Research Progress Report for 2002

Potato Breeding and Selection

Submitted to the

San Luis Valley Research Center Committee

and the

Colorado Potato Administrative Committee (Area II)

by

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San Luis Valley Research Center

Summary comparison of advanced selections and named cultivars for yield, grade, maturity, specific gravity, and grade defects - 2002. Advanced selections released for grower evaluation in 2003 are highlighted.

Clone	Usage[1]	# Trials	Total Yield (Cwt/A)	% US #1	Vine Maturity[2]	Specific Gravity	% External Defects[3]	% Hollow Heart[4]
Russets								
AC87084-3RU	Dual	8	509	89.2	3.4	1.093	2.8	0.3
AC89536-5RU	FM	8	514	80.5	3.1	1.087	3.7	0.4
AC92009-4RU	FM	5	349	89.7	3.1	1.093	1.1	0.0
TC1675-1RU	Dual	5	441	74.1	3.2	1.090	4.2	0.1
AC93026-9RU	**FM**	**4**	**480**	**76.1**	**3.2**	**1.088**	**2.6**	**0.2**
CO93001-11RU	**Dual**	**4**	**435**	**82.8**	**2.5**	**1.078**	**3.7**	**0.5**
CO93016-3RU	**Dual**	**4**	**420**	**73.1**	**3.0**	**1.090**	**0.5**	**1.3**
Centennial Russet	FM	35	294	77.4	3.0	1.080	0.8	0.3
Russet Norkotah	FM	44	374	83.6	1.8	1.077	2.0	0.5
Russet Nugget	Dual	44	419	79.8	3.7	1.092	1.6	0.2
Reds								
CO89097-2R	FM	9	513	82.3	2.9	1.082	3.4	0.4
NDC5281-2R	FM	5	403	46.0	1.9	1.086	0.8	0.0
CO93037-6R	**FM**	**4**	**580**	**67.4**	**3.1**	**1.082**	**3.2**	**0.2**
Sangre	FM	23	472	85.8	2.9	1.073	1.7	1.2
Chippers								
AC87340-2W	Chip	9	492	76.4	3.1	1.084	1.0	0.2
Atlantic	Chip	22	455	85.9	3.1	1.097	3.0	4.5
Chipeta	Chip	21	514	82.1	3.3	1.089	6.2	0.5
Specialty								
CO94165-3P/P	**Spec**	**3**	**509**	**60.8**	**2.1**	**1.082**	**1.4**	**1.6**
CO94183-1R/R	**Spec**	**3**	**407**	**73.5**	**2.5**	**1.079**	**1.7**	**0.0**
All Blue	Spec	3	521	57.9	2.6	1.080	0.8	0.0

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

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

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

[4]Based on tubers greater than 10 ounces.

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 "Potato Breeding and Selection Research Progress Report for 2002."

This report includes research funded by the ***Colorado potato industry (Area II and 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.

This was the third year that PVP funds were available to the Colorado Potato Breeding and Selection Program. These funds and continued funding from the *Colorado potato industry*, *Colorado State University*, and the *Cooperative State Research, Education, and Extension Service (CSREES)*, have allowed us to significantly expand and strengthen our Program and other related CSU potato research efforts. These pieces of the funding pie are all significant in enhancing our research efforts in developing new potato cultivars for Colorado.

Ongoing support by the Colorado potato industry is fundamental in maintaining funding received from CSREES and other potential sources. CSREES funds and the PVP funding has allowed us to increase our breeding efforts for PVY immunity, resistance to late blight, and tuber resistance to dry rot and soft rot. Another area of increased emphasis is identifying and incorporating breeding material demonstrating resistance to powdery scab.

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

Increased funding has facilitated various research collaborations. Primary areas of research collaboration are:

- Disease Screening and Evaluation - Robert D. Davidson and Richard T. Zink
- Cultivar Specific Management and Storage Studies - Samuel Y. C. Essah
- Nutritional Characteristics - Cecil Stushnoff
- Late Blight Molecular Studies - Jorge M. Vivanco.

Cooperative studies with Dr. Robert Davidson in conducting disease screenings are ongoing. These evaluations will be expanded to included Dr. Richard Zink as progenies are developed requiring additional disease screening for powdery scab. We look forward to developing a strong cooperative program with Dr. Samuel Essah to identify cultural and storage management profiles for advanced selections. Other collaborative research efforts with Dr. Cecil Stushnoff and Dr. Jorge Vivanco and graduate students in the Department of Horticulture and Landscape Architecture are key to our assessment of other characteristics such as the molecular aspects of breeding for late blight resistance, nutritional quality and other important "consumer" characteristics of new cultivars.

We continue to expand 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 2003 production season.

Sincerely,

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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 2002.

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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

✔ San Luis Valley Research Center Committee

Jon Brownell	Greg Colbert	Terry Hillin	Art Holland
Mike Mitchell	Mark Peterson	Sheldon Rockey	Fran Strnad

✔ Collaborators - Colorado State University

Rob Davidson	Samuel Essah	Rick Zink	Cecil Stushnoff
Jorge Vivanco			

✔ Staff and Graduate Students* - Colorado State University

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The Colorado Potato Breeding and Selection Program relies on the cooperation of several growers, shippers, processors, and research personnel to assess the 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.

Research Progress Report for 2002

Potato Breeding and Selection

Submitted by

David G. Holm

San Luis Valley Research Center

Introduction

The primary objectives of the Colorado Potato Breeding and Selection Program are to develop new potato cultivars with increased yield, improved quality, resistance to diseases and pests, and tolerance to environmental stresses for Colorado. Other objectives are to provide a basic seed source to growers for seed increase and commercial testing; and to evaluate promising selections for potential seed export.

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 and processing qualities such as lengthened dormancy and ability to process after cold storage. Cultivars with these characteristics will help assure that the potato industry in Colorado will remain productive and in a competitive position.

It takes 14+ years to develop a new potato cultivar. 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 1983-2002. Figure 2 presents a comparison of the production levels of the primary potato cultivars from 1997-2002.

The top five cultivars grown in the San Luis Valley in 2002, based on acreage planted, were Russet Norkotah, Russet Nugget, Centennial Russet, Yukon Gold, and Sangre. They were followed, in order, by Silverton Russet and Cherry Red. In both 2001 and 2002, the total acreage of yellow fleshed cultivars 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 declined since the occurrence of late blight in 1998. This decline leveled off in 2002 with 13% of the acreage planted to Russet Nugget. Much of this acreage was replaced by Russet Norkotah (including the clonal selections). Of the Russet Norkotah fall potato acreage in Colorado, 66% was planted to Colorado Russet Norkotah Selections 3 and 8.

Silverton Russet, named in 2001, is currently among the top five russet cultivars being grown in six fall potato production states. For russet cultivars planted in eight major fall production states, Silverton Russet ranked fourth overall in acreage planted. Russet Nugget ranked seventh.

Cultivars and clonal selections developed by Colorado State University accounted for 57% of the 2002 fall potato acreage planted in Colorado. Approximately 48% of the Colorado certified seed acreage accepted for certification, was represented by cultivars and line selections developed by CSU or in cooperation with other agencies. Advanced selections accounted for another 6% of the seed acreage.

The Colorado Potato Breeding and Selection Program has released or cooperated in the release of 11 cultivars. Conservative estimates indicate that new potato cultivars and clonal selections increased the value of the Colorado fall potato crop by $11-$12 million annually due to improved yield and quality.

Potato Breeding

Germplasm Accession and Introgression. Germplasm is continually being acquired with late blight resistance and virus resistance (PXY, PVY, and leafroll) from various sources. Primary sources are the USDA-ARS in Aberdeen, Idaho; Prosser, Washington; and Madison, Wisconsin and Oregon State University. All of these materials have been incorporated into the breeding program.

Crossing. Sixty parental clones were intercrossed in 2002. The primary emphasis of the crossing block was cultivar development and late blight resistance. Seed from 383 combinations was obtained.

A total of 48,153 seedling tubers representing 187 families were produced from 2000 and 2001 crosses, for initial field selection in 2003. These seedlings represent crosses segregating for russet, reds, chippers, specialty types, and disease resistance/immunity (PVX, PVY, PLRV, and late blight). Second thru fourth size seedling tubers will be distributed to Idaho (USDA), Maine (USDA-Beltsville), Minnesota, Oregon, Texas, and Alberta, Canada.

Additional seedlings tubers for planting in 2003 will be obtained from Dr. Richard G. Novy, USDA-ARS, Aberdeen, Idaho; Dr. Dermot Lynch, Agriculture Canada, Lethbridge, Alberta; and Dr. J. Creighton Miller, Texas A&M University, College Station, Texas.

Seedling Selection and Clonal Development

Colorado grew 77,072 first-year seedlings in 2002, with 848 being selected for subsequent planting, evaluation, and increase in future years. Some of these seedlings were obtained from breeding programs in Idaho, Texas, and Canada. Another 1,195 clones were in 12-hill, preliminary, and intermediate stages of selection. At harvest, 282 were saved for further observation. Forty-two advanced selections were saved at harvest and will be increased in 2003 pending final evaluations. Another 232 selections and cultivars were maintained for germplasm development, breeding, other experimental purposes, or seed increases for the other programs.

Field trials conducted in 2002 included: Preliminary Trial, Intermediate Yield Trial, Advanced Yield Trial, Southwestern Regional Trial, Western Regional Main Trial, Western Regional Red Trial, Western Regional Specialty Trial, San Luis Valley Chipping Study, and Western Regional Chipping Trial. Appendix 1 summarizes the cultural information for the trials conducted by the Potato Breeding and Selection Program at the San Luis Valley Research Center in 2002.

A total of 205 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 results of the postharvest evaluations 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 10 russets (AC87084-3RU, AC89536-5RU, AC92009-2RU, AC93026-9RU, AC93047-1RU, CO92077-2RU, CO93001-11RU, CO93016-3RU, NDC5372-1RU, and TC1675-1RU), 6 reds (CO89097-2R, CO93037-6R, CO94019-1R, CO94065-2R, NDC5281-2R, and NDC6184-3R), 3 chippers (AC87340-2W, BC0894-2W, and NDC6084C-2W), and 6 specialty selections (CO94165-3P/P, CO94183-1R/R, CO94222-6RU/Y, VC0967-2R/Y, VC0967-5R/Y, and VC1002-3W/Y).

Advanced selections that were discarded from further evaluation are AC93047-1RU, CO92077-2RU, NDC5372-1RU, CO94065-2R, NDC6184-3R, NDC6084C-2W, and CO94222-6RU/Y.

Figure 4 includes photographs of advanced selections and recently named cultivars produced by growers in 2002 and that have not been discard. Included are six selections (AC93026-9RU, CO93001-11RU, CO93016-3RU, CO93037-6R, CO94165-3P/P, and CO94183-1R/R) scheduled for initial grower evaluations in 2002. Table 2 summarizes the performance of these selections and others currently undergoing grower evaluation.

Advanced selections/recent releases undergoing commercialization include Cherry Red (DT6063-1R), Fremont Russet (CO85026-4), Durango Red (CO86218-2) and BC0894-2. BC0894-2W is a chipper with international export potential. Two additional selections, showing potential for release include AC89536-5RU and CO89097-2R.

Forty-nine Colorado selections were screened for late blight resistance (Table 14) by Oregon State University. About 45% of the selections show relatively high levels of resistance to foliar infection.

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. 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, CA). Cultural management trials and postharvest disease reaction evaluations continue as needed.
11-13	All 9th 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, 1983-1990[1].

Cultivar	%/Acreage	Year							
		1983	1984	1985	1986	1987	1988	1989	1990
Russet Burbank	%	23.9	22.9	24.3	23.7	21.7	16.0	13.2	7.1
	Acreage	11,233	12,252	13,730	13,509	13,237	9,600	8,184	4,651
Centennial Russet	%	62.7	68.0	66.9	66.0	57.3	68.8	55.3	61.2
	Acreage	29,469	36,380	37,799	37,620	41,053	41,280	34,286	40,086
Russet Norkotah	%	---	---	---	---	---	2.2	9.9	14.0
	Acreage	---	---	---	---	---	1,320	6,138	9,170
Russet Nugget	%	---	---	---	---	---	---	---	---
	Acreage	---	---	---	---	---	---	---	---
Ranger Russet	%	---	---	---	---	---	---	---	---
	Acreage	---	---	---	---	---	---	---	---
Red McClure	%	3.7	1.6	1.9	1.0	1.0	---	---	---
	Acreage	1,739	856	1,074	570	610	---	---	---
Sangre	%	5.7	3.1	5.1	7.2	6.3	6.3	7.9	7.6
	Acreage	2,679	1,659	2,882	4,104	3,843	3,780	4,898	4,978
Cherry Red	%	---	---	---	---	---	---	---	---
	Acreage	---	---	---	---	---	---	---	---
Yukon Gold	%	---	---	---	---	---	---	---	---
	Acreage	---	---	---	---	---	---	---	---
Total Fall Acreage Planted		47,000	53,500	56,500	57,000	61,000	60,000	62,000	65,000

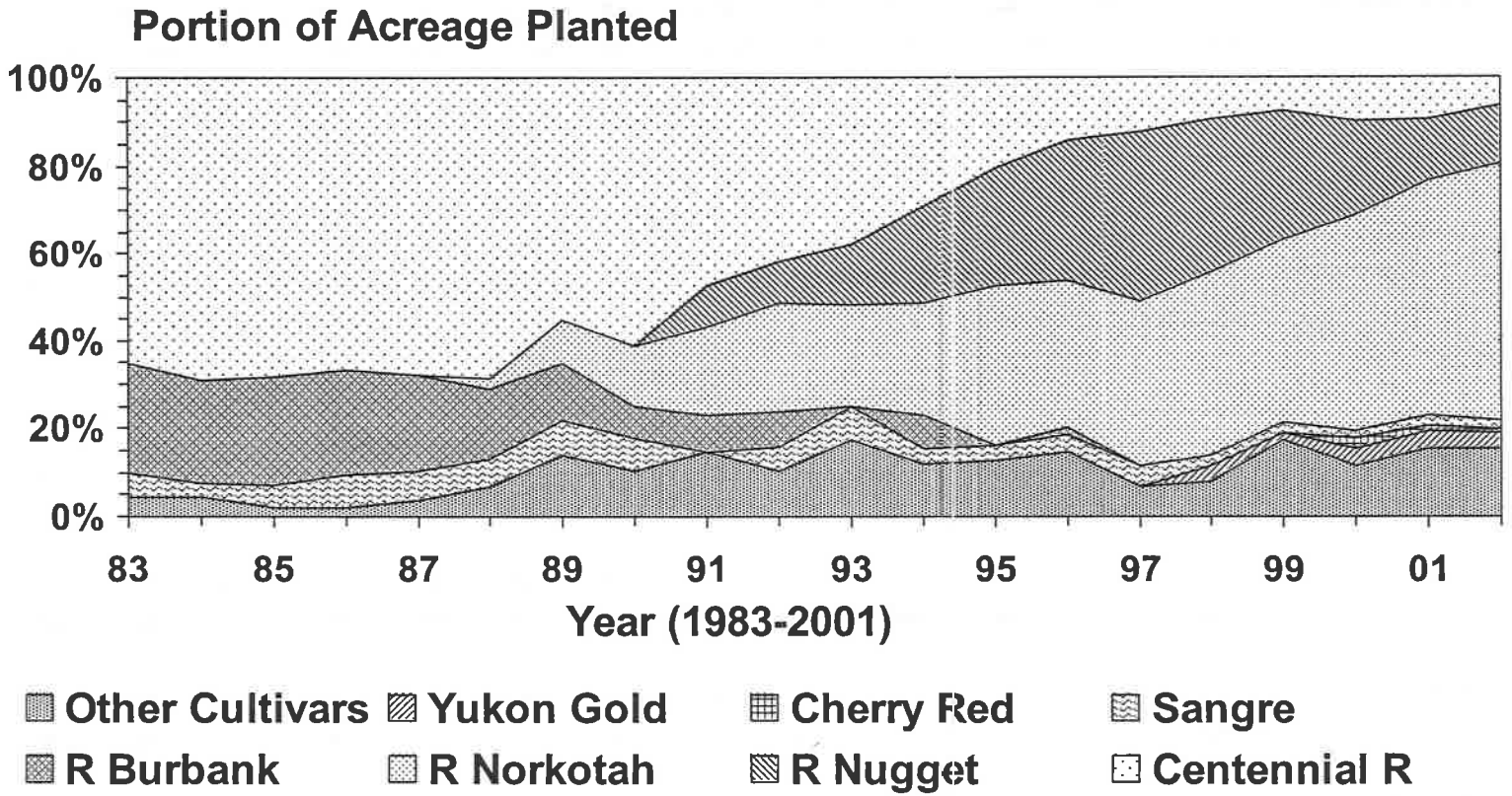
[1]Data provided by the Colorado Agricultural Statistics Service.

Table 2B. Colorado fall potatoes: Production of primary potato cultivars, 1991-2002[1].

Cultivar	%/Acreage	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Russet Burbank	%	8.3	8.7	—	7.6	—	1.6	---	---	---	---	---	---
	Acreage	5,644	5,742	---	5,624	---	1,248	---	---	---	---	---	---
Centennial Russet	%	47.5	44.4	38.3	30.3	20.5	15.0	12.3	9.3	7.6	9.9	9.6	6.5
	Acreage	32,300	29,304	27,768	22,422	15,785	11,700	9,471	7,049	5,687	7,484	6,538	4,654
Russet Norkotah	%	20.1	26.1	23.5	26.6	36.2	35.6	37.6	41.6	42.0	49.3	53.8	59.1
	Acreage	13,668	17,226	17,038	19,684	27,874	27,768	28,952	31,533	32,424	37,271	36,638	42,316
Russet Nugget	%	9.6	10.1	13.7	23.1	27.0	34.0	38.8	35.1	29.0	21.4	13.8	12.7
	Acreage	6,528	6,666	9,933	17,094	20,790	26,520	29,876	26,606	22,388	16,178	9,398	9,093
Ranger Russet	%	---	---	---	2.8	2.8	0.7	---	---	1.2	---	---	---
	Acreage	---	---	---	2,072	2,156	546	---	---	926	---	---	---
Red McClure	%	---	---	---	---	---	---	---	---	---	---	---	---
	Acreage	---	---	---	---	---	---	---	---	---	---	---	---
Sangre	%	---	5.9	7.5	3.8	3.8	4.4	4.4	2.7	2.5	1.8	2.1	2.0
	Acreage	---	3,894	5,438	2,812	2,926	3,432	3,388	2,047	1,930	1,361	1,430	1,432
Cherry Red	%	---	---	---	---	---	---	---	---	---	2.3	1.4	0.8
	Acreage	---	---	---	---	---	---	---	---	---	1,739	953	5,728
Yukon Gold	%	---	---	---	---	---	---	---	3.4	1.4	3.7	4.0	3.6
	Acreage	---	---	---	---	---	---	---	2,577	1,081	2,797	2,724	2,578
Total Fall Acreage Planted		68,000	66,000	72,500	74,000	77,000	78,000	77,000	75,800	77,200	75,600	68,100	71,600

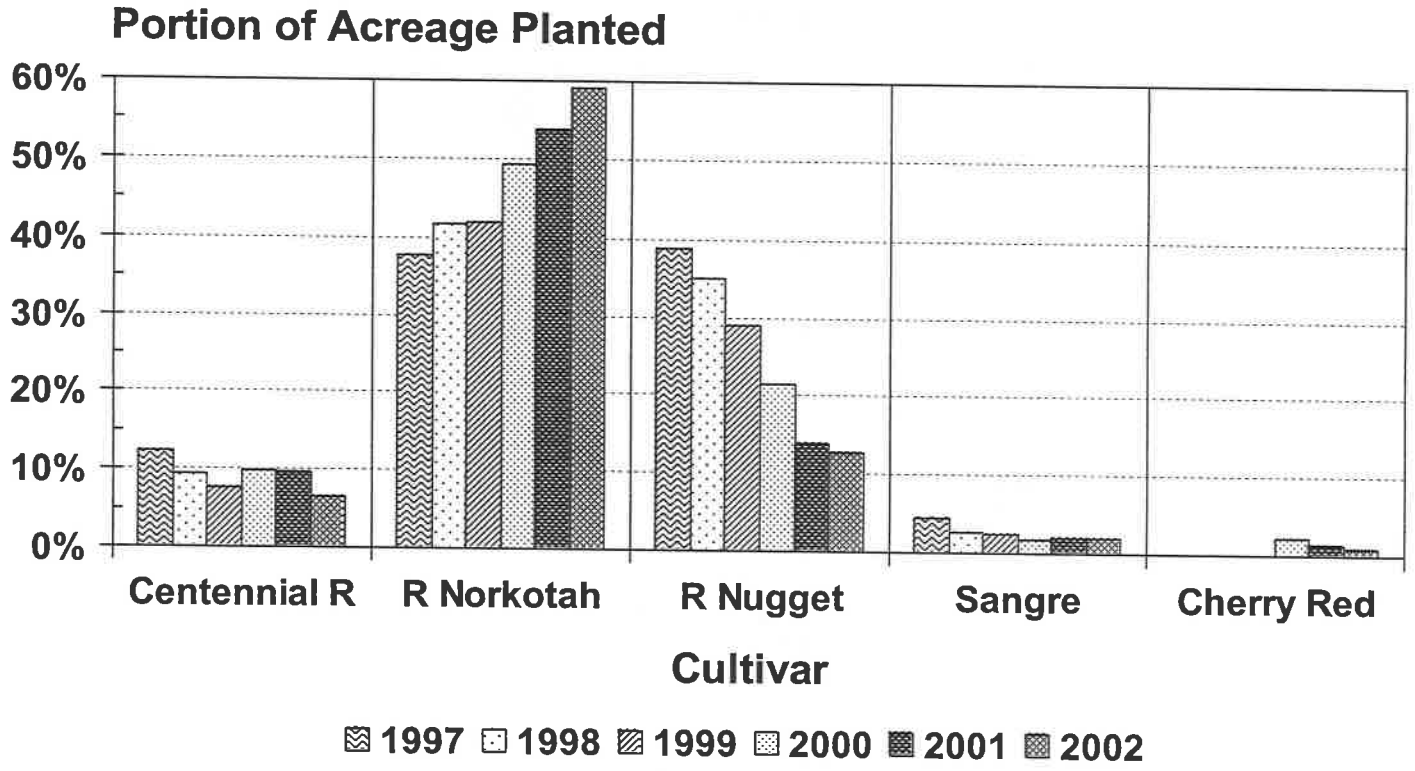
[1]Data provided by the Colorado Agricultural Statistics Service.

Figure 1. Primary SLV Potato Cultivars Planted 1983–2002



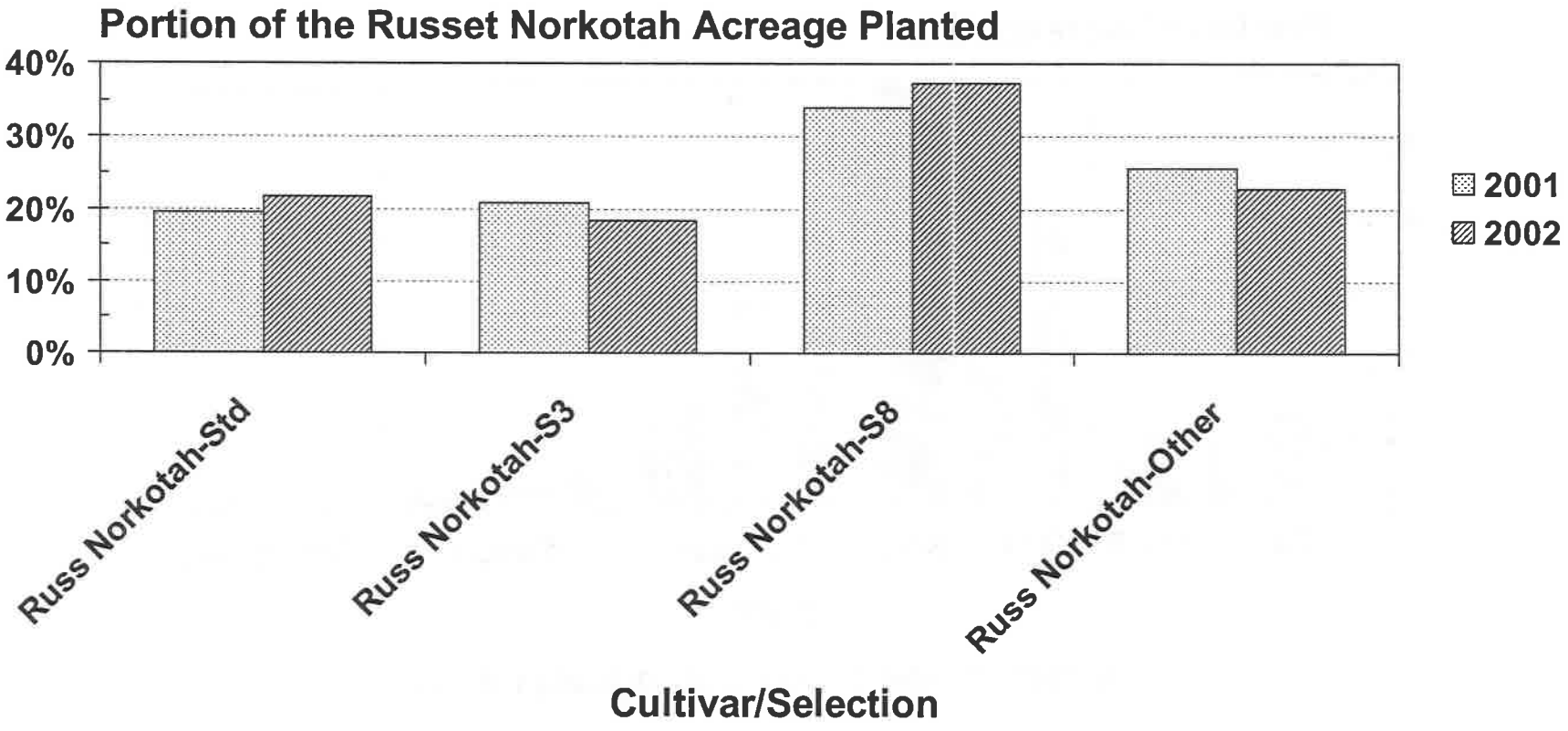
Data Source: Colorado Agricultural Statistics Service

Figure 2. Primary SLV Potato Cultivars 1997-2002 Comparison



Data Source: Colorado Agricultural Statistics Service

Figure 3. Colorado Russet Norkotah Acreage Breakdown (2001-2002)



Data Source: Colorado Agricultural Statistics Service

Table 3A. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Preliminary Trial entries - 2002.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC97068-1RU	4.0	2.0	3.0	2.8	80	2.4
AC97068-2RU	1.9	2.4	2.2	1.7	87	2.0
AC97070-3RU	3.7	3.6	3.7	3.1	94	3.4
AC97521-1R/Y	3.4	3.6	3.5	1.7	108	3.2
CO97030-1RU	4.5	4.5	4.5	2.9	115	4.6
CO97036-5RU	4.5	4.7	4.6	2.0	87	4.8
CO97078-5R	2.8	4.4	3.6	4.0	115	2.0
CO97087-2RU	4.8	4.6	4.7	2.3	87	3.8
CO97090-4RU	4.7	3.9	4.3	1.8	136	3.2
CO97137-1W	2.7	3.6	3.2	2.8	94	3.0
CO97138-3RU	4.7	4.1	4.4	2.0	115	4.2
CO97138-7RU	4.5	4.6	4.6	1.9	115	4.2
CO97094-2RU	4.9	4.2	4.6	1.4	94	2.2
CO97226-2R/R	1.6	1.3	1.5	2.2	94	-
CO97232-1R/Y	2.9	2.6	2.8	3.2	80	3.8
CO97232-2R/Y	4.1	3.8	4.0	2.7	94	4.0
CO97233-3R/Y	4.2	4.2	4.2	1.8	94	3.8
Centennial Russet	4.6	4.3	4.5	2.7	87	4.0
Russet Burbank	3.8	3.0	3.4	1.5	143	2.4
Russet Norkotah-S3	4.6	4.2	4.4	2.5	111	3.2
Russet Nugget	4.5	4.7	4.6	2.2	94	3.6
Sangre-S10	4.1	3.9	4.0	1.6	108	2.6
Shepody	4.6	4.2	4.4	3.5	101	3.8
Yukon Gold	4.3	3.7	4.0	1.3	101	4.6

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

[2]Tubers were stored at 45F for 93 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 - 2002.

Clone	Specific Gravity	Fry Color[1] At Harvest	Fry Color[1] 4 wks 50F+ 8 wks 45F	Fry Texture[2] At Harvest	Fry Texture[2] 4 wks 50F+ 8 wks 45F
AC97068-1RU	1.101	1	3	3	4
AC97068-2RU	1.103	2	3	3	4
AC97070-3RU	1.096	3	3	3	2
AC97521-1R/Y	1.087	4	4	2	3
CO97030-1RU	1.084	1	3	4	4
CO97036-5RU	1.085	3	4	4	4
CO97078-5R	1.081	2	3	2	3
CO97087-2RU	1.091	1	2	3	4
CO97090-4RU	1.085	2	3	3	2
CO97137-1W	1.090	2	3	3	3
CO97138-3RU	1.081	3	3	4	3
CO97138-7RU	1.072	3	4	2	2
CO97094-2RU	1.074	4	4	2	2
CO97226-2R/R	1.081	-	-	4	3
CO97232-1R/Y	1.083	1	1	2	3
CO97232-2R/Y	1.072	1	1	3	3
CO97233-3R/Y	1.079	1	2	3	2
Centennial Russet	1.084	4	4	2	3
Russet Burbank	1.088	2	2	3	3
Russet Norkotah-S3	1.086	3	4	4	3
Russet Nugget	1.078	2	3	2	3
Sangre-S10	1.080	4	4	3	3
Shepody	1.082	2	4	3	4
Yukon Gold	1.086	2	3	3	4

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

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

Table 4A. Yield, grade and tuber shape for Intermediate Yield Trial entries - 2002.

Clone	Yield (Cwt/A) Total	US #1 Total	US #1 %	US #1 >10 oz	US #1 <4 oz	Tuber Shape[1]
AC96002-11RU	524	461	88.0	283	18	Ob
AC96010-3RU	469	371	79.3	89	66	Ob
AC96052-1RU	530	457	86.2	79	69	Ob
AC96815-2RU	577	522	90.4	310	36	Ob
CO96004-9RU	522	386	74.1	72	131	Ob
CO96023-6RU	484	381	78.6	50	92	Ob
CO96043-5RU	563	517	91.9	205	31	Ob
CO96045-1RU	427	372	87.2	66	50	Ob
CO96047-7RU	544	479	87.9	125	47	Ob
CO96055-2RU	538	490	91.0	213	37	Ob
CO96055-5RU	581	538	92.6	232	32	Ob
CO96109-7RU	527	434	82.3	130	54	Ob
CO96133-11RU	469	355	75.8	51	113	Ob
CO96158-5RU	465	332	71.5	46	129	Ob
CO96440-3RU	429	350	81.2	68	78	L
Russet Norkotah	558	444	79.6	149	88	L
Russet Nugget	513	438	85.3	182	62	Ob
Mean	513	431	83.7	138	67	----
LSD[2] (0.05)	74	71	5.3	87	27	----

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

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

Table 4B. Grade defects for Intermediate Yield Trial entries - 2002.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
AC96002-11RU	8.6	MS,SG,GR*	0.0
AC96010-3RU	6.6	MS,SG*,GR	0.5
AC96052-1RU	0.9	GR*	0.0
AC96815-2RU	3.5	MS,SG,GR*	5.7
CO96004-9RU	0.9	MS*	1.2
CO96023-6RU	2.1	MS*,GC*,GR	1.2
CO96043-5RU	2.5	MS*,GC,GR	0.0
CO96045-1RU	1.1	MS*,GR	0.0
CO96047-7RU	3.4	SG*,GC,GR	0.0
CO96055-2RU	2.1	MS,GC*	0.0
CO96055-5RU	1.8	GC*,GR*	3.2
CO96109-7RU	7.5	GC*	5.6
CO96133-11RU	0.0		0.0
CO96158-5RU	0.7	MS,GC*	0.0
CO96440-3RU	0.4	MS*	0.0
Russet Norkotah	4.7	MS,SG*,GR*	1.8
Russet Nugget	2.5	MS,SG*,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 - 2002.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
AC96002-11RU	98	3.0	2.5	1.9	4.5	4.0	3.0
AC96010-3RU	98	2.5	2.5	1.9	3.0	3.0	3.0
AC96052-1RU	94	3.5	3.0	2.7	4.0	3.5	3.0
AC96815-2RU	98	3.5	3.0	2.3	4.5	4.0	4.0
CO96004-9RU	100	4.5	3.5	4.0	4.0	3.0	2.5
CO96023-6RU	100	4.0	3.0	2.3	3.0	3.0	2.5
CO96043-5RU	100	3.5	3.0	2.6	3.0	3.0	2.5
CO96045-1RU	98	3.5	3.0	2.9	3.0	2.0	2.0
CO96047-7RU	100	3.5	2.5	1.8	3.0	2.0	2.5
CO96055-2RU	100	4.0	4.0	2.3	3.5	3.0	2.5
CO96055-5RU	98	3.5	3.5	3.3	4.0	3.0	4.0
CO96109-7RU	100	3.5	3.0	3.1	3.0	3.0	2.0
CO96133-11RU	98	3.5	2.5	2.8	3.0	3.0	2.0
CO96158-5RU	98	2.5	3.0	5.7	3.0	3.0	3.0
CO96440-3RU	96	3.5	3.0	3.6	3.0	2.5	2.0
Russet Norkotah	96	4.0	4.0	4.0	2.5	2.0	2.0
Russet Nugget	100	3.5	3.0	3.0	4.5	3.5	3.5
Mean	98	3.5	3.1	2.9	3.4	3.0	2.7
LSD[6] (0.05)	5	1.3	0.8	0.9	1.1	0.6	0.9

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

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

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

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

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

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

Table 4D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Intermediate Yield Trial entries - 2002.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC96002-11RU	3.9	3.7	3.8	3.1	84	3.8
AC96010-3RU	4.5	4.2	4.4	2.6	98	3.6
AC96052-1RU	4.2	3.1	3.7	2.1	70	4.0
AC96815-2RU	3.6	3.1	3.4	3.3	63	3.8
CO96004-9RU	4.7	3.9	4.3	2.6	91	2.6
CO96023-6RU	2.7	2.7	2.7	3.1	105	3.6
CO96043-5RU	4.5	4.2	4.4	2.8	91	3.8
CO96045-1RU	4.8	3.6	4.2	2.5	77	2.8
CO96047-7RU	5.0	4.2	4.6	2.4	84	3.8
CO96055-2RU	3.5	2.1	2.8	1.9	84	3.8
CO96055-5RU	3.3	2.2	2.8	2.3	84	4.6
CO96109-7RU	4.2	4.4	4.3	3.4	63	4.8
CO96133-11RU	2.8	2.7	2.7	2.6	98	2.6
CO96158-5RU	3.4	2.8	3.1	2.5	70	2.4
CO96440-3RU	3.8	2.5	3.2	2.1	56	2.4
Russet Norkotah	4.2	3.5	3.9	2.9	91	2.6
Russet Nugget	4.4	4.3	4.4	1.8	84	3.8

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

[2]Tubers were stored at 45F for 93 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 - 2002.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	4 wks 50F+ 8 wks 45F	At Harvest	4 wks 50F+ 8 wks 45F
AC96002-11RU	1.093	1	1	5	3
AC96010-3RU	1.092	1	2	5	3
AC96052-1RU	1.090	0	0	4	4
AC96815-2RU	1.103	1	1	4	3
CO96004-9RU	1.103	0	0	4	4
CO96023-6RU	1.093	1	2	4	3
CO96043-5RU	1.081	1	4	3	2
CO96045-1RU	1.093	1	1	4	3
CO96047-7RU	1.089	3	3	2	2
CO96055-2RU	1.096	2	2	3	3
CO96055-5RU	1.094	3	3	3	3
CO96109-7RU	1.092	1	2	3	3
CO96133-11RU	1.085	2	3	1	2
CO96158-5RU	1.097	1	2	4	3
CO96440-3RU	1.092	1	3	5	2
Russet Norkotah	1.085	2	3	3	3
Russet Nugget	1.102	1	1	5	4

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

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

Table 5A. Yield, grade and tuber shape for Advanced Yield Trial entries - 2002.

Clone	Yield (Cwt/A)					Tuber Shape[1]
	Total	US #1			<4 oz	
		Total	%	>10 oz		
AC95405-2RU	561	365	64.7	29	194	Ob
CO85026-4RU	452	387	85.6	172	39	Ob
CO94035-15RU	478	406	84.8	130	61	Ob
CO94084-12RU	458	395	86.3	202	33	Ob
CO95007-1RU	477	339	70.7	44	134	Ob
CO95086-8RU	394	290	73.5	53	94	Ob
CO95172-3RU	546	450	82.3	138	85	Ob
Russet Norkotah	502	432	86.1	203	66	L
Russet Nugget	473	408	86.3	162	59	Ob
Mean	482	386	80.0	126	85	----
LSD[2] (0.05)	57	63	5.6	55	19	----

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

[2]LSD=least significant difference.

Table 5B. Grade defects for Advanced Yield Trial entries - 2002.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
AC95405-2RU	0.5	MS*,GR*	0.0
CO85026-4RU	5.7	MS,SG,GC*,GR	0.6
CO94035-15RU	2.3	MS*,GR	2.5
CO94084-12RU	6.6	MS,GC*,GR	0.0
CO95007-1RU	0.9	MS*,GR*	0.0
CO95086-8RU	2.5	MS,GC*,GR	0.0
CO95172-3RU	1.9	MS*,GR	2.1
Russet Norkotah	0.6	MS*,SG*	0.3
Russet Nugget	1.3	MS*,GC,GR	0.0

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

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

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

Table 5C. Growth characteristics of Advanced Yield Trial entries- 2002.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
AC95405-2RU	100	4.3	4.0	2.9	4.0	3.0	2.3
CO85026-4RU	100	3.5	3.0	2.3	3.8	3.0	3.3
CO94035-15RU	98	3.8	3.8	2.8	3.5	3.0	2.8
CO94084-12RU	94	3.3	3.0	2.5	3.0	3.0	2.0
CO95007-1RU	98	3.5	3.0	2.7	3.5	3.0	3.0
CO95086-8RU	96	4.0	3.5	2.9	3.0	2.8	1.8
CO95172-3RU	100	3.8	3.0	2.9	3.8	3.8	3.3
Russet Norkotah	99	4.0	3.5	3.0	2.5	2.0	1.8
Russet Nugget	97	3.5	3.3	2.9	4.5	3.5	3.5
Mean	98	3.7	3.3	2.7	3.5	3.0	2.6
LSD[6] (0.05)	4.4	0.7	0.5	NS	0.7	0.4	0.7

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

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

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

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

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

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

Table 5D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced Yield Trial entries - 2002.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC95405-2RU	2.3	2.6	2.5	2.8	91	3.4
CO85026-4RU	3.3	2.9	3.1	2.2	77	3.6
CO94035-15RU	2.9	3.4	3.2	3.0	84	4.0
CO94084-12RU	2.5	2.6	2.6	2.0	98	3.4
CO95007-1RU	3.7	4.3	4.0	2.6	70	2.0
CO95086-8RU	4.1	4.3	4.2	2.3	77	4.2
CO95172-3RU	4.5	4.3	4.4	3.1	77	2.4
Russet Norkotah	4.0	4.0	4.0	2.8	98	3.2
Russet Nugget	4.3	4.0	4.2	1.9	84	4.0

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

[2]Tubers were stored at 45F for 93 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 - 2002.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	4 wks 50F+ 8 wks 45F	At Harvest	4 wks 50F+ 8 wks 45F
AC95405-2RU	1.094	2	1	3	2
CO85026-4RU	1.095	2	2	3	3
CO94035-15RU	1.090	1	1	3	3
CO94084-12RU	1.082	1	2	3	2
CO95007-1RU	1.087	1	1	3	3
CO95086-8RU	1.091	1	1	4	3
CO95172-3RU	1.089	3	1	2	3
Russet Norkotah	1.085	3	3	3	2
Russet Nugget	1.096	2	2	5	4

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

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

Table 6A. Yield, grade and tuber shape for Southwest Regional Trial entries - 2002.

Clone	Yield (Cwt/A) Total	US #1 Total	US #1 %	US #1 >10 oz	US #1 <4 oz	Tuber Shape[1]
AC93026-9RU	633	494	78.1	185	116	L
AC93047-1RU	382	268	69.4	24	105	Ob
CO93001-11RU	518	436	84.2	71	68	Ob
CO93016-3RU	506	396	78.0	57	109	Ob
CO94019-1R	550	488	88.6	117	59	R
CO94065-2R	638	504	78.9	100	124	R
CO94165-3P/P	606	401	66.4	61	194	Ob
CO94183-1R/R	449	354	78.8	63	91	R
CO94222-6RU/Y	412	230	56.0	28	174	Ov
NDC6084C-2W	396	325	81.3	92	63	R
NDC6184-3R	382	149	38.3	12	231	R
VC0967-2R/Y	527	466	88.5	140	58	Ob
VC0967-5R/Y	601	526	87.1	210	62	Ob
VC1002-3W/Y	512	204	39.9	33	297	R
All Blue	639	359	56.2	40	280	Ob
Atlantic	597	512	85.7	228	67	Ov
Chipeta	757	606	80.0	256	86	Ov
Red Lasoda	604	491	81.1	232	64	Ov
Russet Norkotah	542	443	81.6	137	86	L
Russet Nugget	585	509	87.0	197	65	Ob
Sangre-S10	616	548	88.8	269	55	Ov
Yukon Gold	513	439	85.7	246	52	Ov
Mean	544	416	75.4	127	114	----
LSD[2] (0.05)	88	90	8.8	65	38	----

[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 - 2002.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
AC93026-9RU	3.6	MS,SG,GR*	0.9
AC93047-1RU	2.3	MS*,GC,GR	0.4
CO93001-11RU	2.7	MS,GC,GR*	0.0
CO93016-3RU	0.3	MS*,GR*	0.0
CO94019-1R	0.5	MS*,GC*,GR*	0.0
CO94065-2R	1.4	MS,SG,GC,GR*	0.0
CO94165-3P/P	1.7	MS*,SG*,GC,GR	0.9
CO94183-1R/R	0.9	MS*,SG,GC*,GR	0.0
CO94222-6RU/Y	1.8	MS,SG,GR*	2.5
NDC6084C-2W	2.1	MS,GC,GR*	1.6
NDC6184-3R	0.5	MS*,GC	0.0
VC0967-2R/Y	0.6	MS*,GR*	0.0
VC0967-5R/Y	2.2	MS,GR*	0.0
VC1002-3W/Y	2.2	MS,SG,GC*,GR	0.0
All Blue	0.1	MS*	0.0
Atlantic	3.0	MS,GC,GR*	7.8
Chipeta	8.6	MS,GC*,GR	1.7
Red Lasoda	8.1	MS,GC*,GR	27.7
Russet Norkotah	2.4	MS*,GC,GR	1.4
Russet Nugget	1.8	MS*,GC,GR	0.8
Sangre-S10	2.2	GC,GR*	1.5
Yukon Gold	4.1	MS,GC,GR*	1.5

[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 - 2002.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
AC93026-9RU	97	3.8	3.3	3.0	4.0	3.0	3.5
AC93047-1RU	99	4.0	3.3	3.4	2.3	2.0	1.3
CO93001-11RU	98	3.5	4.0	4.6	3.0	3.0	3.0
CO93016-3RU	97	3.8	3.8	2.8	3.3	3.0	3.8
CO94019-1R	100	4.3	5.0	2.8	4.3	3.0	3.5
CO94065-2R	100	4.3	3.8	2.9	3.0	2.8	2.3
CO94165-3P/P	99	3.8	3.8	2.9	3.0	2.0	2.8
CO94183-1R/R	96	3.0	2.0	2.7	4.0	3.8	3.5
CO94222-6RU/Y	100	3.8	4.0	3.3	4.0	3.0	2.0
NDC6084C-2W	99	4.0	3.8	4.1	3.0	2.5	2.0
NDC6184-3R	99	3.8	3.0	3.1	2.5	2.8	2.3
VC0967-2R/Y	97	3.8	3.5	4.0	2.8	3.0	2.8
VC0967-5R/Y	95	4.3	3.0	2.5	2.3	2.5	2.8
VC1002-3W/Y	86	2.5	2.5	4.6	3.3	3.0	2.3
All Blue	99	3.8	4.0	2.5	3.0	3.0	2.5
Atlantic	98	3.8	3.3	4.0	2.8	2.3	2.0
Chipeta	99	3.8	3.8	3.0	4.5	3.5	3.8
Red Lasoda	92	2.8	3.0	2.6	4.5	3.3	3.8
Russet Norkotah	76	2.8	3.0	2.5	2.8	2.5	2.8
Russet Nugget	90	3.0	3.8	3.1	4.8	3.0	3.5
Sangre-S10	97	4.3	4.8	3.5	4.0	3.0	2.5
Yukon Gold	95	3.5	4.0	2.3	3.0	2.5	2.0
Mean	96	3.6	3.5	3.2	3.4	2.8	2.7
LSD[6] (0.05)	6	0.7	0.5	0.8	0.5	0.5	0.6

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

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

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

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

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

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

Table 6D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Southwest Regional Trial entries - 2002.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC93026-9RU	3.2	2.4	2.8	2.7	112	3.4
AC93047-1RU	4.1	3.2	3.7	3.0	91	2.6
CO93001-11RU	3.9	3.4	3.7	3.9	63	2.0
CO93016-3RU	2.7	3.0	2.9	3.8	63	2.0
CO94019-1R	2.0	1.7	1.9	4.0	91	1.4
CO94065-2R	3.6	2.9	3.3	4.9	112	3.2
CO94165-3P/P	-	-	-	2.9	63	-
CO94183-1R/R	3.1	2.2	2.7	3.7	84	-
CO94222-6RU/Y	2.6	2.5	2.6	3.6	70	3.8
NDC6084C-2W	3.6	3.2	3.4	4.3	63	1.6
NDC6184-3R	3.0	2.4	2.7	5.8	49	2.4
VC0967-2R/Y	3.3	3.4	3.4	2.7	63	4.0
VC0967-5R/Y	3.4	3.1	3.3	2.8	98	3.8
VC1002-3W/Y	4.3	4.6	4.5	2.4	84	3.8
All Blue	3.9	2.3	3.1	2.1	84	-
Atlantic	2.7	1.9	2.3	3.8	77	3.8
Chipeta	2.7	2.0	2.4	2.4	77	3.2
Red Lasoda	3.0	3.0	3.0	3.7	70	1.6
Russet Norkotah	3.5	4.5	4.0	3.4	98	2.6
Russet Nugget	3.9	2.7	3.3	2.0	84	3.8
Sangre-S10	3.0	3.3	3.2	2.4	84	2.8
Yukon Gold	3.2	3.6	3.4	2.8	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 93 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 - 2002.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	4 wks 50F+ 8 wks 45F	At Harvest	4 wks 50F+ 8 wks 45F
AC93026-9RU	1.089	2	3	3	3
AC93047-1RU	1.082	2	2	4	3
CO93001-11RU	1.082	1	1	3	3
CO93016-3RU	1.093	1	3	3	3
CO94019-1R	1.085	2	3	1	3
CO94065-2R	1.084	2	4	2	2
CO94165-3P/P	1.085	-	-	-	-
CO94183-1R/R	1.084	-	-	-	-
CO94222-6RU/Y	1.098	2	3	2	3
NDC6084C-2W	1.095	-	-	-	-
NDC6184-3R	1.090	2	2	3	2
VC0967-2R/Y	1.079	1	1	2	2
VC0967-5R/Y	1.086	1	1	4	3
VC1002-3W/Y	1.096	1	1	3	3
All Blue	1.080	-	-	2	2
Atlantic	1.107	-	-	-	-
Chipeta	1.099	-	-	-	-
Red Lasoda	1.081	3	3	2	2
Russet Norkotah	1.079	3	3	3	3
Russet Nugget	1.101	1	1	5	4
Sangre-S10	1.084	3	4	4	2
Yukon Gold	1.089	2	2	3	3

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

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

Table 6F. Chip color[1] after various storage regimes and specific gravity of Southwest Regional Trial entries - 2002.

Clone	Specific Gravity	6 wks 40F	6 wks/40F +3 wks/60F	6 wks 50F	6 wks/50F +3 wks/60F
NDC6084C-2W	1.095	3.0	2.5	1.5	2.5
Atlantic	1.107	4.5	4.0	2.0	2.5
Chipeta	1.099	4.5	3.5	1.5	3.0

[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 - 2002.

Clone	Yield (Cwt/A)					Tuber Shape[1]
	Total	US #1				
		Total	%	>10 oz	<4 oz	
A9045-7	557	470	84.2	179	60	L
A90586-11	607	417	68.7	145	98	L
A9304-3	524	456	86.8	259	33	L
A9305-10	608	479	78.5	89	109	Ob
AC89536-5RU	559	424	75.9	133	95	Ob
AC92009-4RU	365	331	90.5	156	29	Ob
ATX9202-1RU	420	320	76.0	131	59	Ob
ATX92230-1RU	486	389	79.7	153	40	Ob
CO92077-2RU	456	375	82.3	145	66	L
NDC5372-1RU	471	375	79.5	96	85	Ob
TC1675-1RU	533	420	78.6	119	83	Ob
Ranger Russet	501	408	81.3	136	62	L
Russet Burbank	568	437	76.7	127	106	L
Russet Norkotah	519	429	82.7	151	66	L
Russet Nugget	476	396	83.3	121	69	Ob
Shepody	537	462	85.6	290	42	L
Stampede	460	383	83.6	146	49	Ob
Mean	509	410	80.8	152	68	----
LSD[2] (0.05)	76	76	5.9	64	22	----

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

[2]LSD=least significant difference.

Table 7B. Grade defects for Western Regional Main Trial entries - 2002.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
A9045-7	5.1	MS,SG,GC*,GR	0.0
A90586-11	15.2	MS,SG,GR*	0.0
A9304-3	6.7	MS,SG,GR*	0.0
A9305-10	3.4	MS,SG,GC*,GR*	0.0
AC89536-5RU	7.1	MS,SG,GC,GR*	1.6
AC92009-4RU	1.2	MS,GR*	0.0
ATX9202-1RU	9.9	MS,SG*,GC*,GR*	0.4
ATX92230-1RU	11.8	MS,GC*,GR	0.7
CO92077-2RU	3.4	MS,GC,GR*	0.0
NDC5372-1RU	2.5	MS,GR*	0.0
TC1675-1RU	5.7	MS,SG,GC*,GR	0.0
Ranger Russet	6.1	MS*,GR*	0.0
Russet Burbank	4.4	MS,SG*,GC,GR	5.1
Russet Norkotah	4.6	MS*,SG,GC,GR	0.0
Russet Nugget	2.4	MS*,SG,GC,GR	0.0
Shepody	6.3	MS,SG,GC,GR*	1.3
Stampede	6.1	MS,SG,GC*,GR	0.0

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

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

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

Table 7C. Growth characteristics of Western Regional Main Trial entries - 2002.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
A9045-7	99	3.8	3.8	2.3	3.8	3.0	3.0
A90586-11	99	3.8	4.0	3.0	5.0	3.3	3.3
A9304-3	96	3.3	3.3	2.5	3.8	3.0	3.0
A9305-10	99	3.8	4.3	4.0	4.0	3.0	2.3
AC89536-5RU	98	3.5	4.5	3.0	4.3	3.0	2.5
AC92009-4RU	97	3.3	2.0	1.7	4.3	3.8	2.8
ATX9202-1RU	97	2.5	2.0	1.6	4.3	3.3	3.3
ATX92230-1RU	98	3.3	3.3	2.3	3.8	3.0	3.0
CO92077-2RU	98	3.3	2.0	2.2	3.0	2.8	2.0
NDC5372-1RU	98	3.5	3.3	3.9	3.0	3.0	3.0
TC1675-1RU	99	3.5	3.0	2.4	3.5	3.5	3.3
Ranger Russet	99	4.0	3.8	2.9	3.0	3.0	2.8
Russet Burbank	99	3.8	3.3	4.5	2.0	2.0	2.0
Russet Norkotah	100	4.0	3.5	3.5	4.5	3.5	3.3
Russet Nugget	99	3.0	3.5	2.5	3.3	2.8	1.8
Shepody	98	3.8	4.0	2.9	3.8	3.0	2.3
Stampede	99	4.0	4.3	3.4	3.3	3.0	2.8
Mean	98	3.5	3.4	2.8	3.7	3.0	2.7
LSD[6] (0.05)	NS	0.7	0.6	0.7	0.5	0.5	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; NS=not significant.

Table 7D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Western Regional Main Trial entries - 2002.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
A9045-7	4.3	2.9	3.6	3.5	70	2.6
A90586-11	4.3	3.7	4.0	3.6	91	3.0
A9304-3	3.8	3.2	3.5	4.4	91	3.4
A9305-10	4.8	2.9	3.9	2.6	112	4.0
AC89536-5RU	4.7	3.6	4.2	3.9	84	3.2
AC92009-4RU	4.0	3.0	3.5	3.3	133	3.6
ATX9202-1RU	4.3	3.2	3.8	2.6	98	4.6
ATX92230-1RU	4.4	2.6	3.5	5.0	91	4.0
CO92077-2RU	4.5	3.4	4.0	2.1	56	1.8
NDC5372-1RU	3.9	2.7	3.3	2.6	84	2.0
TC1675-1RU	3.6	3.3	3.5	1.6	70	2.2
Ranger Russet	3.7	2.3	3.0	3.0	70	3.2
Russet Burbank	2.3	1.7	2.0	2.5	126	2.8
Russet Norkotah	4.2	4.0	4.1	2.8	98	2.8
Russet Nugget	3.0	3.4	3.2	2.2	91	3.8
Shepody	3.5	4.1	3.8	3.4	49	4.2
Stampede	4.1	4.1	4.1	3.1	70	1.6

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

[2]Tubers were stored at 45F for 93 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 - 2002.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	4 wks 50F+ 8 wks 45F	At Harvest	4 wks 50F+ 8 wks 45F
A9045-7	1.095	2	3	3	2
A90586-11	1.101	2	2	2	3
A9304-3	1.092	1	2	3	3
A9305-10	1.093	2	1	3	3
AC89536-5RU	1.093	3	3	3	3
AC92009-4RU	1.099	1	1	3	4
ATX9202-1RU	1.093	1	3	3	3
ATX92230-1RU	1.095	3	2	3	4
CO92077-2RU	1.083	3	2	2	3
NDC5372-1RU	1.083	1	1	2	3
TC1675-1RU	1.093	1	2	2	2
Ranger Russet	1.087	3	2	3	3
Russet Burbank	1.091	1	1	5	4
Russet Norkotah	1.080	3	2	3	2
Russet Nugget	1.095	1	1	4	3
Shepody	1.086	2	2	3	3
Stampede	1.080	2	2	4	3

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

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

Table 8A. Yield, grade and tuber shape for Advanced and Western Regional Red Trial entries - 2002.

Clone	Yield (Cwt/A)					Tuber Shape[1]
		US #1				
	Total	Total	%	>10 oz	<4 oz	
CO86218-2R	577	479	83.0	218	70	R
CO89097-2R	641	530	82.5	146	81	Ov
CO93037-6R	728	497	68.2	146	183	R
CO95077-3R	357	97	27.1	2	260	R
DT6063-1R	627	506	80.8	139	94	Ov
NDC5281-2R	474	211	44.3	14	258	R
NDO4323-2R	564	340	60.5	44	165	Ov
NDTX4271-5R	539	418	77.2	112	96	R
NDTX4304-1R	605	482	79.3	230	76	R
VC1075-1R	577	312	54.0	43	257	R
Norland (DR)	509	364	71.4	78	123	Ov
Red Lasoda	625	487	78.0	213	65	Ov
Sangre-S10	581	512	88.0	248	46	Ov
Mean	570	403	68.8	126	137	----
LSD[2] (0.05)	79	74	5.8	51	28	----

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

[2]LSD=least significant difference.

Table 8B. Grade defects for Advanced and Western Regional Red Trial entries - 2002.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
CO86218-2R	4.8	MS,SG,GC*,GR	0.5
CO89097-2R	4.7	MS,SG,GC,GR*	0.8
CO93037-6R	6.6	MS,SG,GC*,GR*	0.0
CO95077-3R	0.0		0.0
DT6063-1R	4.3	MS,GC*,GR	0.6
NDC5281-2R	1.0	MS,GC*,GR*	0.0
NDO4323-2R	10.4	MS,GC*,GR	0.3
NDTX4271-5R	4.7	GC*,GR	0.0
NDTX4304-1R	7.8	MS,GC*	1.2
VC1075-1R	1.4	MS,SG,GC*,GR*	0.0
Norland (DR)	4.5	MS,GC,GR	0.0
Red Lasoda	11.6	MS,SG,GC*,GR	20.6
Sangre-S10	3.9	MS,SG,GC*,GR	3.3

[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 - 2002.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
CO86218-2R	90	3.0	3.0	2.8	3.5	3.0	3.0
CO89097-2R	100	3.3	3.8	3.8	3.3	3.0	2.3
CO93037-6R	94	3.5	4.0	4.0	4.5	3.0	3.0
CO95077-3R	98	3.8	3.0	4.3	2.3	2.0	1.0
DT6063-1R	98	3.8	4.0	3.5	3.3	3.0	2.0
NDC5281-2R	97	4.0	3.5	3.9	3.0	2.8	1.0
NDO4323-2R	100	4.0	3.8	3.4	3.0	3.0	2.3
NDTX4271-5R	94	3.8	3.5	3.1	3.3	3.0	1.8
NDTX4304-1R	98	3.8	3.0	3.3	2.5	2.3	2.5
VC1075-1R	100	3.5	3.3	3.9	2.0	2.0	1.0
Norland -DR	100	3.5	4.0	2.3	3.3	3.0	2.5
Red Lasoda	91	3.0	3.0	2.4	4.3	3.0	3.5
Sangre-S10	99	3.3	3.5	4.7	3.8	3.0	1.8
Mean	97	3.5	3.5	3.5	3.2	2.8	2.1
LSD[6] (0.05)	4	0.6	0.5	0.7	0.7	0.3	0.5

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

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

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

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

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

[6]LSD=least significant difference.

Table 8D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Red Trial entries - 2002.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
CO86218-2R	3.6	2.5	3.1	3.6	70	1.8
CO89097-2R	4.3	3.3	3.8	5.0	56	4.4
CO93037-6R	2.7	1.8	2.3	3.5	98	2.4
CO95077-3R	4.1	3.8	4.0	4.9	91	1.4
DT6063-1R	4.8	4.1	4.5	3.4	84	3.8
NDC5281-2R	2.9	2.8	2.9	5.2	70	1.4
NDO4323-2R	2.4	2.2	2.3	3.9	84	1.2
NDTX4271-5R	2.2	2.6	2.4	3.6	70	2.4
NDTX4304-1R	2.5	2.6	2.6	3.4	63	3.0
VC1075-1R	2.8	3.1	3.0	3.6	70	4.0
Norland (DR)	3.6	4.1	3.9	4.8	56	2.2
Red Lasoda	3.0	3.2	3.1	3.3	77	1.4
Sangre-S10	3.1	3.5	3.3	2.3	77	3.2

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

[2]Tubers were stored at 45F for 93 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 - 2002.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	4 wks 50F+ 8 wks 45F	At Harvest	4 wks 50F+ 8 wks 45F
CO86218-2R	1.080	2	3	2	3
CO89097-2R	1.086	2	3	2	3
CO93037-6R	1.084	2	4	2	2
CO95077-3R	1.086	3	3	5	3
DT6063-1R	1.087	2	3	2	3
NDC5281-2R	1.090	1	1	3	3
NDO4323-2R	1.087	2	4	3	3
NDTX4271-5R	1.075	3	3	3	2
NDTX4304-1R	1.078	3	3	2	2
VC1075-1R	1.080	1	2	3	3
Norland-DR	1.074	2	3	4	3
Red Lasoda	1.802	3	3	3	2
Sangre-S10	1.085	3	4	3	3

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

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

Table 9A. Yield, grade and tuber shape for Advanced and Western Regional Specialty Trial entries - 2002.

Clone	Yield (Cwt/A)					Tuber Shape[1]
	Total	US #1				
		Total	%	>10 oz	<4 oz	
A92584-3BB	458	218	46.9	31	232	R
BTX1544-2W/Y	537	436	81.3	121	73	Ov
CO94157-2W/Y	476	272	55.5	61	193	Ob
CO94157-3RU/Y	457	223	48.2	29	223	R
TX1523-1RU/Y	473	406	85.9	164	56	R
TX1674-1W/Y	519	386	74.3	77	115	Ob
VC1009-1W/Y	641	440	68.1	142	173	Ob
VC1015-1R/Y	699	560	80.1	149	119	Ob
VC1015-7R/Y	543	443	81.1	68	94	Ov
VC1106-1RU/Y	413	342	82.8	145	58	Ov
VC1123-2W/Y	662	580	87.6	219	71	Ov
Yukon Gold	490	421	85.4	205	48	Ov
Mean	531	394	73.1	118	121	----
LSD[2] (0.05)	87	93	9.2	53	29	-----

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

[2]LSD=least significant difference.

Table 9B. Grade defects for Advanced and Western Regional Specialty Trial entries - 2002.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
A92584-3BB	1.7	MS,GR*	0.0
BTX1544-2W/Y	5.3	MS,SG,GC*,GR	6.4
CO94157-2W/Y	2.3	MS,SG,GC,GR*	0.0
CO94157-3RU/Y	2.3	GC*	0.0
TX1523-1RU/Y	2.3	MS,GC,GR*	0.0
TX1674-1W/Y	3.6	MS,GR*	0.0
VC1009-1W/Y	4.3	MS,GC*,GR*	0.9
VC1015-1R/Y	2.8	GC,GR*	2.2
VC1015-7R/Y	1.2	MS*,GC*,GR*	0.0
VC1106-1RU/Y	3.0	MS,GR*	1.5
VC1123-2W/Y	1.6	MS,GC*,GR	2.5
Yukon Gold	4.4	MS,GC,GR*	0.0

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

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

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

Table 9C. Growth characteristics of Advanced and Western Regional Specialty Trial entries - 2002.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
A92584-3BB	98	4.0	3.3	4.6	2.8	2.5	2.8
BTX1544-2W/Y	95	3.3	4.5	2.1	3.3	2.8	2.3
CO94157-2W/Y	98	3.0	3.0	3.0	3.3	3.0	2.3
CO94157-3RU/Y	99	3.8	3.5	2.9	4.5	3.0	3.0
TX1523-1RU/Y	92	4.0	3.5	2.9	3.0	3.0	2.3
TX1674-1W/Y	97	3.3	3.8	3.2	2.8	2.0	2.5
VC1009-1W/Y	98	3.8	4.5	4.0	5.0	3.0	3.3
VC1015-1R/Y	98	3.0	4.0	3.7	5.0	3.3	3.5
VC1015-7R/Y	99	3.5	3.8	3.1	3.3	3.0	2.5
VC1106-1RU/Y	100	3.0	3.0	3.8	3.8	3.0	3.3
VC1123-2W/Y	98	3.5	3.8	2.9	4.0	3.3	3.3
Yukon Gold	99	3.5	3.8	2.2	3.0	2.5	1.8
Mean	98	3.5	3.7	3.2	3.6	2.9	2.7
LSD[6] (0.05)	5	0.6	0.7	1.2	0.6	0.5	0.7

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

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

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

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

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

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

Table 9D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Specialty Trial entries - 2002.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
A92584-3BB	3.2	2.6	2.9	3.6	70	2.4
BTX1544-2W/Y	2.6	2.7	2.7	2.9	84	4.0
CO94157-2W/Y	2.4	2.0	2.2	4.7	168	2.6
CO94157-3RU/Y	4.5	3.4	4.0	2.1	70	3.4
TX1523-1RU/Y	3.0	2.9	3.0	2.6	63	3.8
TX1674-1W/Y	3.8	4.1	4.0	3.5	91	3.6
VC1009-1W/Y	3.8	3.0	3.4	2.5	91	3.4
VC1015-1R/Y	2.4	2.5	2.5	1.7	91	3.8
VC1015-7R/Y	3.4	3.7	3.6	4.2	84	4.6
VC1106-1RU/Y	3.1	2.3	2.7	4.3	84	3.4
VC1123-2W/Y	4.3	4.0	4.2	2.6	70	4.8
Yukon Gold	4.1	3.7	3.9	2.8	105	3.8

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

[2]Tubers were stored at 45F for 93 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 - 2002.

Clone	Specific Gravity	Fry Color[1]		Fry Texture[2]	
		At Harvest	4 wks 50F+ 8 wks 45F	At Harvest	4 wks 50F+ 8 wks 45F
A92584-3BB	1.086	0	1	3	2
BTX1544-2W/Y	1.083	1	1	4	3
CO94157-2W/Y	1.092	1	1	3	3
CO94157-3RU/Y	1.091	1	1	4	4
TX1523-1RU/Y	1.089	1	2	3	3
TX1674-1W/Y	1.095	1	1	3	4
VC1009-1W/Y	1.088	1	1	3	4
VC1015-1R/Y	1.081	3	4	2	2
VC1015-7R/Y	1.087	3	3	3	3
VC1106-1RU/Y	1.073	1	2	2	3
VC1123-2W/Y	1.089	2	2	2	3
Yukon Gold	1.084	2	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 ≤ 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 - 2002.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
AC87340-2W	2.4	2.0	2.2	2.7	90	4.2
AC94296-5W	4.3	3.7	4.0	2.6	119	4.6
AC97023-2W	4.3	2.9	3.6	1.9	94	4.4
AC97023-4W	3.9	3.1	3.5	1.5	122	4.8
AC97097-10W	3.0	2.4	2.7	2.5	108	4.2
AC97097-14W	4.0	3.5	3.8	1.5	108	4.6
AC97097-19W	2.9	2.9	2.9	2.1	101	3.8
BCO894-2W	4.0	3.5	3.8	2.8	86	4.0
CO95051-7W	3.5	2.3	2.9	3.4	84	1.8
CO95070-7W	3.6	2.6	3.1	2.7	84	2.8
CO96076-7W	3.5	2.6	3.1	2.4	91	4.4
CO96083-7RU	3.7	2.4	3.1	2.5	67	4.4
CO96141-4W	3.7	2.6	3.2	2.2	98	3.6
CO96142-4W	4.3	2.3	3.3	2.1	112	2.4
CO96293-4RU	2.5	2.4	2.5	2.8	98	3.8
CO97043-14W	3.7	3.2	3.5	3.0	108	4.2
CO97043-15W	2.9	2.5	2.7	2.7	87	3.8
CO97065-7W	4.3	3.2	3.8	1.8	150	4.8
CO97071-1W	4.1	2.7	3.4	1.8	115	3.2
NDC6084C-2W	3.4	1.7	2.6	2.7	97	2.4
VC1002-3W/Y	4.9	4.5	4.7	1.7	97	4.2
VC1009-1W/Y	4.1	3.1	3.6	2.0	105	3.6
Atlantic	3.1	1.6	2.4	2.6	94	4.6
Chipeta	3.6	2.3	3.0	1.9	103	3.8
Snowden	2.4	1.8	2.1	2.6	101	3.6

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

[2]Tubers were stored at 45F for 93 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 - 2002.

Clone	Specific Gravity	6 wks 40F	6 wks/40F +3 wks/60F	6 wks 50F	6 wks/50F +3 wks/60F
AC87340-2W	1.084	4.0	3.5	1.5	2.0
AC94296-5W	1.089	4.5	4.5	2.0	1.5
AC95522-1W	1.092	5.0	5.0	3.5	3.5
AC96897-3W/Y	1.095	4.0	4.0	2.0	2.5
AC96897-4W/Y	1.099	4.0	3.5	2.0	2.5
AC96897-5W/Y	1.095	4.5	5.0	2.0	1.0
AC97023-2W	1.086	4.5	4.5	3.5	2.5
AC97023-4W	1.092	4.5	4.0	3.5	3.5
AC97097-10W	1.090	4.5	4.5	3.0	2.5
AC97097-14W	1.095	4.0	4.5	2.5	1.5
AC97097-19W	1.084	4.5	3.5	2.5	2.0
AC98016-5W	1.095	5.0	4.5	3.5	2.0
AC98016-6W	1.100	4.5	4.0	2.0	2.5
AC98029-1W	1.095	5.0	5.0	4.0	4.0
AC98029-2RU	1.097	4.0	4.0	3.0	3.5
AC98029-4W	1.093	4.5	5.0	4.0	4.0
AC98030-1W	1.092	4.0	5.0	1.5	3.0
AC98049-1W	1.094	5.0	4.5	3.0	3.0
AC98051-1W	1.091	5.0	5.0	4.0	4.0
AC98051-2W	1.096	4.5	4.5	3.5	3.0
AC98051-5RU	1.096	4.5	3.5	2.5	1.5
AC98056-1RU	1.092	5.0	5.0	3.0	3.0
AC98056-2W/Y	1.099	4.5	3.5	1.5	2.5
AC98069-2W/Y	1.102	5.0	5.0	3.5	3.0
AC98069-3W/Y	1.089	5.0	5.0	4.5	5.0
AC98069-7W/Y	1.092	5.0	5.0	4.5	5.0
AC98385-2W	1.097	4.5	3.5	1.5	2.0
AC98385-3W	1.093	5.0	4.0	2.5	1.5
AC98388-4W	1.093	5.0	4.5	1.5	1.5
AC98400-5W	1.106	3.5	3.5	1.5	1.5
ATDC9801-3P	1.100	3.5	3.5	1.0	1.5
BCO894-2W	1.081	4.5	4.5	2.0	2.0
CO95051-7W	1.101	3.5	4.0	1.5	1.5
CO95070-7W	1.096	3.5	4.0	2.5	2.0

Table 10B continued on the next page

Table 10B (cont'd) Chip color[1] after various storage regimes and specific gravity of San Luis Valley chipping study clones - 2002.

Clone	Specific Gravity	6 wks 40F	6 wks/40F +3 wks/60F	6 wks 50F	6 wks/50F +3 wks/60F
CO96076-7W	1.078	4.5	4.0	1.5	1.5
CO96083-7RU	1.087	4.5	4.0	1.5	2.0
CO96141-4W	1.087	4.0	4.0	2.0	2.5
CO96142-4W	1.094	5.0	5.0	1.5	3.0
CO96293-4RU	1.107	4.5	4.0	1.5	2.0
CO97043-14W	1.083	4.0	4.0	1.0	1.5
CO97043-15W	1.079	4.5	4.0	3.0	2.0
CO97065-7W	1.101	4.0	4.0	1.5	2.0
CO97071-1W	1.093	4.0	4.0	2.0	2.5
CO98070-1W	1.083	4.0	4.5	3.0	3.0
CO98070-12W	1.092	5.0	4.0	3.5	3.0
CO98096-11W	1.086	5.0	5.0	4.0	3.5
CO98096-22W	1.084	4.0	4.5	2.5	2.5
CO98126-5W	1.077	5.0	5.0	4.0	4.0
CO98169-5W	1.087	4.5	4.5	4.0	3.0
CO98169-9W	1.086	4.5	4.5	3.5	3.5
CO98169-14W	1.083	5.0	4.5	3.5	3.0
CO98173-5W	1.091	4.5	5.0	3.5	4.0
CO98177-1W	1.082	4.0	4.5	3.0	3.0
CO98178-5W	1.083	4.5	4.5	3.0	4.0
CO98178-7W	1.087	4.5	4.5	3.5	2.5
CO98241-4W	1.092	4.5	4.0	2.0	2.5
CO98255-2W	1.084	4.0	4.0	2.0	2.5
CO98255-4W	1.083	4.0	4.0	2.0	2.5
CO98277-4W	1.077	4.0	4.5	2.5	2.5
CO98301-1W	1.082	4.5	4.0	2.5	3.0
CO98303-8W	1.079	3.5	2.5	1.5	2.5
NDC6084C-2W	1.100	3.0	2.5	2.0	3.0
VC1002-3W/Y	1.092	5.0	4.5	2.5	2.0
VC1009-1W/Y	1.083	4.5	5.0	4.0	3.5
Atlantic	1.097	4.0	3.5	2.5	3.0
Chipeta	1.085	4.5	4.0	2.5	4.0
Snowden	1.099	4.5	3.0	1.5	2.0

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

Table 11A. Yield, grade and tuber shape for Advanced and Western Regional Chipping Trial entries - 2002.

Clone	Yield (Cwt/A) Total	US #1 Total	US #1 %	US #1 >10 oz	US #1 <4 oz	Tuber Shape[1]
A91790-13	611	388	62.9	74	208	R
AC87340-2W	553	364	65.7	42	183	R
AC94296-5W	501	362	71.8	87	136	R
BO766-3	557	461	82.6	115	91	R
BC0894-2W	442	258	58.0	32	179	Ov
CO95051-7W	466	406	87.1	96	52	Ov
CO95070-7W	435	228	51.9	31	201	R
CO96076-7W	519	336	64.9	60	179	R
CO96083-7RU	415	332	79.9	97	79	R
CO96124-19W	508	362	71.1	92	136	R
CO96141-4W	460	373	81.0	108	78	Ov
CO96142-4W	503	299	59.1	66	197	R
CO96293-4RU	630	444	70.2	56	177	Ov
NDTX4930-5W	492	379	76.6	133	86	Ov
NY112	649	569	87.7	263	67	Ov
Atlantic	567	452	79.6	151	83	Ov
Chipeta	581	435	74.6	196	70	R
Mean	523	379	72.1	100	130	----
LSD[2] (0.05)	77	81	6.8	46	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 - 2002.

Clone	% External Defects[1]	External Defects Observed[2]	% Hollow Heart[3]
A91790-13	2.4	GC,GR*	0.0
AC87340-2W	1.1	GR*	0.0
AC94296-5W	0.7	MS*,GC,GR*	0.0
BO766-3	1.0	MS,GR*	0.8
BC0894-2W	1.1	MS,GC*,GR*	0.0
CO95051-7W	1.6	GC,GR*	0.4
CO95070-7W	1.4	GC*,GR	0.0
CO96076-7W	0.8	MS*,GC*,GR*	0.4
CO96083-7RU	1.1	MS*,GC,GR	0.0
CO96124-19W	1.9	MS,GC*,GR	2.9
CO96141-4W	2.0	MS,GR*	0.0
CO96142-4W	1.4	MS,GR*	0.0
CO96293-4RU	1.4	MS,GC*GR	0.0
NDTX4930-5W	5.4	MS,GC*,GR*	1.6
NY112	2.0	MS,GR*	3.0
Atlantic	5.7	MS,SG,GC*,GR	2.6
Chipeta	13.0	MS,SG,GC*,GR	0.0

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

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

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

Table 11C. Growth characteristics of Advanced and Western Regional Chip Trial entries - 2002.

Clone	% Stand	Emergence Uniformity[1]	Vine Vigor[2]	Stems/ Plant	Vine Size[3]	Vine Type[4]	Vine Maturity[5]
A91790-13	98	4.0	4.5	4.6	3.3	3.0	2.5
AC87340-2W	100	4.0	3.5	3.9	3.0	3.0	2.3
AC94296-5W	100	3.8	3.5	3.3	3.3	3.0	3.0
BO766-3	94	3.5	4.3	3.6	3.8	3.0	3.0
BC0894-2W	100	3.5	3.5	3.7	3.0	2.8	3.0
CO95051-7W	99	3.5	4.0	3.5	3.0	2.3	2.0
CO95070-7W	98	3.8	4.0	2.8	4.3	3.0	3.0
CO96076-7W	94	3.5	3.0	3.0	3.5	3.0	3.3
CO96083-7RU	99	3.5	4.0	4.5	2.5	2.0	1.5
CO96124-19W	98	3.5	3.8	3.9	3.0	3.0	2.3
CO96141-4W	96	3.0	3.0	2.9	2.3	3.0	2.0
CO96142-4W	99	3.8	4.0	3.6	3.5	3.0	3.0
CO96293-4RU	99	3.0	3.0	2.8	2.8	2.5	2.5
NDTX4930-5W	97	3.5	3.8	4.6	2.8	2.5	2.8
NY112	98	4.0	5.0	3.9	3.8	3.0	2.3
Atlantic	96	3.8	3.5	2.9	3.0	3.0	2.0
Chipeta	95	3.3	4.3	2.6	4.0	3.0	3.3
Mean	98	3.6	3.8	3.5	3.2	2.8	2.6
LSD[6] (0.05)	4	0.6	0.5	0.8	0.6	0.4	0.5

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

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

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

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

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

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

Table 11D. Blackspot, storage weight loss, dormancy, and enzymatic browning evaluations for Advanced and Western Regional Chip Trial entries - 2002.

Clone	Blackspot Index[1]			% Weight Loss[2]	Dormancy (Days)[3]	Enzymatic Browning[4]
	Bud End	Stem End	Average			
A91790-13	3.9	3.4	3.7	3.4	63	4.0
AC87340-2W	2.9	3.8	3.4	2.9	63	3.6
AC94296-5W	3.7	2.6	3.2	2.7	91	4.6
BO766-3	3.5	2.1	2.8	2.9	56	3.2
BC0894-2W	4.7	3.4	4.1	3.6	70	3.0
CO95051-7W	3.5	2.0	2.8	5.1	63	3.6
CO95070-7W	4.3	3.1	3.7	3.3	63	3.6
CO96076-7W	3.2	3.3	3.3	3.1	56	4.2
CO96083-7RU	3.3	2.4	2.9	3.5	49	3.8
CO96124-19W	2.8	2.2	2.5	2.1	84	3.2
CO96141-4W	4.1	2.9	3.5	3.1	77	2.8
CO96142-4W	3.8	2.7	3.3	3.4	84	3.6
CO96293-4RU	2.9	2.1	2.5	3.5	56	4.2
NDTX4930-5W	4.0	2.4	3.2	2.7	91	4.0
NY112	3.3	3.0	3.2	3.2	77	3.2
Atlantic	2.9	2.0	2.5	3.2	77	4.6
Chipeta	2.6	1.8	2.2	2.2	84	3.8

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

[2]Tubers were stored at 45F for 93 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 - 2002.

Clone	Specific Gravity	6 wks 40F	6 wks/40F +3 wks/60F	6 wks 50F	6 wks/50F +3 wks/60F
A91790-13	1.091	3.0	2.5	1.5	2.5
AC87340-2W	1.091	3.5	3.5	1.5	2.5
AC94296-5W	1.102	3.5	3.0	2.0	3.0
BO766-3	1.094	4.0	4.5	2.0	3.0
BC0894-2W	1.091	3.5	2.5	2.5	2.5
CO95051-7W	1.102	3.0	2.0	1.0	2.0
CO95070-7W	1.094	3.5	2.5	1.5	2.0
CO96076-7W	1.090	4.0	2.5	2.0	2.5
CO96083-7RU	1.086	4.0	3.0	2.5	2.5
CO96124-19W	1.099	3.5	2.5	1.5	2.5
CO96141-4W	1.092	4.0	3.5	2.0	2.5
CO96142-4W	1.101	3.5	3.5	2.0	2.0
CO96293-4RU	1.104	3.5	2.0	1.5	3.0
NDTX4930-5W	1.102	3.0	2.5	1.5	3.0
NY112	1.097	3.5	2.5	1.5	3.0
Atlantic	1.108	3.5	4.0	2.5	4.0
Chipeta	1.100	4.5	4.0	2.0	3.0

[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 - 2002. Advanced selections that may be released for grower evaluation in 2003 are highlighted.

Clone	Usage[1]	# Trials	Total Yield (Cwt/A)	% US #1	Vine Maturity[2]	Specific Gravity	% External Defects[3]	% Hollow Heart[4]
Russets								
AC87084-3RU	Dual	8	509	89.2	3.4	1.093	2.8	0.3
AC89536-5RU	FM	8	514	80.5	3.1	1.087	3.7	0.4
AC92009-4RU	FM	5	349	89.7	3.1	1.093	1.1	0.0
TC1675-1RU	Dual	5	441	74.1	3.2	1.090	4.2	0.1
AC93026-9RU	**FM**	**4**	**480**	**76.1**	**3.2**	**1.088**	**2.6**	**0.2**
CO93001-11RU	**Dual**	**4**	**435**	**82.8**	**2.5**	**1.078**	**3.7**	**0.5**
CO93016-3RU	**Dual**	**4**	**420**	**73.1**	**3.0**	**1.090**	**0.5**	**1.3**
Centennial Russet	FM	35	294	77.4	3.0	1.080	0.8	0.3
Russet Norkotah	FM	44	374	83.6	1.8	1.077	2.0	0.5
Russet Nugget	Dual	44	419	79.8	3.7	1.092	1.6	0.2
Reds								
CO89097-2R	FM	9	513	82.3	2.9	1.082	3.4	0.4
NDC5281-2R	FM	5	403	46.0	1.9	1.086	0.8	0.0
CO93037-6R	**FM**	**4**	**580**	**67.4**	**3.1**	**1.082**	**3.2**	**0.2**
Sangre	FM	23	472	85.8	2.9	1.073	1.7	1.2
Chippers								
AC87340-2W	Chip	9	492	76.4	3.1	1.084	1.0	0.2
Atlantic	Chip	22	455	85.9	3.1	1.097	3.0	4.5
Chipeta	Chip	21	514	82.1	3.3	1.089	6.2	0.5
Specialty								
CO94165-3P/P	**Spec**	**3**	**509**	**60.8**	**2.1**	**1.082**	**1.4**	**1.6**
CO94183-1R/R	**Spec**	**3**	**407**	**73.5**	**2.5**	**1.079**	**1.7**	**0.0**
All Blue	Spec	3	521	57.9	2.6	1.080	0.8	0.0

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

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

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

[4]Based on tubers greater than 10 ounces.

Figure 4. Photographs of advanced selections - 2002.

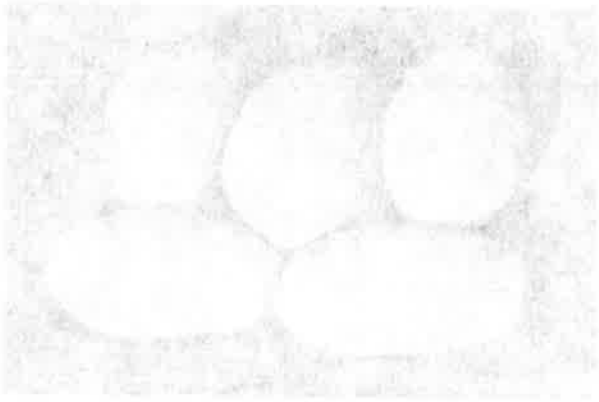


Figure 4 (cont'd). Photographs of advanced selections - 2002.

Figure 4 (cont'd). Photographs of advanced selections - 2002.

Table 13A. Detailed data summary for AC87084-3RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		8	509	440-577
Yield US #1 (Cwt/A)		8	455	335-530
% US #1		8	89.2	76.2-94.3
Yield >10 oz (Cwt/A)		8	189	63-271
Yield <4 oz (Cwt/A)		8	40	18-70
% External Defects[1]		8	2.8	0.5-7.9
% Hollow Heart[2]		8	0.3	0.0-1.9
% Stand		8	97	93-98
Emergence Uniformity		8	3.4	3.0-4.2
Vine Vigor[3]		8	3.8	3.3-4.2
Stems/Plant		8	4.3	2.7-5.2
Vine Size[4]		8	4.4	4.0-5.0
Vine Maturity5		8	3.4	3.0-4.0
Blackspot[6]	Bud End	8	3.0	1.8-4.6
	Stem End	8	3.3	1.9-4.9
	Average	8	3.2	
Weight Loss[7]		8	5.3	4.1-7.6
Dormancy[8]		8	75	68-83
Enzymatic Browning[9]		8	1.9	1.2-3.4
Specific Gravity		8	1.093	1.086-1.101
Fry Color[10]	Harvest	8	1.9	1.0-2.0
	Storage	8	2.4	2.0-3.0
Fry Texture[11]	Harvest	8	3.8	3.0-4.0
	Storage	8	3.8	3.0-4.0

Refer to footnotes on page 76.

Table 13B. Detailed data summary for AC89536-5RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		8	514	367-683
Yield US #1 (Cwt/A)		8	417	255-603
% US #1		8	80.5	69.2-89.5
Yield >10 oz (Cwt/A)		8	122	14-246
Yield <4 oz (Cwt/A)		8	79	50-111
% External Defects[1]		8	3.7	0.7-8.7
% Hollow Heart[2]		8	0.4	0.0-1.6
% Stand		8	98	97-100
Emergence Uniformity		8	3.8	3.0-4.5
Vine Vigor[3]		8	3.2	2.0-3.8
Stems/Plant		8	3.1	2.0-3.6
Vine Size[4]		8	4.0	3.5-4.5
Vine Maturity5		8	3.1	2.5 -3.5
Blackspot[6]	Bud End	9	4.7	4.2-5.0
	Stem End	9	4.3	3.0-5.0
	Average	9	4.5	
Weight Loss[7]		9	5.1	3.6-6.9
Dormancy[8]		9	86	77-106
Enzymatic Browning[9]		9	3.8	3.2-4.2
Specific Gravity		9	1.087	1.079-1.094
Fry Color[10]	Harvest	9	2.4	1.0-4.0
	Storage	9	3.2	3.0-4.0
Fry Texture[11]	Harvest	9	2.9	2.0-4.0
	Storage	9	2.8	2.0-3.0

Refer to footnotes on page 76.

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

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		5	349	332-365
Yield US #1 (Cwt/A)		5	313	290-331
% US #1		5	89.7	86.4-93.3
Yield >10 oz (Cwt/A)		5	98	63-156
Yield <4 oz (Cwt/A)		5	31	23-42
% External Defects[1]		5	1.1	0.0-2.4
% Hollow Heart[2]		5	0.0	0.0-0.0
% Stand		5	98	97-99
Emergence Uniformity		5	2.9	2.0-3.5
Vine Vigor[3]		5	2.4	2.0-3.3
Stems/Plant		5	1.9	1.4-2.4
Vine Size[4]		5	3.7	3.0-4.3
Vine Maturity5		5	3.1	2.8-3.5
Blackspot[6]	Bud End	6	4.4	3.7-5.0
	Stem End	6	3.9	2.5-5.0
	Average	6	4.1	
Weight Loss[7]		6	4.6	3.3-5.4
Dormancy[8]		6	135	113-171
Enzymatic Browning[9]		6	4.0	3.4-4.8
Specific Gravity		6	1.093	1.081-1.102
Fry Color[10]	Harvest	6	1.7	1.0-3.0
	Storage	6	2.2	1.0-3.0
Fry Texture[11]	Harvest	6	3.5	3.0-5.0
	Storage	6	3.3	3.0-4.0

Refer to footnotes on page 76.

Table 13D. Detailed data summary for TC1675-1RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		5	441	409-533
Yield US #1 (Cwt/A)		5	329	275-420
% US #1		5	74.1	64.5-80.4
Yield >10 oz (Cwt/A)		5	73	35-119
Yield <4 oz (Cwt/A)		5	94	68-136
% External Defects[1]		5	4.2	2.7-5.7
% Hollow Heart[2]		5	0.1	0 .0-0.7
% Stand		5	98	95-100
Emergence Uniformity		5	3.1	2.8-3.5
Vine Vigor[3]		5	3.1	2.8-3.5
Stems/Plant		5	3.3	2.4-4.9
Vine Size[4]		5	3.3	3.0-3.8
Vine Maturity5		5	3.2	3.0-3.5
Blackspot[6]	Bud End	6	4.4	3.6-4.9
	Stem End	6	3.5	2.4-4.9
	Average	6	4.0	
Weight Loss[7]		6	2.7	1.6-3.6
Dormancy[8]		6	103	70-115
Enzymatic Browning[9]		6	3.1	2.2-3.6
Specific Gravity		6	1.090	1.080-1.101
Fry Color[10]	Harvest	6	1.0	1.0-1.0
	Storage	6	1.7	1.0-2.0
Fry Texture[11]	Harvest	6	3.5	2.0-4.0
	Storage	6	3.5	2.0-4.0

Refer to footnotes on page 76.

Table 13E. Detailed data summary for AC93026-9RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		4	480	400-633
Yield US #1 (Cwt/A)		4	366	302-494
% US #1		4	76.1	74.1-78.1
Yield >10 oz (Cwt/A)		4	100	58-185
Yield <4 oz (Cwt/A)		4	101	85-116
% External Defects[1]		4	2.6	1.3-3.6
% Hollow Heart[2]		4	0.2	0.0-0.9
% Stand		4	98	96-99
Emergence Uniformity		4	3.1	2.8-3.3
Vine Vigor[3]		4	3.1	2.5-3.8
Stems/Plant		4	3.1	2.2-3.9
Vine Size[4]		4	3.7	3.3-4.0
Vine Maturity5		4	3.2	3.0-3.5
Blackspot[6]	Bud End	5	3.5	2.8-4.5
	Stem End	5	2.6	2.1-3.3
	Average	5	3.1	
Weight Loss[7]		5	4.6	2.7-7.4
Dormancy[8]		5	121	112-134
Enzymatic Browning[9]		5	3.9	3.4-4.6
Specific Gravity		5	1.088	1.080-1.096
Fry Color[10]	Harvest	5	2.6	2.0-3.0
	Storage	5	3.4	3.0-4.0
Fry Texture[11]	Harvest	5	3.0	3.0-3.0
	Storage	5	3.2	3.0-4.0

Refer to footnotes on page 76.

Table 13F. Detailed data summary for CO93001-11RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		4	435	393-518
Yield US #1 (Cwt/A)		4	361	325-436
% US #1		4	82.8	79.3-84.2
Yield >10 oz (Cwt/A)		4	76	59-104
Yield <4 oz (Cwt/A)		4	59	44-69
% External Defects[1]		4	3.7	2.0-6.1
% Hollow Heart[2]		4	0.5	0.0-1.3
% Stand		4	99	97-100
Emergence Uniformity		4	3.6	3.0-4.0
Vine Vigor[3]		4	3.5	3.5-3.5
Stems/Plant		4	4.2	2.8-5.7
Vine Size[4]		4	3.2	2.8-4.0
Vine Maturity5		4	2.5	2.0-3.0
Blackspot[6]	Bud End	5	4.4	3.3-5.0
	Stem End	5	3.9	3.4-4.8
	Average	5	4.1	
Weight Loss[7]		5	6.1	3.9-8.1
Dormancy[8]		5	63	51-71
Enzymatic Browning[9]		5	2.6	1.6-3.4
Specific Gravity		5	1.078	1.072-1.086
Fry Color[10]	Harvest	5	1.0	1.0-1.0
	Storage	5	1.2	1.0-2.0
Fry Texture[11]	Harvest	5	2.6	2.0-3.0
	Storage	5	3.2	3.0-4.0

Refer to footnotes on page 76.

Table 13G. Detailed data summary for CO93016-3RU.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		4	420	383-506
Yield US #1 (Cwt/A)		4	310	256-396
% US #1		4	73.1	66.4-78.0
Yield >10 oz (Cwt/A)		4	46	22-62
Yield <4 oz (Cwt/A)		4	109	96-128
% External Defects[1]		4	0.5	0.0-1.0
% Hollow Heart[2]		4	1.3	0.0-3.0
% Stand		4	98	96-100
Emergence Uniformity		4	3.8	3.5-4.0
Vine Vigor[3]		4	3.6	3.0-4.0
Stems/Plant		4	3.9	2.8-5.4
Vine Size[4]		4	3.3	3.0-4.0
Vine Maturity5		4	3.0	2.3-3.8
Blackspot[6]	Bud End	5	3.3	2.7-3.7
	Stem End	5	3.0	2.6-3.2
	Average	5	3.2	
Weight Loss[7]		5	5.3	3.8-6.5
Dormancy[8]		5	66	58-71
Enzymatic Browning[9]		5	2.0	1.2-2.4
Specific Gravity		5	1.090	1.086-1.095
Fry Color[10]	Harvest	5	1.4	1.0-2.0
	Storage	5	2.4	1.0-3.0
Fry Texture[11]	Harvest	5	3.4	3.0-4.0
	Storage	5	3.4	3.0-4.0

Refer to footnotes on page 76.

Table 13H. 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		15	3.0	2.5-3.5
Blackspot[6]	Bud End	35	4.8	3.7-5.0
	Stem End	35	4.8	4.2-5.0
	Average	38	4.8	
Weight Loss[7]		38	6.6	2.7-9.0
Dormancy[8]		31	88	57-123
Enzymatic Browning[9]		33	4.0	3.2-5.0
Specific Gravity		45	1.080	1.069-1.092
Fry Color[10]	Harvest	37	3.7	3.0-4.0
	Storage	37	4.0	3.0-5.0
Fry Texture[11]	Harvest	37	2.4	1.0-4.0
	Storage	37	2.2	1.0-3.0

Refer to footnotes on page 76.

Table 13I. Detailed data summary for Russet Norkotah.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		44	374	174-557
Yield US #1 (Cwt/A)		44	313	144-444
% US #1		44	83.6	77.8-92.2
Yield >10 oz (Cwt/A)		44	103	23-212
Yield <4 oz (Cwt/A)		44	53	22-88
% External Defects[1]		44	2.0	0.4-5.3
% Hollow Heart[2]		44	0.5	0.0-2.8
% Stand		44	97	76-100
Emergence Uniformity		35	3.2	1.0-4.0
Vine Vigor[3]		35	3.1	1.5-4.0
Stems/Plant		40	3.6	2.5-4.8
Vine Size[4]		35	2.4	1.0-4.5
Vine Maturity5		44	1.8	1.0-3.3
Blackspot[6]	Bud End	43	4.7	2.9-5.0
	Stem End	43	4.5	3.4-5.0
	Average	44	4.6	
Weight Loss		44	4.3	1.0-7.1
Dormancy[8]		43	96	78-116
Enzymatic Browning[9]		43	3.1	2.2-4.8
Specific Gravity		47	1.077	1.066-1.091
Fry Color[10]	Harvest	44	2.2	1.0-4.0
	Storage	44	2.5	1.0-4.0
Fry Texture[11]	Harvest	44	2.7	2.0-4.0
	Storage	44	2.6	1.0-4.0

Refer to footnotes on page 76.

Table 13J. Detailed data summary for Russet Nugget.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		44	419	284-585
Yield US #1 (Cwt/A)		44	337	225-518
% US #1		44	79.8	68.0-93.0
Yield >10 oz (Cwt/A)		44	86	11-258
Yield <4 oz (Cwt/A)		44	76	30-133
% External Defects[1]		44	1.6	0.1-4.3
% Hollow Heart[2]		44	0.2	0.0-1.2
% Stand		44	98	90-100
Emergence Uniformity		34	3.3	3.0-4.0
Vine Vigor[3]		34	3.2	3.0-4.0
Stems/Plant		40	3.3	2.1-5.1
Vine Size[4]		34	4.2	3.3-5.0
Vine Maturity5		44	3.7	1.8-4.3
Blackspot[6]	Bud End	49	4.6	3.0-5.0
	Stem End	49	4.4	2.1-5.0
	Average	52	4.5	
Weight Loss[7]		52	3.5	1.7-5.5
Dormancy[8]		47	93	57-116
Enzymatic Browning[9]		48	4.0	3.2-4.6
Specific Gravity		54	1.092	1.072-1.110
Fry Color[10]	Harvest	52	1.6	0.5-3.0
	Storage	52	2.1	1.0-3.0
Fry Texture[11]	Harvest	52	4.0	2.0-5.0
	Storage	52	3.7	2.0-5.0

Refer to footnotes on page 76.

Table 13K. Detailed data summary for CO89097-2R.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		9	513	390-641
Yield US #1 (Cwt/A)		9	425	310-530
% US #1		9	82.3	75.6-90.7
Yield >10 oz (Cwt/A)		9	140	69-249
Yield <4 oz (Cwt/A)		9	70	46-98
% External Defects[1]		9	3.4	0.2-6.5
% Hollow Heart[2]		9	0.4	0.0-0.8
% Stand		9	97	92-100
Emergence Uniformity		9	3.2	2.5-3.8
Vine Vigor[3]		9	3.0	2.2-3.5
Stems/Plant		9	3.4	2.3-4.5
Vine Size[4]		9	3.4	3.0-4.0
Vine Maturity5		9	2.9	2.2-3.8
Blackspot[6]	Bud End	10	3.9	2.1-4.8
	Stem End	10	3.8	2.4-5.0
	Average	10	3.9	
Weight Loss[7]		10	6.3	3.7-8.2
Dormancy[8]		10	64	54-78
Enzymatic Browning[9]		10	4.1	3.4-4.8
Specific Gravity		10	1.082	1.071-1.086
Fry Color[10]	Harvest	10	2.3	1.0-3.0
	Storage	9	2.8	2.0-3.0
Fry Texture[11]	Harvest	10	2.8	2.0-4.0
	Storage	9	2.8	2.0-3.0

Refer to footnotes on page 76.

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

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		5	403	321-474
Yield US #1 (Cwt/A)		5	185	115-272
% US #1		5	46.0	28.4-61.2
Yield >10 oz (Cwt/A)		5	4	0-14
Yield <4 oz (Cwt/A)		5	214	123-289
% External Defects[1]		5	0.8	0.3-1.8
% Hollow Heart[2]		5	0.0	0.0-0.0
% Stand		5	97	96-99
Emergence Uniformity		5	3.5	3.3-3.8
Vine Vigor[3]		5	3.3	3.0-4.0
Stems/Plant		5	4.6	2.9-6.4
Vine Size[4]		5	3.3	2.8-3.8
Vine Maturity5		5	1.9	1.0-3.0
Blackspot[6]	Bud End	6	3.4	2.7-4.7
	Stem End	6	3.1	1.8-4.2
	Average	6	3.3	
Weight Loss[7]		6	7.9	5.2-10.0
Dormancy[8]		6	81	70-101
Enzymatic Browning[9]		6	1.4	1.0-2.4
Specific Gravity		6	1.086	1.080-1.096
Fry Color[10]	Harvest	6	1.8	1.0-3.0
	Storage	6	2.2	1.0-4.0
Fry Texture[11]	Harvest	6	3.0	2.0-4.0
	Storage	6	2.5	1.0-3.0

Refer to footnotes on page 76.

Table 13M. Detailed data summary for CO93037-6R.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		4	580	512-728
Yield US #1 (Cwt/A)		4	393	344-497
% US #1		4	67.4	59.9-71.1
Yield >10 oz (Cwt/A)		4	77	30-146
Yield <4 oz (Cwt/A)		4	168	134-208
% External Defects[1]		4	3.2	1.1-6.6
% Hollow Heart[2]		4	0.2	0.0-0.3
% Stand		4	95	93-100
Emergence Uniformity		4	3.4	3.3-4.0
Vine Vigor[3]		4	3.4	3.3-3.8
Stems/Plant		4	4.5	3.3-6.7
Vine Size[4]		4	4.2	4.0-4.5
Vine Maturity5		4	3.1	3.0-3.3
Blackspot[6]	Bud End	5	2.9	1.8-3.9
	Stem End	5	2.4	1.3-3.8
	Average	5	2.7	
Weight Loss[7]		5	4.9	3.5-5.9
Dormancy[8]		5	112	98-128
Enzymatic Browning[9]		5	3.2	2.4-4.2
Specific Gravity		5	1.082	1.075-1.087
Fry Color[10]	Harvest	5	2.6	2.0-3.0
	Storage	5	3.8	3.0-4.0
Fry Texture[11]	Harvest	5	2.0	1.0-3.0
	Storage	5	2.0	2.0-2.0

Refer to footnotes on page 76.

Table 13N. Detailed data summary for Sangre.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		23	472	364-616
Yield US #1 (Cwt/A)		23	406	305-548
% US #1		23	85.8	72.2-92.8
Yield >10 oz (Cwt/A)		23	140	35-319
Yield <4 oz (Cwt/A)		23	58	30-117
% External Defects[1]		23	1.7	0.0-5.7
% Hollow Heart[2]		23	1.2	0.0-8.2
% Stand		23	97	92-100
Emergence Uniformity		13	3.3	2.5-4.8
Vine Vigor[3]		13	2.7	1.8-4.3
Stems/Plant		23	3.1	1.9-4.7
Vine Size[4]		13	3.8	3.0-4.0
Vine Maturity5		23	2.9	1.5-4.0
Blackspot[6]	Bud End	32	4.1	2.4-5.0
	Stem End	32	4.4	2.5-5.0
	Average	33	4.2	
Weight Loss[7]		33	3.5	1.6-5.1
Dormancy[8]		29	92	71-109
Enzymatic Browning[9]		30	3.2	1.8-4.8
Specific Gravity		33	1.073	1.059-1.085
Fry Color[10]	Harvest	32	3.2	1.0-4.0
	Storage	32	3.3	1.0-4.0
Fry Texture[11]	Harvest	32	2.6	1.0-4.0
	Storage	32	2.4	1.0-3.0

Refer to footnotes on page 76.

Table 13O. Detailed data summary for AC87340-2W.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		9	492	429-553
Yield US #1 (Cwt/A)		9	376	305-464
% US #1		9	76.4	65.7-86.1
Yield >10 oz (Cwt/A)		9	73	26-120
Yield <4 oz (Cwt/A)		9	111	55-183
% External Defects[1]		9	1.0	0.1-1.7
% Hollow Heart[2]		9	0.2	0.0-1.1
% Stand		9	98	97-100
Emergence Uniformity		9	3.6	3.0-4.0
Vine Vigor[3]		9	3.2	2.5-4.0
Stems/Plant		9	3.7	2.6-4.8
Vine Size[4]		9	3.1	2.8-3.5
Vine Maturity5		9	3.1	2.3-3.8
Blackspot[6]	Bud End	18	3.5	2.4-4.8
	Stem End	18	3.9	2.0-5.0
	Average	18	3.7	
Weight Loss[7]		18	4.7	2.7-6.9
Dormancy[8]		18	74	49-93
Enzymatic Browning[9]		18	3.7	1.8-4.4
Specific Gravity		19	1.084	1.075-1.094
Chip Color[10]	40	19	3.6	2.0-5.0
	40R	19	2.9	1.0-5.0
	50	19	1.5	1.0-2.5
	50R	19	1.7	1.0-3.0

Refer to footnotes on page 76.

Table 13P. Detailed data summary for Atlantic.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		22	455	307-597
Yield US #1 (Cwt/A)		22	389	265-512
% US #1		22	85.9	79.0-93.2
Yield >10 oz (Cwt/A)		22	143	58-290
Yield <4 oz (Cwt/A)		22	50	22-96
% External Defects[1]		22	3.0	0.1-9.1
% Hollow Heart[2]		22	4.5	0.3-16.4
% Stand		22	97	92-99
Emergence Uniformity		16	3.5	3.0-4.3
Vine Vigor[3]		16	3.6	3.0-4.0
Stems/Plant		22	3.1	2.2-4.2
Vine Size[4]		16	3.1	2.2-4.0
Vine Maturity5		22	3.1	2.0-4.0
Blackspot[6]	Bud End	31	3.0	1.8-5.0
	Stem End	31	2.6	1.4-4.3
	Average	32	2.8	
Weight Loss[7]		32	5.1	2.6-7.9
Dormancy[8]		29	88	64-116
Enzymatic Browning[9]		30	4.5	3.8-5.0
Specific Gravity		33	1.097	1.083-1.120
Chip Color[10]	40	33	3.8	2.0-5.0
	40R	33	3.3	1.5-4.5
	50	33	2.3	1.0-3.5
	50R	33	2.3	1.0-4.0

Refer to footnotes on page 76.

Table 13Q. Detailed data summary for Chipeta.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		21	514	399-757
Yield US #1 (Cwt/A)		21	423	306-606
% US #1		21	82.1	70.6-90.4
Yield >10 oz (Cwt/A)		21	156	52-388
Yield <4 oz (Cwt/A)		21	58	22-119
% External Defects[1]		21	6.2	1.2-13.0
% Hollow Heart[2]		21	0.5	0.0-3.5
% Stand		21	98	95-100
Emergence Uniformity		14	3.4	3.0-4.3
Vine Vigor[3]		14	3.8	3.2-4.5
Stems/Plant		20	3.5	2.5-4.9
Vine Size[4]		14	4.1	4.0-4.5
Vine Maturity5		21	3.3	3.0-4.0
Blackspot[6]	Bud End	29	3.8	2.2-5.0
	Stem End	29	3.4	1.4-4.9
	Average	31	3.7	
Weight Loss[7]		31	3.8	1.9-8.0
Dormancy[8]		27	98	77-118
Enzymatic Browning[9]		28	3.7	2.8-5.0
Specific Gravity		31	1.089	1.076-1.100
Chip Color[10]	40	31	4.4	3.0-5.0
	40R	31	3.5	1.5-5.0
	50	31	2.4	1.0-4.0
	50R	31	2.2	1.0-4.0

Refer to footnotes on page 76.

Table 13R. Detailed data summary for CO94165-3P/P.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		3	509	450-606
Yield US #1 (Cwt/A)		3	315	203-401
% US #1		3	60.8	43.6-72.3
Yield >10 oz (Cwt/A)		3	44	15-61
Yield <4 oz (Cwt/A)		3	187	122-244
% External Defects[1]		3	1.4	0.9-1.7
% Hollow Heart[2]		3	1.6	0.5-3.4
% Stand		3	99	98-99
Emergence Uniformity		3	3.8	3.5-4.0
Vine Vigor[3]		3	3.8	3.8-4.0
Stems/Plant		3	3.7	2.9-4.7
Vine Size[4]		3	2.8	2.3-3.0
Vine Maturity5		3	2.1	1.5-2.8
Blackspot[6]	Bud End	---		
	Stem End	---		
	Average	---		
Weight Loss[7]		6	3.9	2.9-4.6
Dormancy[8]		6	76	63-85
Enzymatic Browning[9]		---		
Specific Gravity		6	1.082	1.076-1.085
Chip Color[10]	40	---		
	40R	---		
	50	---		
	50R	---		

Refer to footnotes on page 76.

Table 13S. Detailed data summary for CO94183-1R/R.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		3	407	385-449
Yield US #1 (Cwt/A)		3	300	261-354
% US #1		3	73.5	67.2-78.8
Yield >10 oz (Cwt/A)		3	32	9-63
Yield <4 oz (Cwt/A)		3	100	91-116
% External Defects[1]		3	1.7	0.9-2.4
% Hollow Heart[2]		3	0.0	0.0-0.0
% Stand		3	97	96-100
Emergence Uniformity		3	3.7	3.0-4.3
Vine Vigor[3]		3	2.5	2.0-3.0
Stems/Plant		3	3.3	2.7-4.2
Vine Size[4]		3	3.0	2.5-4.0
Vine Maturity5		3	2.5	1.5-3.5
Blackspot[6]	Bud End	6	2.4	1.8-3.1
	Stem End	6	2.1	1.5-2.6
	Average	6	2.2	
Weight Loss[7]		6	4.9	3.7-5.4
Dormancy[8]		6	93	77-105
Enzymatic Browning[9]		---		
Specific Gravity		6	1.079	1.074-1.084
Chip Color[10]	40	---		
	40R	---		
	50	---		
	50R	---		

Refer to footnotes on page 76.

Table 13T. Detailed data summary for All Blue.

Variable		# Trials	Mean	Range
Total Yield (Cwt/A)		3	521	460-639
Yield US #1 (Cwt/A)		3	301	248-359
% US #1		3	57.9	54.0-63.6
Yield >10 oz (Cwt/A)		3	38	23-50
Yield <4 oz (Cwt/A)		3	216	159-280
% External Defects[1]		3	0.8	0.1-1.7
% Hollow Heart[2]		3	0.0	0.0-0.0
% Stand		3	98	97-99
Emergence Uniformity		3	3.3	2.8-3.8
Vine Vigor[3]		3	3.5	3.2-4.0
Stems/Plant		3	3.2	2.5-4.1
Vine Size[4]		3	3.2	3.0-3.3
Vine Maturity5		3	2.6	2.2-3.0
Blackspot[6]	Bud End	2	3.8	3.6-3.9
	Stem End	2	2.4	2.3-2.5
	Average	2	3.1	
Weight Loss[7]		3	3.4	2.1-4.8
Dormancy[8]		3	88	82-99
Enzymatic Browning[9]		---		
Specific Gravity		3	1.080	1.076-1.084
Chip Color[10]	40	---		
	40R	---		
	50	---		
	50R	---		

Refer to footnotes on page 76.

Footnotes for Tables 13A-T:

[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 twelve-hills non-replicated plots in Corvallis, Oregon - 2002.

Clone	Foliar Infection Rating[1] 9/20/02	9/27/02	% Tuber Infection[2]	Parentage Female	Male
AC95063-3RU	8	8	20	B0767-2	Brador
AC95522-1W	1	7	0	AWN86514-2	A85519-3
AC98801-1RU	1	8	50	A91178-4	PI583331
AC96812-2RU[3]	3	7	0	AWN86514-2	A9014-2
AC96848-2RU	**1**	**4**	**0**	**COA90064-6**	**B0718-3**
AC96848-4RU	6	9	20	COA90064-6	B0718-3
AC96897-1W	6	9	75	PI583331	A91746-8
AC96897-3W	**2**	**3**	**30**	**PI583331**	**A91746-8**
AC96897-4W/Y	**3**	**5**	**30**	**PI583331**	**A91746-8**
AC96897-5W	**1**	**5**	**0**	**PI583331**	**A91746-8**
AC97019-1RU	**2**	**6**	**0**	**A90621-4**	**B0718-3**
AC97023-2W	8	9	20	A91790-13	B0718-3
AC97023-4W	5	9	67	A91790-13	B0718-3
AC97068-1RU	6	9	60	AWN86514-2	A9014-2
AC97068-2RU	6	9	30	AWN86514-2	A9014-2
AC97069-1W	**1**	**5**	**10**	**AWN86514-2**	**A90609-6**
AC98002-2RU	6	9	0	A90586-11	A9308-5
AC98002-4RU	**1**	**2**	**10**	**A90586-11**	**A9308-5**
AC98002-5RU	**2**	**4**	**0**	**A90586-11**	**A9308-5**
AC98002-6RU	8	9	0	A90586-11	A9308-5
AC98002-9RU	8	9	0	A90586-11	A9308-5
AC98006-1W	9	9	0	A9520-37	A9308-5
AC98016-5W	**4**	**6**	**10**	**A9553-55**	**NDA5698-8**
AC98016-6W	**2**	**4**	**0**	**A9553-55**	**NDA5698-8**
AC98019-1RU	**2**	**6**	**0**	**A9553-61**	**A90603-3**
AC98019-4RU	8	9	0	A9553-61	A90603-3
AC98029-1W	2	7	10	A9553-61	NDA5698-8
AC98029-2RU	**4**	**6**	**10**	**A9553-61**	**NDA5698-8**
AC98029-4W	**1**	**6**	**0**	**A9553-61**	**NDA5698-8**
AC98030-1W	**3**	**6**	**40**	**A9553-61**	**NDO1496-1**
AC98041-1RU	7	9	20	B0767-2	A90603-3
AC98043-2RU	**1**	**1**	**10**	**B0767-2**	**A9308-5**
AC98049-1W	**2**	**6**	**0**	**G6582-3**	**A91790-13**
AC98051-1W	7	9	50	G6582-3	NDO1496-1
AC98051-2W	**1**	**5**	**0**	**G6582-3**	**NDO1496-1**

Table 14 continued on the next page.

Table 14 (cont'd). Late blight foliar and tuber infection levels for Colorado selections planted in twelve-hills non-replicated plots in Corvallis, Oregon - 2002.

Clone	Foliar Infection Rating[1] 9/20/02	9/27/02	% Tuber Infection[2]	Parentage Female	Male
AC98051-5RU	6	9	30	G6582-3	NDO1496-1
AC98056-1RU	**4**	**5**	**0**	**J138A4**	**A9308-5**
AC98056-2W	8	9	0	J138A4	A9308-5
AC98059-1P	2	8	10	J138A4	A93456-6R
AC98059-2R	**1**	**3**	**0**	**J138A4**	**A93456-6R**
AC98059-3R	1	9	40	J138A4	A93456-6R
AC98059-4P	**2**	**5**	**10**	**J138A4**	**A93456-6R**
AC98059-5R	9	9	100	J138A4	A93456-6R
AC98059-6R	**1**	**2**	**10**	**J138A4**	**A93456-6R**
AC98059-7R	9	9	10	J138A4	A93456-6R
AC98069-2W/Y	3	9	0	Bzura	MSG274-3
AC98069-3W/Y	9	9	0	Bzura	MSG274-3
AC98069-7W/Y	2	9	0	Bzura	MSG274-3
PAC99N15-1RU	**1**	**2**	**0**	**A90586-11**	**A77715-6**

[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.

[3]Bolded clones has significant levels of foliar late blight resistance.

APPENDIX 1. Cultural management information for the Potato Breeding and Selection Program's trials at the San Luis Valley Research Center - 2002.

LOCATION: San Luis Valley Research Center

SOIL TYPE: Sandy Loam (Dunul cobbly sandy loam)

DATE:

Planted - 5/16/02
Hilled - 5/29/02
Vines Killed - 9/03/02 (sulfuric acid - 28 gal/A)
Harvested - 9/30/02

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:

5/06/02 - 80 lbs N + 70 lbs P_2O_5 + 40 lbs K_20 +18lbs S + 1 lb Zn/A (liquid applied in-row)
7/03/02 - 30 lbs N (fertigated)
7/17/02 - 15 lbs N (fertigated)
7/25/02 - 15 lbs N (fertigated)
Total fertilizer applied: 140 lbs N + 70 lbs P_2O_5 + 40 lbs K_20 +18lbs S + 1 lb Zn/A

IRRIGATION:

Center Pivot -14.1" gross application (application frequency and amount based on ET)
Rainfall - 2.83"

INSECTICIDES APPLIED:

7/04/02- Actara (0.046 lb a.i./A)
7/20/02 - Leverage 2.7 (0.080 lb a.i./A)
8/03/02 - Leverage 2.7 (0.080 lb a.i./A)
8/17/02- Endosulfan 3 EC (1.0 lb a.i./A)

FUNGICIDES APPLIED:

7/13/02- Manex II (1.0 lb a.i./A)
7/20/02 - Quadris (0.1 lb a.i./A)
8/03/02 - Bravo Weather Stik (0.75 lb a.i./A)

HERBICIDES APPLIED:

5/31/02 - Dual Magnum (1.2 lb a.i./A) + Prowl 3.3 EC (0.4 lb a.i./A)
6/28/02 - Select 2 EC (0.12 oz 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.

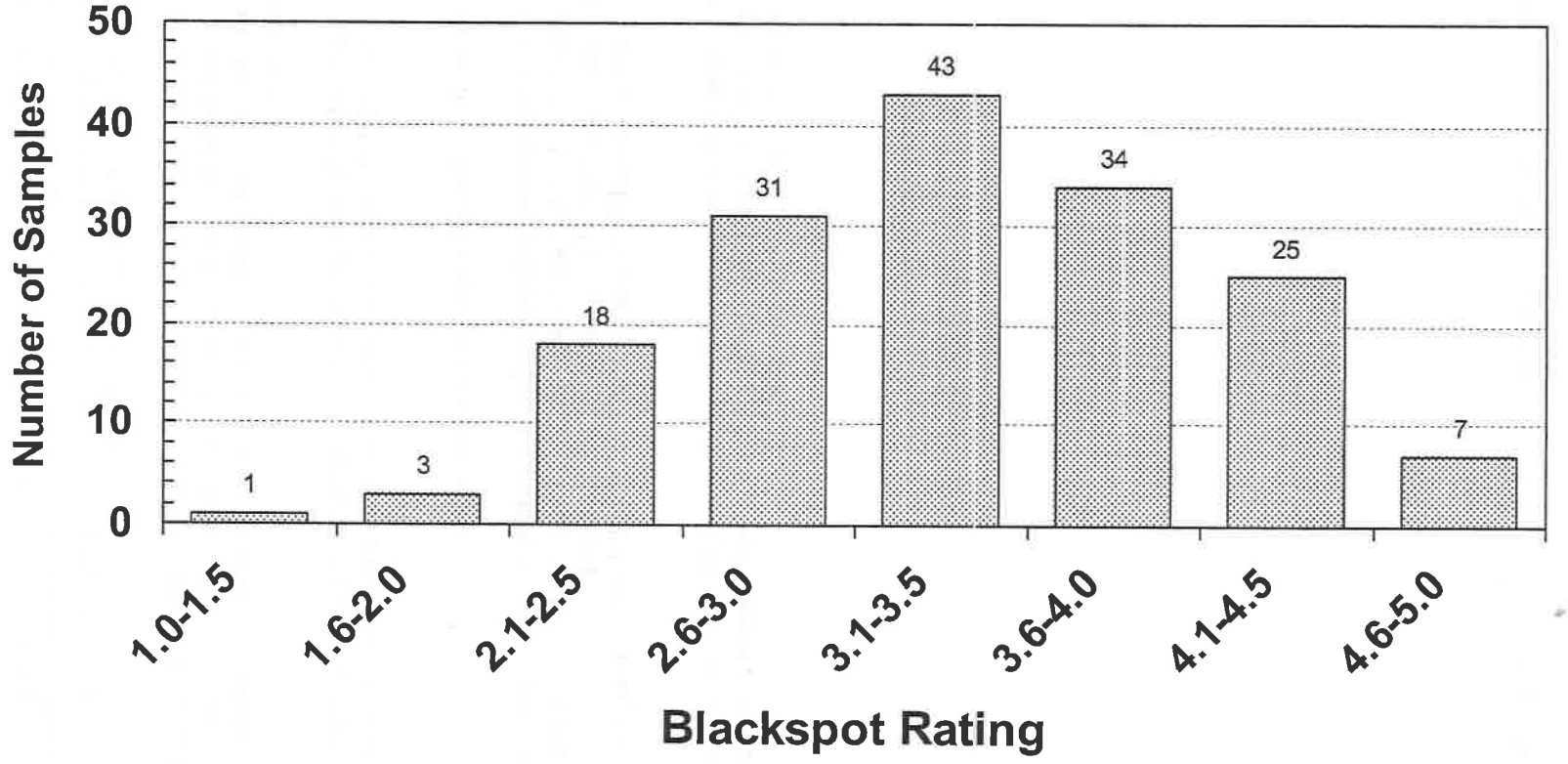
Enzymatic Browning. Five tubers of each clone are cut in half lengthwise and rated for degree of darkening 60 minutes later. Degree of darkening is rated on a 1 to 5 scale, with 5 indicating no discoloration.

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.

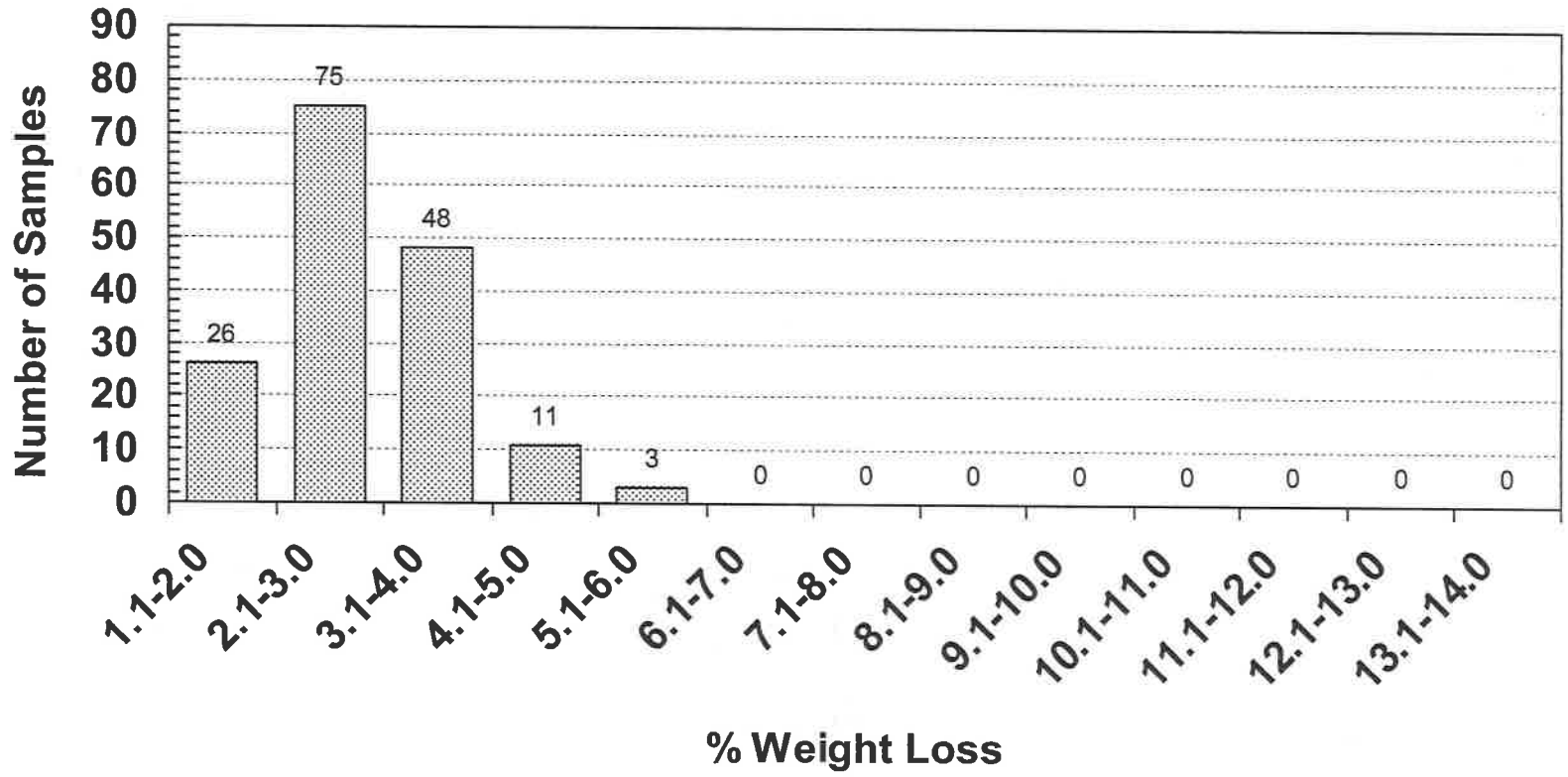
Chip Color. Chip color is determined after an interval of storage at 40 and 50F and after reconditioning for three weeks at 60F. Chips are cooked at 365F until bubbling slows. Chip color is rated using the Snack Food Association 1-5 scale. Ratings $\leq$2.0 are acceptable.

Appendix 3. Blackspot Distribution (162 Samples) - 2002

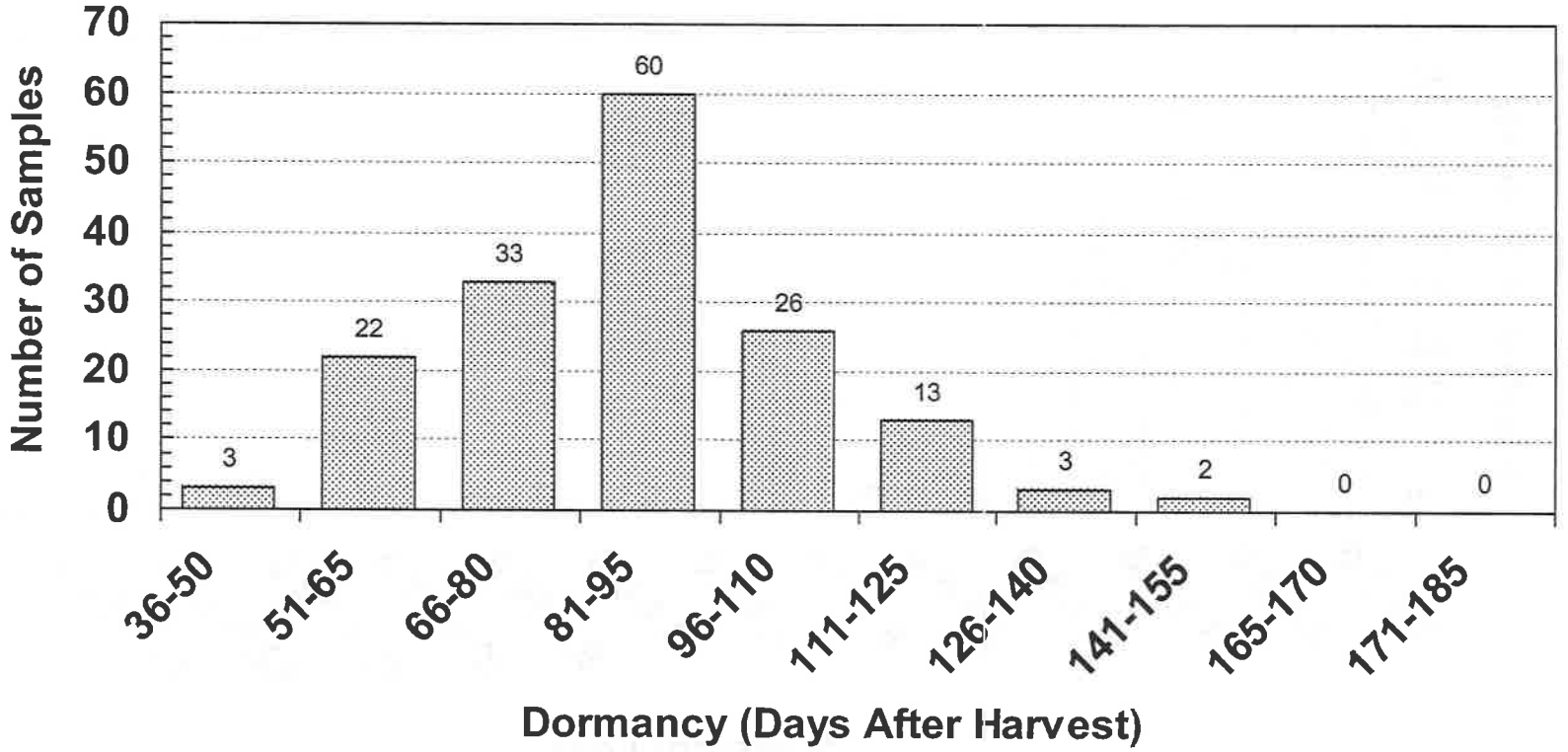


5=No Discoloration

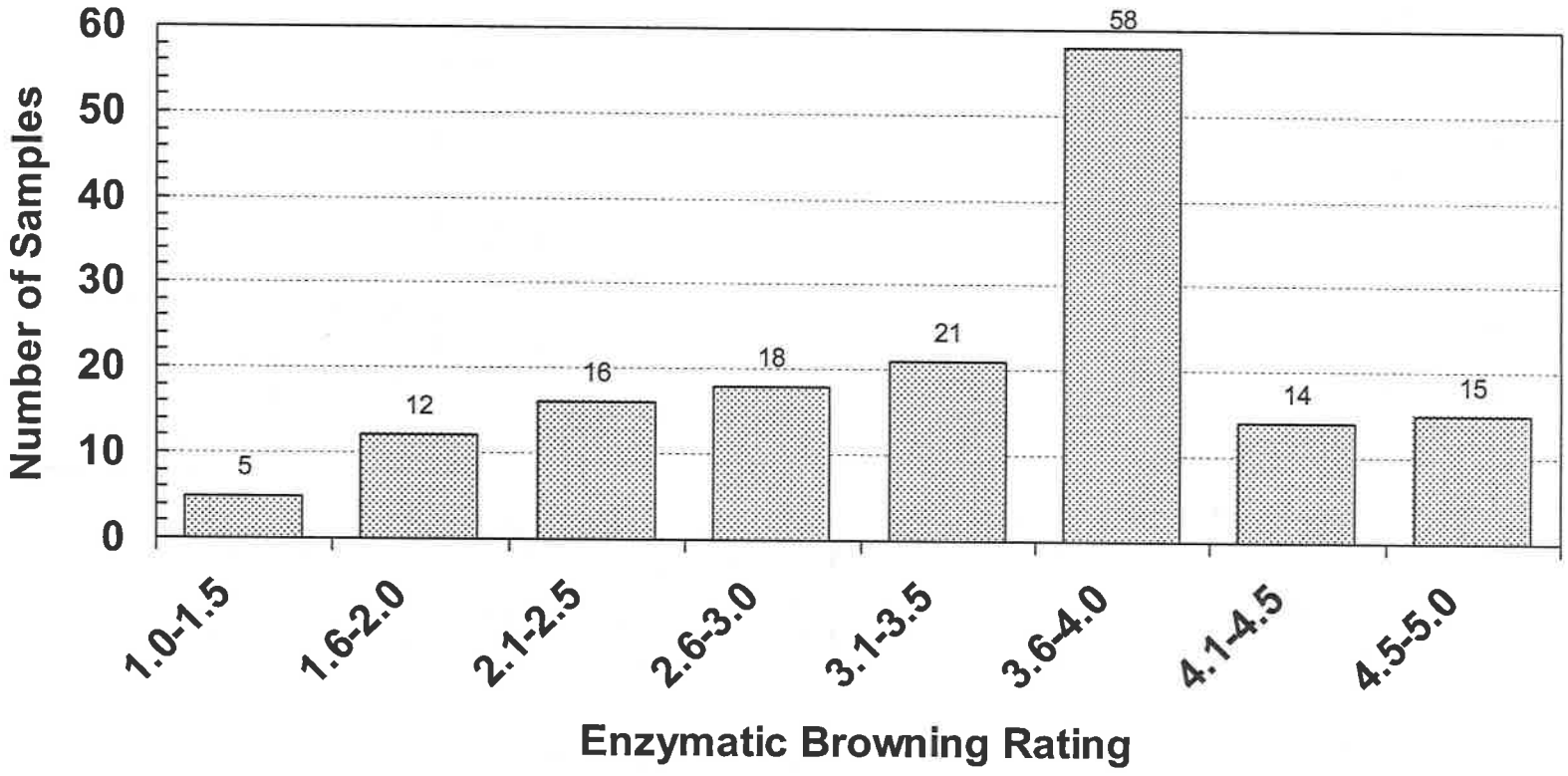
Appendix 4. % Weight Loss Distribution (163 Samples) - 2002



Appendix 5. Dormancy Distribution (163 Samples) - 2002

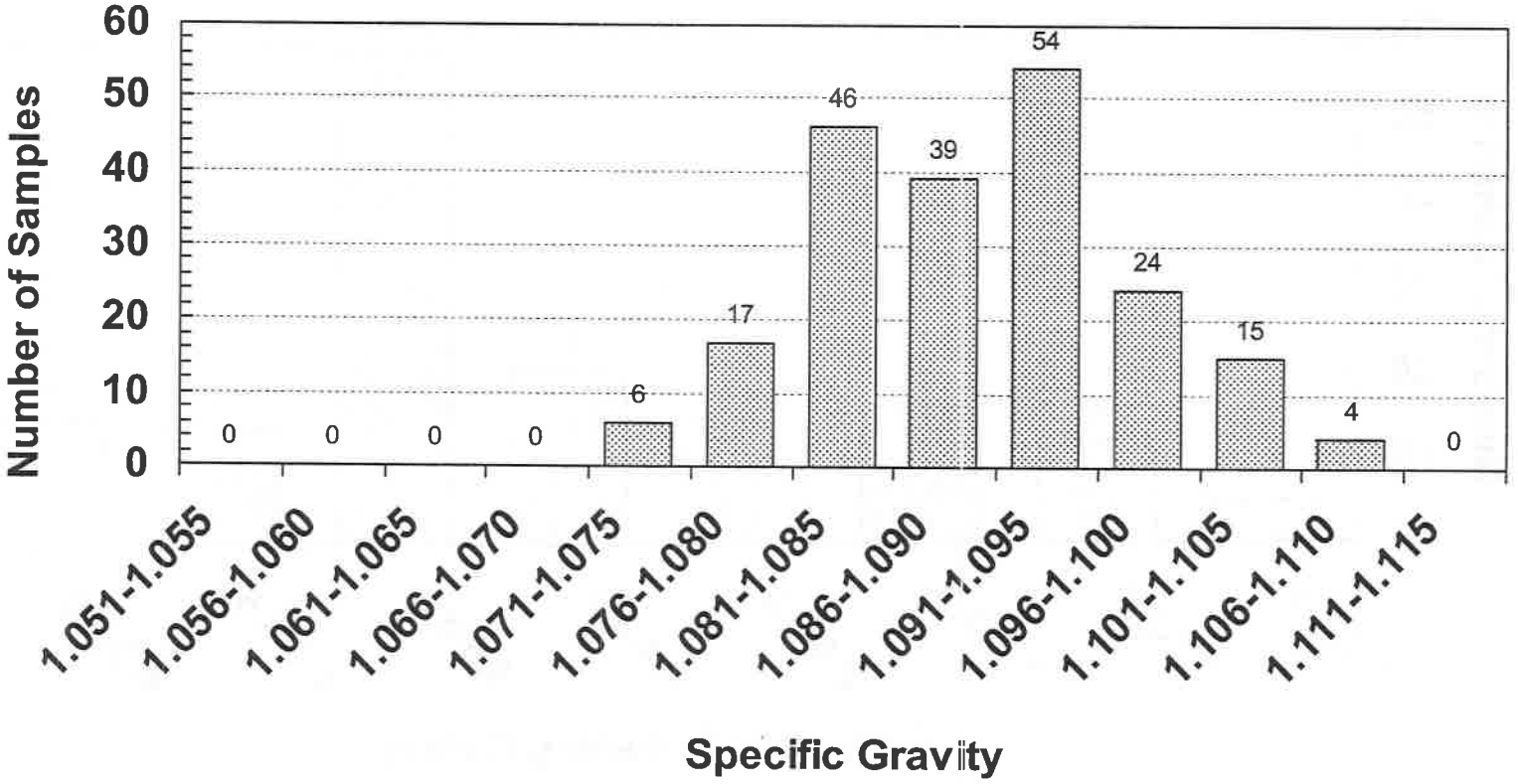


Appendix 6. Enzymatic Browning Distribution (159 Samples) - 2002

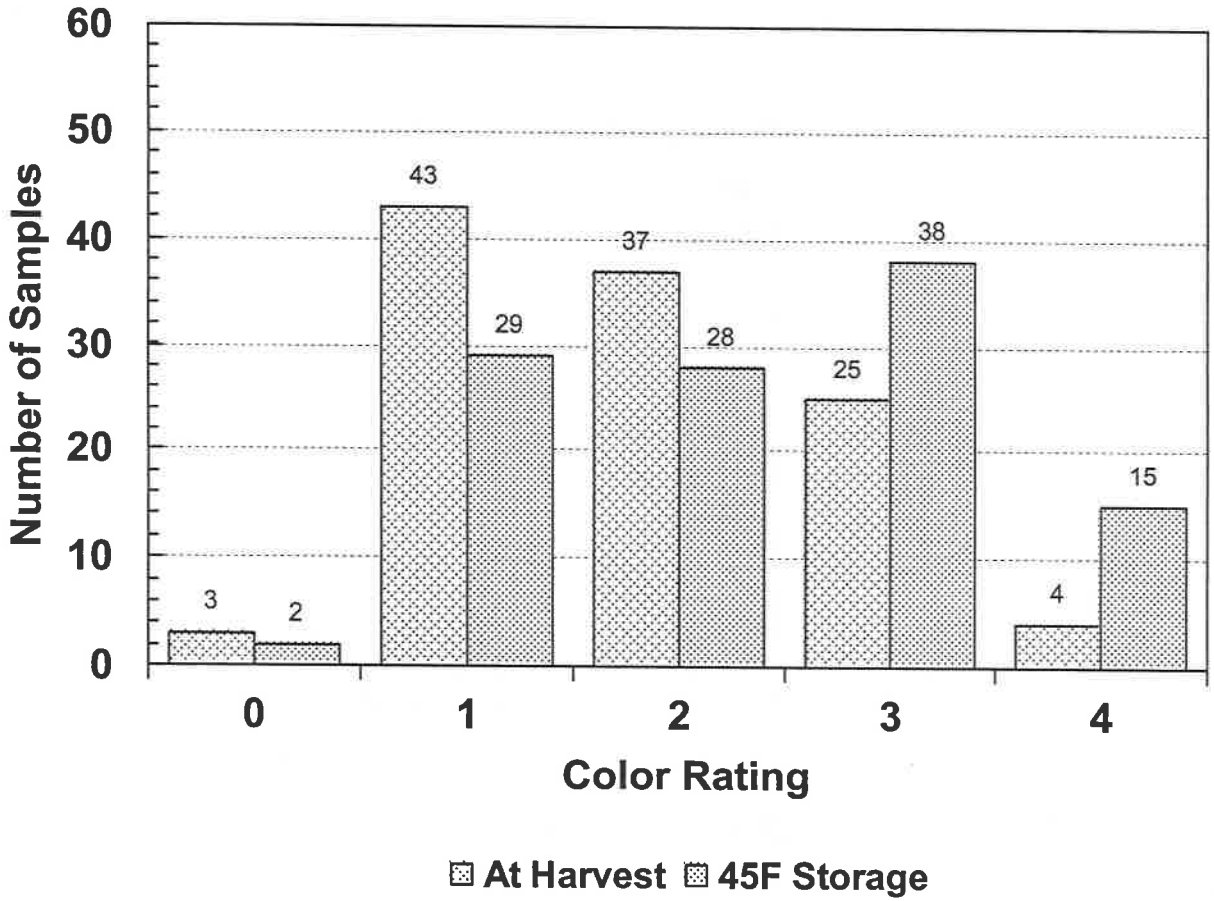


5=No Discoloration

Appendix 7. Specific Gravity Distribution (205 Samples) - 2002

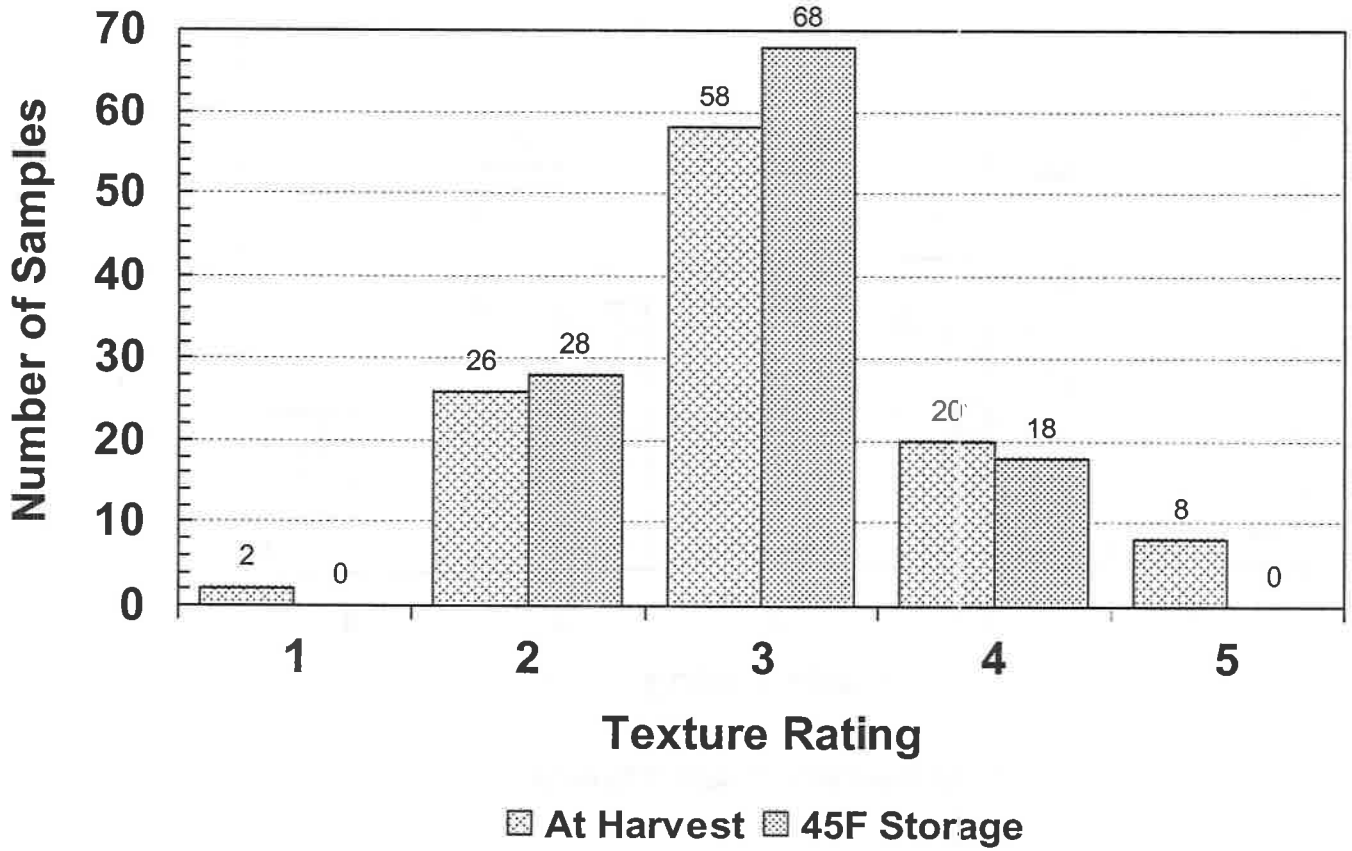


Appendix 8. Fry Color Distribution (112 Samples) - 2002



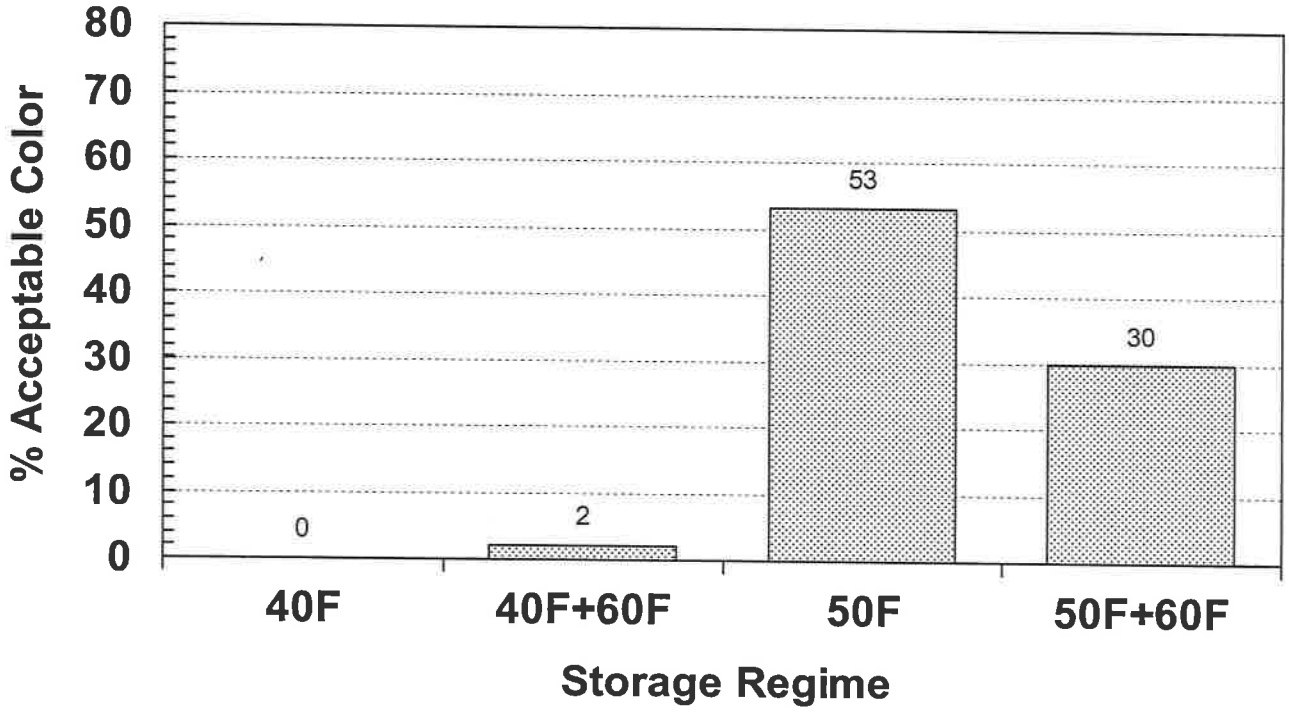
0=Lightest (values ≤2 acceptable)

Appendix 9. Fry Texture Distribution (114 Samples) - 2002



5=Dry Texture

Appendix 10. % Acceptable Chip Color (89 Samples) - 2002



Values ≤2 acceptable (SFA 1-5 Scale)

Notes

Harvest Crew - 2002