

**2011 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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## Preface

We are pleased to provide this copy of the “**2011 Potato Breeding and Selection Research Progress Report.**” This report includes research funded by the Colorado potato industry (Area II and Area III), Colorado State University (Agricultural Experiment Station and the Department of Horticulture and Landscape Architecture), the National Institute of Food and Agriculture (NIFA), the US Potato Board and PVP royalties. These funds collectively continue to allow us to strengthen our overall collaborative research efforts with colleagues at CSU and with other universities and agencies. All of these efforts are aimed at developing improved potato cultivars for Colorado.

Ongoing support by the Colorado potato industry is key to maintaining funds received from NIFA and other potential sources. NIFA and PVP funding have allowed us to significantly expand our breeding efforts over the years to include resistance to the following: PVY, late blight (foliar and tuber), nematodes, pink rot, storage rots [dry rot (*Fusarium* and early blight) and bacterial soft rot], corky ringspot, and powdery scab.

The Colorado Potato Breeding and Selection Program relies on the invaluable cooperation of several growers, shippers, and research personnel to assess the production, adaptability, marketability, and other characteristics of advanced selections.

Collaborators and areas of collaboration are:

- Rob Davidson and Andrew Houser - Disease Screening and Evaluation
- Samuel Essah - Cultivar Specific Production Management
- Sastry Jayanty - Cultivar Specific Postharvest Management and Physiology
- Lavanya Reddivari, Cecil Stushnoff and Henry Thompson - Nutritional Characteristics and Health Attributes
- Jorge Vivanco and Dayakar Badri - Nematode and Pink Rot Resistance
- Kent Sather and Rick Haslar - Potato Certification Service
- Jennifer Bond - Marketing
- Jairam Vanamala - Bioactive Compounds for Health Laboratory
- Colorado Potato Growers
- Colorado Certified Potato Growers' Association
- Southwest Regional Potato Breeding and Cultivar Development Cooperators (Colorado, Texas, and California). The overall objective of this research group is to develop and evaluate improved potato cultivars to meet the production, marketing, and producer/consumer needs of the Southwest U.S.
- Other cooperating research/extension programs - several cooperators throughout the United States and Canada provide breeding material and opportunities to screen our germplasm under various growing conditions and disease pressures not usually available in Colorado.

Best wishes for the 2012 production season!

Sincerely,

*Dave Holm and Caroline Gray*

## Acknowledgments

We would like to express appreciation to the following individuals, groups, and organizations for their efforts on behalf of the Colorado Potato Breeding and Selection Program in 2012.

- ✓ Financial Support from the following is gratefully acknowledged:
  - *Colorado Potato Industry* - Area II and III
  - *Colorado State University* - Colorado Agricultural Experiment Station & the Department of Horticulture and Landscape Architecture
  - *USDA - National Institute of Food and Agriculture* - Potato Research Award Number 2010-34141-21252
  - *United States Potato Board*
  - *Stone's Farm Supply* - in-kind support

- ✓ Colorado Potato Administration Committee, Area II - Research Committee (Members and At-large Members) and Area III

- ✓ Technical Support

Marlee Canada	Mitzi Cisneros	Megan Duran	Helen Duran
Olivia Garcia	Jill Francis	Marshall McDaniel	Lacy Shawcroft
Taylor Trujillo			

Numerous other temporary support personnel assisted the project particularly during seed cutting, planting, and harvest.

- ✓ Research Collaborators - Colorado State University

Rob Davidson	Samuel Essah	Sastry Jayanty	Lavanya Reddivari
Cecil Stushnoff	Henry Thompson	Jorge Vivanco	Dayakar Badri
Jennifer Bond	Jairam Vanamala		

- ✓ Staff - San Luis Valley Research Center

Deanna Brown	Tim Poe	Ron Price	Stan Price
Sharon Yust			

- ✓ Potato Certification Service

Kent Sather	Rick Haslar	Andrew Houser	Carolyn Keller
Steve Keller	Rue Snell	Teresa Rivera	

- ✓ The Colorado Potato Breeding and Selection Program relies on the cooperation of several growers, shippers, processors, and research personnel to assess the production, adaptability, marketability, and other characteristics of advanced selections from our program. We sincerely appreciate their support and the valuable feedback they provide. We thank many cooperating breeding and selection programs throughout the United States and Canada who have provided breeding material and opportunities to screen our germplasm under various growing conditions and disease pressures not usually available in Colorado.

# **2011 Research Progress Report Potato Breeding and Selection**

**Submitted by**

**David G. Holm and Caroline Gray**

**San Luis Valley Research Center**

## **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. 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 currently have a graduate student, Katie Larson, who is doing an exhaustive analysis of the yellow-flesh material in our program. She is determining the flesh color using a colorimeter and will follow up with quantitative and qualitative analysis of carotenoids present.

Crossing. The Colorado Potato Breeding and Selection Program intercrossed 104 parental clones in 2011 in two separate crossing blocks. The emphasis of the first crossing block was russet and chipper cultivar development and PVY resistance. The second crossing block emphasized russet and specialty cultivar development and disease resistance, mostly PVY resistance. Seed from 278 combinations was obtained.

Approximately 40,610 first-size seedling tubers representing 154 families were produced from 2010 greenhouse crosses for initial field selection in 2012. These seedlings represent crosses segregating primarily for russet, reds, specialty types, 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 84,560 first-year seedlings representing 477 families in 2011, with 738 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 966 clones were in 12-hill, preliminary, and intermediate stages of selection. At harvest, 330 were saved for further increase and evaluation. Sixty-eight advanced selections were saved and will be increased in 2012 pending further evaluation. Another 303 selections and cultivars were maintained for germplasm development, breeding, and other experimental purposes including seed increase/maintenance.

Field trials conducted in 2011 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 Chip Trial, Southwestern Specialty Trial, Western Regional Russet/Processing Trial, Western Regional Red Trial, Western Regional Specialty Trial, San Luis Valley Chipping Trial, and Western Regional 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 2011.

A total of 226 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.

Seventy 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 2011, included 10 russets (AC99375-1RU, AC00395-2RU, CO97087-2RU, CO99053-3RU, CO99053-4RU, CO99100-1RU, CO03187-1RU, CO03202-1RU, CO03276-4RU, and

CO03276-5RU), 4 reds (CO98012-5R, CO99076-6R, CO99256-2R, and CO00291-5R), 9 chippers (AC01151-5W, AC03433-1W, CO95051-7W, CO00188-4W, CO00197-3W, CO00270-7W, CO02024-9W, CO02033-1W, and CO02321-4W), and 15 specialties (ATC00293 -1W/Y, AC99329-7PW/Y, AC99330-1P/Y, CO97222-1R/R, CO97226-2R/R, CO97232-1R/Y, CO97232-2R/Y, CO00412-5W/Y, CO01399-10P/Y, CO03027-2R/R, CO03094-5RF/RW, CO04021-2R/Y, CO04013-1W/Y, CO04117-5PW/Y, and CO04045-4P/P). Several additional selections are being considered for exclusive release.

Current plans are to name AC99329-7PW/Y, CO99053-3RU, CO99100-1RU, CO95051-7W in 2012. CO95051-7W will be our first exclusive release. Since progressing through the various trials, including the Western Regional Chip Trials, CO95051-7W has undergone extensive testing in the USPB/SFA Chip Trials and the USPB Fast Track program. This round white selection has excellent chip color after long-term storage and is lower in acrylamides. Plant Variety Protection was granted for Rio Colorado in 2011.

Table 16 summarizes the performance of advanced selections that are available for growers to evaluate in 2012. Detailed data summaries for each of the advanced selections are presented in Tables 17A-AP. Figure 1 includes photographs of these selections. Data summaries for additional selections that are available for exclusive release are available upon request.

## Collaborative Studies

The following collaborative studies were conducted in 2011:

- 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 (38 selections), potato leafroll virus (41 selections), PVY (41 selections), powdery scab (10 selections), and corky ringspot (13 selections) in Colorado.
- 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, *Verticillium* wilt, and zebra chip. In addition, selections were provided to the National Trials for late blight and common scab screening trials.
- Twenty 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.
- Seven selections/cultivars were provided for a third year to determine the influence of developmental growth stage of the potato tubers on bioactives related to colon cancer. This study is in collaboration with Cecil Stushnoff.
- Tubers of selected clones/cultivars were provided to Jairam Vanamala and Lavanya Reddivari to support grant research projects conducted by the Bioactive Compounds for Health Laboratory in the Department of Food Science and Human Nutrition at CSU.

- Five selections/cultivars were provided to Jennifer Bond for branding projects associated with a Colorado Department of Agriculture Specialty Block Grant.
- Eight selections were entered in the National Fry Processing Trials conducted in Washington, Idaho, and North Dakota. A focus of these trials is to identify selections with low acrylamide potential.
- Fourteen selections were entered in the National Chip Processing Trials. These trials were planted in 9 locations in northern and southern areas.
- Efforts continue to find outside funding to support nematode resistance studies with Jorge M. Vivanco and Dayakar Badri. Initial studies aimed at pink rot resistance were initiated in 2010 and continued in 2011.

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+	<p>Advanced Selections: Includes selections that have advanced from the IYT. Additionally 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 9<sup>th</sup> year and older selections generally have up to a 1/2 acre or more of seed increase depending on grower demand.</p> <p>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.</p>
10	All 8 <sup>th</sup> 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 9 <sup>th</sup> -11 <sup>th</sup> year selections are entered in the Western Regional Trials (4 trials): main (russets and long whites), red, specialty, and chip. 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 Tier 2 entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy (Days) <sup>3</sup>	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
AC05039-2RU	5.0	5.0	5.0	1.8	101	4.6
AC06140-3RU	5.0	5.0	5.0	1.6	99	1.8
ATC05175-1PW/Y	5.0	5.0	5.0	2.7	102	1.6
ATC05175-2RW/Y	4.9	4.8	4.9	3.6	72	2.0
CO05028-3R/R	---	---	---	4.2	56	---
CO05028-4P/P	---	---	---	3.0	91	4.3
CO05028-6P/P	---	---	---	3.5	91	1.0
CO05028-7P/P	---	---	---	2.3	105	4.0
CO05028-8R/R	---	---	---	2.5	113	3.0
CO05028-10P/P	---	---	---	1.8	102	---
CO05028-11P/P	---	---	---	1.8	103	4.0
CO05030-5W/Y	4.7	4.6	4.7	3.8	93	4.0
CO05035-1PW/Y	4.9	4.6	4.8	2.5	70	4.4
CO05035-5PW/Y	5.0	5.0	5.0	2.2	115	4.2
CO05035-7PW/Y	5.0	5.0	5.0	3.3	49	4.8
CO05035-8PW/Y	5.0	5.0	5.0	2.9	64	4.4
CO05079-4P/P	---	---	---	1.9	112	---
CO05100-1W/Y	5.0	5.0	5.0	1.9	92	4.6
CO05107-4P/P	---	---	---	2.7	122	---
CO05239-1R/Y	5.0	5.0	5.0	3.3	105	3.2
CO06021-1RU	4.9	4.9	4.9	2.3	105	3.4
CO06022-12RU	5.0	5.0	5.0	4.0	103	2.6
CO06024-7RU	4.9	4.9	4.9	4.0	102	3.6
CO06032-1RU	5.0	5.0	5.0	2.4	92	2.0
CO06035-3RU	5.0	5.0	5.0	2.8	115	3.6

Table 2A continued on next page

Table 2A (cont'd). Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Preliminary Trial Tier 2 entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy (Days) <sup>3</sup>	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
CO06037-15RU	5.0	5.0	5.0	1.9	112	4.0
CO06057-3RU	5.0	5.0	5.0	4.4	100	3.8
CO06060-10RU	5.0	5.0	5.0	2.3	98	4.4
CO06062-3RU	5.0	5.0	5.0	3.6	86	4.2
CO06064-7RU	5.0	5.0	5.0	2.3	99	3.2
CO06094-1RU	5.0	5.0	5.0	2.1	103	4.4
CO06097-5RU	5.0	5.0	5.0	2.6	81	3.4
CO06097-14RU	5.0	5.0	5.0	2.2	113	2.6
CO06215-2R	5.0	5.0	5.0	3.8	100	2.2
CO06215-11R	5.0	5.0	5.0	4.0	127	3.6
NDC071010B-1R	4.9	4.9	4.9	3.3	58	3.4
Canela Russet	5.0	5.0	5.0	2.9	147	4.6
Centennial Russet	5.0	5.0	5.0	3.2	80	3.6
Purple Majesty	---	---	---	2.2	56	---
Rio Grande Russet	4.9	4.7	4.8	2.5	104	3.2
Russet Burbank	4.8	4.9	4.9	2.1	140	3.2
Russet Norkotah-S3	4.8	4.7	4.8	1.9	105	2.6
Russet Nugget	5.0	5.0	5.0	1.7	97	3.8
Sangre-S10	4.7	4.9	4.8	1.5	95	4.0
Yukon Gold	5.0	5.0	5.0	1.3	86	4.0

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh 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 Tier 2 entries - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
AC05039-2RU	1.084	1	3	3	3
AC06140-3RU	1.079	3	3	3	3
ATC05175-1PW/Y	1.071	3	3	2	2
ATC05175-2RW/Y	1.078	2	3	2	2
CO05028-3R/R	1.082	---	---	3	3
CO05028-4P/P	1.078	2	3	3	3
CO05028-6P/P	1.072	2	2	2	3
CO05028-7P/P	1.076	1	3	3	3
CO05028-8R/R	1.077	1	2	3	2
CO05028-10P/P	1.080	1	1	3	2
CO05028-11P/P	1.082	2	3	2	2
CO05030-5W/Y	1.085	1	1	2	2
CO05035-1PW/Y	1.080	2	3	2	3
CO05035-5PW/Y	1.074	3	3	3	3
CO05035-7PW/Y	1.072	2	3	3	3
CO05035-8PW/Y	1.075	3	3	2	3
CO05079-4P/P	1.089	1	3	4	4
CO05100-1W/Y	1.066	3	2	1	1
CO05107-4P/P	1.068	1	2	1	1
CO05239-1R/Y	1.077	4	4	1	1
CO06021-1RU	1.088	1	1	4	4
CO06022-12RU	1.096	1	1	4	4
CO06024-7RU	1.084	2	2	3	3
CO06032-1RU	1.079	3	2	2	3
CO06035-3RU	1.083	1	0	3	3

Table 2B continued on next page

Table 2B (cont'd). Specific gravity, french fry color, and texture for Preliminary Trial Tier 2 entries - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
CO06037-15RU	1.066	3	3	2	2
CO06057-3RU	1.092	0	1	5	5
CO06060-10RU	1.086	1	2	3	4
CO06062-3RU	1.087	1	1	3	3
CO06064-7RU	1.071	2	3	2	2
CO06094-1RU	1.074	2	2	2	3
CO06097-5RU	1.078	3	3	3	3
CO06097-14RU	1.080	1	2	4	4
CO06215-2R	1.076	2	3	3	3
CO06215-11R	1.081	2	3	2	3
NDC071010B-1R	1.066	4	4	2	3
Canela Russet	1.096	2	2	4	4
Centennial Russet	1.079	4	4	3	3
Purple Majesty	1.085	---	---	1	2
Rio Grande Russet	1.088	3	2	3	3
Russet Burbank	1.081	3	3	4	3
Russet Norkotah-S3	1.077	4	4	2	2
Russet Nugget	1.101	1	1	5	4
Sangre-S10	1.069	4	4	1	2
Yukon Gold	1.083	4	3	3	3

<sup>1</sup> Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup> 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 - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy (Days) <sup>3</sup>	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
AC00180-2W	3.7	3.9	3.8	3.5	101	3.4
AC00206-2W	4.6	4.9	4.8	2.8	94	3.6
AC01151-5W	4.9	4.1	4.5	2.7	98	1.2
AC03433-1W	4.9	3.9	4.4	3.3	81	4.6
AC03452-2W	4.9	5.0	5.0	1.4	90	4.4
AC05153-1W	4.8	4.5	4.7	4.3	113	4.0
AC06198-4W	4.1	3.3	3.7	2.9	79	2.2
CO95051-7W	3.9	2.0	3.0	4.7	77	1.6
CO97043-14W	5.0	5.0	5.0	3.1	123	4.0
CO00188-4W	5.0	4.6	4.8	2.7	95	3.4
CO00197-3W	4.4	3.8	4.1	2.1	70	1.4
CO00270-7W	4.9	4.5	4.7	2.7	52	2.2
CO02024-9W	4.3	3.0	3.7	3.6	90	2.0
CO02033-1W	3.6	4.4	4.0	3.3	104	3.6
CO02321-4W	4.4	3.7	4.1	3.3	76	3.6
CO03243-3W	4.3	3.9	4.1	3.1	88	3.2
CO05061-2P	5.0	4.0	4.5	3.0	90	2.4
CO05061-6W	5.0	4.5	4.8	2.2	105	4.2
CO05061-7W	4.7	4.5	4.6	3.4	70	4.2
CO05062-2P/P	---	---	---	3.4	91	---
Atlantic	4.1	4.2	4.2	3.0	99	4.4
Chipeta	4.6	4.7	4.7	2.0	108	3.8
Snowden	4.6	4.4	4.5	2.5	98	3.8

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 3B. Chip color<sup>1</sup> after various storage regimes and specific gravity of San Luis Valley chipping study entries - 2011.

Clone	Specific Gravity	6 wks 40F	6 wks/40F +3 wks/60F	6 wks 50F	6 wks/50F +3 wks/60F
AC00180-2W	1.086	4.5	3.5	1.0	2.0
AC00206-2W	1.089	3.5	2.5	1.0	2.0
AC01151-5W	1.093	4.5	3.0	3.0	3.0
AC03433-1W	1.091	3.0	2.5	1.0	1.5
AC03452-2W	1.077	4.0	3.5	1.5	2.0
AC05153-1W	1.085	4.5	3.5	1.5	2.0
AC06198-4W	1.080	5.0	4.0	3.0	3.0
AC07116-1W	1.086	5.0	3.5	2.0	2.5
AC07116-2W	1.082	4.0	2.5	2.0	2.0
CO95051-7W	1.102	4.0	2.5	2.5	1.0
CO97043-14W	1.083	4.0	2.0	2.0	2.0
CO00188-4W	1.094	4.0	3.0	1.5	2.5
CO00197-3W	1.082	4.0	3.0	2.5	1.0
CO00270-7W	1.085	3.5	2.5	1.5	1.0
CO02024-9W	1.090	3.5	2.0	2.0	1.5
CO02033-1W	1.104	3.5	2.5	2.0	1.5
CO02321-4W	1.102	3.5	2.5	2.0	2.5
CO03243-3W	1.087	4.0	3.0	3.0	2.0
CO05061-2P	1.089	3.0	2.5	2.5	1.0
CO05061-6W	1.091	4.5	3.0	2.5	1.5
CO05061-7W	1.095	3.5	2.5	2.0	2.0
CO05062-2P/P	1.089	---	---	---	---
CO07054-1R	1.088	5.0	5.0	3.0	2.5
CO07055-11W	1.092	2.5	3.0	2.0	1.0
CO07070-5W	1.085	3.5	3.0	1.5	2.0

Table 3B continued on next page

<sup>1</sup> Chip color was rated using the Snack Food Association 1-5 scale. Ratings of  $\leq 2.0$  are acceptable.

Table 3B (cont'd). Chip color<sup>1</sup> after various storage regimes and specific gravity of San Luis Valley chipping study entries - 2011

Clone	Specific Gravity	6 wks 40F	6 wks/40F +3 wks/60F	6 wks 50F	6 wks/50F +3 wks/60F
CO07070-10W	1.105	4.5	2.5	1.5	2.0
CO07070-13W	1.085	3.0	3.0	1.0	2.0
CO07110-4W	1.079	4.5	4.0	1.5	2.5
CO07110-7W	1.091	3.0	1.0	1.0	1.5
CO07110-8W	1.080	4.5	4.0	2.0	2.5
CO07110-10W	1.087	3.0	3.5	1.0	1.0
VC08004-3W	1.087	5.0	4.0	3.0	2.5
VC08056-1W	1.092	5.0	4.0	1.0	2.0
VC08057-2W	1.076	4.0	4.0	2.0	2.5
Atlantic	1.097	5.0	4.0	3.0	3.0
Chipeta	1.094	4.5	4.0	2.0	1.0
Snowden	1.093	5.0	3.5	1.0	1.0

<sup>1</sup> Chip color was rated using the Snack Food Association 1-5 scale. Ratings of  $\leq 2.0$  are acceptable.

Table 4A. Yield, grade and tuber shape for Intermediate Main Yield Trial entries - 2011.

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1			<4 oz		
		Total	%	4-10 oz			
AC03346-1RU	492	389	79	199	190	58	1.67/1.20
AC05141-2RU	432	270	62	193	78	154	1.88/1.15
AC05282-2RU	403	245	60	228	17	158	1.65/1.19
CO05024-11RU	413	354	86	247	108	49	1.70/1.24
CO05040-1RU	438	289	66	250	39	149	1.71/1.18
CO05048-3RU	459	348	76	212	136	89	1.76/1.21
CO05068-1RU	442	407	93	219	189	28	1.64/1.22
CO05110-6RU	305	239	78	220	20	55	1.71/1.21
CO05132-2RU	289	234	81	193	41	47	1.65/1.14
CO05149-3RU	242	177	74	123	54	63	1.98/1.18
CO05152-5RU	442	383	87	290	94	53	1.70/1.14
CO05175-1RU	416	374	91	164	210	31	1.96/1.20
CO05189-2RU	404	320	79	268	53	79	1.81/1.22
CO05189-3RU	326	303	93	153	151	19	1.63/1.24
CO05206-8RU	424	379	89	185	195	30	1.91/1.24
Canela Russet	347	306	88	188	118	36	1.84/1.28
Russet Norkotah	381	294	77	219	76	72	1.91/1.22
Mean	391	312	80	209	104	69	1.77/1.20
LSD <sup>2</sup> (0.05)	126	133	12	85	101	28	0.11/0.05

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference.

Table 4B. Grade defects for Intermediate Main Yield Trial entries - 2011.

Clone	% External Defects <sup>1</sup>	External Defects Observed <sup>2</sup>	% Hollow Heart <sup>3</sup>
AC03346-1RU	9.1	MS, SG*, GR*	0.0
AC05141-2RU	1.9	MS, GR*	0.0
AC05282-2RU	0.0		0.0
CO05024-11RU	2.5	MS*, GR*	0.0
CO05040-1RU	0.2	MS*	0.0
CO05048-3RU	4.8	MS*, GR*	0.0
CO05068-1RU	1.4	GR*	3.4
CO05110-6RU	3.7	MS*, GR	0.0
CO05132-2RU	3.1	MS*	0.0
CO05149-3RU	0.8	MS*, GR*	0.0
CO05152-5RU	1.6	MS, GC*	0.0
CO05175-1RU	2.5	MS*	4.5
CO05189-2RU	1.3	MS, GR*	0.0
CO05189-3RU	1.4	MS*	0.0
CO05206-8RU	3.8	MS*, SG, GC, GR	0.0
Canela Russet	1.6	MS*, GR*	0.0
Russet Norkotah	4.1	MS*	0.0

<sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup>MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup>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 - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
AC03346-1RU	96	3.5	3.0	2.9	4.5	3.0	3.5
AC05141-2RU	100	4.0	4.0	3.4	4.5	3.0	3.0
AC05282-2RU	96	4.0	3.0	4.6	3.5	2.5	3.0
CO05024-11RU	100	3.0	4.0	3.8	4.0	3.5	3.0
CO05040-1RU	100	3.0	3.5	4.3	4.0	3.0	2.5
CO05048-3RU	98	3.5	3.5	2.7	5.0	3.0	3.0
CO05068-1RU	96	3.5	3.5	3.4	5.0	3.5	4.0
CO05110-6RU	100	2.5	3.0	2.8	2.5	2.5	1.0
CO05132-2RU	90	4.0	3.0	3.4	3.0	2.5	2.0
CO05149-3RU	98	3.0	2.5	3.6	2.0	2.0	2.0
CO05152-5RU	96	3.0	3.0	3.7	3.0	2.5	2.0
CO05175-1RU	94	3.5	2.5	3.2	4.5	3.0	3.5
CO05189-2RU	98	2.0	3.0	2.9	3.0	3.0	2.0
CO05189-3RU	96	2.5	3.0	2.7	2.5	2.5	3.0
CO05206-8RU	98	3.5	3.0	3.1	4.0	3.0	3.5
Canela Russet	92	2.0	3.0	1.8	4.0	4.0	3.0
Russet Norkotah	100	3.5	3.0	4.3	3.0	2.5	1.5
Mean	97	3.2	3.1	3.3	3.6	2.9	2.7
LSD <sup>6</sup> (0.05)	8	0.9	1.1	1.0	1.2	1.0	0.8

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference.

Table 4D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Intermediate Main Yield Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			%	Dormancy <sup>3</sup> (Days)	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average	Weight Loss <sup>2</sup>		
AC03346-1RU	5.0	5.0	5.0	2.0	103	3.6
AC05141-2RU	4.7	4.6	4.7	2.8	70	2.6
AC05282-2RU	5.0	4.4	4.7	2.7	85	3.0
CO05024-11RU	5.0	5.0	5.0	3.6	82	4.0
CO05040-1RU	5.0	4.7	4.9	3.9	96	4.4
CO05048-3RU	4.7	4.9	4.8	1.9	113	3.4
CO05068-1RU	4.5	4.1	4.3	2.5	76	2.0
CO05110-6RU	5.0	5.0	5.0	2.7	117	2.8
CO05132-2RU	5.0	5.0	5.0	2.3	97	4.0
CO05149-3RU	4.7	4.6	4.7	5.0	69	5.0
CO05152-5RU	5.0	5.0	5.0	2.5	82	4.6
CO05175-1RU	5.0	5.0	5.0	2.9	77	3.6
CO05189-2RU	5.0	5.0	5.0	2.0	103	5.0
CO05189-3RU	4.9	4.9	4.9	2.7	120	4.0
CO05206-8RU	5.0	5.0	5.0	2.7	85	3.8
Canela Russet	4.9	4.7	4.8	3.5	145	4.8
Russet Norkotah	5.0	5.0	5.0	2.7	103	3.6

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh 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 - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
AC03346-1RU	1.095	3	3	3	3
AC05141-2RU	1.103	1	0	3	3
AC05282-2RU	1.094	3	3	2	2
CO05024-11RU	1.095	1	2	4	4
CO05040-1RU	1.091	1	1	4	4
CO05048-3RU	1.093	3	3	2	2
CO05068-1RU	1.106	0	1	3	4
CO05110-6RU	1.084	1	2	3	3
CO05132-2RU	1.086	1	2	3	4
CO05149-3RU	1.088	0	0	3	3
CO05152-5RU	1.085	3	3	3	3
CO05175-1RU	1.093	1	2	4	5
CO05189-2RU	1.085	3	4	3	3
CO05189-3RU	1.074	2	2	2	3
CO05206-8RU	1.083	1	2	3	3
Canela Russet	1.098	2	2	4	4
Russet Norkotah	1.084	3	2	3	3

<sup>1</sup>Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup>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 - 2011.

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1			<4 oz		
		Total	%	4-10 oz			
AC05175-3P/Y	368	299	81	256	44	69	1.06/1.21
AC05175-9PW/Y	531	355	67	268	88	148	1.39/1.17
AC05178-2RW/W	419	284	68	272	12	125	1.20/1.23
CO05037-2R/Y	385	181	47	179	3	204	1.92/1.18
CO05037-3W/Y	532	313	59	295	19	212	1.09/1.35
CO05062-2P/P	421	145	35	137	8	275	1.00/1.30
CO05080-1P/PW	266	62	24	62	0	201	1.49/1.21
CO05122-1W/Y	597	512	86	380	132	81	1.07/1.23
CO05211-4R	362	211	59	197	14	149	1.17/1.11
CO05228-4R	366	228	62	213	15	139	1.12/1.10
CO05228-7R	465	415	90	302	113	42	1.03/1.18
CO05245-1R	342	276	81	248	29	56	1.04/1.22
TC05276-7P/PW	326	121	37	121	0	203	2.42/1.05
Purple Majesty	453	225	50	210	15	229	1.34/1.21
Sangre-S10	536	500	94	258	243	32	1.19/1.16
Yukon Gold	393	347	89	198	150	39	1.21/1.22
Mean	422	279	64	224	55	137	1.29/1.20
LSD <sup>2</sup> (0.05)	61	60	8	54	27	37	0.08/0.06

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference.

Table 5B. Grade defects for Intermediate Specialty Yield Trial entries - 2011.

Clone	% External Defects <sup>1</sup>	External Defects Observed <sup>2</sup>	% Hollow Heart <sup>3</sup>
AC05175-3P/Y	0.0		0.0
AC05175-9PW/Y	5.3	MS, GR*	0.0
AC05178-2RW/W	2.7	MS*, GR*	0.0
CO05037-2R/Y	0.0		0.0
CO05037-3W/Y	1.5	GR*	0.0
CO05062-2P/P	0.3	MS*	0.0
CO05080-1P/PW	1.2	MS*	0.0
CO05122-1W/Y	0.8	MS*, GR*	0.0
CO05211-4R	0.6	MS*, GC*	0.0
CO05228-4R	0.0		0.0
CO05228-7R	1.9	MS*, GC	0.0
CO05245-1R	3.0	MS*, SG	0.0
TC05276-7P/PW	0.7	SG*	0.0
Purple Majesty	0.0		1.3
Sangre-S10	0.9	MS, SG, GR*	0.0
Yukon Gold	2.0	MS, GC*, GR*	0.0

<sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup>MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup>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 - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
AC05175-3P/Y	98	2.5	3.0	4.4	2.0	3.0	1.0
AC05175-9PW/Y	90	4.0	3.0	6.0	3.0	3.0	3.0
AC05178-2RW/W	98	3.0	3.0	4.6	3.5	3.0	2.0
CO05037-2R/Y	100	3.0	3.5	5.5	2.5	3.0	3.0
CO05037-3W/Y	96	5.0	3.5	6.6	3.5	3.0	2.0
CO05062-2P/P	96	3.5	3.5	6.5	3.0	2.0	2.0
CO05080-1P/PW	98	2.5	3.0	3.5	2.5	3.0	2.0
CO05122-1W/Y	100	3.5	3.5	5.9	3.0	3.0	2.5
CO05211-4R	96	3.0	3.5	4.8	2.5	3.0	2.0
CO05228-4R	98	3.5	3.0	6.4	3.0	3.0	2.0
CO05228-7R	96	3.0	3.0	5.5	2.5	3.0	2.0
CO05245-1R	98	2.5	2.5	3.7	2.5	3.0	2.0
TC05276-7P/PW	100	3.5	3.5	4.0	3.0	2.5	1.5
Purple Majesty	96	4.0	3.5	5.1	3.0	3.0	2.0
Sangre-S10	98	3.0	3.0	4.2	4.0	3.0	3.0
Yukon Gold	98	3.5	3.5	2.2	3.0	3.0	2.0
Mean	97	3.3	3.2	4.9	2.9	2.9	2.1
LSD <sup>6</sup> (0.05)	6	1.1	NS	4.3	1.0	0.4	0.5

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference; NS=not significant.

Table 5D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Intermediate Specialty Yield Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy (Days) <sup>3</sup>	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
AC05175-3P/Y	5.0	4.9	5.0	4.3	83	3.0
AC05175-9PW/Y	5.0	4.9	5.0	4.3	84	1.8
AC05178-2RW/W	4.8	5.0	4.9	4.0	56	1.4
CO05037-2R/Y	5.0	5.0	5.0	3.0	71	4.2
CO05037-3W/Y	5.0	5.0	5.0	2.7	85	3.6
CO05062-2P/P	---	---	---	7.0	47	---
CO05080-1P/PW	---	---	---	6.4	82	---
CO05122-1W/Y	5.0	4.7	4.9	4.8	56	4.6
CO05211-4R	4.9	4.5	4.7	4.9	117	2.2
CO05228-4R	4.7	4.5	4.6	6.9	75	2.6
CO05228-7R	5.0	4.7	4.9	5.1	84	4.0
CO05245-1R	5.0	4.7	4.9	6.0	103	3.4
TC05276-7P/PW	5.0	5.0	5.0	2.5	75	---
Purple Majesty	---	---	---	4.3	54	---
Sangre-S10	4.6	4.5	4.6	2.2	89	3.8
Yukon Gold	4.9	4.7	4.8	1.4	89	3.4

<sup>1</sup> Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup> Tubers were stored at 45F for 91 days.

<sup>3</sup> Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup> Degree of darkening rated at 60 minutes after slicing fresh 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 - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
AC05175-3P/Y	1.074	1	1	1	2
AC05175-9PW/Y	1.085	1	3	1	2
AC05178-2RW/W	1.082	2	3	3	3
CO05037-2R/Y	1.094	1	3	4	4
CO05037-3W/Y	1.083	2	3	2	3
CO05062-2P/P	1.095	---	---	3	3
CO05080-1P/PW	1.097	---	---	4	4
CO05122-1W/Y	1.084	2	3	1	2
CO05211-4R	1.086	2	2	3	3
CO05228-4R	1.088	1	3	3	3
CO05228-7R	1.082	3	3	2	3
CO05245-1R	1.084	3	4	3	3
TC05276-7P/PW	1.091	1	1	3	3
Purple Majesty	1.090	---	---	2	2
Sangre-S10	1.085	4	4	2	3
Yukon Gold	1.093	2	2	3	3

<sup>1</sup>Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup>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 - 2011.

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1			<4 oz		
		Total	%	4-10 oz			
AC03300-1RU	461	271	59	261	11	189	1.88/1.21
AC03409-1RU	423	362	86	235	127	45	1.74/1.23
CO03186-1RU	451	390	86	272	117	53	1.67/1.16
CO04122-1RU	311	165	53	156	9	136	1.68/1.18
CO04123-2RU	392	191	47	180	11	193	2.04/1.17
CO04211-4RU	306	232	75	211	22	73	1.70/1.21
CO04220-7RU	406	311	77	259	51	86	1.94/1.14
CO04233-1RU	361	316	88	237	80	31	1.63/1.16
Canela Russet	361	277	77	211	66	61	1.97/1.17
Russet Norkotah	376	347	92	189	158	23	1.78/1.24
Mean	385	286	74	221	65	89	1.80/1.19
LSD <sup>2</sup> (0.05)	54	62	10	50	34	23	0.10/0.05

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference.

Table 6B. Grade defects for Advanced Yield Trial entries - 2011.

Clone	% External Defects <sup>1</sup>	External Defects Observed <sup>2</sup>	% Hollow <sup>3</sup> Heart
AC03300-1RU	0.3	MS*	0.2
AC03409-1RU	4.0	MS, GC, GR*	0.0
CO03186-1RU	1.9	MS*, GC*, GR	4.4
CO04122-1RU	3.1	MS*, GC	0.0
CO04123-2RU	1.9	MS*, GR	0.0
CO04211-4RU	0.3	MS*	0.0
CO04220-7RU	2.3	MS*, GC, GR	0.8
CO04233-1RU	3.7	MS*, GC*, GR	0.0
Canela Russet	6.0	MS, GR*	0.4
Russet Norkotah	1.7	MS, GR*	0.0

<sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup>MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup>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 - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
AC03300-1RU	98	4.3	3.3	4.4	4.5	3.5	3.8
AC03409-1RU	96	1.3	3.5	1.4	4.0	4.0	4.0
CO03186-1RU	99	4.5	3.8	4.7	3.8	2.8	2.5
CO04122-1RU	99	2.8	3.8	7.2	2.5	2.3	2.3
CO04123-2RU	98	3.8	3.5	6.0	2.8	2.3	1.8
CO04211-4RU	97	2.8	3.0	3.9	2.0	2.8	1.3
CO04220-7RU	99	3.5	3.5	3.7	3.5	3.0	2.0
CO04233-1RU	98	3.0	2.8	2.5	3.3	3.0	2.3
Canela Russet	99	2.8	3.3	2.1	3.8	3.5	3.3
Russet Norkotah	99	2.8	3.3	2.1	3.8	3.5	3.3
Mean	98	3.2	3.3	4.0	3.3	2.9	2.4
LSD <sup>6</sup> (0.05)	3	0.7	0.7	2.3	0.5	0.6	0.6

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference.



Table 6D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced Yield Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy (Days) <sup>3</sup>	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
AC03300-1RU	4.7	4.4	4.6	3.2	63	4.2
AC03409-1RU	4.9	5.0	5.0	2.3	138	4.6
CO03186-1RU	4.6	4.4	4.5	1.9	75	3.4
CO04122-1RU	5.0	5.0	5.0	3.6	70	3.0
CO04123-2RU	5.0	5.0	5.0	2.4	72	2.8
CO04211-4RU	5.0	4.7	4.9	2.8	63	4.0
CO04220-7RU	4.8	4.9	4.9	2.2	86	3.6
CO04233-1RU	5.0	5.0	5.0	2.0	96	4.4
Canela Russet	4.9	4.3	4.6	3.0	145	4.4
Russet Norkotah	5.0	5.0	5.0	2.6	103	3.6

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh 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 - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
AC03300-1RU	1.104	1	2	4	4
AC03409-1RU	1.090	3	3	3	3
CO03186-1RU	1.096	3	3	4	4
CO04122-1RU	1.091	0	1	3	4
CO04123-2RU	1.098	2	2	3	3
CO04211-4RU	1.087	1	2	2	2
CO04220-7RU	1.092	1	2	3	4
CO04233-1RU	1.088	3	3	3	3
Canela Russet	1.107	3	2	3	3
Russet Norkotah	1.081	2	2	4	3

<sup>1</sup>Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup>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 and Southwest Regional Fingerling entries - 2011.

Clone	Total (Cwt/A)	Tuber Length				Tuber Shape <sup>1</sup> L:W/W:T
		<2"	<2-4"	>4-6"	>6"	
<b>Advanced</b>						
CO00405-1RF	302	66	167	57	7	2.16/1.12
CO00415-1RF	446	52	304	51	2	2.10/1.09
CO03134-4RF/RW	330	40	222	33	4	2.33/1.14
Banana	419	29	143	139	47	2.92/1.11
<b>Southwest</b>						
CO03094-5RF/RW	517	58	183	189	38	2.83/1.15
Banana	364	58	118	111	35	2.81/1.11
Mean	396	50	189	97	22	2.53/1.12
LSD <sup>2</sup> (0.05)	68	NS	80	62	19	0.08/0.02

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference; NS=not significant.

Table 7B. Grade defects for Advanced Fingerling and Southwest Regional Fingerling Yield Trial entries - 2011.

Clone	% External Defects		External Defects Observed <sup>2</sup>	% Hollow Heart <sup>3</sup>
	Defects <sup>1</sup>	Defects		
<b>Advanced</b>				
CO00405-1RF	1.5		MS*, GR	0.0
CO00415-1RF	8.5		MS*, GR	0.0
CO03134-4RF/RW	9.5		MS*, SG, GR	0.0
Banana	14.4		MS, GR*	0.0
<b>Southwest</b>				
CO03094-5RF/RW	9.4		MS*, GR	0.0
Banana	12.0		MS, GR*	0.0

<sup>1</sup> Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup> MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup> 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 and Southwest Regional Fingerling Yield Trial entries - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
Advanced							
CO00405-1RF	100	3.0	3.3	5.0	2.0	2.3	1.3
CO00415-1RF	98	3.5	4.0	5.8	2.8	3.0	2.0
CO03134-4RF/RW	100	3.5	3.3	5.6	3.3	2.8	3.0
Banana	100	3.8	3.5	6.2	4.5	3.0	3.0
Southwest							
CO03094-5RF/RW	98	4.8	3.5	6.3	4.0	3.0	2.8
Banana	99	4.0	3.8	4.2	4.8	3.0	3.0
Mean	99	3.8	3.5	5.5	3.5	2.8	2.5
LSD <sup>6</sup> (0.05)	2	0.8	0.7	1.7	1.0	0.4	0.4

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference.

Table 7D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced Fingerling and Southwest Regional Yield Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy (Days) <sup>3</sup>	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
Advanced						
CO00405-1RF	4.9	4.5	4.7	4.1	83	4.5
CO00415-1RF	5.0	5.0	5.0	2.6	97	4.4
CO03134-4RF/RW	---	---	---	6.1	87	---
Banana	5.0	4.9	5.0	3.1	82	4.6
Southwest						
CO03094-5RF/RW	5.0	5.0	5.0	2.1	87	---
Banana	5.0	5.0	5.0	2.2	87	4.8

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh 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 and Southwest Regional Yield Trial entries - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
Advanced					
CO00405-1RF	1.083	2	2	3	4
CO00415-1RF	1.082	2	2	3	4
CO03134-4RF/RW	1.097	3	4	3	4
Banana	1.093	1	2	4	4
Southwest					
CO03094-5RF/RW	1.077	3	4	3	4
Banana	1.097	2	3	4	4

<sup>1</sup>Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup>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 - 2011.

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1				<4 oz	
		Total	%	4-10 oz	>10 oz		
AC00395-2RU	492	450	92	322	128	28	1.73/1.25
AOTX96075-1RU	376	345	92	152	193	17	1.87/1.15
CO03187-1RU	368	295	80	239	57	70	2.13/1.13
CO03202-1RU	434	375	86	255	119	54	2.16/1.23
CO03276-4RU	333	285	85	224	60	46	1.80/1.18
CO03276-5RU	450	328	73	273	55	119	1.90/1.16
Canela Russet	337	315	94	175	140	18	1.86/1.23
Russet Norkotah	394	336	86	236	100	50	2.06/1.20
Mean	398	341	86	235	106	50	1.94/1.19
LSD <sup>2</sup> (0.05)	50	55	6	51	64	17	0.11/0.04

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference.



Table 8B. Grade defects for Southwest Regional Russet Trial entries - 2011.

Clone	% External Defects		% Hollow Heart
	<sup>1</sup>	Defects Observed <sup>2</sup>	
AC00395-2RU	3.0	MS, SG, GC*, GR	1.9
AOTX96075-1RU	3.6	MS*, SG, GR*	3.2
CO03187-1RU	0.9	MS*	0.0
CO03202-1RU	1.3	MS, GR*	0.4
CO03276-4RU	0.7	MS*, GR	1.4
CO03276-5RU	0.9	MS*, GR*	0.0
Canela Russet	1.0	MS*, GR*	0.0
Russet Norkotah	2.1	MS*, GR	2.0

<sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup>MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup>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 - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
AC00395-2RU	99	4.3	3.5	3.4	5.0	3.0	4.0
AOTX96075-1RU	100	2.8	3.5	3.1	3.0	3.0	2.0
CO03187-1RU	98	3.3	3.5	3.4	2.5	2.8	1.0
CO03202-1RU	96	3.0	3.0	2.6	4.0	3.0	3.0
CO03276-4RU	99	3.0	3.3	4.2	3.0	3.0	1.3
CO03276-5RU	100	4.8	3.5	5.4	3.5	3.0	2.0
Canela Russet	97	3.0	2.8	2.3	4.0	3.3	3.0
Russet Norkotah	100	3.3	3.0	3.7	2.3	2.5	1.0
Mean	99	3.4	3.3	3.5	3.4	2.9	2.2
LSD6 (0.05)	3	0.6	0.8	0.8	0.5	0.4	0.3

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference.

Table 8D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Southwest Regional Russet Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			%	Dormancy <sup>3</sup> (Days)	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average	Weight Loss <sup>2</sup>		
AC00395-2RU	5.0	5.0	5.0	2.2	89	4.6
AOTX96075-1RU	4.6	4.4	4.5	2.2	111	1.8
CO03187-1RU	4.9	4.8	4.9	2.8	68	4.4
CO03202-1RU	4.8	4.1	4.5	2.8	106	4.6
CO03276-4RU	4.9	4.1	4.5	1.9	85	2.4
CO03276-5RU	4.8	4.3	4.6	2.0	97	3.0
Canela Russet	5.0	3.9	4.5	3.1	152	4.0
Russet Norkotah	5.0	4.8	4.9	2.5	98	3.4

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh 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 - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
AC00395-2RU	1.108	2	3	3	3
AOTX96075-1RU	1.085	2	2	3	3
CO03187-1RU	1.086	1	2	3	4
CO03202-1RU	1.092	2	2	3	3
CO03276-4RU	1.091	0	1	3	4
CO03276-5RU	1.088	1	3	3	3
Canela Russet	1.111	2	4	5	4
Russet Norkotah	1.082	2	3	3	3

<sup>1</sup>Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup>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 - 2011.

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1				<4 oz	
		Total	%	4-10 oz	>10 oz		
COTX02172-1R	448	343	77	275	69	94	1.24/1.18
NDTX5438-11R	413	356	87	262	94	49	1.13/1.18
Norland (Dark Red)	424	358	84	274	84	57	1.18/1.28
Red LaSoda	595	486	82	259	227	38	1.10/1.24
Sangre-S10	646	569	88	298	271	53	1.22/1.23
Mean	505	422	83	274	149	58	1.17/1.22
LSD <sup>2</sup> (0.05)	77	71	7	49	78	29	0.10/0.05

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference.

Table 9B. Grade defects for Southwest Regional Red Trial entries - 2011.

Clone	% External Defects <sup>1</sup>	External Defects Observed <sup>2</sup>	% Hollow Heart <sup>3</sup>
COTX02172-1R	2.2	MS, SG, GR*	0.0
NDTX5438-11R	1.8	MS, GC, GR*	0.3
Norland (Dark Red)	2.3	MS*, GC*, GR	0.0
Red LaSoda	12.2	MS, SG, GC*, GR	18.9
Sangre-S10	3.5	MS, SG, GC, GR*	2.3

<sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup>MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup>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 - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
COTX02172-1R	81	3.0	3.0	6.1	2.8	2.3	2.0
NDTX5438-11R	90	3.0	2.8	3.3	3.0	3.0	2.3
Norland (Dark Red)	98	4.0	3.0	5.1	1.8	1.8	1.0
Red LaSoda	100	4.3	3.3	3.3	4.0	3.0	2.3
Sangre-S10	100	3.5	3.0	3.8	4.8	3.3	3.0
Mean	94	3.6	3.0	4.3	3.3	2.7	2.1
LSD6 (0.05)	7	0.7	0.5	0.9	0.8	0.5	0.4

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference.

Table 9D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Southwest Regional Red Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy <sup>3</sup> (Days)	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
COTX02172-1R	4.8	5.0	4.9	4.5	86	3.4
NDTX5438-11R	4.5	4.5	4.5	4.1	88	2.4
Norland (Dark Red)	5.0	5.0	5.0	4.4	70	2.8
Red LaSoda	4.6	4.7	4.7	2.6	85	1.2
Sangre-S10	3.4	4.2	3.8	2.3	87	3.0

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh 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 - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
COTX02172-1R	1.067	4	3	2	2
NDTX5438-11R	1.074	4	4	1	1
Norland (Dark Red)	1.073	1	3	2	2
Red LaSoda	1.082	2	3	3	2
Sangre-S10	1.090	3	4	3	2

<sup>1</sup>Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup>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 - 2011.

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1				<4 oz	
		Total	%	4-10 oz	>10 oz		
ATTX88654-2P/Y	610	542	89	252	290	40	0.95/1.44
ATTX01180-1R/Y	407	301	74	243	57	100	1.28/1.17
CO03027-2R/R	360	241	67	226	15	116	1.22/1.14
CO04013-1W/Y	474	209	44	205	4	265	1.04/1.28
CO04021-2R/Y	584	528	90	337	191	48	1.33/1.27
CO04045-4P/P	400	248	62	233	15	152	1.17/1.12
CO04117-5PW/Y	257	123	45	123	0	131	1.28/1.16
TX1674-1W/Y	251	206	82	114	92	37	1.48/1.26
Purple Majesty	499	291	58	263	28	208	1.50/1.22
Yukon Gold	411	368	90	216	151	33	1.21/1.23
Mean	425	306	70	221	84	113	1.25/1.23
LSD <sup>2</sup> (0.05)	65	61	9	54	48	27	0.08/0.08

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference.

Table 10B. Grade defects for Southwest Regional Specialty Trial entries - 2011.

Clone	% External Defects <sup>1</sup>	External Defects Observed <sup>2</sup>	% Hollow Heart <sup>3</sup>
ATTX88654-2P/Y	4.6	MS, GC, GR*	24.2
ATTX01180-1R/Y	1.6	MS, GC, GR*	0.0
CO03027-2R/R	1.7	GC*	0.0
CO04013-1W/Y	0.2	MS*	0.2
CO04021-2R/Y	1.4	MS, GC, GR*	0.6
CO04045-4P/P	0.0		0.0
CO04117-5PW/Y	1.5	MS*, GR	0.0
TX1674-1W/Y	3.4	MS*, GR*	0.0
Purple Majesty	0.2	MS*	0.2
Yukon Gold	2.4	MS, GC, GR*	1.7

<sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup>MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup>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 - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
ATTX88654-2P/Y	97	4.8	3.8	4.4	4.3	3.0	3.3
ATTX01180-1R/Y	77	3.3	2.8	4.0	3.0	2.8	2.0
CO03027-2R/R	99	2.8	3.3	3.9	4.0	2.8	3.3
CO04013-1W/Y	100	3.8	3.3	8.2	4.8	3.3	3.0
CO04021-2R/Y	98	4.8	3.0	4.5	5.0	3.3	3.3
CO04045-4P/P	99	3.0	3.0	4.0	2.8	2.5	2.5
CO04117-5PW/Y	91	2.5	3.0	5.5	2.5	2.3	2.0
TX1674-1W/Y	69	3.0	2.5	2.9	2.5	3.0	3.0
Purple Majesty	99	4.5	3.5	4.6	3.3	3.0	2.0
Yukon Gold	96	4.3	3.5	2.8	3.5	3.3	2.0
Mean	93	3.7	3.1	4.5	3.6	2.9	2.6
LSD6 (0.05)	8	0.7	0.6	1.0	0.6	0.6	0.5

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference.

Table 10D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Southwest Regional Specialty Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			%	Dormancy <sup>3</sup> (Days)	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average	Weight Loss <sup>2</sup>		
ATTX88654-2P/Y	5.0	5.0	5.0	4.3	103	3.4
ATTX01180-1R/Y	3.2	4.6	3.9	4.2	97	3.6
CO03027-2R/R	---	---	---	3.4	111	---
CO04013-1W/Y	4.5	3.8	4.2	5.6	63	2.4
CO04021-2R/Y	4.7	4.5	4.6	4.5	82	3.8
CO04045-4P/P	---	---	---	4.1	84	---
CO04117-5PW/Y	4.9	4.9	4.9	1.8	54	4.4
TX1674-1W/Y	4.4	4.1	4.3	3.0	96	3.4
Purple Majesty	---	---	---	2.3	68	---
Yukon Gold	5.0	5.0	5.0	1.8	89	4.4

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh 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 - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
ATTX88654-2P/Y	1.082	2	3	3	2
ATTX01180-1R/Y	1.082	2	4	3	2
CO03027-2R/R	1.085	---	---	1	2
CO04013-1W/Y	1.108	1	2	4	3
CO04021-2R/Y	1.088	2	2	3	3
CO04045-4P/P	1.074	---	---	1	2
CO04117-5PW/Y	1.071	3	3	2	2
TX1674-1W/Y	1.090	2	2	3	3
Purple Majesty	1.086	---	---	2	3
Yukon Gold	1.087	2	2	3	4

<sup>1</sup>Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup>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 Chipping Trial entries - 2011.

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1			<4 oz		
		Total	%	4-10 oz			
AC03433-1W	435	362	82	269	93	41	0.97/1.21
CO03243-3W	482	423	88	311	113	46	1.05/1.13
Atlantic	459	396	86	287	110	56	1.06/1.20
Chipeta	522	448	86	253	195	39	1.21/1.10
Mean	474	407	86	280	128	45	1.07/1.16
LSD <sup>2</sup> (0.05)	NS	NS	NS	NS	82	20	0.06/0.05

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference; NS=not significant.

Table 11B. Grade defects for Southwestern Regional Chipping Trial entries - 2011.

Clone	% External Defects <sup>1</sup>	External Defects Observed <sup>2</sup>	% Hollow <sup>3</sup> Heart
AC03433-1W	7.9	MS, GC*, GR	0.0
CO03243-3W	2.8	GC*, GR	0.3
Atlantic	1.2	GR*	2.2
Chipeta	6.8	MS, SG, GC*, GR*	0.3

<sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup>MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup>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 Chip Trial entries - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
AC03433-1W	96	4.3	3.0	4.6	4.0	3.0	3.3
CO03243-3W	99	5.0	4.3	2.9	4.3	3.0	3.3
Atlantic	98	4.5	4.3	3.5	3.8	3.0	3.0
Chipeta	99	5.0	4.3	4.1	4.3	3.0	3.0
Mean	98	4.7	3.9	3.8	4.1	3.0	3.1
LSD <sup>6</sup> (0.05)	3	0.7	0.7	1.9	0.9	NS	NS

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference; NS=not significant.

Table 11D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Soutwestern Regional Chip Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy <sup>3</sup> (Days)	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
AC03433-1W	4.9	4.7	4.8	4.3	75	4.6
CO03243-3W	4.5	3.7	4.1	3.3	84	2.8
Atlantic	3.3	3.5	3.4	3.9	82	4.6
Chipeta	4.0	4.5	4.3	2.9	99	3.6

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 11E. Chip color<sup>1</sup> after various storage regimes and specific gravity of Southwestern Regional Chip Trial entries - 2011.

Clone	Specific Gravity	6 wks 40F	6 wks/40F +3 wks/60F	6 wks 50F	6 wks/50F +3 wks/60F
AC03433-1W	1.090	3.5	3.5	1.5	2.0
CO03243-3W	1.093	3.5	2.5	2.0	1.0
Atlantic	1.101	4.5	3.5	3.5	2.5
Chipeta	1.089	5.0	4.0	3.5	1.5

<sup>1</sup>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 - 2011.

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1			<4 oz		
		Total	%	4-10 oz			
A98345-1	487	450	92	274	176	27	1.51/1.14
A00324-1	402	333	83	194	139	41	1.91/1.21
A01010-1	427	379	89	205	175	27	1.68/1.15
A01025-4	481	421	88	171	249	22	1.94/1.11
A02060-3TE	394	348	88	162	185	26	1.91/1.12
AC99375-1RU	503	431	86	318	113	55	1.64/1.18
AOTX96265-2RU	387	341	88	132	210	19	1.49/1.22
CO99053-3RU	454	385	85	137	248	29	1.80/1.28
CO99053-4RU	338	289	85	214	75	40	1.93/1.18
CO99100-1RU	308	271	88	191	80	30	1.90/1.19
Canela Russet	316	295	93	181	114	19	1.78/1.26
Ranger Russet	454	402	89	244	158	37	1.98/1.24
Russet Burbank	455	378	83	255	123	59	1.82/1.29
Russet Norkotah	326	271	83	206	66	44	1.91/1.22
Mean	409	356	87	206	151	34	1.80/1.20
LSD <sup>2</sup> (0.05)	62	63	5	48	63	13	0.13/0.06

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference.

Table 12B. Grade defects for Western Regional Main Trial entries - 2011.

Clone	% External Defects <sup>1</sup>	External Defects Observed <sup>2</sup>	% Hollow Heart <sup>3</sup>
A98345-1	2.3	MS*, GC*	0.0
A00324-1	6.9	MS*, GC	0.0
A01010-1	5.1	MS*, GC	0.0
A01025-4	7.7	MS*, SG, GC, GR	0.0
A02060-3TE	5.5	MS, GC, GR*	2.3
AC99375-1RU	3.5	MS*, GC, GR	0.2
AOTX96265-2RU	7.2	MS*, SG, GC, GR	4.9
CO99053-3RU	8.9	MS*, GC, GR	1.1
CO99053-4RU	2.8	MS*, GC, GR	0.0
CO99100-1RU	2.5	MS*, GC, GR	0.7
Canela Russet	0.7	MS*	0.0
Ranger Russet	3.4	MS*, GR	0.0
Russet Burbank	4.5	MS, SG*, GR	1.0
Russet Norkotah	3.5	MS*, GR	0.0

<sup>1</sup> Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup> MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup> 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 - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
A98345-1	97	4.5	3.5	3.2	4.5	2.8	3.0
A00324-1	100	3.5	3.0	4.2	3.8	3.0	2.5
A01010-1	99	3.8	3.8	3.0	4.0	3.0	3.3
A01025-4	97	4.3	3.5	4.2	3.0	2.8	2.3
A02060-3TE	99	3.3	3.3	3.5	5.0	3.0	3.0
AC99375-1RU	97	4.8	3.5	3.0	5.0	3.0	3.0
AOTX96265-2RU	99	4.5	3.5	4.1	4.3	3.0	2.8
CO99053-3RU	99	3.3	3.3	3.7	4.0	3.0	3.0
CO99053-4RU	98	3.3	3.3	3.5	3.0	3.0	2.0
CO99100-1RU	100	3.0	3.3	2.5	2.5	2.3	1.3
Canela Russet	98	2.5	3.0	2.4	4.5	3.0	3.0
Ranger Russet	99	3.0	3.3	3.4	4.0	3.3	3.0
Russet Burbank	99	4.3	3.5	3.6	4.0	3.0	2.5
Russet Norkotah	99	3.0	3.0	3.7	2.8	2.5	1.3
Mean	99	3.6	3.3	3.4	3.9	2.9	2.6
LSD <sup>6</sup> (0.05)	3	0.6	0.7	1.0	0.6	0.5	0.5

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference.

Table 12D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Western Regional Main Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy (Days) <sup>3</sup>	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
A98345-1	5.0	4.0	4.5	3.9	63	1.8
A00324-1	4.9	4.4	4.7	2.9	72	3.0
A01010-1	4.9	5.0	5.0	2.9	82	4.4
A01025-4	4.4	3.0	3.7	4.7	85	3.2
A02060-3TE	4.4	4.2	4.3	2.6	76	3.2
AC99375-1RU	4.0	4.5	4.3	1.7	87	1.8
AOTX96265-2RU	5.0	4.3	4.7	2.8	85	1.6
CO99053-3RU	4.7	4.7	4.7	2.0	85	3.8
CO99053-4RU	4.9	5.0	5.0	3.0	74	4.6
CO99100-1RU	4.8	4.8	4.8	2.8	72	3.6
Canela Russet	4.9	4.0	4.5	4.0	147	4.4
Ranger Russet	4.8	3.4	4.1	2.2	75	2.0
Russet Burbank	4.9	4.4	4.7	1.7	133	2.6
Russet Norkotah	5.0	5.0	5.0	2.2	97	3.8

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh 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 - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
A98345-1	1.095	1	2	3	4
A00324-1	1.086	3	3	3	3
A01010-1	1.083	1	2	4	4
A01025-4	1.090	1	1	4	4
A02060-3TE	1.100	1	2	3	4
AC99375-1RU	1.102	0	1	4	4
AOTX96265-2RU	1.097	1	1	3	4
CO99053-3RU	1.089	2	2	3	3
CO99053-4RU	1.093	2	2	4	4
CO99100-1RU	1.088	0	1	4	4
Canela Russet	1.106	2	3	5	4
Ranger Russet	1.102	1	3	4	3
Russet Burbank	1.094	2	2	3	3
Russet Norkotah	1.082	2	2	2	2

<sup>1</sup>Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup>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 - 2011.

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1			<4 oz		
		Total	%	4-10 oz			
ATTX98453-6R	424	372	87	228	143	43	1.13/1.23
ATTX01178-1R	593	517	87	222	295	36	1.03/1.14
CO99076-6R	421	340	81	240	101	71	1.02/1.13
CO99256-2R	567	432	76	370	61	131	1.21/1.13
CO00277-2R	480	391	81	309	82	86	1.02/1.22
CO00291-5R	357	286	80	239	48	67	1.11/1.15
CO04159-1R	372	260	70	239	21	108	1.03/1.27
CO04223-6R	443	345	78	294	52	90	1.06/1.18
CO04287-1R	404	300	74	279	22	97	1.06/1.17
Norland (Dark Red)	475	393	83	307	87	68	1.20/1.28
Red LaSoda	654	520	80	235	285	39	1.10/1.28
Sangre-S10	583	512	88	280	231	50	1.20/1.19
Mean	481	389	80	270	119	74	1.10/1.20
LSD <sup>2</sup> (0.05)	76	73	5	62	62	15	0.07/0.06

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference.

Table 13B. Grade defects for Advanced and Western Regional Red Trial entries - 2011.

Clone	% External Defects <sup>1</sup>	External Defects Observed <sup>2</sup>	% Hollow <sup>3</sup> Heart
ATTX98453-6R	2.2	MS, SG, GR*	0.0
ATTX01178-1R	7.0	MS, SG, GC, GR*	3.5
CO99076-6R	2.6	MS, GC*	0.0
CO99256-2R	0.7	GR*	0.0
CO00277-2R	0.7	GR*	0.8
CO00291-5R	1.0	GC, GR*	0.0
CO04159-1R	1.4	MS*, GC*, GR	2.0
CO04223-6R	1.8	MS*, GC*, GR*	1.5
CO04287-1R	1.7	MS, GC*, GR	0.0
Norland (Dark Red)	2.8	MS*, GC, GR*	0.5
Red LaSoda	12.4	MS, SG, GC*, GR	17.8
Sangre-S10	3.7	MS, GC, GR*	1.6

<sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup>MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup>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 - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
ATX98453-6R	96	3.3	3.5	3.1	3.0	2.5	2.0
ATX01178-1R	91	3.5	3.0	2.7	3.8	3.0	3.0
CO99076-6R	92	4.3	3.8	4.2	3.3	2.5	1.8
CO99256-2R	99	4.0	3.3	4.8	5.0	3.0	3.0
CO00277-2R	100	3.8	3.0	5.1	3.0	2.0	1.8
CO00291-5R	96	2.8	2.8	3.1	5.0	3.3	3.3
CO04159-1R	98	3.3	3.3	3.4	3.3	2.8	2.0
CO04223-6R	99	3.0	3.0	4.6	2.8	2.3	2.8
CO04287-1R	97	3.3	3.3	4.7	3.3	3.0	2.0
Norland (Dark Red)	99	4.3	3.3	4.4	2.0	1.8	1.0
Red LaSoda	99	4.3	3.8	3.2	4.0	3.0	2.8
Sangre-S10	98	3.5	3.0	3.2	4.8	3.0	3.3
Mean	97	3.6	3.2	3.9	3.6	2.7	2.4
LSD <sup>6</sup> (0.05)	5	0.6	0.7	0.9	0.5	0.5	0.5

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference.

Table 13D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Red Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy (Days) <sup>3</sup>	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
ATTX98453-6R	5.0	5.0	5.0	4.9	111	4.0
ATTX01178-1R	5.0	4.7	4.9	3.5	87	3.6
CO99076-6R	5.0	4.3	4.7	6.7	74	1.4
CO99256-2R	4.6	4.6	4.6	5.4	89	3.4
CO00277-2R	4.6	4.7	4.7	4.4	71	4.2
CO00291-5R	4.7	4.6	4.7	7.7	76	2.4
CO04159-1R	4.9	4.5	4.7	4.1	103	1.2
CO04223-6R	4.2	3.5	3.9	5.1	78	1.4
CO04287-1R	4.5	4.2	4.4	5.5	82	1.8
Norland (Dark Red)	4.5	4.4	4.5	4.0	63	3.6
Red LaSoda	5.0	5.0	5.0	3.4	87	1.4
Sangre-S10	4.8	4.9	4.9	2.0	86	2.6

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh 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 - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
ATTX98453-6R	1.076	3	3	2	2
ATTX01178-1R	1.074	3	4	2	2
CO99076-6R	1.090	2	3	2	2
CO99256-2R	1.098	1	2	3	3
CO00277-2R	1.084	3	4	3	3
CO00291-5R	1.087	3	3	3	2
CO04159-1R	1.084	4	4	2	2
CO04223-6R	1.085	1	3	3	2
CO04287-1R	1.084	2	3	3	3
Norland (Dark Red)	1.074	1	2	2	2
Red LaSoda	1.087	2	3	3	2
Sangre-S10	1.085	3	4	2	2

<sup>1</sup>Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup>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 - 2011

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1				<4 oz	
		Total	%	4-10 oz	>10 oz		
A99331-2RY	376	234	62	229	5	137	1.06/1.25
A99433-5Y	458	359	79	302	58	87	1.17/1.21
AC99329-7PW/Y	452	381	84	284	97	62	1.06/1.23
AC99330-1P/Y	441	288	65	256	32	153	1.12/1.17
AC03534-2R/Y	461	361	78	314	48	99	1.10/1.20
ATC00293 -1W/Y	403	338	83	277	61	46	1.18/1.19
ATTX98510-1R/Y	446	360	81	322	38	86	1.02/1.30
CO99045-1W/Y	501	414	83	248	166	61	1.69/1.21
CO00412-5W/Y	367	266	73	239	27	98	1.22/1.37
CO01399-10P/Y	539	424	79	329	96	112	1.10/1.27
CO04029-3RW/Y	203	58	28	55	3	144	1.19/1.07
CO04029-5W/Y	465	205	42	196	8	258	1.03/1.16
CO04056-3P/PW	281	65	23	65	0	216	1.36/1.18
CO04056-7P/PW	316	80	25	80	0	235	1.26/1.27
CO04058-3RW/RW	329	149	45	147	2	180	1.41/1.23
CO04063-4R/R	279	60	21	58	2	218	1.32/1.11
CO04067-8R/Y	394	244	62	234	11	135	1.15/1.19
CO04067-10W/Y	346	200	57	194	6	145	1.09/1.18
CO04099-3W/Y	336	171	51	169	2	160	1.14/1.26
CO04099-4W/Y	249	146	52	133	13	102	1.11/1.25
CO04188-4R/Y	520	298	57	264	34	222	1.00/1.27
COTX01403-4R/Y	454	391	86	260	131	40	1.25/1.23
TC02072-3P/P	280	30	11	30	0	250	1.84/1.11
Purple Majesty	376	168	43	155	13	209	1.31/1.22
Yukon Gold	338	295	87	214	81	40	1.24/1.26
Mean	384	239	58	202	37	140	1.22/1.22
LSD <sup>2</sup> (0.05)	84	76	10	62	35	28	0.08/0.06

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference.

Table 14B. Grade defects for Advanced and Western Regional Specialty Trial entries - 2011.

Clone	% External Defects <sup>1</sup>	External Defects Observed <sup>2</sup>	% Hollow Heart <sup>3</sup>
A99331-2RY	1.5	SG, GR*	0.0
A99433-5Y	2.4	MS, GC*, GR	0.0
AC99329-7PW/Y	2.0	MS, GR*	0.7
AC99330-1P/Y	0.0		0.0
AC03534-2R/Y	0.4	GR*	0.0
ATC00293 -1W/Y	5.0	MS, GC, GR*	1.1
ATTX98510-1R/Y	0.2	MS*, GR*	2.9
CO99045-1W/Y	5.0	MS, SG, GR*	0.8
CO00412-5W/Y	1.0	MS*, GR*	0.0
CO01399-10P/Y	0.4	MS*, GC*	0.0
CO04029-3RW/Y	0.7	GC*	0.0
CO04029-5W/Y	0.7	GR*	0.0
CO04056-3P/PW	0.0		0.0
CO04056-7P/PW	0.5	MS*	0.0
CO04058-3RW/RW	0.2	MS*	0.3
CO04063-4R/R	0.6	MS*	0.0
CO04067-8R/Y	3.9	GC*	0.0
CO04067-10W/Y	0.6	GC, GR*	0.0
CO04099-3W/Y	1.1	MS, GC*, GR	0.0
CO04099-4W/Y	0.7	MS, GR*	0.0
CO04188-4R/Y	0.1	GR*	0.0
COTX01403-4R/Y	5.2	MS*, GC, GR	4.7
TC02072-3P/P	0.0		0.0
Purple Majesty	0.0		0.5
Yukon Gold	1.2	MS*, GC*, GR*	0.0

<sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup>MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup>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 - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine Size <sup>3</sup>	Vine Type <sup>4</sup>	Vine Maturity <sup>5</sup>
A99331-2RY	98	2.8	3.0	6.4	3.8	3.0	2.8
A99433-5Y	96	4.3	3.5	4.1	5.0	3.0	3.5
AC99329-7PW/Y	98	4.3	3.8	4.8	4.8	3.0	3.3
AC99330-1P/Y	96	3.5	3.3	4.5	3.0	2.3	3.0
AC03534-2R/Y	93	2.8	3.8	4.3	3.5	3.0	3.0
ATC00293 -1W/Y	98	2.0	2.5	3.8	4.8	3.5	3.0
ATTX98510-1R/Y	99	4.3	3.3	5.5	4.8	3.0	2.0
CO99045-1W/Y	100	3.8	3.0	4.2	4.8	3.0	3.3
CO00412-5W/Y	98	3.5	3.0	5.3	3.8	3.0	2.5
CO01399-10P/Y	98	3.3	2.5	3.4	4.5	3.3	3.8
CO04029-3RW/Y	95	2.0	2.8	6.4	1.8	2.0	1.0
CO04029-5W/Y	99	3.8	3.5	7.8	3.8	3.0	2.8
CO04056-3P/PW	99	2.3	3.3	5.6	3.8	3.0	2.0
CO04056-7P/PW	97	3.5	3.0	6.7	3.0	2.3	2.0
CO04058-3RW/RW	100	2.5	3.0	5.0	4.5	3.3	3.3
CO04063-4R/R	100	1.8	3.3	7.0	2.5	2.8	2.3
CO04067-8R/Y	99	3.0	3.3	6.6	4.0	3.0	2.3
CO04067-10W/Y	96	2.5	2.5	7.5	4.0	3.3	2.8
CO04099-3W/Y	98	3.3	3.0	5.7	3.8	2.8	1.8
CO04099-4W/Y	98	3.0	3.3	5.7	4.3	3.3	2.8
CO04188-4R/Y	98	4.3	3.8	5.5	4.0	3.0	2.3
COTX01403-4R/Y	98	3.3	3.3	5.3	3.0	3.0	2.3
TC02072-3P/P	92	2.3	2.5	8.3	3.0	3.0	1.3
Purple Majesty	98	3.5	3.3	5.7	3.0	3.0	1.8
Yukon Gold	97	3.5	3.0	2.5	3.8	3.0	2.0
Mean	98	3.1	3.1	5.5	3.8	2.9	2.5
LSD <sup>6</sup> (0.05)	4	1.1	0.7	1.4	0.7	0.6	0.6

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference.



Table 14D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Specialty Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy (Days) <sup>3</sup>	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
A99331-2RY	5.0	5.0	5.0	3.3	64	2.8
A99433-5Y	4.9	4.1	4.5	2.2	98	5.0
AC99329-7PW/Y	5.0	5.0	5.0	3.5	40	4.0
AC99330-1P/Y	5.0	5.0	5.0	2.1	63	2.2
AC03534-2R/Y	4.9	4.7	4.8	2.9	111	4.2
ATC00293 -1W/Y	4.9	5.0	5.0	1.6	111	4.2
ATTX98510-1R/Y	5.0	3.9	4.5	2.6	69	1.2
CO99045-1W/Y	5.0	5.0	5.0	3.0	82	3.8
CO00412-5W/Y	4.8	4.4	4.6	2.3	86	3.2
CO01399-10P/Y	5.0	5.0	5.0	2.3	83	3.4
CO04029-3RW/Y	4.8	5.0	4.9	4.8	62	1.8
CO04029-5W/Y	4.0	4.7	4.4	3.2	40	2.4
CO04056-3P/PW	---	---	---	2.6	82	---
CO04056-7P/PW	---	---	---	5.1	55	---
CO04058-3RW/RW	---	---	---	2.3	49	---
CO04063-4R/R	---	---	---	4.9	65	---
CO04067-8R/Y	4.3	3.0	3.7	1.5	64	3.6
CO04067-10W/Y	4.6	4.1	4.4	3.6	66	3.6
CO04099-3W/Y	4.1	4.0	4.1	1.8	63	2.8
CO04099-4W/Y	4.7	4.2	4.5	1.7	50	4.4
CO04188-4R/Y	4.2	4.4	4.3	3.6	86	2.8
COTX01403-4R/Y	4.8	4.5	4.7	2.8	72	4.8
TC02072-3P/P	---	---	---	7.3	78	---
Purple Majesty	---	---	---	2.0	68	---
Yukon Gold	5.0	5.0	5.0	1.4	96	4.4

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh 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 - 2011.

Clone	Specific Gravity	Fry Color <sup>1</sup>		Fry Texture <sup>2</sup>	
		At Harvest	4 wks 55F+ 9 wks 45F	At Harvest	4 wks 55F+ 9 wks 45F
A99331-2RY	1.090	2	3	2	3
A99433-5Y	1.102	1	1	3	4
AC99329-7PW/Y	1.096	3	3	4	4
AC99330-1P/Y	1.084	2	3	3	3
AC03534-2R/Y	1.076	2	4	3	3
ATC00293 -1W/Y	1.087	1	1	2	3
ATTX98510-1R/Y	1.090	2	3	3	3
CO99045-1W/Y	1.094	3	2	4	4
CO00412-5W/Y	1.097	2	2	3	3
CO01399-10P/Y	1.082	0	2	3	3
CO04029-3RW/Y	1.078	3	3	1	1
CO04029-5W/Y	1.084	1	3	2	2
CO04056-3P/PW	1.094	---	---	3	3
CO04056-7P/PW	1.083	1	2	2	2
CO04058-3RW/RW	1.097	1	2	4	3
CO04063-4R/R	1.073	---	---	3	3
CO04067-8R/Y	1.084	1	1	3	3
CO04067-10W/Y	1.092	1	0	2	3
CO04099-3W/Y	1.095	1	0	3	3
CO04099-4W/Y	1.104	1	1	5	5
CO04188-4R/Y	1.090	2	3	2	2
COTX01403-4R/Y	1.074	2	3	2	2
TC02072-3P/P	1.090	---	---	3	3
Purple Majesty	1.090	---	---	3	3
Yukon Gold	1.093	2	3	3	4

<sup>1</sup>Fry color was rated on a 0 to 4 scale, with 0 being the lightest or best color. Color ratings of  $\leq 2$  are acceptable.

<sup>2</sup>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 - 2011.

Clone	Yield (Cwt/A)						Tuber Shape <sup>1</sup> L:W/W:T
	Total	US #1			<4 oz		
		Total	%	4-10 oz			
A01143-3C	400	312	77	265	48	73	1.07/1.21
AC00180-2W	313	172	54	166	6	135	1.05/1.29
AC00206-2W	313	237	76	220	17	69	0.98/1.14
AC01151-5W	421	344	81	289	55	72	1.01/1.23
AC03452-2W	436	385	88	325	60	46	1.02/1.21
AC05153-1W	336	249	73	228	22	76	1.06/1.25
CO00188-4W	368	306	84	261	45	45	1.08/1.27
CO00197-3W	354	269	76	241	29	81	1.09/1.32
CO00270-7W	337	288	86	232	56	33	1.08/1.13
CO02024-9W	343	295	86	243	52	46	1.06/1.26
CO02033-1W	368	330	89	283	46	36	1.11/1.33
CO02321-4W	357	305	84	236	69	43	1.07/1.18
CO05061-2P	305	238	78	187	51	64	1.06/1.23
CO05061-6W	336	285	85	262	23	49	0.94/1.22
CO05061-7W	310	238	77	213	25	68	1.11/1.17
Atlantic	387	334	86	233	101	34	1.08/1.23
Chipeta	431	355	82	194	161	28	1.28/1.18
Mean	360	291	80	240	51	59	1.07/1.23
LSD <sup>2</sup> (0.05)	73	79	9	63	53	19	0.06/0.06

<sup>1</sup>L=length, W=width, T=thickness. For L:W <1.00=compressed; 1.00-1.10=round; 1.11-1.70=oval; 1.71-2.20=oblong; 2.21-2.50=long; >2.50=very long. For W:T, the larger the value, the flatter the tuber.

<sup>2</sup>LSD=least significant difference.

Table 15B. Grade defects for Advanced and Western Regional Chipping Trial entries - 2011.

Clone	% External Defects <sup>1</sup>	External Defects Observed <sup>2</sup>	% Hollow Heart <sup>3</sup>
A01143-3C	3.5	MS, SG, GC*, GR	0.0
AC00180-2W	1.7	MS, GR*	0.0
AC00206-2W	2.1	MS, GC*, GR	0.0
AC01151-5W	1.2	MS, GR*	0.0
AC03452-2W	1.2	MS, GR*	0.0
AC05153-1W	3.6	MS, GC, GR*	0.3
CO00188-4W	4.1	MS, GC*, GR	0.0
CO00197-3W	1.3	MS*M GC*, GR*	0.0
CO00270-7W	4.8	MS, GR*	0.0
CO02024-9W	0.7	GR*	0.0
CO02033-1W	0.7	MS, GR*	2.1
CO02321-4W	2.6	GC, GR*	0.0
CO05061-2P	1.0	MS*, GC*	0.0
CO05061-6W	0.5	GC*, GR	0.0
CO05061-7W	1.3	MS, GC, GR*	0.6
Atlantic	4.7	MS, GC*, GR	4.4
Chipeta	11.1	MS, SG, GC*, GR	0.0

<sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.

<sup>2</sup>MS=misshapen; SG=second growth; GC=growth crack; GR=green. Most prevalent defects for each clone are asterisked.

<sup>3</sup>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 Chip Trial entries - 2011.

Clone	% Stand	Emergence Uniformity <sup>1</sup>	Vine Vigor <sup>2</sup>	Stems/ Plant	Vine <sup>3</sup> Size	Vine <sup>4</sup> Type	Vine Maturity <sup>5</sup>
A01143-3C	99	4.0	3.8	5.8	3.3	2.8	3.0
AC00180-2W	97	2.8	3.3	7.0	2.3	2.5	1.0
AC00206-2W	94	2.8	3.3	2.9	2.0	2.8	2.3
AC01151-5W	98	3.0	3.3	4.8	3.5	3.0	3.0
AC03452-2W	98	3.8	3.3	4.4	3.5	3.0	3.0
AC05153-1W	97	3.0	3.3	5.7	2.0	3.0	1.0
CO00188-4W	98	3.0	3.5	4.3	2.8	3.0	2.0
CO00197-3W	96	3.5	2.8	3.7	2.5	2.8	1.5
CO00270-7W	98	3.5	3.0	3.6	2.8	2.5	2.0
CO02024-9W	97	3.3	3.3	3.7	2.8	3.0	3.0
CO02033-1W	100	3.5	3.5	4.7	3.0	2.8	2.0
CO02321-4W	97	3.8	3.5	3.4	3.3	3.3	2.5
CO05061-2P	97	3.0	3.3	4.4	3.0	2.5	1.8
CO05061-6W	100	3.0	3.5	2.9	2.5	3.3	2.0
CO05061-7W	97	3.0	3.5	4.4	1.3	2.0	1.0
Atlantic	97	3.5	3.3	4.1	3.3	3.0	3.0
Chipeta	99	4.3	3.5	3.3	4.8	3.0	3.0
Mean	98	3.3	3.3	4.3	2.8	2.8	2.2
LSD <sup>6</sup> (0.05)	4	0.7	0.8	1.4	0.7	0.5	0.4

<sup>1</sup>Emergence uniformity is rated on a 1 to 5 scale, with 5 indicating very uniform emergence.

<sup>2</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.

<sup>3</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.

<sup>4</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.

<sup>5</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.

<sup>6</sup>LSD=least significant difference.

Table 15D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Chip Trial entries - 2011.

Clone	Blackspot Index <sup>1</sup>			% Weight Loss <sup>2</sup>	Dormancy (Days) <sup>3</sup>	Enzymatic Browning <sup>4</sup>
	Bud End	Stem End	Average			
A01143-3C	4.6	4.2	4.4	2.5	76	1.8
AC00180-2W	4.7	4.4	4.6	5.4	85	3.8
AC00206-2W	4.9	4.7	4.8	3.2	96	3.4
AC01151-5W	4.2	2.8	3.5	1.9	103	1.2
AC03452-2W	5.0	5.0	5.0	1.4	79	4.8
AC05153-1W	4.9	3.8	4.4	4.4	96	3.8
CO00188-4W	4.5	3.5	4.0	4.3	89	4.2
CO00197-3W	4.2	3.4	3.8	2.0	88	2.4
CO00270-7W	4.2	4.2	4.2	2.0	68	2.8
CO02024-9W	4.1	2.5	3.3	3.0	89	3.6
CO02033-1W	3.8	3.3	3.6	3.1	103	2.4
CO02321-4W	4.6	3.4	4.0	3.0	75	3.6
CO05061-2P	4.8	3.7	4.3	2.9	67	2.6
CO05061-6W	4.1	3.1	3.6	2.6	85	3.2
CO05061-7W	4.2	3.4	3.8	4.6	47	3.0
Atlantic	4.0	3.8	3.9	3.4	83	4.4
Chipeta	4.6	4.6	4.6	1.9	106	3.6

<sup>1</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.

<sup>2</sup>Tubers were stored at 45F for 91 days.

<sup>3</sup>Days from harvest to first visible growth. Tubers were stored at 45F.

<sup>4</sup>Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.

Table 15E. Chip color<sup>1</sup> after various storage regimes and specific gravity of Advanced and Western Regional Chip Trial entries - 2011.

Clone	Specific Gravity	6 wks 40F	6 wks/40F +3 wks/60F	6 wks 50F	6 wks/50F +3 wks/60F
A01143-3C	1.100	3.5	2.5	2.5	1.0
AC00180-2W	1.090	4.0	4.0	1.5	2.0
AC00206-2W	1.091	2.5	2.5	1.5	1.5
AC01151-5W	1.103	4.0	4.0	2.0	2.0
AC03452-2W	1.086	3.0	4.0	1.0	1.5
AC05153-1W	1.089	4.5	3.5	1.5	1.5
CO00188-4W	1.098	3.5	3.5	2.5	1.5
CO00197-3W	1.095	4.0	4.0	2.0	1.0
CO00270-7W	1.091	3.5	3.5	2.5	2.0
CO02024-9W	1.095	3.5	1.5	1.5	1.5
CO02033-1W	1.106	3.0	1.5	2.0	2.0
CO02321-4W	1.109	4.0	3.0	2.5	1.5
CO05061-2P	1.099	3.0	2.5	3.0	1.0
CO05061-6W	1.096	4.0	3.0	1.5	1.0
CO05061-7W	1.104	3.0	2.5	2.0	1.5
Atlantic	1.108	4.5	4.0	3.5	2.5
Chipeta	1.100	5.0	4.5	3.5	2.5

<sup>1</sup> 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 <sup>1</sup>	# Trials	Total Yield (Cwt/A)	% US #1	Vine Maturity <sup>2</sup>	Specific Gravity	% External Defects <sup>3</sup>	% Hollow Heart <sup>4</sup>
<b>Russets</b>								
AC99375-1RU	Dual	7	500	83	3.1	1.099	1.7	0.0
CO99053-3RU	Dual	7	501	89	3.3	1.089	3.6	0.7
CO99053-4RU	Dual	7	359	85	2.1	1.086	1.6	0.0
CO99100-1RU	Dual	7	358	85	1.4	1.084	3.9	0.2
AC00395-2RU	Dual	4	509	85	3.9	1.103	1.3	0.8
Canela Russet	FM	19	368	90	3.1	1.098	1.3	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	86	384	85	1.8	1.079	2.2	0.4
Russet Nugget	Dual	64	441	81	3.8	1.093	1.5	0.2
<b>Reds</b>								
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
CO00277-2R	FM	6	427	78	1.7	1.080	0.7	0.5
CO00291-5R	FM	6	390	78	3.3	1.084	0.5	0.0
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	30	540	88	3.3	1.077	2.0	1.5
<b>Specialties</b>								
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
CO97222-1R/R	Spec	7	396	58	2.5	1.076	1.5	0.0
CO97227-2P/PW	Spec	7	493	26	2.8	1.088	1.1	0.0
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
CO99045-1W/Y	Spec	7	554	80	3.1	1.090	3.2	0.1

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 <sup>1</sup>	# Trials	Total Yield (Cwt/A)	% US #1	Vine Maturity <sup>2</sup>	Specific Gravity	% External Defects <sup>3</sup>	% Hollow Heart <sup>4</sup>
<b>Specialties (continued)</b>								
ATC00293-1W/Y	Spec	6	547	85	3.0	1.083	4.2	2.9
CO00405-1RF	Spec	6	344	76	1.4	1.081	2.1	0.0
CO00412-5W/Y	Spec	6	472	74	2.8	1.090	2.3	1.1
CO00415-1RF	Spec	6	384	74	1.5	1.077	4.4	0.0
CO01399-10P/Y	Spec	5	560	76	3.4	1.080	1.0	0.0
Mountain Rose	Spec	8	383	68	2.2	1.081	1.1	0.0
Purple Majesty	Spec	18	492	56	2.1	1.086	0.5	1.1
Yukon Gold	Spec	32	410	89	1.9	1.086	1.6	0.5
<b>Chippers</b>								
CO00188-4W	Chip	6	425	77	2.6	1.092	2.1	0.1
CO00197-3W	Chip	6	461	74	2.1	1.087	0.8	0.7
CO00270-7W	Chip	6	405	85	2.5	1.087	1.8	0.0
AC01151-5W	Chip	4	479	78	3.0	1.091	2.9	0.2
CO02024-9W ✓	Chip	4	427	80	3.0	1.089	1.8	0.2
CO02033-1W	Chip	4	433	84	2.7	1.099	1.0	1.5
CO02321-4W ✓	Chip	4	440	82	2.8	1.102	3.4	0.0
Atlantic	Chip	41	461	87	3.2	1.098	2.6	5.0
Chipeta	Chip	38	539	85	3.3	1.090	5.3	0.5

<sup>1</sup>FM=fresh market; Dual= fresh market and processing potential; SPEC=specialty.

<sup>2</sup>Vine maturity: 1=very early; 2=early; 3=medium; 4=late; 5=very late.

<sup>3</sup>Includes defects such as second growth, growth crack, misshapen, and green.

<sup>4</sup>Based on tubers greater than 10 ounces.

Figure 1. Photographs of advanced selections.



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

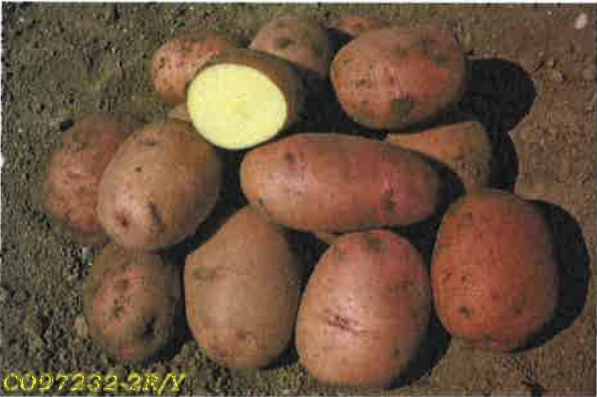


Figure 1 (cont'd). Photographs of advanced selections.

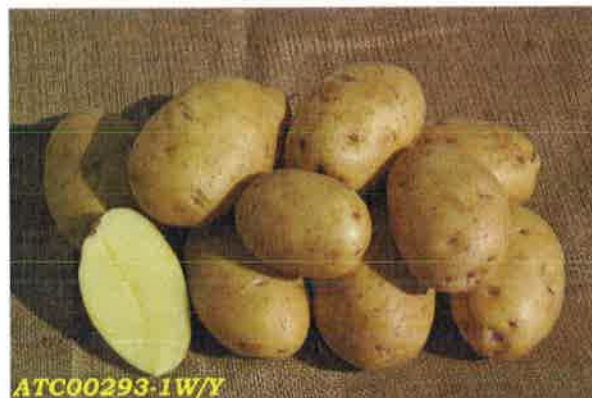
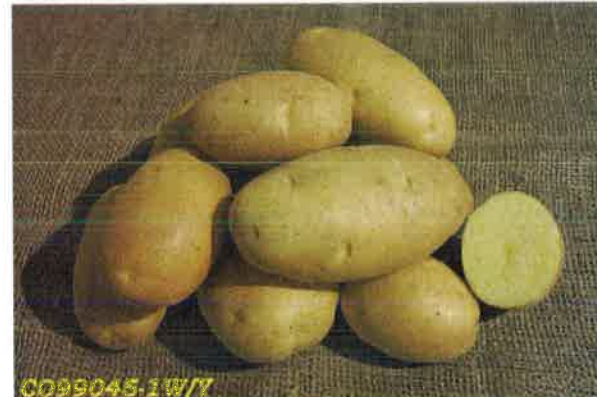


Figure 1 (cont'd). Photographs of advanced selections.

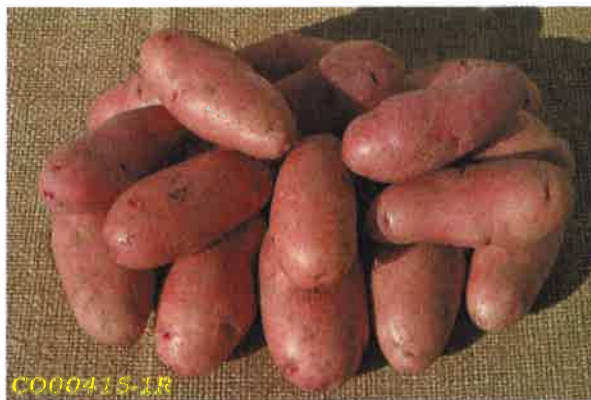


Figure 1 (cont'd). Photographs of advanced selections.



Table 17A. Detailed data summary for AC99375-1RU.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	7	500	435-545	
Yield US #1 (Cwt/A)	7	415	377-457	
% US #1	7	83	77-91	
Yield >10 oz (Cwt/A)	7	105	74-148	
Yield <4 oz (Cwt/A)	7	75	32-118	
% External Defects <sup>1</sup>	7	1.7	0.3-3.5	
% Hollow Heart <sup>2</sup>	7	0.0	0.0-0.2	
% Stand	7	97	94-100	
Emergence Uniformity	7	3.4	2.8-4.3	
Vine Vigor <sup>3</sup>	7	3.7	2.5-4.8	
Stems/Plant	7	3.7	2.1-6.3	
Vine Size <sup>4</sup>	7	4.4	3.0-5.0	
Vine Type <sup>5</sup>	7	3.1	3.0-3.5	
Vine Maturity <sup>6</sup>	7	3.1	3.0-3.5	
Blackspot <sup>7</sup>	Bud End	8	4.6	3.8-5.0
	Stem End	8	4.4	3.7-5.0
	Average	8	4.5	
Weight Loss <sup>8</sup>	8	2.3	1.4-2.8	
Dormancy <sup>9</sup>	8	94	82-132	
Enzymatic Browning <sup>10</sup>	8	2.8	1.4-4.6	
Specific Gravity	8	1.099	1.090-1.104	
Fry Color <sup>11</sup>	Harvest	8	0.8	0.0-2.0
	Storage	8	1.1	0.0-2.0
Fry Texture <sup>12</sup>	Harvest	8	3.9	3.0-5.0
	Storage	8	4.0	3.0-5.0

Refer to footnotes on page 121.

Table 17B. 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 <sup>1</sup>	7	3.6	0.7-8.9	
% Hollow Heart <sup>2</sup>	7	0.7	0.0-2.9	
% Stand	7	99	95-100	
Emergence Uniformity	7	3.2	3.0-4.0	
Vine Vigor <sup>3</sup>	7	3.3	2.8-3.8	
Stems/Plant	7	3.9	2.5-5.2	
Vine Size <sup>4</sup>	7	4.0	3.8-4.3	
Vine Type <sup>5</sup>	7	3.1	2.8 3.8	
Vine Maturity <sup>6</sup>	7	3.3	3.0-4.0	
Blackspot <sup>7</sup>	Bud End	8	4.8	4.3-5.0
	Stem End	8	4.3	2.8-5.0
	Average	8	4.5	
Weight Loss <sup>8</sup>	8	2.7	1.2-7.6	
Dormancy <sup>9</sup>	8	84	54-132	
Enzymatic Browning <sup>10</sup>	8	4.0	3.2-4.6	
Specific Gravity	8	1.089	1.077-1.096	
Fry Color <sup>11</sup>	Harvest	8	1.0	0.0-2.0
	Storage	8	1.9	1.0-3.0
Fry Texture <sup>12</sup>	Harvest	8	3.4	3.0-4.0
	Storage	8	3.3	2.0-4.0

Refer to footnotes on page 123.



Table 17C. Detailed data summary for CO99053-4RU.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	7	359	320-403	
Yield US #1 (Cwt/A)	7	304	269-329	
% US #1	7	85	78-91	
Yield >10 oz (Cwt/A)	7	79	60-95	
Yield <4 oz (Cwt/A)	7	49	30-80	
% External Defects <sup>1</sup>	7	1.6	0.0-3.4	
% Hollow Heart <sup>2</sup>	7	0.0	0.0-0.0	
% Stand	7	98	96-100	
Emergence Uniformity	7	3.1	3.0-3.3	
Vine Vigor <sup>3</sup>	7	2.9	2.5-3.3	
Stems/Plant	7	3.9	2.9-5.0	
Vine Size <sup>4</sup>	7	2.9	2.5-3.3	
Vine Type <sup>5</sup>	7	3.0	3.0-3.0	
Vine Maturity <sup>6</sup>	7	2.1	1.3-2.8	
Blackspot <sup>7</sup>	Bud End	8	4.7	3.9-5.0
	Stem End	8	4.7	4.0-5.0
	Average	8	4.7	
Weight Loss <sup>8</sup>	8	3.0	1.5-3.9	
Dormancy <sup>9</sup>	8	69	49-87	
Enzymatic Browning <sup>10</sup>	8	4.5	4.4-4.8	
Specific Gravity	8	1.086	1.083-1.093	
Fry Color <sup>11</sup>	Harvest	8	1.3	0.0-3.0
	Storage	8	1.9	1.0-3.0
Fry Texture <sup>12</sup>	Harvest	8	3.6	2.0-4.0
	Storage	8	3.5	2.0-4.0

Refer to footnotes on page 123.

Table 17D. 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 <sup>1</sup>	7	3.9	0.0-9.1	
% Hollow Heart <sup>2</sup>	7	0.2	0.0-0.7	
% Stand	7	99	97-100	
Emergence Uniformity	7	3.2	3.0-3.5	
Vine Vigor <sup>3</sup>	7	3.4	2.8-4.0	
Stems/Plant	7	3.4	2.6-4.2	
Vine Size <sup>4</sup>	7	2.4	2.3-2.5	
Vine Type <sup>5</sup>	9	2.4	2.0-3.0	
Vine Maturity <sup>6</sup>	7	1.4	1.0-2.0	
Blackspot <sup>7</sup>	Bud End	8	4.6	3.8-5.0
	Stem End	8	4.8	4.5-5.0
	Average	8	4.7	
Weight Loss <sup>8</sup>	8	3.5	1.4-5.7	
Dormancy <sup>9</sup>	8	62	49-77	
Enzymatic Browning <sup>10</sup>	8	3.8	3.4-4.6	
Specific Gravity	8	1.084	1.078-1.088	
Fry Color <sup>11</sup>	Harvest	8	0.4	0.0-1.0
	Storage	8	1.4	1.0-2.0
Fry Texture <sup>12</sup>	Harvest	8	3.0	2.0-4.0
	Storage	8	3.3	3.0-4.0

Refer to footnotes on page 123.

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

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	4	509	453-574	
Yield US #1 (Cwt/A)	4	433	393-478	
% US #1	4	85	80-91	
Yield >10 oz (Cwt/A)	4	102	73-128	
Yield <4 oz (Cwt/A)	4	70	28-97	
% External Defects <sup>1</sup>	4	1.3	0.0-3.0	
% Hollow Heart <sup>2</sup>	4	0.8	0.0-2.0	
% Stand	4	99	98-100	
Emergence Uniformity	4	3.3	2.8-3.8	
Vine Vigor <sup>3</sup>	4	3.7	2.8-4.3	
Stems/Plant	4	2.8	1.9-3.4	
Vine Size <sup>4</sup>	4	4.8	4.5-5.0	
Vine Type <sup>5</sup>	4	3.3	3.0 4.0	
Vine Maturity <sup>6</sup>	4	3.9	3.8-4.0	
Blackspot <sup>7</sup>	Bud End	5	4.9	4.6-5.0
	Stem End	5	4.9	4.7-5.0
	Average	5	4.9	
Weight Loss <sup>8</sup>	5	2.2	2.1-2.3	
Dormancy <sup>9</sup>	5	104	70-155	
Enzymatic Browning <sup>10</sup>	5	4.7	4.6-4.8	
Specific Gravity	5	1.103	1.092-1.108	
Fry Color <sup>11</sup>	Harvest	5	1.8	0.0-3.0
	Storage	5	2.4	2.0-3.0
Fry Texture <sup>12</sup>	Harvest	5	3.8	3.0-4.0
	Storage	5	3.8	3.0-4.0

Refer to footnotes on page 123.

Table 17F. Detailed data summary for Canela Russet.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	19	368	312-468	
Yield US #1 (Cwt/A)	19	331	277-421	
% US #1	19	90	77-94	
Yield >10 oz (Cwt/A)	19	112	63-162	
Yield <4 oz (Cwt/A)	19	33	18-61	
% External Defects <sup>1</sup>	19	1.3	0.0-6.0	
% Hollow Heart <sup>2</sup>	19	0.1	0.0-0.9	
% Stand	18	97	88-99	
Emergence Uniformity	18	2.8	1.5-3.5	
Vine Vigor <sup>3</sup>	18	2.6	2.0-3.3	
Stems/Plant	18	2.0	1.3-4.2	
Vine Size <sup>4</sup>	18	3.8	3.0-4.5	
Vine Type <sup>5</sup>	18	3.6	3.0 4.0	
Vine Maturity <sup>6</sup>	18	3.1	2.8-3.8	
Blackspot <sup>7</sup>	Bud End	24	4.7	3.7-5.0
	Stem End	24	4.2	2.5-5.0
	Average	24	4.5	
Weight Loss <sup>8</sup>	24	3.6	1.3-7.0	
Dormancy <sup>9</sup>	24	144	112-195	
Enzymatic Browning <sup>10</sup>	24	4.5	3.4-5.0	
Specific Gravity	24	1.098	1.075-1.111	
Fry Color <sup>11</sup>	Harvest	24	1.8	0.0-3.0
	Storage	24	2.0	0.0-4.0
Fry Texture <sup>12</sup>	Harvest	24	3.8	3.0-5.0
	Storage	24	3.8	3.0-5.0

Refer to footnotes on page 123.

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 <sup>1</sup>	35	0.8	0.0-3.3	
% Hollow Heart <sup>2</sup>	35	0.3	0.0-3.3	
% Stand	35	97	90-99	
Emergence Uniformity	15	3.2	3.0-3.5	
Vine Vigor <sup>3</sup>	15	2.2	1.0-3.0	
Stems/Plant	27	3.0	2.2-3.6	
Vine Size <sup>4</sup>	15	2.6	2.0-3.0	
Vine Type <sup>5</sup>	15	3.2	2.8-3.8	
Vine Maturity <sup>6</sup>	35	3.0	2.5-3.5	
Blackspot <sup>7</sup>	Bud End	44	4.8	3.7-5.0
	Stem End	44	4.8	4.2-5.0
	Average	47	4.8	
Weight Loss <sup>8</sup>	47	6.1	1.6-9.0	
Dormancy <sup>9</sup>	40	88	57-123	
Enzymatic Browning <sup>10</sup>	42	4.0	3.2-5.0	
Specific Gravity	54	1.080	1.069-1.092	
Fry Color <sup>11</sup>	Harvest	46	3.7	3.0-4.0
	Storage	46	3.9	3.0-5.0
Fry Texture <sup>12</sup>	Harvest	46	2.3	1.0-4.0
	Storage	46	2.2	1.0-3.0

Refer to footnotes on page 123.

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 <sup>1</sup>	10	1.8	0.2 - 2.3	
% Hollow Heart <sup>2</sup>	10	2.5	0.0 - 5.4	
% Stand	10	96	91 - 99	
Emergence Uniformity	10	3.3	3.0 - 3.8	
Vine Vigor <sup>3</sup>	10	3.7	2.8 - 4.0	
Stems/Plant	10	3.0	2.2 - 3.7	
Vine Size <sup>4</sup>	10	3.5	3.0 - 4.0	
Vine Type <sup>5</sup>	10	3.0	2.3 - 3.8	
Vine Maturity <sup>6</sup>	10	2.9	2.8 - 3.0	
Blackspot <sup>7</sup>	Bud End	12	4.0	2.9 - 5.0
	Stem End	12	3.8	2.7 - 5.0
	Average	12	3.9	
Weight Loss <sup>8</sup>	12	3.6	1.2 - 6.8	
Dormancy <sup>9</sup>	12	94	83 - 105	
Enzymatic Browning <sup>10</sup>	12	4.6	4.0 - 5.0	
Specific Gravity	12	1.082	1.074 - 1.090	
Fry Color <sup>11</sup>	Harvest	12	1.3	0.0 - 2.0
	Storage	12	1.8	1.0 - 4.0
Fry Texture <sup>12</sup>	Harvest	12	2.9	2.0 - 4.0
	Storage	12	3.1	3.0 - 4.0

Refer to footnotes on page 123.

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 <sup>1</sup>	22	2.8	0.1-8.7	
% Hollow Heart <sup>2</sup>	22	0.4	0.0-4.1	
% Stand	22	99	96-100	
Emergence Uniformity	22	3.5	3.0-4.0	
Vine Vigor <sup>3</sup>	22	3.6	2.0-4.5	
Stems/Plant	22	3.4	2.0-4.8	
Vine Size <sup>4</sup>	22	4.1	3.5-5.0	
Vine Type <sup>5</sup>	22	3.1	3.0-3.5	
Vine Maturity <sup>6</sup>	22	3.0	2.5 -3.5	
Blackspot <sup>7</sup>	Bud End	29	4.8	4.1-5.0
	Stem End	29	4.6	3.0-5.0
	Average	29	4.7	
Weight Loss <sup>8</sup>	29	3.8	1.5-7.1	
Dormancy <sup>9</sup>	29	91	68-120	
Enzymatic Browning <sup>10</sup>	29	3.9	3.0-5.0	
Specific Gravity	29	1.087	1.078-1.094	
Fry Color <sup>11</sup>	Harvest	29	2.2	1.0-4.0
	Storage	29	2.8	2.0-4.0
Fry Texture <sup>12</sup>	Harvest	29	3.1	2.0-4.0
	Storage	29	3.0	2.0-4.0

Refer to footnotes on page 123.

Table 17J. Detailed data summary for Russet Norkotah.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	86	384	174-557	
Yield US #1 (Cwt/A)	86	325	144-480	
% US #1	86	85	69-94	
Yield >10 oz (Cwt/A)	86	111	23-247	
Yield <4 oz (Cwt/A)	86	51	13-131	
% External Defects <sup>1</sup>	86	2.2	0.0-5.3	
% Hollow Heart <sup>2</sup>	86	0.4	0.0-2.8	
% Stand	85	98	88-100	
Emergence Uniformity	76	3.2	1.0-4.0	
Vine Vigor <sup>3</sup>	76	2.9	1.0-4.0	
Stems/Plant	81	3.7	2.3-5.7	
Vine Size <sup>4</sup>	76	2.4	1.0-4.0	
Vine Type <sup>5</sup>	76	2.7	2.0-3.5	
Vine Maturity <sup>6</sup>	85	1.8	1.0-3.0	
Blackspot <sup>7</sup>	Bud End	85	4.7	2.9-5.0
	Stem End	85	4.4	2.6-5.0
	Average	86	4.5	
Weight Loss <sup>8</sup>	86	3.6	1.0-7.1	
Dormancy <sup>9</sup>	85	98	70-140	
Enzymatic Browning <sup>10</sup>	85	3.4	2.2-4.8	
Specific Gravity	89	1.079	1.066-1.091	
Fry Color <sup>11</sup>	Harvest	86	2.1	1.0-4.0
	Storage	86	2.4	1.0-4.0
Fry Texture <sup>12</sup>	Harvest	86	2.7	1.0-4.0
	Storage	86	2.7	1.0-4.0

Refer to footnotes on page 123.



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 <sup>1</sup>	64	1.5	0.1-4.3	
% Hollow Heart <sup>2</sup>	64	0.2	0.0-1.9	
% Stand	64	98	96-100	
Emergence Uniformity	54	3.3	2.8-4.0	
Vine Vigor <sup>3</sup>	54	3.4	2.5-4.0	
Stems/Plant	60	3.4	2.1-5.7	
Vine Size <sup>4</sup>	54	4.2	3.8-5.0	
Vine Type <sup>5</sup>	54	3.5	2.2-4.0	
Vine Maturity <sup>6</sup>	64	3.8	3.0-4.3	
Blackspot <sup>7</sup>	Bud End	78	4.7	3.0-5.0
	Stem End	78	4.5	2.1-5.0
	Average	81	4.6	
Weight Loss <sup>8</sup>	81	3.1	1.1-5.5	
Dormancy <sup>9</sup>	76	95	57-144	
Enzymatic Browning <sup>10</sup>	77	4.0	2.8-4.8	
Specific Gravity	83	1.093	1.072-1.110	
Fry Color <sup>11</sup>	Harvest	81	1.4	0.0-3.0
	Storage	81	1.9	1.0-3.0
Fry Texture <sup>12</sup>	Harvest	81	4.1	2.0-5.0
	Storage	81	4.0	2.0-5.0

Refer to footnotes on page 123.

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 <sup>1</sup>	7	2.2	0.5-4.8	
% Hollow Heart <sup>2</sup>	7	0.0	0.0-0.3	
% Stand	7	96	92-99	
Emergence Uniformity	7	3.4	2.8-4.0	
Vine Vigor <sup>3</sup>	7	3.6	3.0-4.3	
Stems/Plant	7	4.0	2.4-4.8	
Vine Size <sup>4</sup>	7	3.1	3.0-3.3	
Vine Type <sup>5</sup>	7	2.6	2.3-3.0	
Vine Maturity <sup>6</sup>	7	1.6	1.0-2.3	
Blackspot <sup>7</sup>	Bud End	8	4.1	3.1-5.0
	Stem End	8	3.3	2.3-4.8
	Average	8	3.7	
Weight Loss <sup>8</sup>	8	6.6	1.7-8.7	
Dormancy <sup>9</sup>	8	69	56-79	
Enzymatic Browning <sup>10</sup>	8	1.6	1.0-2.0	
Specific Gravity	8	1.087	1.082-1.090	
Fry Color <sup>11</sup>	Harvest	8	2.1	1.0-3.0
	Storage	8	2.8	2.0-3.0
Fry Texture <sup>12</sup>	Harvest	8	2.4	2.0-3.0
	Storage	8	2.0	1.0-3.0

Refer to footnotes on page 123.

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 <sup>1</sup>	7	0.4	0.1-0.8	
% Hollow Heart <sup>2</sup>	7	0.1	0.0-0.3	
% Stand	7	98	96-100	
Emergence Uniformity	7	3.1	2.8-3.8	
Vine Vigor <sup>3</sup>	7	3.2	2.8-4.0	
Stems/Plant	7	3.8	2.9-4.8	
Vine Size <sup>4</sup>	7	4.2	3.8-5.0	
Vine Type <sup>5</sup>	7	3.1	3.0-3.3	
Vine Maturity <sup>6</sup>	7	2.9	2.5-3.0	
Blackspot <sup>7</sup>	Bud End	8	4.0	2.6-5.0
	Stem End	8	3.8	2.6-4.8
	Average	8	3.9	
Weight Loss <sup>8</sup>	8	5.3	1.6-7.3	
Dormancy <sup>9</sup>	8	93	84-118	
Enzymatic Browning <sup>10</sup>	8	2.8	1.8-3.4	
Specific Gravity	8	1.089	1.080-1.098	
Fry Color <sup>11</sup>	Harvest	8	1.1	1.0-2.0
	Storage	8	1.9	1.0-2.0
Fry Texture <sup>12</sup>	Harvest	8	2.9	2.0-3.0
	Storage	8	2.8	2.0-3.0

Refer to footnotes on page 123.

Table 17N. Detailed data summary for CO00277-2R.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	6	427	380-479	
Yield US #1 (Cwt/A)	6	333	287-390	
% US #1	6	78	69-85	
Yield >10 oz (Cwt/A)	6	66	39-110	
Yield <4 oz (Cwt/A)	6	90	54-127	
% External Defects <sup>1</sup>	6	0.7	0.0-1.8	
% Hollow Heart <sup>2</sup>	6	0.5	0.0-1.8	
% Stand	6	98	93-100	
Emergence Uniformity	6	3.0	2.5-3.8	
Vine Vigor <sup>3</sup>	6	3.0	2.8-3.3	
Stems/Plant	6	4.6	3.3-5.7	
Vine Size <sup>4</sup>	6	2.8	2.3-3.0	
Vine Type <sup>5</sup>	6	2.3	2.0-2.5	
Vine Maturity <sup>6</sup>	6	1.7	1.3-2.0	
Blackspot <sup>7</sup>	Bud End	7	4.4	3.9-5.0
	Stem End	7	4.3	3.7-5.0
	Average	7	4.4	
Weight Loss <sup>8</sup>	7	5.2	2.7-8.3	
Dormancy <sup>9</sup>	7	61	47-77	
Enzymatic Browning <sup>10</sup>	7	4.3	3.6-4.6	
Specific Gravity	7	1.080	1.075-1.084	
Fry Color <sup>11</sup>	Harvest	7	3.0	2.0-4.0
	Storage	7	3.9	3.0-4.0
Fry Texture <sup>12</sup>	Harvest	7	2.6	2.0-3.0
	Storage	7	2.4	2.0-3.0

Refer to footnotes on page 123.

Table 170. Detailed data summary for CO00291-5R.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	6	390	343-446	
Yield US #1 (Cwt/A)	6	305	263-329	
% US #1	6	78	74-87	
Yield >10 oz (Cwt/A)	6	28	17-47	
Yield <4 oz (Cwt/A)	6	83	45-117	
% External Defects <sup>1</sup>	6	0.5	0.0-1.0	
% Hollow Heart <sup>2</sup>	6	0.0	0.0-0.0	
% Stand	7	97	96-99	
Emergence Uniformity	7	2.9	2.3-3.5	
Vine Vigor <sup>3</sup>	7	2.8	2.3-3.3	
Stems/Plant	7	3.2	2.4-3.8	
Vine Size <sup>4</sup>	7	4.4	3.5-5.0	
Vine Type <sup>5</sup>	7	3.6	3.3-4.0	
Vine Maturity <sup>6</sup>	7	3.3	3.0-3.8	
Blackspot <sup>7</sup>	Bud End	7	3.2	2.0-4.7
	Stem End	7	3.6	2.0-4.8
	Average	7	3.4	
Weight Loss <sup>8</sup>	7	7.8	4.6-11.1	
Dormancy <sup>9</sup>	7	73	56-87	
Enzymatic Browning <sup>10</sup>	7	1.8	1.0-2.4	
Specific Gravity	7	1.084	1.072-1.090	
Fry Color <sup>11</sup>	Harvest	7	2.3	2.0-3.0
	Storage	7	3.0	2.0-4.0
Fry Texture <sup>12</sup>	Harvest	7	2.4	1.0-3.0
	Storage	7	2.1	1.0-3.0

Refer to footnotes on page 123.

Table 17P. 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 <sup>1</sup>	14	2.7	0.2-6.5	
% Hollow Heart <sup>2</sup>	14	0.3	0.0-0.8	
% Stand	14	96	90-100	
Emergence Uniformity	14	3.0	2.5-3.5	
Vine Vigor <sup>3</sup>	14	3.0	2.2-3.8	
Stems/Plant	14	3.5	2.3-4.5	
Vine Size <sup>4</sup>	14	3.4	3.0-4.0	
Vine Type <sup>5</sup>	14	3.1	3.0-3.5	
Vine Maturity <sup>6</sup>	14	2.7	2.0-3.8	
Blackspot <sup>7</sup>	Bud End	15	3.8	2.1-4.8
	Stem End	15	3.8	2.4-5.0
	Average	15	3.8	
Weight Loss <sup>8</sup>	15	5.8	1.4-8.2	
Dormancy <sup>9</sup>	15	62	54-78	
Enzymatic Browning <sup>10</sup>	15	4.3	3.4-5.0	
Specific Gravity	15	1.082	1.071-1.086	
Fry Color <sup>11</sup>	Harvest	15	2.3	1.0-3.0
	Storage	14	2.9	2.0-3.0
Fry Texture <sup>12</sup>	Harvest	15	2.8	2.0-4.0
	Storage	14	2.9	2.0-3.0

Refer to footnotes on page 123.

Table 17Q. 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 <sup>1</sup>	11	0.9	0.0-2.2	
% Hollow Heart <sup>2</sup>	11	0.0	0.0-0.0	
% Stand	11	96	92-99	
Emergence Uniformity	11	3.4	3.0-4.0	
Vine Vigor <sup>3</sup>	11	3.1	2.8-4.0	
Stems/Plant	11	4.2	2.9-6.4	
Vine Size <sup>4</sup>	11	3.1	2.5-3.8	
Vine Type <sup>5</sup>	11	3.2	2.8-3.5	
Vine Maturity <sup>6</sup>	11	1.7	1.0-3.0	
Blackspot <sup>7</sup>	Bud End	12	3.6	2.1-4.8
	Stem End	12	3.0	1.8-4.2
	Average	12	3.3	
Weight Loss <sup>8</sup>	12	6.6	1.2-10.2	
Dormancy <sup>9</sup>	12	86	70-118	
Enzymatic Browning <sup>10</sup>	12	1.4	1.0-2.4	
Specific Gravity	12	1.087	1.080-1.096	
Fry Color <sup>11</sup>	Harvest	12	1.4	1.0-3.0
	Storage	12	1.8	1.0-4.0
Fry Texture <sup>12</sup>	Harvest	12	2.8	2.0-4.0
	Storage	12	2.7	1.0-3.0

Refer to footnotes on page 123.

Table 17R. 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 <sup>1</sup>	30	2.0	0.3-5.7	
% Hollow Heart <sup>2</sup>	30	1.5	0.0-8.2	
% Stand	27	97	91-100	
Emergence Uniformity	27	3.1	2.5-3.5	
Vine Vigor <sup>3</sup>	27	2.9	1.8-3.5	
Stems/Plant	27	3.1	1.9-4.3	
Vine Size <sup>4</sup>	27	4.0	3.5-4.8	
Vine Type <sup>5</sup>	27	3.3	3.0-4.0	
Vine Maturity <sup>6</sup>	27	3.3	3.0-4.0	
Blackspot <sup>7</sup>	Bud End	43	3.8	2.0-5.0
	Stem End	43	4.2	2.5-5.0
	Average	43	4.0	
Weight Loss <sup>8</sup>	43	2.7	1.0-4.5	
Dormancy <sup>9</sup>	43	88	56-126	
Enzymatic Browning <sup>10</sup>	43	3.3	2.4-4.8	
Specific Gravity	43	1.077	1.060-1.090	
Fry Color <sup>11</sup>	Harvest	43	3.6	2.0-4.0
	Storage	43	3.9	3.0-4.0
Fry Texture <sup>12</sup>	Harvest	43	2.2	1.0-4.0
	Storage	43	2.3	1.0-3.0

Refer to footnotes on page 123.



Table 17S. 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 <sup>1</sup>	7	0.2	0.0-0.7
% Hollow Heart <sup>2</sup>	7	0.0	0.0-0.0
% Stand	7	98	96-99
Emergence Uniformity	7	3.1	3.0-3.3
Vine Vigor <sup>3</sup>	7	3.1	3.0-3.5
Stems/Plant	7	4.2	3.0-5.9
Vine Size <sup>4</sup>	7	3.1	3.0-3.8
Vine Type <sup>5</sup>	7	2.9	2.0-3.3
Vine Maturity <sup>6</sup>	7	2.3	1.3-3.0
Blackspot <sup>7</sup>	Bud End	--	--
	Stem End	--	--
	Average	--	--
Weight Loss <sup>8</sup>	8	4.9	1.9-10.6
Dormancy <sup>9</sup>	8	68	48-94
Enzymatic Browning <sup>10</sup>	--	--	--
Specific Gravity	8	1.080	1.076-1.084
Fry Color <sup>11</sup>	Harvest	--	--
	Storage	--	--
Fry Texture <sup>12</sup>	Harvest	8	2.9
	Storage	8	2.6

Refer to footnotes on page 123.

Table 17T. 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 <sup>1</sup>	7	0.8	0.3-1.7	
% Hollow Heart <sup>2</sup>	7	1.0	0.0-2.7	
% Stand	7	93	85-99	
Emergence Uniformity	7	3.1	2.8-3.5	
Vine Vigor <sup>3</sup>	7	3.3	3.0- 4.0	
Stems/Plant	7	3.3	2.6-4.0	
Vine Size <sup>4</sup>	7	2.6	2.0-3.0	
Vine Type <sup>5</sup>	7	2.0	2.0-2.0	
Vine Maturity <sup>6</sup>	7	2.6	2.0-3.0	
Blackspot <sup>7</sup>	Bud End	8	4.7	4.1-5.0
	Stem End	8	4.4	3.5-5.0
	Average	8	4.5	
Weight Loss <sup>8</sup>	8	4.2	1.5-8.8	
Dormancy <sup>9</sup>	8	69	49-94	
Enzymatic Browning <sup>10</sup>	8	4.4	4.0-5.0	
Specific Gravity	8	1.071	1.069-1.075	
Fry Color <sup>11</sup>	Harvest	8	1.1	0.0-2.0
	Storage	8	1.8	1.0-2.0
Fry Texture <sup>12</sup>	Harvest	8	2.1	1.0-3.0
	Storage	8	2.4	2.0-3.0

Refer to footnotes on page 123.

Table 17U. 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 <sup>1</sup>	7	1.5	0.0-3.0	
% Hollow Heart <sup>2</sup>	7	0.0	0.0-0.0	
% Stand	7	96	94-99	
Emergence Uniformity	7	2.9	2.0-3.5	
Vine Vigor <sup>3</sup>	7	2.8	2.3-3.3	
Stems/Plant	7	3.7	2.3-5.1	
Vine Size <sup>4</sup>	7	3.0	2.8-3.0	
Vine Type <sup>5</sup>	7	2.9	2.5-3.0	
Vine Maturity <sup>6</sup>	7	2.5	2.0-3.0	
Blackspot <sup>7</sup>	Bud End	--	-- --	
	Stem End	--	-- --	
	Average	--	--	
Weight Loss <sup>8</sup>	8	3.3	1.4-4.3	
Dormancy <sup>9</sup>	8	81	56-132	
Enzymatic Browning <sup>10</sup>	--	--	-- --	
Specific Gravity	8	1.076	1.073-1.080	
Fry Color <sup>11</sup>	Harvest	--	-- --	
	Storage	--	-- --	
Fry Texture <sup>12</sup>	Harvest	7	2.1	1.0-3.0
	Storage	7	2.0	1.0-3.0

Refer to footnotes on page 123.

Table 17V. Detailed data summary for CO97227-2P/PW.

Variable	# Trials	Mean	Range
Total Yield (Cwt/A)	7	493	385-561
Yield US #1 (Cwt/A)	7	127	79-200
% US #1	7	26	20-36
Yield >10 oz (Cwt/A)	7	0	0-2.0
Yield <4 oz (Cwt/A)	7	360	288-444
% External Defects <sup>1</sup>	7	1.1	0.2-2.4
% Hollow Heart <sup>2</sup>	7	0.0	0.0-0.0
% Stand	7	95	78-100
Emergence Uniformity	7	3.4	2.8-4.0
Vine Vigor <sup>3</sup>	7	3.6	3.0-4.0
Stems/Plant	7	5.3	4.0-8.0
Vine Size <sup>4</sup>	7	3.9	3.8-4.3
Vine Type <sup>5</sup>	7	2.9	2.3-3.0
Vine Maturity <sup>6</sup>	7	2.8	2.0-3.0
Blackspot <sup>7</sup>	Bud End	--	-- --
	Stem End	--	-- --
	Average	--	-- --
Weight Loss <sup>8</sup>	9	4.9	2.0-8.4
Dormancy <sup>9</sup>	9	91	61-153
Enzymatic Browning <sup>10</sup>	--	--	-- --
Specific Gravity	9	1.088	1.082-1.095
Fry Color <sup>11</sup>	Harvest	--	-- --
	Storage	--	-- --
Fry Texture <sup>12</sup>	Harvest	7	4.0 3.0-5.0
	Storage	7	3.9 3.0-5.0

Refer to footnotes on page 123.

Table 17W. 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 <sup>1</sup>	7	1.6	0.5-3.7	
% Hollow Heart <sup>2</sup>	7	0.4	0.0-1.6	
% Stand	7	99	98-100	
Emergence Uniformity	7	3.8	3.0-4.0	
Vine Vigor <sup>3</sup>	7	4.1	3.0-5.0	
Stems/Plant	7	5.0	3.0-7.4	
Vine Size <sup>4</sup>	7	4.3	4.0-4.8	
Vine Type <sup>5</sup>	7	3.3	3.0-3.5	
Vine Maturity <sup>6</sup>	7	3.1	2.8-3.5	
Blackspot <sup>7</sup>	Bud End	8	4.4	3.1-5.0
	Stem End	8	3.4	2.6-5.0
	Average	8	3.9	
Weight Loss <sup>8</sup>	8	4.3	2.0-5.9	
Dormancy <sup>9</sup>	8	39	23-52	
Enzymatic Browning <sup>10</sup>	8	4.0	3.0-4.6	
Specific Gravity	8	1.092	1.081-1.096	
Fry Color <sup>11</sup>	Harvest	8	2.5	1.0-4.0
	Storage	8	2.8	2.0-3.0
Fry Texture <sup>12</sup>	Harvest	8	3.0	2.0-4.0
	Storage	8	3.4	3.0-4.0

Refer to footnotes on page 123.

Table 17X. 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 <sup>1</sup>	7	0.0	0.0-0.2	
% Hollow Heart <sup>2</sup>	7	0.2	0.0-0.6	
% Stand	7	98	96-99	
Emergence Uniformity	7	3.2	2.8-3.8	
Vine Vigor <sup>3</sup>	7	3.7	3.0-4.5	
Stems/Plant	7	4.9	3.0-6.7	
Vine Size <sup>4</sup>	7	3.4	2.8-4.0	
Vine Type <sup>5</sup>	7	2.5	2.0-3.0	
Vine Maturity <sup>6</sup>	7	2.9	2.0-3.0	
Blackspot <sup>7</sup>	Bud End	8	4.7	4.0-5.0
	Stem End	8	4.4	3.7-4.8
	Average	8	4.6	
Weight Loss <sup>8</sup>	8	3.3	1.4-5.0	
Dormancy <sup>9</sup>	8	60	49-66	
Enzymatic Browning <sup>10</sup>	8	2.9	2.2-3.6	
Specific Gravity	8	1.082	1.075-1.090	
Fry Color <sup>11</sup>	Harvest	8	1.9	1.0-4.0
	Storage	8	3.1	3.0-4.0
Fry Texture <sup>12</sup>	Harvest	8	2.9	2.0-4.0
	Storage	8	3.1	3.0-4.0

Refer to footnotes on page 123.

Table 17Y . Detailed data summary for CO99045-1W/Y.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	7	554	501-634	
Yield US #1 (Cwt/A)	7	441	397-519	
% US #1	7	80	73-87	
Yield >10 oz (Cwt/A)	7	141	97-240	
Yield <4 oz (Cwt/A)	7	96	61-160	
% External Defects <sup>1</sup>	7	3.2	0.8-5.2	
% Hollow Heart <sup>2</sup>	7	0.1	0.0-0.8	
% Stand	7	100	98-101	
Emergence Uniformity	7	3.5	3.0-3.8	
Vine Vigor <sup>3</sup>	7	3.5	3.0-4.3	
Stems/Plant	7	4.1	3.1-6.0	
Vine Size <sup>4</sup>	7	4.1	3.5-4.8	
Vine Type <sup>5</sup>	7	3.0	3.0-3.3	
Vine Maturity <sup>6</sup>	7	3.1	3.0-3.5	
Blackspot <sup>7</sup>	Bud End	8	4.7	3.8-5.0
	Stem End	8	4.5	3.8-5.0
	Average	8	4.6	
Weight Loss <sup>8</sup>	8	2.7	1.4-3.9	
Dormancy <sup>9</sup>	8	72	55-87	
Enzymatic Browning <sup>10</sup>	8	4.4	3.8-5.0	
Specific Gravity	8	1.090	1.080-1.094	
Fry Color <sup>11</sup>	Harvest	8	2.8	2.0-3.0
	Storage	8	3.0	2.0-4.0
Fry Texture <sup>12</sup>	Harvest	8	3.0	2.0-4.0
	Storage	8	3.0	2.0-4.0

Refer to footnotes on page 123.

Table 17Z . Detailed data summary for ATC00293-1W/Y.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	6	547	402-621	
Yield US #1 (Cwt/A)	6	465	338-520	
% US #1	6	85	80-91	
Yield >10 oz (Cwt/A)	6	139	61-256	
Yield <4 oz (Cwt/A)	6	59	40-78	
% External Defects <sup>1</sup>	6	4.2	1.7-6.8	
% Hollow Heart <sup>2</sup>	6	2.9	1.1-3.9	
% Stand	6	98	95-100	
Emergence Uniformity	6	2.9	2.5-3.3	
Vine Vigor <sup>3</sup>	6	3.1	2.0-4.0	
Stems/Plant	6	3.4	2.8-3.8	
Vine Size <sup>4</sup>	6	4.3	4.0-4.8	
Vine Type <sup>5</sup>	6	3.1	3.0-3.5	
Vine Maturity <sup>6</sup>	6	3.0	3.0-3.0	
Blackspot <sup>7</sup>	Bud End	7	4.3	2.6-5.0
	Stem End	7	4.2	2.8-5.0
	Average	7	4.3	
Weight Loss <sup>8</sup>	7	2.0	1.6-2.8	
Dormancy <sup>9</sup>	7	114	98 -129	
Enzymatic Browning <sup>10</sup>	7	4.5	4.2-4.8	
Specific Gravity	7	1.083	1.075-1.087	
Fry Color <sup>11</sup>	Harvest	7	1.0	0.0-2.0
	Storage	7	1.7	1.0-3.0
Fry Texture <sup>12</sup>	Harvest	7	2.3	1.0-3.0
	Storage	7	2.4	2.0-3.0

Refer to footnotes on page 123.



Table 17AA. Detailed data summary for CO00405-1RF.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	6	344	290-373	
Length: <2"	3	63	58-66	
Length: 2-4"	3	207	167-260	
Length: >4"-6"	3	65	40-99	
Length: >6"	3	5	0-8	
% External Defects <sup>1</sup>	6	2.1	0.0-4.7	
% Hollow Heart <sup>2</sup>	6	0.0	0.0-0.0	
% Stand	6	99	98-100	
Emergence Uniformity	6	3.2	2.8-3.5	
Vine Vigor <sup>3</sup>	6	2.9	2.0-3.8	
Stems/Plant	6	4.2	3.6-5.5	
Vine Size <sup>4</sup>	6	2.2	1.8-2.8	
Vine Type <sup>5</sup>	6	1.9	1.3-2.3	
Vine Maturity <sup>6</sup>	6	1.4	1.0-2.0	
Blackspot <sup>7</sup>	Bud End	7	4.8	3.9-5.0
	Stem End	7	4.6	3.9-5.0
	Average	7	4.7	
Weight Loss <sup>8</sup>	7	3.8	3.1-4.8	
Dormancy <sup>9</sup>	7	74	61-87	
Enzymatic Browning <sup>10</sup>	7	4.3	3.6-5.0	
Specific Gravity	7	1.081	1.077-1.086	
Fry Color <sup>11</sup>	Harvest	7	1.4	1.0-2.0
	Storage	7	1.9	1.0-2.0
Fry Texture <sup>12</sup>	Harvest	7	3.0	2.0-5.0
	Storage	7	3.1	2.0-5.0

Refer to footnotes on page 123.

Table 17AB. Detailed data summary for CO00412-5W/Y.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	6	472	367-579	
Yield US #1 (Cwt/A)	6	349	266-448	
% US #1	6	74	61-82	
Yield >10 oz (Cwt/A)	6	72	26-143	
Yield <4 oz (Cwt/A)	6	111	75-167	
% External Defects <sup>1</sup>	6	2.3	0.7-3.8	
% Hollow Heart <sup>2</sup>	6	1.1	0.0-2.7	
% Stand	6	98	96-100	
Emergence Uniformity	6	3.5	3.0-4.0	
Vine Vigor <sup>3</sup>	6	3.6	3.0-4.3	
Stems/Plant	6	4.6	2.8-5.7	
Vine Size <sup>4</sup>	6	3.6	3.0-4.0	
Vine Type <sup>5</sup>	6	3.0	3.0-3.0	
Vine Maturity <sup>6</sup>	6	2.8	2.5-3.0	
Blackspot <sup>7</sup>	Bud End	7	4.2	2.0-5.0
	Stem End	7	3.8	1.9-4.7
	Average	7	4.0	
Weight Loss <sup>8</sup>	7	2.5	1.7-4.6	
Dormancy <sup>9</sup>	7	76	63-87	
Enzymatic Browning <sup>10</sup>	7	3.6	3.2-4.0	
Specific Gravity	7	1.090	1.077-1.097	
Fry Color <sup>11</sup>	Harvest	7	1.7	1.0-3.0
	Storage	7	2.4	2.0-4.0
Fry Texture <sup>12</sup>	Harvest	7	2.7	2.0-3.0
	Storage	7	3.0	2.0-4.0

Refer to footnotes on page 123.

Table 17AC. Detailed data summary for CO00415-1RF.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	6	384	278-446	
Length: <2"	3	57	46-72	
Length: 2-4"	3	255	207-304	
Length: >4"-6"	3	49	19-77	
Length: >6"	3	8	0-22	
% External Defects <sup>1</sup>	6	4.4	1.1-8.4	
% Hollow Heart <sup>2</sup>	6	0.0	0.0-0.0	
% Stand	6	91	54-100	
Emergence Uniformity	6	3.1	2.0-3.5	
Vine Vigor <sup>3</sup>	6	3.1	2.5-4.0	
Stems/Plant	6	4.8	3.2-7.2	
Vine Size <sup>4</sup>	6	2.5	2.0-3.3	
Vine Type <sup>5</sup>	6	2.4	2.0-3.0	
Vine Maturity <sup>6</sup>	6	1.5	1.0-2.0	
Blackspot <sup>7</sup>	Bud End	7	4.9	4.5-5.0
	Stem End	7	4.7	3.1-5.0
	Average	7	4.8	
Weight Loss <sup>8</sup>	7	2.8	2.2-4.1	
Dormancy <sup>9</sup>	7	91	70-105	
Enzymatic Browning <sup>10</sup>	7	4.5	4.0-4.8	
Specific Gravity	7	1.077	1.071-1.082	
Fry Color <sup>11</sup>	Harvest	7	1.9	1.0-2.0
	Storage	7	2.9	2.0-3.0
Fry Texture <sup>12</sup>	Harvest	7	2.4	1.0-4.0
	Storage	7	2.6	1.0-4.0

Refer to footnotes on page 123.

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

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	5	560	478-648	
Yield US #1 (Cwt/A)	5	427	368-511	
% US #1	5	76	66-80	
Yield >10 oz (Cwt/A)	5	79	27-117	
Yield <4 oz (Cwt/A)	5	127	103-192	
% External Defects <sup>1</sup>	5	1.0	0.4-1.7	
% Hollow Heart <sup>2</sup>	5	0.0	0.0-0.2	
% Stand	5	99	96-100	
Emergence Uniformity	5	2.9	2.5-3.0	
Vine Vigor <sup>3</sup>	5	3.2	2.5-3.5	
Stems/Plant	5	3.6	2.4-4.2	
Vine Size <sup>4</sup>	5	4.3	4.0-4.8	
Vine Type <sup>5</sup>	5	3.1	3.0-3.3	
Vine Maturity <sup>6</sup>	5	3.4	3.0-4.0	
Blackspot <sup>7</sup>	Bud End	6	4.6	4.2-5.0
	Stem End	6	4.5	4.0-5.0
	Average	6	4.6	
Weight Loss <sup>8</sup>	6	2.4	1.4-3.0	
Dormancy <sup>9</sup>	6	87	70-111	
Enzymatic Browning <sup>10</sup>	6	3.5	3.2-4.4	
Specific Gravity	6	1.080	1.077-1.085	
Fry Color <sup>11</sup>	Harvest	6	0.7	0.0-2.0
	Storage	6	1.2	0.0-2.0
Fry Texture <sup>12</sup>	Harvest	6	3.0	2.0-4.0
	Storage	6	3.3	3.0-4.0

Refer to footnotes on page 123.

Table 17AE. 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 <sup>1</sup>	8	1.1	0.0-2.4
% Hollow Heart <sup>2</sup>	8	0.0	0.0-0.0
% Stand	8	98	94-100
Emergence Uniformity	8	3.6	3.0-4.3
Vine Vigor <sup>3</sup>	8	2.7	2.0-3.0
Stems/Plant	8	3.7	2.9-4.9
Vine Size <sup>4</sup>	8	2.7	2.3-3.0
Vine Type <sup>5</sup>	8	2.9	2.5-3.0
Vine Maturity <sup>6</sup>	8	2.2	1.5-3.0
Blackspot <sup>7</sup>	Bud End	---	---
	Stem End	---	---
	Average	---	---
Weight Loss <sup>8</sup>	11	4.1	1.3-6.3
Dormancy <sup>9</sup>	11	102	77-153
Enzymatic Browning <sup>10</sup>	---	---	---
Specific Gravity	11	1.081	1.074-1.086
Fry Color <sup>11</sup>	Harvest	---	---
	Storage	---	---
Fry Texture <sup>12</sup>	Harvest	6	2.5
	Storage	6	2.7

Refer to footnotes on page 123.

Table 17AF. Detailed data summary for Purple Majesty.

Variable	# Trials	Mean	Range
Total Yield (Cwt/A)	18	492	377-606
Yield US #1 (Cwt/A)	18	279	168-401
% US #1	18	56	40-72
Yield >10 oz (Cwt/A)	18	28	13-61
Yield <4 oz (Cwt/A)	18	210	122-326
% External Defects <sup>1</sup>	18	0.5	0.0-1.7
% Hollow Heart <sup>2</sup>	18	1.1	0.2-3.4
% Stand	18	98	94-100
Emergence Uniformity	18	3.6	3.0-4.0
Vine Vigor <sup>3</sup>	18	3.6	2.8-4.5
Stems/Plant	18	4.4	3.2-6.1
Vine Size <sup>4</sup>	18	3.0	2.3-3.5
Vine Type <sup>5</sup>	18	2.7	2.3-3.0
Vine Maturity <sup>6</sup>	18	2.1	1.5-3.0
Blackspot <sup>7</sup>	Bud End	---	---
	Stem End	---	---
	Average	---	---
Weight Loss <sup>8</sup>	25	3.7	1.1-6.8
Dormancy <sup>9</sup>	25	62	42-85
Enzymatic Browning <sup>10</sup>	---	---	---
Specific Gravity	25	1.086	1.076-1.094
Fry Color <sup>11</sup>	Harvest	---	---
	Storage	---	---
Fry Texture <sup>12</sup>	Harvest	20	2.5
	Storage	20	2.7

Refer to footnotes on page 123.

Table 17AG. Detailed data summary for Yukon Gold.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	32	410	321-513	
Yield US #1 (Cwt/A)	32	366	293-444	
% US #1	32	89	82-94	
Yield >10 oz (Cwt/A)	32	162	81-248	
Yield <4 oz (Cwt/A)	32	37	22-66	
% External Defects <sup>1</sup>	32	1.6	0.0-4.4	
% Hollow Heart <sup>2</sup>	32	0.5	0.0-2.2	
% Stand	32	96	90-100	
Emergence Uniformity	32	3.3	2.5-3.8	
Vine Vigor <sup>3</sup>	32	3.7	3.0-4.3	
Stems/Plant	32	2.4	1.6-3.8	
Vine Size <sup>4</sup>	32	3.1	2.5-3.8	
Vine Type <sup>5</sup>	32	2.7	2.0-3.5	
Vine Maturity <sup>6</sup>	32	1.9	1.0-3.0	
Blackspot <sup>7</sup>	Bud End	40	4.2	2.0-5.0
	Stem End	40	4.0	2.4-5.0
	Average	40	4.1	
Weight Loss <sup>8</sup>	40	2.2	1.0-4.3	
Dormancy <sup>9</sup>	40	89	63-132	
Enzymatic Browning <sup>10</sup>	40	4.4	3.4-5.0	
Specific Gravity	40	1.086	1.079-1.093	
Fry Color <sup>11</sup>	Harvest	40	1.8	1.0-4.0
	Storage	40	2.7	1.0-4.0
Fry Texture <sup>12</sup>	Harvest	40	3.0	1.0-4.0
	Storage	40	3.1	1.0-4.0

Refer to footnotes on page 123.

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

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	6	425	367-483	
Yield US #1 (Cwt/A)	6	329	270-377	
% US #1	6	77	70-86	
Yield >10 oz (Cwt/A)	6	37	12-68	
Yield <4 oz (Cwt/A)	6	87	39-133	
% External Defects <sup>1</sup>	6	2.1	0.5-4.3	
% Hollow Heart <sup>2</sup>	6	0.1	0.0-0.3	
% Stand	6	99	98-100	
Emergence Uniformity	6	3.4	3.0-4.0	
Vine Vigor <sup>3</sup>	6	3.8	3.3-4.3	
Stems/Plant	6	4.1	2.1-4.8	
Vine Size <sup>4</sup>	6	3.0	2.8-3.3	
Vine Type <sup>5</sup>	6	2.9	2.8-3.0	
Vine Maturity <sup>6</sup>	6	2.6	2.3-3.0	
Blackspot <sup>7</sup>	Bud End	13	4.7	3.8-5.0
	Stem End	13	3.3	1.4-4.6
	Average	13	4.0	
Weight Loss <sup>8</sup>	13	3.2	2.1-4.6	
Dormancy <sup>9</sup>	13	98	84-123	
Enzymatic Browning <sup>10</sup>	13	4.3	3.4-5.0	
Specific Gravity	14	1.092	1.085-1.098	
Chip Color <sup>11</sup>	40	14	3.4	2.0-4.5
	40R	14	2.8	1.5-4.0
	50	14	1.6	1.0-2.5
	50R	14	1.7	1.0-2.5

Refer to footnotes on page 123.



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

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	6	461	354-511	
Yield US #1 (Cwt/A)	6	341	269-396	
% US #1	6	74	59-82	
Yield >10 oz (Cwt/A)	6	56	29-95	
Yield <4 oz (Cwt/A)	6	116	81-183	
% External Defects <sup>1</sup>	6	0.8	0.1-1.6	
% Hollow Heart <sup>2</sup>	6	0.7	0.0-3.2	
% Stand	6	96	93-100	
Emergence Uniformity	6	3.5	3.0-4.0	
Vine Vigor <sup>3</sup>	6	3.5	2.8-4.3	
Stems/Plant	6	3.6	2.5-3.9	
Vine Size <sup>4</sup>	6	3.0	2.5-3.5	
Vine Type <sup>5</sup>	6	2.8	2.8-3.0	
Vine Maturity <sup>6</sup>	6	2.1	1.5-3.0	
Blackspot <sup>7</sup>	Bud End	13	3.8	2.4-4.6
	Stem End	13	2.7	1.1-3.8
	Average	13	3.2	
Weight Loss <sup>8</sup>	13	2.5	1.6-4.3	
Dormancy <sup>9</sup>	13	83	69-109	
Enzymatic Browning <sup>10</sup>	13	2.7	1.4-3.8	
Specific Gravity	14	1.087	1.079-1.090	
Chip Color <sup>11</sup>	40	14	4.0	3.0-5.0
	40R	14	3.5	1.5-4.5
	50	14	2.3	1.0-3.5
	50R	14	2.4	1.0-4.0

Refer to footnotes on page 123.

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

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	6	405	336-456	
Yield US #1 (Cwt/A)	6	344	288-383	
% US #1	6	85	80-92	
Yield >10 oz (Cwt/A)	6	83	56-140	
Yield <4 oz (Cwt/A)	6	55	24-76	
% External Defects <sup>1</sup>	6	1.8	0.4-4.8	
% Hollow Heart <sup>2</sup>	6	0.0	0.0-0.0	
% Stand	6	96	93-99	
Emergence Uniformity	6	3.3	3.0-3.5	
Vine Vigor <sup>3</sup>	6	3.5	3.0-4.0	
Stems/Plant	6	3.5	2.3-4.2	
Vine Size <sup>4</sup>	6	2.9	2.3-3.3	
Vine Type <sup>5</sup>	6	2.5	2.0-2.8	
Vine Maturity <sup>6</sup>	6	2.5	2.0-3.0	
Blackspot <sup>7</sup>	Bud End	13	4.3	3.1-4.9
	Stem End	13	3.8	2.6-4.5
	Average	13	4.1	
Weight Loss <sup>8</sup>	13	3.0	2.0-5.4	
Dormancy <sup>9</sup>	13	64	48-94	
Enzymatic Browning <sup>10</sup>	13	3.3	2.2-4.0	
Specific Gravity	14	1.087	1.078-1.097	
Chip Color <sup>11</sup>	40	14	3.4	1.5-4.5
	40R	14	2.6	1.0-4.0
	50	14	1.7	1.0-3.0
	50R	14	1.6	1.0-2.5

Refer to footnotes on page 123.

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

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	4	479	407-557	
Yield US #1 (Cwt/A)	4	369	344-426	
% US #1	4	78	67-86	
Yield >10 oz (Cwt/A)	4	58	53-66	
Yield <4 oz (Cwt/A)	4	95	54-134	
% External Defects <sup>1</sup>	4	2.9	0.7-7.4	
% Hollow Heart <sup>2</sup>	4	0.2	0.0-0.6	
% Stand	4	97	96-99	
Emergence Uniformity	4	3.3	2.8-4.0	
Vine Vigor <sup>3</sup>	4	3.3	3.0-3.5	
Stems/Plant	4	3.7	2.3-4.8	
Vine Size <sup>4</sup>	4	3.3	3.0-3.5	
Vine Type <sup>5</sup>	4	3.0	3.0-3.0	
Vine Maturity <sup>6</sup>	4	3.0	3.0-3.0	
Blackspot <sup>7</sup>	Bud End	9	4.3	3.2-5.0
	Stem End	9	2.9	1.7-4.1
	Average	9	3.6	
Weight Loss <sup>8</sup>	9	2.3	1.6-3.3	
Dormancy <sup>9</sup>	9	99	70-127	
Enzymatic Browning <sup>10</sup>	9	1.9	1.2-3.2	
Specific Gravity	10	1.091	1.079-1.103	
Chip Color <sup>11</sup>	40	10	4.3	3.0-5.0
	40R	10	3.6	2.5-4.5
	50	10	2.3	1.0-3.0
	50R	10	2.2	1.0-3.5

Refer to footnotes on page 123.

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

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	4	427	343-480	
Yield US #1 (Cwt/A)	4	340	295-368	
% US #1	4	80	69-89	
Yield >10 oz (Cwt/A)	4	54	25-71	
Yield <4 oz (Cwt/A)	4	80	39-146	
% External Defects <sup>1</sup>	4	1.8	0.6-3.7	
% Hollow Heart <sup>2</sup>	4	0.2	0.0-0.8	
% Stand	4	97	96-98	
Emergence Uniformity	4	3.3	3.3-3.5	
Vine Vigor <sup>3</sup>	4	3.4	3.0-4.0	
Stems/Plant	4	3.6	2.6-4.9	
Vine Size <sup>4</sup>	4	2.9	2.8-3.0	
Vine Type <sup>5</sup>	4	2.9	2.8-3.0	
Vine Maturity <sup>6</sup>	4	3.0	3.0-3.0	
Blackspot <sup>7</sup>	Bud End	9	4.2	3.8-4.5
	Stem End	9	2.6	1.6-3.4
	Average	9	3.4	
Weight Loss <sup>8</sup>	9	3.0	2.1-3.9	
Dormancy <sup>9</sup>	9	101	84-134	
Enzymatic Browning <sup>10</sup>	9	3.4	2.0-4.6	
Specific Gravity	10	1.089	1.083-1.095	
Chip Color <sup>11</sup>	40	10	3.7	3.0-4.5
	40R	10	2.6	1.5-4.0
	50	10	1.6	1.0-2.5
	50R	10	1.4	1.0-2.0

Refer to footnotes on page 123.

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

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	4	433	368-484	
Yield US #1 (Cwt/A)	4	364	329-399	
% US #1	4	84	79-89	
Yield >10 oz (Cwt/A)	4	45	15-75	
Yield <4 oz (Cwt/A)	4	64	36-92	
% External Defects <sup>1</sup>	4	1.0	0.6-1.6	
% Hollow Heart <sup>2</sup>	4	1.5	0.0-2.6	
% Stand	4	99	96-101	
Emergence Uniformity	4	3.4	3.0-4.0	
Vine Vigor <sup>3</sup>	4	3.6	3.3-4.0	
Stems/Plant	4	3.8	3.0-4.7	
Vine Size <sup>4</sup>	4	3.2	3.0-3.3	
Vine Type <sup>5</sup>	4	2.9	2.8-3.0	
Vine Maturity <sup>6</sup>	4	2.7	2.0-3.0	
Blackspot <sup>7</sup>	Bud End	9	3.3	2.7-4.2
	Stem End	9	3.0	2.0-4.4
	Average	9	3.2	
Weight Loss <sup>8</sup>	9	3.3	2.3-5.2	
Dormancy <sup>9</sup>	9	118	70-167	
Enzymatic Browning <sup>10</sup>	9	3.7	2.4-4.6	
Specific Gravity	10	1.099	1.090-1.106	
Chip Color <sup>11</sup>	40	10	3.4	2.5-4.0
	40R	10	2.7	1.5-3.5
	50	10	1.9	1.0-2.5
	50R	10	1.9	1.0-2.5

Refer to footnotes on page 123.

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

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	4	440	357-508	
Yield US #1 (Cwt/A)	4	360	305-397	
% US #1	4	82	78-85	
Yield >10 oz (Cwt/A)	4	83	69-105	
Yield <4 oz (Cwt/A)	4	65	43-95	
% External Defects <sup>1</sup>	4	3.4	2.6-4.0	
% Hollow Heart <sup>2</sup>	4	0.0	0.0-0.0	
% Stand	4	97	95-99	
Emergence Uniformity	4	3.8	3.5-4.3	
Vine Vigor <sup>3</sup>	4	3.9	3.5-4.5	
Stems/Plant	4	3.2	2.1-4.1	
Vine Size <sup>4</sup>	4	3.4	3.3-3.5	
Vine Type <sup>5</sup>	4	2.9	2.8-3.3	
Vine Maturity <sup>6</sup>	4	2.8	2.5-3.0	
Blackspot <sup>7</sup>	Bud End	9	4.6	4.0-5.0
	Stem End	9	3.7	3.0-4.4
	Average	9	4.1	
Weight Loss <sup>8</sup>	9	3.4	2.5-4.5	
Dormancy <sup>9</sup>	9	81	63-106	
Enzymatic Browning <sup>10</sup>	9	4.3	3.6-4.8	
Specific Gravity	10	1.102	1.094-1.109	
Chip Color <sup>11</sup>	40	10	3.7	2.5-4.5
	40R	10	2.6	2.0-3.0
	50	10	1.6	1.0-2.5
	50R	10	1.7	1.0 3.0

Refer to footnotes on page 123.

Table 17AO. Detailed data summary for Atlantic.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	41	461	307-597	
Yield US #1 (Cwt/A)	41	400	265-512	
% US #1	41	87	76-93	
Yield >10 oz (Cwt/A)	41	150	58-290	
Yield <4 oz (Cwt/A)	41	49	19-109	
% External Defects <sup>1</sup>	41	2.6	0.1-9.1	
% Hollow Heart <sup>2</sup>	41	5.0	0.3-16.4	
% Stand	41	96	88-100	
Emergence Uniformity	35	3.6	3.0-4.3	
Vine Vigor <sup>3</sup>	35	3.5	2.8-4.3	
Stems/Plant	41	3.1	2.2-4.9	
Vine Size <sup>4</sup>	35	3.2	2.2-4.0	
Vine Type <sup>5</sup>	35	3.0	2.8-3.8	
Vine Maturity <sup>6</sup>	41	3.2	2.8-4.0	
Blackspot <sup>7</sup>	Bud End	59	3.2	1.8-5.0
	Stem End	59	2.7	1.4-4.3
	Average	60	3.0	
Weight Loss <sup>8</sup>	60	4.4	1.1-7.9	
Dormancy <sup>9</sup>	57	84	56-119	
Enzymatic Browning <sup>10</sup>	58	4.5	3.8-5.0	
Specific Gravity	61	1.098	1.083-1.120	
Chip Color <sup>11</sup>	40	61	4.0	2.0-5.0
	40R	61	3.5	1.5-5.0
	50	61	2.6	1.0-4.0
	50R	61	2.6	1.0-5.5

Refer to footnotes on page 123.

Table 17AP. Detailed data summary for Chipeta.

Variable	# Trials	Mean	Range	
Total Yield (Cwt/A)	38	539	399-757	
Yield US #1 (Cwt/A)	38	457	306-606	
% US #1	38	85	71-90	
Yield >10 oz (Cwt/A)	38	170	52-388	
Yield <4 oz (Cwt/A)	38	54	22-119	
% External Defects <sup>1</sup>	38	5.3	1.1-13.0	
% Hollow Heart <sup>2</sup>	38	0.5	0.0-4.0	
% Stand	38	98	94-100	
Emergence Uniformity	31	3.6	3.0-4.8	
Vine Vigor <sup>3</sup>	31	4.0	3.0-5.0	
Stems/Plant	37	3.5	2.0-4.9	
Vine Size <sup>4</sup>	31	4.3	4.0-5.0	
Vine Type <sup>5</sup>	31	3.1	2.5-4.0	
Vine Maturity <sup>6</sup>	38	3.3	3.0-4.0	
Blackspot <sup>7</sup>	Bud End	55	3.9	2.2-5.0
	Stem End	55	3.7	1.4-4.9
	Average	57	3.8	
Weight Loss <sup>8</sup>	57	3.2	1.0-8.0	
Dormancy <sup>9</sup>	53	103	70-153	
Enzymatic Browning <sup>10</sup>	54	4.0	2.8-5.0	
Specific Gravity	57	1.090	1.073-1.107	
Chip Color <sup>11</sup>	40	57	4.5	3.0-5.0
	40R	57	3.8	1.5-5.0
	50	57	2.6	1.0-4.0
	50R	57	2.3	1.0-4.0

Refer to footnotes on page 123.



**Footnotes for Tables 17A-17AP:**

- <sup>1</sup>Percent external defects based on the proportion of the total sample weight with significant defects.
- <sup>2</sup>Percent hollow heart calculated as follows: (Weight of tubers >10 ounces with defects/total sample weight) x 100.
- <sup>3</sup>Vine vigor is rated on a 1 to 5 scale, with 5 indicating very vigorous vines.
- <sup>4</sup>Vine size is rated on a 1 to 5 scale, with 5 indicating very large vines.
- <sup>5</sup>Vine type is rated on a 1 to 5 scale, with 5 indicating very upright vines.
- <sup>6</sup>Vine maturity is rated on the following basis: 1=very early; 2=early; 3=medium; 4=late; and 5=very late.
- <sup>7</sup>Blackspot was rated on a 1 to 5 scale, with 5 indicating no discoloration.
- <sup>8</sup>Tubers were stored at 45F for approximately 3 months.
- <sup>9</sup>Days from harvest to first visible growth. Tubers were stored at 45F.
- <sup>10</sup>Degree of darkening rated at 60 minutes after slicing fresh lengthwise. Rated on a 1 to 5 scale, with 5 indicating no discoloration.
- <sup>11</sup>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.
- <sup>12</sup>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 - 2011.

**LOCATION:** San Luis Valley Research Center

**SOIL TYPE:** Sandy Loam (Dunul cobbly sandy loam)

**DATE:**

Planted - 5/20/11

Hilled - 6/09/11

Vines Killed - 9/06/11 Reglone (0.25 gal/A diquat dibromide) 112 days after planting

Harvested - 9/28/11 and 9/29/11

**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:**

5/20/11 - 80 lbs N + 60 lbs P<sub>2</sub>O<sub>5</sub> + 40 lbs K<sub>2</sub>O + 25 lbs S + 2.5 lb Zn/A (dual band in-row liquid application)

7/16/11 - 12 lbs N (fertigated)

7/19/11 - 8 lbs N (fertigated)

7/25/11 - 20 lbs N (fertigated)

Total fertilizer applied: 120 lbs N + 60 lbs P<sub>2</sub>O<sub>5</sub> + 40 lbs K<sub>2</sub>O + 25 lb S + 2.5 lb Zn/A

**IRRIGATION:**

Center Pivot - 20.76" gross application (application frequency and amount based on ET)

Rainfall - 0.85" (5/22/11 - 9/08/11)

**INSECTICIDES APPLIED:**

7/15/11 - Fulfill (1.375 lb a.i./A)

8/08/11 - Endigo ZC (0.037 lb a.i./A thiamethoxam + 0.028 lb a.i./A lambda-cyhalothrin)

**FUNGICIDES APPLIED:**

7/15/11 - Quadris (0.202 lb a.i./A)

8/02/11 - Bravo Weather Stik (1.125 lb a.i./A)

**HERBICIDES APPLIED:**

6/10/11 - Dual Magnum (1.432 lb a.i./A)

6/30/11 - Matrix SG (0.094 lb a.i./A rimsulfuron)

6/30/11 - Eptam 7E (1.0 lb a.i./A S-ethyl dipropylthiocarbamate)

## **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 bruising. 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.

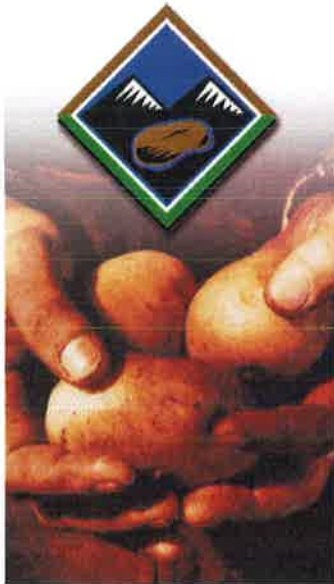
**Enzymatic Browning.** Five tubers of each clone are cut in half lengthwise and rated for degree of darkening 60 minutes later. Degree of darkening is rated on a 1 to 5 scale, with 5 indicating no discoloration.

**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  $\leq 2$  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  $\leq 2.0$  are acceptable.

# Notes



# Notes





AC99329-7PW/Y



C099053-3RU



C099100-1RU