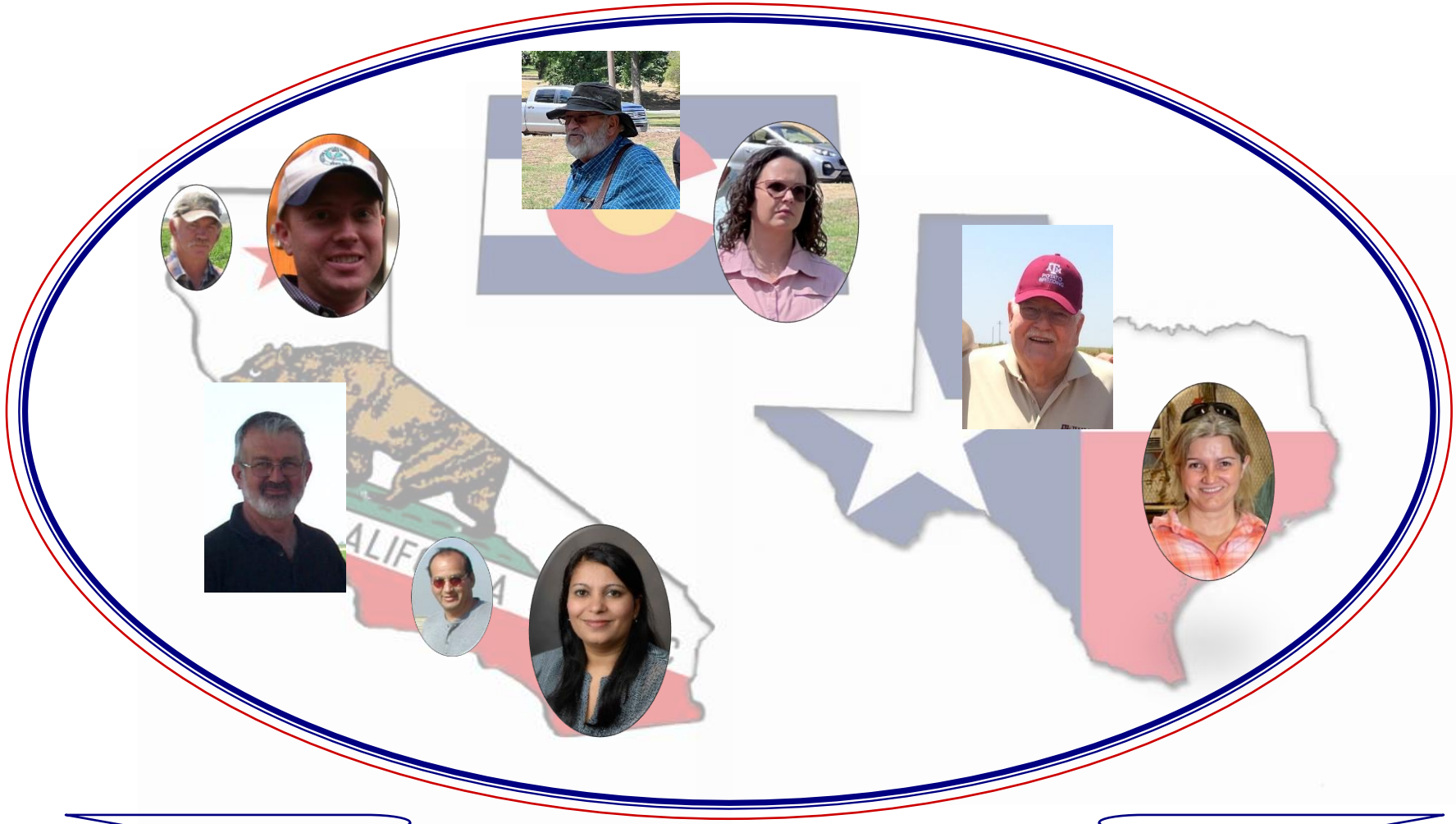
2022 Southwestern Regional Potato Variety Trial Report



1997 – Twenty-five Years of Collaboration -2022

Cover

The Southwestern Regional Potato Cultivar Development Project was initiated in 1997 by Ron Voss (CA), David Holm (CO), and Creighton Miller (TX). Since the inception of Project 25 years ago, 66 new cultivars and clonal selections have been released or co-released with other institutions. Several potato cultivars released by the Southwest Program are among the top 50 grown based on seed acreage in the US. Potato cultivars developed by the Southwestern Region ranked second among the four regional projects, behind the Northwest and substantially ahead of the North Central and Northeast Projects, thus validating the productivity of this project.

In 25 years, we have seen some leadership changes. When Ron Voss retired, Don Kirby ran the trials in Tule Lake, CA, until his retirement, then Rob Wilson took leadership (2011). In Bakersfield, CA, Joe Nunez oversaw the trials until his retirement, and Jaspreet Sidhu has been in charge since 2018. David Holm is in the process of retiring, and Jessica Chitwood-Brown was hired (2022) to be the new leader of the CO Breeding Program. When Creighton retired, Isabel Vales (2017) took over as the Texas Potato Breeder. Change and transitions are inevitable, but with changes come new opportunities. We believe that the Southwestern Regional Potato Cultivar Development Project is in good hands, and we are looking forward to seeing great productivity in the coming years.

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Description of Clones - 2022 Southwestern Regional Trial

Entry #	Clone/Cultivar	Parents		Flower	Vine		Tuber	Skin	Flesh	Entered		Seed	2022	2023	
		Female	Male	Color	Size	Maturity	Shape	Type	Color	By	Use	Source	Year	Status	Notes
Russet Trial															
1	Russet Norkotah	ND9687-5RU	ND9526-4RU	White	Small	Early	Long	Russet	White	Check	Fresh	???	***		
2	COTX08063-2Ru	Premier Russet	A99073-1	White	Medium	Late	Oblong	Russet	White	TX	Fresh	CO	3.0		
Red Trial															
3	Chieftain	LA1354	LA1027-18	Purple	Medium	Medium	Round	Dark Red	White	Check	Fresh	CO	***		
4	Red LaSoda	Triumph	Katahdin	Red-purple	Medium	Medium	Oval	Lt. Red	White	Check	Fresh	CO	***		
5	CO14040-3R	CO99256-2R	CO05211-4R	Red-Purple	Medium	Med-Early	Round	Dark Red	White	CO	Fresh	CO	1.0		
White/Yellow Trial															
6	Yukon Gold	Norgleam	W5279-4	Pink	Medium	Early	Oval	White	Yellow	Check	Fresh	CO	***		
7	AORTX09037-5W/Y	Fasan	Ivory Crisp	White	Medium	Medium	Round	White	Yellow	TX	Fresh	CO	1.0		
8	CO14226-3W/Y	AC07315-1W/Y	BDC704-1-1W/Y	White	Med-Large	Very Early	Round	White	Yellow	CO	Fresh	CO	1.0		
Chip Trial															
9	Atlantic	Wauseon	B5141-6	Red-Purple	Med	Medium	Oval	Scaley-buff	White	Check	Chip	CO	***		
10	Snowden	B5141-6	Wischip	White	Large	Late	Oval	White	White	Check	Chip	CO	***		
11	AC13126-1Wadg	MSR061-1	CO95051-7W	Blue-Purple	Large	Medium	Oval	White	White	CO	Chip	CO	1.0		

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Table 1. Locations, Cooperators, and Cultural Information

Locations	Cooperators	Irrigation		Fertilizer N-P-K-S (lb./a)	Vine Kill Method	Planting Date	Vine Kill Date	Harvest Date	Days to Vine Kill	Herbicides	Pesticides Applied Insecticides	Fungicides
1. Kern Co. California (KRN)	J. Sidhu J. Nunez J. DuBose					2/15/2022		6/6/2022				
2. Tulelake California (TUL)	R. Wilson D. Culp K. Nicholson	Solid-set sprinkler		150-50-200	Rolling/Reglone 2x	5/18/2022	9/7/2022	10/3/2022	112	Prowl H20 Matrix Outlook	Admire-Pro Vydate	Matrix 4FS Vellum Prime Quadris Tranquility Manzate Max
3. San Luis Valley Colorado (SLV)	J. Chitwood-Brown D. Holm C. Gray E. Niebaum	Pivot		160-60-40	Mechanical	5/12/2022	9/9/2022	9/22/2022	120	Prowl H2O Tuscany Clethodim 2E	Platinum 75 SG Leverage 360 Movento HL Sefina Inscalis	Quadris Top Elatus Revus Top Luna Tranqility Agri Tin
4. Springlake Texas (SPR)	I. Vales J. Koym D. Scheuring J. Pandey S. Toinga-Villafuerte	Pivot	Russet Red Chip	100-40-35	Mechanical	3/25/2022 3/25/2022 3/25/2022	7/14/2022 7/2/2022 7/11/2022	7/21/2022 7/17/2022 7/21/2022	111 99 108	Makaze Matrix Medal EC Metribuzin 75 CA Pin-Dee 3.3 EC	Minecto Pro Movento Oberon 4 SC Selina Inscalis Sivanto 200 SL	Headline Miravis Prime Nucop HB Scala SC Tanos
5. Dalhart Texas (Dal)	I. Vales J. Koym D. Scheuring J. Pandey S. Toinga-Villafuerte	Pivot	Russet Red/Chip	266-0-0	Reglone	5/6/2022 5/6/2022	8/23/2022 8/8/2022	9/18/2022 9/18/2022	109 94	Matrix SG Herbicide Glory 4 TriCor 4F Eptam 7E Parazone 3sl LI 700 Reglone	Reaper ClearForm Fulfill Movento Beleaf 50 SG	Minuet MetaStar 4S Aframe Echo 720 Manzate Max Scala Brand SC Penncozeb 75 DF

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Table 2. Percent Stand and Stems/Hill

		Percent Stand						Stems per Hill		
		California		Colorado	Texas			Colorado	Texas	
Clone / Variety		KRN	TUL	SLV	SPR	Dal	Mean	SLV	SPR	Mean
Russet Trial										
1	Russet Norkotah	99	99	99	100	100	100	2.8	2.1	2.5
2	COTX08063-2Ru		96	98	100	100	99	2.6	2.2	2.4
Red Trial										
3	Chieftain	97	99	95	100	100	99	2.4	1.7	2.1
4	Red LaSoda	99	100	96	100	100	99	3.1	1.8	2.4
5	CO14040-3R		99	100	100	100	100	3.2	1.7	2.5
White/Yellow Trial										
6	Yukon Gold	83	92	87	93	100	93	2.6	1.1	1.9
7	AORTX09037-5W/Y	99	98	96	100	100	99	3.4	2	2.7
8	CO14226-3W/Y	95	98	97	100	100	99	4.5	2.3	3.4
Chip Trial										
9	Atlantic	97		100	100	100	100	3.0	2.1	2.5
10	Snowden	98		96	100	100	99	2.4	2.4	2.4
11	AC13126-1Wadg	87	88	95	93	100	94	2.3	1.8	2.0
	Mean	95	97	96	99	100	98	2.9	1.9	2.4

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Table 3. Vine Size and Maturity

Clone / Variety		Vine Size (1-5=largest)				Vine Maturity (1-5=latest)			
		Colorado	Texas			Colorado	Texas		
		SLV	SPR	Dal	Mean	SLV	SPR	Dal	Mean
Russet Trial									
1	Russet Norkotah	2.3	3.4	3.4	3.0	1.3	1.5	3.6	2.1
2	COTX08063-2Ru	3.5	3.6	4.5	3.9	3.0	3.8	5.0	3.9
Red Trial									
3	Chieftain	3.5	3.6	3.9	3.7	3.3	3.4	3.6	3.4
4	Red LaSoda	3.3	3.7	4.0	3.7	2.3	3.7	5.0	3.7
5	CO14040-3R	3.8	3.5	3.7	3.7	2.0	3.7	3.8	3.2
White/Yellow Trial									
6	Yukon Gold	3.0	3.5	4.2	3.6	2.0	3.2	3.9	3.0
7	AORTX09037-5W/Y	2.5	2.9	3.7	3.0	2.0	3.3	3.4	2.9
8	CO14226-3W/Y	3.8	3.9	4.5	4.1	1.3	4.3	4.2	3.3
Chip Trial									
9	Atlantic	3.5	3.8	4.2	3.8	2.3	3.7	3.5	3.2
10	Snowden	3.8	3.7	4.3	3.9	3.0	3.9	4.3	3.7
11	AC13126-1Wadg	4.3	3.5	5.0	4.3	3.0	5.0	5.0	4.3
	Mean	3.4	3.6	4.1	3.7	2.3	3.6	4.1	3.3

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Table 4. Total Yield, Yield Rank Within Type and Merit Score[1] (MS)

		California					Colorado			Texas						Mean		
		KRN		TUL			SLV			SPR			DAL					
Clone / Variety		cwt/a	Rank	cwt/a	Rank	MS	cwt/a	Rank	MS	cwt/a	Rank	MS	cwt/a	Rank	MS	cwt/a	Rank	MS
Russet Trial																		
1	Russet Norkotah	115	1	242	2	4.0	283	2	2.0	140	2	3.4	142	2	3.5	185	2	3.2
2	COTX08063-2Ru			350	1	2.0	480	1	4.0	313	1	4.2	469	1	4.2	403	1	3.6
Red Trial																		
3	Chieftain	185	2	547	1	3.5	542	1	2.0	250	2	4.2	407	3	3.7	386	1	3.4
4	Red LaSoda	233	1	471	2	2.5	480	2	2.0	323	1	4.1	415	1	3.5	384	2	3.0
5	CO14040-3R			414	3	2.0	451	3	4.0	211	3	4.1	408	2	4.1	371	3	3.6
White/Yellow Trial																		
6	Yukon Gold	155	3	352	3	3.0	368	3	3.0	186	3	3.7	329	3	3.9	278	3	3.4
7	AORTX09037-5W/Y	228	2	459	2	3.0	390	1	4.0	202	2	3.7	521	1	4.1	360	2	3.7
8	CO14226-3W/Y	255	1	616	1	2.0	378	2	2.0	228	1	3.7	430	2	4.3	381	1	3.0
Chip Trial																		
9	Atlantic	157	3				430	2	3.0	407	1	4.2	604	1	4.4	399	1	3.9
10	Snowden	185	1				448	1	3.0	379	2	4.4	522	2	3.8	384	2	3.7
11	AC13126-1Wadg	181	2	490	1	3.5	423	3	4.0	332	3	3.7	422	3	3.6	370	3	3.7
	Mean	188		438		2.8	425		3.0	270		3.9	425		3.9	355		3.5

[1] 1=very poor to 5= excellent

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Table 5. Yield and Percent of U.S. No. 1's (>4oz.) and Yield Rank Within Type

		California						Colorado[1]			Texas[2]						Mean		
		KRN			TUL			SLV			SPR			DAL					
Clone / Variety		cwt/a	Rank	%	cwt/a	Rank	%	cwt/a	Rank	%	cwt/a	Rank	%	cwt/a	Rank	%	cwt/a	Rank	%
Russet Trial																			
1	Russet Norkotah	111	1	97	170	2	70	188	2	66	24	2	17	80	2	56	115	2	61
2	COTX08063-2Ru				271	1	78	394	1	82	155	1	50	353	1	75	293	1	71
Red Trial																			
3	Chieftain	181	2	98	419	1	77	469	1	87	94	2	38	269	1	66	286	1	73
4	Red LaSoda	225	1	96	350	2	74	405	2	84	150	1	47	262	2	63	278	2	73
5	CO14040-3R				158	3	38	117	3	26	3	3	2	65	3	16	86	3	20
White/Yellow Trial																			
6	Yukon Gold	149	3	96	265	2	75	289	1	78	65	1	35	248	1	76	203	1	72
7	AORTX09037-5W/Y	225	2	99	205	3	45	165	2	42	3	2	1	182	2	35	156	3	44
8	CO14226-3W/Y	252	1	99	301	1	49	127	3	33	2	3	1	122	3	28	161	2	42
Chip Trial																			
9	Atlantic	151	3	97				302	3	70	184	1	45	448	1	74	271	2	72
10	Snowden	183	1	99				332	1	74	119	3	31	388	2	74	255	3	70
11	AC13126-1Wadg	176	2	97	429	1	88	320	2	76	168	2	51	350	3	83	289	1	79
	Mean	184		97	285		66	282		65	88		29	252		59	218		62

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Table 6. Yield and Percent of U.S. No. 1's (>10oz.)

		California				Colorado[3]		Texas				Mean	
		KRN[1]		TUL[2]		SLV		SPR		DAL			
Clone / Variety		cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%
Russet Trial													
1	Russet Norkotah	0	0	19	8	22	8	0	0	22	15	13	6
2	COTX08063-2Ru			76	22	169	35	9	3	67	14	80	19
Red Trial													
3	Chieftain	0	0	164	30	210	39	0	0	31	8	81	15
4	Red LaSoda	0	0	172	37	153	32	5	2	29	7	72	15
5	CO14040-3R			4	1	1	0	0	0	0	0	1	0
White/Yellow Trial													
6	Yukon Gold	4	3	96	27	108	29	2	1	59	18	54	16
7	AORTX09037-5W/Y	0	0	16	4	9	2	0	0	0	0	5	1
8	CO14226-3W/Y	0	0	8	1	5	1	0	0	0	0	3	1
Chip Trial													
9	Atlantic	0	0			96	22	12	3	73	12	45	9
10	Snowden	0	0			81	18	0	0	70	13	38	8
11	AC13126-1Wadg	0	0	225	46	131	31	5	2	81	19	88	20
	Mean	0	0	87	19	89	20	3	1	39	10	44	10

[1] > 10oz

[2] >14oz

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Table 7. Yield and Percent of U.S. No. 1's (6 - 10oz.)

		California				Texas				Mean	
		KRN		TUL		SPR		DAL			
Clone / Variety		cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%
Russet Trial											
1	Russet Norkotah	18	16	72	30	0	0	13	9	26	14
2	COTX08063-2Ru			112	32	47	15	158	34	106	27
Red Trial											
3	Chieftain	3	2	176	32	23	9	92	23	73	16
4	Red LaSoda	5	2	114	24	50	15	115	28	71	17
5	CO14040-3R			49	12	0	0	0	0	16	4
White/Yellow Trial											
6	Yukon Gold	0	0	116	33	20	11	102	31	60	19
7	AORTX09037-5W/Y	0	0	79	17	0	0	28	5	27	6
8	CO14226-3W/Y	0	0	115	19	0	0	30	7	36	6
Chip Trial											
9	Atlantic	9	6			51	12	158	26	73	15
10	Snowden	1	1			13	4	115	22	43	9
11	AC13126-1Wadg	0	0	146	30	64	19	122	29	83	19
	Mean	4	3	109	25	24	8	85	19	56	14

[1] 4-10 oz

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Table 8. Yield and Percent of U.S. No. 1's (4 - 6 oz.)

		California				Texas				Mean	
		KRN		TUL		SPR		DAL			
Clone / Variety		cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%
Russet Trial											
1	Russet Norkotah	35	31	79	33	24	17	46	32	46	28
2	COTX08063-2Ru			83	24	99	32	132	28	105	28
Red Trial											
3	Chieftain	110	60	79	14	71	29	147	36	102	35
4	Red LaSoda	161	69	64	14	96	30	118	28	109	35
5	CO14040-3R			106	25	3	2	65	16	58	14
White/Yellow Trial											
6	Yukon Gold	109	70	52	15	43	23	97	30	75	34
7	AORTX09037-5W/Y	128	56	110	24	3	1	155	30	99	28
8	CO14226-3W/Y	95	37	178	29	2	1	91	21	92	22
Chip Trial											
9	Atlantic	107	68			121	30	217	36	148	45
10	Snowden	117	63			105	28	204	39	142	43
11	AC13126-1Wadg	123	68	59	12	99	30	147	35	107	36
	Mean	109	58	90	21	61	20	129	30	98	32

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Table 9. Yield and Percent B (<4 oz.) Tubers

		California				Colorado		Texas				Mean	
		KRN		TUL		SLV		SPR		DAL			
Clone / Variety		cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%
Russet Trial													
1	Russet Norkotah	58	50	68	28	88	31	114	82	58	41	77	46
2	COTX08063-2Ru			65	19	49	10	155	49	90	19	90	24
Red Trial													
3	Chieftain	67	36	62	11	65	12	152	61	133	33	96	31
4	Red LaSoda	59	25	53	11	68	14	172	53	126	30	96	27
5	CO14040-3R			253	61	333	74		0	318	78	301	53
White/Yellow Trial													
6	Yukon Gold	38	24	52	15	57	15	199	107	63	19	82	36
7	AORTX09037-5W/Y	97	43	213	46	222	57	195	96	314	60	208	61
8	CO14226-3W/Y	158	62	260	42	250	66	220	97	302	70	238	67
Chip Trial													
9	Atlantic	36	23			84	19	221	54	156	26	124	31
10	Snowden	64	35			88	20	258	68	134	26	136	37
11	AC13126-1Wadg	53	29	28	6	66	16	152	46	73	17	74	23
	Mean	70	36	117	27	125	30	184	65	161	38	138	40

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Table 10. Yield and Percent Culls/No. 2s

		California				Colorado		Texas				Mean	
		KRN		TUL[1]		SLV		SPR		DAL			
Clone / Variety		cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%	cwt/a	%
Russet Trial													
1	Russet Norkotah	4	3	4	2	7	2	2	1	3	2	4	2
2	COTX08063-2Ru			14	4	37	8	3	1	22	5	19	4
Red Trial													
3	Chieftain	4	2	66	12	7	1	4	2	5	1	17	4
4	Red LaSoda	8	4	67	14	8	2	1	0	27	6	22	5
5	CO14040-3R			3	1	1	0	8	4	25	6	9	3
White/Yellow Trial													
6	Yukon Gold	6	4	35	10	22	6	2	1	7	2	15	5
7	AORTX09037-5W/Y	3	1	41	9	3	1	4	2	25	5	15	4
8	CO14226-3W/Y	2	1	55	9	2	1	6	3	6	1	14	3
Chip Trial													
9	Atlantic	5	3			45	10	2	0	0	0	13	4
10	Snowden	3	1			28	6	2	1	0	0	8	2
11	AC13126-1Wadg	6	3	33	7	38	9	11	3	0	0	17	4
	Mean	5	3	35	7	18	4	4	2	11	3	14	4

[1] includes over 16 oz tubers

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Table 11. Specific Gravity

Clone / Variety		California TUL	Colorado SLV	Texas SPR	Texas DAL	Mean
Russet Trial						
1	Russet Norkotah	1.068	1.072	1.063	1.057	1.065
2	COTX08063-2Ru	1.099	1.102	1.089	1.094	1.096
Red Trial						
3	Chieftain	1.072	1.075	1.064	1.060	1.067
4	Red LaSoda	1.071	1.075	1.062	1.056	1.066
5	CO14040-3R	1.076	1.082	1.071	1.061	1.073
White/Yellow Trial						
6	Yukon Gold	1.077	1.087	1.072	1.070	1.076
7	AORTX09037-5W/Y	1.080	1.082	1.068	1.070	1.075
8	CO14226-3W/Y	1.086	1.097	1.079	1.071	1.083
Chip Trial						
9	Atlantic		1.095	1.079	1.081	1.085
10	Snowden		1.094	1.072	1.073	1.080
11	AC13126-1Wadg	1.083	1.096	1.069	1.072	1.080
	Mean	1.079	1.087	1.072	1.069	1.077

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Table 12. Average Tuber Weight (Size) and Shape

		Weight (oz.)				Shape[1]					Length / Width					Width/ Thickness				
		California	Texas			California	Colorado	Texas			California	Colorado	Texas			California	Colorado	Texas		
Clone / Variety		TUL	SPR	DAL	Mean	TUL	SLV	SPR	DAL	Mean	TUL	SLV	SPR	DAL	Mean	TUL	SLV	SPR	DAL	Mean
Russet Trial																				
1	Russet Norkotah	4.6	2.0	4.3	3.6	4.0	4.0	3.3	4.2	3.9	1.82	1.85	1.66	1.89	1.80	1.14	1.16	1.18	1.14	1.15
2	COTX08063-2Ru	5.5	3.5	5.6	4.9	4.0	3.0	4.3	4.4	3.9	1.58	1.59	1.87	1.72	1.69	1.13	1.16	1.18	1.15	1.16
Red Trial																				
3	Chieftain	7.9	2.5	4.0	4.8	3.5	2.0	2.0	2.0	2.4	1.17	1.24	1.25	1.15	1.20	1.28	1.29	1.20	1.24	1.25
4	Red LaSoda	6.2	3.5	4.3	4.7	3.0	2.0	2.0	3.0	2.5	1.17	1.16	1.14	1.20	1.17	1.23	1.22	1.27	1.20	1.23
5	CO14040-3R	2.7	1.3	2.1	2.0	2.0	1.0	1.0	1.0	1.3	1.07	1.08	1.17	1.04	1.09	1.18	1.17	1.15	1.12	1.16
White/Yellow Trial																				
6	Yukon Gold	6.3	2.8	5.1	4.7	4.0	2.0	1.9	2.4	2.6	1.22	1.22	1.15	1.17	1.19	1.19	1.22	1.27	1.20	1.22
7	AORTX09037-5W/Y	3.5	1.6	2.9	2.6	2.0	1.0	1.1	1.0	1.3	1.00	1.06	1.03	0.96	1.01	1.24	1.24	1.14	1.17	1.20
8	CO14226-3W/Y	3.5	1.5	2.5	2.5	2.0	1.0	1.0	1.0	1.3	0.99	1.09	0.95	1.00	1.01	1.12	1.13	1.15	1.13	1.13
Chip Trial																				
9	Atlantic		3.3	4.3	3.8		1.0	1.6	1.2	1.3		1.09	1.00	0.95	1.01		1.21	1.25	1.19	1.22
10	Snowden		2.7	4.3	3.5		1.0	1.0	1.0	1.0		0.99	1.01	0.94	0.98		1.23	1.24	1.28	1.25
11	AC13126-1Wadg	8.3	3.7	4.2	5.4	2.0	1.0	1.0	1.0	1.3	1.00	0.90	1.03	1.03	0.99	1.28	1.16	1.19	1.15	1.20
	Mean	5.4	2.6	4.0	3.9	2.9	1.7	1.8	2.0	2.0	1.22		1.20	1.19	1.19	1.20	1.20	1.20	1.18	1.20

[1] 1=round to 5 =long

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Table 13. Eye Depth and Growth Cracks

Clone / Variety		Eye Depth[1]				Growth Cracks[2]				
		California	Texas			California	Colorado	Texas		
		TUL	SPR	DAL	Mean	TUL[3]	SLV	SPR	DAL	Mean
Russet Trial										
1	Russet Norkotah	4.0	3.9	4.0	4.0	0.0	5.0	5.0	5.0	5.0
2	COTX08063-2Ru	4.5	4.5	4.3	4.4	0.3	4.0	5.0	5.0	4.7
Red Trial										
3	Chieftain	4.0	3.8	3.9	3.9	7.4	4.0	4.7	5.0	4.6
4	Red LaSoda	3.0	3.6	3.0	3.2	4.8	4.0	4.8	5.0	4.6
5	CO14040-3R	4.0	4.4	4.5	4.3	0.0	5.0	5.0	5.0	5.0
White/Yellow Trial										
6	Yukon Gold	4.0	4.7	4.5	4.4	4.3	4.0	5.0	5.0	4.7
7	AORTX09037-5W/Y	4.0	4.9	4.0	4.3	0.0	5.0	5.0	5.0	5.0
8	CO14226-3W/Y	4.5	4.7	4.5	4.6	0.7	5.0	5.0	5.0	5.0
Chip Trial										
9	Atlantic		3.8	3.8	3.8		4.0	5.0	5.0	4.7
10	Snowden		3.8	3.5	3.7		5.0	5.0	5.0	5.0
11	AC13126-1Wadg	4.0	4.0	4.5	4.2	1.1	5.0	5.0	5.0	5.0
	Mean	4.0	4.2	4.0	4.1	2.1	4.5	5.0	5.0	4.8

[1] 1=deep to 5=shallow

[2] 1=many to 5=none

[3] % of total count

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Table 14. Fry Data and Antioxidant Equivalents

		Fry Data[1]			Antioxidant Equivalents[2]	
		Colorado			µg Trolox equivalents/gfw [3]	AOA
Clone / Variety		SLV[6]	SLV[7]	MS[8]	SPR	Levels[4]
Russet Trial						
1	Russet Norkotah	2.0	2.0	2.0	154.2	M
2	COTX08063-2Ru	1.0	1.0	4.0	154.6	M
Red Trial						
3	Chieftain				232.8	M
4	Red LaSoda				176.5	M
5	CO14040-3R				174.3	M
White/Yellow Trial						
6	Yukon Gold				109.9	L
7	AORTX09037-5W/Y				114.2	L
8	CO14226-3W/Y				215.6	M
Chip Trial						
9	Atlantic				70.1	L
10	Snowden				97.4	L
11	AC13126-1Wadg				102.2	L
	Mean	1.5	1.5		145.6	

[1] Process Merit Score, 1-5=excellent

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[2] The assay used at Texas A&M University was based on "Use of a Free Radical Method to Evaluate Antioxidant Activity" by Brand-Williams, et al. 1995, Levensm. Wiss. Technol. 28:25-30. Antioxidants soluble in methanol were extracted and allowed to react with the stable radical, 2,2,-Diphenyl-1-picrylhydrazyl (DPPH). This provided a rapid evaluation of the antioxidant properties of the potato extracts based on absorbance.

[3] µg Trolox equivalents/gfw - Absorbance was converted to trolox equivalents based on a standard curve using the following equation: y = -272.42x + 292.13

[4] VH=very high (>399), H=high (276-348), M=medium (134-259), L=low (67-127), VL=very low (<55). n=63 including 10 check varieties

Table 15. Internal Defects

		Hollow Heart					Internal Brownspot				Vacular Discoloration				Blackspot Bruise					
		California	Colorado	Texas			California	Texas			California	Texas			California[2]	Colorado[2]	Texas[1]			
Entry	Clone/Variety	TUL	SLV	SPR	DAL	Mean	TUL	SPR	DAL	Mean	TUL	SPR	DAL	Mean	TUL	SLV	Mean[2]	SPR	DAL	Mean[1]
Russet Trial																				
1	Russet Norkotah	0	0	0	7	1.8	0	0	3	1.0	3	0	0	1.1	5	4.8	4.9	0	0	4.9
2	COTX08063-2Ru	0	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0	5	5	5	0	0	5.0
Red Trial																				
3	Chieftain	0	11	0	0	2.8	0	10	47	19.0	0	0	0	0.0		4	4	0	0	4.0
4	Red LaSoda	0	11	0	0	2.8	0	3	3	2.0	7	0	3	3.2		5	5	0	3	5.0
5	CO14040-3R	0	0	0	0	0.0	0	0	3	1.0	0	13	3	5.3		4.7	4.7	0	0	4.7
White/Yellow Trial																				
6	Yukon Gold	0	0	0	0	0.0	0	63	30	31.0	7	0	0	2.2		5	5	0	0	5.0
7	AORTX09037-5W/Y	0	0	0	0	0.0	0	0	3	1.0	3	0	0	1.1		5	5	0	0	5.0
8	CO14226-3W/Y	0	0	0	0	0.0	0	17	27	14.7	0	0	3	1.0		3.7	3.7	0	0	3.7
Chip Trial																				
9	Atlantic		5	0	0	1.6		30	50	40.0		0	0	0.0		2.5	2.5	0	0	2.5
10	Snowden		0	0	0	0.0		0	3	1.5		0	0	0.0		3.8	3.8	0	0	3.8
11	AC13126-1Wadg	0	2	0	7	2.2	0	0	13	4.3	0	0	0	0.0		4	4	0	0	4.2
Mean		**0**	**3**	**0**	**1**	**1.0**	**0**	**11**	**17**	**10.5**	**2**	**1**	**1**	**1.3**	**5**	**4**	**4**	**0**	**0**	**4.3**

[1] Percent based on 10 cut tubers.

[2] 1 to 5=none

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Table 15. Vigor and Flesh Color

Clone / Variety		Vigor[1] Texas SPR	Vigor[1] Texas DAL	Vigor[1] Mean	Flesh Color[2] Colorado SLV	Flesh Color[2] Texas SPR	Flesh Color[2] Texas DAL	Flesh Color[2] Mean
Russet Trial								
1	Russet Norkotah	3.4	3.2	3.3		1.3	1.0	1.2
2	COTX08063-2Ru	3.7	4.5	4.1		1.0	1.0	1.0
Red Trial								
3	Chieftain	3.6	3.9	3.8		1.2	1.0	1.1
4	Red LaSoda	3.7	4.0	3.9		1.0	1.0	1.0
5	CO14040-3R	3.4	3.7	3.6		1.3	1.0	1.2
White/Yellow Trial								
6	Yukon Gold	3.6	4.2	3.9	3.0	3.2	3.0	3.1
7	AORTX09037-5W/Y	3.0	3.7	3.4	2.0	1.7	1.8	1.8
8	CO14226-3W/Y	3.9	4.5	4.2	3.0	4.3	3.5	3.6
Chip Trial								
9	Atlantic	3.9	4.2	4.1		1.0	1.7	1.4
10	Snowden	3.7	4.3	4.0		1.0	1.0	1.0
11	AC13126-1Wadg	3.5	3.8	3.7		1.0	1.0	1.0
	Mean	3.6	4.0	3.8	2.7	1.6	1.5	1.7

[1] 1= poor, 2= fair, 3= medium, 4= vigorous, 5= very vigorous

[2] 1=light to 5=dark

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Table 16. Notes

Clone / Variety		Texas SPR	Texas DAL
Russet Trial			
1	Russet Norkotah	dark skin, good shape, very small+++	low tuber number, great shape+, intense russet skin+, dark skin, good russet skin
2	COTX08063-2Ru	good size and shape+++, long, light russet skin+, some sprouts	high tuber number+, good size and shape+, light russet+, very high specific gravity, French fries
Red Trial			
3	Chieftain	medium red skin, , medium/large size, BOT, cracks, herbicide damage	some rotten++, nice shape, good uniform size and shape+, attached stolons, some sprouts, very high tuber number, nice
4	Red LaSoda	a little flat, deep eyes+++, medium size, nice, BOT, high yield, silver scurf, large, high tuber number	very high tuber number, deep eyes++ , several rotten tubers, deep bud end, KNOBS
5	CO14040-3R	attached stolons+, high tuber number, all small+, shriveled, intense skin color++	all smalls+, very high tuber number+, silver scurf+, a few rotten, soft tubers+, nice, very round++, many heat sprouts+, shriveled, scab, good size and shape
White/Yellow Trial			
6	Yukon Gold	medium size+, nice+, intense skin color,	BOT, smooth skin++, shiny+, medium size, nice, a little flat, large tubers
7	AORTX09037-5W/Y	some russetting, white/cream flesh, buff skin+++	compressed+, high tuber number++, buff skin+, sprouting, high yield,
8	CO14226-3W/Y	attached stolons, buff skin, enlarged lenticels	very high tuber number+, very round, nice+, buff skin+, silver scurf
Chip Trial			
9	Atlantic	BOT, buff skin, high tuber number+	high tuber number+, buff skin++, large, a little flat, BOT+, uniform size and shape, medium size
10	Snowden	deep bud end, round, buff skin+, high yield	round+, deep eyes++, buff skin+, very high tuber number
11	AC13126-1Wadg	buff skin,	severe SCAB+++, rough skin, good shape, round

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Table 17. Notes

Clone / Variety		California TUL	Colorado SLV
Russet Trial			
1	Russet Norkotah	nice tuber shape	
2	COTX08063-2Ru	blocky tuber shape, red splotches on skin	shatter bruise
Red Trial			
3	Chieftain	Nice tuber shape	rough, shatter bruise
4	Red LaSoda	lumpy tuber shape	powdery scab
5	CO14040-3R	horrible skinning at harvest	B sized, skinned
/hite/Yellow Trial			
6	Yukon Gold	Black dot on tuber, non uniform tuber shape	light yellow, IBS
7	AORTX09037-5W/Y	non-uniform tuber shape	light yellow, pear shaped
8	CO14226-3W/Y	Pink discoloration on tuber flesh, ugly pink eyes on external skin	good yellow, IBS*, shatter bruise, pink inside
Chip Trial			
9	Atlantic		
10	Snowden		rough
11	AC13126-1Wadg	good skin set	

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Table 18. Colorado and Texas Chipping Results

		Chip Color[1] Colorado				Chip Color[1] Texas				Chip Quality[5] Texas			
						SPR		DAL		SPR		DAL	
Clone / Variety		40F[2]	R40F[2]	50F[3]	R50F[3]	Field[4]	Field[4]	42F[2]	R74F[3]	Field[4]	Field[4]	42F[2]	R74F[3]
Chip Trial													
9	Atlantic	4.5	4.5	2.5	2.5	1.0	1.0	1.0	1.0	2.1	1.9	3.6	3.1
10	Snowden	4.5	2.0	1.5	1.0	1.0	1.0	1.0	1.0	2.1	1.8	3.6	1.5
11	AC13126-1Wadg	4.0	4.0	3.0	2.0	2.0	1.0	1.0	1.0	2.4	3.3	3.5	3.8
Mean		**4.3**	**3.5**	**2.3**	**1.8**	**1.3**	**1.0**	**1.0**	**1.0**	**2.2**	**2.3**	**3.6**	**2.8**

	CO	**TX**
[1] 1=light, 5=dark		
[2]40[0]F Storage protocol prior to frying		
Initial storage temperature	55°F	42
Holding temperature	40°F	
Weeks to holding temperature	4	
Weeks at holding temperature	6	6
Reconditioning temp. (if applicable)	60°F	74°F
Number of weeks reconditioning	3	2
[3]50[0]F Storage protocol prior to frying		
Initial storage temperature	55°F	
Holding temperature	50°F	
Weeks to holding temperature	4	
Weeks at holding temperature	6	
Reconditioning temp. (if applicable)	60°F	
Number of weeks reconditioning	3	
[4] Chipped immediately following harvest		
[5] Overall Chip Quality of the chip sample 1=excellent (light color) to 5=poor (dark color)		

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Table 19. Summary

		Field Data				Yield Qualities					Tuber Description				
Clone / Variety		% Stand	Stems/ hill	Vine Size	Vine Mat.	Total Yield	% #1s	% >10[1]	% <4	% Culls	Merit Score	Specific Gravity	Tuber Shape	Tuber Weight	Skin Color
Russet Trial															
1	Russet Norkotah	100	2.5	3.0	2.1	185	61	6	46	2	3.2	1.065	Long	3.6	Russet
2	COTX08063-2Ru	99	2.4	3.9	3.9	403	71	19	24	4	3.6	1.096	Oblong	4.9	Russet
Red Trial															
3	Chieftain	99	2.1	3.7	3.4	386	73	15	31	4	3.4	1.067	Round	4.8	Dark Red
4	Red LaSoda	99	2.4	3.7	3.7	384	73	15	27	5	3.0	1.066	Oval	4.7	Lt. Red
5	CO14040-3R	100	2.5	3.7	3.2	371	20	0	53	3	3.6	1.073	Round	2.0	Dark Red
White/Yellow Trial															
6	Yukon Gold	93	1.9	3.6	3.0	278	72	16	36	5	3.4	1.076	Oval	4.7	White
7	AORTX09037-5W/Y	99	2.7	3.0	2.9	360	44	1	61	4	3.7	1.075	Round	2.6	White
8	CO14226-3W/Y	99	3.4	4.1	3.3	381	42	1	67	3	3.0	1.083	Round	2.5	White
Chip Trial															
9	Atlantic	100	2.5	3.8	3.2	399	72	9	31	4	3.9	1.085	Oval	3.8	Scaley-buff
10	Snowden	99	2.4	3.9	3.7	384	70	8	37	2	3.7	1.080	Oval	3.5	White
11	AC13126-1Wadg	94	2.0	4.3	4.3	370	79	20	23	4	3.7	1.080	Oval	5.4	White

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2023 Southwestern Regional Trial Entries															
Entry		Parents		Flower	Vine		Tuber	Skin	Flesh	Entered		Seed	2022	2023	
#	Clone/Cultivar	Female	Male	Color	Size	Maturity	Shape	Type	Color	By	Use	Source	Year	Status	Notes
Russet Trial															
1	Russet Norkotah	ND9687-5RU	ND9526-4RU	White	Small	Early	Long	Russet	White	Check	Fresh				
	AOTX98202-1Ru	A9201-6	A9014-2	White	Medium	Medium	Oblong	Russet	White	TX	Freah	CO			
Red Trial															
White/Yellow Trial															
Chip Trial															

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