2012 Research Progress Report

Potato Breeding and Selection

Submitted by

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San Luis Valley Research Center

to the

Colorado Potato Administrative Committee (Area II)
Research Committee

and the

Colorado Potato Administrative Committee (Area III)

Mission Statement

"The mission of the Colorado Potato Breeding and Selection Program is to develop cultivars that will help assure that the Colorado potato industry remains productive, competitive, and sustainable and to develop cultivars that provide the consumer with improved nutrition and quality."

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Introduction

The major objectives of the Colorado Potato Breeding and Selection Program are: (1) to develop new potato cultivars with increased yield, improved quality, improved nutritional and health characteristics, resistance to diseases and pests, and tolerance to environmental stresses; (2) to collaborate with growers, shippers, processors, and research/extension personnel to assess the production, adaptability, marketability, and other characteristics of advanced selections from the Colorado program; (3) to provide a basic seed source of selections to growers for seed increase and commercial testing; (4) to evaluate promising selections for possible export (interstate and international).

The primary emphasis is placed on the development of russet cultivars. The balance of the breeding effort is devoted to developing red, specialty, and chipping cultivars. This broad approach is important because it recognizes the diverse markets accessed by potato growers throughout Colorado.

Besides the major objectives outlined previously, specific breeding emphasis is being placed on identifying germplasm and developing cultivars that have: (1) early vine maturity and early tuber bulking; (2) immunity to PVY; resistance to (3) late blight (foliar and tuber); (4) storage rots [dry rot (*Fusarium* and early blight) and bacterial soft rot]; (5) pink rot; (6) nematodes; (7) powdery scab; (8) corky ringspot, and (9) that have improved nutritional quality, health attributes, and other "consumer" characteristics such as improved red skin color retention and improved shelf life. Continued emphasis will be placed on breeding/selecting for "low input" cultivars, primarily for reduced nitrogen and fungicide input, for improved postharvest and processing qualities such as lengthened dormancy. Cultivars with these characteristics will help assure that the potato industry in Colorado will remain productive and in a competitive position.

Cultivar development is a five-step process, encompassing first, the generation of segregating populations followed by evaluation for visual agronomic traits. This involves identifying parents with desired characteristics for crossing to produce true (botanical) potato seed (TPS). TPS is planted to produce seedling tubers for field planting. Second, superior progeny are identified and these selections

undergo additional evaluation for economically important characteristics. Third, a profile of cultivar specific management criteria - production and postharvest - are developed, which a grower, shipper, or processor, and/or marketer may fine tune for his/her operation. Fourth, a basic seed source of selections is developed to facilitate further seed increase and commercial testing of advanced selections. Finally, market development takes place to determine consumer acceptance and recognition in the market for the intended market. Each of these integrated steps is critical in the development and commercialization of new cultivars and provides the base for a successful cultivar release. Without all components, fruition is difficult to attain.

The process of cultivar development takes 14+ years. Years 1 and 2 are the potato breeding phase of the development process. As indicated earlier, parents are selected and crossed to produce true potato seed. Seedling tubers are then produced from the true seed in year 2. Subsequent years (3+) represent the selection phase of the development process. Each year represents another cycle of field selection. As each cycle is completed, fewer and fewer clones remain and the amount of seed per selection is increased. Clones remaining after eight cycles of field selection are released to growers for evaluations prior to official release as a named cultivar. Table 1 presents a detailed description of the steps involved in developing new potato cultivars.

The long-term process of cultivar development fosters collaborations among growers, shippers, processors, researchers, and extension personnel. The network must provide for a grower evaluation process to assist in the development of management guidelines, detect unforeseen problems, and determine the predictability of performance of each new cultivar.

Because the timeline for cultivar development is lengthy, improved methods to speed up the breeding and selection process are continually evaluated. Technologies such as marker assisted selection may provide opportunities, in concert with collaborators, to facilitate accelerated (focused) breeding for high priority characteristics.

A priority of the potato cultivar development process should always be to provide a good solid foundation for the development and commercialization of new potato cultivars prior to the "formal" naming and release process. As such, potato cultivar development is a long-term process and is difficult to shorten significantly.

Potato Breeding

Germplasm Accession and Introgression. Germplasm is continually being acquired from various sources with late blight resistance, virus resistance (PXY, PVY, and PLRV), nematode resistance, and other characteristics of importance. Primary sources are the USDA-ARS in Aberdeen, Idaho; Prosser, Washington; Madison, Wisconsin; and Oregon State University. Some material has also been acquired from Asia, Europe, and South America. All of these materials are being incorporated into our germplasm in the breeding program.

Our program recently acquired several seed families of a diploid hybrid population of diploid *Solanum phureja* x *Solanum stenotomum* adapted to long-day growing conditions. This was accomplished by recurrent selection by Dr. Kathy Haynes, USDA-ARS, Beltsville, Maryland. This material was initially planted in 2009 and seedling tubers were planted in the field in 2010. Initial field selection occurred in the fall of 2010 for dark yellow flesh and materials were advanced to 12-hill plots in 2011. These

selections were reevaluated in 2012. This project dovetails with hybridization and selections efforts already underway for high carotenoid clones previously received from Dr. Chuck Brown, USDA-ARS, Prosser Washington, and will be part of an ongoing effort to enhance carotenoid levels in our breeding program. We also acquired 4 diploid *Solanum phureja* cultivars from The James Hutton Institute (formerly the Scottish Crop Research Institute) via Mylnefield Research Services in 2012. The cultivars and release year are Mayan Gold (2001), Inca Dawn (2003), Mayan Queen (2008), and Mayan Twilight (2008). We already have crosses with Inca Dawn and are currently producing seedling tubers in the greenhouse.

An M.S. graduate student, Katie Larson, has been working with our yellow-fleshed material for the last two years. She has collected data on flesh color and carotenoid content (quantitative and qualitative analysis). She has also conducted an analysis of sensory/flavor characteristics for a subset of selections. More detailed results from her project will be presented next year.

Crossing. The Colorado Potato Breeding and Selection Program intercrossed 98 parental clones in 2012 in two separate crossing blocks. The emphasis of the first crossing block was russet and fingerling cultivar development. The second crossing block emphasized russet and chipping cultivar development. Seed from 439 combinations was obtained.

Approximately 61,089 first-size seedling tubers representing 215 families were produced from 2011 greenhouse crosses for initial field selection in 2013. These seedlings represent crosses segregating primarily for russet, yellows, chippers, and resistance to late blight, PVY, corky ringspot, and nematodes. Second through fourth size seedling tubers will be distributed to Idaho (USDA-ARS), Maine, North Dakota, Oregon, Texas, Wisconsin, and Alberta, Canada (Agriculture Canada).

Seedling Selection and Clonal Development

Colorado grew 85,285 first-year seedlings representing 417 families in 2012, with 746 selected for subsequent planting, evaluation, and increase in future years. A portion of these seedlings were obtained from the USDA-ARS (Aberdeen, Idaho), Agriculture Canada, Texas A&M University, and North Dakota State University. Another 1,033 clones were in 12-hill, preliminary, and intermediate stages of selection. At harvest, 244 were saved for further increase and evaluation. Seventy-five advanced selections were saved and will be increased in 2013 pending further evaluation. Another 288 selections and cultivars were maintained for germplasm development, breeding, and other experimental purposes including seed increase/maintenance.

Field trials conducted in 2012 included: Preliminary Trial, Intermediate Yield Trial, Intermediate Specialty Yield Trial, Advanced Yield Trial, Advanced Fingerling Trial, Southwestern Regional Russet Trial, Southwestern Regional Red Trial, Southwestern Regional Chipping Trial, Southwestern Specialty Trial, Western Regional Russet/Processing Trial, Western Regional Red Trial, Western Regional Specialty Trial, Western Regional Chipping Trial, and the San Luis Valley Chipping Trial. All trials are grown under "low input" conditions, primarily for reduced nitrogen and fungicide. Tables 2-15 present the data for the various trials. Appendix 1 summarizes the cultural information for the trials planted at the San Luis Valley Research Center in 2012.

A total of 216 samples are in the process of being evaluated for two or more of the following postharvest characteristics: blackspot susceptibility, storage weight loss, dormancy, enzymatic browning, specific gravity, french fry color, french fry texture, and chip color. Appendix 2 lists the procedures used for the postharvest evaluations for the trials.

One-hundred two advanced selections were saved and will be increased in 2012 pending results of ongoing evaluations. Advanced selections evaluated in the Southwest Regional Trials, Western Regional Trials, or by Colorado producers in 2012, included 12 russets (CO04211-4RU, CO04220-7RU, CO04233-1RU, AC00395-2RU, CO03187-1RU, CO03202-1RU, CO03276-4RU, CO03276-5RU, AC99375-1RU, CO99053-3RU, CO99053-4RU, and CO99100-1RU), 4 reds (CO04159-1R, CO00291-5R, CO99076-6R, and CO99256-2R), 11 chippers (AC00206-2W, AC03452-2W, AC01151-5W, AC03433-1W, CO02024-9W, CO02033-1W, CO02321-4W, CO03243-3W, CO00188-4W, CO00197-3W, and CO00270-7W), and 22 specialties (AC03534-2R/Y, CO04029-5W/Y, CO04067-8R/Y, CO04099-3W/Y, CO04099-4W/Y, CO04188-4R/Y, CO04056-3P/PW, CO04063-4R/R, CO03134-4RF/RW, CO04021-2R/Y, CO04013-1W/Y, CO97226-2R/R, CO97232-2R/Y, CO97222-1R/R, CO97227-2P/PW, AC99329-7PW/Y, AC99330-1P/Y, CO99045-1W/Y, ATC00293-1W/Y, CO00405-1RF, CO00412-5W/Y, and CO00415-1RF).

Several selections are being considered for exclusive release. Included are: AC96052-1RU, AC97521-1R/Y, AC99375-1RU, ATC00293-1W/Y, CO95051-7W, CO97215-2P/P, CO97227-2P/PW, CO97232-1R/Y, CO97233-3R/Y, CO98012-5R, CO99045-1W/Y, CO99053-4RU, CO00277-2R, CO00291-5R, CO00405-1RF, CO00412-5W/Y, and CO00415-1RF. Any of these selections may be available for exclusive release through Colorado State University. Data summaries for all of these clones are available upon request. For futher information please contact David Holm or Rob Davidson.

Selections to be named are AC99329-7PW/Y (Masquerade), CO99053-3RU (Crestone Russet), CO99100-1RU (name to be determined).

Table 16 summarizes the performance of advanced selections that are available for growers to evaluate in 2013. Detailed data summaries for each of the advanced selections are presented in Tables 17A-AK. Figure 1 includes photographs of these selections. Data summaries for additional selections that are available for exclusive release are available upon request.

Appendix 3 is the 'Mesa Russet Information Sheet' that was prepared by Holm, Essah, Davidson, and Jayanty in 2012.

Collaborative Studies

The following collaborative studies were conducted in 2012:

- Several advanced selections were evaluated for disease symptom expression screening trials in Colorado. These trials were conducted in cooperation with Rob Davidson, Andrew Houser, Kent Sather, and Rick Haslar. Diseases included were bacterial ring rot (47 selections), potato leafroll virus (33 selections), PVY (44 selections), powdery scab (19 selections), and corky ringspot (8 selections) in Colorado. Additionally we provided 13 selections to Sastry Jayanty for powdery scab evaluations.

- Several advanced selections were distributed to state/USDA-ARS collaborators in Idaho, Michigan, Oregon, Texas, Washington, and Wisconsin for additional disease evaluations. These selections were screened for one or more of the following diseases: late blight, early blight, scab (common and powdery), PVY, *Verticillim* wilt, and zebra chip. In addition, selections were provided to the National Trials for late blight and common scab screening trials.

- Eighteen advanced selections were evaluated in cultural management trials in collaboration with Samuel Essah.

- Several selections were evaluated for various postharvest characteristics in collaboration with Sastry Jayanty.

- Tubers of selected clones/cultivars were provided to Jairam Vanamala and Lavanya Reddivari to support grant research projects conducted in the Departments of Horticulture and Landscape Architecture and Food Science and Human Nutrition.

- Nine selections were entered in the National Fry Processing Trials conducted in Washington, Idaho, North Dakota, and Maine. A focus of these trials is to identify selections with low acrylamide potential.

- Thirteen selections were entered in the National Chip Processing Trials. These trials were planted in 11 locations in northern and southern production areas of the US.

- Efforts continue to find outside funding to support nematode resistance studies with Jorge Vivanco and Dayakar Badri. Initial studies aimed at pink rot resistance were initiated in 2010 and continued through 2012.

Table 1. Generalized potato breeding and selection scheme used at the SLV Research Center.

Year	Comments
1	Select parents for crossing and true seed production in the greenhouse.
2	Produce seedling tubers from true seed in the greenhouse.
3	70,000-80,000 seedling tubers planted in the field as single hills. Several thousand tubers are obtained from other breeding programs. Initial selection of this material takes place at harvest. First cycle of field selection.
4	Twelve-hills of each single-hill selection are planted. Second cycle of field selection.
5	Preliminary Selections Tier 1 (PT1). Third cycle of field selection (48 plant tuber-unit seed increase). Initial evaluations for chipping qualities (chip color after various storage regimes and specific gravity) are conducted this year and subsequently.
6	Preliminary Selections Tier 2 (PT2). Fourth cycle of field selection (96 plant tuber-unit seed increase). Initial evaluations to characterize selections for blackspot bruise potential, storage weight loss, dormancy, and enzymatic browning. Initial evaluations for french fry potential (french fry color and specific gravity) are conducted this year and subsequently. Evaluations for chipping qualities are continued.
7	Intermediate Selections. Fifth cycle of field selection. Initial data collected on yield, grade, and growth characteristics. Plant a 144 plant tuber-unit seed increase and a 2 rep x 25 plants intermediate yield trial (IYT).
8-14+	Advanced Selections: Includes selections that have advanced from the IYT. Additional selections are included that have graduated from the Southwest Regional and Western Regional Trials. The advanced yield trials for reds, specialty types, and chippers are planted with entries in the Western Regional Red, Specialty and Chip Trials. Selections are in the 6th-12th+ cycles of field selection. All advanced yield trials (AYT) have 4 reps x 25 plants. Sixth and seventh cycle field selections respectively have a 400/1,200 plant tuber-unit seed increase. All 8th year selections have up to a 1/3 acre tuber-unit seed increase planted. All 9th year and older selections generally have up to a 1/2 acre or more of seed increase depending on grower demand. Selections in the sixth cycle of selection are indexed for viruses and cleanup/micropropagation is initiated. Testing for ring rot and PLRV reaction is also initiated at this stage and continues as needed. Selections in the 7th cycle of field selection are entered into cultural management trials and postharvest disease reaction (dry rot and soft rot) evaluations.
10	All 8th year selections are entered in the Southwestern Regional Trials (4 locations - CO, TX, two in CA). Cultural management trials and postharvest disease reaction evaluations continue as needed.
11-13	All 9th-11th year selections are entered in the Western Regional Trials (4 trials): main (russets and long whites), reds, specialties, and chippers. The Western Coordinating Committee (WERA027) directs these trials at 10+ locations in the Western United States each year. Cultural management trials and postharvest disease reaction evaluations continue as needed.
11+	Grower/industry evaluations. The Colorado Potato Breeding and Selection Project relies on the cooperation of several growers, shippers, and processors to evaluate advanced selections for adaptability and marketability.
14+	Release as a named cultivar.

Table 2A. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Preliminary Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC06358-1W/Y	5.0	5.0	5.0	1.8	129	3.8
AC06358-2W/Y	5.0	4.8	4.9	2.4	101	4.4
AC06725-1W/Y	5.0	5.0	5.0	2.3	101	4.8
ATC06258-1R/Y	5.0	5.0	5.0	3.0	59	3.2
CO07014-1RU	5.0	4.8	4.9	2.0	136	3.0
CO07015-4RU	5.0	4.7	4.9	1.6	101	2.6
CO07030-1RU/Y	4.8	4.5	4.7	3.2	73	3.6
CO07044-2W/Y	5.0	5.0	5.0	2.8	59	3.4
CO07049-1RU	5.0	5.0	5.0	2.9	108	3.8
CO07099-2R	5.0	5.0	5.0	3.1	94	3.8
CO07102-1R	5.0	4.7	4.9	4.5	73	1.4
CO07105-4RU/Y	4.3	4.7	4.5	1.7	150	3.0
CO07114-2RW/Y	5.0	5.0	5.0	2.7	87	3.4
CO07131-1RW/Y	4.6	4.7	4.7	8.5	38	2.4
CO07150-1W/Y	5.0	5.0	5.0	5.8	38	2.6
CO07153-3RW/Y	5.0	5.0	5.0	4.2	66	2.4
CO07205-4RU	5.0	5.0	5.0	1.7	122	2.2
CO07222-1RU	5.0	5.0	5.0	2.7	108	4.6
CO07322-3R	4.9	4.5	4.7	4.7	108	2.2
CO07329-1P/Y	5.0	5.0	5.0	2.3	136	2.0
CO07357-4RU	5.0	5.0	5.0	1.8	122	4.4
CO07370-1W/Y	5.0	4.7	4.9	2.4	108	2.6

Table 2A continued on next page

Table 2A (cont'd). Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Preliminary Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
Canela Russet	5.0	5.0	5.0	2.6	159	3.8
Centennial Russet	5.0	5.0	5.0	3.5	87	3.2
Purple Majesty	---	---	---	2.8	67	---
Rio Grande Russet	5.0	5.0	5.0	2.8	123	3.6
Russet Burbank	4.8	4.7	4.8	1.5	150	3.4
Russet Norkotah-S3	5.0	5.0	5.0	1.4	109	2.0
Russet Nugget	5.0	5.0	5.0	1.9	108	4.2
Sangre-S10	4.8	5.0	4.9	1.8	105	3.2
Yukon Gold	5.0	5.0	5.0	1.1	129	4.8

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 2B. Specific gravity, french fry color, and texture for Preliminary Trial clones - 2012.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	5 wks 55F+ 8 wks 45F	At Harvest	5 wks 55F+ 8 wks 45F
AC06358-1W/Y	1.067	3	4	3	3
AC06358-2W/Y	1.083	3	3	3	3
AC06725-1W/Y	1.083	1	1	3	3
ATC06258-1R/Y	1.075	3	4	2	2
CO07014-1RU	1.094	2	2	4	4
CO07015-4RU	1.082	3	3	4	4
CO07030-1RU/Y	1.096	1	3	4	4
CO07044-2W/Y	1.101	0	1	5	5
CO07049-1RU	1.075	2	3	3	2
CO07099-2R	1.074	3	3	3	2
CO07102-1R	1.084	1	2	3	3
CO07105-4RU/Y	1.083	3	3	3	3
CO07114-2RW/Y	1.076	2	3	3	3
CO07131-1RW/Y	1.076	2	3	3	4
CO07150-1W/Y	1.082	1	2	3	4
CO07153-3RW/Y	1.091	3	2	2	3
CO07205-4RU	1.083	2	1	2	3
CO07222-1RU	1.091	3	3	3	3
CO07322-3R	1.088	1	2	3	3
CO07329-1P/Y	1.077	2	3	2	3
CO07357-4RU	1.082	0	2	4	4
CO07370-1W/Y	1.066	2	1	2	2

Table 2B continued on next page

Table 2B (cont'd). Specific gravity, french fry color, and texture for Preliminary Trial clones - 2012.

Clone	Specific Gravity	Fry Color[1] At Harvest	Fry Color[1] 5 wks 55F+ 8 wks 45F	Fry Texture[2] At Harvest	Fry Texture[2] 5 wks 55F+ 8 wks 45F
Canela Russet	1.080	2	3	4	4
Centennial Russet	1.080	4	4	2	3
Purple Majesty	1.074	---	---	3	4
Rio Grande Russet	1.067	3	3	3	3
Russet Burbank	1.080	2	2	4	4
Russet Norkotah-S3	1.082	3	3	3	3
Russet Nugget	1.084	1	2	4	4
Sangre-S10	1.068	4	4	2	2
Yukon Gold	1.088	1	2	3	3

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 3A. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for San Luis Valley chipping study entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC00180-2W	4.1	3.5	3.8	3.3	91	4.2
AC00206-2W	4.7	4.5	4.6	2.7	103	5.0
AC01151-5W	4.6	4.2	4.4	2.1	95	1.4
AC03433-1W	4.9	4.4	4.7	3.6	80	3.4
AC03452-2W	4.9	5.0	5.0	1.6	82	4.8
AC05153-1W	4.8	3.9	4.4	3.6	98	3.4
AC07116-1W	5.0	5.0	5.0	2.0	115	4.6
AC07116-2W	5.0	5.0	5.0	1.5	108	4.4
CO95051-7W	4.9	3.6	4.3	3.2	83	2.8
CO97043-14W	5.0	4.9	5.0	2.2	123	4.4
CO00188-4W	4.6	4.1	4.4	1.8	112	4.2
CO00197-3W	4.7	4.3	4.5	1.4	98	2.6
CO00270-7W	4.4	4.1	4.3	2.2	77	2.0
CO02024-9W	4.7	4.0	4.4	2.7	109	3.8
CO02033-1W	3.8	3.5	3.7	3.2	95	2.8
CO02321-4W	4.8	4.1	4.5	3.7	102	3.6
CO03243-3W	4.6	3.4	4.0	2.7	87	2.6
CO05061-2P	4.6	3.2	3.9	2.8	70	3.0
CO05061-6W	4.8	3.1	4.0	2.3	84	2.8
CO05061-7W	4.7	3.5	4.1	3.2	49	4.0

Table 3A continued on next page

Table 3A (cont'd). Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for San Luis Valley chipping study entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
CO07070-10W	4.6	3.4	4.0	1.9	108	3.4
CO07070-13W	4.7	3.3	4.0	3.0	87	4.8
CO07110-8W	5.0	5.0	5.0	1.7	94	4.4
Atlantic	3.3	3.4	3.4	2.8	101	4.0
Chipeta	5.0	5.0	5.0	1.4	109	3.6
Snowden	4.7	3.9	4.3	2.2	108	3.0

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 3B. Chip color[1] after various storage regimes and specific gravity of San Luis Valley chipping study entries - 2012.

Clone	Specific Gravity	5 wks 40F	5 wks/40F +3 wks/60F	5 wks 50F	5 wks/50F +3 wks/60F
AC00180-2W	1.087	4.0	4.5	3.0	2.5
AC00206-2W	1.085	3.0	2.5	2.0	2.5
AC01144-1W	1.078	3.5	3.0	1.5	1.5
AC01151-5W	1.083	5.0	4.5	3.0	2.5
AC03433-1W	1.082	4.0	3.0	1.5	2.5
AC03452-2W	1.074	4.5	4.0	2.0	2.5
AC05153-1W	1.094	4.5	4.0	1.5	3.0
AC07116-1W	1.081	5.0	5.0	3.0	3.5
AC07116-2W	1.080	5.0	3.0	1.5	2.0
AC08094-2W	1.074	4.5	4.5	1.5	3.0
AC08094-4W	1.082	5.0	4.0	2.5	3.0
CO95051-7W	1.103	4.5	3.0	2.0	2.5
CO97043-14W	1.085	3.5	3.5	1.5	1.0
CO00188-4W	1.091	3.5	2.5	1.5	1.5
CO00197-3W	1.084	3.5	5.0	3.0	2.5
CO00270-7W	1.088	3.5	3.5	2.5	1.5
CO02024-9W	1.082	4.5	3.0	1.0	1.5
CO02033-1W	1.095	4.0	2.5	1.5	2.5
CO02321-4W	1.094	4.5	3.5	2.0	2.5
CO03243-3W	1.090	4.5	3.5	2.0	2.0
CO05061-2P	1.094	4.0	2.5	1.5	2.0
CO05061-6W	1.090	4.5	3.0	2.5	2.5
CO05061-7W	1.099	4.0	2.5	1.0	1.0

Table 3B continued on next page

Table 3B (cont'd). Chip color[1] after various storage regimes and specific gravity of San San Luis Valley chipping study entries - 2012.

Clone	Specific Gravity	5 wks 40F	5 wks/40F +3 wks/60F	5 wks 50F	5 wks/50F +3 wks/60F
CO07070-10W	1.107	4.0	2.5	1.5	1.5
CO07070-13W	1.098	3.5	1.5	1.0	1.5
CO07110-8W	1.090	5.0	5.0	2.5	3.5
Atlantic	1.103	5.0	5.0	3.5	3.0
Chipeta	1.077	5.0	5.0	3.5	3.5
Snowden	1.096	5.0	3.0	1.5	1.5

[1]Chip color was rated using the Snack Food Association 1-5 scale. Ratings of ≤ 2.0 are acceptable.

Table 4A. Yield, grade and tuber shape for Intermediate Main Yield Trial entries - 2012.

Clone	Yield (Cwt/A) Total	US #1 Total	US #1 %	US #1 4-10 oz	US #1 >10 oz	<4 oz	Tuber Shape1 L:W/W:T
AC05039-2RU	275	253	92	201	52	20	1.77/1.10
AC06140-3RU	287	216	75	187	29	69	1.83/1.14
CO06021-1RU	323	257	79	204	54	65	1.78/1.13
CO06022-12RU	421	323	77	287	37	94	1.61/1.13
CO06024-7RU	395	288	73	232	56	104	1.66/1.17
CO06032-1RU	449	319	71	296	23	127	1.54/1.20
CO06035-3RU	339	220	64	209	11	117	1.73/1.20
CO06037-15RU	297	210	71	144	66	81	1.75/1.21
CO06057-3RU	365	190	52	182	8	175	1.68/1.15
CO06060-10RU	363	231	63	197	34	116	1.84/1.13
CO06062-3RU	232	139	53	117	22	93	1.70/1.16
CO06064-7RU	241	176	73	135	41	61	1.82/1.15
CO06094-1RU	382	308	81	240	68	69	1.84/1.13
CO06097-5RU	275	203	74	164	40	69	1.84/1.25
CO06097-14RU	242	165	68	154	11	68	1.75/1.16
Canela Russet	352	294	84	229	65	56	1.71/1.21
Russet Norkotah	271	190	70	150	40	78	1.94/1.15
Mean	324	234	72	196	39	86	1.75 /1.16
LSD[2] (0.05)	111	108	19	85	52	38	0.09/0.04

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference.

Table 4B. Grade defects for Intermediate Main Yield Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
AC05039-2RU	0.5	MS*	0.0
AC06140-3RU	1.1	MS*, GR	0.0
CO06021-1RU	0.6	GC*	0.0
CO06022-12RU	0.7	GC*, GR*	0.0
CO06024-7RU	0.6	MS*	0.0
CO06032-1RU	0.7	MS*	0.0
CO06035-3RU	0.7	GC*, GR*	0.0
CO06037-15RU	2.3	GC, GR*	0.0
CO06057-3RU	0.0		0.0
CO06060-10RU	4.4	MS, SG*	0.0
CO06062-3RU	0.0		0.0
CO06064-7RU	1.3	MS*, GC*, GR*	0.0
CO06094-1RU	1.3	MS*, GR	0.0
CO06097-5RU	1.1	GC*	0.0
CO06097-14RU	3.7	MS*, GC	0.0
Canela Russet	0.4	MS*	0.0
Russet Norkotah	0.8	MS*	0.0

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 4C. Growth characteristics of Intermediate Main Yield Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
AC05039-2RU	92	2.5	3.5	2.4	2.5	3.0	1.5
AC06140-3RU	98	2.5	2.5	2.6	3.0	2.5	1.5
CO06021-1RU	98	2.0	3.0	3.0	4.0	3.0	3.0
CO06022-12RU	98	3.5	3.0	4.0	4.5	3.0	3.0
CO06024-7RU	98	1.5	3.5	3.0	4.0	3.5	4.0
CO06032-1RU	100	2.5	3.0	3.5	4.5	3.5	3.0
CO06035-3RU	90	2.5	3.5	2.8	3.5	3.0	2.5
CO06037-15RU	92	2.0	3.0	3.0	5.0	3.0	4.0
CO06057-3RU	100	3.0	3.0	5.0	4.0	3.0	2.5
CO06060-10RU	100	3.0	3.5	3.7	3.0	3.0	3.0
CO06062-3RU	98	2.5	3.0	4.3	2.0	3.0	1.0
CO06064-7RU	100	2.5	3.5	2.6	2.5	3.0	1.5
CO06094-1RU	98	3.5	4.0	3.2	4.5	3.0	3.0
CO06097-5RU	90	2.5	3.5	3.1	3.0	3.5	2.0
CO06097-14RU	98	3.0	2.5	2.6	3.0	2.0	1.0
Canela Russet	82	2.5	3.0	2.3	4.5	3.0	3.0
Russet Norkotah	94	2.0	3.0	3.3	2.5	3.0	1.0
Mean	96	2.6	3.2	3.2	3.5	3.0	2.4
LSD[6] (0.05)	9	1.6	0.9	0.8	1.1	1.0	0.8

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference.

Table 4D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Intermediate Main Yield Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC05039-2RU	5.0	5.0	5.0	2.1	91	4.6
AC06140-3RU	5.0	5.0	5.0	1.5	84	2.0
CO06021-1RU	5.0	5.0	5.0	2.2	84	4.2
CO06022-12RU	5.0	4.6	4.8	2.5	49	4.6
CO06024-7RU	4.8	5.0	4.9	4.1	84	3.2
CO06032-1RU	5.0	4.8	4.9	2.1	70	4.2
CO06035-3RU	4.9	4.8	4.9	6.6	84	3.0
CO06037-15RU	5.0	4.6	4.8	1.7	77	3.6
CO06057-3RU	4.8	4.7	4.8	3.8	70	3.6
CO06060-10RU	5.0	5.0	5.0	4.4	70	4.6
CO06062-3RU	5.0	4.9	5.0	4.3	42	3.8
CO06064-7RU	5.0	5.0	5.0	3.5	70	4.0
CO06094-1RU	5.0	4.9	5.0	1.9	84	5.0
CO06097-5RU	5.0	4.3	4.7	2.9	63	2.8
CO06097-14RU	4.9	5.0	5.0	2.5	84	3.0
Canela Russet	5.0	5.0	5.0	3.0	147	4.8
Russet Norkotah	5.0	5.0	5.0	2.0	91	4.0

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 4E. Specific gravity, french fry color, and texture for Intermediate Main Yield Trial entries - 2012.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	5 wks 55F+ 8 wks 45F	At Harvest	5 wks 55F+ 8 wks 45F
AC05039-2RU	1.087	1	1	3	3
AC06140-3RU	1.083	1	2	3	3
CO06021-1RU	1.098	1	1	4	4
CO06022-12RU	1.101	0	1	4	4
CO06024-7RU	1.088	2	2	3	3
CO06032-1RU	1.088	1	1	4	4
CO06035-3RU	1.090	1	0	5	4
CO06037-15RU	1.080	1	3	3	4
CO06057-3RU	1.095	0	1	3	4
CO06060-10RU	1.090	0	1	4	4
CO06062-3RU	1.091	0	0	3	4
CO06064-7RU	1.081	1	2	2	3
CO06094-1RU	1.086	2	2	3	3
CO06097-5RU	1.088	1	2	2	3
CO06097-14RU	1.089	0	1	3	3
Canela Russet	1.097	1	2	4	4
Russet Norkotah	1.080	1	3	2	3

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 5A. Yield, grade and tuber shape for Intermediate Specialty Yield Trial entries - 2012.

Clone	Yield (Cwt/A)						Tuber Shape[1]
		US #1					
	Total	Total	%	4-10 oz	>10 oz	<4 oz	L:W/W:T
ATC05175-1PW/Y	430	339	79	224	115	84	1.60/1.12
ATC05175-2RW/Y	494	428	86	224	204	50	1.06/1.13
CO05028-3R/R	311	175	56	175	0	129	1.23/1.11
CO05028-4P/PW	393	202	52	172	30	188	1.26/1.19
CO05028-6P/PW	352	142	39	140	2	209	1.11/1.23
CO05028-7P/PW	500	355	71	297	58	135	1.06/1.18
CO05028-8R/RY	430	286	67	269	17	141	1.14/1.15
CO05028-10P/P	299	166	56	159	6	127	1.31/1.20
CO05028-11P/PW	418	230	55	227	2	176	1.14/1.21
CO05030-5W/Y	444	275	62	265	10	169	1.06/1.16
CO05035-1PW/Y	466	430	92	208	221	36	1.25/1.21
CO05035-5PW/Y	452	416	92	180	236	34	1.28/1.13
CO05035-7PW/Y	322	223	69	200	23	97	1.12/1.18
CO05035-8PW/Y	446	361	80	281	79	82	1.42/1.13
CO05079-4P/PW	375	131	35	131	0	244	1.41/1.16
CO05100-1W/Y	489	331	68	277	54	153	1.36/1.23
CO05107-4P/PW	410	184	45	177	6	221	1.42/1.18
CO05239-1R/Y	413	308	74	264	45	101	1.21/1.24
CO06215-2R	487	385	79	340	45	100	1.10/1.22
CO06215-11R	284	153	54	153	0	128	1.22/1.10
NDC071010B-1R	291	199	68	179	20	92	1.07/1.12
Purple Majesty	441	213	48	185	28	228	1.36/1.17
Sangre-S10	531	434	81	290	145	69	1.19/1.15
Yukon Gold	374	334	89	215	119	33	1.27/1.16
Mean	410	279	65	218	61	126	1.24/ 1.17
LSD[2] (0.05)	87	113	19	91	68	65	0.07/0.05

[1] L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2] LSD=least significant difference.

Table 5B. Grade defects for Intermediate Specialty Yield Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
ATC05175-1PW/Y	1.6	MS*, GR*	0.0
ATC05175-2RW/Y	3.3	MS, GC, GR*	13.0
CO05028-3R/R	2.2	GC*	0.0
CO05028-4P/PW	0.7	MS*	0.0
CO05028-6P/PW	0.2	GR*	0.0
CO05028-7P/PW	2.0	GC*	0.0
CO05028-8R/RY	0.8	MS*, GC*	0.0
CO05028-10P/P	2.1	MS, GC*	0.0
CO05028-11P/PW	2.9	MS, GC*, GR	0.6
CO05030-5W/Y	1.0	MS*, GR*	0.0
CO05035-1PW/Y	0.0		2.1
CO05035-5PW/Y	0.4	GR*	2.6
CO05035-7PW/Y	0.5	MS*	0.0
CO05035-8PW/Y	0.9	GR*	0.0
CO05079-4P/PW	0.0		0.0
CO05100-1W/Y	0.8	MS*, GR	0.0
CO05107-4P/PW	1.4	GR*	0.0
CO05239-1R/Y	1.1	MS*, GC, GR	0.0
CO06215-2R	0.5	MS*	0.0
CO06215-11R	1.2	GC*, GR	0.0
NDC071010B-1R	0.2	GR*	0.9
Purple Majesty	0.1	GR*	0.0
Sangre-S10	5.2	GC*, GR	3.2
Yukon Gold	2.0	GC*, GR	0.0

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 5C. Growth characteristics of Intermediate Specialty Yield Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
ATC05175-1PW/Y	86	2.5	3.0	2.1	3.0	3.0	2.0
ATC05175-2RW/Y	96	3.5	3.5	2.6	4.0	2.5	2.5
CO05028-3R/R	88	2.0	2.5	4.7	3.0	3.0	2.5
CO05028-4P/PW	96	2.5	3.0	2.2	3.5	3.0	3.0
CO05028-6P/PW	92	3.0	2.5	3.0	3.0	2.5	2.5
CO05028-7P/PW	98	4.5	3.5	2.9	4.0	3.0	3.0
CO05028-8R/RY	98	3.5	3.0	3.3	3.5	3.0	3.0
CO05028-10P/P	98	3.5	3.5	3.0	2.5	2.5	2.0
CO05028-11P/PW	94	2.0	3.0	2.4	4.0	3.0	3.0
CO05030-5W/Y	98	4.0	3.5	3.2	3.0	2.0	2.0
CO05035-1PW/Y	84	3.5	3.0	2.9	3.5	2.5	3.0
CO05035-5PW/Y	84	2.5	3.0	2.5	5.0	3.5	4.0
CO05035-7PW/Y	96	3.5	3.0	3.5	3.5	3.5	2.5
CO05035-8PW/Y	92	4.0	3.0	4.3	3.5	3.0	2.5
CO05079-4P/PW	98	2.0	3.0	3.6	3.5	3.0	3.0
CO05100-1W/Y	96	4.5	4.0	5.1	4.0	3.0	1.5
CO05107-4P/PW	100	3.5	3.0	3.9	3.5	2.5	1.0
CO05239-1R/Y	94	3.5	3.5	3.1	4.0	2.5	2.0
CO06215-2R	96	4.0	3.0	3.4	4.0	3.0	3.0
CO06215-11R	80	2.0	2.5	4.1	3.5	2.5	1.5
NDC071010B-1R	86	3.0	3.0	2.8	2.0	1.5	1.0
Purple Majesty	92	2.5	2.5	4.3	4.0	3.0	2.0
Sangre-S10	98	3.0	3.0	2.6	5.0	3.0	3.5
Yukon Gold	100	5.0	3.5	2.6	3.5	3.0	2.0
Mean	94	3.3	3.1	3.2	3.6	2.8	2.4
LSD[6] (0.05)	13	1.0	1.4	1.2	0.9	0.9	0.9

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference.

Table 5D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Intermediate Specialty Yield Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
ATC05175-1PW/Y	4.5	4.5	4.5	3.3	70	2.6
ATC05175-2RW/Y	4.9	3.8	4.4	4.2	42	2.0
CO05028-3R/R	---	---	---	6.5	42	---
CO05028-4P/PW	---	---	---	2.7	49	4.8
CO05028-6P/PW	---	---	---	3.1	77	2.8
CO05028-7P/PW	---	---	---	2.5	84	4.6
CO05028-8R/RY	---	---	---	2.4	84	4.8
CO05028-10P/P	---	---	---	2.2	70	3.8
CO05028-11P/PW	---	---	---	1.6	84	4.4
CO05030-5W/Y	4.7	4.1	4.4	3.9	56	3.6
CO05035-1PW/Y	5.0	4.6	4.8	2.3	42	3.2
CO05035-5PW/Y	4.9	4.7	4.8	2.3	91	4.2
CO05035-7PW/Y	5.0	5.0	5.0	3.7	21	4.8
CO05035-8PW/Y	5.0	4.6	4.8	2.9	42	4.0
CO05079-4P/PW	---	---	---	2.9	84	5.0
CO05100-1W/Y	5.0	4.9	5.0	2.2	56	4.2
CO05107-4P/PW	---	---	---	2.8	105	5.0
CO05239-1R/Y	5.0	4.9	5.0	3.7	91	3.4
CO06215-2R	5.0	5.0	5.0	3.3	77	2.0
CO06215-11R	4.9	4.3	4.6	3.4	105	2.6
NDC071010B-1R	5.0	5.0	5.0	4.7	35	4.8
Purple Majesty	---	---	---	2.4	56	---
Sangre-S10	4.6	5.0	4.8	1.9	91	4.0
Yukon Gold	5.0	4.6	4.8	1.6	98	4.4

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 5E. Specific gravity, french fry color, and texture for Intermediate Specialty Yield Trial entries - 2012.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	5 wks 55F+ 8 wks 45F	At Harvest	5 wks 55F+ 8 wks 45F
ATC05175-1PW/Y	1.078	1	2	3	3
ATC05175-2RW/Y	1.084	1	2	3	3
CO05028-3R/R	1.084	1	2	2	3
CO05028-4P/PW	1.083	1	2	2	3
CO05028-6P/PW	1.076	2	2	2	2
CO05028-7P/PW	1.086	2	3	3	3
CO05028-8R/RY	1.085	1	1	2	2
CO05028-10P/P	1.082	1	2	2	2
CO05028-11P/PW	1.088	1	2	3	2
CO05030-5W/Y	1.088	0	2	2	2
CO05035-1PW/Y	1.085	2	2	2	3
CO05035-5PW/Y	1.086	3	3	3	3
CO05035-7PW/Y	1.083	2	3	2	2
CO05035-8PW/Y	1.073	1	3	2	2
CO05079-4P/PW	1.098	1	3	3	3
CO05100-1W/Y	1.070	2	3	2	2
CO05107-4P/PW	1.071	1	1	2	2
CO05239-1R/Y	1.079	3	4	2	2
CO06215-2R	1.093	1	1	2	3
CO06215-11R	1.085	1	3	2	2
NDC071010B-1R	1.066	3	4	2	2
Purple Majesty	1.088	---	---	3	3
Sangre-S10	1.079	3	4	3	2
Yukon Gold	1.090	1	3	4	4

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 6A. Yield, grade and tuber shape for Advanced Yield Trial entries - 2012.

Clone	Yield (Cwt/A) Total	US #1 Total	%	4-10 oz	>10 oz	<4 oz	Tuber Shape[1] L:W/W:T
AC03346-1RU	507	424	83	251	174	68	1.69/1.17
AC05141-2RU	457	323	71	258	65	132	1.91/1.15
AC05282-2RU	384	203	53	190	14	180	1.68/1.20
CO05024-11RU	382	297	77	238	59	83	1.59/1.16
CO05040-1RU	432	236	54	224	12	189	1.70/1.14
CO05048-3RU	492	361	73	281	80	116	1.75/1.15
CO05068-1RU	489	423	87	277	147	54	1.67/1.22
CO05110-6RU	321	221	69	190	31	95	1.81/1.18
CO05132-2RU	271	196	71	165	32	69	1.84/1.13
CO05149-3RU	331	216	65	199	17	110	1.98/1.15
CO05152-5RU	433	309	71	282	27	117	1.71/1.12
CO05175-1RU	419	360	86	184	176	49	1.74/1.20
CO05189-2RU	330	228	68	211	16	102	1.80/1.19
CO05189-3RU	379	350	93	164	187	22	1.63/1.19
CO05206-8RU	424	351	83	230	121	60	1.75/1.16
Canela Russet	370	344	93	215	129	23	1.76/1.22
Russet Norkotah	291	235	80	148	88	52	2.04/1.15
Mean	395	299	75	218	81	90	1.77/1.17
LSD[2] (0.05)	65	70	9	52	48	26	0.10/0.04

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference.

Table 6B. Grade defects for Advanced Yield Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
AC03346-1RU	3.0	MS, SG, GC, GR*	0.0
AC05141-2RU	0.6	MS*, GR*	0.0
AC05282-2RU	0.5	MS*, GC*, GR*	0.0
CO05024-11RU	0.7	MS*, GC, GR	0.5
CO05040-1RU	1.6	MS, GC*	0.0
CO05048-3RU	3.1	MS*, GC, GR	0.2
CO05068-1RU	2.3	MS, GR*	1.9
CO05110-6RU	1.6	MS*, GR	0.0
CO05132-2RU	1.9	MS, SG*, GC*, GR	0.0
CO05149-3RU	1.3	MS*, GR	0.0
CO05152-5RU	1.8	MS, GC*	1.6
CO05175-1RU	2.3	MS*, SG, GR	5.9
CO05189-2RU	0.2	GR*	0.0
CO05189-3RU	1.5	MS*, GR	0.0
CO05206-8RU	3.1	MS, GC*, GR	0.0
Canela Russet	0.7	MS*, GC*, GR*	0.0
Russet Norkotah	1.2	MS, GR*	0.4

[1] Percent external defects based on the proportion of the total sample weight with significant defects.

[2] MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3] Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 6C. Growth characteristics of Advanced Yield Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
AC03346-1RU	100	3.0	3.3	3.0	3.8	3.0	3.0
AC05141-2RU	98	3.5	3.3	3.7	4.8	3.0	2.8
AC05282-2RU	99	3.5	3.0	3.8	3.3	2.5	2.8
CO05024-11RU	100	3.5	3.3	4.1	4.0	3.0	3.0
CO05040-1RU	100	4.0	3.3	3.8	4.0	3.0	3.0
CO05048-3RU	99	3.8	3.3	3.4	4.8	3.0	3.0
CO05068-1RU	100	3.3	3.3	3.0	4.3	3.0	3.0
CO05110-6RU	99	2.5	3.3	3.0	3.0	2.8	1.8
CO05132-2RU	95	3.8	3.0	3.5	3.3	2.8	2.0
CO05149-3RU	99	4.0	3.0	3.9	3.0	2.3	1.5
CO05152-5RU	99	4.0	3.0	3.1	3.3	3.0	2.3
CO05175-1RU	98	3.5	3.5	3.9	4.0	3.0	3.0
CO05189-2RU	99	2.3	3.5	3.2	3.0	2.5	1.5
CO05189-3RU	98	3.0	3.3	2.6	3.0	3.0	2.5
CO05206-8RU	99	3.5	3.3	3.1	4.0	2.8	3.0
Canela Russet	94	2.8	3.0	1.9	4.0	3.0	3.5
Russet Norkotah	99	3.0	3.0	3.1	2.5	2.3	1.3
Mean	99	3.3	3.2	3.3	3.6	2.8	2.5
LSD[6] (0.05)	3	0.8	0.7	0.7	0.6	0.5	0.7

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference.

Table 6D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced Yield Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC03346-1RU	5.0	4.4	4.7	1.5	98	2.6
AC05141-2RU	5.0	4.9	5.0	3.0	70	2.2
AC05282-2RU	4.8	4.4	4.6	3.3	84	3.4
CO05024-11RU	5.0	4.3	4.7	3.1	77	3.0
CO05040-1RU	5.0	4.9	5.0	3.4	91	3.6
CO05048-3RU	5.0	5.0	5.0	1.9	112	2.8
CO05068-1RU	5.0	4.8	4.9	2.7	77	2.0
CO05110-6RU	5.0	4.5	4.8	2.0	112	3.0
CO05132-2RU	5.0	5.0	5.0	1.9	98	3.4
CO05149-3RU	5.0	4.9	5.0	4.2	63	4.0
CO05152-5RU	5.0	4.9	5.0	2.5	84	4.2
CO05175-1RU	5.0	5.0	5.0	2.7	77	2.0
CO05189-2RU	5.0	4.9	5.0	2.5	91	4.8
CO05189-3RU	5.0	5.0	5.0	3.0	133	3.4
CO05206-8RU	5.0	4.3	4.7	3.1	84	3.0
Canela Russet	5.0	4.7	4.9	3.4	154	3.8
Russet Norkotah	5.0	5.0	5.0	2.3	91	2.6

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 6E. Specific gravity, french fry color, and texture for Advanced Yield Trial entries - 2012.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	5 wks 55F+ 8 wks 45F	At Harvest	5 wks 55F+ 8 wks 45F
AC03346-1RU	1.082	3	3	3	3
AC05141-2RU	1.090	0	2	4	4
AC05282-2RU	1.083	1	3	2	3
CO05024-11RU	1.092	1	1	3	3
CO05040-1RU	1.087	1	3	3	3
CO05048-3RU	1.087	3	2	4	4
CO05068-1RU	1.097	0	1	4	4
CO05110-6RU	1.083	1	3	3	3
CO05132-2RU	1.084	1	1	5	5
CO05149-3RU	1.086	2	3	4	4
CO05152-5RU	1.083	2	2	3	3
CO05175-1RU	1.090	0	0	4	4
CO05189-2RU	1.080	2	3	3	3
CO05189-3RU	1.077	2	2	2	3
CO05206-8RU	1.084	1	4	3	3
Canela Russet	1.096	1	3	3	3
Russet Norkotah	1.078	1	1	3	2

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 7A. Yield, grade and tuber shape for Advanced Fingerling Yield Trial entries - 2012.

Clone	Total (Cwt/A)	Tuber Length <2"	<2-4"	>4-6"	>6"	Tuber Shape[1] L:W/W:T
CO00405-1RF	277	23	181	70	1	2.32/1.07
CO00415-1RF	382	17	268	73	3	2.26/1.08
CO03134-4RF/RW	290	16	221	43	0	2.66/1.09
Banana	319	18	199	80	5	2.71/1.07
Mean	317	19	217	67	2	2.49/1.08
LSD[2] (0.05)	48	NS	70	NS	NS	0.19/NS

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; ; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference; NS=not significant.

Table 7B. Grade defects for Advanced Fingerling Yield Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
CO00405-1RF	0.5	MS*, GR*	0.0
CO00415-1RF	5.5	MS*, GR	0.0
CO03134-4RF/RW	3.4	MS*	0.0
Banana	5.8	MS, GR*	0.0

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 7C. Growth characteristics of Advanced Fingerling Yield Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
CO00405-1RF	100	3.0	2.8	4.2	3.0	3.0	1.8
CO00415-1RF	97	2.8	3.0	3.1	3.3	2.8	1.8
CO03134-4RF/RW	96	2.5	2.8	3.5	3.5	3.0	3.3
Banana	96	2.3	3.0	4.0	4.3	3.0	3.0
Mean	97	2.6	2.9	3.7	3.5	2.9	2.4
LSD[6] (0.05)	NS	0.6	NS	NS	0.7	NS	1.1

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference; NS=not significant.

Table 7D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced Fingerling Yield Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
CO00405-1RF	5.0	5.0	5.0	3.5	84	4.8
CO00415-1RF	5.0	5.0	5.0	2.0	98	4.4
CO03134-4RF/RW	---	---	---	3.6	77	---
Banana	5.0	5.0	5.0	2.8	84	4.4

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 7E. Specific gravity, french fry color, and texture for Advanced Fingerling Yield Trial entries - 2012.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	5 wks 55F+ 8 wks 45F	At Harvest	5 wks 55F+ 8 wks 45F
CO00405-1RF	1.080	1	1	3	3
CO00415-1RF	1.077	1	2	3	3
CO03134-4RF/RW	1.091	---	---	4	4
Banana	1.086	3	2	4	4

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 8A . Yield, grade and tuber shape for Southwest Regional Russet Trial entries - 2012.

Clone	Yield (Cwt/A) Total	US #1 Total	US #1 %	US #1 4-10 oz	US #1 >10 oz	<4 oz	Tuber Shape[1] L:W/W:T
AOTX02136-1RU	344	281	82	201	80	57	1.88/1.09
CO04211-4RU	373	341	91	234	107	32	1.67/1.14
CO04220-7RU	424	311	73	264	48	106	2.00/1.08
CO04233-1RU	328	281	86	214	67	47	1.58/1.15
Canela Russet	440	406	92	203	203	30	1.62/1.17
Russet Norkotah	356	307	86	198	109	46	1.93/1.15
Mean	377	321	85	219	102	53	1.78/1.13
LSD[2] (0.05)	64	74	8	NS	79	25	0.09/0.04

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference; NS=not significant.

Table 8B. Grade defects for Southwest Regional Russet Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
AOTX02136-1RU	1.7	MS, GC*	0.0
CO04211-4RU	0.1	MS*	0.0
CO04220-7RU	1.6	MS, GC, GR*	0.0
CO04233-1RU	0.0		0.0
Canela Russet	0.8	MS*, GR	0.0
Russet Norkotah	1.2	MS*	0.0

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 8C. Growth characteristics of Southwest Regional Russet Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
AOTX02136-1RU	100	2.8	3.5	3.7	3.0	2.8	1.8
CO04211-4RU	100	2.8	3.3	3.1	3.0	2.8	3.0
CO04220-7RU	98	3.5	3.5	3.1	3.5	3.0	2.0
CO04233-1RU	91	1.8	2.8	2.2	3.8	3.5	2.8
Canela Russet	94	2.3	2.8	1.9	4.3	3.0	3.0
Russet Norkotah	97	3.0	3.3	3.3	3.0	2.5	1.3
Mean	97	2.7	3.2	2.9	3.4	2.9	2.3
LSD6 (0.05)	5	0.7	0.8	0.6	0.6	0.6	0.5

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference.

Table 8D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Southwest Regional Russet Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AOTX02136-1RU	5.0	4.8	4.9	2.6	84	4.6
CO04211-4RU	5.0	4.7	4.9	5.4	49	3.6
CO04220-7RU	5.0	5.0	5.0	2.2	84	4.2
CO04233-1RU	5.0	5.0	5.0	1.7	91	5.0
Canela Russet	5.0	4.8	4.9	2.5	147	4.4
Russet Norkotah	5.0	5.0	5.0	2.4	91	2.6

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 8E. Specific gravity, french fry color, and texture for Southwest Regional Russet Trial entries - 2012.

Clone	Specific Gravity	Fry Color[1] At Harvest	Fry Color[1] 5 wks 55F+ 8 wks 45F	Fry Texture[2] At Harvest	Fry Texture[2] 5 wks 55F+ 8 wks 45F
AOTX02136-1RU	1.089	2	2	3	3
CO04211-4RU	1.086	1	2	3	2
CO04220-7RU	1.087	1	1	4	3
CO04233-1RU	1.081	0	2	3	3
Canela Russet	1.098	1	2	4	4
Russet Norkotah	1.075	3	2	2	2

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 9A . Yield, grade and tuber shape for Southwest Regional Red Trial entries - 2012.

Clone	Yield (Cwt/A) Total	US #1 Total	%	4-10 oz	>10 oz	<4 oz	Tuber Shape[1] L:W/W:T
ATTX98453-3R	328	198	60	170	28	125	1.05/1.15
CO04159-1R	277	186	65	163	22	90	1.06/1.19
COTX02172-1R	510	316	62	273	43	187	1.17/1.13
COTX02293-4R	318	170	53	169	1	135	1.06/1.08
Norland (Dark Red)	442	336	76	287	49	103	1.18/1.22
Red LaSoda	568	441	77	266	175	84	1.11/1.22
Sangre-S10	503	408	81	296	112	79	1.19/1.17
Mean	421	294	68	232	61	115	1.12/1.17
LSD[2] (0.05)	88	87	9	73	43	32	0.05/0.05

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference.

Table 9B. Grade defects for Southwest Regional Red Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
ATTX98453-3R	1.8	MS, GC*	0.0
CO04159-1R	0.2	GR*	3.4
COTX02172-1R	1.3	MS*, GR	0.0
COTX02293-4R	4.0	GC*	0.0
Norland (Dark Red)	0.7	GC*	0.0
Red LaSoda	7.7	MS, GC*, GR*	14.8
Sangre-S10	3.4	GC*, GR	0.0

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 9C. Growth characteristics of Southwest Regional Red Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
ATTX98453-3R	100	2.3	3.0	3.0	3.0	2.3	1.3
CO04159-1R	76	2.3	3.0	2.7	3.3	2.8	2.5
COTX02172-1R	99	3.5	3.0	3.8	3.0	2.3	1.0
COTX02293-4R	99	2.3	3.0	4.5	3.3	3.0	1.3
Norland (Dark Red)	99	3.8	3.0	4.2	3.0	2.0	1.0
Red LaSoda	100	3.5	3.3	3.0	4.0	3.0	2.8
Sangre-S10	96	2.3	3.0	2.7	4.8	3.0	3.0
Mean	96	2.8	3.1	3.4	3.5	2.6	1.8
LSD6 (0.05)	5	0.9	NS	1.0	0.5	0.5	0.6

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference; NS=not significant.

Table 9D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Southwest Regional Red Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
ATTX98453-3R	4.4	4.7	4.6	2.9	119	4.2
CO04159-1R	4.8	4.5	4.7	4.0	98	1.6
COTX02172-1R	4.5	4.4	4.5	3.9	84	4.4
COTX02293-4R	4.5	4.4	4.5	4.2	77	3.6
Norland (Dark Red)	4.8	4.6	4.7	3.9	49	3.6
Red LaSoda	4.7	4.4	4.6	2.3	84	1.2
Sangre-S10	4.7	4.7	4.7	1.6	98	1.8

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 9E. Specific gravity, french fry color, and texture for Southwest Regional Red Trial entries - 2012.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	5 wks 55F+ 8 wks 45F	At Harvest	5 wks 55F+ 8 wks 45F
ATTX98453-3R	1.076	3	4	2	2
CO04159-1R	1.082	4	4	2	2
COTX02172-1R	1.064	3	4	2	2
COTX02293-4R	1.075	2	3	3	2
Norland (Dark Red)	1.071	2	2	2	2
Red LaSoda	1.082	3	3	3	3
Sangre-S10	1.080	3	4	3	2

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 10A . Yield, grade and tuber shape for Southwest Regional Specialty Trial entries - 2012.

Clone	Yield (Cwt/A)						Tuber Shape[1]
		US #1					
	Total	Total	%	4-10 oz	>10 oz	<4 oz	L:W/W:T
AC03534-2R/Y	459	321	70	275	46	138	1.19/1.25
CO04029-5W/Y	451	204	45	191	13	245	1.08/1.16
CO04056-3P/PW	311	61	20	61	0	249	1.35/1.13
CO04063-4R/R	237	28	12	28	0	210	1.28/1.11
CO04067-8R/Y	435	270	62	258	12	158	1.14/1.18
CO04099-3W/Y	383	168	44	163	6	214	1.20/1.20
CO04099-4W/Y	416	264	63	228	37	149	1.07/1.18
CO04188-4R/Y	469	282	59	264	17	184	1.08/1.20
COTX04015-3AW/Y	444	305	69	212	94	125	1.37/1.24
Purple Majesty	485	232	47	197	35	247	1.38/1.19
Yukon Gold	382	335	88	226	109	39	1.27/1.16
Mean	407	225	53	191	33	178	1.22/1.18
LSD[2] (0.05)	73	65	8	55	25	35	0.06/0.05

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference.

Table 10B. Grade defects for Southwest Regional Specialty Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
AC03534-2R/Y	0.2	GC*	0.0
CO04029-5W/Y	0.5	GR*	0.4
CO04056-3P/PW	0.2	MS*	0.0
CO04063-4R/R	0.0		0.0
CO04067-8R/Y	1.8	GC*, GR	0.0
CO04099-3W/Y	0.1	GR*	0.3
CO04099-4W/Y	0.6	MS*, GR*	0.0
CO04188-4R/Y	0.7	GC*, GR	0.0
COTX04015-3AW/Y	2.8	MS, GC*, GR	0.0
Purple Majesty	1.2	MS*, GC	0.0
Yukon Gold	1.9	MS, GC, GR*	0.0

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 10C. Growth characteristics of Southwest Regional Specialty Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
AC03534-2R/Y	92	2.3	3.0	4.1	3.5	3.0	3.0
CO04029-5W/Y	100	3.3	3.3	5.2	4.0	2.8	3.0
CO04056-3P/PW	97	1.8	2.8	3.8	4.0	3.0	3.0
CO04063-4R/R	99	1.5	2.8	5.4	2.8	3.0	2.0
CO04067-8R/Y	96	3.3	2.8	4.5	4.3	3.0	2.8
CO04099-3W/Y	100	3.5	3.5	4.4	3.8	3.0	3.0
CO04099-4W/Y	99	4.0	3.3	5.5	4.8	3.0	3.0
CO04188-4R/Y	95	3.5	3.0	4.8	4.3	2.8	2.8
COTX04015-3AW/Y	98	3.5	3.8	3.4	3.3	3.0	2.3
Purple Majesty	97	3.3	2.8	4.9	4.0	3.0	2.5
Yukon Gold	91	4.3	3.0	2.9	4.0	3.0	2.0
Mean	97	3.1	3.1	4.4	3.9	3.0	2.7
LSD6 (0.05)	5	0.9	0.8	1.2	0.6	0.3	0.5

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference.

Table 10D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Southwest Regional Specialty Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC03534-2R/Y	5.0	4.6	4.8	2.7	105	4.6
CO04029-5W/Y	4.8	4.4	4.6	3.8	28	2.6
CO04056-3P/PW	---	---	---	2.1	91	---
CO04063-4R/R	---	---	---	3.7	56	---
CO04067-8R/Y	4.6	3.1	3.9	3.3	49	3.2
CO04099-3W/Y	4.6	4.6	4.6	2.4	70	2.8
CO04099-4W/Y	4.9	4.2	4.6	2.1	77	4.4
CO04188-4R/Y	4.8	4.6	4.7	3.7	84	3.6
COTX04015-3AW/Y	4.8	4.6	4.7	3.0	77	4.6
Purple Majesty	---	---	---	2.0	56	---
Yukon Gold	4.9	4.9	4.9	1.3	98	4.8

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 10E. Specific gravity, french fry color, and texture for Southwest Regional Specialty Trial entries - 2012.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	5 wks 55F+ 8 wks 45F	At Harvest	5 wks 55F+ 8 wks 45F
AC03534-2R/Y	1.068	2	4	2	2
CO04029-5W/Y	1.072	2	3	1	1
CO04056-3P/PW	1.085	---	---	2	2
CO04063-4R/R	1.068	---	---	2	2
CO04067-8R/Y	1.083	1	1	3	3
CO04099-3W/Y	1.090	2	1	4	4
CO04099-4W/Y	1.098	1	1	4	4
CO04188-4R/Y	1.082	2	3	3	3
COTX04015-3AW/Y	1.083	1	1	3	3
Purple Majesty	1.087	---	---	3	3
Yukon Gold	1.088	1	2	3	3

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 11A. Yield, grade and tuber shape for Southwestern Regional Chipping Trial entries - 2012.

Clone	Yield (Cwt/A)						Tuber Shape[1]
		US #1					
	Total	Total	%	4-10 oz	>10 oz	<4 oz	L:W/W:T
AC00206-2W	279	210	75	184	26	61	1.06/1.05
AC03452-2W	412	333	81	300	34	74	1.06/1.14
Atlantic	451	373	82	298	74	61	1.18/1.26
Chipeta	500	413	83	313	100	60	1.23/1.20
Mean	411	332	80	274	59	64	1.13/1.16
LSD[2] (0.05)	46	70	10	33	49	NS	0.05/0.06

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference; NS=not significant.

Table 11B. Grade defects for Southwestern Regional Chipping Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
AC00206-2W	3.1	GC*, GR	2.3
AC03452-2W	1.3	MS, GR*	1.5
Atlantic	3.7	GC*, GR	2.3
Chipeta	5.3	MS, GC*, GR	0.0

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 11C. Growth characteristics of Southwestern Regional Chipping Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
AC00206-2W	97	3.0	3.3	2.6	2.8	2.8	3.0
AC03452-2W	99	3.8	3.3	3.3	3.8	3.0	3.0
Atlantic	94	4.3	3.5	3.9	3.8	3.0	3.0
Chipeta	97	4.0	3.3	3.3	5.0	3.0	3.0
Mean	97	3.8	3.3	3.3	3.8	2.9	3.0
LSD[6] (0.05)	NS	0.5	NS	0.6	0.8	NS	NS

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference; NS=not significant.

Table 11D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Soutwestern Regional Chipping Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC00206-2W	4.9	3.8	4.4	2.8	84	4.4
AC03452-2W	4.9	4.7	4.8	1.4	77	4.6
Atlantic	4.0	3.4	3.7	2.6	91	4.4
Chipeta	4.7	3.8	4.3	1.6	84	3.6

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 11E. Chip color[1] after various storage regimes and specific gravity of Southwestern Regional Chipping Trial entries - 2012.

Clone	Specific Gravity	5 wks 40F	5 wks/40F +3 wks/60F	5 wks 50F	5 wks/50F +3 wks/60F
AC00206-2W	1.085	3.0	1.5	2.0	1.0
AC03452-2W	1.081	3.5	2.5	1.0	1.0
Atlantic	1.104	4.5	3.5	3.0	2.0
Chipeta	1.094	4.0	5.0	2.5	1.5

[1]Chip color was rated using the Snack Food Association 1-5 scale. Ratings of $\leq$2.0 are acceptable.

Table 12A. Yield, grade and tuber shape for Western Regional Main Trial entries - 2012.

Clone	Yield (Cwt/A)						Tuber Shape[1]
		US #1					
	Total	Total	%	4-10 oz	>10 oz	<4 oz	L:W/W:T
A99029-3E	380	353	92	245	108	27	1.63/1.16
A01010-1	398	341	86	316	25	51	1.92/1.12
A02138-2	400	345	86	309	36	54	1.44/1.15
A02507-2LB	411	382	93	254	128	17	1.61/1.21
A03158-2TE	491	434	88	368	66	55	1.74/1.09
AC00395-2RU	438	397	91	276	121	36	1.76/1.19
AO02060-3	363	310	85	280	30	43	1.58/1.12
AO02183-2	419	313	75	272	41	97	1.88/1.10
CO03187-1RU	320	260	79	211	49	59	1.90/1.12
CO03202-1RU	371	332	89	193	138	39	1.99/1.19
CO03276-4RU	332	214	65	200	14	117	1.77/1.12
CO03276-5RU	357	227	64	204	23	129	1.87/1.18
PA00N14-2	424	316	74	303	13	104	1.84/1.23
Canela Russet	334	306	92	232	74	27	1.68/1.17
Ranger Russet	395	328	83	243	85	61	1.75/1.18
Russet Burbank	424	291	69	261	30	124	1.69/1.14
Russet Norkotah	259	214	83	182	33	44	1.93/1.14
Mean	383	315	82	256	60	64	1.76/1.15
LSD[2] (0.05)	52	61	7	50	37	21	0.09/0.05

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference.

Table 12B. Grade defects for Western Regional Main Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
A99029-3E	0.0		0.0
A01010-1	1.2	MS*, GR	0.0
A02138-2	0.2	MS*	0.0
A02507-2LB	3.1	MS*, GC*, GR	0.0
A03158-2TE	0.3	GC*	0.0
AC00395-2RU	1.1	MS, GC*, GR	0.0
AO02060-3	2.7	GC*, GR	0.0
AO02183-2	2.2	MS*, GR	0.0
CO03187-1RU	0.5	MS*	0.0
CO03202-1RU	0.0		0.0
CO03276-4RU	0.3	MS*, GR*	0.0
CO03276-5RU	0.2	GR*	0.0
PA00N14-2	0.9	MS*, GR	0.0
Canela Russet	0.4	MS* GR	0.0
Ranger Russet	1.6	MS , GC* GR*	0.0
Russet Burbank	2.1	MS*, GC, GR	1.7
Russet Norkotah	0.2	GC*	0.0

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 12C. Growth characteristics of Western Regional Main Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
A99029-3E	98	2.5	2.8	2.0	4.3	3.0	3.0
A01010-1	100	4.0	3.0	3.0	4.0	2.8	3.0
A02138-2	100	3.8	3.8	3.7	3.5	2.8	2.5
A02507-2LB	96	2.0	3.0	3.0	4.0	3.0	3.3
A03158-2TE	98	3.3	3.5	2.8	4.8	3.0	3.0
AC00395-2RU	99	3.5	3.3	3.1	5.0	3.0	3.8
AO02060-3	100	2.8	3.0	2.8	4.0	3.0	2.3
AO02183-2	99	3.0	2.5	2.9	5.0	3.0	3.0
CO03187-1RU	95	3.3	3.0	2.8	3.3	3.0	1.3
CO03202-1RU	99	2.0	3.0	2.0	4.0	3.0	3.0
CO03276-4RU	99	2.8	2.8	3.3	3.8	3.0	2.0
CO03276-5RU	100	3.3	3.3	3.2	4.0	3.0	2.0
PA00N14-2	99	3.8	3.0	3.7	4.3	3.3	2.3
Canela Russet	98	2.3	3.0	2.0	4.3	3.0	3.0
Ranger Russet	99	3.0	3.3	2.5	4.3	3.0	3.3
Russet Burbank	100	4.0	3.3	3.7	4.0	3.0	3.3
Russet Norkotah	98	2.5	3.3	2.8	3.0	2.5	1.0
Mean	99	3.0	3.1	2.9	4.1	3.0	2.6
LSD[6] (0.05)	3	0.8	0.6	0.7	0.5	0.4	0.5

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference.

Table 12D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Western Regional Main Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
A99029-3E	4.9	4.9	4.9	1.8	91	4.2
A01010-1	5.0	5.0	5.0	2.2	84	3.8
A02138-2	5.0	5.0	5.0	2.9	63	4.4
A02507-2LB	5.0	4.8	4.9	2.2	98	4.6
A03158-2TE	5.0	5.0	5.0	2.3	77	4.4
AC00395-2RU	5.0	4.9	5.0	2.0	91	4.6
AO02060-3	5.0	5.0	5.0	2.2	77	4.2
AO02183-2	4.8	4.8	4.8	1.9	63	4.6
CO03187-1RU	5.0	4.8	4.9	3.0	70	4.8
CO03202-1RU	5.0	5.0	5.0	3.0	112	4.8
CO03276-4RU	5.0	5.0	5.0	1.8	105	4.0
CO03276-5RU	5.0	5.0	5.0	1.9	98	3.2
PA00N14-2	5.0	4.6	4.8	2.4	119	3.2
Canela Russet	5.0	5.0	5.0	2.8	147	4.6
Ranger Russet	5.0	5.0	5.0	2.4	70	2.4
Russet Burbank	5.0	4.6	4.8	1.6	140	3.6
Russet Norkotah	5.0	4.9	5.0	2.1	84	4.4

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 12E. Specific gravity, french fry color, and texture for Western Regional Main Trial entries - 2012.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	5 wks 55F+ 8 wks 45F	At Harvest	5 wks 55F+ 8 wks 45F
A99029-3E	1.082	2	2	4	3
A01010-1	1.089	0	1	4	4
A02138-2	1.092	0	0	4	4
A02507-2LB	1.096	0	0	3	4
A03158-2TE	1.085	2	1	3	3
AC00395-2RU	1.098	2	3	5	5
AO02060-3	1.090	1	1	4	4
AO02183-2	1.095	0	1	3	4
CO03187-1RU	1.083	2	2	3	3
CO03202-1RU	1.088	2	1	4	4
CO03276-4RU	1.082	2	2	4	4
CO03276-5RU	1.088	2	2	3	3
PA00N14-2	1.091	2	2	4	4
Canela Russet	1.100	2	2	4	4
Ranger Russet	1.097	2	2	4	4
Russet Burbank	1.086	1	2	4	4
Russet Norkotah	1.077	2	2	3	2

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 13A. Yield, grade and tuber shape for Advanced and Western Regional Red Trial entries - 2012.

Clone	Yield (Cwt/A)						Tuber Shape[1]
		US #1					
	Total	Total	%	4-10 oz	>10 oz	<4 oz	L:W/W:T
ATTX98453-6R	573	470	82	300	170	68	1.15/1.16
CO00277-2R	348	235	66	203	32	113	1.09/1.14
CO00291-5R	419	295	70	279	16	122	1.07/1.14
CO05211-4R	345	149	41	92	57	194	1.17/1.11
CO05228-4R	308	101	32	98	2	208	1.10/1.06
CO05228-7R	357	266	74	229	38	89	1.07/1.12
CO05245-1R	334	159	48	155	4	174	1.11/1.17
OR04131-2	287	48	16	48	0	239	1.09/1.08
Norland (Dark Red)	390	316	80	262	54	73	1.14/1.21
Red LaSoda	554	466	84	268	198	52	1.10/1.19
Sangre-S10	447	369	82	240	129	66	1.15/1.20
Mean	396	261	61	198	64	127	1.11/1.14
LSD[2] (0.05)	69	83	12	60	58	40	0.05/0.04

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference.

Table 13B. Grade defects for Advanced and Western Regional Red Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
ATTX98453-6R	5.9	GC*, GR	0.0
CO00277-2R	0.0		0.0
CO00291-5R	0.3	GC*	0.0
CO05211-4R	0.8	GR*	0.0
CO05228-4R	0.0		0.0
CO05228-7R	0.5	MS*, GC*	0.0
CO05245-1R	0.1	MS*	0.0
OR04131-2	0.0		0.0
Norland (Dark Red)	0.5	GR*	0.0
Red LaSoda	6.5	MS, GC*, GR	20.7
Sangre-S10	2.9	GC*, GR	0.8

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 13C. Growth characteristics of Advanced and Western Regional Red Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
ATTX98453-6R	99	3.3	3.3	3.4	4.8	3.3	3.5
CO00277-2R	97	2.3	2.8	4.4	3.3	2.8	2.5
CO00291-5R	96	2.8	3.0	3.7	4.5	4.0	3.0
CO05211-4R	99	1.8	3.3	4.7	2.8	3.0	2.0
CO05228-4R	98	2.0	3.3	5.0	2.8	3.0	1.5
CO05228-7R	95	2.3	3.0	4.5	3.0	3.0	2.0
CO05245-1R	98	2.5	3.0	3.9	2.5	2.5	2.0
OR04131-2	94	2.0	3.3	5.2	1.8	3.3	1.0
Norland (Dark Red)	97	3.5	3.0	4.1	2.8	2.3	1.3
Red LaSoda	100	3.5	3.3	2.9	4.0	3.0	3.0
Sangre-S10	96	2.5	3.3	2.7	4.5	3.5	3.3
Mean	97	2.6	3.1	4.0	3.3	3.0	2.3
LSD[6] (0.05)	4	0.8	0.7	1.2	0.7	0.5	0.6

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference.

Table 13D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Red Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
ATTX98453-6R	5.0	5.0	5.0	1.8	91	3.8
CO00277-2R	5.0	5.0	5.0	4.1	49	3.6
CO00291-5R	4.2	4.2	4.2	5.7	77	1.6
CO05211-4R	5.0	5.0	5.0	3.0	98	2.2
CO05228-4R	5.0	4.4	4.7	6.4	77	2.2
CO05228-7R	5.0	4.6	4.8	3.6	84	4.6
CO05245-1R	5.0	4.9	5.0	5.1	105	4.0
OR04131-2	5.0	4.9	5.0	2.8	105	3.4
Norland (Dark Red)	5.0	4.7	4.9	4.3	49	3.2
Red LaSoda	5.0	4.8	4.9	2.6	84	1.6
Sangre-S10	4.2	4.8	4.5	1.8	84	2.2

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 13E. Specific gravity, french fry color, and texture for Advanced and Western Regional Red Trial entries - 2012.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	5 wks 55F+ 8 wks 45F	At Harvest	5 wks 55F+ 8 wks 45F
ATTX98453-6R	1.079	3	3	2	3
CO00277-2R	1.077	2	2	3	3
CO00291-5R	1.084	2	2	2	2
CO05211-4R	1.081	2	2	3	3
CO05228-4R	1.086	1	0	3	2
CO05228-7R	1.081	2	2	3	3
CO05245-1R	1.081	2	3	3	3
OR04131-2	1.084	1	2	3	3
Norland (Dark Red)	1.076	1	1	3	3
Red LaSoda	1.082	2	2	3	3
Sangre-S10	1.081	2	4	3	2

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 14A. Yield, grade and tuber shape for Advanced and Western Regional Specialty Trial entries - 2012

Clone	Yield (Cwt/A)						Tuber Shape[1]
		US #1					
	Total	Total	%	4-10 oz	>10 oz	<4 oz	L:W/W:T
AC05175-3P/Y	334	163	48	159	4	171	1.09/1.17
AC05175-9PW/Y	363	177	48	154	22	176	1.49/1.17
AC05178-2RW/W	378	218	57	205	13	156	1.32/1.24
ATC00293 -1W/Y	486	353	73	281	73	111	1.31/1.17
ATTX98468-5R/Y	496	405	82	262	143	83	1.10/1.28
ATX03564-1Y/Y	411	268	64	202	66	138	1.69/1.14
CO00412-5W/Y	451	334	74	259	75	111	1.30/1.28
CO01399-10P/Y	458	303	66	268	35	155	1.16/1.21
CO04013-1W/Y	381	141	37	125	16	240	1.12/1.20
CO04021-2R/Y	502	416	83	295	121	78	1.45/1.21
CO05037-2R/Y	260	58	22	58	0	202	1.72/1.18
CO05037-3W/Y	439	227	51	214	13	211	1.09/1.35
CO05062-2P/P	334	60	18	59	1	274	1.07/1.20
CO05122-1W/Y	393	212	54	184	28	180	1.07/1.16
COTX01403-4R/Y	454	371	81	250	120	71	1.21/1.24
OR04036-5	319	164	51	161	3	153	1.38/1.12
POR05PG56-1	315	25	8	24	1	291	1.33/1.12
TC05276-7P/PW	196	16	9	16	0	180	2.17/1.11
Purple Majesty	360	155	42	136	19	202	1.39/1.25
Yukon Gold	352	306	87	212	94	39	1.25/1.21
Mean	384	219	53	176	42	161	1.34/1.20
LSD[2] (0.05)	67	67	10	47	39	36	0.08/0.05

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference.

Table 14B. Grade defects for Advanced and Western Regional Specialty Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
AC05175-3P/Y	0.0		0.0
AC05175-9PW/Y	2.9	MS*, GR*	0.0
AC05178-2RW/W	1.2	MS*, GR*	0.0
ATC00293 -1W/Y	4.3	GC*, GR	1.1
ATTX98468-5R/Y	1.5	GC, GR*	0.3
ATX03564-1Y/Y	1.1	MS*, GR*	0.0
CO00412-5W/Y	1.3	MS, GR*	0.0
CO01399-10P/Y	0.0		0.4
CO04013-1W/Y	0.0		1.6
CO04021-2R/Y	1.6	MS, GR*	0.0
CO05037-2R/Y	0.0		0.0
CO05037-3W/Y	0.4	GR*	0.0
CO05062-2P/P	0.0		0.0
CO05122-1W/Y	0.4	GR*	0.5
COTX01403-4R/Y	2.7	MS, GC*, GR	4.0
OR04036-5	0.5	MS*, GR	0.0
POR05PG56-1	0.0		0.0
TC05276-7P/PW	0.0		0.0
Purple Majesty	1.0	MS*, GR	0.0
Yukon Gold	2.2	MS*, GC*, GR*	0.0

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 14C. Growth characteristics of Advanced and Western Regional Specialty Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
AC05175-3P/Y	98	2.8	3.3	3.6	2.5	2.8	1.0
AC05175-9PW/Y	91	3.0	3.0	4.8	3.8	3.0	3.0
AC05178-2RW/W	93	2.5	3.3	4.2	3.3	3.3	2.5
ATC00293 -1W/Y	95	3.3	3.0	3.7	4.8	3.0	3.0
ATTX98468-5R/Y	97	3.5	3.3	4.1	3.5	3.0	3.0
ATX03564-1Y/Y	96	2.3	3.5	2.5	3.8	3.3	3.0
CO00412-5W/Y	99	4.3	3.3	5.5	4.5	3.0	3.0
CO01399-10P/Y	98	2.8	3.0	3.2	4.3	3.0	3.8
CO04013-1W/Y	96	2.5	3.3	6.0	4.0	3.0	3.0
CO04021-2R/Y	86	3.3	2.8	4.7	5.0	3.0	3.5
CO05037-2R/Y	97	1.8	3.3	3.9	3.0	3.8	3.0
CO05037-3W/Y	88	3.5	3.3	6.1	3.5	3.0	2.3
CO05062-2P/P	91	2.5	3.3	5.5	3.0	2.3	3.0
CO05122-1W/Y	99	2.8	2.8	5.1	3.5	3.0	3.0
COTX01403-4R/Y	99	3.0	3.0	3.8	3.3	3.0	2.3
OR04036-5	100	2.5	3.0	4.1	2.5	2.3	1.3
POR05PG56-1	100	2.8	3.0	4.5	4.0	3.0	1.0
TC05276-7P/PW	100	1.3	2.8	4.1	3.0	3.0	2.8
Purple Majesty	93	2.8	2.8	4.6	4.0	3.0	2.5
Yukon Gold	96	3.8	3.0	2.3	3.5	3.3	2.0
Mean	96	2.8	3.1	4.3	3.6	3.0	2.6
LSD[6] (0.05)	5	0.9	0.7	1.0	0.7	0.4	0.5

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference.

Table 14D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Specialty Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC05175-3P/Y	5.0	4.6	4.8	2.6	84	2.6
AC05175-9PW/Y	5.0	3.3	4.2	3.0	84	1.4
AC05178-2RW/W	5.0	4.8	4.9	4.4	28	1.2
ATC00293 -1W/Y	5.0	5.0	5.0	1.7	98	4.6
ATTX98468-5R/Y	5.0	5.0	5.0	3.6	84	4.6
ATX03564-1Y/Y	5.0	4.6	4.8	3.0	56	4.0
CO00412-5W/Y	4.5	4.1	4.3	2.0	77	4.0
CO01399-10P/Y	5.0	5.0	5.0	1.8	91	3.8
CO04013-1W/Y	5.0	3.8	4.4	4.4	49	2.8
CO04021-2R/Y	4.7	4.6	4.7	4.0	77	2.8
CO05037-2R/Y	5.0	4.5	4.8	2.0	56	4.0
CO05037-3W/Y	4.7	4.3	4.5	2.4	84	3.6
CO05062-2P/P	---	---	---	6.6	63	---
CO05122-1W/Y	4.9	3.9	4.4	5.0	63	4.0
COTX01403-4R/Y	4.9	4.1	4.5	2.8	70	4.6
OR04036-5	4.2	4.5	4.4	3.2	84	2.0
POR05PG56-1	---	---	---	2.7	98	---
TC05276-7P/PW	---	---	---	2.0	84	---
Purple Majesty	---	---	---	2.2	63	---
Yukon Gold	5.0	4.9	5.0	1.4	98	4.4

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 14E. Specific gravity, french fry color, and texture for Advanced and Western Regional Speciality Trial entries - 2012.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	5 wks 55F+ 8 wks 45F	At Harvest	5 wks 55F+ 8 wks 45F
AC05175-3P/Y	1.074	0	1	2	2
AC05175-9PW/Y	1.085	2	2	3	3
AC05178-2RW/W	1.085	2	2	3	3
ATC00293 -1W/Y	1.081	1	1	2	3
ATTX98468-5R/Y	1.073	2	2	2	3
ATX03564-1Y/Y	1.080	2	2	2	3
CO00412-5W/Y	1.091	2	1	3	3
CO01399-10P/Y	1.077	1	1	3	4
CO04013-1W/Y	1.104	1	1	3	4
CO04021-2R/Y	1.085	1	2	3	3
CO05037-2R/Y	1.092	1	1	4	4
CO05037-3W/Y	1.080	1	1	3	3
CO05062-2P/P	1.088	---	---	3	3
CO05122-1W/Y	1.080	3	3	2	2
COTX01403-4R/Y	1.070	2	3	2	2
OR04036-5	1.072	1	1	2	2
POR05PG56-1	1.083	---	---	3	3
TC05276-7P/PW	1.086	---	---	3	4
Purple Majesty	1.085	---	---	4	4
Yukon Gold	1.089	1	1	4	4

[1]Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of ≤ 2 are acceptable.

[2]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

Table 15A. Yield, grade and tuber shape for Advanced and Western Regional Chipping Trial entries - 2012.

Clone	Yield (Cwt/A) Total	US #1 Total	%	4-10 oz	>10 oz	<4 oz	Tuber Shape[1] L:W/W:T
A00188-3C	406	298	73	256	42	103	1.06/1.11
A01143-3C	457	313	69	281	32	138	1.08/1.16
AC00180-2W	387	246	64	230	16	137	1.11/1.27
AC01151-5W	475	430	90	315	115	45	1.09/1.19
AC03433-1W	355	272	77	250	22	64	1.08/1.12
AC05153-1W	362	248	69	234	14	113	1.14/1.22
CO00188-4W	389	301	77	256	44	72	1.12/1.23
CO00197-3W	471	325	69	277	48	140	1.16/1.18
CO00270-7W	366	297	81	224	74	65	1.15/1.15
CO02024-9W	392	304	77	258	46	82	1.07/1.23
CO02033-1W	438	391	89	328	63	45	1.11/1.23
CO02321-4W	427	352	82	298	54	64	1.05/1.15
CO03243-3W	449	385	86	299	87	54	1.11/1.09
CO05061-2P	315	190	61	173	18	124	1.09/1.21
CO05061-6W	381	288	76	262	26	92	1.13/1.07
CO05061-7W	354	252	69	213	38	97	1.10/1.16
Atlantic	442	355	80	282	73	78	1.09/1.22
Chipeta	558	484	87	324	160	61	1.19/1.14
Mean	412	318	76	264	54	87	1.11/1.17
LSD[2] (0.05)	53	70	10	51	38	32	0.05/0.04

[1]L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.15=round; 1.16-1.55=oval; 1.56-1.95=oblong; 1.96-2.35=long; >2.35=very long. For W:T, the larger the value, the flatter the tuber.

[2]LSD=least significant difference.

Table 15B. Grade defects for Advanced and Western Regional Chipping Trial entries - 2012.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
A00188-3C	1.4	MS, GC*	0.0
A01143-3C	1.2	MS, GC*, GR	0.0
AC00180-2W	0.7	MS*	0.4
AC01151-5W	0.6	MS*, GC*, GR*	0.0
AC03433-1W	5.3	MS, GC*, GR	0.0
AC05153-1W	0.1	MS*	0.0
CO00188-4W	2.9	GC*, GR*	0.6
CO00197-3W	1.2	MS, GC, GR*	0.5
CO00270-7W	1.2	MS, GR*	0.0
CO02024-9W	1.4	MS, GR*	0.0
CO02033-1W	0.2	GR*	1.7
CO02321-4W	2.5	MS, GR*	0.0
CO03243-3W	2.2	GC*, GR	0.7
CO05061-2P	0.1	GC*	0.0
CO05061-6W	0.4	GC*	0.0
CO05061-7W	1.4	GC, GR*	1.2
Atlantic	1.8	GC*, GR*	0.2
Chipeta	2.2	GC*, GR	1.4

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

[3]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

Table 15C. Growth characteristics of Advanced and Western Regional Chipping Trial entries - 2012.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
A00188-3C	100	4.0	3.5	5.1	4.0	3.0	3.0
A01143-3C	99	4.8	3.5	5.3	4.0	3.0	3.0
AC00180-2W	99	3.5	2.8	5.2	3.0	3.0	1.8
AC01151-5W	98	2.8	3.0	3.4	3.3	3.0	3.0
AC03433-1W	95	2.8	2.8	2.8	3.5	3.0	3.0
AC05153-1W	99	4.0	3.8	4.9	3.0	2.8	1.5
CO00188-4W	95	4.8	3.8	4.2	3.3	2.5	2.0
CO00197-3W	96	4.3	3.0	4.1	4.0	3.0	2.5
CO00270-7W	94	3.5	3.0	2.9	3.3	2.8	3.0
CO02024-9W	98	3.3	3.3	3.6	3.5	3.0	3.0
CO02033-1W	98	3.8	3.3	3.4	3.8	3.0	2.5
CO02321-4W	98	4.8	3.8	3.6	3.0	2.8	2.8
CO03243-3W	97	3.5	3.0	2.8	3.8	3.0	3.0
CO05061-2P	97	3.3	3.5	4.3	3.0	3.0	2.0
CO05061-6W	97	4.5	4.3	2.9	2.8	3.0	2.0
CO05061-7W	100	4.0	4.0	5.2	2.8	2.0	2.0
Atlantic	97	4.3	3.5	4.1	4.0	3.0	3.0
Chipeta	100	5.0	3.5	3.6	5.0	3.0	3.0
Mean	98	3.9	3.4	4.0	3.5	2.9	2.6
LSD[6] (0.05)	5	0.9	0.7	0.8	0.5	0.4	0.5

[1]Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

[2]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[3]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[4]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[5]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[6]LSD=least significant difference.

Table 15D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Chipping Trial entries - 2012.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
A00188-3C	5.0	4.6	4.8	2.9	70	4.2
A01143-3C	4.3	3.5	3.9	2.6	77	2.0
AC00180-2W	4.8	4.3	4.6	4.4	84	4.0
AC01151-5W	4.9	2.7	3.8	2.4	84	1.2
AC03433-1W	4.9	4.1	4.5	2.3	77	4.8
AC05153-1W	4.8	4.1	4.5	4.4	91	2.8
CO00188-4W	4.8	3.3	4.1	2.8	98	3.0
CO00197-3W	4.6	2.6	3.6	1.9	84	2.6
CO00270-7W	4.6	3.6	4.1	2.4	70	3.2
CO02024-9W	4.9	3.3	4.1	2.7	98	4.0
CO02033-1W	4.0	3.6	3.8	3.0	105	3.2
CO02321-4W	4.7	3.7	4.2	3.6	77	4.4
CO03243-3W	4.8	4.2	4.5	2.8	84	3.6
CO05061-2P	4.8	3.5	4.2	3.5	42	3.6
CO05061-6W	4.8	3.2	4.0	2.4	84	2.8
CO05061-7W	4.6	3.6	4.1	3.8	42	3.2
Atlantic	4.4	2.8	3.6	2.8	91	5.0
Chipeta	4.8	4.3	4.6	1.9	98	4.4

[1]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[2]Tubers were stored at 45F for 91 days.

[3]Days from harvest to first visible growth. Tubers were stored at 45F.

[4]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 15E. Chip color[1] after various storage regimes and specific gravity of Advanced and Western Regional Chipping Trial entries - 2012.

Clone	Specific Gravity	5 wks 40F	5 wks/40F +3 wks/60F	5 wks 50F	5 wks/50F +3 wks/60F
A00188-3C	1.089	4.0	4.0	1.5	1.5
A01143-3C	1.096	4.0	1.5	1.5	1.5
AC00180-2W	1.090	4.0	4.0	2.0	3.0
AC01151-5W	1.093	4.5	4.0	2.5	3.0
AC03433-1W	1.089	3.5	3.0	1.5	1.5
AC05153-1W	1.094	3.5	3.0	2.0	1.0
CO00188-4W	1.097	4.0	1.5	2.0	2.0
CO00197-3W	1.087	4.0	4.5	1.0	1.0
CO00270-7W	1.088	3.5	3.5	1.0	1.5
CO02024-9W	1.089	4.0	2.5	1.5	1.5
CO02033-1W	1.097	4.0	3.0	1.5	2.0
CO02321-4W	1.103	4.0	2.0	1.5	1.0
CO03243-3W	1.094	4.5	3.0	2.0	1.5
CO05061-2P	1.096	2.0	1.0	1.5	1.5
CO05061-6W	1.093	3.5	3.5	2.0	1.5
CO05061-7W	1.094	3.5	3.0	2.0	1.5
Atlantic	1.098	4.5	4.0	3.0	2.0
Chipeta	1.094	5.0	4.5	2.5	2.0

[1]Chip color was rated using the Snack Food Association 1-5 scale. Ratings of $\leq$2.0 are acceptable.

Table 16. Summary comparison of advanced selections and named cultivars for yield, grade, maturity, specific gravity, and grade defects.

Clone	Usage[1]	# Trials	Total Yield (Cwt/A)	% US #1	Vine Maturity[2]	Specific Gravity	% External Defects[3]	% Hollow Heart[4]
Russets								
CO99053-3RU	Dual	7	501	89	3.3	1.089	3.6	0.7
CO99100-1RU	Dual	7	358	85	1.4	1.084	3.9	0.2
AC00395-2RU	Dual	5	494	86	3.9	1.103	1.2	0.6
CO03187-1RU	Dual	4	367	77	1.3	1.087	0.7	0.0
CO03276-5RU	Dual	4	429	67	2.1	1.087	0.4	0.0
Canela Russet	FM	23	369	90	3.1	1.098	1.1	0.1
Centennial Russet	FM	35	294	77	3.0	1.080	0.8	0.3
Mesa Russet	Dual	10	419	86	2.9	1.082	1.8	2.5
Rio Grande Russet	FM	22	533	80	3.0	1.087	2.8	0.4
Russet Norkotah	FM	90	380	84	1.8	1.079	2.2	0.4
Russet Nugget	Dual	64	441	81	3.8	1.093	1.5	0.2
Reds								
CO99076-6R	FM	7	403	78	1.6	1.087	2.2	0.0
CO99256-2R	FM	7	522	69	2.9	1.089	0.4	0.1
Colorado Rose	FM	14	517	85	2.7	1.082	2.7	0.3
Rio Colorado	FM	11	405	56	1.7	1.087	0.9	0.0
Sangre-S10	FM	33	536	88	3.3	1.077	2.2	1.5
Specialties								
AC99329-7PW/Y	Spec	7	522	79	3.1	1.092	1.6	0.4
AC99330-1P/Y	Spec	7	495	58	2.9	1.082	0.0	0.2
CO97222-1R/R	Spec	7	396	58	2.5	1.076	1.5	0.0
CO97226-2R/R	Spec	7	364	34	2.3	1.080	0.2	0.0
CO97232-2R/Y	Spec	7	440	84	2.6	1.071	0.8	1.0
CO01399-10P/Y	Spec	6	543	75	3.5	1.080	0.8	0.1
CO04021-2R/Y	Spec	4	551	88	3.3	1.086	1.7	0.2

Table 16 continued on next page

Table 16 (cont'd). Summary comparison of advanced selections and named cultivars for yield, grade, maturity, specific gravity, and grade defects.

Clone	Usage[1]	# Trials	Total Yield (Cwt/A)	% US #1	Vine Maturity[2]	Specific Gravity	% External Defects[3]	% Hollow Heart[4]
Specialties (continued)								
Mountain Rose	Spec	8	383	68	2.2	1.081	1.1	0.0
Purple Majesty	Spec	21	482	55	2.2	1.086	0.6	1.0
Yukon Gold	Spec	35	407	89	1.9	1.086	1.6	0.5
Chippers								
CO00188-4W	Chip	7	420	77	2.5	1.092	2.2	0.1
CO00197-3W	Chip	7	462	73	2.2	1.087	0.9	0.7
CO00270-7W	Chip	7	400	84	2.6	1.087	1.7	0.0
AC01151-5W	Chip	5	478	80	3.0	1.091	2.4	0.1
CO02024-9W	Chip	5	420	80	3.0	1.089	1.7	0.2
CO02033-1W	Chip	5	434	85	2.7	1.099	0.8	1.5
CO02321-4W	Chip	5	437	82	2.8	1.102	3.2	0.0
AC03433-1W	Chip	4	432	82	3.4	1.089	6.0	0.0
CO03243-3W	Chip	4	470	87	3.1	1.089	1.8	0.4
Atlantic	Chip	43	460	87	3.2	1.098	2.5	4.8
Chipeta	Chip	40	538	84	3.3	1.090	5.2	0.6

[1]FM=fresh market; Dual= fresh market and processing potential; SPEC=specialty.

[2]Vine maturity: 1=very early; 2=early; 3=medium; 4=late; 5=very late.

[3]Includes defects such as second growth, growth crack, misshapen, and green.

[4]Based on tubers greater than 10 ounces.

Clones discontinued from further grower evaluations include: AC96052-1RU, AC97521-1R/Y, AC99375-1RU, ATC00293-1W/Y, CO95051-7W, CO97215-2P/P, CO97227-2P/PW, CO97232-1R/Y, CO97233-3R/Y, CO98012-5R, CO99045-1W/Y, CO99053-4RU, CO00277-2R, CO00291-5R, CO00405-1RF, CO00412-5W/Y, and CO00415-1RF.

Any clone which has been discontinued may be available for exclusive release through CSU. Data summaries for all clones are available upon request. Please contact either David Holm or Rob Davidson for further information.

Figure 1. Photographs of advanced selections.

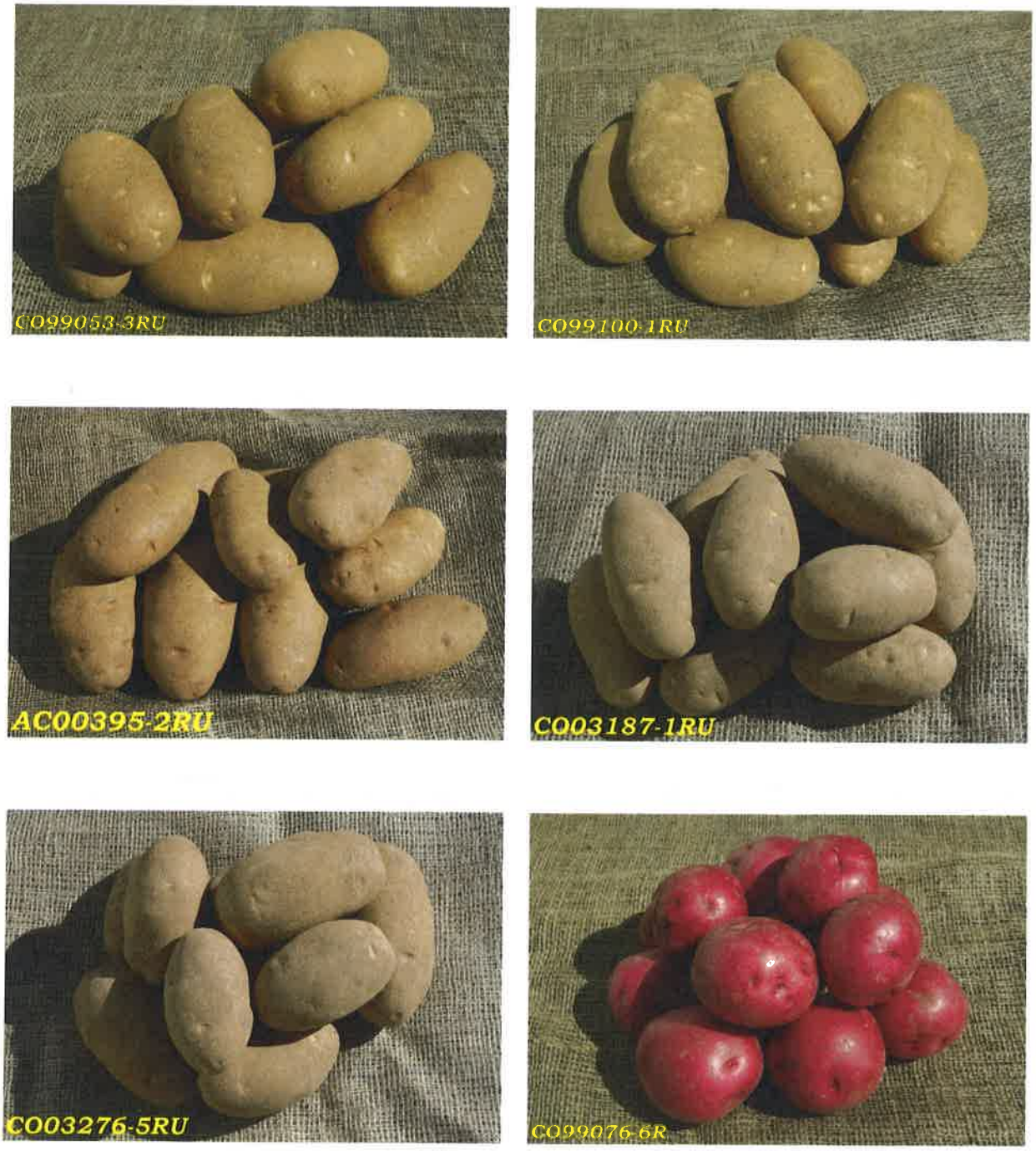

Figure 1 (cont'd). Photographs of advanced selections.

Figure 1 (cont'd). Photographs of advanced selections.

Figure 1 (cont'd). Photographs of advanced selections.

Table 17A. Detailed data summary for CO99053-3RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	501	454-559
Yield US #1 (Cwt/A)		7	447	384-517
% US #1		7	89	85-93
Yield >10 oz (Cwt/A)		7	233	159-299
Yield <4 oz (Cwt/A)		7	37	22-58
% External Defects[1]		7	3.6	0.7-8.9
% Hollow Heart[2]		7	0.7	0.0-2.9
% Stand		7	99	95-100
Emergence Uniformity		7	3.2	3.0-4.0
Vine Vigor[3]		7	3.3	2.8-3.8
Stems/Plant		7	3.9	2.5-5.2
Vine Size[4]		7	4.0	3.8-4.3
Vine Type[5]		7	3.1	2.8 3.8
Vine Maturity[6]		7	3.3	3.0-4.0
Blackspot[7]	Bud End	8	4.8	4.3-5.0
	Stem End	8	4.3	2.8-5.0
	Average	8	4.5	
Weight Loss[8]		8	2.7	1.2-7.6
Dormancy[9]		8	84	54-132
Enzymatic Browning[10]		8	4.0	3.2-4.6
Specific Gravity		8	1.089	1.077-1.096
Fry Color[11]	Harvest	8	1.0	0.0-2.0
	Storage	8	1.9	1.0-3.0
Fry Texture[12]	Harvest	8	3.4	3.0-4.0
	Storage	8	3.3	2.0-4.0

Refer to footnotes on page 118.

Table 17B. Detailed data summary for CO99100-1RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	358	308-409
Yield US #1 (Cwt/A)		7	304	271-377
% US #1		7	85	76-92
Yield >10 oz (Cwt/A)		7	80	48-121
Yield <4 oz (Cwt/A)		7	40	25-82
% External Defects[1]		7	3.9	0.0-9.1
% Hollow Heart[2]		7	0.2	0.0-0.7
% Stand		7	99	97-100
Emergence Uniformity		7	3.2	3.0-3.5
Vine Vigor[3]		7	3.4	2.8-4.0
Stems/Plant		7	3.4	2.6-4.2
Vine Size[4]		7	2.4	2.3-2.5
Vine Type[5]		9	2.4	2.0-3.0
Vine Maturity[6]		7	1.4	1.0-2.0
Blackspot[7]	Bud End	8	4.6	3.8-5.0
	Stem End	8	4.8	4.5-5.0
	Average	8	4.7	
Weight Loss[8]		8	3.5	1.4-5.7
Dormancy[9]		8	62	49-77
Enzymatic Browning[10]		8	3.8	3.4-4.6
Specific Gravity		8	1.084	1.078-1.088
Fry Color[11]	Harvest	8	0.4	0.0-1.0
	Storage	8	1.4	1.0-2.0
Fry Texture[12]	Harvest	8	3.0	2.0-4.0
	Storage	8	3.3	3.0-4.0

Refer to footnotes on page 118.

Table 17C. Detailed data summary for AC00395-2RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		5	494	438-574
Yield US #1 (Cwt/A)		5	426	393-478
% US #1		5	86	80-91
Yield >10 oz (Cwt/A)		5	106	73-128
Yield <4 oz (Cwt/A)		5	63	28-97
% External Defects[1]		5	1.2	0.0-3.0
% Hollow Heart[2]		5	0.6	0.0-2.0
% Stand		5	99	98-100
Emergence Uniformity		5	3.3	2.8-3.8
Vine Vigor[3]		5	3.6	2.8-4.3
Stems/Plant		5	2.9	1.9-3.4
Vine Size[4]		5	4.8	4.5-5.0
Vine Type[5]		5	3.2	3.0 4.0
Vine Maturity[6]		5	3.9	3.8-4.0
Blackspot[7]	Bud End	6	4.9	4.6-5.0
	Stem End	6	4.9	4.7-5.0
	Average	6	4.9	
Weight Loss[8]		6	2.2	2.0-2.3
Dormancy[9]		6	102	70-155
Enzymatic Browning[10]		6	4.7	4.6-4.8
Specific Gravity		6	1.103	1.092-1.108
Fry Color[11]	Harvest	6	1.8	1.0-3.0
	Storage	6	2.5	2.0-3.0
Fry Texture[12]	Harvest	6	4.0	3.0-5.0
	Storage	6	4.0	3.0-5.0

Refer to footnotes on page 118.

Table 17D. Detailed data summary for CO03187-1RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		4	367	320-419
Yield US #1 (Cwt/A)		4	281	247-322
% US #1		4	77	60-90
Yield >10 oz (Cwt/A)		4	63	49-98
Yield <4 oz (Cwt/A)		4	83	33-169
% External Defects[1]		4	0.7	0.5-0.9
% Hollow Heart[2]		4	0.0	0.0-0.0
% Stand		4	97	95-99
Emergence Uniformity		4	3.4	2.8-4.0
Vine Vigor[3]		4	3.2	3.0-3.5
Stems/Plant		4	3.0	2.6-3.4
Vine Size[4]		4	2.8	2.3-3.3
Vine Type[5]		4	2.8	2.5-3.0
Vine Maturity[6]		4	1.3	1.0-1.5
Blackspot[7]	Bud End	5	4.9	4.8-5.0
	Stem End	5	4.8	4.4-5.0
	Average	5	4.8	
Weight Loss[8]		5	3.2	2.5-4.4
Dormancy[9]		5	65	54-70
Enzymatic Browning[10]		5	4.7	4.4-4.8
Specific Gravity		5	1.086	1.083-1.091
Fry Color[11]	Harvest	5	2.0	1.0-4.0
	Storage	5	2.4	2.0-3.0
Fry Texture[12]	Harvest	5	3.0	3.0-3.0
	Storage	5	3.2	3.0-4.0

Refer to footnotes on page 118.

Table 17E. Detailed data summary for CO03276-5RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		4	429	357-494
Yield US #1 (Cwt/A)		4	285	227-327
% US #1		4	67	56-75
Yield >10 oz (Cwt/A)		4	47	23-72
Yield <4 oz (Cwt/A)		4	142	103-217
% External Defects[1]		4	0.4	0.2-0.9
% Hollow Heart[2]		4	0.0	0.0-0.0
% Stand		4	98	93-100
Emergence Uniformity		4	3.4	3.3-3.5
Vine Vigor[3]		4	3.8	3.0-4.8
Stems/Plant		4	3.9	2.5-5.4
Vine Size[4]		4	3.5	3.0-4.0
Vine Type[5]		4	3.0	3.0-3.0
Vine Maturity[6]		4	2.1	2.0-2.5
Blackspot[7]	Bud End	5	4.4	3.4-5.0
	Stem End	5	4.3	3.6-5.0
	Average	5	4.4	
Weight Loss[8]		5	2.0	1.6-2.2
Dormancy[9]		5	90	70-98
Enzymatic Browning[10]		5	3.8	3.0-4.8
Specific Gravity		5	1.087	1.087-1.088
Fry Color[11]	Harvest	5	2.0	1.0-3.0
	Storage	5	2.4	1.0-3.0
Fry Texture[12]	Harvest	5	3.2	3.0-4.0
	Storage	5	3.2	3.0-4.0

Refer to footnotes on page 118.

Table 17F. Detailed data summary for Canela Russet.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		23	369	312-468
Yield US #1 (Cwt/A)		23	332	277-421
% US #1		23	90	77-94
Yield >10 oz (Cwt/A)		23	113	63-203
Yield <4 oz (Cwt/A)		23	33	18-61
% External Defects[1]		23	1.1	0.0-6.0
% Hollow Heart[2]		23	0.1	0.0-0.9
% Stand		22	96	82-99
Emergence Uniformity		22	2.7	1.5-3.5
Vine Vigor[3]		22	2.7	2.0-3.3
Stems/Plant		22	2.0	1.3-4.2
Vine Size[4]		22	3.9	3.0-5.0
Vine Type[5]		22	3.5	3.0 4.0
Vine Maturity[6]		22	3.1	2.8-3.8
Blackspot[7]	Bud End	29	4.8	3.7-5.0
	Stem End	29	4.3	2.5-5.0
	Average	29	4.5	
Weight Loss[8]		29	3.4	1.3-7.0
Dormancy[9]		29	145	112-195
Enzymatic Browning[10]		29	4.4	3.4-5.0
Specific Gravity		29	1.097	1.075-1.111
Fry Color[11]	Harvest	29	1.7	0.0-3.0
	Storage	29	2.1	0.0-4.0
Fry Texture[12]	Harvest	29	3.8	3.0-5.0
	Storage	29	3.8	3.0-5.0

Refer to footnotes on page 118.

Table 17G. Detailed data summary for Centennial Russet.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		35	294	177-392
Yield US #1 (Cwt/A)		35	229	129-320
% US #1		35	77	62-89
Yield >10 oz (Cwt/A)		35	26	4-72
Yield <4 oz (Cwt/A)		35	62	32-102
% External Defects[1]		35	0.8	0.0-3.3
% Hollow Heart[2]		35	0.3	0.0-3.3
% Stand		35	97	90-99
Emergence Uniformity		15	3.2	3.0-3.5
Vine Vigor[3]		15	2.2	1.0-3.0
Stems/Plant		27	3.0	2.2-3.6
Vine Size[4]		15	2.6	2.0-3.0
Vine Type[5]		15	3.2	2.8-3.8
Vine Maturity[6]		35	3.0	2.5-3.5
Blackspot[7]	Bud End	44	4.8	3.7-5.0
	Stem End	44	4.8	4.2-5.0
	Average	47	4.8	
Weight Loss[8]		47	6.1	1.6-9.0
Dormancy[9]		40	88	57-123
Enzymatic Browning[10]		42	4.0	3.2-5.0
Specific Gravity		54	1.080	1.069-1.092
Fry Color[11]	Harvest	46	3.7	3.0-4.0
	Storage	46	3.9	3.0-5.0
Fry Texture[12]	Harvest	46	2.3	1.0-4.0
	Storage	46	2.2	1.0-3.0

Refer to footnotes on page 118.

Table 17H. Detailed data summary for Mesa Russet.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		10	419	345 - 478
Yield US #1 (Cwt/A)		10	360	279 - 406
% US #1		10	86	81 - 92
Yield >10 oz (Cwt/A)		10	97	54 - 144
Yield <4 oz (Cwt/A)		10	51	23 - 61
% External Defects[1]		10	1.8	0.2 - 2.3
% Hollow Heart[2]		10	2.5	0.0 - 5.4
% Stand		10	96	91 - 99
Emergence Uniformity		10	3.3	3.0 - 3.8
Vine Vigor[3]		10	3.7	2.8 - 4.0
Stems/Plant		10	3.0	2.2 - 3.7
Vine Size[4]		10	3.5	3.0 - 4.0
Vine Type[5]		10	3.0	2.3 - 3.8
Vine Maturity[6]		10	2.9	2.8 - 3.0
Blackspot[7]	Bud End	12	4.0	2.9 - 5.0
	Stem End	12	3.8	2.7 - 5.0
	Average	12	3.9	
Weight Loss[8]		12	3.6	1.2 - 6.8
Dormancy[9]		12	94	83 - 105
Enzymatic Browning[10]		12	4.6	4.0 - 5.0
Specific Gravity		12	1.082	1.074 - 1.090
Fry Color[11]	Harvest	12	1.3	0.0 - 2.0
	Storage	12	1.8	1.0 - 4.0
Fry Texture[12]	Harvest	12	2.9	2.0 - 4.0
	Storage	12	3.1	3.0 - 4.0

Refer to footnotes on page 118.

Table 17I. Detailed data summary for Rio Grande Russet.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		22	533	367-683
Yield US #1 (Cwt/A)		22	426	255-603
% US #1		22	80	65-91
Yield >10 oz (Cwt/A)		22	123	14-275
Yield <4 oz (Cwt/A)		22	92	33-202
% External Defects[1]		22	2.8	0.1-8.7
% Hollow Heart[2]		22	0.4	0.0-4.1
% Stand		22	99	96-100
Emergence Uniformity		22	3.5	3.0-4.0
Vine Vigor[3]		22	3.6	2.0-4.5
Stems/Plant		22	3.4	2.0-4.8
Vine Size[4]		22	4.1	3.5-5.0
Vine Type[5]		22	3.1	3.0-3.5
Vine Maturity[6]		22	3.0	2.5 -3.5
Blackspot[7]	Bud End	30	4.8	4.1-5.0
	Stem End	30	4.6	3.0-5.0
	Average	30	4.7	
Weight Loss[8]		30	3.8	1.5-7.1
Dormancy[9]		30	92	68-123
Enzymatic Browning[10]		30	3.9	3.0-5.0
Specific Gravity		30	1.087	1.067-1.094
Fry Color[11]	Harvest	30	2.3	1.0-4.0
	Storage	30	2.8	2.0-4.0
Fry Texture[12]	Harvest	30	3.1	2.0-4.0
	Storage	30	3.0	2.0-4.0

Refer to footnotes on page 118.

Table 17J. Detailed data summary for Russet Norkotah.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		90	380	174-557
Yield US #1 (Cwt/A)		90	321	144-480
% US #1		90	84	69-94
Yield >10 oz (Cwt/A)		90	109	23-247
Yield <4 oz (Cwt/A)		90	51	13-131
% External Defects[1]		90	2.2	0.0-5.3
% Hollow Heart[2]		90	0.4	0.0-2.8
% Stand		89	98	88-100
Emergence Uniformity		80	3.2	1.0-4.0
Vine Vigor[3]		80	2.9	1.0-4.0
Stems/Plant		85	3.7	2.3-5.7
Vine Size[4]		80	2.5	1.0-4.0
Vine Type[5]		80	2.7	2.0-3.5
Vine Maturity[6]		89	1.8	1.0-3.0
Blackspot[7]	Bud End	89	4.7	2.9-5.0
	Stem End	89	4.4	2.6-5.0
	Average	90	4.5	
Weight Loss[8]		90	3.6	1.0-7.1
Dormancy[9]		89	98	70-140
Enzymatic Browning[10]		89	3.4	2.2-4.8
Specific Gravity		93	1.079	1.066-1.091
Fry Color[11]	Harvest	90	2.1	1.0-4.0
	Storage	90	2.4	1.0-4.0
Fry Texture[12]	Harvest	90	2.7	1.0-4.0
	Storage	90	2.7	1.0-4.0

Refer to footnotes on page 118.

Table 17K. Detailed data summary for Russet Nugget.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		64	441	284-585
Yield US #1 (Cwt/A)		64	360	225-518
% US #1		64	81	68-93
Yield >10 oz (Cwt/A)		64	91	11-258
Yield <4 oz (Cwt/A)		64	73	30-133
% External Defects[1]		64	1.5	0.1-4.3
% Hollow Heart[2]		64	0.2	0.0-1.9
% Stand		64	98	96-100
Emergence Uniformity		54	3.3	2.8-4.0
Vine Vigor[3]		54	3.4	2.5-4.0
Stems/Plant		60	3.4	2.1-5.7
Vine Size[4]		54	4.2	3.8-5.0
Vine Type[5]		54	3.5	2.2-4.0
Vine Maturity[6]		64	3.8	3.0-4.3
Blackspot[7]	Bud End	78	4.7	3.0-5.0
	Stem End	78	4.5	2.1-5.0
	Average	81	4.6	
Weight Loss[8]		81	3.1	1.1-5.5
Dormancy[9]		76	95	57-144
Enzymatic Browning[10]		77	4.0	2.8-4.8
Specific Gravity		83	1.093	1.072-1.110
Fry Color[11]	Harvest	81	1.4	0.0-3.0
	Storage	81	1.9	1.0-3.0
Fry Texture[12]	Harvest	81	4.1	2.0-5.0
	Storage	81	4.0	2.0-5.0

Refer to footnotes on page 118.

Table 17L. Detailed data summary for CO99076-6R.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	403	379-448
Yield US #1 (Cwt/A)		7	316	262-344
% US #1		7	78	68-87
Yield >10 oz (Cwt/A)		7	60	17-100
Yield <4 oz (Cwt/A)		7	79	45-102
% External Defects[1]		7	2.2	0.5-4.8
% Hollow Heart[2]		7	0.0	0.0-0.3
% Stand		7	96	92-99
Emergence Uniformity		7	3.4	2.8-4.0
Vine Vigor[3]		7	3.6	3.0-4.3
Stems/Plant		7	4.0	2.4-4.8
Vine Size[4]		7	3.1	3.0-3.3
Vine Type[5]		7	2.6	2.3-3.0
Vine Maturity[6]		7	1.6	1.0-2.3
Blackspot[7]	Bud End	8	4.1	3.1-5.0
	Stem End	8	3.3	2.3-4.8
	Average	8	3.7	
Weight Loss[8]		8	6.6	1.7-8.7
Dormancy[9]		8	69	56-79
Enzymatic Browning[10]		8	1.6	1.0-2.0
Specific Gravity		8	1.087	1.082-1.090
Fry Color[11]	Harvest	8	2.1	1.0-3.0
	Storage	8	2.8	2.0-3.0
Fry Texture[12]	Harvest	8	2.4	2.0-3.0
	Storage	8	2.0	1.0-3.0

Refer to footnotes on page 118.

Table 17M. Detailed data summary for CO99256-2R.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	522	422-571
Yield US #1 (Cwt/A)		7	361	235-431
% US #1		7	69	56-78
Yield >10 oz (Cwt/A)		7	49	9-81
Yield <4 oz (Cwt/A)		7	159	113-200
% External Defects[1]		7	0.4	0.1-0.8
% Hollow Heart[2]		7	0.1	0.0-0.3
% Stand		7	98	96-100
Emergence Uniformity		7	3.1	2.8-3.8
Vine Vigor[3]		7	3.2	2.8-4.0
Stems/Plant		7	3.8	2.9-4.8
Vine Size[4]		7	4.2	3.8-5.0
Vine Type[5]		7	3.1	3.0-3.3
Vine Maturity[6]		7	2.9	2.5-3.0
Blackspot[7]	Bud End	8	4.0	2.6-5.0
	Stem End	8	3.8	2.6-4.8
	Average	8	3.9	
Weight Loss[8]		8	5.3	1.6-7.3
Dormancy[9]		8	93	84-118
Enzymatic Browning[10]		8	2.8	1.8-3.4
Specific Gravity		8	1.089	1.080-1.098
Fry Color[11]	Harvest	8	1.1	1.0-2.0
	Storage	8	1.9	1.0-2.0
Fry Texture[12]	Harvest	8	2.9	2.0-3.0
	Storage	8	2.8	2.0-3.0

Refer to footnotes on page 118.

Table 17N. Detailed data summary for Colorado Rose.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		14	517	390-641
Yield US #1 (Cwt/A)		14	439	310-530
% US #1		14	85	76-91
Yield >10 oz (Cwt/A)		14	153	69-249
Yield <4 oz (Cwt/A)		14	63	43-98
% External Defects[1]		14	2.7	0.2-6.5
% Hollow Heart[2]		14	0.3	0.0-0.8
% Stand		14	96	90-100
Emergence Uniformity		14	3.0	2.5-3.5
Vine Vigor[3]		14	3.0	2.2-3.8
Stems/Plant		14	3.5	2.3-4.5
Vine Size[4]		14	3.4	3.0-4.0
Vine Type[5]		14	3.1	3.0-3.5
Vine Maturity[6]		14	2.7	2.0-3.8
Blackspot[7]	Bud End	15	3.8	2.1-4.8
	Stem End	15	3.8	2.4-5.0
	Average	15	3.8	
Weight Loss[8]		15	5.8	1.4-8.2
Dormancy[9]		15	62	54-78
Enzymatic Browning[10]		15	4.3	3.4-5.0
Specific Gravity		15	1.082	1.071-1.086
Fry Color[11]	Harvest	15	2.3	1.0-3.0
	Storage	14	2.9	2.0-3.0
Fry Texture[12]	Harvest	15	2.8	2.0-4.0
	Storage	14	2.9	2.0-3.0

Refer to footnotes on page 118.

Table 17O. Detailed data summary for Rio Colorado.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		11	405	321-474
Yield US #1 (Cwt/A)		11	226	115-298
% US #1		11	56	28-72
Yield >10 oz (Cwt/A)		11	10	0-22
Yield <4 oz (Cwt/A)		11	175	110-289
% External Defects[1]		11	0.9	0.0-2.2
% Hollow Heart[2]		11	0.0	0.0-0.0
% Stand		11	96	92-99
Emergence Uniformity		11	3.4	3.0-4.0
Vine Vigor[3]		11	3.1	2.8-4.0
Stems/Plant		11	4.2	2.9-6.4
Vine Size[4]		11	3.1	2.5-3.8
Vine Type[5]		11	3.2	2.8-3.5
Vine Maturity[6]		11	1.7	1.0-3.0
Blackspot[7]	Bud End	12	3.6	2.1-4.8
	Stem End	12	3.0	1.8-4.2
	Average	12	3.3	
Weight Loss[8]		12	6.6	1.2-10.2
Dormancy[9]		12	86	70-118
Enzymatic Browning[10]		12	1.4	1.0-2.4
Specific Gravity		12	1.087	1.080-1.096
Fry Color[11]	Harvest	12	1.4	1.0-3.0
	Storage	12	1.8	1.0-4.0
Fry Texture[12]	Harvest	12	2.8	2.0-4.0
	Storage	12	2.7	1.0-3.0

Refer to footnotes on page 118.

Table 17P. Detailed data summary for Sangre-S10.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		30	540	410-646
Yield US #1 (Cwt/A)		30	476	358-569
% US #1		30	88	82-93
Yield >10 oz (Cwt/A)		30	191	101-319
Yield <4 oz (Cwt/A)		30	53	31-90
% External Defects[1]		30	2.0	0.3-5.7
% Hollow Heart[2]		30	1.5	0.0-8.2
% Stand		27	97	91-100
Emergence Uniformity		27	3.1	2.5-3.5
Vine Vigor[3]		27	2.9	1.8-3.5
Stems/Plant		27	3.1	1.9-4.3
Vine Size[4]		27	4.0	3.5-4.8
Vine Type[5]		27	3.3	3.0-4.0
Vine Maturity[6]		27	3.3	3.0-4.0
Blackspot[7]	Bud End	43	3.8	2.0-5.0
	Stem End	43	4.2	2.5-5.0
	Average	43	4.0	
Weight Loss[8]		43	2.7	1.0-4.5
Dormancy[9]		43	88	56-126
Enzymatic Browning[10]		43	3.3	2.4-4.8
Specific Gravity		43	1.077	1.060-1.090
Fry Color[11]	Harvest	43	3.6	2.0-4.0
	Storage	43	3.9	3.0-4.0
Fry Texture[12]	Harvest	43	2.2	1.0-4.0
	Storage	43	2.3	1.0-3.0

Refer to footnotes on page 118.

Table 17Q. Detailed data summary for AC99329-7PW/Y.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	522	452-585
Yield US #1 (Cwt/A)		7	410	349-471
% US #1		7	79	71-84
Yield >10 oz (Cwt/A)		7	93	43-141
Yield <4 oz (Cwt/A)		7	104	62-149
% External Defects[1]		7	1.6	0.5-3.7
% Hollow Heart[2]		7	0.4	0.0-1.6
% Stand		7	99	98-100
Emergence Uniformity		7	3.8	3.0-4.0
Vine Vigor[3]		7	4.1	3.0-5.0
Stems/Plant		7	5.0	3.0-7.4
Vine Size[4]		7	4.3	4.0-4.8
Vine Type[5]		7	3.3	3.0-3.5
Vine Maturity[6]		7	3.1	2.8-3.5
Blackspot[7]	Bud End	8	4.4	3.1-5.0
	Stem End	8	3.4	2.6-5.0
	Average	8	3.9	
Weight Loss[8]		8	4.3	2.0-5.9
Dormancy[9]		8	39	23-52
Enzymatic Browning[10]		8	4.0	3.0-4.6
Specific Gravity		8	1.092	1.081-1.096
Fry Color[11]	Harvest	8	2.5	1.0-4.0
	Storage	8	2.8	2.0-3.0
Fry Texture[12]	Harvest	8	3.0	2.0-4.0
	Storage	8	3.4	3.0-4.0

Refer to footnotes on page 118.

Table 17R. Detailed data summary for AC99330-1P/Y.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	495	441-531
Yield US #1 (Cwt/A)		7	288	208-376
% US #1		7	58	43-74
Yield >10 oz (Cwt/A)		7	24	3-69
Yield <4 oz (Cwt/A)		7	207	129-271
% External Defects[1]		7	0.0	0.0-0.2
% Hollow Heart[2]		7	0.2	0.0-0.6
% Stand		7	98	96-99
Emergence Uniformity		7	3.2	2.8-3.8
Vine Vigor[3]		7	3.7	3.0-4.5
Stems/Plant		7	4.9	3.0-6.7
Vine Size[4]		7	3.4	2.8-4.0
Vine Type[5]		7	2.5	2.0-3.0
Vine Maturity[6]		7	2.9	2.0-3.0
Blackspot[7]	Bud End	8	4.7	4.0-5.0
	Stem End	8	4.4	3.7-4.8
	Average	8	4.6	
Weight Loss[8]		8	3.3	1.4-5.0
Dormancy[9]		8	60	49-66
Enzymatic Browning[10]		8	2.9	2.2-3.6
Specific Gravity		8	1.082	1.075-1.090
Fry Color[11]	Harvest	8	1.9	1.0-4.0
	Storage	8	3.1	3.0-4.0
Fry Texture[12]	Harvest	8	2.9	2.0-4.0
	Storage	8	3.1	3.0-4.0

Refer to footnotes on page 118.

Table 17S. Detailed data summary for CO97222-1R/R.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	396	349-447
Yield US #1 (Cwt/A)		7	231	151-309
% US #1		7	58	42-76
Yield >10 oz (Cwt/A)		7	27	7-56
Yield <4 oz (Cwt/A)		7	159	91 -223
% External Defects[1]		7	1.5	0.0-3.0
% Hollow Heart[2]		7	0.0	0.0-0.0
% Stand		7	96	94-99
Emergence Uniformity		7	2.9	2.0-3.5
Vine Vigor[3]		7	2.8	2.3-3.3
Stems/Plant		7	3.7	2.3-5.1
Vine Size[4]		7	3.0	2.8-3.0
Vine Type[5]		7	2.9	2.5-3.0
Vine Maturity[6]		7	2.5	2.0-3.0
Blackspot[7]	Bud End	--	--	-- --
	Stem End	--	--	-- --
	Average	--	--	
Weight Loss[8]		8	3.3	1.4-4.3
Dormancy[9]		8	81	56-132
Enzymatic Browning[10]		--	--	-- --
Specific Gravity		8	1.076	1.073-1.080
Fry Color[11]	Harvest	--	--	-- --
	Storage	--	--	-- --
Fry Texture[12]	Harvest	7	2.1	1.0-3.0
	Storage	7	2.0	1.0-3.0

Refer to footnotes on page 118.

Table 17T. Detailed data summary for CO97226-2R/R.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	364	336-406
Yield US #1 (Cwt/A)		7	126	83-224
% US #1		7	34	24-55
Yield >10 oz (Cwt/A)		7	1	0.0-1.0
Yield <4 oz (Cwt/A)		7	238	179-278
% External Defects[1]		7	0.2	0.0-0.7
% Hollow Heart[2]		7	0.0	0.0-0.0
% Stand		7	98	96-99
Emergence Uniformity		7	3.1	3.0-3.3
Vine Vigor[3]		7	3.1	3.0-3.5
Stems/Plant		7	4.2	3.0-5.9
Vine Size[4]		7	3.1	3.0-3.8
Vine Type[5]		7	2.9	2.0-3.3
Vine Maturity[6]		7	2.3	1.3-3.0
Blackspot[7]	Bud End	--	--	-- --
	Stem End	--	--	-- --
	Average	--	--	
Weight Loss[8]		8	4.9	1.9-10.6
Dormancy[9]		8	68	48-94
Enzymatic Browning[10]		--	--	-- --
Specific Gravity		8	1.080	1.076-1.084
Fry Color[11]	Harvest	--	--	-- --
	Storage	--	--	-- --
Fry Texture[12]	Harvest	8	2.9	2.0-4.0
	Storage	8	2.6	2.0-4.0

Refer to footnotes on page 118.

Table 17U. Detailed data summary for CO97232-2R/Y.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	440	416-471
Yield US #1 (Cwt/A)		7	371	318-420
% US #1		7	84	76-91
Yield >10 oz (Cwt/A)		7	89	43-148
Yield <4 oz (Cwt/A)		7	66	36-100
% External Defects[1]		7	0.8	0.3-1.7
% Hollow Heart[2]		7	1.0	0.0-2.7
% Stand		7	93	85-99
Emergence Uniformity		7	3.1	2.8-3.5
Vine Vigor[3]		7	3.3	3.0- 4.0
Stems/Plant		7	3.3	2.6-4.0
Vine Size[4]		7	2.6	2.0-3.0
Vine Type[5]		7	2.0	2.0-2.0
Vine Maturity[6]		7	2.6	2.0-3.0
Blackspot[7]	Bud End	8	4.7	4.1-5.0
	Stem End	8	4.4	3.5-5.0
	Average	8	4.5	
Weight Loss[8]		8	4.2	1.5-8.8
Dormancy[9]		8	69	49-94
Enzymatic Browning[10]		8	4.4	4.0-5.0
Specific Gravity		8	1.071	1.069-1.075
Fry Color[11]	Harvest	8	1.1	0.0-2.0
	Storage	8	1.8	1.0-2.0
Fry Texture[12]	Harvest	8	2.1	1.0-3.0
	Storage	8	2.4	2.0-3.0

Refer to footnotes on page 118.

Table 17V. Detailed data summary for CO01399-10P/Y.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		6	543	458-648
Yield US #1 (Cwt/A)		6	406	303-511
% US #1		6	75	66-80
Yield >10 oz (Cwt/A)		6	72	27-117
Yield <4 oz (Cwt/A)		6	132	103-192
% External Defects[1]		6	0.8	0.0-1.7
% Hollow Heart[2]		6	0.1	0.0-0.4
% Stand		6	99	96-100
Emergence Uniformity		6	2.9	2.5-3.0
Vine Vigor[3]		6	3.1	2.5-3.5
Stems/Plant		6	3.5	2.4-4.2
Vine Size[4]		6	4.3	4.0-4.8
Vine Type[5]		6	3.0	3.0-3.3
Vine Maturity[6]		6	3.5	3.0-4.0
Blackspot[7]	Bud End	7	4.7	4.2-5.0
	Stem End	7	4.6	4.0-5.0
	Average	7	4.6	
Weight Loss[8]		7	2.3	1.4-3.0
Dormancy[9]		7	88	70-111
Enzymatic Browning[10]		7	3.6	3.2-4.4
Specific Gravity		7	1.080	1.077-1.085
Fry Color[11]	Harvest	7	0.7	0.0-2.0
	Storage	7	1.1	0.0-2.0
Fry Texture[12]	Harvest	7	3.0	2.0-4.0
	Storage	7	3.4	3.0-4.0

Refer to footnotes on page 118.

Table 17W. Detailed data summary for CO04021-2R/Y.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		4	551	502-585
Yield US #1 (Cwt/A)		4	482	416-527
% US #1		4	88	83-93
Yield >10 oz (Cwt/A)		4	168	121-230
Yield <4 oz (Cwt/A)		4	60	26-86
% External Defects[1]		4	1.7	1.4-2.1
% Hollow Heart[2]		4	0.2	0.0-0.6
% Stand		4	91	83-98
Emergence Uniformity		4	3.2	3.0-3.5
Vine Vigor[3]		4	3.6	2.5-4.8
Stems/Plant		4	4.6	3.6-5.7
Vine Size[4]		4	4.6	4.0-5.0
Vine Type[5]		4	3.1	3.0-3.3
Vine Maturity[6]		4	3.3	3.0-3.5
Blackspot[7]	Bud End	5	4.3	3.2-5.0
	Stem End	5	4.4	3.7-5.0
	Average	5	4.3	
Weight Loss[8]		5	4.8	2.8-6.6
Dormancy[9]		5	73	49-91
Enzymatic Browning[10]		5	3.4	2.8-4.0
Specific Gravity		5	1.086	1.078-1.091
Fry Color[11]	Harvest	5	1.6	1.0-2.0
	Storage	5	1.8	1.0-2.0
Fry Texture[12]	Harvest	5	3.0	3.0-3.0
	Storage	5	3.0	3.0-3.0

Refer to footnotes on page 118.

Table 17X. Detailed data summary for Mountain Rose.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		8	383	288-449
Yield US #1 (Cwt/A)		8	262	150-354
% US #1		8	68	52-79
Yield >10 oz (Cwt/A)		8	23	4-63
Yield <4 oz (Cwt/A)		8	116	91-148
% External Defects[1]		8	1.1	0.0-2.4
% Hollow Heart[2]		8	0.0	0.0-0.0
% Stand		8	98	94-100
Emergence Uniformity		8	3.6	3.0-4.3
Vine Vigor[3]		8	2.7	2.0-3.0
Stems/Plant		8	3.7	2.9-4.9
Vine Size[4]		8	2.7	2.3-3.0
Vine Type[5]		8	2.9	2.5-3.0
Vine Maturity[6]		8	2.2	1.5-3.0
Blackspot[7]	Bud End	---	---	--- ---
	Stem End	---	---	--- ---
	Average	---		
Weight Loss[8]		11	4.1	1.3-6.3
Dormancy[9]		11	102	77-153
Enzymatic Browning[10]		---	---	--- ---
Specific Gravity		11	1.081	1.074-1.086
Fry Color[11]	Harvest	---	---	--- ---
	Storage	---	---	--- ---
Fry Texture[12]	Harvest	6	2.5	1.0-3.0
	Storage	6	2.7	2.0-3.0

Refer to footnotes on page 118.

Table 17Y. Detailed data summary for Purple Majesty.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		21	483	360-606
Yield US #1 (Cwt/A)		21	267	155-401
% US #1		21	55	40-72
Yield >10 oz (Cwt/A)		21	28	13-61
Yield <4 oz (Cwt/A)		21	213	122-326
% External Defects[1]		21	0.6	0.0-1.7
% Hollow Heart[2]		21	1.0	0.0-3.4
% Stand		21	97	92-100
Emergence Uniformity		21	3.5	2.5-4.0
Vine Vigor[3]		21	3.5	2.5-4.5
Stems/Plant		21	4.4	3.2-6.1
Vine Size[4]		21	3.1	2.3-4.0
Vine Type[5]		21	2.8	2.3-3.0
Vine Maturity[6]		21	2.2	1.5-3.0
Blackspot[7]	Bud End	---	---	--- ---
	Stem End	---	---	--- ---
	Average	---	---	
Weight Loss[8]		29	3.6	1.1-6.8
Dormancy[9]		29	62	42-85
Enzymatic Browning[10]		---	---	--- ---
Specific Gravity		29	1.086	1.074-1.094
Fry Color[11]	Harvest	---	---	--- ---
	Storage	---	---	--- ---
Fry Texture[12]	Harvest	24	2.6	1.0-4.0
	Storage	24	2.8	2.0-4.0

Refer to footnotes on page 118.

Table 17Z. Detailed data summary for Yukon Gold.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		35	406	321-513
Yield US #1 (Cwt/A)		35	363	293-444
% US #1		35	89	82-94
Yield >10 oz (Cwt/A)		35	157	81-248
Yield <4 oz (Cwt/A)		35	37	22-66
% External Defects[1]		35	1.6	0.0-4.4
% Hollow Heart[2]		35	0.5	0.0-2.2
% Stand		35	96	90-100
Emergence Uniformity		35	3.4	2.5-5.0
Vine Vigor[3]		35	3.6	3.0-4.3
Stems/Plant		35	2.5	1.6-3.8
Vine Size[4]		35	3.1	2.5-4.0
Vine Type[5]		35	2.7	2.0-3.5
Vine Maturity[6]		35	1.9	1.0-3.0
Blackspot[7]	Bud End	44	4.3	2.0-5.0
	Stem End	44	4.1	2.4-5.0
	Average	44	4.2	
Weight Loss[8]		44	2.1	1.0-4.3
Dormancy[9]		44	90	63-132
Enzymatic Browning[10]		44	4.4	3.4-5.0
Specific Gravity		44	1.087	1.079-1.093
Fry Color[11]	Harvest	44	1.7	1.0-4.0
	Storage	44	2.6	1.0-4.0
Fry Texture[12]	Harvest	44	3.1	1.0-4.0
	Storage	44	3.1	1.0-4.0

Refer to footnotes on page 118.

Table 17AA. Detailed data summary for CO00188-4W.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	420	367-483
Yield US #1 (Cwt/A)		7	325	270-377
% US #1		7	77	70-86
Yield >10 oz (Cwt/A)		7	38	12-68
Yield <4 oz (Cwt/A)		7	85	39-133
% External Defects[1]		7	2.2	0.5-4.3
% Hollow Heart[2]		7	0.1	0.0-0.6
% Stand		7	98	95-100
Emergence Uniformity		7	3.6	3.0-4.8
Vine Vigor[3]		7	3.8	3.3-4.3
Stems/Plant		7	4.1	2.1-4.8
Vine Size[4]		7	3.0	2.8-3.3
Vine Type[5]		7	2.8	2.5-3.0
Vine Maturity[6]		7	2.5	2.0-3.0
Blackspot[7]	Bud End	15	4.7	3.8-5.0
	Stem End	15	3.4	1.4-4.6
	Average	15	4.0	
Weight Loss[8]		15	3.0	1.8-4.6
Dormancy[9]		15	99	84-123
Enzymatic Browning[10]		15	4.2	3.0-5.0
Specific Gravity		16	1.092	1.085-1.098
Chip Color[11]	40	16	3.5	2.0-4.5
	40R	16	2.7	1.5-4.0
	50	16	1.7	1.0-2.5
	50R	16	1.7	1.0-2.5

Refer to footnotes on page 118.

Table 17AB. Detailed data summary for CO00197-3W.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	462	354-511
Yield US #1 (Cwt/A)		7	339	269-396
% US #1		7	73	59-82
Yield >10 oz (Cwt/A)		7	55	29-95
Yield <4 oz (Cwt/A)		7	119	81-183
% External Defects[1]		7	0.9	0.1-1.6
% Hollow Heart[2]		7	0.7	0.0-3.2
% Stand		7	96	93-100
Emergence Uniformity		7	3.6	3.0-4.3
Vine Vigor[3]		7	3.5	2.8-4.3
Stems/Plant		7	3.6	2.5-4.1
Vine Size[4]		7	3.2	2.5-4.0
Vine Type[5]		7	2.9	2.8-3.0
Vine Maturity[6]		7	2.2	1.5-3.0
Blackspot[7]	Bud End	15	3.9	2.4-4.7
	Stem End	15	2.8	1.1-4.3
	Average	15	3.4	
Weight Loss[8]		15	2.4	1.4-4.3
Dormancy[9]		15	84	69-109
Enzymatic Browning[10]		15	2.7	1.4-3.8
Specific Gravity		16	1.086	1.079-1.095
Chip Color[11]	40	16	4.0	3.0-5.0
	40R	16	3.7	1.5-5.0
	50	16	2.3	1.0-3.5
	50R	16	2.1	1.0-4.0

Refer to footnotes on page 118.

Table 17AC. Detailed data summary for CO00270-7W.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		7	400	336-456
Yield US #1 (Cwt/A)		7	337	288-383
% US #1		7	84	80-92
Yield >10 oz (Cwt/A)		7	81	56-140
Yield <4 oz (Cwt/A)		7	56	24-76
% External Defects[1]		7	1.7	0.4-4.8
% Hollow Heart[2]		7	0.0	0.0-0.0
% Stand		7	95	93-99
Emergence Uniformity		7	3.3	3.0-3.5
Vine Vigor[3]		7	3.5	3.0-4.0
Stems/Plant		7	3.4	2.3-4.2
Vine Size[4]		7	3.0	2.3-3.3
Vine Type[5]		7	2.5	2.0-2.8
Vine Maturity[6]		7	2.6	2.0-3.0
Blackspot[7]	Bud End	15	4.4	3.1-4.9
	Stem End	15	3.8	2.6-4.5
	Average	15	4.1	
Weight Loss[8]		15	2.9	2.0-5.4
Dormancy[9]		15	65	48-94
Enzymatic Browning[10]		15	3.2	2.0-4.0
Specific Gravity		16	1.087	1.078-1.097
Chip Color[11]	40	16	3.4	1.5-4.5
	40R	16	2.7	1.0-4.0
	50	16	1.7	1.0-3.0
	50R	16	1.6	1.0-2.5

Refer to footnotes on page 118.

Table 17AD. Detailed data summary for AC01151-5W.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		5	478	407-557
Yield US #1 (Cwt/A)		5	381	344-430
% US #1		5	80	67-90
Yield >10 oz (Cwt/A)		5	70	53-115
Yield <4 oz (Cwt/A)		5	85	45-134
% External Defects[1]		5	2.4	0.6-7.4
% Hollow Heart[2]		5	0.1	0.0-0.6
% Stand		5	97	96-99
Emergence Uniformity		5	3.2	2.8-4.0
Vine Vigor[3]		5	3.2	3.0-3.5
Stems/Plant		5	3.6	2.3-4.8
Vine Size[4]		5	3.3	3.0-3.5
Vine Type[5]		5	3.0	3.0-3.0
Vine Maturity[6]		5	3.0	3.0-3.0
Blackspot[7]	Bud End	11	4.4	3.2-5.0
	Stem End	11	3.0	1.7-4.2
	Average	11	3.7	
Weight Loss[8]		11	2.3	1.6-3.3
Dormancy[9]		11	97	70-127
Enzymatic Browning[10]		11	1.8	1.2-3.2
Specific Gravity		12	1.091	1.079-1.103
Chip Color[11]	40	12	4.3	3.0-5.0
	40R	12	3.7	2.5-4.5
	50	12	2.4	1.0-3.0
	50R	12	2.3	1.0-3.5

Refer to footnotes on page 118.

Table 17AE. Detailed data summary for CO02024-9W.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		5	420	343-480
Yield US #1 (Cwt/A)		5	332	295-369
% US #1		5	80	69-89
Yield >10 oz (Cwt/A)		5	52	25-71
Yield <4 oz (Cwt/A)		5	80	39-146
% External Defects[1]		5	1.7	0.6-3.7
% Hollow Heart[2]		5	0.2	0.0-0.8
% Stand		5	97	96-98
Emergence Uniformity		5	3.3	3.3-3.5
Vine Vigor[3]		5	3.4	3.0-4.0
Stems/Plant		5	3.6	2.6-4.9
Vine Size[4]		5	3.1	2.8-3.5
Vine Type[5]		5	3.0	2.8-3.0
Vine Maturity[6]		5	3.0	3.0-3.0
Blackspot[7]	Bud End	11	4.3	3.8-4.9
	Stem End	11	2.8	1.6-4.0
	Average	11	3.5	
Weight Loss[8]		11	3.0	2.1-3.9
Dormancy[9]		11	101	84-134
Enzymatic Browning[10]		11	3.5	2.0-4.6
Specific Gravity		12	1.089	1.082-1.095
Chip Color[11]	40	12	3.8	3.0-4.5
	40R	12	2.6	1.5-4.0
	50	12	1.5	1.0-2.5
	50R	12	1.4	1.0-2.0

Refer to footnotes on page 118.

Table 17AF. Detailed data summary for CO02033-1W.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		5	434	368-484
Yield US #1 (Cwt/A)		5	370	329-399
% US #1		5	85	79-89
Yield >10 oz (Cwt/A)		5	49	15-75
Yield <4 oz (Cwt/A)		5	60	36-92
% External Defects[1]		5	0.8	0.2-1.6
% Hollow Heart[2]		5	1.5	0.0-2.6
% Stand		5	98	96-101
Emergence Uniformity		5	3.5	3.0-4.0
Vine Vigor[3]		5	3.6	3.3-4.0
Stems/Plant		5	3.7	3.0-4.7
Vine Size[4]		5	3.3	3.0-3.8
Vine Type[5]		5	3.0	2.8-3.0
Vine Maturity[6]		5	2.7	2.0-3.0
Blackspot[7]	Bud End	11	3.4	2.7-4.2
	Stem End	11	3.1	2.0-4.4
	Average	11	3.3	
Weight Loss[8]		11	3.3	2.3-5.2
Dormancy[9]		11	115	70-167
Enzymatic Browning[10]		11	3.6	2.4-4.6
Specific Gravity		12	1.099	1.090-1.106
Chip Color[11]	40	12	3.5	2.5-4.0
	40R	12	2.7	1.5-3.5
	50	12	1.8	1.0-2.5
	50R	12	1.9	1.0-2.5

Refer to footnotes on page 118.

Table 17AG. Detailed data summary for CO02321-4W.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		5	437	357-508
Yield US #1 (Cwt/A)		5	358	305-397
% US #1		5	82	78-85
Yield >10 oz (Cwt/A)		5	77	54-105
Yield <4 oz (Cwt/A)		5	65	43-95
% External Defects[1]		5	3.2	2.5-4.0
% Hollow Heart[2]		5	0.0	0.0-0.0
% Stand		5	97	95-99
Emergence Uniformity		5	4.0	3.5-4.8
Vine Vigor[3]		5	3.9	3.5-4.5
Stems/Plant		5	3.3	2.1-4.1
Vine Size[4]		5	3.3	3.0-3.5
Vine Type[5]		5	2.9	2.8-3.3
Vine Maturity[6]		5	2.8	2.5-3.0
Blackspot[7]	Bud End	11	4.6	4.0-5.0
	Stem End	11	3.7	3.0-4.4
	Average	11	4.2	
Weight Loss[8]		11	3.4	2.5-4.5
Dormancy[9]		11	83	63-106
Enzymatic Browning[10]		11	4.2	3.6-4.8
Specific Gravity		12	1.101	1.094-1.109
Chip Color[11]	40	12	3.8	2.5-4.5
	40R	12	2.6	2.0-3.5
	50	12	1.6	1.0-2.5
	50R	12	1.7	1.0-3.0

Refer to footnotes on page 118.

Table 17AH. Detailed data summary for AC03433-1W.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		4	432	355-492
Yield US #1 (Cwt/A)		4	357	272-421
% US #1		4	82	77-86
Yield >10 oz (Cwt/A)		4	75	22-95
Yield <4 oz (Cwt/A)		4	50	41-64
% External Defects[1]		4	6.0	3.7-7.6
% Hollow Heart[2]		4	0.0	0.0-0.0
% Stand		4	96	95-98
Emergence Uniformity		4	3.0	2.8-3.3
Vine Vigor[3]		4	3.3	2.8-4.3
Stems/Plant		4	3.4	2.5-4.6
Vine Size[4]		4	3.8	3.5-4.0
Vine Type[5]		4	3.0	3.0-3.0
Vine Maturity[6]		4	3.4	3.0-4.0
Blackspot[7]	Bud End	9	4.8	4.3-5.0
	Stem End	9	3.9	2.5-4.7
	Average	9	4.4	
Weight Loss[8]		9	3.3	2.2-5.3
Dormancy[9]		9	81	70-101
Enzymatic Browning[10]		9	4.4	3.4-4.8
Specific Gravity		10	1.088	1.082-1.092
Chip Color[11]	40	10	3.3	2.5-4.0
	40R	10	2.8	2.0-3.5
	50	10	1.7	1.0-3.0
	50R	10	1.7	1.0-2.5

Refer to footnotes on page 118.

Table 17AI. Detailed data summary for CO03243-3W.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		4	470	449-501
Yield US #1 (Cwt/A)		4	410	385-438
% US #1		4	87	86-88
Yield >10 oz (Cwt/A)		4	98	87-113
Yield <4 oz (Cwt/A)		4	52	46-60
% External Defects[1]		4	1.8	0.6-2.8
% Hollow Heart[2]		4	0.4	0.0-0.7
% Stand		4	98	97-99
Emergence Uniformity		4	3.8	3.5-4.3
Vine Vigor[3]		4	3.7	2.8-5.0
Stems/Plant		4	2.9	2.5-3.5
Vine Size[4]		4	4.1	3.8-4.3
Vine Type[5]		4	3.0	3.0-3.0
Vine Maturity[6]		4	3.1	3.0-3.3
Blackspot[7]	Bud End	9	4.2	3.4-4.8
	Stem End	9	3.5	2.9-4.2
	Average	9	3.9	
Weight Loss[8]		9	3.1	2.3-4.3
Dormancy[9]		9	82	63-101
Enzymatic Browning[10]		9	3.2	2.4-4.2
Specific Gravity		10	1.089	1.083-1.095
Chip Color[11]	40	10	3.8	2.5-4.5
	40R	10	3.0	2.5-4.0
	50	10	1.9	1.0-3.0
	50R	10	1.7	1.0-3.0

Refer to footnotes on page 118.

Table 17AJ. Detailed data summary for Atlantic.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		43	460	307-597
Yield US #1 (Cwt/A)		43	398	265-512
% US #1		43	87	76-93
Yield >10 oz (Cwt/A)		43	146	58-290
Yield <4 oz (Cwt/A)		43	50	19-109
% External Defects[1]		43	2.6	0.1-9.1
% Hollow Heart[2]		43	4.8	0.2-16.4
% Stand		43	96	88-100
Emergence Uniformity		37	3.7	3.0-4.3
Vine Vigor[3]		37	3.5	2.8-4.5
Stems/Plant		43	3.2	2.2-4.9
Vine Size[4]		37	3.2	2.2-4.0
Vine Type[5]		37	3.0	2.8-3.8
Vine Maturity[6]		43	3.2	2.8-4.0
Blackspot[7]	Bud End	62	3.2	1.8-5.0
	Stem End	62	2.8	1.4-4.3
	Average	63	3.0	
Weight Loss[8]		63	4.3	1.1-7.9
Dormancy[9]		60	85	56-119
Enzymatic Browning[10]		61	4.5	3.8-5.0
Specific Gravity		64	1.098	1.083-1.120
Chip Color[11]	40	64	4.1	2.0-5.0
	40R	64	3.5	1.5-5.0
	50	64	2.7	1.0-4.0
	50R	64	2.5	1.0-5.5

Refer to footnotes on page 118.

Table 17AK. Detailed data summary for Chipeta.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		40	538	399-757
Yield US #1 (Cwt/A)		40	456	306-606
% US #1		40	85	71-90
Yield >10 oz (Cwt/A)		40	168	52-388
Yield <4 oz (Cwt/A)		40	54	22-119
% External Defects[1]		40	5.2	1.1-13.0
% Hollow Heart[2]		40	0.5	0.0-4.0
% Stand		40	98	94-100
Emergence Uniformity		33	3.7	3.0-5.0
Vine Vigor[3]		33	3.9	3.0-5.0
Stems/Plant		39	3.5	2.0-4.9
Vine Size[4]		33	4.4	4.0-5.0
Vine Type[5]		33	3.1	2.5-4.0
Vine Maturity[6]		40	3.3	3.0-4.0
Blackspot[7]	Bud End	58	3.9	2.2-5.0
	Stem End	58	3.7	1.4-5.0
	Average	60	3.8	
Weight Loss[8]		60	3.1	1.0-8.0
Dormancy[9]		56	102	70-153
Enzymatic Browning[10]		57	4.0	2.8-5.0
Specific Gravity		60	1.090	1.073-1.107
Chip Color[11]	40	60	4.5	3.0-5.0
	40R	60	3.8	1.5-5.0
	50	60	2.6	1.0-4.0
	50R	60	2.3	1.0-4.0

Refer to footnotes on page 118.

Footnotes for Tables 17A-17AK:

[1]Percent external defects based on the proportion of the total sample weight with significant defects.

[2]Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.

[3]Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

[4]Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

[5]Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

[6]Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

[7]Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

[8]Tubers were stored at 45F for approximately 3 months.

[9]Days from harvest to first visible growth. Tubers were stored at 45F.

[10]Degree of darkening rated at 60 minutes after slicing tubers lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

[11]Chip color was rated using the Snack Food Association 1-5 scale. Ratings of $\leq$2.0 are acceptable. Reconditioned samples were stored at 60F for three weeks. Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of $\leq$2.0 are acceptable.

[12]Fry texture was rated on a 1 to 5 scale, with 5 indicating the cooked flesh was dry and mealy and 1 representing a soggy, wet texture.

APPENDIX 1. Cultural management information for the Potato Breeding and Selection Program's trials at the San Luis Valley Research Center - 2012.

LOCATION: San Luis Valley Research Center

SOIL TYPE: Sandy Loam (Dunul cobbly sandy loam)

DATE:
Planted - 5/16/12
Hilled - 6/12/12
Vines Killed - 8/31/12 (sulfuric acid - 25 gal/A) 107 days after planting
Harvested - 9/24/12 and 9/25/12

PLOT INFORMATION:
Size of Plots - 1 row x 25'
Spacing Between Hills - 12"
Spacing Between Rows - 34"
Hills Per Plot - 25
Number of Reps - 4 except 2 for Intermediate Yield Trials

METHOD OF HARVEST:
Machine (Grimme 1-row)

FERTILIZER:
5/16/12 - (80 lbs N + 60 lbs P_2O_5 + 40 lbs K_20 + 25 lbs S + 2.5 lb Zn)/A (dual band in-row liquid application)
7/16/12 - 20 lbs N/A (fertigated)
7/25/12 - 20 lbs N/A (fertigated)
Total fertilizer applied - (120 lbs N + 60 lbs P_2O_5 + 40 lbs K_20 + 25 lb S + 2.5 lb Zn)/A

IRRIGATION:
Center Pivot -17.67" gross application (application frequency and amount based on ET)
Rainfall - 3.41" (5/16/12 - 8/31/12)

INSECTICIDES APPLIED:
5/15/12 - Platinum 75SG (1.5 oz a.i./A)
7/26/12 - Fulfill (0.1375 lb a.i./A)

FUNGICIDES APPLIED:
7/17/12 - Quadris Opti (1.1 lb a.i./A)
8/07/12 - Endura (0.176 lb a.i./A)

HERBICIDES APPLIED:
6/12/12 - Matrix SG (0.094 lb a.i./A)
6/12/12 - Eptam 7E (1.0 lb a.i./A)

APPENDIX 2. General procedures used for postharvest evaluations.

Blackspot. Ten randomly selected tubers for each clone tested are bruised on the stem and bud ends with a 150 g weight dropped from a height of 60 cm. Tubers are stored at 40F prior to bruising and warmed up for 24 hours prior to brusing. After bruising, tubers are stored at room temperature for two days prior to evaluation. Blackspot susceptibility is evaluated by cutting the tubers in half longitudinally and rating the extent of damage. Blackspot is rated on a 1 to 5 scale, with 5 indicating no discoloration.

Storage Weight Loss and Dormancy. Ten randomly selected tubers are weighed and stored at 45F for approximately a three month period under low relative humidity conditions to evaluate storage weight loss potential. These tubers are also observed weekly for sprout growth. Dormancy is reported as days after harvest to first visible sprout growth.

Enzymatic Browning. Five tubers of each clone are cut in half lengthwise and rated for degree of darkening 60 minutes later. Degree of darkening is rated on a 1 to 5 scale, with 5 indicating no discoloration.

Specific Gravity. Specific gravity is determined using the air/water method.

Fry Color and Texture. Fry color and texture is determined at or shortly after harvest and after a minimum of eight weeks of storage at 45F. Fries are cooked for 3 ½ minutes at 375F. Fry color is rated on a 0-4 scale using the USDA color standards. Color ratings ≤ 2 are acceptable. Fry texture is rated on a 1 to 5 scale, with 5 indicating that the cooked flesh was dry and mealy, with 1 representing a soggy, wet texture.

Chip Color. Chip color is determined after an interval of storage at 40 and 50F and after reconditioning for three weeks at 60F. Chips are cooked at 365F until bubbling slows. Chip color is rated using the Snack Food Association 1-5 scale. Ratings ≤ 2.0 are acceptable.

Mesa Russet
(Clonal Designation: CO94035-15RU)

Parentage: AO80432-1 x Silverton Russet
Developer(s): Colorado State University
Plant Variety Protection: Applied For

Incentives for Production
- ★ Yield potential
- ★ High percentage of US #1 tubers
- ★ Good tuber size profile
- ★ Attractive tuber type
- ★ Resistance to internal and external grade defects

General Characteristics
Usage: Dual purpose with fresh and processing potential
Plant: Medium-large, medium erect with white flowers
Maturity: Medium (similar to Canela Russet, Centennial Russet and Rio Grande Russet).
Tubers: Oblong-long with a dark russet skin and white flesh. Tubers are moderately resistant to hollow heart and resistant to second growth, blackspot bruise, and shatter bruise.
Yield Potential: High (avg. 419 cwt/acre) and a high percentage of US No. 1 tubers (avg. 86%, 360 cwt/acre)
Specific Gravity: Medium (avg. 1.082)

Field Management
Pre-cut seed to a size of 2.5 to 3.0 oz. and allow to suberize before planting.

To obtain maximum marketable size tubers, seed tubers should be planted at in-row spacing of 13 to 14 inches, with row spacing of 34 inches.

Available nitrogen (N) (residual soil N + well water N + applied N) rate required for optimum tuber yield and quality should be between 145 to 150 lb N/A. This recommendation does not include nitrate nitrogen mineralization from

Field Management (continued)
To gain early plant vigor, apply 85 to 90 lb available N/A (residual soil N + well water N + applied N) pre-plant or at planting

Begin in-season N application after tuber formation. Apply the remaining N rate requirement (60 lb N/A) in three equal split applications at approximately seven days intervals during the growing season. End in-season N application by the end of July in the San Luis Valley. Finishing N application earlier in the season is preferred.

Petiole nitrate N concentration should range from 17,000 ppm at about 57 days after planting (DAP), down to 10,000 ppm at 78 DAP.

Vines should be killed at approximately 115 DAP to allow tubers to mature and to avoid tuber skinning and bruising at harvest.

Storage Management
Late season nitrogen management is important to subsequent storage. Late season nitrogen applications to Mesa Russet may result in greater total yield but may result in delayed maturity, reduced specific gravity, and increased tuber damage from skinning and bruising resulting in greater risks involved in longer term storage.

Mesa Russet is moderately susceptible to pressure bruise after long term storage. Research indicates that applying additional N later in the season has no affect on pressure bruise.

Disease Considerations

Mesa Russet is very resistant to powdery scab with no tuber symptoms and extremely low levels of root galling. Tubers are moderately resistant to *Fusarium* dry rot and *Pectobacterium carotovora* subspp. and moderately susceptible to *Alternaria solani* dry rot. It is susceptible to bacterial ring rot, PLRV and PVY. Ring rot symptoms express within 90 days of planting with typical symptom expression (early plant dwarfing and rosette, interveinal chlorosis and necrosis, leaf wilt and margin necrosis, and a positive stem squeeze for the presence of bacteria). Tuber symptoms may occur, but generally not in high numbers. While susceptible to PLRV and PVY, Mesa Russet has a low to medium level of in-field spread and disease expression is good. Mesa Russet Mesa Russet is also susceptible to black dot caused by *Colletotrichum coccodes* so a good early season fungicide program is important. While susceptible to most other primary potato diseases, it has not shown any significant problems in research or grower trials.

Results from the Western Regional Trials from 2004-2006 indicated that Mesa Russet had no notable weakness and had resistance to *Verticillium wilt* and *Pectobacterium carotovora* subspp.

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Notes

COLORADO POTATOES

QUALITY AT ITS PEAK