# 2005 Research Progress Report

# Potato Breeding and Selection

Submitted by

David G. Holm and Patrick F. Naranjo
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 with characteristics that will help assure that the Colorado potato industry remains productive and competitive."

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# Preface

We are pleased to provide this copy of the "2005 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 Cooperative State Research, Education, and Extension Service (CSREES)***, and PVP royalties. These funds collectively continue to allow us to strengthen our overall collaborative research efforts 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 funding received from CSREES and other potential sources. CSREES and PVP funding have allowed us to significantly expand our breeding efforts to include PVY immunity, resistance to late blight (foliar and tuber); nematode resistance; pink rot resistance; resistance to storage rots [dry rot (*Fusarium* and early blight) and bacterial soft rot], and resistance to 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.

Primary areas of collaboration are:

- Disease Screening and Evaluation - Rob Davidson, Andrew Houser, Kent Sather, and Rick Haslar
- Cultivar Specific Cultural Management - Samuel Essah
- Nutritional Characteristics and Health Attributes - Cecil Stushnoff and Henry Thompson
- Molecular Studies - Jorge Vivanco

New studies were initiated with Jorge Delgado, USDA-ARS, looking at the macro- and micro-nutrient content of tubers and how this relates to nutrient-use efficiency. These studies may also have some bearing on human mineral nutrition.

We look forward to developing collaborative projects in the area of postharvest physiology with Sastry Jayanty when he comes online in May, 2006.

We continue to develop our collaborations with the Southwest Regional Potato Group which involves Colorado, Texas, and California. The overall objective of this Group is to develop and evaluate improved potato cultivars to meet the production, marketing, and producer/consumer needs of the Southwest U.S. Other "partners" throughout the United States are supportive in providing breeding material and opportunities to screen our germplasm under various growing conditions and disease pressures not usually available in Colorado.

Best wishes for the 2006 production season.

Sincerely,

*Dave Holm and Patrick Naranjo*

# 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 2005.

✔ 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*
*Cooperative State Research, Education, and Extension Service*

✔ Colorado Potato Administration Committee, Area II - Research Committee

| | | | |
|---|---|---|---|
| Art Holland | Brett Deacon | Brian Harrison | Cary Hoffman |
| Clay Mitchell | Russel Pratt | Kent Price | David Radtke |
| Sheldon Rockey | Dwayne Weyers | | |

✔ Research Collaborators - Colorado State University and USDA-ARS

| | | | |
|---|---|---|---|
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| Jorge Vivanco | Jorge Delgado | | |

✔ Staff and Graduate Students* - Colorado State University

| | | | |
|---|---|---|---|
| Juma'a Al-Obeidani* | Deanna Brown | Mekheld Mutiran al-Enazi* | |
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✔ Potato Certification Service

| | | | |
|---|---|---|---|
| Kent Sather | Rick Haslar | Teresa Dobson | Rue Snell |
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| | | | |
|---|---|---|---|
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| Julie Widholm | Justin Wright | | |

✔ 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 available in Colorado.

# 2005 Research Progress Report

# Potato Breeding and Selection

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## Introduction

The major objectives of the Colorado Potato Breeding and Selection Program are: (1) to develop new potato cultivars (russets, reds, chippers, and specialty) with increased yield, improved quality, improved nutritional characteristics, resistance to diseases and pests, and tolerance to environmental stresses; (2) to provide a basic seed source of selections to growers for seed increase and commercial testing; (3) to evaluate promising selections for potential seed 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. The development of "low input" cultivars, primarily for reduced nitrogen and fungicide input has always been emphasized.

Additional breeding emphasis is placed on identifying germplasm and developing cultivars that are: (1) immune to PVY; (2) resistant to late blight (foliar and tuber); (3) resistant to storage rots [dry rot (*Fusarium* and early blight) and bacterial soft rot]; (4) resistant to powdery scab; and (5) that have improved nutritional quality and other "consumer" characteristics such as improved red skin color retention and improved shelf life. Continued emphasis will be placed on breeding for improved postharvest 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 four-step process, encompassing first, the generation of segregating populations followed by evaluation for visual agronomic traits. 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. 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. 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.

## Cultivar Trends/Statistics

Tables 2A-B and Figure 1 present statistics on the primary cultivars grown in the San Luis Valley during 1983-2005. Figure 2 presents a comparison of the production levels of the primary potato cultivars from 1997-2005.

The top five cultivars grown in the San Luis Valley in 2005, based on acreage planted, were Russet Norkotah, Yukon Gold, Rio Grande Russet, Russet Nugget, and Centennial Russet. Since 2001 total acreage of yellow fleshed cultivars has exceeded that combined for reds and white cultivars.

Russet Nugget, released by Colorado in 1988, was the primary cultivar grown on fall planted acreage in Colorado in 1997. Russet Nugget acreage has continued to decline since the occurrence of late blight in 1998. This decline has leveled off but continues slightly. Much of this acreage has been replaced by Russet Norkotah (including the clonal selections). Of the Russet Norkotah 2005 fall potato acreage in Colorado, 47% was planted to Colorado Russet Norkotah Selections 3 and 8. Figure 3 shows the breakdown of the Russet Norkotah acreage in the San Luis Valley. On a nationwide basis, 34% of the total Russet Norkotah acreage was devoted to Russet Norkotah Selection 3 (21%) and 8 (13%).

Since 1975, there have been 16 potato cultivars and 5 clonal selections released by Colorado State University or in cooperation with other agencies. Colorado State University releases accounted for 49% of the 58,200 acres planted to fall potatoes in Colorado in 2005. Of the Russet Norkotah fall potato acreage in Colorado, 47% was planted to Colorado Russet Norkotah Selections 3 and 8. These materials accounted for 51% of the 12,813 acres of Colorado certified seed accepted for certification in 2005. Advanced Colorado selections accounted for another 4% of the seed acreage. Three of the top six russet potato cultivars (Russet Norkotah-S3, Russet Norkotah-S8, and Rio Grande Russet) produced for seed in the U. S. were developed by the Colorado program. Additionally AC92009-4RU and Russet Nugget are in the top 20 russet cultivars. Of the cultivars released since 1990 by the 12 potato breeding programs in the U.S., those developed by the Colorado program ranked first nationally in total acreage approved for seed certification in 2005.

# Potato Breeding

Germplasm Accession and Introgression. Germplasm is continually being acquired from various sources with late blight resistance, virus resistance (PXY, PVY, and leafroll), nematode resistance and other characteristics of importance. Primary sources are the USDA-ARS in Aberdeen, Idaho; Prosser, Washington; and 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.

This fall we will have field grown material available from South Korean cultivars with white flesh that are reported to have higher antioxidant levels. They will be evaluated with other material in the program for antioxidant activty.

Crossing. One hundred parental clones were intercrossed in 2005 in two separate crossing blocks. The emphasis of the first crossing block was specialty cultivar development and resistance to PVY and late blight. The second emphasized russets, reds, specialty, and PVY resistance. Seed from 279 combinations was obtained.

Approximately 56,302 seedling tubers representing 219 families were produced from 2003 and 2004 crosses, for initial field selection in 2006. These seedlings represent crosses segregating primarily for russets, reds, specialties, chippers, and disease resistance (late blight, PLRV, and PVY). Second through fourth size seedling tubers will be distributed to the USDA-ARS (Idaho), University of Minnesota, North Dakota State University, Texas A&M University, University of Wisconsin, and Agriculture Canada (Alberta, Canada) in 2006.

Additional seedling tubers for planting in 2006 will be obtained from Dr. Richard G. Novy, USDA-ARS, Aberdeen, Idaho; Dr. Benoit Bizimungu, Agriculture Canada, Lethbridge, Alberta; Dr. J. Creighton Miller, Texas A&M University, College Station, Texas; and Dr. Asunta L. Thompson, North Dakotah State University, Fargo, North Dakota, and Mr. Felix Navarro (Dr. Jiwan Palta), University of Wisconsin.

# Seedling Selection and Clonal Development

Colorado grew 85,007 first-year seedlings in 2005, with 848 selected for subsequent planting, evaluation, and increase in future years. A portion of these seedlings were obtained from the USDA-ARS, Agriculture Canada, North Dakota State University, and Texas A&M University, College Station, Texas. Another 789 clones were in 12-hill, preliminary, and intermediate stages of selection. At harvest, 254 were saved for further observation. Fifty-three advanced selections were saved at harvest and will be increased in 2006 pending final evaluations. Another 222 selections and cultivars were maintained for germplasm development, breeding, other experimental purposes, or seed increases for other programs.

Field trials conducted in 2005 included: Preliminary Trial, Intermediate Yield Trial, Advanced Yield Trial, Southwestern Regional Trial, Western Regional Russet/Processing Trial, Advanced and Western Regional Red Trial, Advanced and Western Regional Specialty Trial, San Luis Valley Chipping Study, and Advanced and Western Regional Chipping Trial. Tables 3-11 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 2005.

A total of 202 samples were 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. Appendices 3-10 present additional information regarding the frequency distribution for the postharvest evaluations results for all selections and named cultivars included in the trials. Appendices 3-10 are useful in understanding how a given selection compares with the population of clones being evaluated.

Advanced selections evaluated in the Southwest Regional Trials, Western Regional Trials, or by producers, included 7 russets (AC92009-4RU, CO93001-11RU, AC96052-1RU, CO94035-15RU, CO95086-8RU, CO95172-3RU, and TC1675-1RU), 4 reds (CO93037-6R, CO97078-5R, NDC5281-2R, and VC1075-1R), 5 chippers (AC97097-14W, CO95051-7W, CO96141-4W, CO97043-14W, and CO97065-7W), and 11 specialty selections (AC97521-1R/Y, CO94157-2W/Y, CO97226-2R/R, CO97232-1R/Y, CO97232-2R/Y, CO97233-3R/Y, VC0967-2R/Y, VC1002-3W/Y, VC1009-1W/Y, VC1015-7R/Y, and VC1123-2W/Y) and one long white (CO97137-1W).

Advanced selections discarded from further evaluation are CO93001-11RU, CO93037-6R, VC1075-1R, CO94157-2W/Y, and VC1015-7R/Y.

Recent releases undergoing commercialization include Rio Grande Russet (AC89536-5RU), Colorado Rose (CO89097-2R), Mountain Rose (CO94183-1R/R), and Purple Majesty (CO94165-3P/P). Two selections to be named are AC92009-4RU and NDC5281-2R. AC92009-4RU is a fresh market selection with excellent tuber type and a long dormancy. NDC5281-2R has a bright red skin with a high percentage of B sized tubers. PVP is pending for Keystone Russet, Silverton Russet, Colorado Rose, Rio Grande Russet, Mountain Rose, and Purple Majesty.

Figure 4 includes photographs of advanced selections that will continue to be evaluated in 2006. Also included are recently named cultivars and standard cultivars for comparison. Four new selections (AC96052-1RU, VC1009-1W/Y, VC1123-2W/Y, and CO96141-4W) scheduled for initial grower evaluations in 2005 are included. Table 12 summarizes the performance of these selections and others currently undergoing grower evaluation in 2006.

## Collaborative Studies

The following collaborative studies were conducted in 2005:

- Advanced selections were evaluated for disease symptom expression in cooperation with Rob Davidson, Andrew Houser, Kent Sather, and Rick Haslar. Included were: bacterial ring rot (33), potato leafroll virus (20), PVY (22) and powdery scab (17) in Colorado.

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

- 69 selections and named cultivars from 2005 are being screened for antioxidant activity and vitamin C in cooperation with Cecil Stushnoff.

- A new study was initiated in collaboration with Jorge Delgado, USDA-ARS, and Cecil Stushnoff to examine the mineral element content and vitamin C content for 105 clones. Tubers will be analyzed for macro- and micro-nutrients to determine how this relates to nutrient-use efficiency. This may also have some bearing on human mineral nutrition.

- Ten fourth-year selections and all of the Southwestern Regional Trial entries were screened for late blight resistance by Oregon State University (Table 14).

- Several advanced selections were sent to Michigan, Oregon, 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) and PVY. In addition selections were provided to the National Trials for late blight and scab (powdery and common) for screening.

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 1 (P1). 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 2 (P2). 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). |
| 8-9, 14+ | 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-7th and 12+ cycles of field selection. All advanced yield trials (AYT) have 4 reps x 25 plants. Sixth- and seventh- year field selections respectively have a 400/1,600 plant tuber-unit seed increase.<br><br>Selections in the sixth cycle of selection are indexed for viruses and cleanup/micropropagation is initiated. Testing for ring rot and PLRV reaction is also initiated at this stage and continues as needed. Selections in the 7th cycle of field selection are entered into cultural management trials and postharvest disease reaction (dry rot and soft rot) evaluations. |
| 10 | All 8th year selections have a 1/2 acre tuber-unit seed increase planted. These 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$^{th}$ year or older selections generally have a 1 acre or greater seed increase. These selections are entered in the Western Regional Trials (4 trials): main (russets and long whites), red, specialty , and chip. The Western Coordinating Committee (WCC-27) 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. Colorado fall potatoes: Production of primary potato cultivars, 1983-1993[1].

| Cultivar | %/Acreage | Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
| Centennial Russet | % | 62.7 | 68.0 | 66.9 | 66.0 | 67.3 | 68.8 | 55.3 | 61.2 | 47.5 | 44.4 | 38.3 |
| | Acreage | 29,469 | 36,380 | 37,799 | 37,620 | 41,053 | 41,280 | 34,286 | 40,086 | 32,300 | 29,304 | 27,768 |
| Red McClure | % | 3.7 | 1.6 | 1.9 | 1.0 | 1.0 | --- | --- | --- | --- | --- | --- |
| | Acreage | 1,739 | 856 | 1,074 | 570 | 610 | --- | --- | --- | --- | --- | --- |
| Russet Burbank | % | 23.9 | 22.9 | 24.3 | 23.7 | 21.7 | 16.0 | 13.2 | 7.1 | 8.3 | 8.7 | — |
| | Acreage | 11,233 | 12,252 | 13,730 | 13,509 | 13,237 | 9,600 | 8,184 | 4,651 | 5,644 | 5,742 | --- |
| Russet Norkotah | % | --- | --- | --- | --- | --- | 2.2 | 9.9 | 14.0 | 20.1 | 26.1 | 23.5 |
| | Acreage | --- | --- | --- | --- | --- | 1,320 | 6,138 | 9,170 | 13,668 | 17,226 | 17,038 |
| Russet Nugget | % | --- | --- | --- | --- | --- | --- | --- | --- | 9.6 | 10.1 | 13.7 |
| | Acreage | --- | --- | --- | --- | --- | --- | --- | --- | 6,528 | 6,666 | 9,933 |
| Sangre | % | 5.7 | 3.1 | 5.1 | 7.2 | 6.3 | 6.3 | 7.9 | 7.6 | --- | 5.9 | 7.5 |
| | Acreage | 2,679 | 1,659 | 2,882 | 4,104 | 3,843 | 3,780 | 4,898 | 4,978 | --- | 3,894 | 5,438 |
| Total Fall Acreage Planted | | 47,000 | 53,500 | 56,500 | 57,000 | 61,000 | 60,000 | 62,000 | 65,000 | 68,000 | 66,000 | 72,500 |

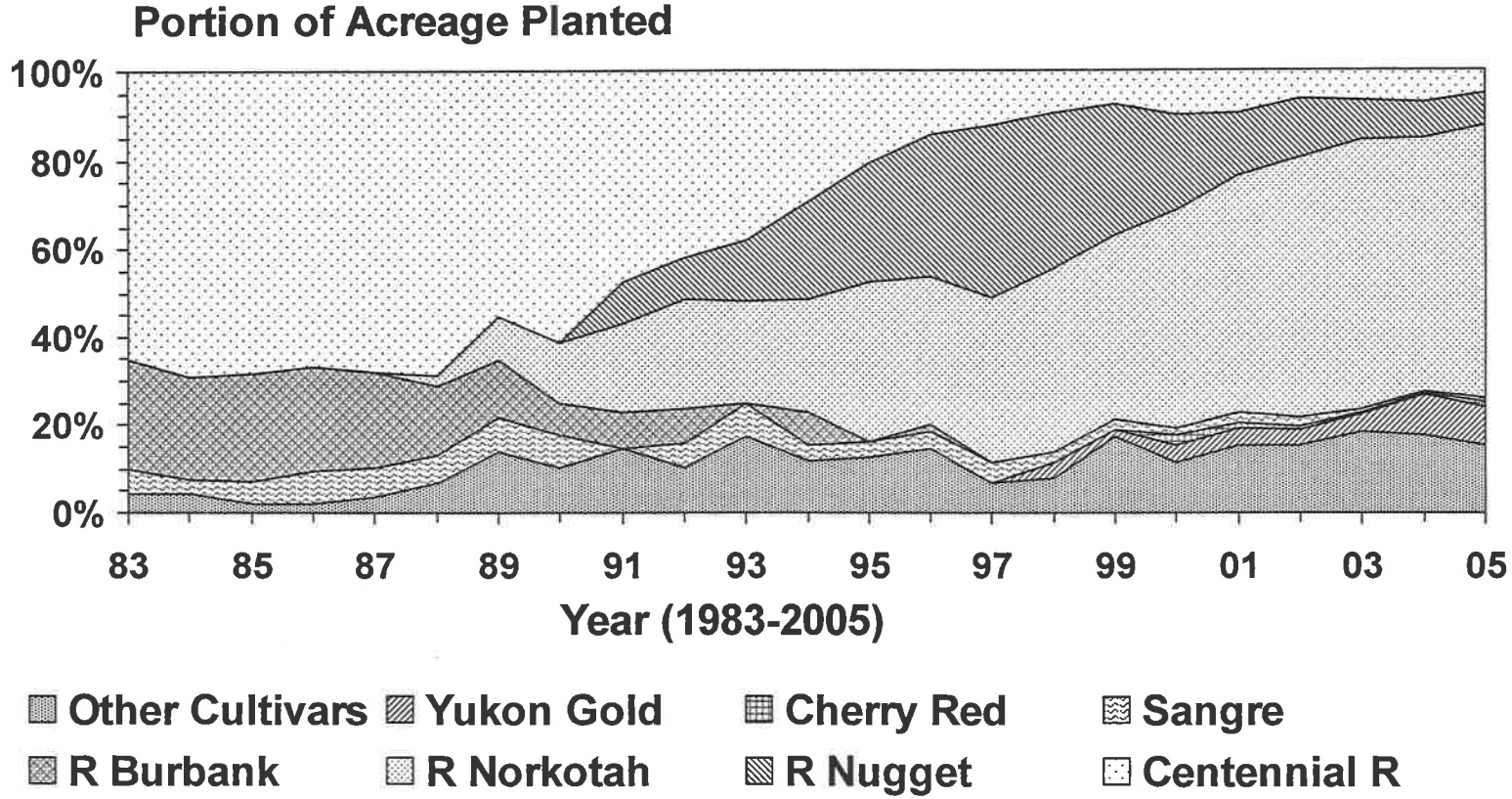
[1]Data provided by the Colorado Agricultural Statistics Service.

Table 2B. Colorado fall potatoes: Production of primary potato cultivars, 1994-2005[1].

| Cultivar | %/Acreage | Year | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
| Centennial Russet | % | 30.3 | 20.5 | 15.0 | 12.3 | 9.3 | 7.6 | 9.9 | 9.6 | 6.5 | 6.6 | 7.1 | 4.6 |
| | Acreage | 22,422 | 15,785 | 11,700 | 9,471 | 7,049 | 5,687 | 7,484 | 6,538 | 4,654 | 4,376 | 4,615 | 2,677 |
| Cherry Red | % | --- | --- | --- | --- | --- | --- | 2.3 | 1.4 | 0.8 | 0.3 | 0.4 | 0.8 |
| | Acreage | --- | --- | --- | --- | --- | --- | 1,739 | 953 | 5,728 | 199 | 260 | 4,656 |
| Durango Red | % | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1.2 | 0.6 | 0.2 |
| | Acreage | --- | --- | --- | --- | --- | --- | --- | --- | --- | 796 | 390 | 116 |
| Keystone Russet | % | --- | --- | --- | --- | --- | --- | --- | --- | --- | 1.0 | 1.1 | 0.7 |
| | Acreage | --- | --- | --- | --- | --- | --- | --- | --- | --- | 663 | 715 | 407 |
| Rio Grande Russet | % | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 3.4 | 7.7 |
| | Acreage | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 2,210 | 4,481 |
| Russet Norkotah | % | 26.6 | 36.2 | 35.6 | 37.6 | 41.6 | 42.0 | 49.3 | 53.8 | 59.1 | 60.7 | 57.6 | 56.1 |
| | Acreage | 19,684 | 27,874 | 27,768 | 28,952 | 31,533 | 32,424 | 37,271 | 36,638 | 42,316 | 40,244 | 37,440 | 32,650 |
| Russet Nugget | % | 23.1 | 27.0 | 34.0 | 38.8 | 35.1 | 29.0 | 21.4 | 13.8 | 12.7 | 9.0 | 7.8 | 6.4 |
| | Acreage | 17,094 | 20,790 | 26,520 | 29,876 | 26,606 | 22,388 | 16,178 | 9,398 | 9,093 | 5,967 | 5,070 | 3,725 |
| Sangre | % | 3.8 | 3.8 | 4.4 | 4.4 | 2.7 | 2.5 | 1.8 | 2.1 | 2.0 | 0.8 | 0.3 | 0.8 |
| | Acreage | 2,812 | 2,926 | 3,432 | 3,388 | 2,047 | 1,930 | 1,361 | 1,430 | 1,432 | 530 | 195 | 466 |
| Silverton Russet | % | --- | --- | --- | --- | --- | --- | 0.5 | 1.7 | 1.9 | 2.0 | 0.5 | 0.7 |
| | Acreage | --- | --- | --- | --- | --- | --- | 378 | 1,158 | 1,360 | 1,326 | 325 | 407 |
| Yukon Gold | % | --- | --- | --- | --- | 3.4 | 1.4 | 3.7 | 4.0 | 3.6 | 4.1 | 9.0 | 8.0 |
| | Acreage | --- | --- | --- | --- | 2,577 | 1,081 | 2,797 | 2,724 | 2,578 | 2,718 | 5,850 | 4,656 |
| Total Fall Acreage Planted | | 74,000 | 77,000 | 78,000 | 77,000 | 75,800 | 77,200 | 75,600 | 68,100 | 71,600 | 66,300 | 65,000 | 58,200 |

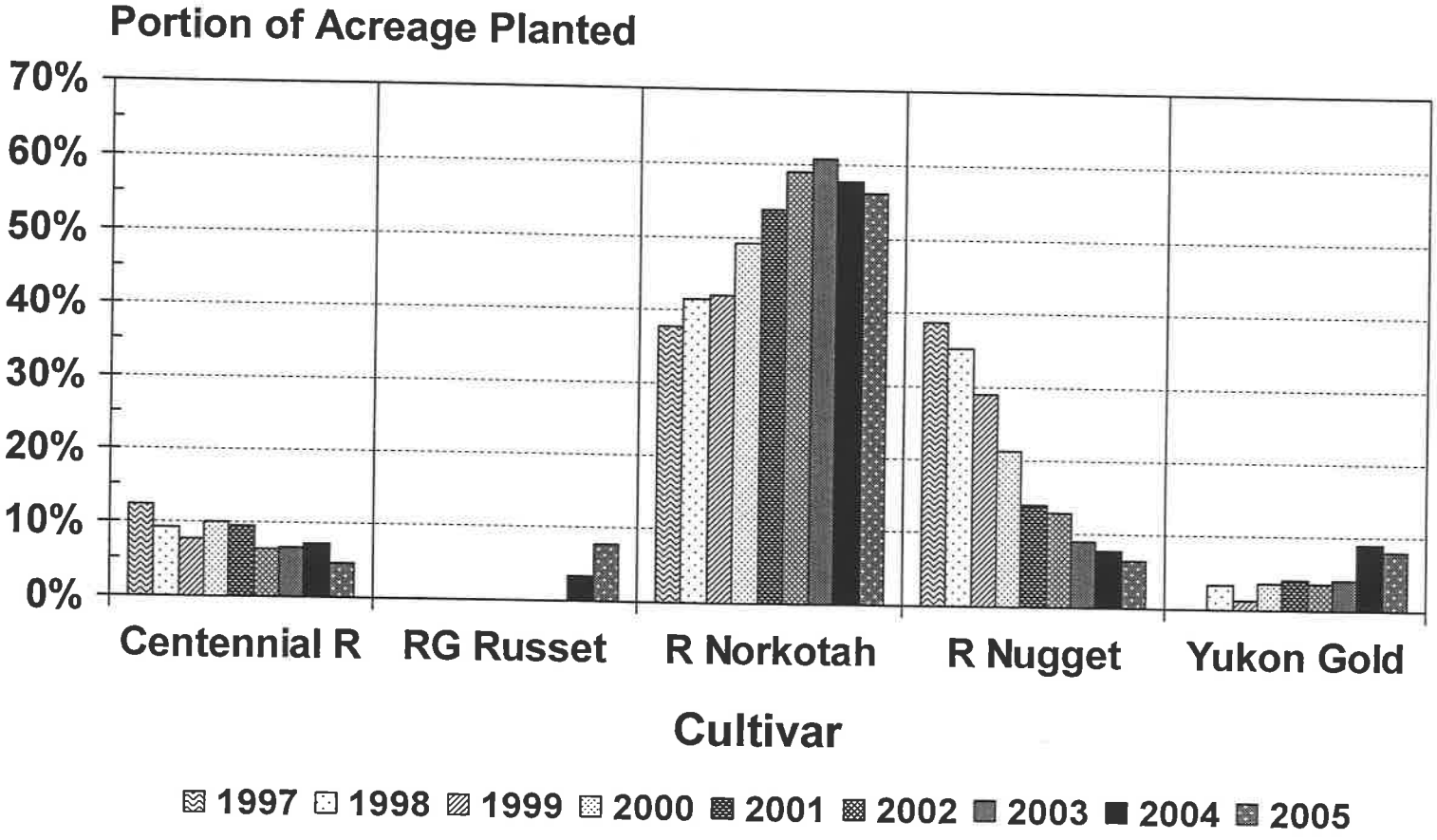
[1]Data provided by the Colorado Agricultural Statistics Service.

# Figure 1. Primary SLV Potato Cultivars Planted 1983–2005



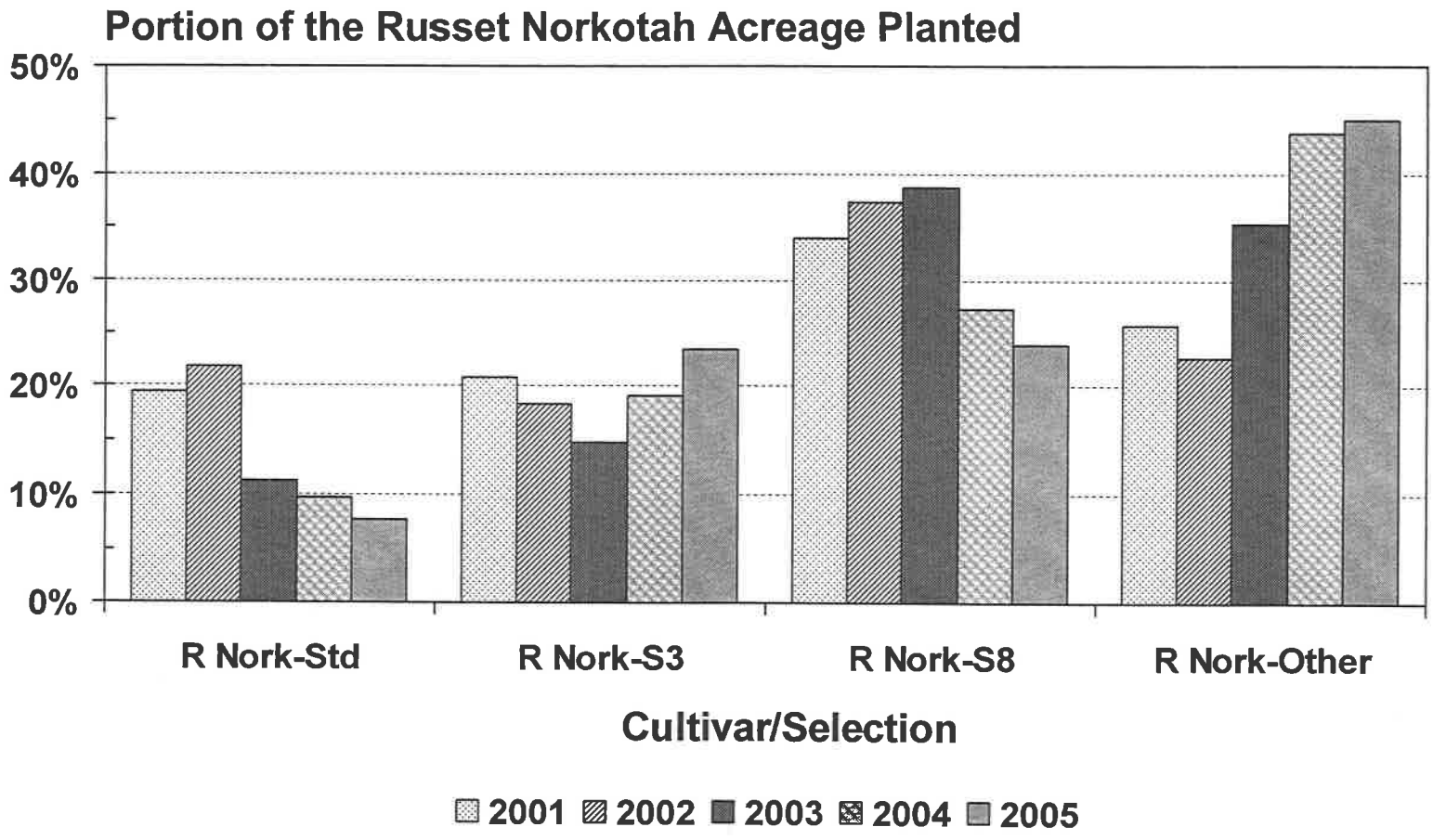

Data Source: Colorado Agricultural Statistics Service

# Figure 2. Primary SLV Potato Cultivars 1997-2005 Comparison




Data Source: Colorado Agricultural Statistics Service

# Figure 3. Colorado Russet Norkotah Acreage Breakdown (2001-2005)




Data Source: Colorado Agricultural Statistics Service

Table 3A. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Preliminary Trial entries - 2005.

| Clone | Blackspot Index[1] | | | % Weight Loss[2] | Dormancy (Days)[3] | Enzymatic Browning[4] |
|---|---|---|---|---|---|---|
| | Bud End | Stem End | Average | | | |
| AC97306-1RU | 4.2 | 2.1 | 3.2 | 1.7 | 147 | 3.6 |
| AC00033-2RU | 4.8 | 5.0 | 4.9 | 2.3 | 98 | 4.8 |
| AC00304-2RU | 4.7 | 4.8 | 4.8 | 2.7 | 105 | 4.6 |
| AC00305-4RU | 4.3 | 5.0 | 4.7 | 2.3 | 98 | 4.4 |
| AC00305-7RU | 5.0 | 5.0 | 5.0 | 2.6 | 98 | 4.8 |
| AC00305-8RU | 5.0 | 4.6 | 4.8 | 2.0 | 91 | 4.4 |
| AC00322-7RU | 5.0 | 4.8 | 4.9 | 3.2 | 91 | 5.0 |
| AC00487-1RU | 5.0 | 5.0 | 5.0 | 3.3 | 56 | 3.8 |
| AC00487-2RU | 4.1 | 4.4 | 4.3 | 2.6 | 98 | 3.4 |
| AC00550-4RU | 4.8 | 4.7 | 4.8 | 2.3 | 84 | 5.0 |
| AC00550-5RU/Y | 5.0 | 4.8 | 4.9 | 2.4 | 84 | 4.8 |
| AC00594-4RU/Y | 5.0 | 5.0 | 5.0 | 2.8 | 84 | 4.8 |
| ATC00293-1W/Y | 5.0 | 5.0 | 5.0 | 1.6 | 112 | 4.8 |
| CO00208-1RU | 5.0 | 5.0 | 5.0 | 2.7 | 84 | 4.8 |
| CO00263-3R | 4.4 | 4.5 | 4.5 | 2.8 | 77 | 4.2 |
| CO00264-1RU/Y | 4.6 | 5.0 | 4.8 | 2.2 | 105 | 4.8 |
| CO00277-2R | 5.0 | 5.0 | 5.0 | 2.7 | 49 | 4.2 |
| CO00278-4R | 4.8 | 5.0 | 4.9 | 3.6 | 63 | 3.8 |
| CO00279-2R/Y | 5.0 | 4.3 | 4.7 | 1.9 | 84 | 4.6 |
| CO00291-5R | 2.9 | 3.7 | 3.3 | 4.6 | 84 | 2.2 |
| CO00334-1R | 5.0 | 4.4 | 4.7 | 4.3 | 70 | 3.8 |
| CO00339-4R | 4.5 | 3.6 | 4.1 | 3.7 | 70 | 1.8 |
| CO00379-2R/Y | 4.9 | 4.8 | 4.9 | 2.4 | 70 | 4.6 |
| CO00405-1R | 5.0 | 5.0 | 5.0 | 3.1 | 84 | 4.2 |
| CO00412-5W/Y | 4.5 | 4.4 | 4.5 | 2.0 | 70 | 3.6 |
| CO00415-1R | 4.9 | 4.9 | 4.9 | 2.2 | 84 | 4.0 |
| Adirondack Blue | --- | --- | --- | 2.3 | 91 | --- |
| Centennial Russet | 5.0 | 5.0 | 5.0 | 4.5 | 90 | 4.0 |
| Russet Burbank | 4.9 | 4.6 | 4.8 | 1.6 | 126 | 3.2 |

Table 3A continued on next page

Table 3A (cont'd). Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Preliminary Trial entries - 2005.

| Clone | Blackspot Index[1] | | | % Weight Loss[2] | Dormancy (Days)[3] | Enzymatic Browning[4] |
|---|---|---|---|---|---|---|
| | Bud End | Stem End | Average | | | |
| Russet Norkotah-S3 | 5.0 | 5.0 | 5.0 | 1.6 | 126 | 4.2 |
| Russet Nugget | 5.0 | 5.0 | 5.0 | 1.7 | 119 | 4.8 |
| Sangre-S10 | 4.4 | 4.8 | 4.6 | 1.4 | 84 | 3.4 |
| Shepody | 5.0 | 4.3 | 4.7 | 1.7 | 91 | 4.4 |
| Yukon Gold | 4.9 | 4.5 | 4.7 | 1.5 | 86 | 4.8 |

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

[2]Tubers were stored at 45F for 90 days.

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

[4]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. Specific gravity, french fry color, and texture for Preliminary Trial clones - 2005.

| Clone | Specific Gravity | Fry Color[1] | | Fry Texture[2] | |
|---|---|---|---|---|---|
| | | At Harvest | 3 wks 55F+ 9 wks 45F | At Harvest | 3 wks 55F+ 9 wks 45F |
| AC97306-1RU | 1.101 | 3 | 2 | 3 | 3 |
| AC00033-2RU | 1.090 | 1 | 1 | 3 | 3 |
| AC00304-2RU | 1.073 | 1 | 1 | 2 | 3 |
| AC00305-4RU | 1.075 | 3 | 3 | 2 | 2 |
| AC00305-7RU | 1.086 | 2 | 2 | 4 | 4 |
| AC00305-8RU | 1.080 | 4 | 3 | 3 | 2 |
| AC00322-7RU | 1.072 | 1 | 1 | 1 | 1 |
| AC00487-1RU | 1.076 | 1 | 1 | 2 | 2 |
| AC00487-2RU | 1.089 | 2 | 1 | 2 | 2 |
| AC00550-4RU | 1.089 | 1 | 2 | 2 | 2 |
| AC00550-5RU/Y | 1.078 | 3 | 1 | 2 | 3 |
| AC00594-4RU/Y | 1.087 | 1 | 1 | 3 | 3 |
| ATC00293-1W/Y | 1.075 | 1 | 3 | 1 | 2 |
| CO00208-1RU | 1.081 | 2 | 3 | 2 | 3 |
| CO00263-3R | 1.079 | 1 | 2 | 2 | 2 |
| CO00264-1RU/Y | 1.078 | 1 | 3 | 3 | 3 |
| CO00277-2R | 1.078 | 3 | 4 | 2 | 2 |
| CO00278-4R | 1.083 | 1 | 3 | 3 | 3 |
| CO00279-2R/Y | 1.078 | 1 | 2 | 2 | 2 |
| CO00291-5R | 1.072 | 3 | 3 | 3 | 3 |
| CO00334-1R | 1.078 | 1 | 4 | 1 | 2 |
| CO00339-4R | 1.083 | 2 | 4 | 3 | 3 |
| CO00379-2R/Y | 1.074 | 1 | 3 | 2 | 2 |
| CO00405-1R | 1.077 | 1 | 2 | 3 | 3 |
| CO00412-5W/Y | 1.077 | 1 | 2 | 2 | 2 |
| CO00415-1R | 1.071 | 2 | 3 | 2 | 2 |
| Adirondack Blue | 1.078 | --- | --- | 3 | 3 |
| Centennial Russet | 1.071 | 4 | 4 | 1 | 1 |
| Russet Burbank | 1.082 | 3 | 2 | 3 | 3 |

Table 3B continued on next page

Table 3B (cont'd). Specific gravity, french fry color, and texture for Preliminary Trial clones - 2005.

| Clone | Specific Gravity | Fry Color[1] | | Fry Texture[2] | |
|---|---|---|---|---|---|
| | | At Harvest | 3 wks 55F+ 9 wks 45F | At Harvest | 3 wks 55F+ 9 wks 45F |
| Russet Norkotah-S3 | 1.066 | 4 | 3 | 1 | 2 |
| Russet Nugget | 1.079 | 2 | 2 | 3 | 4 |
| Sangre-S10 | 1.073 | 4 | 4 | 2 | 2 |
| Shepody | 1.088 | 2 | 3 | 3 | 3 |
| Yukon Gold | 1.083 | 3 | 4 | 2 | 3 |

[1]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.

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

Table 4A. Yield, grade and tuber shape for Intermediate Yield Trial entries - 2005.

| Clone | Yield (Cwt/A) | | | | | | Tuber Shape[1] |
|---|---|---|---|---|---|---|---|
| | | US #1 | | | | | |
| | Total | Total | % | 4-10 oz | >10 oz | <4 oz | |
| AC97044-4RU | 553 | 503 | 90.9 | 339 | 164 | 44 | Ob |
| AC99178-2RU | 412 | 323 | 78.2 | 299 | 23 | 81 | Ob |
| AC99336-2RU | 442 | 416 | 94.1 | 235 | 182 | 22 | Ob |
| AC99375-RU | 451 | 409 | 90.6 | 260 | 148 | 32 | Ob |
| AC99380-4RU | 527 | 428 | 81.2 | 391 | 38 | 97 | Ob |
| CO99019-1RU | 322 | 259 | 80.1 | 210 | 48 | 59 | L |
| CO99028-2RU | 295 | 221 | 75.2 | 213 | 8 | 68 | L |
| CO99036-6RU | 343 | 298 | 86.6 | 234 | 64 | 44 | L |
| CO99043-7RU | 330 | 253 | 76.4 | 246 | 7 | 69 | L |
| CO99053-3RU | 559 | 517 | 92.5 | 258 | 259 | 26 | Ob |
| CO99053-4RU | 339 | 308 | 91.1 | 217 | 92 | 30 | Ob |
| CO99100-1RU | 409 | 377 | 91.9 | 255 | 121 | 32 | Ob |
| CO99199-1RU | 456 | 372 | 81.7 | 335 | 38 | 78 | Ob |
| CO99305-1RU | 263 | 222 | 81.3 | 193 | 29 | 41 | R |
| VC1115-1RU | 399 | 347 | 86.8 | 305 | 41 | 48 | Ob |
| Russet Norkotah | 302 | 278 | 91.8 | 196 | 82 | 24 | L |
| Russet Nugget | 547 | 416 | 78.2 | 299 | 117 | 47 | Ob |
| Mean | 409 | 350 | 85.2 | 264 | 86 | 49 | ---- |
| LSD[2] (0.05) | 120 | 88 | 10.5 | 74 | 56 | 21 | ---- |

[1]Tuber shape: R=round; Ob=oblong; L=long.

[2]LSD=least significant difference.

Table 4B. Grade defects for Intermediate Yield Trial entries - 2005.

| Clone | % External Defects[1] | External Defects Observed[2] | % Hollow Heart[3] |
|---|---|---|---|
| AC97044-4RU | 1.2 | MS, GR* | 2.7 |
| AC99178-2RU | 1.8 | MS*, GC* | 0.0 |
| AC99336-2RU | 0.9 | MS*, GC | 0.0 |
| AC99375-RU | 2.2 | MS*, GR* | 0.0 |
| AC99380-4RU | 0.4 | MS*, GR* | 0.0 |
| CO99019-1RU | 1.5 | MS*, GC | 0.0 |
| CO99028-2RU | 1.7 | MS* | 0.0 |
| CO99036-6RU | 0.5 | MS* | 0.0 |
| CO99043-7RU | 2.3 | MS* | 0.0 |
| CO99053-3RU | 2.9 | MS*, GR* | 0.7 |
| CO99053-4RU | 0.0 | | 0.0 |
| CO99100-1RU | 0.0 | | 0.0 |
| CO99199-1RU | 1.3 | MS* | 1.5 |
| CO99305-1RU | 0.4 | MS* | 0.0 |
| VC1115-1RU | 1.0 | MS* | 0.0 |
| Russet Norkotah | 0.0 | | 0.0 |
| Russet Nugget | 1.7 | GR* | 0.0 |

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

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

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

Table 4C. Growth characteristics of Intermediate Yield Trial entries - 2005.

| Clone | % Stand | Emergence Uniformity[1] | Vine Vigor[2] | Stems/ Plant | Vine Size[3] | Vine Type[4] | Vine Maturity[5] |
|---|---|---|---|---|---|---|---|
| AC97044-4RU | 98 | 3.0 | 3.5 | 4.3 | 5.0 | 4.0 | 4.0 |
| AC99178-2RU | 96 | 3.0 | 3.0 | 5.2 | 3.0 | 2.5 | 2.5 |
| AC99336-2RU | 98 | 3.0 | 2.5 | 5.6 | 3.0 | 2.0 | 3.0 |
| AC99375-RU | 96 | 3.0 | 2.5 | 4.3 | 3.0 | 3.0 | 3.0 |
| AC99380-4RU | 100 | 3.0 | 3.0 | 4.0 | 4.0 | 2.5 | 3.5 |
| CO99019-1RU | 100 | 3.0 | 2.5 | 4.6 | 2.5 | 2.0 | 1.5 |
| CO99028-2RU | 100 | 3.0 | 2.5 | 4.0 | 2.5 | 1.5 | 1.0 |
| CO99036-6RU | 100 | 3.0 | 2.0 | 4.3 | 2.0 | 3.0 | 2.5 |
| CO99043-7RU | 100 | 3.5 | 2.0 | 5.0 | 2.0 | 3.0 | 1.0 |
| CO99053-3RU | 98 | 3.0 | 3.0 | 3.5 | 4.0 | 3.0 | 4.0 |
| CO99053-4RU | 98 | 3.0 | 2.5 | 5.5 | 3.0 | 3.0 | 2.0 |
| CO99100-1RU | 98 | 3.0 | 3.0 | 4.8 | 2.5 | 3.0 | 2.0 |
| CO99199-1RU | 96 | 3.0 | 4.0 | 3.6 | 4.0 | 3.0 | 3.0 |
| CO99305-1RU | 96 | 3.0 | 2.0 | 4.4 | 1.5 | 3.0 | 2.5 |
| VC1115-1RU | 98 | 3.5 | 2.5 | 3.7 | 2.5 | 3.0 | 3.0 |
| Russet Norkotah | 98 | 3.5 | 1.0 | 4.3 | 2.0 | 3.0 | 2.0 |
| Russet Nugget | 96 | 3.0 | 3.0 | 3.7 | 4.0 | 3.5 | 3.5 |
| Mean | 98 | 3.1 | 2.6 | 4.4 | 3.0 | 2.8 | 2.6 |
| LSD[6] (0.05) | 4 | 0.6 | 0.9 | 2.3 | 0.8 | 0.7 | 0.8 |

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

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

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

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

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

[6]LSD=least significant difference.

Table 4D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Intermediate Yield Trial entries - 2005.

| Clone | Blackspot Index[1] | | | % Weight Loss[2] | Dormancy (Days)[3] | Enzymatic Browning[4] |
|---|---|---|---|---|---|---|
| | Bud End | Stem End | Average | | | |
| AC97044-4RU | 4.7 | 3.4 | 4.1 | 2.8 | 56 | 3.6 |
| AC99178-2RU | 5.0 | 4.7 | 4.9 | 3.2 | 84 | 3.4 |
| AC99336-2RU | 4.4 | 3.8 | 4.1 | 1.9 | 91 | 1.8 |
| AC99375-RU | 5.0 | 4.5 | 4.8 | 2.0 | 98 | 2.2 |
| AC99380-4RU | 3.5 | 3.0 | 3.3 | 3.5 | 91 | 4.4 |
| CO99019-1RU | 3.7 | 5.0 | 4.4 | 3.8 | 56 | 3.2 |
| CO99028-2RU | 4.8 | 3.1 | 4.0 | 3.9 | 84 | 4.8 |
| CO99036-6RU | 4.9 | 4.1 | 4.5 | 2.3 | 56 | 5.0 |
| CO99043-7RU | 5.0 | 4.6 | 4.8 | 2.1 | 98 | 3.8 |
| CO99053-3RU | 4.6 | 3.7 | 4.2 | 2.0 | 84 | 3.2 |
| CO99053-4RU | 5.0 | 4.2 | 4.6 | 2.8 | 70 | 4.6 |
| CO99100-1RU | 5.0 | 4.7 | 4.9 | 3.1 | 56 | 3.8 |
| CO99199-1RU | 5.0 | 3.9 | 4.5 | 2.9 | 98 | 3.4 |
| CO99305-1RU | 3.9 | 4.1 | 4.0 | 3.1 | 91 | 4.6 |
| VC1115-1RU | 5.0 | 5.0 | 5.0 | 2.8 | 91 | 4.2 |
| Russet Norkotah | 5.0 | 4.6 | 4.8 | 5.5 | 91 | 3.8 |
| Russet Nugget | 4.8 | 4.4 | 4.6 | 1.8 | 84 | 2.8 |

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

[2]Tubers were stored at 45F for 90 days.

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

[4]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 Yield Trial clones - 2005.

| Clone | Specific Gravity | Fry Color[1] | | Fry Texture[2] | |
|---|---|---|---|---|---|
| | | At Harvest | 3 wks 55F+ 9 wks 45F | At Harvest | 3 wks 55F+ 9 wks 45F |
| AC97044-4RU | 1.096 | 1 | 2 | 2 | 3 |
| AC99178-2RU | 1.089 | 1 | 3 | 3 | 3 |
| AC99336-2RU | 1.100 | 2 | 2 | 5 | 5 |
| AC99375-RU | 1.100 | 1 | 1 | 4 | 4 |
| AC99380-4RU | 1.114 | 0 | 0 | 5 | 5 |
| CO99019-1RU | 1.083 | 1 | 1 | 4 | 3 |
| CO99028-2RU | 1.088 | 1 | 3 | 3 | 3 |
| CO99036-6RU | 1.084 | 0 | 3 | 3 | 3 |
| CO99043-7RU | 1.076 | 2 | 4 | 1 | 2 |
| CO99053-3RU | 1.096 | 1 | 2 | 3 | 3 |
| CO99053-4RU | 1.086 | 0 | 1 | 3 | 3 |
| CO99100-1RU | 1.087 | 0 | 1 | 3 | 3 |
| CO99199-1RU | 1.109 | 0 | 1 | 4 | 4 |
| CO99305-1RU | 1.080 | 0 | 1 | 2 | 3 |
| VC1115-1RU | 1.077 | 0 | 2 | 2 | 2 |
| Russet Norkotah | 1.082 | 3 | 3 | 1 | 2 |
| Russet Nugget | 1.108 | 1 | 2 | 4 | 4 |

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

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

Table 5A. Yield, grade and tuber shape for Advanced Yield Trial entries - 2005.

| Clone | Yield (Cwt/A) | | | | | | Tuber Shape[1] |
|---|---|---|---|---|---|---|---|
| | | US #1 | | | | | |
| | Total | Total | % | 4-10 oz | >10 oz | <4 oz | |
| AC92009-4RU | 403 | 369 | 91.5 | 299 | 70 | 28 | L |
| AC97068-2RU | 502 | 439 | 87.2 | 361 | 79 | 54 | Ob |
| AC98350-2RU | 478 | 397 | 83.1 | 342 | 55 | 60 | Ob |
| CO93001-11RU | 360 | 307 | 85.2 | 265 | 42 | 44 | L |
| CO97087-2RU | 445 | 390 | 87.6 | 313 | 77 | 47 | Ob |
| CO97090-4RU | 360 | 277 | 76.8 | 256 | 21 | 77 | L |
| CO97138-3RU | 433 | 403 | 93.3 | 204 | 199 | 29 | L |
| CO97138-7RU | 501 | 474 | 94.6 | 211 | 262 | 25 | L |
| CO98009-3RU | 468 | 392 | 83.4 | 303 | 89 | 57 | L |
| CO98067-7RU | 446 | 396 | 88.4 | 293 | 102 | 48 | L |
| CO98368-2RU | 425 | 303 | 71.0 | 267 | 36 | 116 | Ob |
| Russet Norkotah | 340 | 306 | 89.8 | 196 | 110 | 31 | L |
| Russet Nugget | 501 | 413 | 82.5 | 315 | 98 | 81 | Ob |
| Mean | 435 | 374 | 85.7 | 279 | 95 | 54 | ---- |
| LSD[2] (0.05) | 67 | 67 | 5.2 | 49 | 48 | 19 | ---- |

[1]Tuber shape: Ob=oblong; L=long.

[2]LSD=least significant difference.

Table 5B. Grade defects for Advanced Yield Trial entries - 2005.

| Clone | % External Defects[1] | External Defects Observed[2] | % Hollow Heart[3] |
|---|---|---|---|
| AC92009-4RU | 1.6 | MS* | 0.0 |
| AC97068-2RU | 1.7 | MS*, GR | 0.0 |
| AC98350-2RU | 4.4 | MS*, GC, GR | 0.0 |
| CO93001-11RU | 2.5 | MS*, GC, GR | 0.0 |
| CO97087-2RU | 2.0 | MS, GR* | 0.0 |
| CO97090-4RU | 1.7 | MS, GR* | 0.0 |
| CO97138-3RU | 0.2 | MS* | 0.0 |
| CO97138-7RU | 0.4 | MS* | 0.3 |
| CO98009-3RU | 4.1 | MS*, GC | 0.0 |
| CO98067-7RU | 0.5 | MS* | 0.0 |
| CO98368-2RU | 1.3 | MS*, GC, GR | 0.0 |
| Russet Norkotah | 0.5 | MS*, GR* | 0.8 |
| Russet Nugget | 1.4 | MS* | 0.0 |

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

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

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

Table 5C. Growth characteristics of Advanced Yield Trial entries- 2005.

| Clone | % Stand | Emergence Uniformity[1] | Vine Vigor[2] | Stems/ Plant | Vine Size[3] | Vine Type[4] | Vine Maturity[5] |
|---|---|---|---|---|---|---|---|
| AC92009-4RU | 97 | 2.8 | 3.0 | 4.2 | 3.8 | 3.8 | 3.0 |
| AC97068-2RU | 94 | 3.0 | 3.0 | 4.7 | 3.8 | 2.8 | 3.3 |
| AC98350-2RU | 100 | 3.0 | 3.0 | 5.0 | 3.0 | 2.5 | 2.5 |
| CO93001-11RU | 98 | 3.0 | 2.5 | 4.7 | 2.5 | 3.0 | 2.3 |
| CO97087-2RU | 98 | 3.0 | 3.0 | 4.6 | 3.3 | 3.0 | 3.0 |
| CO97090-4RU | 96 | 3.0 | 2.3 | 4.2 | 2.5 | 3.0 | 2.8 |
| CO97138-3RU | 94 | 2.3 | 3.8 | 4.8 | 3.8 | 2.0 | 2.5 |
| CO97138-7RU | 95 | 2.8 | 3.0 | 4.7 | 2.8 | 2.3 | 3.0 |
| CO98009-3RU | 98 | 3.3 | 3.0 | 5.0 | 3.5 | 3.0 | 3.0 |
| CO98067-7RU | 99 | 3.8 | 2.8 | 4.3 | 3.0 | 2.8 | 2.5 |
| CO98368-2RU | 99 | 3.5 | 3.0 | 4.4 | 3.0 | 2.0 | 2.5 |
| Russet Norkotah | 99 | 3.0 | 2.0 | 4.9 | 2.0 | 3.0 | 2.3 |
| Russet Nugget | 98 | 2.8 | 3.3 | 5.5 | 4.0 | 3.8 | 3.5 |
| Mean | 97 | 3.0 | 2.9 | 4.7 | 3.1 | 2.8 | 2.8 |
| LSD[6] (0.05) | 4 | 0.5 | 0.4 | 1.1 | 0.5 | 0.5 | 0.6 |

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

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

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

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

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

[6]LSD=least significant difference.

Table 5D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced Yield Trial entries - 2005.

| Clone | Blackspot Index[1] | | | % Weight Loss[2] | Dormancy (Days)[3] | Enzymatic Browning[4] |
|---|---|---|---|---|---|---|
| | Bud End | Stem End | Average | | | |
| AC92009-4RU | 4.6 | 2.9 | 3.8 | 2.6 | 126 | 4.8 |
| AC97068-2RU | 3.3 | 2.4 | 2.9 | 2.4 | 70 | 2.0 |
| AC98350-2RU | 5.0 | 4.7 | 4.9 | 1.9 | 98 | 3.6 |
| CO93001-11RU | 5.0 | 4.8 | 4.9 | 4.1 | 49 | 4.0 |
| CO97087-2RU | 5.0 | 4.5 | 4.8 | 2.3 | 84 | 4.4 |
| CO97090-4RU | 5.0 | 3.5 | 4.3 | 1.9 | 98 | 3.8 |
| CO97138-3RU | 5.0 | 4.5 | 4.8 | 2.3 | 77 | 4.0 |
| CO97138-7RU | 4.4 | 3.9 | 4.2 | 2.5 | 91 | 3.6 |
| CO98009-3RU | 3.5 | 1.5 | 2.5 | 3.8 | 56 | 3.0 |
| CO98067-7RU | 5.0 | 5.0 | 5.0 | 3.3 | 56 | 4.8 |
| CO98368-2RU | 4.8 | 3.6 | 4.2 | 2.6 | 98 | 4.8 |
| Russet Norkotah | 4.7 | 3.2 | 3.9 | 2.5 | 98 | 2.8 |
| Russet Nugget | 5.0 | 4.6 | 4.8 | 1.6 | 91 | 3.8 |

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

[2]Tubers were stored at 45F for 90 days.

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

[4]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 Advanced Yield Trial entries - 2005.

| Clone | Specific Gravity | Fry Color[1] | | Fry Texture[2] | |
|---|---|---|---|---|---|
| | | At Harvest | 3 wks 55F+ 9 wks 45F | At Harvest | 3 wks 55F+ 9 wks 45F |
| AC92009-4RU | 1.106 | 2 | 2 | 3 | 3 |
| AC97068-2RU | 1.101 | 2 | 2 | 3 | 3 |
| AC98350-2RU | 1.088 | 3 | 4 | 3 | 4 |
| CO93001-11RU | 1.079 | 1 | 1 | 3 | 3 |
| CO97087-2RU | 1.102 | 0 | 0 | 3 | 3 |
| CO97090-4RU | 1.082 | 2 | 3 | 2 | 2 |
| CO97138-3RU | 1.087 | 3 | 3 | 3 | 2 |
| CO97138-7RU | 1.077 | 2 | 3 | 2 | 2 |
| CO98009-3RU | 1.098 | 1 | 2 | 4 | 4 |
| CO98067-7RU | 1.076 | 1 | 2 | 4 | 3 |
| CO98368-2RU | 1.086 | 2 | 3 | 4 | 3 |
| Russet Norkotah | 1.084 | 1 | 3 | 3 | 3 |
| Russet Nugget | 1.105 | 2 | 3 | 4 | 4 |

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

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

Table 6A. Yield, grade and tuber shape for Southwest Regional Trial entries - 2005.

| Clone | Yield (Cwt/A) | | | | | | Tuber Shape[1] |
|---|---|---|---|---|---|---|---|
| | Total | US #1 | | | | | |
| | | Total | % | 4-10 oz | >10 oz | <4 oz | |
| AC96052-1RU | 505 | 435 | 86.2 | 319 | 117 | 60 | Ob |
| AC97097-14W | 419 | 352 | 83.7 | 300 | 52 | 65 | Ov |
| AC97521-1R/Y | 666 | 497 | 74.6 | 434 | 63 | 166 | Ob |
| AOTX95265-2ARU | 491 | 430 | 87.5 | 235 | 196 | 46 | L |
| AOTX95265-4RU03 | 478 | 430 | 89.9 | 230 | 200 | 26 | Ob |
| AOTX98137-1RU | 374 | 317 | 84.6 | 233 | 84 | 53 | L |
| CO97043-14W | 351 | 297 | 84.7 | 172 | 125 | 46 | R |
| CO97065-7W | 443 | 393 | 88.8 | 270 | 123 | 49 | R |
| CO97078-5R | 423 | 371 | 87.6 | 289 | 83 | 50 | R |
| CO97137-1W | 435 | 349 | 80.2 | 241 | 109 | 73 | L |
| CO97226-2R/R | 388 | 188 | 48.5 | 187 | 1 | 200 | R |
| CO97232-1R/Y | 441 | 319 | 72.4 | 296 | 23 | 117 | Ob |
| CO97232-2R/Y | 416 | 354 | 85.0 | 249 | 105 | 59 | Ov |
| CO97233-3R/Y | 519 | 391 | 75.0 | 309 | 82 | 112 | L |
| MWTX2609-4RU | 664 | 606 | 91.4 | 345 | 262 | 39 | Ob |
| TXDH-99-1RU | 725 | 627 | 86.4 | 345 | 283 | 71 | Ob |
| All Blue | 525 | 292 | 55.2 | 279 | 13 | 229 | Ob |
| Atlantic | 478 | 430 | 89.9 | 242 | 188 | 41 | Ov |
| Chipeta | 637 | 570 | 89.4 | 366 | 204 | 52 | Ov |
| Norland(DR) | 391 | 342 | 87.2 | 232 | 109 | 46 | Ov |
| Red LaSoda | 639 | 577 | 90.4 | 301 | 276 | 49 | Ov |
| Russet Norkotah | 360 | 323 | 89.5 | 204 | 119 | 38 | L |
| Russet Nugget | 522 | 437 | 84.1 | 298 | 139 | 69 | Ob |
| Sangre-S10 | 587 | 507 | 86.3 | 338 | 169 | 76 | Ov |
| Yukon Gold | 450 | 404 | 89.6 | 224 | 180 | 42 | Ov |
| Mean | 493 | 410 | 82.7 | 277 | 132 | 75 | ---- |
| LSD[2] (0.05) | 62 | 63 | 4.9 | 46 | 57 | 18 | ----- |

[1]Tuber shape: R=round; Ov=oval; Ob=oblong; L=long.

[2]LSD=least significant difference.

Table 6B. Grade defects for Southwest Regional Trial entries - 2005.

| Clone | % External Defects[1] | External Defects Observed[2] | % Hollow Heart[3] |
|---|---|---|---|
| AC96052-1RU | 1.9 | MS*, GC, GR* | 0.6 |
| AC97097-14W | 0.4 | MS* | 0.4 |
| AC97521-1R/Y | 0.3 | MS* | 0.4 |
| AOTX95265-2ARU | 3.0 | MS*, GR | 0.0 |
| AOTX95265-4RU03 | 4.4 | MS*, GR | 1.0 |
| AOTX98137-1RU | 0.9 | MS* | 0.4 |
| CO97043-14W | 2.4 | MS, GR* | 0.0 |
| CO97065-7W | 0.2 | GR* | 0.0 |
| CO97078-5R | 0.4 | GR* | 0.0 |
| CO97137-1W | 3.0 | MS*, GR | 0.0 |
| CO97226-2R/R | 0.0 | | 0.0 |
| CO97232-1R/Y | 1.0 | MS*, GC | 0.0 |
| CO97232-2R/Y | 0.6 | MS* | 0.0 |
| CO97233-3R/Y | 3.2 | MS*, GC, GR | 1.0 |
| MWTX2609-4RU | 2.8 | MS, GR* | 0.0 |
| TXDH-99-1RU | 3.6 | MS, SG, GR* | 0.0 |
| All Blue | 0.7 | MS* | 0.0 |
| Atlantic | 1.5 | GR* | 3.4 |
| Chipeta | 2.9 | MS, SG, GR* | 0.0 |
| Norland(DR) | 1.1 | MS*, GC | 0.0 |
| Red LaSoda | 1.9 | MS*, GC*, GR* | 24.8 |
| Russet Norkotah | 0.0 | | 0.0 |
| Russet Nugget | 3.1 | MS* | 0.3 |
| Sangre-S10 | 0.6 | MS*, GR | 1.3 |
| Yukon Gold | 0.7 | MS* | 0.0 |

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

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

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

Table 6C. Growth characteristics of Southwest Regional Trial entries - 2005.

| Clone | % Stand | Emergence Uniformity[1] | Vine Vigor[2] | Stems/ Plant | Vine Size[3] | Vine Type[4] | Vine Maturity[5] |
|---|---|---|---|---|---|---|---|
| AC96052-1RU | 97 | 3.0 | 3.0 | 5.2 | 4.5 | 3.3 | 3.8 |
| AC97097-14W | 86 | 2.8 | 3.3 | 4.2 | 3.0 | 3.0 | 3.5 |
| AC97521-1R/Y | 98 | 2.8 | 3.8 | 5.3 | 4.5 | 3.0 | 3.0 |
| AOTX95265-2ARU | 99 | 3.0 | 2.8 | 4.7 | 3.0 | 3.5 | 2.8 |
| AOTX95265-4RU03 | 99 | 3.0 | 2.5 | 4.8 | 3.3 | 3.0 | 3.0 |
| AOTX98137-1RU | 98 | 3.5 | 2.3 | 4.7 | 2.5 | 3.0 | 3.0 |
| CO97043-14W | 69 | 1.0 | 3.0 | 4.2 | 3.0 | 2.8 | 3.3 |
| CO97065-7W | 95 | 3.0 | 3.5 | 5.3 | 3.3 | 3.0 | 3.0 |
| CO97078-5R | 94 | 3.0 | 3.0 | 4.2 | 3.5 | 3.3 | 2.8 |
| CO97137-1W | 99 | 3.0 | 3.0 | 4.5 | 3.0 | 3.0 | 2.8 |
| CO97226-2R/R | 97 | 3.3 | 3.0 | 4.8 | 3.0 | 3.3 | 2.8 |
| CO97232-1R/Y | 99 | 3.3 | 3.0 | 4.3 | 3.3 | 3.5 | 2.5 |
| CO97232-2R/Y | 85 | 3.0 | 3.0 | 4.9 | 3.0 | 2.0 | 3.0 |
| CO97233-3R/Y | 92 | 3.0 | 3.8 | 5.6 | 3.3 | 2.0 | 3.3 |
| MWTX2609-4RU | 96 | 3.0 | 2.8 | 5.5 | 4.0 | 3.0 | 3.3 |
| TXDH-99-1RU | 97 | 3.0 | 2.8 | 5.0 | 4.0 | 3.0 | 3.8 |
| All Blue | 99 | 3.3 | 3.0 | 4.9 | 4.0 | 3.0 | 3.3 |
| Atlantic | 96 | 3.3 | 3.0 | 4.5 | 3.0 | 3.0 | 3.3 |
| Chipeta | 99 | 3.5 | 4.0 | 4.4 | 4.8 | 3.0 | 4.0 |
| Norland(DR) | 98 | 3.5 | 3.0 | 5.6 | 2.0 | 2.3 | 1.3 |
| Red LaSoda | 98 | 3.3 | 3.8 | 4.7 | 4.0 | 3.0 | 3.0 |
| Russet Norkotah | 99 | 3.5 | 2.3 | 5.4 | 2.0 | 3.0 | 2.5 |
| Russet Nugget | 98 | 3.5 | 3.0 | 5.6 | 4.3 | 4.0 | 4.0 |
| Sangre-S10 | 98 | 3.0 | 3.0 | 5.7 | 4.0 | 3.3 | 3.8 |
| Yukon Gold | 95 | 3.3 | 3.5 | 4.0 | 3.0 | 2.5 | 2.3 |
| Mean | 95 | 3.1 | 3.1 | 4.9 | 3.4 | 3.0 | 3.1 |
| LSD[6] (0.05) | 6 | 0.5 | 0.5 | 1.4 | 0.5 | 0.5 | 0.6 |

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

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

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

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

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

[6]LSD=least significant difference.

Table 6D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Southwest Regional Trial entries - 2005.

| Clone | Blackspot Index[1] | | | % Weight Loss[2] | Dormancy (Days)[3] | Enzymatic Browning[4] |
|---|---|---|---|---|---|---|
| | Bud End | Stem End | Average | | | |
| AC96052-1RU | 4.3 | 3.2 | 3.8 | 1.7 | 84 | 3.4 |
| AC97097-14W | 3.7 | 3.5 | 3.6 | 2.3 | 70 | 4.0 |
| AC97521-1R/Y | 3.5 | 3.7 | 3.6 | 2.7 | 91 | 2.8 |
| AOTX95265-2ARU | 4.5 | 3.2 | 3.9 | 2.2 | 98 | 3.0 |
| AOTX95265-4RU03 | 4.7 | 4.0 | 4.4 | 2.4 | 91 | 3.8 |
| AOTX98137-1RU | 4.9 | 4.3 | 4.6 | 2.7 | 98 | 4.0 |
| CO97043-14W | 3.2 | 2.6 | 2.9 | 4.6 | 84 | 4.4 |
| CO97065-7W | 4.2 | 2.5 | 3.4 | 2.9 | 105 | 4.6 |
| CO97078-5R | 4.5 | 2.7 | 3.6 | 3.2 | 84 | 3.0 |
| CO97137-1W | 2.6 | 2.5 | 2.6 | 4.6 | 70 | 3.6 |
| CO97226-2R/R | --- | --- | --- | 4.1 | 49 | --- |
| CO97232-1R/Y | 4.8 | 3.1 | 4.0 | 5.5 | 49 | 3.4 |
| CO97232-2R/Y | 5.0 | 5.0 | 5.0 | 4.3 | 49 | 4.6 |
| CO97233-3R/Y | 5.0 | 4.4 | 4.7 | 2.5 | 70 | 4.0 |
| MWTX2609-4RU | 3.8 | 3.4 | 3.6 | 2.2 | 70 | 2.6 |
| TXDH-99-1RU | 3.8 | 4.1 | 4.0 | 2.6 | 70 | 2.8 |
| All Blue | --- | --- | --- | 2.0 | 84 | --- |
| Atlantic | 2.6 | 2.8 | 2.7 | 3.4 | 84 | 4.6 |
| Chipeta | 3.7 | 4.4 | 4.1 | 1.9 | 98 | 4.4 |
| Norland(DR) | 4.0 | 4.9 | 4.5 | 7.9 | 49 | 4.2 |
| Red LaSoda | 4.8 | 4.3 | 4.6 | 2.9 | 84 | 1.4 |
| Russet Norkotah | 5.0 | 3.9 | 4.5 | 2.7 | 98 | 4.6 |
| Russet Nugget | 5.0 | 4.8 | 4.9 | 1.9 | 84 | 4.4 |
| Sangre-S10 | 4.4 | 3.8 | 4.1 | 2.1 | 84 | 3.4 |
| Yukon Gold | 4.7 | 4.6 | 4.7 | 1.9 | 77 | 4.4 |

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

[2]Tubers were stored at 45F for 90 days.

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

[4]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 Southwest Regional Trial entries - 2005.

| Clone | Specific Gravity | Fry Color[1] | | Fry Texture[2] | |
|---|---|---|---|---|---|
| | | At Harvest | 3 wks 55F+ 9 wks 45F | At Harvest | 3 wks 55F+ 9 wks 45F |
| AC96052-1RU | 1.096 | 0 | 1 | 5 | 4 |
| AC97521-1R/Y | 1.096 | 4 | 4 | 2 | 2 |
| AOTX95265-2ARU | 1.088 | 2 | 3 | 3 | 4 |
| AOTX95265-4RU03 | 1.081 | 2 | 3 | 3 | 3 |
| AOTX98137-1RU | 1.084 | 2 | 2 | 3 | 2 |
| CO97078-5R | 1.095 | 1 | 3 | 2 | 2 |
| CO97137-1W | 1.086 | 3 | 4 | 4 | 4 |
| CO97226-2R/R | 1.081 | --- | --- | 3 | 3 |
| CO97232-1R/Y | 1.084 | 1 | 2 | 4 | 3 |
| CO97232-2R/Y | 1.071 | 1 | 2 | 2 | 2 |
| CO97233-3R/Y | 1.090 | 1 | 2 | 3 | 3 |
| MWTX2609-4RU | 1.091 | 3 | 3 | 3 | 3 |
| TXDH-99-1RU | 1.091 | 3 | 3 | 4 | 2 |
| All Blue | 1.083 | --- | --- | 3 | 3 |
| Norland(DR) | 1.071 | 1 | 3 | 2 | 2 |
| Red LaSoda | 1.091 | 2 | 3 | 3 | 3 |
| Russet Norkotah | 1.087 | 2 | 3 | 3 | 3 |
| Russet Nugget | 1.108 | 1 | 2 | 5 | 4 |
| Sangre-S10 | 1.087 | 4 | 4 | 3 | 3 |
| Yukon Gold | 1.091 | 1 | 3 | 3 | 3 |

[1]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.

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

Table 6F. Chip color[1] after various storage regimes and specific gravity of Southwest Regional Trial entries - 2005.

| Clone | Specific Gravity | 6 wks 40F | 6 wks/40F +3 wks/60F | 6 wks 50F | 6 wks/50F +3 wks/60F |
|---|---|---|---|---|---|
| AC97097-14W | 1.100 | 3.5 | 2.5 | 2.5 | 2.0 |
| CO97043-14W | 1.093 | 3.5 | 3.0 | 1.5 | 1.5 |
| CO97065-7W | 1.102 | 3.0 | 3.5 | 2.0 | 1.5 |
| Atlantic | 1.098 | 4.0 | 4.0 | 2.5 | 2.0 |
| Chipeta | 1.099 | 4.5 | 3.5 | 2.0 | 2.0 |

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

Table 7A. Yield, grade and tuber shape for Western Regional Main Trial entries - 2005.

| Clone | Yield (Cwt/A) | | | | | | Tuber Shape[1] |
|---|---|---|---|---|---|---|---|
| | | US #1 | | | | | |
| | Total | Total | % | 4-10 oz | >10 oz | <4 oz | |
| A92030-5 | 472 | 429 | 90.8 | 182 | 247 | 28 | Ob |
| A92294-6 | 504 | 410 | 81.2 | 344 | 66 | 82 | L |
| A93157-6LS | 482 | 392 | 81.4 | 324 | 68 | 71 | L |
| A95109-1 | 454 | 424 | 93.4 | 265 | 159 | 23 | L |
| A95409-1 | 502 | 460 | 91.4 | 240 | 220 | 17 | L |
| A96095-3 | 473 | 430 | 91.0 | 148 | 282 | 24 | Ob |
| A96104-2 | 540 | 473 | 87.8 | 329 | 144 | 58 | L |
| AO96160-3 | 477 | 387 | 80.8 | 333 | 54 | 80 | L |
| AO96164-1 | 450 | 404 | 89.7 | 264 | 140 | 34 | L |
| AOA95154-1 | 467 | 286 | 61.1 | 280 | 5 | 173 | L |
| AOA95155-7 | 445 | 347 | 78.1 | 298 | 49 | 81 | L |
| ATX91137-1RU | 481 | 429 | 89.1 | 326 | 103 | 44 | Ob |
| CO94035-15RU | 345 | 279 | 80.8 | 225 | 54 | 60 | Ob |
| CO95086-8RU | 373 | 326 | 87.2 | 250 | 76 | 43 | Ob |
| CO95172-3RU | 513 | 402 | 78.3 | 345 | 58 | 103 | L |
| MWTX2609-2RU | 574 | 505 | 87.8 | 325 | 180 | 52 | Ob |
| TXA549-1RU | 536 | 405 | 75.5 | 323 | 82 | 101 | Ob |
| Ranger Russet | 491 | 449 | 91.4 | 214 | 235 | 24 | L |
| Russet Burbank | 551 | 450 | 81.3 | 317 | 132 | 85 | L |
| Russet Norkotah | 286 | 243 | 84.8 | 191 | 52 | 40 | L |
| Russet Nugget | 452 | 391 | 86.5 | 288 | 102 | 56 | Ob |
| Shepody | 450 | 413 | 91.9 | 183 | 230 | 18 | L |
| Mean | 469 | 397 | 84.6 | 272 | 272 | 59 | ---- |
| LSD[2] (0.05) | 49 | 49 | 4.5 | 37 | 44 | 18 | ---- |

[1]Tuber shape: Ob=oblong; L=long.

[2]LSD=least significant difference.

Table 7B. Grade defects for Western Regional Main Trial entries - 2005.

| Clone | % External Defects[1] | External Defects Observed[2] | % Hollow Heart[3] |
|---|---|---|---|
| A92030-5 | 3.3 | MS*, GR | 0.3 |
| A92294-6 | 2.5 | MS, SG, GC, GR* | 0.0 |
| A93157-6LS | 3.9 | MS*, GC, GR | 1.5 |
| A95109-1 | 1.6 | MS*, GR* | 0.0 |
| A95409-1 | 5.0 | MS, GC, GR* | 0.0 |
| A96095-3 | 4.1 | MS*, GR* | 0.0 |
| A96104-2 | 1.6 | MS*, GR | 0.4 |
| AO96160-3 | 2.2 | MS*, GR | 0.4 |
| AO96164-1 | 2.9 | MS*, GR* | 0.0 |
| AOA95154-1 | 1.8 | MS*, GR | 0.0 |
| AOA95155-7 | 3.7 | MS*, GR | 0.0 |
| ATX91137-1RU | 1.8 | MS, GR* | 0.0 |
| CO94035-15RU | 1.7 | MS*, GR* | 1.0 |
| CO95086-8RU | 1.2 | MS*, GR | 0.0 |
| CO95172-3RU | 1.5 | MS*, GR* | 0.3 |
| MWTX2609-2RU | 3.1 | MS*, GR* | 0.0 |
| TXA549-1RU | 5.6 | MS, GR* | 0.4 |
| Ranger Russet | 3.8 | MS, GC, GR* | 0.0 |
| Russet Burbank | 2.9 | MS, GC, GR* | 2.5 |
| Russet Norkotah | 1.2 | MS, GR* | 0.0 |
| Russet Nugget | 1.1 | MS* | 0.0 |
| Shepody | 4.3 | MS*, GR | 0.0 |

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

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

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

Table 7C. Growth characteristics of Western Regional Main Trial entries - 2005.

| Clone | % Stand | Emergence Uniformity[1] | Vine Vigor[2] | Stems/ Plant | Vine Size[3] | Vine Type[4] | Vine Maturity[5] |
|---|---|---|---|---|---|---|---|
| A92030-5 | 100 | 3.0 | 3.0 | 4.8 | 3.8 | 2.3 | 3.0 |
| A92294-6 | 98 | 3.8 | 3.3 | 3.9 | 4.0 | 2.8 | 3.5 |
| A93157-6LS | 98 | 3.3 | 2.5 | 4.4 | 4.0 | 2.5 | 3.0 |
| A95109-1 | 94 | 3.3 | 3.0 | 3.8 | 3.5 | 2.8 | 3.5 |
| A95409-1 | 98 | 3.3 | 3.0 | 3.6 | 4.0 | 2.3 | 3.0 |
| A96095-3 | 100 | 2.8 | 2.8 | 4.2 | 3.3 | 2.5 | 3.3 |
| A96104-2 | 97 | 3.0 | 3.0 | 5.0 | 4.0 | 2.5 | 3.0 |
| AO96160-3 | 98 | 2.8 | 3.0 | 3.6 | 4.5 | 3.8 | 3.0 |
| AO96164-1 | 99 | 3.0 | 2.5 | 4.3 | 3.3 | 3.3 | 3.0 |
| AOA95154-1 | 99 | 3.0 | 3.0 | 4.7 | 4.0 | 2.3 | 3.3 |
| AOA95155-7 | 99 | 3.8 | 1.3 | 4.0 | 3.8 | 4.0 | 3.8 |
| ATX91137-1RU | 97 | 3.0 | 3.0 | 4.1 | 3.0 | 2.5 | 3.0 |
| CO94035-15RU | 99 | 3.3 | 2.8 | 4.0 | 3.5 | 2.8 | 3.0 |
| CO95086-8RU | 99 | 2.8 | 2.8 | 3.7 | 2.8 | 3.3 | 2.5 |
| CO95172-3RU | 98 | 2.8 | 2.8 | 5.2 | 4.0 | 3.3 | 3.3 |
| MWTX2609-2RU | 99 | 2.8 | 2.8 | 4.9 | 4.0 | 3.0 | 3.5 |
| TXA549-1RU | 99 | 2.8 | 3.5 | 4.8 | 4.3 | 2.5 | 3.0 |
| Ranger Russet | 98 | 2.8 | 2.5 | 4.3 | 3.8 | 4.0 | 3.3 |
| Russet Burbank | 100 | 3.5 | 3.5 | 4.2 | 4.3 | 2.5 | 3.5 |
| Russet Norkotah | 98 | 3.5 | 1.5 | 4.3 | 1.5 | 3.3 | 2.3 |
| Russet Nugget | 99 | 3.0 | 2.5 | 4.5 | 4.5 | 3.8 | 4.3 |
| Shepody | 97 | 3.0 | 3.0 | 4.3 | 3.3 | 2.5 | 2.8 |
| Mean | 98 | 3.1 | 2.8 | 4.3 | 3.7 | 2.9 | 3.2 |
| LSD[6] (0.05) | 3 | 0.6 | 0.6 | 1.3 | 0.6 | 0.7 | 0.6 |

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

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

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

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

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

[6]LSD=least significant difference.

Table 7D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Western Regional Main Trial entries - 2005.

| Clone | Blackspot Index[1] | | | % Weight Loss[2] | Dormancy (Days)[3] | Enzymatic Browning[4] |
|---|---|---|---|---|---|---|
| | Bud End | Stem End | Average | | | |
| A92030-5 | 5.0 | 4.2 | 4.6 | 2.3 | 98 | 4.2 |
| A92294-6 | 4.4 | 3.4 | 3.9 | 2.4 | 91 | 4.6 |
| A93157-6LS | 4.8 | 2.9 | 3.9 | 3.1 | 56 | 3.4 |
| A95109-1 | 4.7 | 1.6 | 3.2 | 2.9 | 84 | 4.6 |
| A95409-1 | 3.1 | 2.6 | 2.9 | 2.1 | 84 | 4.0 |
| A96095-3 | 4.6 | 3.5 | 4.1 | 3.5 | 77 | 4.6 |
| A96104-2 | 4.7 | 4.9 | 4.8 | 1.9 | 70 | 4.4 |
| AO96160-3 | 4.5 | 3.6 | 4.1 | 2.3 | 91 | 4.8 |
| AO96164-1 | 5.0 | 4.0 | 4.5 | 2.5 | 70 | 4.4 |
| AOA95154-1 | 5.0 | 4.6 | 4.8 | 2.4 | 56 | 4.8 |
| AOA95155-7 | 5.0 | 4.9 | 5.0 | 2.6 | 91 | 4.4 |
| ATX91137-1RU | 5.0 | 5.0 | 5.0 | 2.0 | 112 | 4.0 |
| CO94035-15RU | 4.9 | 4.1 | 4.5 | 2.9 | 98 | 4.8 |
| CO95086-8RU | 4.4 | 4.6 | 4.5 | 2.4 | 84 | 4.8 |
| CO95172-3RU | 4.4 | 3.5 | 4.0 | 2.5 | 91 | 3.0 |
| MWTX2609-2RU | 3.0 | 3.2 | 3.1 | 2.2 | 84 | 2.0 |
| TXA549-1RU | 4.7 | 3.2 | 4.0 | 2.0 | 91 | 1.8 |
| Ranger Russet | 4.7 | 4.1 | 4.4 | 1.9 | 70 | 3.2 |
| Russet Burbank | 4.4 | 4.2 | 4.3 | 1.8 | 112 | 2.6 |
| Russet Norkotah | 4.7 | 3.8 | 4.3 | 2.2 | 84 | 3.6 |
| Russet Nugget | 4.9 | 4.3 | 4.6 | 1.9 | 91 | 3.8 |
| Shepody | 4.6 | 3.5 | 4.1 | 2.8 | 84 | 4.2 |

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

[2]Tubers were stored at 45F for 90 days.

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

[4]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 Western Regional Main Trial entries - 2005.

| Clone | Specific Gravity | Fry Color[1] | | Fry Texture[2] | |
|---|---|---|---|---|---|
| | | At Harvest | 3 wks 55F+ 9 wks 45F | At Harvest | 3 wks 55F+ 9 wks 45F |
| A92030-5 | 1.097 | 2 | 3 | 4 | 4 |
| A92294-6 | 1.103 | 1 | 2 | 5 | 4 |
| A93157-6LS | 1.103 | 0 | 1 | 4 | 4 |
| A95109-1 | 1.090 | 2 | 3 | 3 | 3 |
| A95409-1 | 1.099 | 2 | 2 | 3 | 4 |
| A96095-3 | 1.085 | 1 | 2 | 4 | 3 |
| A96104-2 | 1.093 | 2 | 2 | 4 | 4 |
| AO96160-3 | 1.101 | 1 | 2 | 3 | 4 |
| AO96164-1 | 1.090 | 2 | 2 | 3 | 4 |
| AOA95154-1 | 1.096 | 1 | 1 | 4 | 4 |
| AOA95155-7 | 1.089 | 1 | 1 | 4 | 3 |
| ATX91137-1RU | 1.085 | 3 | 3 | 2 | 3 |
| CO94035-15RU | 1.089 | 1 | 2 | 3 | 4 |
| CO95086-8RU | 1.090 | 3 | 1 | 3 | 3 |
| CO95172-3RU | 1.096 | 2 | 1 | 4 | 3 |
| MWTX2609-2RU | 1.093 | 4 | 3 | 2 | 2 |
| TXA549-1RU | 1.098 | 1 | 2 | 3 | 3 |
| Ranger Russet | 1.097 | 2 | 3 | 3 | 3 |
| Russet Burbank | 1.092 | 0 | 2 | 4 | 4 |
| Russet Norkotah | 1.082 | 2 | 3 | 3 | 3 |
| Russet Nugget | 1.106 | 2 | 2 | 5 | 5 |
| Shepody | 1.093 | 1 | 3 | 3 | 3 |

[1]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.

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

Table 8A. Yield, grade and tuber shape for Advanced and Western Regional Red Trial entries - 2005.

| Clone | Yield (Cwt/A) | | | | | | Tuber Shape[1] |
|---|---|---|---|---|---|---|---|
| | Total | US #1 | | | | | |
| | | Total | % | 4-10 oz | >10 oz | <4 oz | |
| A96741-1R | 506 | 410 | 81.1 | 321 | 89 | 92 | Ov |
| A96741-2R | 565 | 488 | 86.3 | 323 | 165 | 77 | R |
| CO98012-5R | 444 | 295 | 66.4 | 272 | 24 | 148 | R |
| CO99076-6R | 408 | 324 | 79.1 | 247 | 77 | 82 | R |
| CO99256-2R | 571 | 369 | 64.7 | 321 | 48 | 200 | Ov |
| CO99256-3R | 481 | 292 | 60.4 | 267 | 25 | 182 | Ov |
| NDC5281-2R | 444 | 270 | 61.0 | 248 | 22 | 171 | Ov |
| Norland(DR) | 364 | 322 | 88.3 | 221 | 101 | 40 | Ov |
| Red LaSoda | 581 | 509 | 87.5 | 273 | 236 | 44 | Ov |
| Sangre-S10 | 598 | 506 | 84.7 | 324 | 182 | 90 | Ov |
| Mean | 496 | 379 | 76.0 | 282 | 97 | 113 | ---- |
| LSD[2] (0.05) | 50 | 53 | 5.4 | 45 | 49 | 25 | ---- |

[1]Tuber shape: R=round; Ov=oval.

[2]LSD=least significant difference.

Table 8B. Grade defects for Advanced and Western Regional Red Trial entries - 2005.

| Clone | % External Defects[1] | External Defects Observed[2] | % Hollow Heart[3] |
|---|---|---|---|
| A96741-1R | 0.7 | MS, GC* | 0.0 |
| A96741-2R | 0.0 | | 0.0 |
| CO98012-5R | 0.0 | | 0.0 |
| CO99076-6R | 0.5 | MS*, GC* | 0.0 |
| CO99256-2R | 0.4 | MS* | 0.0 |
| CO99256-3R | 1.4 | MS* | 0.0 |
| NDC5281-2R | 0.7 | MS*, GC, GR | 0.0 |
| Norland(DR) | 0.5 | GC* | 0.0 |
| Red LaSoda | 4.9 | MS*, GC, GR* | 22.3 |
| Sangre-S10 | 0.3 | GC*, GR* | 1.0 |

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

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

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

Table 8C. Growth characteristics of Advanced and Western Regional Red Trial entries - 2005.

| Clone | % Stand | Emergence Uniformity[1] | Vine Vigor[2] | Stems/ Plant | Vine Size[3] | Vine Type[4] | Vine Maturity[5] |
|---|---|---|---|---|---|---|---|
| A96741-1R | 99 | 3.3 | 2.5 | 4.6 | 3.0 | 2.8 | 3.0 |
| A96741-2R | 98 | 2.8 | 2.8 | 4.8 | 3.0 | 2.0 | 2.5 |
| CO98012-5R | 99 | 3.3 | 2.8 | 4.8 | 3.0 | 3.0 | 3.0 |
| CO99076-6R | 97 | 3.0 | 3.0 | 4.3 | 3.0 | 2.5 | 1.5 |
| CO99256-2R | 97 | 3.8 | 2.8 | 4.0 | 4.5 | 3.0 | 3.0 |
| CO99256-3R | 96 | 3.0 | 3.0 | 4.4 | 3.0 | 3.0 | 2.5 |
| NDC5281-2R | 98 | 3.3 | 3.0 | 4.1 | 3.0 | 3.3 | 2.0 |
| Norland(DR) | 98 | 3.3 | 2.0 | 4.2 | 1.8 | 2.5 | 1.0 |
| Red LaSoda | 99 | 3.3 | 3.0 | 3.9 | 4.0 | 2.8 | 2.8 |
| Sangre-S10 | 97 | 2.5 | 2.3 | 3.6 | 3.8 | 3.8 | 4.0 |
| Mean | 98 | 3.1 | 2.7 | 4.3 | 3.2 | 2.9 | 2.5 |
| LSD[6] (0.05) | 4 | 0.6 | 0.5 | 1.3 | 0.6 | 0.6 | 0.5 |

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

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

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

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

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

[6]LSD=least significant difference.

Table 8D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Red Trial entries - 2005.

| Clone | Blackspot Index[1] | | | % Weight Loss[2] | Dormancy (Days)[3] | Enzymatic Browning[4] |
|---|---|---|---|---|---|---|
| | Bud End | Stem End | Average | | | |
| A96741-1R | 4.4 | 4.0 | 4.2 | 3.7 | 56 | 2.4 |
| A96741-2R | 4.5 | 4.1 | 4.3 | 3.1 | 84 | 1.2 |
| CO98012-5R | 4.3 | 2.8 | 3.6 | 2.1 | 56 | 1.4 |
| CO99076-6R | 4.0 | 3.7 | 3.9 | 7.1 | 56 | 2.0 |
| CO99256-2R | 5.0 | 4.3 | 4.7 | 4.4 | 84 | 3.0 |
| CO99256-3R | 5.0 | 4.3 | 4.7 | 4.8 | 77 | 2.6 |
| NDC5281-2R | 4.1 | 2.8 | 3.5 | 6.4 | 77 | 1.0 |
| Norland(DR) | 3.9 | 4.9 | 4.4 | 5.8 | 42 | 3.4 |
| Red LaSoda | 3.8 | 4.3 | 4.1 | 2.3 | 84 | 1.6 |
| Sangre-S10 | 3.8 | 4.4 | 4.1 | 1.9 | 56 | 2.6 |

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

[2]Tubers were stored at 45F for 90 days.

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

[4]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 Advanced and Western Regional Red Trial entries - 2005.

| Clone | Specific Gravity | Fry Color[1] | | Fry Texture[2] | |
|---|---|---|---|---|---|
| | | At Harvest | 3 wks 55F+ 9 wks 45F | At Harvest | 3 wks 55F+ 9 wks 45F |
| A96741-1R | 1.081 | 2 | 4 | 2 | 2 |
| A96741-2R | 1.076 | 2 | 4 | 1 | 1 |
| CO98012-5R | 1.081 | 1 | 2 | 2 | 2 |
| CO99076-6R | 1.089 | 2 | 3 | 2 | 2 |
| CO99256-2R | 1.095 | 1 | 2 | 3 | 3 |
| CO99256-3R | 1.086 | 1 | 1 | 3 | 3 |
| NDC5281-2R | 1.088 | 1 | 1 | 3 | 3 |
| Norland(DR) | 1.073 | 2 | 3 | 3 | 3 |
| Red LaSoda | 1.091 | 3 | 2 | 3 | 3 |
| Sangre-S10 | 1.086 | 4 | 4 | 2 | 2 |

[1]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.

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

Table 9A. Yield, grade and tuber shape for Advanced and Western Regional Specialty Trial entries - 2005.

| Clone | Yield (Cwt/A) | | | | | | Tuber Shape[1] |
|---|---|---|---|---|---|---|---|
| | Total | US #1 | | | | | |
| | | Total | % | 4-10 oz | >10 oz | <4 oz | |
| A95074-6 | 515 | 401 | 78.0 | 359 | 42 | 109 | L |
| AC99329-7RW/Y | 538 | 383 | 71.2 | 331 | 52 | 149 | R |
| AC99330-1P/Y | 493 | 258 | 52.4 | 255 | 3 | 234 | R |
| ATC98444-1R/Y | 611 | 430 | 70.3 | 363 | 67 | 175 | Ov |
| ATC98495-1W/Y | 474 | 363 | 76.7 | 308 | 55 | 110 | R |
| ATC98509-1R/Y | 522 | 415 | 80.0 | 327 | 88 | 99 | Ov |
| ATC98515-1R/Y | 566 | 275 | 48.7 | 254 | 21 | 287 | Ov |
| BTX1544-2W/Y | 400 | 350 | 87.6 | 233 | 117 | 46 | Ob |
| CO94157-2W/Y | 399 | 227 | 56.9 | 220 | 7 | 172 | Ob |
| CO97215-2P/P | 439 | 268 | 61.1 | 238 | 30 | 168 | Ov |
| CO97216-3P/PW | 399 | 278 | 69.6 | 242 | 36 | 121 | Ov |
| CO97222-1R/R | 349 | 151 | 42.3 | 138 | 12 | 195 | Ov |
| CO97227-2P/PW | 453 | 163 | 35.5 | 163 | 0 | 288 | L |
| CO97274-2W/Y | 393 | 263 | 66.8 | 232 | 31 | 129 | Ov |
| CO99045-1W/Y | 503 | 403 | 80.1 | 234 | 169 | 75 | L |
| CO99338-3RU/Y | 328 | 204 | 62.1 | 189 | 15 | 124 | Ov |
| CO99364-3R/R | 532 | 435 | 81.4 | 291 | 144 | 77 | L |
| NDA5507-3YF | 496 | 409 | 82.5 | 325 | 85 | 81 | Ov |
| VC0967-2R/Y | 436 | 354 | 80.8 | 285 | 69 | 78 | Ov |
| VC1002-3W/Y | 484 | 234 | 47.6 | 216 | 18 | 246 | Ov |
| VC1009-1W/Y | 623 | 421 | 67.5 | 353 | 67 | 198 | Ov |
| VC1015-7R/Y | 368 | 298 | 80.9 | 232 | 67 | 70 | R |
| VC1123-2W/Y | 537 | 455 | 84.9 | 296 | 159 | 71 | Ov |
| All Blue | 482 | 287 | 59.9 | 281 | 6 | 194 | Ob |
| Mountain Rose | 288 | 150 | 51.9 | 146 | 4 | 136 | Ov |
| Purple Majesty | 404 | 217 | 53.5 | 203 | 14 | 185 | Ov |
| Yukon Gold | 339 | 296 | 87.5 | 177 | 119 | 40 | Ov |
| Mean | 458 | 311 | 67.3 | 255 | 55 | 143 | ---- |
| LSD[2] (0.05) | 55 | 58 | 9.3 | 51 | 33 | 40 | ---- |

[1]Tuber shape: R=round; Ov=oval; Ob=oblong; L=long.

[2]LSD=least significant difference.

Table 9B. Grade defects for Advanced and Western Regional Specialty Trial entries - 2005.

| Clone | % External Defects[1] | External Defects Observed[2] | % Hollow Heart[3] |
|---|---|---|---|
| A95074-6 | 0.8 | MS*, GR* | 0.0 |
| AC99329-7RW/Y | 1.1 | MS, GR* | 0.0 |
| AC99330-1P/Y | 0.0 | | 0.0 |
| ATC98444-1R/Y | 1.0 | GC*, GR* | 0.0 |
| ATC98495-1W/Y | 0.1 | GR* | 0.0 |
| ATC98509-1R/Y | 1.6 | MS*, GC, GR | 0.0 |
| ATC98515-1R/Y | 0.5 | GR* | 0.7 |
| BTX1544-2W/Y | 0.9 | MS*, GC*, GR* | 0.7 |
| CO94157-2W/Y | 0.0 | | 0.0 |
| CO97215-2P/P | 0.6 | MS*, GC | 0.0 |
| CO97216-3P/P | 0.0 | | 5.6 |
| CO97222-1R/R | 0.9 | MS*, GC*, GR* | 0.0 |
| CO97227-2P/P | 0.6 | MS, GC* | 0.0 |
| CO97274-2W/Y | 0.2 | GC* | 0.0 |
| CO99045-1W/Y | 5.0 | MS*, GR | 0.0 |
| CO99338-3RU/Y | 0.0 | | 0.4 |
| CO99364-3R/R | 3.6 | MS*, GC, GR | 0.0 |
| NDA5507-3YF | 1.2 | MS*, GC, GR | 0.2 |
| VC0967-2R/Y | 0.8 | MS*, SG, GC* | 0.0 |
| VC1002-3W/Y | 0.7 | MS* | 0.6 |
| VC1009-1W/Y | 0.6 | MS*, GR* | 0.5 |
| VC1015-7R/Y | 0.0 | | 0.0 |
| VC1123-2W/Y | 2.0 | MS, GC*, GR | 3.3 |
| All Blue | 0.4 | MS* | 0.0 |
| Mountain Rose | 0.7 | MS*, GC | 0.0 |
| Purple Majesty | 0.5 | MS* | 2.1 |
| Yukon Gold | 0.7 | MS* | 0.6 |

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

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

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

Table 9C. Growth characteristics of Advanced and Western Regional Specialty Trial entries - 2005.

| Clone | % Stand | Emergence Uniformity[1] | Vine Vigor[2] | Stems/ Plant | Vine Size[3] | Vine Type[4] | Vine Maturity[5] |
|---|---|---|---|---|---|---|---|
| A95074-6 | 98 | 3.3 | 3.5 | 4.6 | 4.5 | 3.0 | 3.3 |
| AC99329-7RW/Y | 98 | 3.5 | 3.8 | 4.5 | 4.3 | 3.0 | 3.3 |
| AC99330-1P/Y | 98 | 3.0 | 3.8 | 4.7 | 3.8 | 2.0 | 3.0 |
| ATC98444-1R/Y | 94 | 2.8 | 3.3 | 5.4 | 4.5 | 3.0 | 4.3 |
| ATC98495-1W/Y | 98 | 3.0 | 3.0 | 4.3 | 3.5 | 2.5 | 3.0 |
| ATC98509-1R/Y | 99 | 2.8 | 3.3 | 3.7 | 4.0 | 3.3 | 3.5 |
| ATC98515-1R/Y | 99 | 3.3 | 3.8 | 4.4 | 4.8 | 2.8 | 3.3 |
| BTX1544-2W/Y | 89 | 2.3 | 3.0 | 6.0 | 3.0 | 3.0 | 3.0 |
| CO94157-2W/Y | 94 | 3.0 | 2.8 | 5.0 | 3.0 | 3.3 | 3.0 |
| CO97215-2P/P | 98 | 2.5 | 3.0 | 4.3 | 3.8 | 3.0 | 3.0 |
| CO97216-3P/P | 99 | 3.5 | 3.0 | 4.0 | 3.3 | 3.0 | 3.5 |
| CO97222-1R/R | 99 | 3.3 | 2.3 | 4.8 | 2.8 | 3.0 | 3.0 |
| CO97227-2P/P | 98 | 3.3 | 3.0 | 3.4 | 4.0 | 2.3 | 3.0 |
| CO97274-2W/Y | 97 | 3.0 | 2.8 | 4.1 | 2.8 | 2.8 | 2.3 |
| CO99045-1W/Y | 99 | 3.3 | 3.0 | 3.8 | 3.8 | 3.3 | 3.0 |
| CO99338-3RU/Y | 99 | 3.5 | 2.3 | 5.1 | 3.0 | 3.0 | 2.0 |
| CO99364-3R/R | 98 | 3.5 | 2.8 | 4.3 | 4.5 | 2.8 | 3.5 |
| NDA5507-3YF | 98 | 3.0 | 3.0 | 4.9 | 4.0 | 2.8 | 2.8 |
| VC0967-2R/Y | 93 | 3.5 | 2.8 | 4.2 | 3.0 | 3.0 | 2.8 |
| VC1002-3W/Y | 99 | 3.5 | 3.5 | 4.0 | 4.0 | 3.3 | 3.0 |
| VC1009-1W/Y | 99 | 3.0 | 4.0 | 4.8 | 5.0 | 3.0 | 3.5 |
| VC1015-7R/Y | 98 | 3.0 | 2.8 | 4.6 | 2.8 | 3.0 | 3.0 |
| VC1123-2W/Y | 97 | 3.3 | 3.0 | 4.9 | 4.0 | 3.0 | 3.3 |
| All Blue | 97 | 3.5 | 2.8 | 5.4 | 4.0 | 2.8 | 3.0 |
| Mountain Rose | 98 | 3.8 | 2.0 | 4.0 | 2.3 | 3.0 | 2.3 |
| Purple Majesty | 99 | 3.0 | 2.8 | 4.2 | 2.5 | 2.8 | 2.0 |
| Yukon Gold | 96 | 3.3 | 3.0 | 4.4 | 2.5 | 3.3 | 2.8 |
| Mean | 97 | 3.2 | 3.0 | 4.5 | 3.6 | 2.9 | 3.0 |
| LSD[6] (0.05) | 4 | 0.6 | 0.5 | 1.6 | 0.6 | 0.6 | 0.6 |

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

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

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

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

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

[6]LSD=least significant difference.

Table 9D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Specialty Trial entries - 2005.

| Clone | Blackspot Index[1] | | | % Weight Loss[2] | Dormancy (Days)[3] | Enzymatic Browning[4] |
|---|---|---|---|---|---|---|
| | Bud End | Stem End | Average | | | |
| A95074-6 | 3.8 | 3.6 | 3.7 | 2.5 | 105 | 4.2 |
| AC99329-7RW/Y | 4.3 | 2.7 | 3.5 | 4.3 | 35 | 4.2 |
| AC99330-1P/Y | 4.9 | 3.7 | 4.3 | 3.1 | 49 | 2.4 |
| ATC98444-1R/Y | 4.0 | 1.4 | 2.7 | 4.1 | 84 | 4.2 |
| ATC98495-1W/Y | 3.9 | 2.2 | 3.1 | 3.3 | 35 | 3.2 |
| ATC98509-1R/Y | 4.3 | 3.9 | 4.1 | 4.9 | 49 | 3.8 |
| ATC98515-1R/Y | 3.3 | 3.3 | 3.3 | 2.6 | 63 | 2.8 |
| BTX1544-2W/Y | 4.6 | 3.6 | 4.1 | 2.1 | 70 | 3.8 |
| CO94157-2W/Y | 2.9 | 3.6 | 3.2 | 3.7 | 161 | 4.2 |
| CO97215-2P/P | --- | --- | --- | 4.4 | 84 | --- |
| CO97216-3P/P | --- | --- | --- | 3.7 | 112 | --- |
| CO97222-1R/R | --- | --- | --- | 4.0 | 56 | --- |
| CO97227-2P/P | --- | --- | --- | 4.9 | 77 | --- |
| CO97274-2W/Y | 5.0 | 4.7 | 4.9 | 2.7 | 63 | 4.4 |
| CO99045-1W/Y | 4.7 | 4.5 | 4.6 | 2.6 | 56 | 4.6 |
| CO99338-3RU/Y | 4.0 | 3.9 | 4.0 | 3.2 | 49 | 3.2 |
| CO99364-3R/R | --- | --- | --- | 5.7 | 77 | --- |
| NDA5507-3YF | 5.0 | 4.9 | 5.0 | 2.3 | 91 | 4.2 |
| VC0967-2R/Y | 4.4 | 3.0 | 3.7 | 3.2 | 63 | 4.0 |
| VC1002-3W/Y | 3.9 | 2.9 | 3.4 | 2.3 | 98 | 3.8 |
| VC1009-1W/Y | 3.9 | 4.7 | 4.3 | 2.4 | 84 | 3.2 |
| VC1015-7R/Y | 4.3 | 3.7 | 4.0 | 3.1 | 70 | 4.8 |
| VC1123-2W/Y | 4.0 | 2.7 | 3.4 | 2.2 | 63 | 4.8 |
| All Blue | --- | --- | --- | 2.0 | 98 | --- |
| Mountain Rose | --- | --- | --- | 2.7 | 84 | --- |
| Purple Majesty | --- | --- | --- | 3.4 | 49 | --- |
| Yukon Gold | 4.5 | 4.6 | 4.6 | 2.0 | 77 | 3.8 |

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

[2]Tubers were stored at 45F for 90 days.

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

[4]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 Advanced and Western Regional Speciality Trial entries - 2005.

| Clone | Specific Gravity | Fry Color[1] | | Fry Texture[2] | |
|---|---|---|---|---|---|
| | | At Harvest | 3 wks 55F+ 9 wks 45F | At Harvest | 3 wks 55F+ 9 wks 45F |
| A95074-6 | 1.101 | 0 | 1 | 3 | 4 |
| AC99329-7RW/Y | 1.094 | 3 | 3 | 2 | 3 |
| AC99330-1P/Y | 1.090 | 2 | 3 | 2 | 3 |
| ATC98444-1R/Y | 1.094 | 2 | 3 | 2 | 2 |
| ATC98495-1W/Y | 1.097 | 1 | 2 | 2 | 2 |
| ATC98509-1R/Y | 1.091 | 3 | 3 | 2 | 2 |
| ATC98515-1R/Y | 1.087 | 4 | 4 | 1 | 1 |
| BTX1544-2W/Y | 1.084 | 1 | 2 | 2 | 3 |
| CO94157-2W/Y | 1.100 | 1 | 2 | 3 | 3 |
| CO97215-2P/P | 1.091 | --- | --- | 2 | 2 |
| CO97216-3P/P | 1.098 | --- | --- | 3 | 3 |
| CO97222-1R/R | 1.078 | --- | --- | 2 | 3 |
| CO97227-2P/P | 1.092 | --- | --- | 3 | 3 |
| CO97274-2W/Y | 1.079 | 1 | 3 | 3 | 3 |
| CO99045-1W/Y | 1.087 | 3 | 2 | 3 | 3 |
| CO99338-3RU/Y | 1.077 | 2 | 2 | 2 | 3 |
| CO99364-3R/R | 1.089 | --- | --- | 4 | 4 |
| NDA5507-3YF | 1.085 | 1 | 1 | 3 | 3 |
| VC0967-2R/Y | 1.075 | 1 | 2 | 2 | 3 |
| VC1002-3W/Y | 1.104 | 0 | 1 | 3 | 4 |
| VC1009-1W/Y | 1.091 | 1 | 2 | 3 | 3 |
| VC1015-7R/Y | 1.080 | 3 | 3 | 3 | 3 |
| VC1123-2W/Y | 1.098 | 1 | 2 | 3 | 3 |
| All Blue | 1.086 | --- | --- | 2 | 2 |
| Mountain Rose | 1.084 | --- | --- | 3 | 3 |
| Purple Majesty | 1.086 | --- | --- | 2 | 2 |
| Yukon Gold | 1.088 | 2 | 3 | 4 | 3 |

[1]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.

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

Table 10A. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for San Luis Valley chipping study entries - 2005.

| Clone | Blackspot Index[1] | | | % Weight Loss[2] | Dormancy (Days)[3] | Enzymatic Browning[4] |
|---|---|---|---|---|---|---|
| | Bud End | Stem End | Average | | | |
| AC97097-14W | 3.8 | 3.6 | 3.7 | 1.7 | 91 | 4.8 |
| AC99213-8W | 4.1 | 3.8 | 4.0 | 2.1 | 77 | 3.6 |
| AC00170-2W | 5.0 | 5.0 | 5.0 | 3.1 | 77 | 5.0 |
| AC00256-2W | 3.9 | 4.1 | 4.0 | 2.6 | 98 | 4.8 |
| ATDC9801-3P | 3.2 | 2.7 | 3.0 | 1.8 | 77 | 4.6 |
| CO95051-7W | 4.7 | 2.7 | 3.7 | 4.9 | 77 | 4.0 |
| CO96141-4W | 4.0 | 2.3 | 3.2 | 3.2 | 84 | 5.0 |
| CO97043-14W | 4.0 | 3.4 | 3.7 | 3.2 | 105 | 4.8 |
| CO97065-7W | 4.7 | 3.0 | 3.9 | 2.3 | 126 | 4.8 |
| CO98277-4W | 5.0 | 4.6 | 4.8 | 2.3 | 70 | 4.6 |
| CO98303-8W | 4.8 | 2.5 | 3.7 | 1.8 | 56 | 5.0 |
| CO00188-4W | 4.8 | 3.1 | 4.0 | 2.4 | 98 | 4.8 |
| CO00189-2W | 4.7 | 4.7 | 4.7 | 2.2 | 56 | 4.2 |
| CO00196-2W | 3.5 | 1.8 | 2.7 | 3.3 | 98 | 4.6 |
| CO00197-3W | 4.2 | 3.8 | 4.0 | 1.8 | 70 | 2.2 |
| CO00204-6W | 5.0 | 4.3 | 4.7 | 3.3 | 98 | 4.4 |
| CO00270-7W | 4.5 | 3.1 | 3.8 | 2.3 | 56 | 3.8 |
| AC Glacier Chip | 5.0 | 4.3 | 4.7 | 3.5 | 42 | 4.2 |
| Atlantic | 4.4 | 3.4 | 3.9 | 2.3 | 70 | 4.4 |
| Chipeta | 4.8 | 4.6 | 4.7 | 1.6 | 118 | 4.0 |
| Snowden | 3.6 | 2.7 | 3.2 | 1.9 | 91 | 2.8 |

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

[2]Tubers were stored at 45F for 90 days.

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

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

Table 10B. Chip color[1] after various storage regimes and specific gravity of San Luis Valley chipping study entries - 2005.

| Clone | Specific Gravity | 6 wks 40F | 6 wks/40F +3 wks/60F | 6 wks 50F | 6 wks/50F +3 wks/60F |
|---|---|---|---|---|---|
| AC97097-14W | 1.091 | 4.5 | 3.0 | 2.0 | 2.0 |
| AC99213-8W | 1.087 | 3.0 | 2.5 | 2.0 | 2.0 |
| AC00170-2W | 1.082 | 4.5 | 2.0 | 1.5 | 2.5 |
| AC00256-2W | 1.091 | 3.0 | 2.5 | 2.5 | 2.5 |
| ATDC9801-3P | 1.105 | 3.0 | 2.5 | 1.5 | 1.5 |
| CO95051-7W | 1.093 | 4.0 | 3.0 | 2.0 | 1.5 |
| CO96141-4W | 1.082 | 4.5 | 3.0 | 2.0 | 2.5 |
| CO97043-14W | 1.090 | 4.0 | 3.5 | 2.0 | 2.5 |
| CO97065-7W | 1.095 | 5.0 | 3.5 | 1.5 | 1.5 |
| CO98277-4W | 1.072 | 5.0 | 4.0 | 3.5 | 2.5 |
| CO98303-8W | 1.079 | 4.0 | 3.5 | 2.5 | 1.5 |
| CO00188-4W | 1.089 | 4.0 | 4.0 | 2.5 | 1.5 |
| CO00189-2W | 1.071 | 3.5 | 3.0 | 2.5 | 2.0 |
| CO00196-2W | 1.098 | 3.5 | 2.5 | 3.5 | 2.5 |
| CO00197-3W | 1.089 | 4.5 | 3.5 | 2.0 | 1.0 |
| CO00204-6W | 1.085 | 5.0 | 3.5 | 3.0 | 2.5 |
| CO00254-3W | 1.086 | 4.5 | 4.0 | 3.0 | 2.5 |
| CO00254-6W | 1.086 | 4.5 | 4.0 | 3.0 | 1.5 |
| CO00270-7W | 1.082 | 4.0 | 3.0 | 1.5 | 2.0 |
| CO01023-5W | 1.090 | 5.0 | 3.5 | 3.0 | 3.0 |
| CO01023-7W | 1.093 | 4.5 | 3.0 | 3.0 | 2.5 |
| CO01058-2P/P | 1.088 | --- | --- | --- | --- |
| CO01609-4W | 1.090 | 3.5 | 3.5 | 1.5 | 1.0 |
| AC Glacier Chip | 1.097 | 4.0 | 4.5 | 2.5 | 2.0 |
| Atlantic | 1.093 | 5.0 | 4.0 | 3.5 | 3.0 |
| Chipeta | 1.075 | 5.0 | 4.5 | 3.0 | 3.0 |
| Snowden | 1.094 | 4.0 | 2.5 | 2.0 | 1.0 |

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

Table 11A. Yield, grade and tuber shape for Advanced and Western Regional Chipping Trial entries - 2005.

| Clone | Yield (Cwt/A) | | | | | | Tuber Shape[1] |
|---|---|---|---|---|---|---|---|
| | | US #1 | | | | | |
| | Total | Total | % | 4-10 oz | >10 oz | <4 oz | |
| A91814-5 | 632 | 445 | 70.3 | 302 | 144 | 155 | Ov |
| AC99213-8W | 518 | 428 | 82.4 | 343 | 85 | 86 | R |
| ATDC9801-3P | 498 | 357 | 71.7 | 308 | 49 | 138 | R |
| B0766-3T | 538 | 407 | 75.7 | 312 | 95 | 128 | R |
| CO95051-7W | 469 | 411 | 87.6 | 266 | 145 | 55 | Ov |
| CO96141-4W | 428 | 381 | 88.8 | 277 | 104 | 43 | Ov |
| CO98277-4W | 495 | 378 | 75.9 | 295 | 83 | 113 | Ov |
| CO98303-8W | 444 | 326 | 73.3 | 297 | 30 | 114 | Ov |
| COA96141-2C | 450 | 404 | 90.2 | 283 | 120 | 42 | Ov |
| COA96142-3C | 480 | 341 | 70.8 | 277 | 63 | 130 | R |
| Atlantic | 473 | 412 | 86.9 | 268 | 144 | 59 | Ov |
| Chipeta | 587 | 521 | 88.8 | 338 | 182 | 60 | Ov |
| Ivory Crisp | 395 | 281 | 70.9 | 237 | 44 | 113 | R |
| Mean | 493 | 392 | 79.5 | 293 | 99 | 95 | ---- |
| LSD[2] (0.05) | 76 | 76 | 6.6 | 52 | 62 | 27 | ---- |

[1]Tuber shape: R=round; Ov=oval.

[2]LSD=least significant difference.

Table 11B. Grade defects for Advanced and Western Regional Chipping Trial entries - 2005.

| Clone | % External Defects[1] | External Defects Observed[2] | % Hollow Heart[3] |
|---|---|---|---|
| A91814-5 | 5.0 | MS*, GC, GR | 0.0 |
| AC99213-8W | 0.9 | MS*, GR* | 0.0 |
| ATDC9801-3P | 0.6 | MS*, GR* | 0.0 |
| B0766-3T | 0.5 | MS, GR* | 4.2 |
| CO95051-7W | 0.6 | MS, GR* | 0.9 |
| CO96141-4W | 1.0 | MS*, GR* | 0.0 |
| CO98277-4W | 0.8 | GC*, GR* | 0.0 |
| CO98303-8W | 0.7 | GC, GR* | 0.0 |
| COA96141-2C | 0.9 | MS, GR* | 0.0 |
| COA96142-3C | 2.0 | GC, GR* | 1.1 |
| Atlantic | 0.6 | GR* | 4.0 |
| Chipeta | 1.1 | GC, GR* | 0.6 |
| Ivory Crisp | 0.2 | GR* | 0.0 |

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

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

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

Table 11C. Growth characteristics of Advanced and Western Regional Chip Trial entries - 2005.

| Clone | % Stand | Emergence Uniformity[1] | Vine Vigor[2] | Stems/ Plant | Vine Size[3] | Vine Type[4] | Vine Maturity[5] |
|---|---|---|---|---|---|---|---|
| A91814-5 | 96 | 3.5 | 4.3 | 3.6 | 4.0 | 2.5 | 3.5 |
| AC99213-8W | 99 | 4.0 | 4.8 | 4.7 | 4.0 | 3.0 | 3.3 |
| ATDC9801-3P | 98 | 4.3 | 4.8 | 4.8 | 3.8 | 2.3 | 3.0 |
| B0766-3T | 98 | 3.5 | 4.0 | 4.8 | 4.0 | 3.0 | 3.5 |
| CO95051-7W | 99 | 3.0 | 3.0 | 5.2 | 4.0 | 3.3 | 3.5 |
| CO96141-4W | 98 | 3.5 | 3.0 | 5.0 | 3.0 | 2.5 | 3.0 |
| CO98277-4W | 97 | 3.0 | 3.0 | 4.3 | 3.0 | 2.8 | 3.0 |
| CO98303-8W | 96 | 3.5 | 3.0 | 5.5 | 2.5 | 2.8 | 3.0 |
| COA96141-2C | 100 | 3.5 | 3.5 | 4.9 | 3.0 | 2.0 | 3.3 |
| COA96142-3C | 96 | 3.0 | 3.3 | 5.4 | 3.5 | 2.3 | 3.0 |
| Atlantic | 96 | 3.8 | 3.5 | 4.9 | 3.0 | 3.0 | 3.8 |
| Chipeta | 97 | 3.8 | 4.3 | 3.8 | 5.0 | 3.3 | 3.8 |
| Ivory Crisp | 97 | 3.3 | 3.5 | 4.8 | 2.8 | 2.8 | 3.0 |
| Mean | 97 | 3.5 | 3.7 | 4.7 | 3.5 | 2.7 | 3.3 |
| LSD[6] (0.05) | 4 | 0.7 | 0.5 | 1.3 | 0.4 | 0.6 | 0.6 |

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

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

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

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

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

[6]LSD=least significant difference.

Table 11D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Chip Trial entries - 2005.

| Clone | Blackspot Index[1] | | | % Weight Loss[2] | Dormancy (Days)[3] | Enzymatic Browning[4] |
|---|---|---|---|---|---|---|
| | Bud End | Stem End | Average | | | |
| A91814-5 | 4.1 | 3.6 | 3.9 | 3.6 | 84 | 3.6 |
| AC99213-8W | 4.1 | 2.5 | 3.3 | 2.8 | 56 | 3.6 |
| ATDC9801-3P | 4.1 | 3.2 | 3.7 | 3.2 | 56 | 4.4 |
| B0766-3T | 3.1 | 3.0 | 3.1 | 3.5 | 42 | 4.4 |
| CO95051-7W | 4.7 | 2.9 | 3.8 | 5.1 | 70 | 3.2 |
| CO96141-4W | 2.6 | 5.0 | 3.8 | 3.7 | 84 | 4.0 |
| CO98277-4W | 5.0 | 5.0 | 5.0 | 5.4 | 49 | 4.8 |
| CO98303-8W | 4.8 | 2.9 | 3.9 | 3.6 | 42 | 3.4 |
| COA96141-2C | 5.0 | 4.6 | 4.8 | 2.4 | 77 | 5.0 |
| COA96142-3C | 5.0 | 3.3 | 4.2 | 3.3 | 105 | 4.2 |
| Atlantic | 4.2 | 3.3 | 3.8 | 4.0 | 70 | 4.6 |
| Chipeta | 3.0 | 3.9 | 3.5 | 2.2 | 98 | 4.0 |
| Ivory Crisp | 3.2 | 3.1 | 3.2 | 4.4 | 56 | 3.8 |

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

[2]Tubers were stored at 45F for 90 days.

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

[4]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[1] after various storage regimes and specific gravity of Advanced and Western Regional Chip Trial entries - 2005.

| Clone | Specific Gravity | 6 wks 40F | 6 wks/40F +3 wks/60F | 6 wks 50F | 6 wks/50F +3 wks/60F |
|---|---|---|---|---|---|
| A91814-5 | 1.099 | 5.0 | 3.5 | 3.5 | 3.5 |
| AC99213-8W | 1.097 | 3.0 | 2.5 | 1.5 | 2.5 |
| ATDC9801-3P | 1.106 | 2.5 | 2.5 | 2.0 | 1.5 |
| B0766-3T | 1.103 | 3.5 | 3.0 | 3.0 | 1.5 |
| CO95051-7W | 1.104 | 3.0 | 3.0 | 2.5 | 1.5 |
| CO96141-4W | 1.092 | 4.0 | 3.5 | 2.5 | 1.5 |
| CO98277-4W | 1.068 | 4.5 | 3.5 | 3.0 | 3.0 |
| CO98303-8W | 1.080 | 4.0 | 2.5 | 2.5 | 2.5 |
| COA96141-2C | 1.078 | 2.5 | 2.5 | 2.0 | 2.0 |
| COA96142-3C | 1.100 | 5.0 | 4.5 | 2.5 | 3.0 |
| Atlantic | 1.098 | 5.0 | 3.5 | 3.0 | 3.0 |
| Chipeta | 1.099 | 5.0 | 4.0 | 3.0 | 2.5 |
| Ivory Crisp | 1.095 | 3.0 | 2.5 | 1.5 | 1.5 |

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

Table 12. Summary comparison of advanced selections and named cultivars for yield, grade, maturity, specific gravity, and grade defects - 2005. Advanced selections to be released for grower evaluation in 2006 are highlighted.

| Clone | Usage[1] | # Trials | Total Yield (Cwt/A) | % US #1 | Vine Maturity[2] | Specific Gravity | % External Defects[3] | % Hollow Heart[4] |
|---|---|---|---|---|---|---|---|---|
| ***Russets*** | | | | | | | | |
| AC92009-4RU | FM | 10 | 387 | 89.4 | 3.1 | 1.096 | 1.3 | 0.0 |
| CO94035-15RU | Dual | 6 | 416 | 85.5 | 3.0 | 1.082 | 2.1 | 2.4 |
| CO95086-8RU | Dual | 5 | 375 | 81.6 | 2.2 | 1.086 | 1.2 | 0.0 |
| CO95172-3RU | FM | 5 | 510 | 80.9 | 3.3 | 1.088 | 1.3 | 0.5 |
| **AC96052-1RU** | **Dual** | **4** | **467** | **86.5** | **3.4** | **1.088** | **1.2** | **0.2** |
| Centennial Russet | FM | 35 | 294 | 77.4 | 3.0 | 1.080 | 0.8 | 0.3 |
| Rio Grande Russet | FM | 11 | 525 | 82.5 | 3.1 | 1.086 | 3.5 | 0.5 |
| Russet Norkotah | FM | 59 | 369 | 84.3 | 1.8 | 1.078 | 2.1 | 0.4 |
| Russet Nugget | Dual | 56 | 438 | 81.0 | 3.8 | 1.093 | 1.6 | 0.2 |
| ***Reds*** | | | | | | | | |
| NDC5281-2R | FM | 10 | 404 | 56.4 | 1.8 | 1.087 | 0.7 | 0.0 |
| Colorado Rose | FM | 12 | 518 | 83.7 | 2.8 | 1.082 | 3.0 | 0.3 |
| Sangre-S10 | FM | 16 | 536 | 87.4 | 3.5 | 1.075 | 2.1 | 2.1 |
| ***Specialties*** | | | | | | | | |
| VC0967-2R/Y | Spec | 6 | 450 | 84.1 | 2.5 | 1.075 | 0.8 | 0.1 |
| VC1002-3W/Y | Spec | 6 | 477 | 50.0 | 2.8 | 1.091 | 0.8 | 0.2 |
| **VC1009-1W/Y** | **Spec** | **5** | **616** | **73.8** | **3.4** | **1.084** | **1.9** | **1.4** |
| **VC1123-2W/Y** | **Spec** | **4** | **574** | **89.8** | **3.3** | **1.089** | **2.0** | **5.1** |
| All Blue | Spec | 8 | 526 | 62.3 | 3.0 | 1.084 | 0.8 | 0.0 |
| Mountain Rose | Spec | 7 | 382 | 68.3 | 2.1 | 1.081 | 1.3 | 0.0 |
| Purple Majesty | Spec | 7 | 485 | 63.8 | 2.0 | 1.083 | 0.8 | 1.7 |
| Yukon Gold | Spec | 16 | 405 | 88.1 | 1.8 | 1.085 | 1.9 | 0.7 |

Table 12 continued on next page

Table 12 (cont'd). Summary comparison of advanced selections and named cultivars for yield, grade, maturity, specific gravity, and grade defects - 2005. Advanced selections to be released for grower evaluation in 2006 are highlighted.

| Clone | Usage[1] | # Trials | Total Yield (Cwt/A) | % US #1 | Vine Maturity[2] | Specific Gravity | % External Defects[3] | % Hollow Heart[4] |
|---|---|---|---|---|---|---|---|---|
| ***Chippers*** | | | | | | | | |
| CO95051-7W | Chip | 5 | 426 | 86.3 | 3.4 | 1.098 | 1.1 | 0.3 |
| **CO96141-4W** | **Chip** | **4** | **427** | **88.8** | **2.8** | **1.087** | **1.5** | **0.0** |
| Atlantic | Chip | 29 | 454 | 86.9 | 3.2 | 1.097 | 2.7 | 5.3 |
| Chipeta | Chip | 27 | 529 | 83.7 | 3.3 | 1.089 | 5.4 | 0.6 |

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

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

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

[4]Based on tubers greater than 10 ounces.

Figure 4. Photographs of advanced selections and recently named cultivars - 2005.

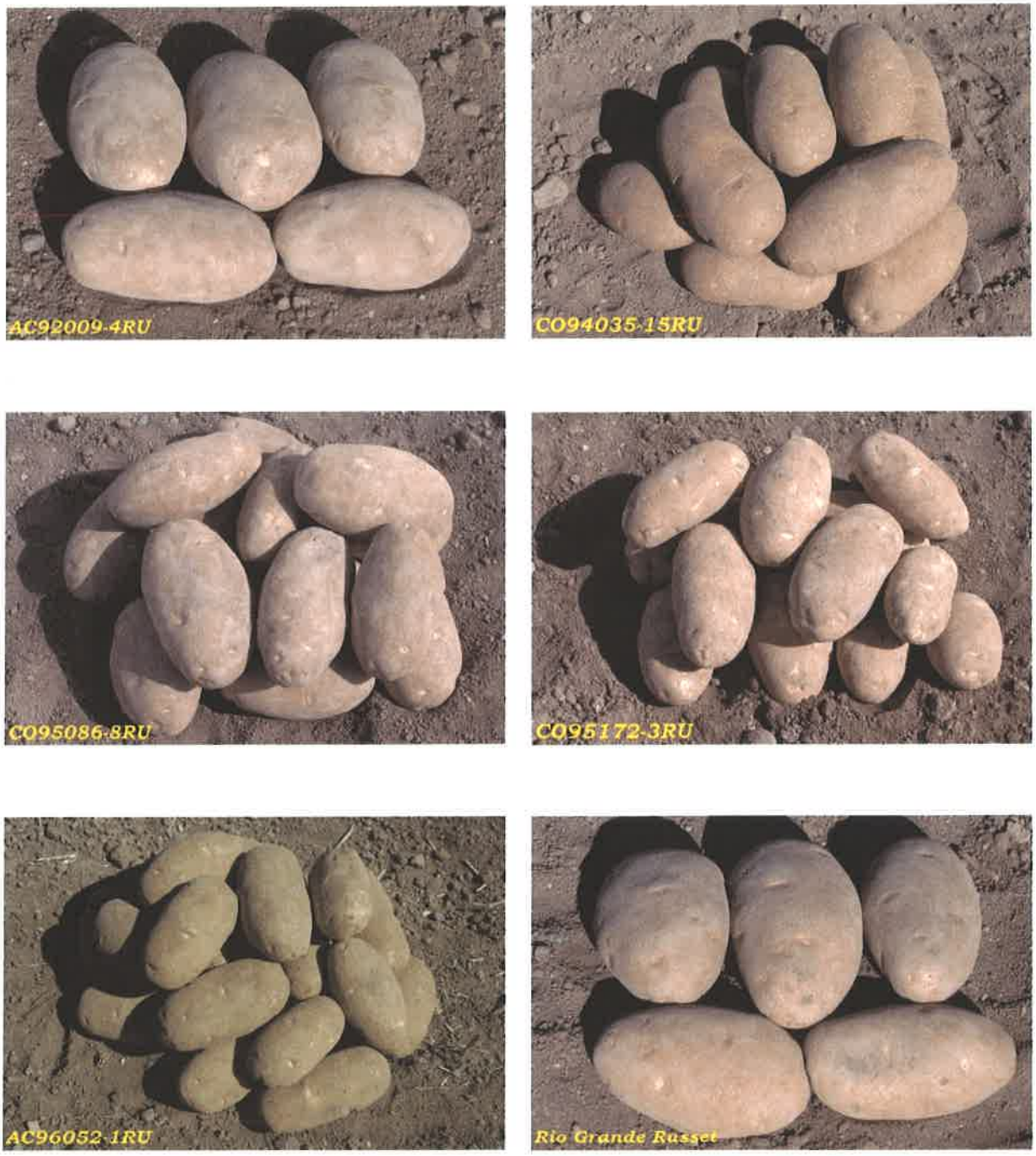


Figure 4 (cont'd). Photographs of advanced selections and recently named cultivars - 2005.

Figure 4 (cont'd). Photographs of advanced selections and recently named cultivars - 2005.

Table 13A. Detailed data summary for AC92009-4RU.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 10 | 387 | 332-468 |
| Yield US #1 (Cwt/A) | | 10 | 346 | 290-421 |
| % US #1 | | 10 | 89.4 | 86.4-93.3 |
| Yield >10 oz (Cwt/A) | | 10 | 101 | 63-156 |
| Yield <4 oz (Cwt/A) | | 10 | 36 | 23-49 |
| % External Defects[1] | | 10 | 1.3 | 0.0-2.4 |
| % Hollow Heart[2] | | 10 | 0.0 | 0.0-0.4 |
| % Stand | | 10 | 98 | 96-99 |
| Emergence Uniformity | | 10 | 3.1 | 2.5-3.5 |
| Vine Vigor[3] | | 10 | 2.5 | 2.0-3.0 |
| Stems/Plant | | 10 | 2.0 | 1.4-2.6 |
| Vine Size[4] | | 10 | 3.7 | 3.0-4.3 |
| Vine Maturity5 | | 10 | 3.1 | 2.8-3.8 |
| Blackspot[6] | Bud End | 11 | 4.5 | 3.7-5.0 |
| | Stem End | 11 | 3.7 | 2.5-5.0 |
| | Average | 11 | 4.1 | |
| Weight Loss[7] | | 11 | 3.9 | 1.3-7.0 |
| Dormancy[8] | | 11 | 147 | 113-195 |
| Enzymatic Browning[9] | | 11 | 4.3 | 3.4-5.0 |
| Specific Gravity | | 11 | 1.096 | 1.081-1.106 |
| Fry Color[10] | Harvest | 11 | 2.0 | 1.0-3.0 |
| | Storage | 11 | 2.3 | 1.0-3.0 |
| Fry Texture[11] | Harvest | 11 | 3.5 | 3.0-5.0 |
| | Storage | 11 | 3.6 | 3.0-5.0 |

Refer to footnotes on page 83.

Table 13B. Detailed data summary for CO94035-15RU.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 6 | 416 | 345-478 |
| Yield US #1 (Cwt/A) | | 6 | 356 | 279-406 |
| % US #1 | | 6 | 85.5 | 80.8-92.1 |
| Yield >10 oz (Cwt/A) | | 6 | 109 | 54-144 |
| Yield <4 oz (Cwt/A) | | 6 | 51 | 23-61 |
| % External Defects[1] | | 6 | 2.1 | 1.7-2.3 |
| % Hollow Heart[2] | | 6 | 2.4 | 1.0-5.4 |
| % Stand | | 6 | 97 | 94-99 |
| Emergence Uniformity | | 6 | 3.3 | 3.0-3.8 |
| Vine Vigor[3] | | 6 | 3.6 | 2.8-4.0 |
| Stems/Plant | | 6 | 2.9 | 2.2-3.5 |
| Vine Size[4] | | 6 | 3.3 | 3.0-3.5 |
| Vine Maturity5 | | 6 | 3.0 | 2.8-3.0 |
| Blackspot[6] | Bud End | 7 | 3.8 | 2.9-4.9 |
| | Stem End | 7 | 3.4 | 2.7-4.4 |
| | Average | 7 | 3.6 | |
| Weight Loss[7] | | 7 | 4.1 | 1.2-6.8 |
| Dormancy[8] | | 7 | 93 | 83-105 |
| Enzymatic Browning[9] | | 7 | 4.6 | 4.0-5.0 |
| Specific Gravity | | 7 | 1.082 | 1.074-1.090 |
| Fry Color[10] | Harvest | 7 | 1.4 | 1.0-2.0 |
| | Storage | 7 | 1.7 | 1.0-3.0 |
| Fry Texture[11] | Harvest | 7 | 2.9 | 2.0-3.0 |
| | Storage | 7 | 3.1 | 3.0-4.0 |

Refer to footnotes on page 83.

Table 13C. Detailed data summary for CO95086-8RU.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 5 | 375 | 355-394 |
| Yield US #1 (Cwt/A) | | 5 | 306 | 290-326 |
| % US #1 | | 5 | 81.6 | 73.5-87.2 |
| Yield >10 oz (Cwt/A) | | 5 | 58 | 30-87 |
| Yield <4 oz (Cwt/A) | | 5 | 65 | 43-94 |
| % External Defects[1] | | 5 | 1.2 | 0.2-2.5 |
| % Hollow Heart[2] | | 5 | 0.0 | 0.0-0.0 |
| % Stand | | 5 | 97 | 96-99 |
| Emergence Uniformity | | 5 | 3.3 | 2.8-4.0 |
| Vine Vigor[3] | | 5 | 3.1 | 2.8-3.5 |
| Stems/Plant | | 5 | 3.2 | 2.8-3.9 |
| Vine Size[4] | | 5 | 2.9 | 2.8-3.0 |
| Vine Maturity5 | | 5 | 2.2 | 1.8-2.5 |
| Blackspot[6] | Bud End | 6 | 4.0 | 3.1-4.5 |
| | Stem End | 6 | 4.3 | 3.8-4.6 |
| | Average | 6 | 4.2 | |
| Weight Loss[7] | | 6 | 3.2 | 1.4-5.1 |
| Dormancy[8] | | 6 | 85 | 77-97 |
| Enzymatic Browning[9] | | 6 | 4.5 | 4.2-4.8 |
| Specific Gravity | | 6 | 1.086 | 1.082-1.091 |
| Fry Color[10] | Harvest | 6 | 1.3 | 0.0-3.0 |
| | Storage | 6 | 1.2 | 1.0-2.0 |
| Fry Texture[11] | Harvest | 6 | 3.0 | 2.0-4.0 |
| | Storage | 6 | 3.2 | 3.0-4.0 |

Refer to footnotes on page 83.

Table 13D. Detailed data summary for CO95172-3RU.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 5 | 510 | 415-547 |
| Yield US #1 (Cwt/A) | | 5 | 413 | 327-450 |
| % US #1 | | 5 | 80.9 | 78.3-84.2 |
| Yield >10 oz (Cwt/A) | | 5 | 97 | 58-138 |
| Yield <4 oz (Cwt/A) | | 5 | 90 | 80-103 |
| % External Defects[1] | | 5 | 1.3 | 0.2-2.2 |
| % Hollow Heart[2] | | 5 | 0.5 | 0.0-2.1 |
| % Stand | | 5 | 97 | 94-100 |
| Emergence Uniformity | | 5 | 3.3 | 2.8-3.8 |
| Vine Vigor[3] | | 5 | 3.0 | 2.5-3.5 |
| Stems/Plant | | 5 | 3.0 | 2.5-3.8 |
| Vine Size[4] | | 5 | 3.9 | 3.5-4.0 |
| Vine Maturity5 | | 5 | 3.3 | 3.0-3.5 |
| Blackspot[6] | Bud End | 6 | 4.6 | 4.3-5.0 |
| | Stem End | 6 | 4.1 | 3.5-4.7 |
| | Average | 6 | 4.3 | |
| Weight Loss[7] | | 6 | 3.6 | 1.1-6.2 |
| Dormancy[8] | | 6 | 84 | 76-91 |
| Enzymatic Browning[9] | | 6 | 3.1 | 2.4-4.2 |
| Specific Gravity | | 6 | 1.088 | 1.075-1.096 |
| Fry Color[10] | Harvest | 6 | 2.3 | 1.0-4.0 |
| | Storage | 6 | 2.2 | 1.0-4.0 |
| Fry Texture[11] | Harvest | 6 | 2.7 | 1.0-4.0 |
| | Storage | 6 | 2.7 | 1.0-4.0 |

Refer to footnotes on page 83.

Table 13E. Detailed data summary for AC96052-1RU.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 4 | 467 | 398-530 |
| Yield US #1 (Cwt/A) | | 4 | 404 | 357-457 |
| % US #1 | | 4 | 86.5 | 84.2-89.4 |
| Yield >10 oz (Cwt/A) | | 4 | 100 | 79-117 |
| Yield <4 oz (Cwt/A) | | 4 | 58 | 37-69 |
| % External Defects[1] | | 4 | 1.2 | 0.6-1.9 |
| % Hollow Heart[2] | | 4 | 0.2 | 0.0-0.6 |
| % Stand | | 4 | 90 | 68-99 |
| Emergence Uniformity | | 4 | 2.7 | 1.5-3.5 |
| Vine Vigor[3] | | 4 | 3.0 | 3.0-3.0 |
| Stems/Plant | | 4 | 3.1 | 2.4-3.9 |
| Vine Size[4] | | 4 | 4.0 | 3.8-4.5 |
| Vine Maturity5 | | 4 | 3.4 | 3.0-3.8 |
| Blackspot[6] | Bud End | 5 | 3.8 | 2.7-4.5 |
| | Stem End | 5 | 2.8 | 1.4-3.3 |
| | Average | 5 | 3.3 | |
| Weight Loss[7] | | 5 | 2.7 | 1.0-4.9 |
| Dormancy[8] | | 5 | 84 | 70-104 |
| Enzymatic Browning[9] | | 5 | 3.8 | 3.4-4.2 |
| Specific Gravity | | 5 | 1.088 | 1.080-1.096 |
| Fry Color[10] | Harvest | 5 | 0.4 | 0.0-1.0 |
| | Storage | 5 | 1.0 | 0.0-2.0 |
| Fry Texture[11] | Harvest | 5 | 3.6 | 2.0-5.0 |
| | Storage | 5 | 3.4 | 3.0-4.0 |

Refer to footnotes on page 83.

Table 13F. 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 | 77.4 | 61.9-89.0 |
| Yield >10 oz (Cwt/A) | | 35 | 26 | 4-72 |
| Yield <4 oz (Cwt/A) | | 35 | 62 | 32-102 |
| % External Defects[1] | | 35 | 0.8 | 0.0-3.3 |
| % Hollow Heart[2] | | 35 | 0.3 | 0.0-3.3 |
| % Stand | | 35 | 97 | 90-99 |
| Emergence Uniformity | | 15 | 3.2 | 3.0-3.5 |
| Vine Vigor[3] | | 15 | 2.2 | 1.0-3.0 |
| Stems/Plant | | 27 | 3.0 | 2.2-3.6 |
| Vine Size[4] | | 15 | 2.6 | 2.0-3.0 |
| Vine Maturity5 | | 35 | 3.0 | 2.5-3.5 |
| Blackspot[6] | Bud End | 38 | 4.8 | 3.7-5.0 |
| | Stem End | 38 | 4.8 | 4.2-5.0 |
| | Average | 41 | 4.8 | |
| Weight Loss[7] | | 41 | 6.4 | 1.6-9.0 |
| Dormancy[8] | | 34 | 87 | 57-123 |
| Enzymatic Browning[9] | | 36 | 4.0 | 3.2-5.0 |
| Specific Gravity | | 48 | 1.080 | 1.069-1.092 |
| Fry Color[10] | Harvest | 40 | 3.7 | 3.0-4.0 |
| | Storage | 40 | 4.0 | 3.0-5.0 |
| Fry Texture[11] | Harvest | 40 | 2.3 | 1.0-4.0 |
| | Storage | 40 | 2.2 | 1.0-3.0 |

Refer to footnotes on page 83.

Table 13G.Detailed data summary for Rio Grande Russet.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 11 | 525 | 367-683 |
| Yield US #1 (Cwt/A) | | 11 | 436 | 255-603 |
| % US #1 | | 11 | 82.5 | 69.2-90.7 |
| Yield >10 oz (Cwt/A) | | 11 | 147 | 14-275 |
| Yield <4 oz (Cwt/A) | | 11 | 71 | 33-111 |
| % External Defects[1] | | 11 | 3.5 | 0.7-8.7 |
| % Hollow Heart[2] | | 11 | 0.5 | 0.0-1.6 |
| % Stand | | 11 | 98 | 96-100 |
| Emergence Uniformity | | 11 | 3.6 | 3.0-4.0 |
| Vine Vigor[3] | | 11 | 3.5 | 2.0-4.5 |
| Stems/Plant | | 11 | 3.0 | 2.0-3.6 |
| Vine Size[4] | | 11 | 3.9 | 3.5-4.5 |
| Vine Maturity5 | | 11 | 3.1 | 2.5 -3.5 |
| Blackspot[6] | Bud End | 12 | 4.6 | 4.1-5.0 |
| | Stem End | 12 | 4.4 | 3.0-5.0 |
| | Average | 12 | 4.5 | |
| Weight Loss[7] | | 12 | 5.1 | 1.5-7.1 |
| Dormancy[8] | | 12 | 84 | 73-106 |
| Enzymatic Browning[9] | | 12 | 4.0 | 3.2-5.0 |
| Specific Gravity | | 12 | 1.086 | 1.079-1.094 |
| Fry Color[10] | Harvest | 12 | 2.3 | 1.0-4.0 |
| | Storage | 12 | 3.2 | 3.0-4.0 |
| Fry Texture[11] | Harvest | 12 | 3.2 | 2.0-4.0 |
| | Storage | 12 | 2.9 | 2.0-4.0 |

Refer to footnotes on page 83.

Table 13H. Detailed data summary for Russet Norkotah.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 59 | 369 | 174-557 |
| Yield US #1 (Cwt/A) | | 59 | 311 | 144-444 |
| % US #1 | | 59 | 84.3 | 77.8-92.2 |
| Yield >10 oz (Cwt/A) | | 59 | 100 | 23-212 |
| Yield <4 oz (Cwt/A) | | 59 | 50 | 22-88 |
| % External Defects[1] | | 59 | 2.1 | 0.0-5.3 |
| % Hollow Heart[2] | | 59 | 0.4 | 0.0-2.8 |
| % Stand | | 59 | 98 | 88-100 |
| Emergence Uniformity | | 50 | 3.3 | 1.0-4.0 |
| Vine Vigor[3] | | 50 | 2.8 | 1.0-4.0 |
| Stems/Plant | | 55 | 3.6 | 2.5-4.8 |
| Vine Size[4] | | 50 | 2.2 | 1.0-3.3 |
| Vine Maturity5 | | 59 | 1.8 | 1.0-3.0 |
| Blackspot[6] | Bud End | 58 | 4.6 | 2.9-5.0 |
| | Stem End | 58 | 4.4 | 3.1-5.0 |
| | Average | 59 | 4.5 | |
| Weight Loss[7] | | 59 | 4.1 | 1.0-7.1 |
| Dormancy[8] | | 58 | 98 | 78-132 |
| Enzymatic Browning[9] | | 58 | 3.3 | 2.2-4.8 |
| Specific Gravity | | 62 | 1.078 | 1.066-1.091 |
| Fry Color[10] | Harvest | 59 | 2.2 | 1.0-4.0 |
| | Storage | 59 | 2.6 | 1.0-4.0 |
| Fry Texture[11] | Harvest | 59 | 2.6 | 1.0-4.0 |
| | Storage | 59 | 2.6 | 1.0-4.0 |

Refer to footnotes on page 83.

Table 13I. Detailed data summary for Russet Nugget.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 56 | 438 | 284-585 |
| Yield US #1 (Cwt/A) | | 56 | 357 | 225-518 |
| % US #1 | | 56 | 81.0 | 68.0-93.0 |
| Yield >10 oz (Cwt/A) | | 56 | 92 | 11-258 |
| Yield <4 oz (Cwt/A) | | 56 | 73 | 30-133 |
| % External Defects[1] | | 56 | 1.6 | 0.1-4.3 |
| % Hollow Heart[2] | | 56 | 0.2 | 0.0-1.9 |
| % Stand | | 56 | 98 | 96-100 |
| Emergence Uniformity | | 46 | 3.3 | 2.8-4.0 |
| Vine Vigor[3] | | 46 | 3.3 | 2.5-4.0 |
| Stems/Plant | | 52 | 3.4 | 2.1-5.7 |
| Vine Size[4] | | 46 | 4.2 | 3.8-5.0 |
| Vine Maturity5 | | 56 | 3.8 | 3.0-4.3 |
| Blackspot[6] | Bud End | 64 | 4.7 | 3.0-5.0 |
| | Stem End | 64 | 4.4 | 2.1-5.0 |
| | Average | 67 | 4.5 | |
| Weight Loss[7] | | 67 | 3.3 | 1.1-5.5 |
| Dormancy[8] | | 62 | 94 | 57-144 |
| Enzymatic Browning[9] | | 63 | 4.0 | 2.8-4.8 |
| Specific Gravity | | 69 | 1.093 | 1.072-1.110 |
| Fry Color[10] | Harvest | 67 | 1.6 | 0.0-3.0 |
| | Storage | 67 | 2.1 | 1.0-3.0 |
| Fry Texture[11] | Harvest | 67 | 4.0 | 2.0-5.0 |
| | Storage | 67 | 3.9 | 2.0-5.0 |

Refer to footnotes on page 83.

Table 13J. Detailed data summary for NDC5281-2R.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 10 | 404 | 321-474 |
| Yield US #1 (Cwt/A) | | 10 | 228 | 115-298 |
| % US #1 | | 10 | 56.4 | 28.4-72.3 |
| Yield >10 oz (Cwt/A) | | 10 | 9 | 0-22 |
| Yield <4 oz (Cwt/A) | | 10 | 173 | 110-289 |
| % External Defects[1] | | 10 | 0.7 | 0.0-1.8 |
| % Hollow Heart[2] | | 10 | 0.0 | 0.0-0.0 |
| % Stand | | 10 | 96 | 92-99 |
| Emergence Uniformity | | 10 | 3.4 | 3.0-4.0 |
| Vine Vigor[3] | | 10 | 3.1 | 2.8-3.5 |
| Stems/Plant | | 10 | 4.2 | 2.9-6.4 |
| Vine Size[4] | | 10 | 3.1 | 2.5-3.8 |
| Vine Maturity5 | | 10 | 1.8 | 1.0-3.0 |
| Blackspot[6] | Bud End | 11 | 3.5 | 2.1-4.8 |
| | Stem End | 11 | 2.9 | 1.8-4.2 |
| | Average | 11 | 3.2 | |
| Weight Loss[7] | | 11 | 6.5 | 1.2-10.2 |
| Dormancy[8] | | 11 | 87 | 70-118 |
| Enzymatic Browning[9] | | 11 | 1.4 | 1.0-2.4 |
| Specific Gravity | | 11 | 1.087 | 1.080-1.096 |
| Fry Color[10] | Harvest | 11 | 1.5 | 1.0-3.0 |
| | Storage | 11 | 1.7 | 1.0-4.0 |
| Fry Texture[11] | Harvest | 11 | 2.9 | 2.0-4.0 |
| | Storage | 11 | 2.7 | 1.0-3.0 |

Refer to footnotes on page 83.

Table 13K. Detailed data summary for Colorado Rose.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 12 | 518 | 390-641 |
| Yield US #1 (Cwt/A) | | 12 | 435 | 310-530 |
| % US #1 | | 12 | 83.7 | 75.6-90.7 |
| Yield >10 oz (Cwt/A) | | 12 | 151 | 69-249 |
| Yield <4 oz (Cwt/A) | | 12 | 66 | 43-98 |
| % External Defects[1] | | 12 | 3.0 | 0.2-6.5 |
| % Hollow Heart[2] | | 12 | 0.3 | 0.0-0.8 |
| % Stand | | 12 | 96 | 92-100 |
| Emergence Uniformity | | 12 | 3.0 | 2.5-3.5 |
| Vine Vigor[3] | | 12 | 3.0 | 2.2-3.8 |
| Stems/Plant | | 12 | 3.5 | 2.3-4.5 |
| Vine Size[4] | | 12 | 3.4 | 3.0-4.0 |
| Vine Maturity5 | | 12 | 2.8 | 2.0-3.8 |
| Blackspot[6] | Bud End | 13 | 3.7 | 2.1-4.8 |
| | Stem End | 13 | 3.7 | 2.4-5.0 |
| | Average | 13 | 3.7 | |
| Weight Loss[7] | | 13 | 6.1 | 1.4-8.2 |
| Dormancy[8] | | 13 | 63 | 54-78 |
| Enzymatic Browning[9] | | 13 | 4.2 | 3.4-4.8 |
| Specific Gravity | | 13 | 1.082 | 1.071-1.086 |
| Fry Color[10] | Harvest | 13 | 2.2 | 1.0-3.0 |
| | Storage | 12 | 2.8 | 2.0-3.0 |
| Fry Texture[11] | Harvest | 13 | 2.8 | 2.0-4.0 |
| | Storage | 12 | 2.8 | 2.0-3.0 |

Refer to footnotes on page 83.

Table 13L. Detailed data summary for Sangre-S10.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 16 | 536 | 410-616 |
| Yield US #1 (Cwt/A) | | 16 | 469 | 358-548 |
| % US #1 | | 16 | 87.4 | 82.2-92.8 |
| Yield >10 oz (Cwt/A) | | 16 | 193 | 101-319 |
| Yield <4 oz (Cwt/A) | | 16 | 56 | 34-90 |
| % External Defects[1] | | 16 | 2.1 | 0.3-5.7 |
| % Hollow Heart[2] | | 16 | 2.1 | 0.0-8.2 |
| % Stand | | 16 | 97 | 91-100 |
| Emergence Uniformity | | 16 | 3.0 | 2.5-3.5 |
| Vine Vigor[3] | | 16 | 2.7 | 1.8-3.0 |
| Stems/Plant | | 16 | 2.9 | 1.9-4.3 |
| Vine Size[4] | | 16 | 3.9 | 3.5-4.5 |
| Vine Maturity5 | | 16 | 3.5 | 3.0-4.0 |
| Blackspot[6] | Bud End | 26 | 3.8 | 2.0-5.0 |
| | Stem End | 26 | 4.0 | 2.5-5.0 |
| | Average | 26 | 3.9 | |
| Weight Loss[7] | | 26 | 3.1 | 1.0-4.5 |
| Dormancy[8] | | 26 | 87 | 56-118 |
| Enzymatic Browning[9] | | 26 | 3.3 | 2.6-4.8 |
| Specific Gravity | | 26 | 1.075 | 1.060-1.087 |
| Fry Color[10] | Harvest | 26 | 3.7 | 2.0-4.0 |
| | Storage | 26 | 3.9 | 3.0-4.0 |
| Fry Texture[11] | Harvest | 26 | 2.3 | 1.0-4.0 |
| | Storage | 26 | 2.3 | 1.0-3.0 |

Refer to footnotes on page 83.

Table 13M. Detailed data summary for VC0967-2R/Y.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 6 | 450 | 355-527 |
| Yield US #1 (Cwt/A) | | 6 | 380 | 288-466 |
| % US #1 | | 6 | 84.1 | 71.1-93.4 |
| Yield >10 oz (Cwt/A) | | 6 | 85 | 22-140 |
| Yield <4 oz (Cwt/A) | | 6 | 66 | 31-119 |
| % External Defects[1] | | 6 | 0.8 | 0.3-2.0 |
| % Hollow Heart[2] | | 6 | 0.1 | 0.0-0.5 |
| % Stand | | 6 | 89 | 76-99 |
| Emergence Uniformity | | 6 | 3.3 | 2.8-3.5 |
| Vine Vigor[3] | | 6 | 3.2 | 2.8-3.8 |
| Stems/Plant | | 6 | 3.2 | 2.5-4.4 |
| Vine Size[4] | | 6 | 2.9 | 2.8-3.0 |
| Vine Maturity5 | | 6 | 2.5 | 2.3-3.0 |
| Blackspot[6] | Bud End | 8 | 3.6 | 2.4-4.0 |
| | Stem End | 8 | 3.2 | 2.4-4.2 |
| | Average | 8 | 3.4 | |
| Weight Loss[7] | | 8 | 3.7 | 1.2-6.3 |
| Dormancy[8] | | 8 | 76 | 62-105 |
| Enzymatic Browning[9] | | 8 | 4.1 | 3.8-4.4 |
| Specific Gravity | | 8 | 1.075 | 1.071-1.079 |
| Fry Color[10] | Harvest | 8 | 1.0 | 1.0-1.0 |
| | Storage | 8 | 1.6 | 1.0-2.0 |
| Fry Texture[11] | Harvest | 8 | 2.5 | 2.0-3.0 |
| | Storage | 8 | 2.5 | 2.0-3.0 |

Refer to footnotes on page 83.

Table 13N. Detailed data summary for VC1002-3W/Y.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 6 | 477 | 416-522 |
| Yield US #1 (Cwt/A) | | 6 | 241 | 163-355 |
| % US #1 | | 6 | 50.0 | 39.0-68.0 |
| Yield >10 oz (Cwt/A) | | 6 | 21 | 10-33 |
| Yield <4 oz (Cwt/A) | | 6 | 233 | 164-297 |
| % External Defects[1] | | 6 | 0.8 | 0.0-2.2 |
| % Hollow Heart[2] | | 6 | 0.2 | 0.0-0.7 |
| % Stand | | 6 | 97 | 94-99 |
| Emergence Uniformity | | 6 | 3.5 | 3.3-4.3 |
| Vine Vigor[3] | | 6 | 4.0 | 3.5-4.8 |
| Stems/Plant | | 6 | 4.0 | 3.3-5.1 |
| Vine Size[4] | | 6 | 4.0 | 3.8-4.0 |
| Vine Maturity5 | | 6 | 2.8 | 2.5-3.0 |
| Blackspot[6] | Bud End | 11 | 4.4 | 3.9-4.9 |
| | Stem End | 11 | 4.3 | 2.9-4.9 |
| | Average | 11 | 4.3 | |
| Weight Loss[7] | | 11 | 3.2 | 1.0-5.6 |
| Dormancy[8] | | 11 | 97 | 83-118 |
| Enzymatic Browning[9] | | 11 | 4.4 | 3.8-5.0 |
| Specific Gravity | | 12 | 1.091 | 1.080-1.104 |
| Fry Color[10] | Harvest | 5 | 0.8 | 0.0-1.0 |
| | Storage | 5 | 1.0 | 1.0-1.0 |
| Fry Texture[11] | Harvest | 5 | 3.2 | 3.0-4.0 |
| | Storage | 5 | 3.4 | 3.0-4.0 |

Refer to footnotes on page 83.

Table 13O. Detailed data summary for VC1009-1W/Y.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 5 | 616 | 558-641 |
| Yield US #1 (Cwt/A) | | 5 | 456 | 420-508 |
| % US #1 | | 5 | 73.8 | 67.5-79.7 |
| Yield >10 oz (Cwt/A) | | 5 | 105 | 67-142 |
| Yield <4 oz (Cwt/A) | | 5 | 148 | 121-198 |
| % External Defects[1] | | 5 | 1.9 | 0.6-4.3 |
| % Hollow Heart[2] | | 5 | 1.4 | 0.5-2.6 |
| % Stand | | 5 | 98 | 96-99 |
| Emergence Uniformity | | 5 | 3.4 | 3.0-3.8 |
| Vine Vigor[3] | | 5 | 4.1 | 3.8-4.5 |
| Stems/Plant | | 5 | 4.3 | 3.1-5.4 |
| Vine Size[4] | | 5 | 4.6 | 4.0-5.0 |
| Vine Maturity5 | | 5 | 3.4 | 3.3-3.5 |
| Blackspot[6] | Bud End | 7 | 3.9 | 3.0-4.6 |
| | Stem End | 7 | 3.6 | 2.6-4.7 |
| | Average | 7 | 3.7 | |
| Weight Loss[7] | | 7 | 3.0 | 1.0-6.8 |
| Dormancy[8] | | 7 | 99 | 84-132 |
| Enzymatic Browning[9] | | 7 | 3.9 | 3.2-4.8 |
| Specific Gravity | | 8 | 1.084 | 1.072-1.092 |
| Fry Color[10] | Harvest | 6 | 1.3 | 1.0-2.0 |
| | Storage | 6 | 1.8 | 1.0-3.0 |
| Fry Texture[11] | Harvest | 6 | 3.0 | 3.0-3.0 |
| | Storage | 6 | 3.0 | 2.0-4.0 |

Refer to footnotes on page 83.

Table 13P. Detailed data summary for VC1123-2W/Y.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 4 | 574 | 537-662 |
| Yield US #1 (Cwt/A) | | 4 | 514 | 455-580 |
| % US #1 | | 4 | 89.8 | 84.9-94.9 |
| Yield >10 oz (Cwt/A) | | 4 | 207 | 159-232 |
| Yield <4 oz (Cwt/A) | | 4 | 48 | 24-71 |
| % External Defects[1] | | 4 | 2.0 | 1.0-3.3 |
| % Hollow Heart[2] | | 4 | 5.1 | 2.5-11.2 |
| % Stand | | 4 | 97 | 95-98 |
| Emergence Uniformity | | 4 | 3.3 | 3.0-3.5 |
| Vine Vigor[3] | | 4 | 3.5 | 3.0- 3.8 |
| Stems/Plant | | 4 | 4.0 | 2.9-5.8 |
| Vine Size[4] | | 4 | 4.0 | 3.8-4.3 |
| Vine Maturity5 | | 4 | 3.3 | 3.0-3.5 |
| Blackspot[6] | Bud End | 5 | 3.8 | 2.9-4.3 |
| | Stem End | 5 | 3.7 | 2.7-4.7 |
| | Average | 5 | 3.8 | |
| Weight Loss[7] | | 5 | 3.1 | 1.4-5.6 |
| Dormancy[8] | | 5 | 79 | 63-104 |
| Enzymatic Browning[9] | | 5 | 4.7 | 4.4-4.8 |
| Specific Gravity | | 5 | 1.089 | 1.076-1.098 |
| Fry Color[10] | Harvest | 5 | 1.4 | 1.0-2.0 |
| | Storage | 5 | 1.6 | 1.0-2.0 |
| Fry Texture[11] | Harvest | 5 | 3.0 | 2.0-4.0 |
| | Storage | 5 | 2.8 | 2.0-3.0 |

Refer to footnotes on page 83.

Table 13V. Detailed data summary for CO96141-4W.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 4 | 427 | 399-460 |
| Yield US #1 (Cwt/A) | | 4 | 378 | 361-398 |
| % US #1 | | 4 | 88.8 | 81.0-95.0 |
| Yield >10 oz (Cwt/A) | | 4 | 132 | 104-176 |
| Yield <4 oz (Cwt/A) | | 4 | 42 | 15-78 |
| % External Defects[1] | | 4 | 1.5 | 1.0-2.0 |
| % Hollow Heart[2] | | 4 | 0.0 | 0.0-0.0 |
| % Stand | | 4 | 97 | 93-99 |
| Emergence Uniformity | | 4 | 3.3 | 3.0-3.5 |
| Vine Vigor[3] | | 4 | 2.7 | 2.3-3.0 |
| Stems/Plant | | 4 | 2.6 | 2.1-3.2 |
| Vine Size[4] | | 4 | 2.7 | 2.3-3.0 |
| Vine Maturity5 | | 4 | 2.8 | 2.5-3.0 |
| Blackspot[6] | Bud End | 9 | 4.2 | 2.6-4.9 |
| | Stem End | 9 | 3.4 | 2.3-5.0 |
| | Average | 9 | 3.8 | |
| Weight Loss[7] | | 9 | 3.6 | 1.2-7.3 |
| Dormancy[8] | | 9 | 87 | 69-105 |
| Enzymatic Browning[9] | | 9 | 4.1 | 2.8-5.0 |
| Specific Gravity | | 10 | 1.087 | 1.081-1.092 |
| Chip Color[10] | 40 | 10 | 3.9 | 2.5-4.5 |
| | 40R | 10 | 3.4 | 2.5-4.0 |
| | 50 | 10 | 2.4 | 2.0-3.0 |
| | 50R | 10 | 2.2 | 1.0-3.0 |

Refer to footnotes on page 83.

Table 13U. Detailed data summary for CO95051-7W.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 5 | 426 | 372-469 |
| Yield US #1 (Cwt/A) | | 5 | 369 | 295-411 |
| % US #1 | | 5 | 86.3 | 79.1-90.0 |
| Yield >10 oz (Cwt/A) | | 5 | 92 | 28-145 |
| Yield <4 oz (Cwt/A) | | 5 | 53 | 37-75 |
| % External Defects[1] | | 5 | 1.1 | 0.6-1.6 |
| % Hollow Heart[2] | | 5 | 0.3 | 0.0-0.9 |
| % Stand | | 5 | 94 | 82-99 |
| Emergence Uniformity | | 5 | 3.2 | 3.0-3.5 |
| Vine Vigor[3] | | 5 | 3.1 | 3.0-3.3 |
| Stems/Plant | | 5 | 3.1 | 2.6-3.9 |
| Vine Size[4] | | 5 | 3.6 | 3.0-4.0 |
| Vine Maturity5 | | 5 | 3.4 | 3.0 4.0 |
| Blackspot[6] | Bud End | 11 | 4.2 | 3.1-4.9 |
| | Stem End | 11 | 2.7 | 1.6-4.0 |
| | Average | 11 | 3.4 | |
| Weight Loss[7] | | 11 | 5.4 | 1.7-11.0 |
| Dormancy[8] | | 11 | 76 | 62-99 |
| Enzymatic Browning[9] | | 11 | 3.6 | 1.8-4.4 |
| Specific Gravity | | 12 | 1.098 | 1.089-1.110 |
| Chip Color[10] | 40 | 12 | 3.4 | 2.5-4.5 |
| | 40R | 12 | 2.8 | 1.5-4.0 |
| | 50 | 12 | 2.2 | 1.0-4.0 |
| | 50R | 12 | 2.0 | 1.0-3.5 |

Refer to footnotes on page 83.

Table 13T. Detailed data summary for Yukon Gold.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 16 | 405 | 321-513 |
| Yield US #1 (Cwt/A) | | 16 | 357 | 293-439 |
| % US #1 | | 16 | 88.1 | 81.6-94.3 |
| Yield >10 oz (Cwt/A) | | 16 | 160 | 93-248 |
| Yield <4 oz (Cwt/A) | | 16 | 40 | 22-66 |
| % External Defects[1] | | 16 | 1.9 | 0.6-4.4 |
| % Hollow Heart[2] | | 16 | 0.7 | 0.0-2.2 |
| % Stand | | 16 | 96 | 94-100 |
| Emergence Uniformity | | 16 | 3.3 | 2.5-3.8 |
| Vine Vigor[3] | | 16 | 3.6 | 3.0-4.0 |
| Stems/Plant | | 16 | 2.3 | 1.6-3.4 |
| Vine Size[4] | | 16 | 3.0 | 2.5-3.3 |
| Vine Maturity5 | | 16 | 1.8 | 1.0-2.8 |
| Blackspot[6] | Bud End | 22 | 3.9 | 2.0-5.0 |
| | Stem End | 22 | 3.6 | 2.4-5.0 |
| | Average | 22 | 3.8 | |
| Weight Loss[7] | | 22 | 2.6 | 1.0-4.3 |
| Dormancy[8] | | 22 | 91 | 69-132 |
| Enzymatic Browning[9] | | 22 | 4.4 | 3.8-5.0 |
| Specific Gravity | | 22 | 1.085 | 1.079-1.091 |
| Fry Color[10] | Harvest | 22 | 1.7 | 1.0-3.0 |
| | Storage | 22 | 2.8 | 1.0-4.0 |
| Fry Texture[11] | Harvest | 22 | 2.9 | 1.0-4.0 |
| | Storage | 22 | 2.9 | 1.0-4.0 |

Refer to footnotes on page 83.

Table 13S. Detailed data summary for Purple Majesty.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 7 | 485 | 404-606 |
| Yield US #1 (Cwt/A) | | 7 | 313 | 203-401 |
| % US #1 | | 7 | 63.8 | 43.6-72.3 |
| Yield >10 oz (Cwt/A) | | 7 | 31 | 14-61 |
| Yield <4 oz (Cwt/A) | | 7 | 168 | 122-244 |
| % External Defects[1] | | 7 | 0.8 | 0.0-1.7 |
| % Hollow Heart[2] | | 7 | 1.7 | 0.5-3.4 |
| % Stand | | 7 | 98 | 94-99 |
| Emergence Uniformity | | 7 | 3.4 | 3.0-4.0 |
| Vine Vigor[3] | | 7 | 3.5 | 2.8-4.0 |
| Stems/Plant | | 7 | 4.3 | 3.5-6.1 |
| Vine Size[4] | | 7 | 2.8 | 2.3-3.0 |
| Vine Maturity5 | | 7 | 2.0 | 1.5-2.8 |
| Blackspot[6] | Bud End | --- | --- | --- --- |
| | Stem End | --- | --- | --- --- |
| | Average | --- | --- | |
| Weight Loss[7] | | 10 | 3.6 | 1.1-6.8 |
| Dormancy[8] | | 10 | 67 | 48-85 |
| Enzymatic Browning[9] | | --- | --- | --- --- |
| Specific Gravity | | 10 | 1.083 | 1.076-1.088 |
| Fry Color[10] | Harvest | --- | --- | --- --- |
| | Storage | --- | --- | --- --- |
| Fry Texture[11] | Harvest | 5 | 1.8 | 1.0-3.0 |
| | Storage | 5 | 2.2 | 2.0 3.0 |

Refer to footnotes on page 83.

Table 13R. Detailed data summary for Mountain Rose.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 7 | 382 | 288-449 |
| Yield US #1 (Cwt/A) | | 7 | 265 | 150-354 |
| % US #1 | | 7 | 68.3 | 51.9-78.8 |
| Yield >10 oz (Cwt/A) | | 7 | 25 | 4-63 |
| Yield <4 oz (Cwt/A) | | 7 | 112 | 91-136 |
| % External Defects[1] | | 7 | 1.3 | 0.7-2.4 |
| % Hollow Heart[2] | | 7 | 0.0 | 0.0-0.0 |
| % Stand | | 7 | 98 | 94-100 |
| Emergence Uniformity | | 7 | 3.6 | 3.0-4.3 |
| Vine Vigor[3] | | 7 | 2.7 | 2.0-3.0 |
| Stems/Plant | | 7 | 3.6 | 2.9-4.9 |
| Vine Size[4] | | 7 | 2.6 | 2.3-3.0 |
| Vine Maturity5 | | 7 | 2.1 | 1.5-3.0 |
| Blackspot[6] | Bud End | --- | --- | --- --- |
| | Stem End | --- | --- | --- --- |
| | Average | --- | --- | |
| Weight Loss[7] | | 10 | 4.1 | 1.3-6.3 |
| Dormancy[8] | | 10 | 103 | 77-153 |
| Enzymatic Browning[9] | | --- | --- | --- --- |
| Specific Gravity | | 10 | 1.081 | 1.074-1.086 |
| Fry Color[10] | Harvest | --- | --- | --- --- |
| | Storage | --- | --- | --- --- |
| Fry Texture[11] | Harvest | 5 | 2.4 | 1.0-3.0 |
| | Storage | 5 | 2.6 | 2.0 3.0 |

Refer to footnotes on page 83.

Table 13Q. Detailed data summary for All Blue.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 8 | 526 | 460-639 |
| Yield US #1 (Cwt/A) | | 8 | 329 | 248-418 |
| % US #1 | | 8 | 62.3 | 54.0-72.8 |
| Yield >10 oz (Cwt/A) | | 8 | 46 | 6-81 |
| Yield <4 oz (Cwt/A) | | 8 | 193 | 149-280 |
| % External Defects[1] | | 8 | 0.8 | 0.1-1.8 |
| % Hollow Heart[2] | | 8 | 0.0 | 0.0-0.3 |
| % Stand | | 8 | 98 | 97-100 |
| Emergence Uniformity | | 8 | 3.3 | 2.8-3.8 |
| Vine Vigor[3] | | 8 | 3.5 | 2.8-4.0 |
| Stems/Plant | | 8 | 4.6 | 3.0-6.5 |
| Vine Size[4] | | 8 | 3.7 | 3.0-4.0 |
| Vine Maturity5 | | 8 | 3.0 | 2.2-3.3 |
| Blackspot[6] | Bud End | --- | --- | --- --- |
| | Stem End | --- | --- | --- --- |
| | Average | --- | --- | --- --- |
| Weight Loss[7] | | 8 | 2.5 | 1.1-4.8 |
| Dormancy[8] | | 8 | 106 | 82-167 |
| Enzymatic Browning[9] | | --- | --- | --- --- |
| Specific Gravity | | 8 | 1.084 | 1.076-1.090 |
| Fry Color[10] | Harvest | --- | --- | --- --- |
| | Storage | --- | --- | --- --- |
| Fry Texture[11] | Harvest | 8 | 2.8 | 2.0-4.0 |
| | Storage | 8 | 2.8 | 2.0-3.0 |

Refer to footnotes on page 83.

Table 14W. Detailed data summary for Atlantic.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 29 | 454 | 307-597 |
| Yield US #1 (Cwt/A) | | 29 | 394 | 265-512 |
| % US #1 | | 29 | 86.9 | 79.0-93.2 |
| Yield >10 oz (Cwt/A) | | 29 | 154 | 58-290 |
| Yield <4 oz (Cwt/A) | | 29 | 47 | 19-96 |
| % External Defects[1] | | 29 | 2.7 | 0.1-9.1 |
| % Hollow Heart[2] | | 29 | 5.3 | 0.3-16.4 |
| % Stand | | 29 | 96 | 88-99 |
| Emergence Uniformity | | 23 | 3.6 | 3.0-4.3 |
| Vine Vigor[3] | | 23 | 3.5 | 2.8-4.3 |
| Stems/Plant | | 29 | 3.0 | 2.2-4.2 |
| Vine Size[4] | | 23 | 3.1 | 2.2-4.0 |
| Vine Maturity5 | | 29 | 3.2 | 2.8-4.0 |
| Blackspot[6] | Bud End | 41 | 3.1 | 1.8-5.0 |
| | Stem End | 41 | 2.7 | 1.4-4.3 |
| | Average | 42 | 2.9 | |
| Weight Loss[7] | | 42 | 4.9 | 1.1-7.9 |
| Dormancy[8] | | 39 | 85 | 62-116 |
| Enzymatic Browning[9] | | 40 | 4.5 | 3.8-5.0 |
| Specific Gravity | | 43 | 1.097 | 1.083-1.120 |
| Chip Color[10] | 40 | 43 | 3.9 | 2.0-5.0 |
| | 40R | 43 | 3.3 | 1.5-4.5 |
| | 50 | 43 | 2.6 | 1.0-4.0 |
| | 50R | 43 | 2.5 | 1.0-4.0 |

Refer to footnotes on page 83.

Table 13X. Detailed data summary for Chipeta.

| Variable | | # Trials | Mean | Range |
|---|---|---|---|---|
| Total Yield (Cwt/A) | | 27 | 529 | 399-757 |
| Yield US #1 (Cwt/A) | | 27 | 444 | 306-606 |
| % US #1 | | 27 | 83.7 | 70.6-90.4 |
| Yield >10 oz (Cwt/A) | | 27 | 167 | 52-388 |
| Yield <4 oz (Cwt/A) | | 27 | 56 | 22-119 |
| % External Defects[1] | | 27 | 5.4 | 1.1-13.0 |
| % Hollow Heart[2] | | 27 | 0.6 | 0.0-4.0 |
| % Stand | | 27 | 98 | 95-100 |
| Emergence Uniformity | | 20 | 3.5 | 3.0-4.3 |
| Vine Vigor[3] | | 20 | 4.0 | 3.2-5.0 |
| Stems/Plant | | 26 | 3.6 | 2.5-4.9 |
| Vine Size[4] | | 20 | 4.2 | 4.0-4.5 |
| Vine Maturity5 | | 27 | 3.3 | 3.0-4.0 |
| Blackspot[6] | Bud End | 38 | 3.8 | 2.2-5.0 |
| | Stem End | 38 | 3.5 | 1.4-4.9 |
| | Average | 40 | 3.7 | |
| Weight Loss[7] | | 40 | 3.5 | 1.0-8.0 |
| Dormancy[8] | | 36 | 102 | 77-153 |
| Enzymatic Browning[9] | | 37 | 3.9 | 2.8-5.0 |
| Specific Gravity | | 40 | 1.089 | 1.073-1.102 |
| Chip Color[10] | 40 | 40 | 4.4 | 3.0-5.0 |
| | 40R | 40 | 3.6 | 1.5-5.0 |
| | 50 | 40 | 2.5 | 1.0-4.0 |
| | 50R | 40 | 2.3 | 1.0-4.0 |

Refer to footnotes on page 83.

**Footnotes for Tables 2-29:**

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

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

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

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

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

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

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

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

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

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

[11]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 14. Late blight foliar and tuber infection levels for Colorado selections planted in fifteen-hills plots replicated twice in Corvallis, Oregon - 2005.

| Clone | Foliar Infection Rating[1] 9/29/05 | 10/06/05 | % Tuber Infection[2] | Parentage Female | Male |
|---|---|---|---|---|---|
| AC00304-2RU | 7 | 8 | 6 | A88338-1 | Stirling |
| AC00305-4RU | 8 | 9 | 5 | A90586-11 | A86102-6 |
| AC00305-7RU | 7 | 8 | 66 | A90586-11 | A86102-6 |
| AC00305-8RU | 8 | 9 | 5 | A90586-11 | A86102-6 |
| **AC00487-1RU** | 3 | 5 | 17 | AWN86514-2 | Stirling |
| **AC00487-2RU** | 2 | 3 | 30 | AWN86514-2 | Stirling |
| **AC00550-4RU** | 6 | 6 | 44 | Torridon | A84118-3 |
| **AC00550-5RU** | 3 | 5 | 5 | Torridon | A84118-3 |
| **AC00594-4RU** | 3 | 5 | 10 | Bannock Russet | PI583331 |
| CO00264-1RU/Y | 8 | 9 | 65 | AWN85540-1W | AC92009-4RU |

[1]Ratings: 1 = no foliar injury; 2 = 1-5% injury; 3 = 5-10% injury; 4 = 10-20%; 5 = 25-40%; 6 = 40-60%; 7 = 60-75%; 8 = 75-90%; 9 = 90-100% injury.

[2]Percent of late blight infected tubers based on 10 randomly selected tubers.

**APPENDIX 1.** Cultural management information for the Potato Breeding and Selection Program's trials at the San Luis Valley Research Center - 2005.

**LOCATION:** San Luis Valley Research Center

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

**DATE:**
Planted - 5/13/05
Hilled - 5/25/05
Vines Killed - 9/02/05 (sulfuric acid - 28 gal/A)
Harvested - 9/22/05

**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

**METHOD OF HARVEST:**
Machine (Grimme 1-row)

**FERTILIZER:**
5/13/05 - 80 lbs N + 60 lbs $P_2O_5$ + 40 lbs $K_20$ +25 lbs S + 2.5 lb Zn/A (liquid applied in-row)
7/08/05 - 20 lbs N (fertigated)
7/20/05 - 20 lbs N (fertigated)
Total fertilizer applied: 120 lbs N + 60 lbs $P_2O_5$ + 40 lbs $K_20$ +25 lbs S + 2.5 lb Zn/A

**IRRIGATION:**
Center Pivot - 20.7" gross application (application frequency and amount based on ET)
Rainfall - 1.17" (5/20/05-8/26/05)

**INSECTICIDES APPLIED:**
5/13/05 - Admire 2F (0.31 lb a.i./A)
8/05/05 - Leverage 2.7 (0.08 lb a.i./A)

**FUNGICIDES APPLIED:**
7/15/05 - Amistar (0.2 lb a.i./A)

**HERBICIDES APPLIED:**
5/27/05 - Dual Magnum (1.4 lb a.i./A)

**APPENDIX 2.** General procedures used for postharvest evaluations.

**Blackspot.** Ten randomly selected tubers for each clone tested are bruised on the stem and bud ends with a 150 g weight dropped from a height of 60 cm. Tubers are stored at 40F prior to bruising. After bruising, tubers are stored at room temperature for two or three 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.

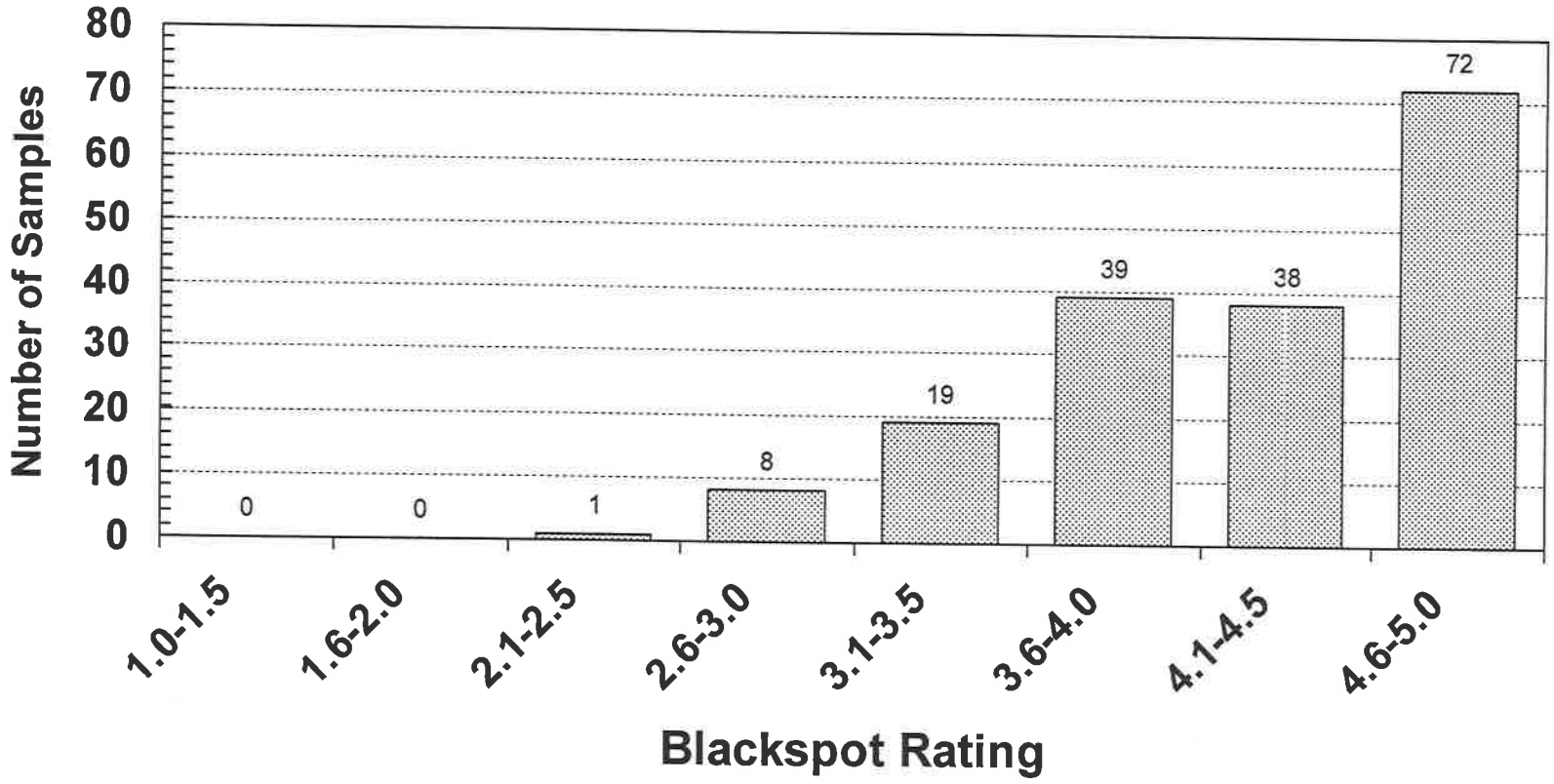
**Enzymatic Browning.** Five tubers of each clone are cut in half lengthwise and rated for degree of darkening 60 minutes later. Degree of darkening is rated on a 1 to 5 scale, with 5 indicating no discoloration.

**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.

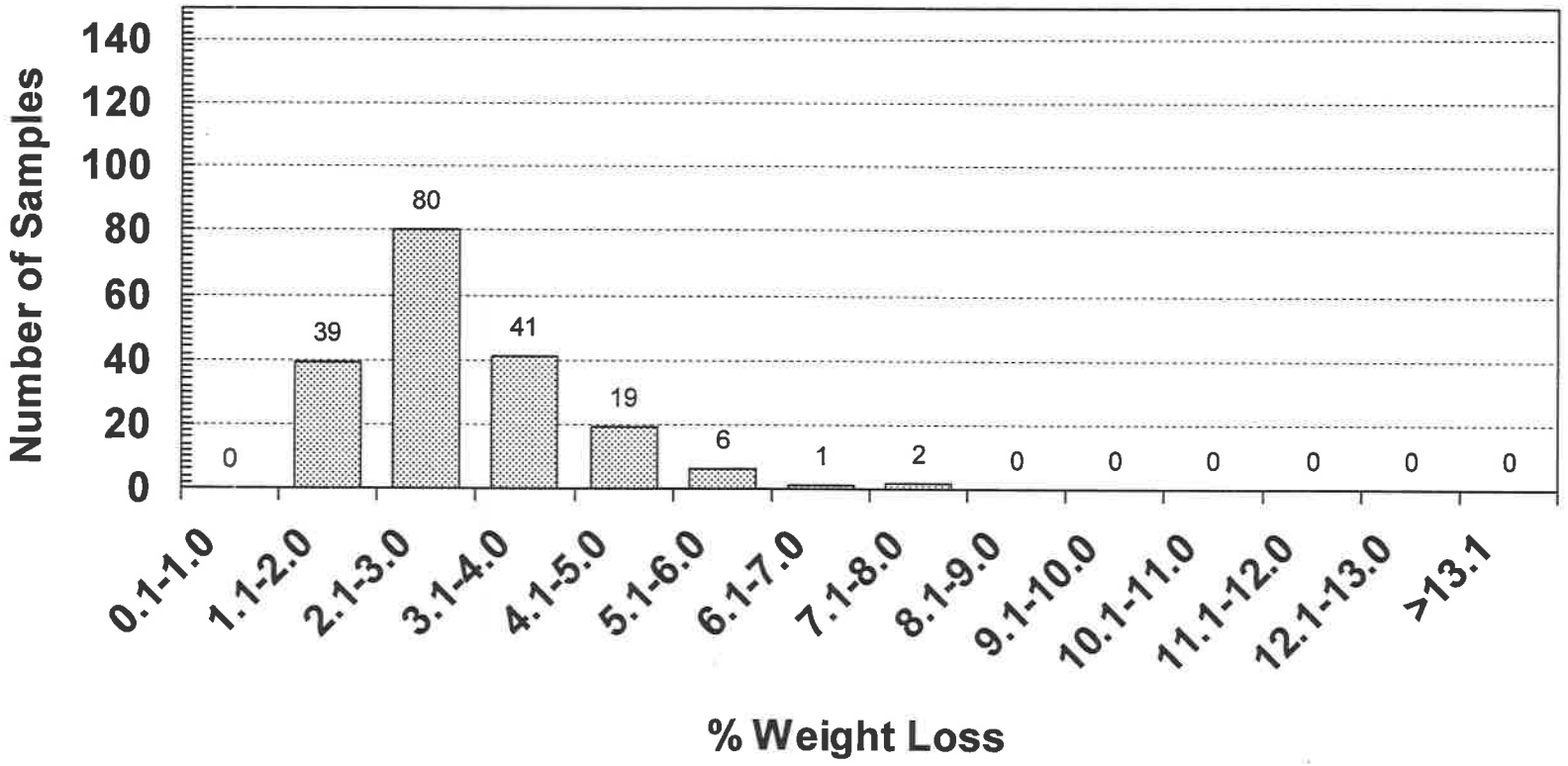
**Chip Color.** Chip color is determined after an interval of storage at 40 and 50F and after reconditioning for three weeks at 60F. Chips are cooked at 365F until bubbling slows. Chip color is rated using the Snack Food Association 1-5 scale. Ratings $\leq 2.0$ are acceptable.

# Appendix 3. Blackspot Distribution (177 Samples) - 2005

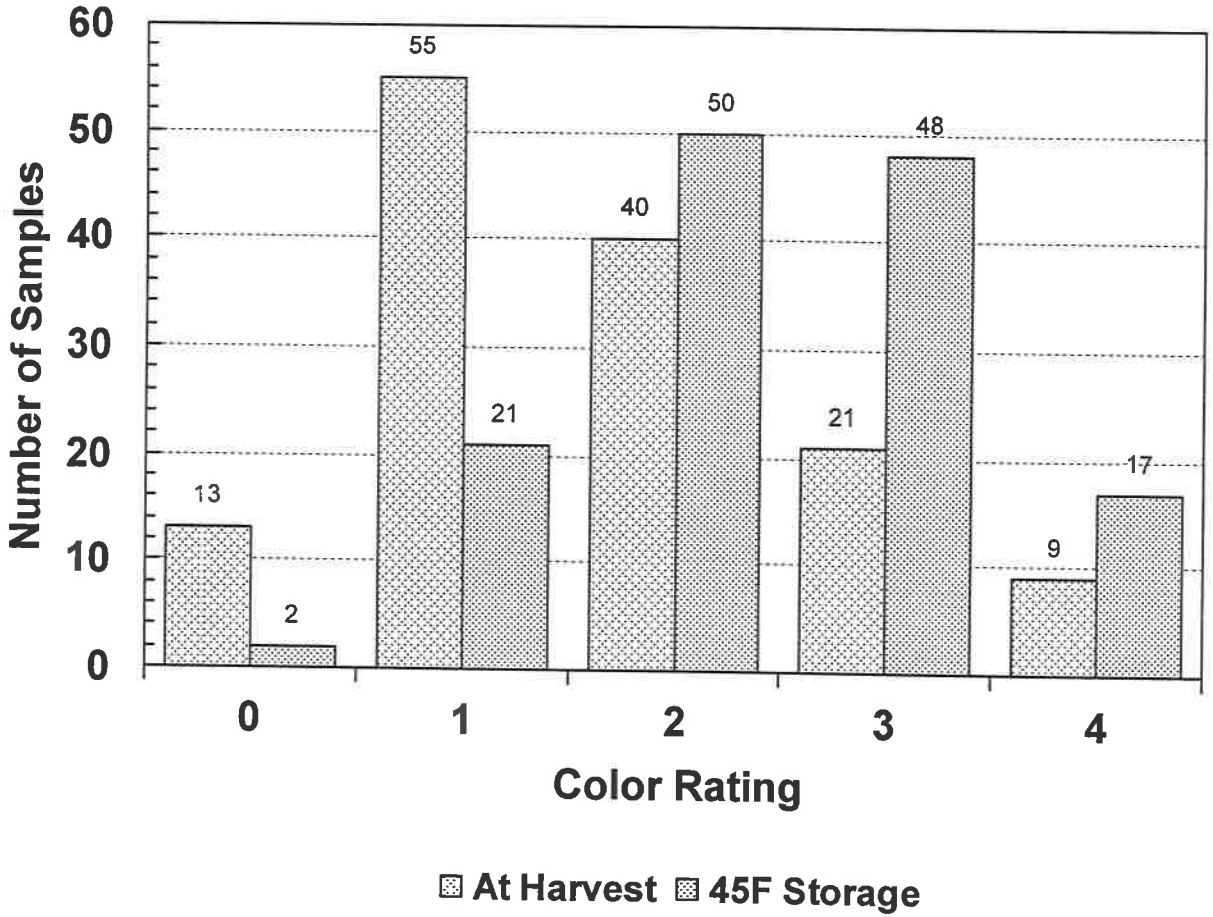



**5=No Discoloration**

# Appendix 4. % Weight Loss Distribution (188 Samples) - 2005

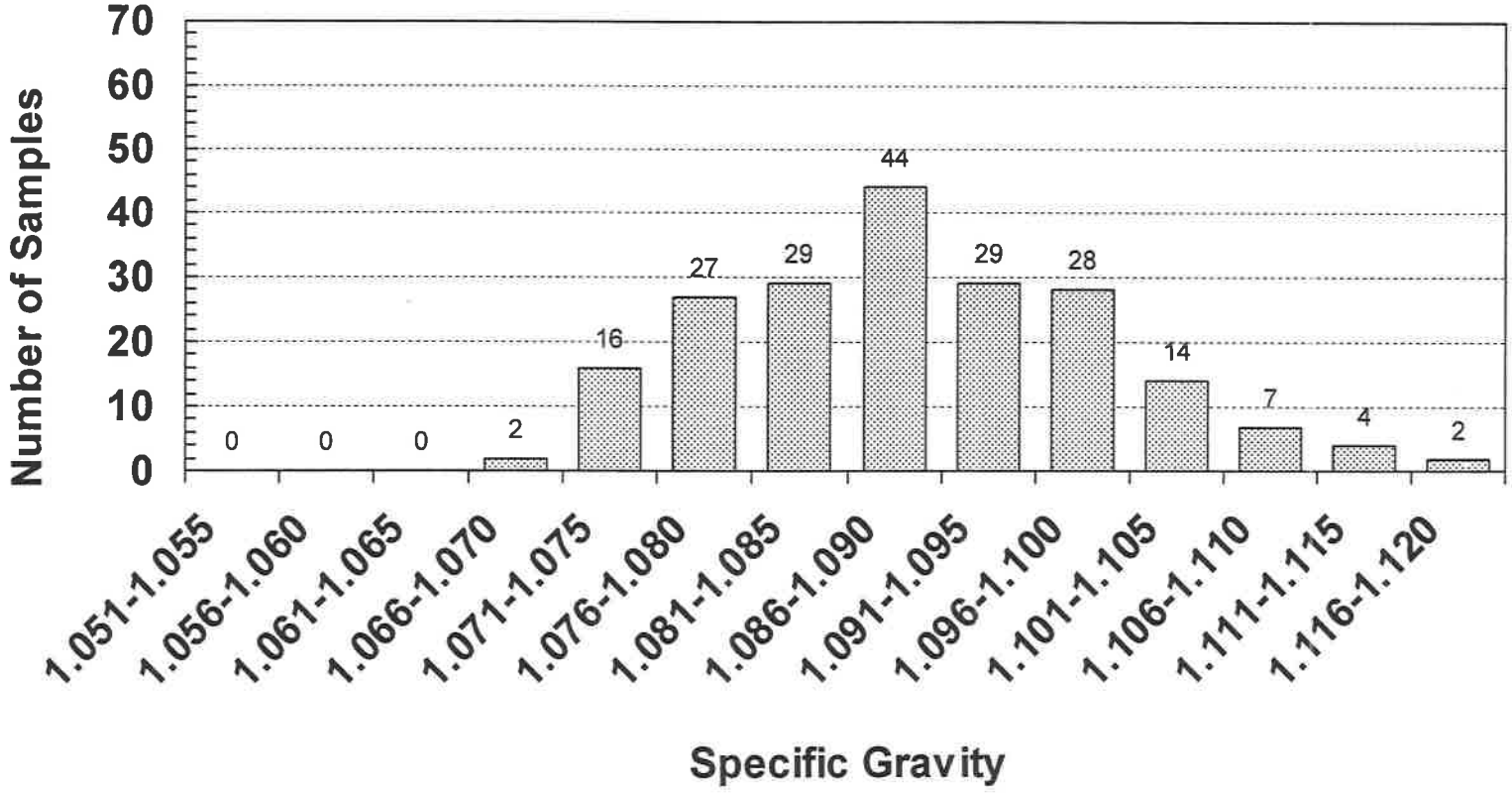


# Appendix 8. Fry Color Distribution (138 Samples) - 2005

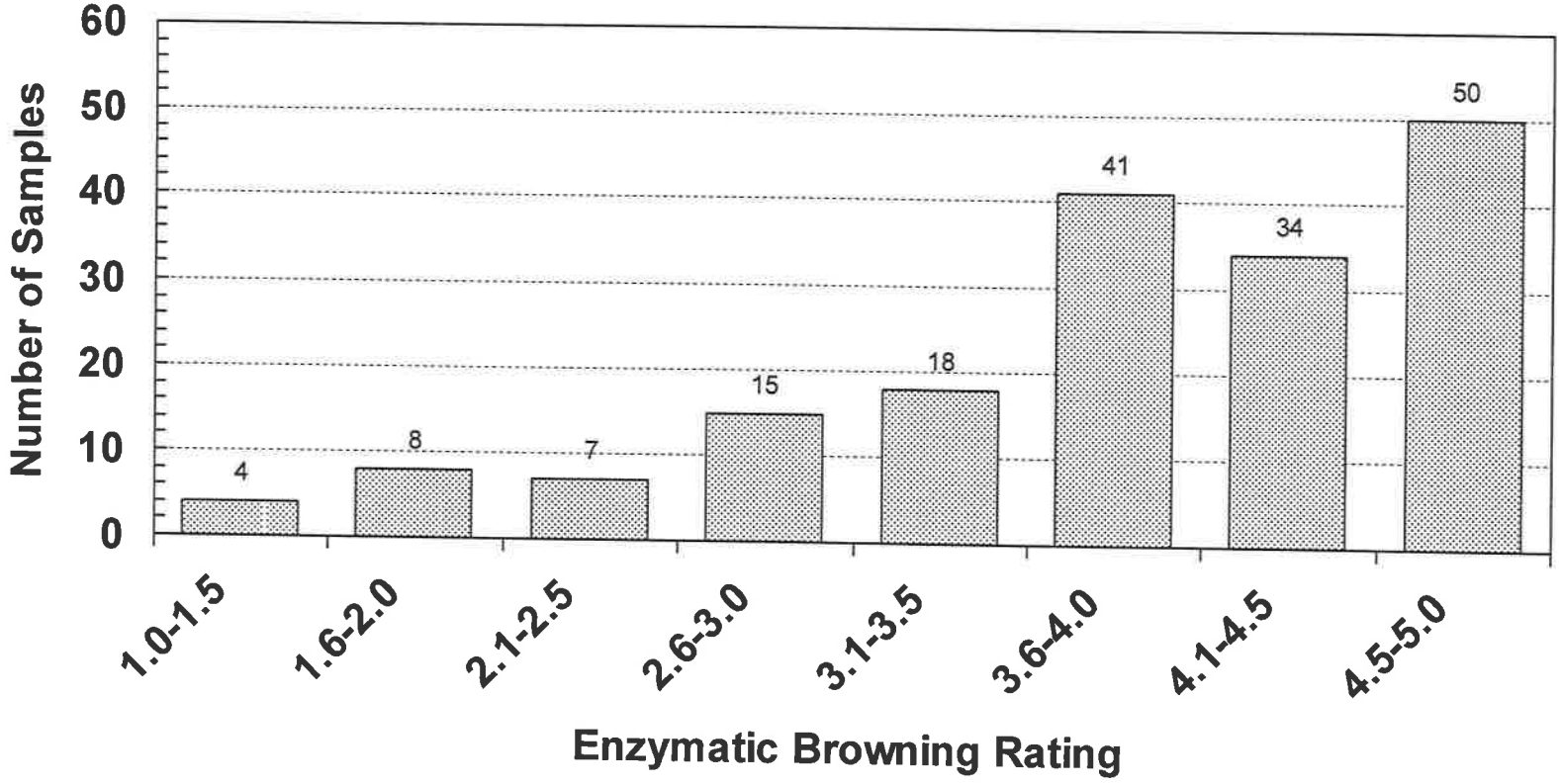



0=Lightest (values ≤2 acceptable)

# Appendix 7. Specific Gravity Distribution (202 Samples) - 2005

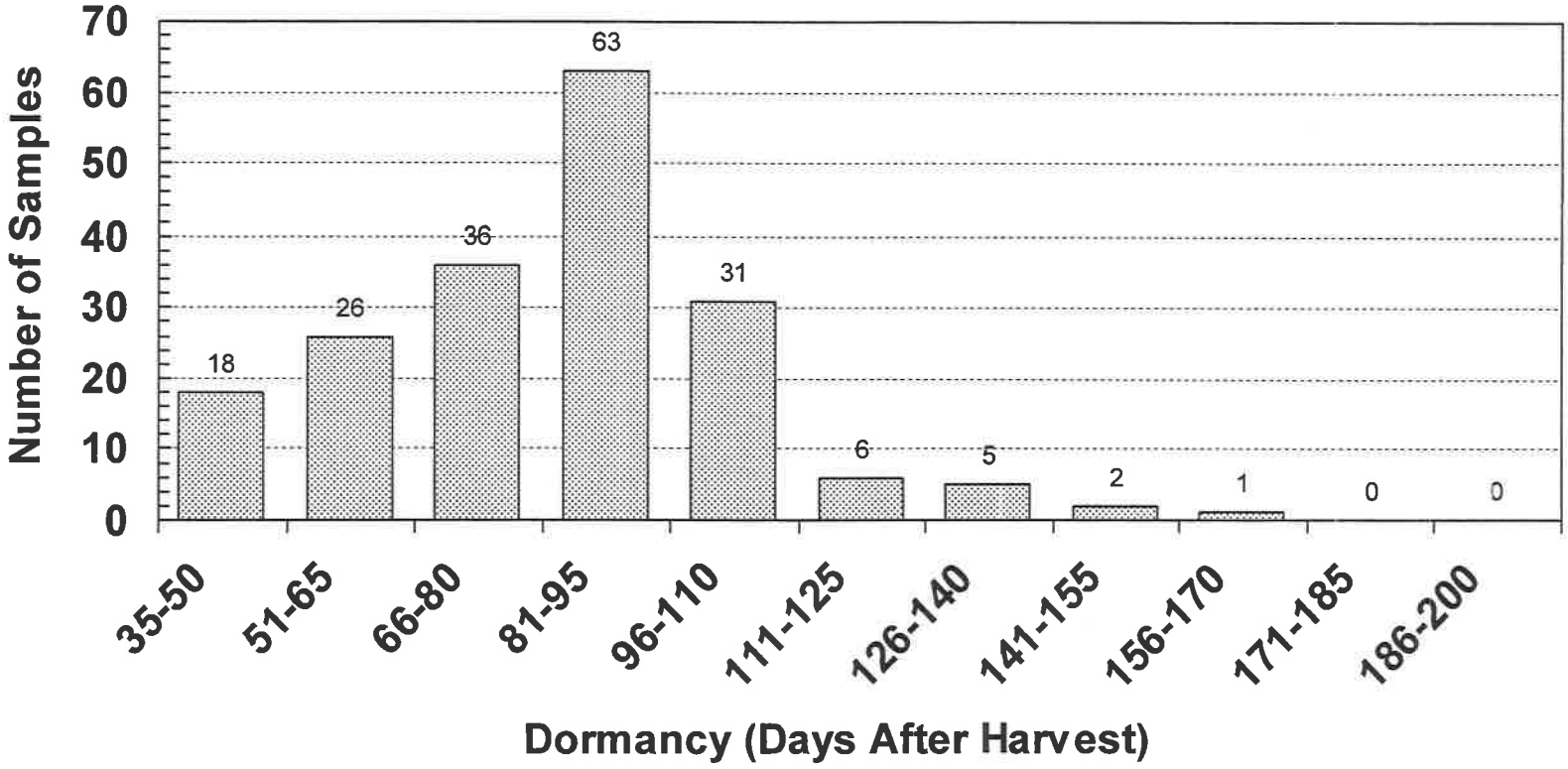


# Appendix 6. Enzymatic Browning Distribution (177 Samples) - 2005

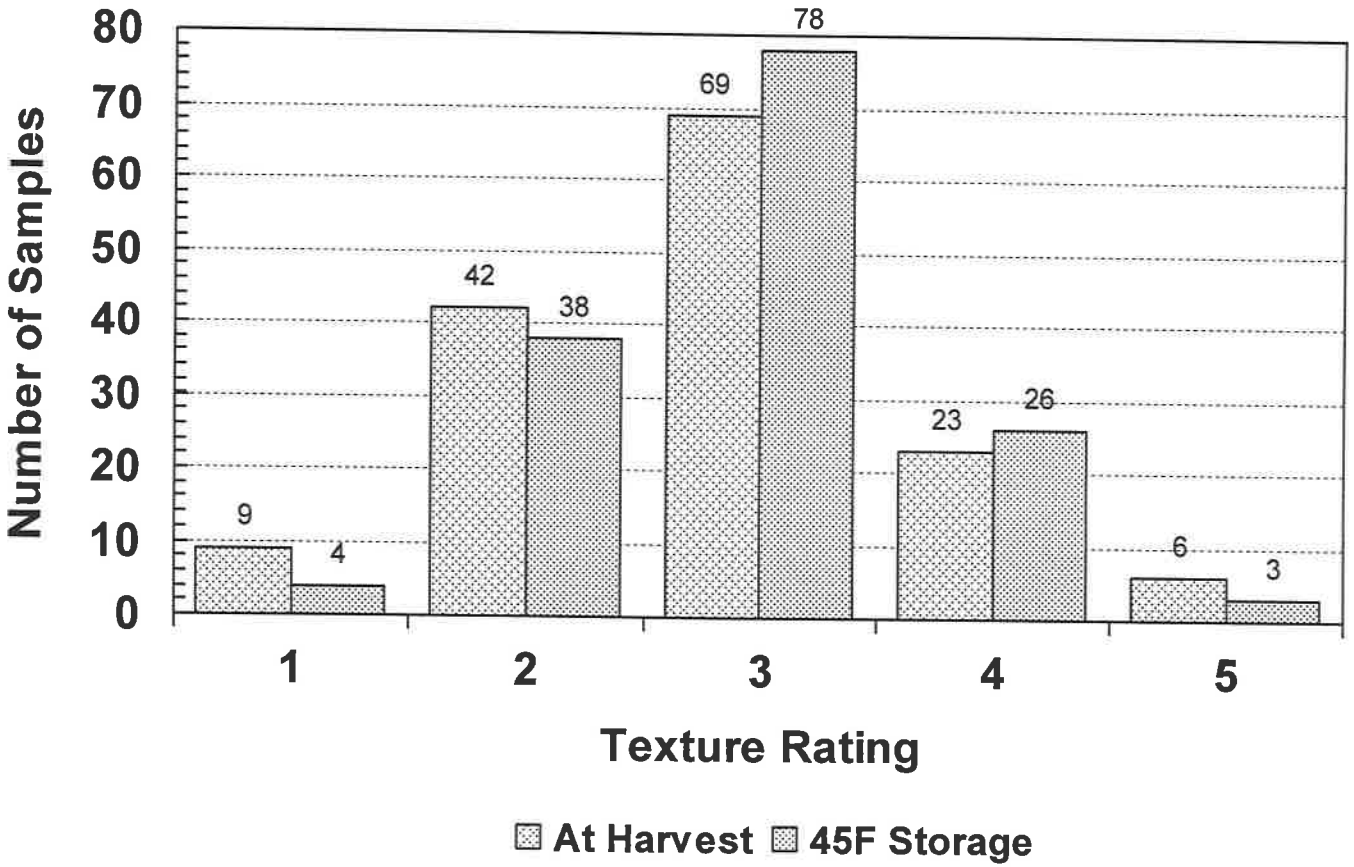



5=No Discoloration

# Appendix 5. Dormancy Distribution (188 Samples) - 2005

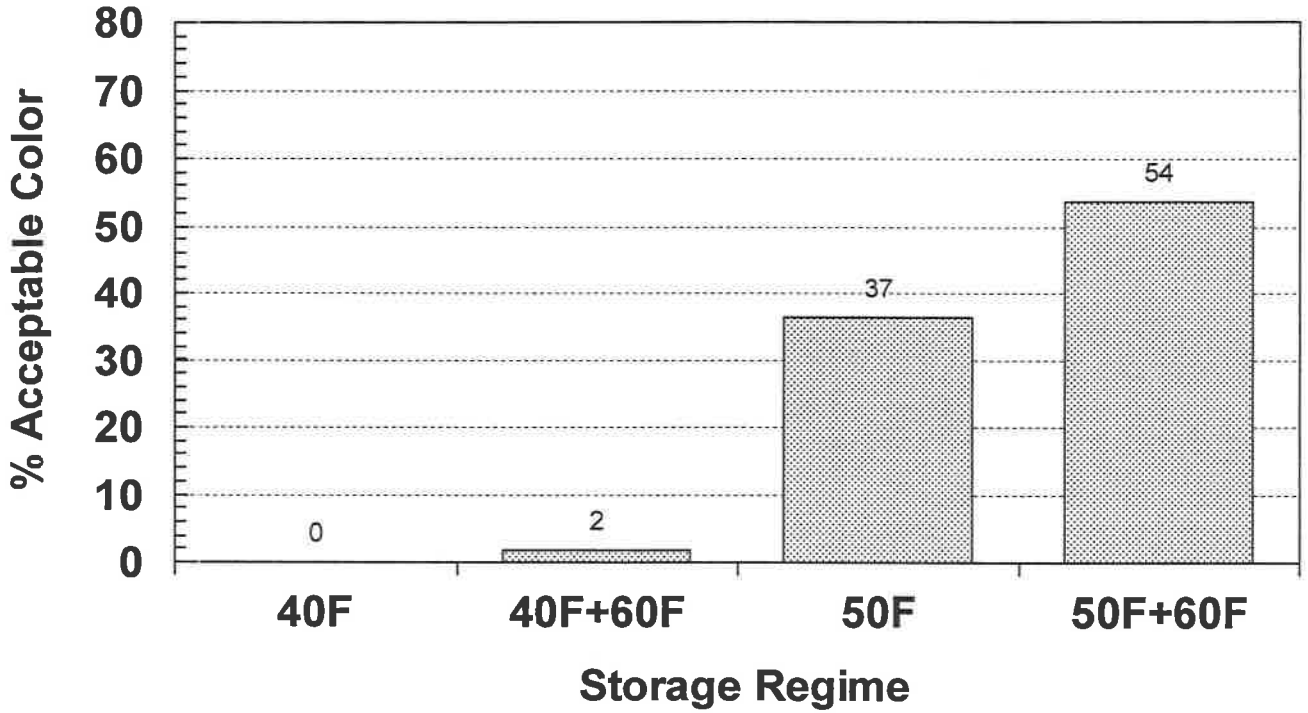


# Appendix 9. Fry Texture Distribution (149 Samples) - 2005




5=Dry Texture

# Appendix 10. % Acceptable Chip Color (52 Samples) - 2005




Values ≤2 acceptable (SFA 1-5 Scale)

# Notes

# CD of the

# 2005 Research Progress Report

# Potato Breeding and Selection

*Summer - 2005*