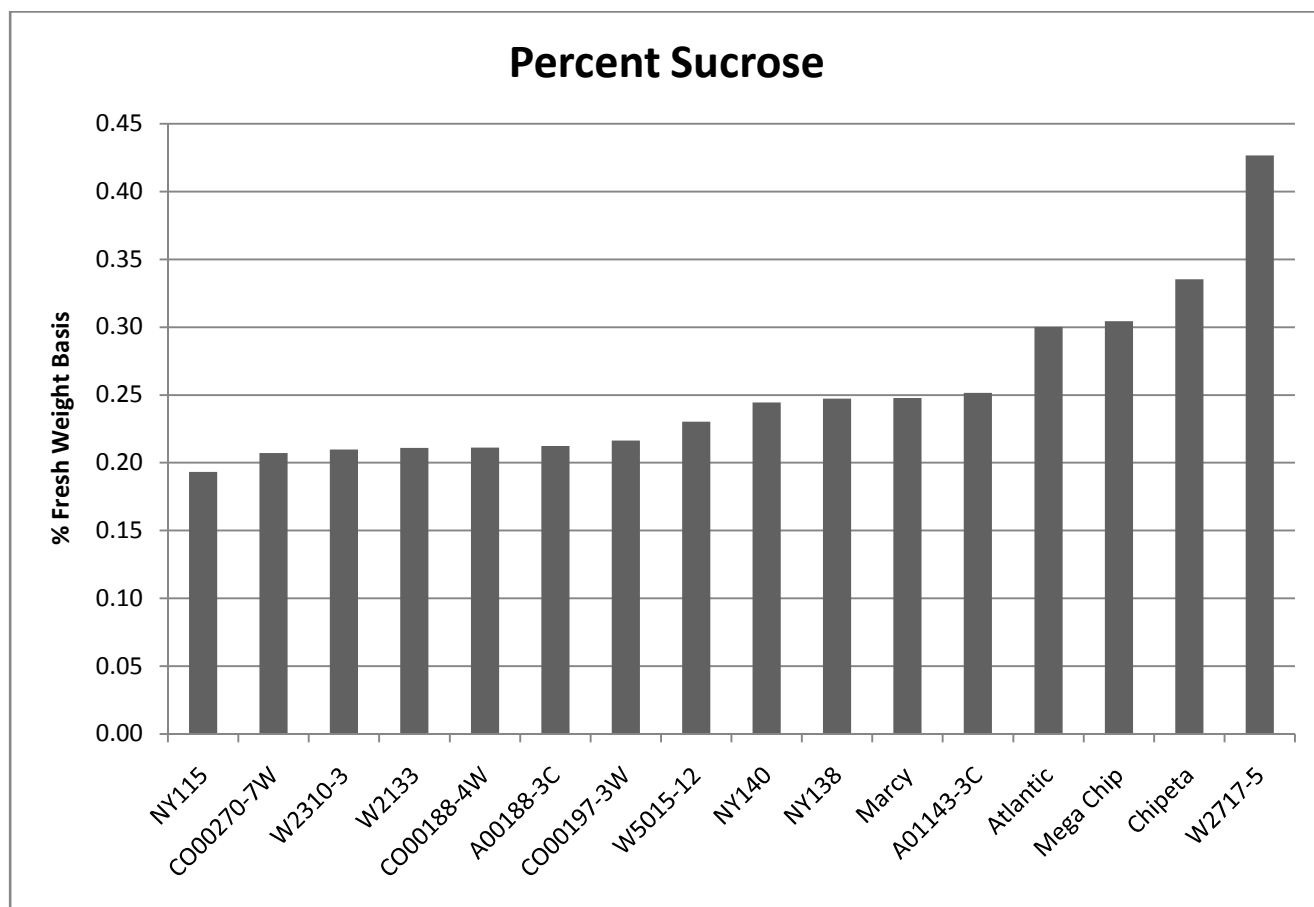


Specific Gravity - Field and After Storage for Two Months



Percent Dextrose





2009 Chip Processing Results

Chip processing data for short-term storage was included in the 2009 report, but potatoes processed out of long-term storage weren't completed until after the report was published. The processing results of the 2009 Chip Variety Trial are included in the following graphs. Potatoes were processed in December 2009 and again in April 2010. *Likewise, 2010 long-term processing data will be included in the 2011 report.*

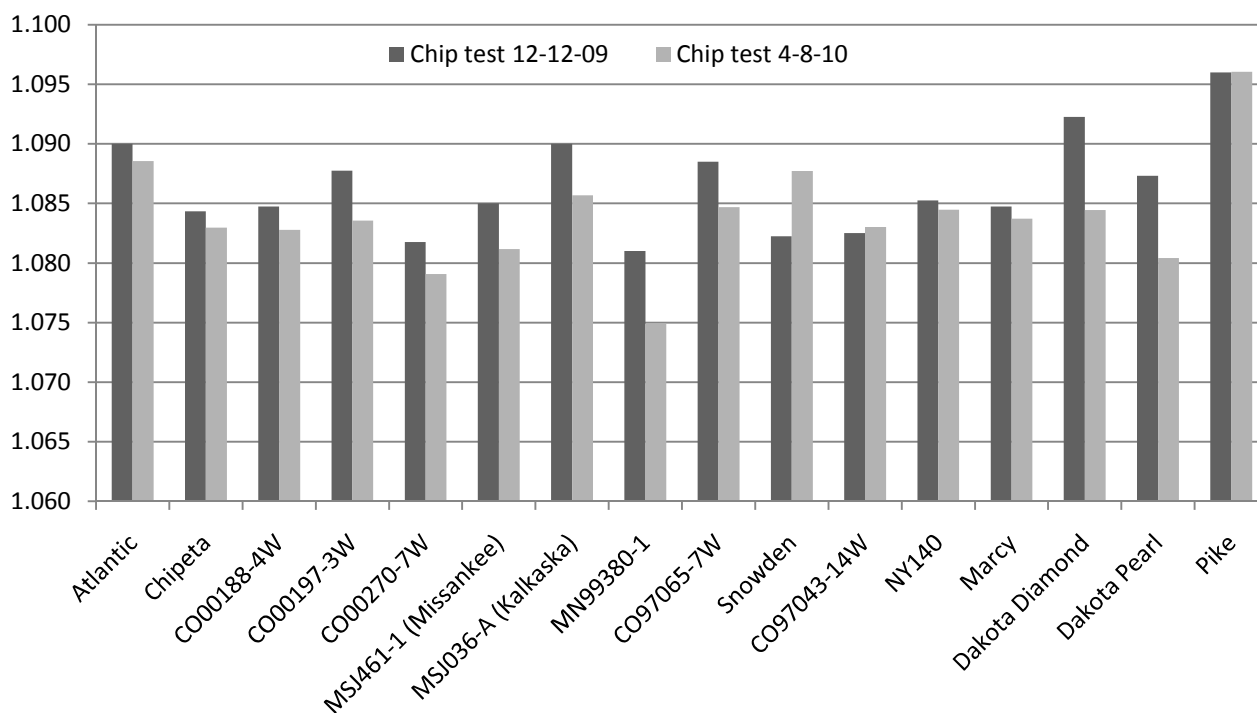
Entry	Specific Gravity ¹			TDF % ²		Sugars ³			
	Field	Short-term Storage	Long-term Storage	Dec.	Apr.	dextrose		sucrose	
						Dec.	Apr.	Dec.	Apr.
Atlantic	1.092	1.090	1.089	64.8	41.2	0.272	0.166	0.405	0.116
Chipeta	1.084	1.084	1.083	30.6	19.0	0.090	0.148	0.317	0.146
CO00188-4W	1.086	1.085	1.083	11.7	10.7	0.025	0.000	0.572	0.079
CO00197-3W	1.088	1.088	1.084	24.3	32.9	0.035	0.061	0.815	0.106
CO00270-7W	1.080	1.082	1.079	23.9	13.3	0.047	0.040	0.892	0.077
MSJ461-1 (Missaukee)	1.092	1.085	1.081	35.9	31.9	0.117	0.121	0.767	0.215
MSJ036-A (Kalkaska)	1.092	1.090	1.086	25.5	28.3	0.112	0.082	0.933	0.181
MN99380-1	1.076	1.081	1.075	34.8	62.1	0.140	0.273	0.432	0.268
CO97065-7W	1.091	1.089	1.085	23.5	38.3	0.080	0.061	0.420	0.060
Snowden	1.093	1.082	1.088	14.4	8.7	0.010	0.004	0.248	0.127
CO97043-14W	1.084	1.083	1.083	11.6	6.9	0.026	0.021	0.289	0.098
NY140	1.087	1.085	1.084	15.6	16.6	0.011	0.007	0.825	0.136
Marcy	1.086	1.085	1.084	32.4	21.6	0.201	0.031	0.599	0.116
Dakota Diamond	1.090	1.092	1.084	38.4	92.0	0.072	0.068	0.536	0.350
Dakota Pearl	1.084	1.087	1.080	21.9	59.4	0.069	0.271	0.543	0.460
Pike	1.096	1.096	1.096	32.6	17.8	0.037	0.064	0.272	0.169

¹Specific gravity measured out of field and storage for both 2 and 6 months at 50° F.

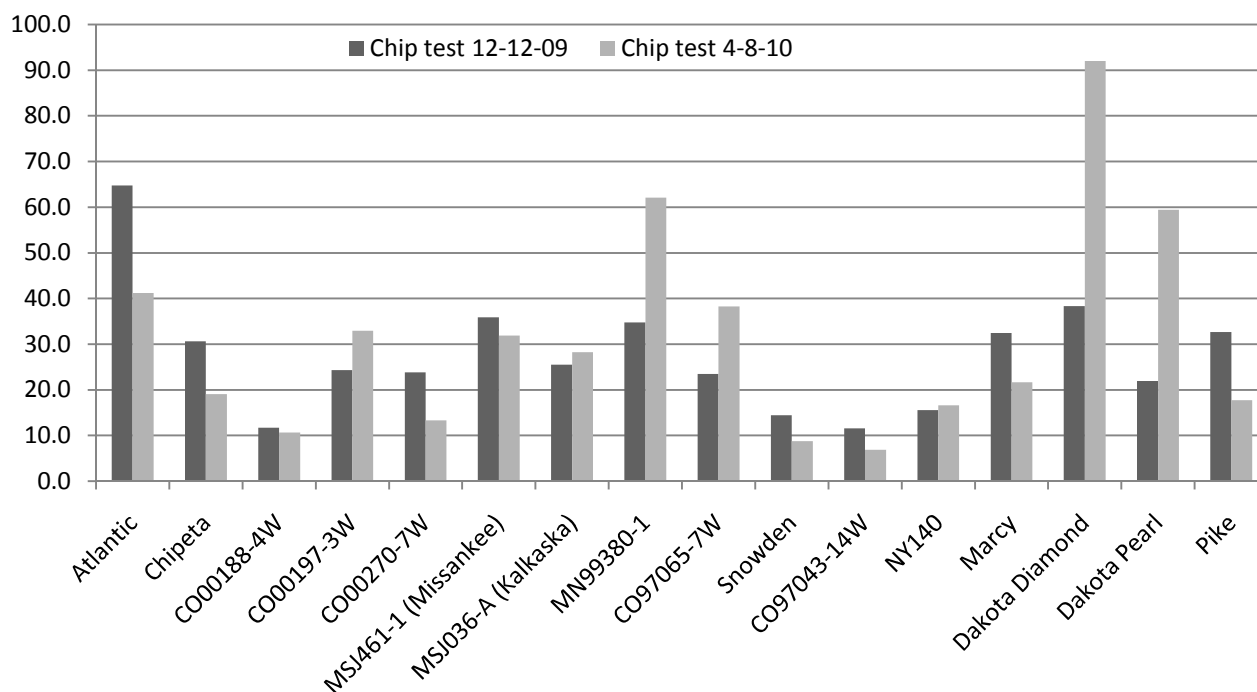
²% Total Defects = % of finished chips out of grade; includes internal & external defects (e.g. HH, Green, Dark Color, etc.)

³Percent fresh weight basis measured after storage for 2 and 6 months at 50° F.

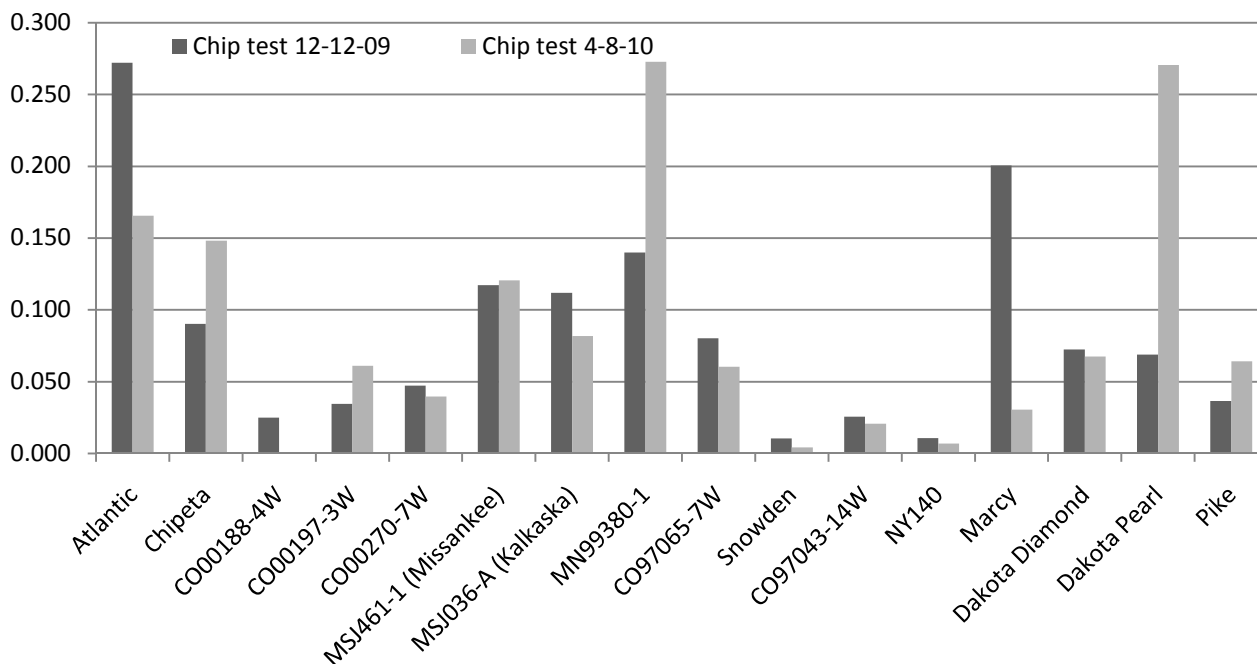
Specific Gravity - 2009



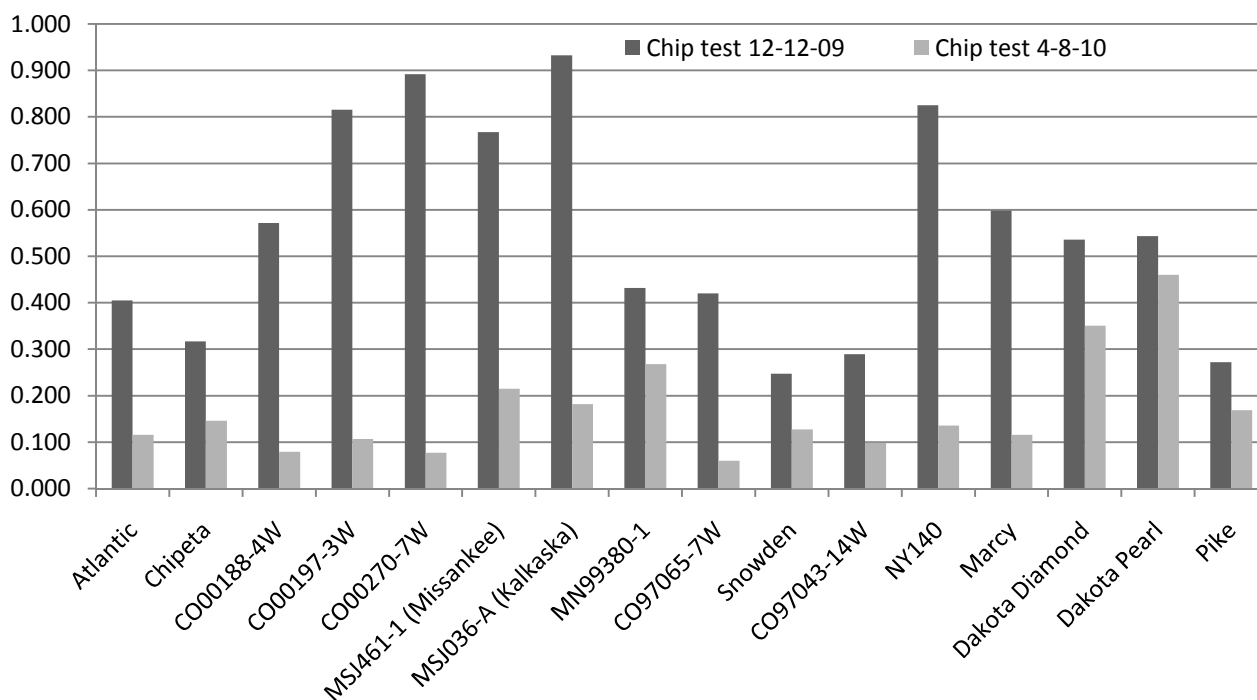
Percent Finished Chips out of Grade - 2009



Dextrose Levels (% FWB) - 2009









Sucrose Levels (% FWB) - 2009



Chip Cultivar Spacing Trial

Chipping potatoes comprise a significant portion of Klamath Basin acreage and identification of public varieties suitable for export has remained a high priority. Varieties with superior performance in past trials and varieties currently used by Basin producers were evaluated for yield and quality under various plant population densities. With funding from the Oregon Potato Commission, 4 public varieties and 2 private varieties were evaluated at 6.75, 9.25, 12.5, and 15-inch in-row seed spacing on 36 inch row spacing. All field data was collected and analyzed as a split-plot design.

Entry	2010 KBREC- Chip Spacing Trail Comment	Entry	2010 KBREC- Chip Spacing Trail Comment
Pike		Dakota Pearl	
	Thumb nail cracks, severe powdery scab, low set, black dot, nice shape, smooth skin		Black dot, low set, nice shape, nice
Dakota Crisp		FL2053	
	Some powdery scab resistance, black dot, some growth cracks, flat, little irregular at wider spacing		Flat, black dot, growth cracks, irregular, fair
FL2048		CO97043-14W	
	Real nice, black dot, some thumb nail cracks		Real nice, uniform, shape/skin excellent, black dot

Klamath Basin Potato Variety Development Summary | 2010

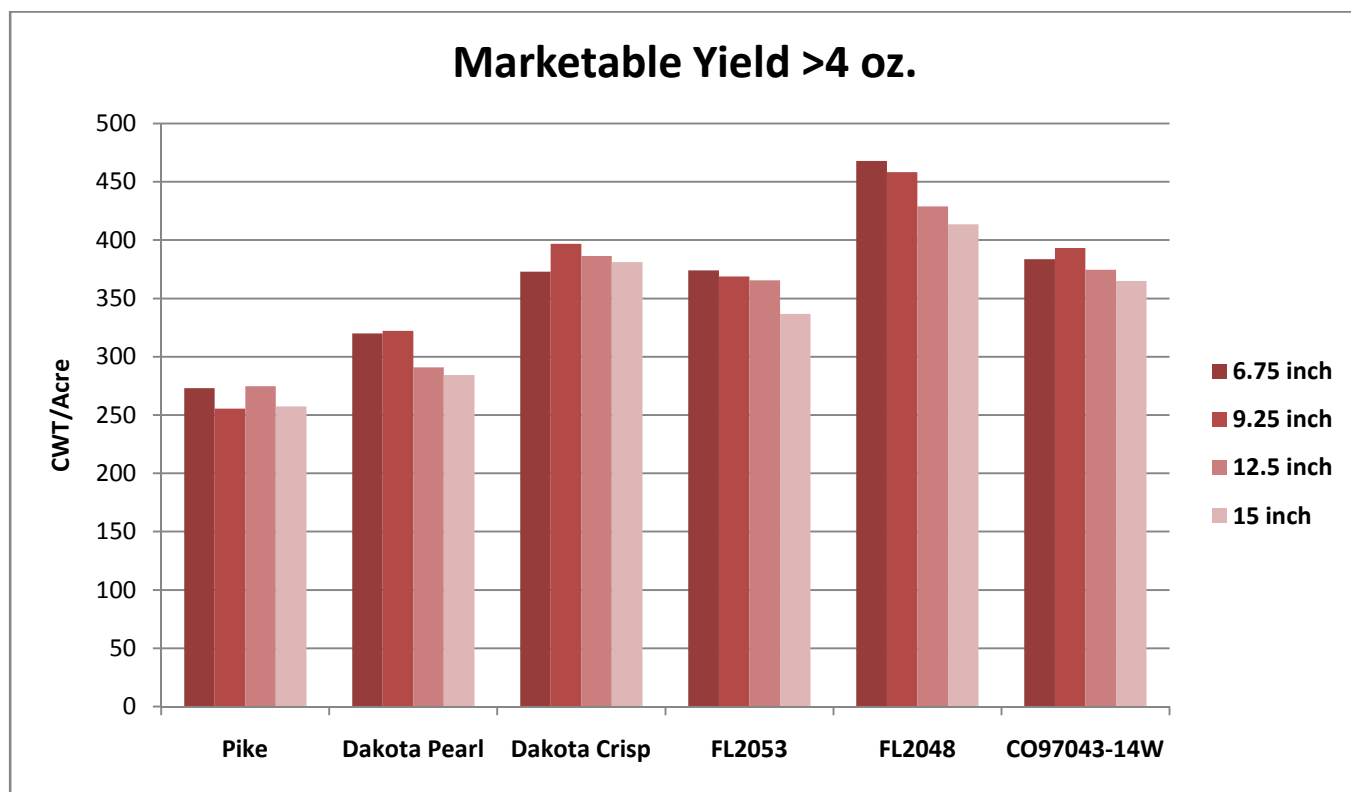
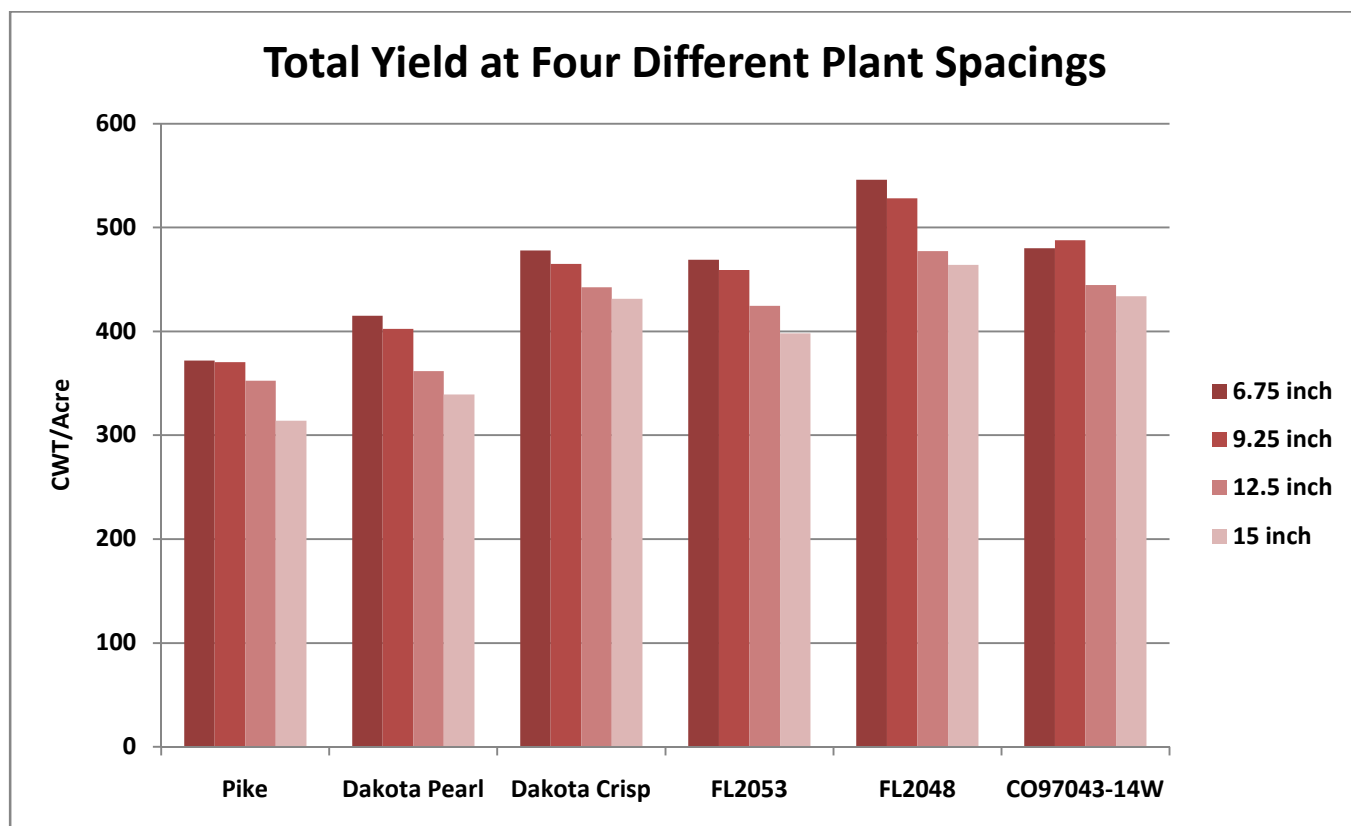
Variety	Trt. ¹	Yield U.S. No. 1s					Yield		Total
		4-6 oz	6-10 oz	> 10 oz	>14 oz.	Total	< 4 oz	culls	
		cwt/acre							
Pike	1	106	122	46	0	273	88	11	372
	2	105	123	27	0	255	93	22	370
	3	93	127	49	5	275	65	13	353
	4	95	125	34	4	257	50	7	314
Dakota Pearl	1	136	135	38	10	320	86	10	415
	2	102	158	54	8	322	68	12	402
	3	86	116	62	27	291	58	13	362
	4	77	124	58	25	284	46	9	339
Dakota Crisp	1	116	163	72	22	373	84	21	478
	2	102	152	103	40	397	54	14	465
	3	63	124	116	83	386	30	26	443
	4	67	132	120	63	381	30	20	431
FL2053	1	125	164	65	21	374	76	20	469
	2	107	150	87	24	369	58	33	459
	3	87	146	92	41	365	38	21	425
	4	87	154	70	25	337	44	18	398
FL2048	1	139	215	89	24	468	66	12	546
	2	135	214	95	14	458	55	14	528
	3	105	177	90	57	429	35	14	477
	4	88	164	127	35	414	42	9	464
CO97043-14W	1	126	163	68	27	384	90	7	480
	2	120	166	73	34	393	86	9	488
	3	112	152	61	50	375	63	7	445
	4	96	146	84	38	365	60	9	434
Variety Main Effect:									
Pike		100	124	39	2	265	74	13	352
Dakota Pearl		100	133	53	18	304	64	11	380
Dakota Crisp		87	143	102	52	384	50	20	454
FL2053		101	153	79	28	361	54	23	438
FL2048		117	192	100	33	442	49	12	504
CO97043-14W		114	157	72	37	379	74	8	462
CV (%)		17	15	27	45	9	24	68	7
LSD (0.05)		13	16	14	9	22	10	7	20
Spacing Main Effect:									
1		125	160	63	17	365	81	14	460
2		112	160	73	20	366	69	18	452
3		91	141	78	44	354	48	16	417
4		85	141	82	32	340	45	12	397
CV (%)		10	7	9	20	5	14	26	6
LSD (0.05)		19	19	13	11	NS	17	NS	47

^{1/}Treatment seed spacing: 1 = 6.75 inch, 2 = 9.25 inch, 3 = 12.5 inch, 4 = 15 inch

Variety	Trt. ¹	Average Tuber Wt. Oz.	Average Tubers/ Plant	Specific Gravity	Internal Defects ²			
					HH	BC	IBS	HB
					%			
Pike	1	4.7	5.2	1.078	3	10	0	3
	2	4.9	7.0	1.081	0	20	3	8
	3	5.2	7.7	1.081	0	15	8	8
	4	5.4	8.6	1.081	0	13	10	5
Dakota Pearl	1	5.7	6.0	1.092	3	0	0	23
	2	5.1	7.3	1.092	0	0	0	28
	3	4.6	7.8	1.094	0	0	0	25
	4	5.2	8.8	1.090	0	0	0	40
Dakota Crisp	1	6.0	6.4	1.087	0	0	0	23
	2	5.9	6.9	1.086	0	0	0	25
	3	5.7	7.0	1.086	0	0	0	25
	4	5.3	8.2	1.086	3	0	0	13
FL2053	1	5.4	5.7	1.098	0	0	0	10
	2	6.0	6.9	1.104	0	0	0	15
	3	7.6	7.3	1.102	0	0	0	23
	4	6.8	9.0	1.096	0	0	0	10
FL2048	1	6.7	6.6	1.077	0	0	0	18
	2	5.7	8.2	1.078	0	3	0	18
	3	5.2	8.8	1.080	0	0	0	30
	4	5.9	9.8	1.076	0	0	0	15
CO97043-14W	1	7.5	6.2	1.081	0	0	0	25
	2	6.2	8.1	1.080	0	0	3	20
	3	6.6	9.8	1.082	0	0	0	23
	4	5.6	11.0	1.081	0	0	0	30
Variety Main Effect:								
Pike		5.1	7.1	1.080	1	14	5	6
Dakota Pearl		5.1	7.5	1.092	1	0	0	29
Dakota Crisp		5.7	7.1	1.086	1	0	0	21
FL2053		6.4	7.2	1.100	0	0	0	14
FL2048		5.9	8.3	1.078	0	1	0	20
CO97043-14W		6.5	8.7	1.081	0	0	1	24
CV (%)		9.7	8.5	0.32	525	246	470	71
LSD (0.05)		0.4	0.5	0.0024	NS	4	3	10
Spacing Main Effect:								
1		6.0	6.0	1.086	0.8	1.6	0.0	16.7
2		5.6	7.4	1.087	0.0	3.8	0.8	18.8
3		5.8	8.1	1.087	0.0	2.5	1.3	22.0
4		5.7	9.2	1.085	0.4	2.0	1.7	18.8
CV (%)		1.9	8.0	0.16	253	79	168	41
LSD (0.05)		0.2	1.2	NS	NS	NS	NS	NS

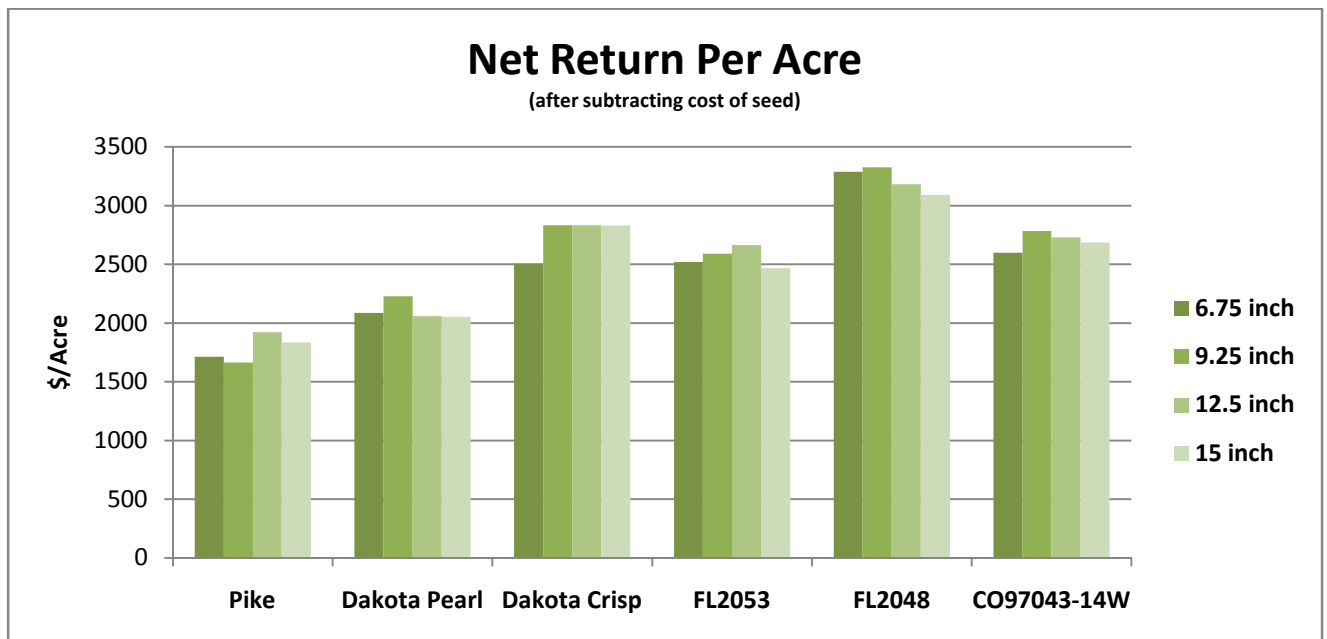
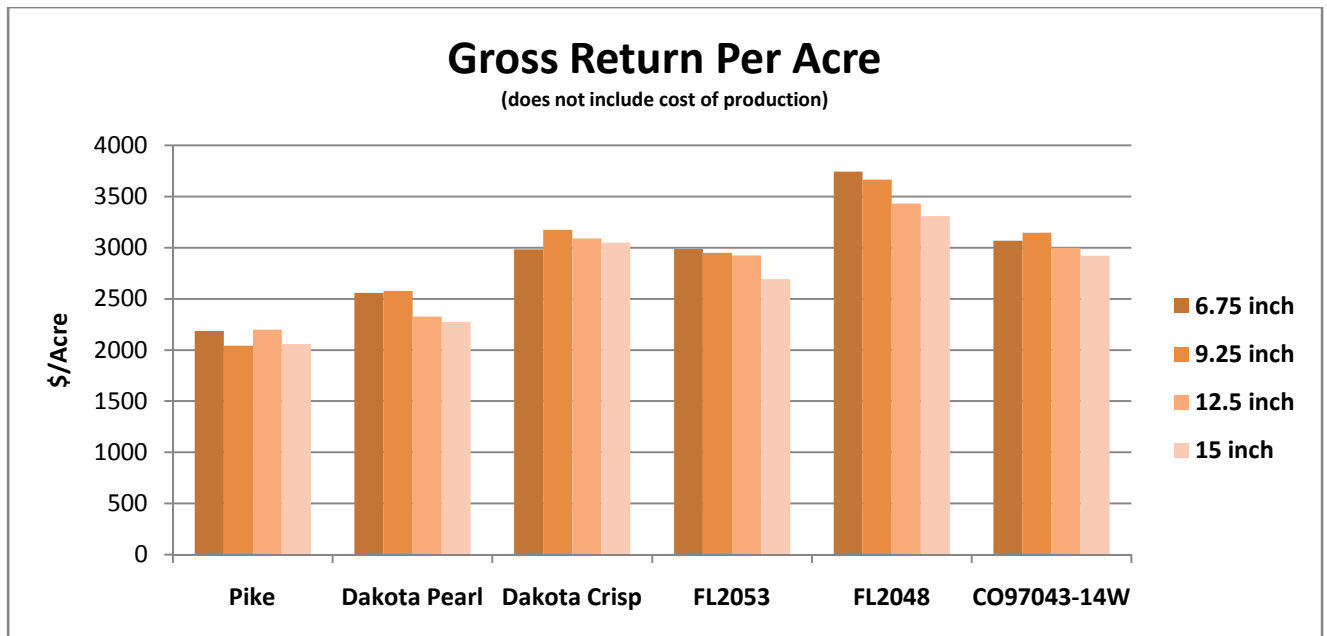
¹Treatment seed spacing: 1 = 6.75 inch, 2 = 9.25 inch, 3 = 12.5 inch, 4 = 15 inch

²Internal defects: HH=hallow heart, BC=brown center, IBS=internal brown spot, HB=hard bite



➤ Seed Spacing Economics

The following returns per acre are an estimate of gross returns per acre given estimated 2010 contract prices. Incentives and deductions were not accounted for and price/cwt for B size and tubers greater than 14oz did not account for alternative markets. As expected, contract prices are not divulged in this publication. ***These figures also do not account for cost of production per acre.*** The second bar graph takes the cost of buying seed at different plant populations and subtracts it from the gross return.



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