

2008
WESTERN REGIONAL CHIPPING
POTATO VARIETY TRIAL REPORT

State Experiment Stations and
USDA-ARS

California
Colorado
Idaho

Oregon
Texas

2008 WESTERN REGIONAL CHIPPING POTATO VARIETY TRIAL REPORT

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Compiled by Peggy Bain

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TABLE 1: 2008 Western Regional Chipping Potato Variety Trial - LOCATIONS, COOPERATORS, AND CULTURAL INFORMATION

Locations	Cooperators	Trial	Irrigation	Fertilizer N-P-K-S(lb/A)	Planting Date	Vine Kill Date	Harvest Date	Days to Vine Kill	Days to Harvest	Herbicides	Insecticides	Fungicides
Tulelake California (CA)	H. Carlson D. Kirby	Late	Sprink.	175	13-May	15-Sep	7-Oct	125	147	Matrix Sencor Outlook	Monitor Avaunt	Bravo Dithane Maxim Quadris Endura
San Luis Valley Colorado (CO)	D. Holm F. Goktepe	Late	Pivot	114-60-40-25	13-May	2-Sep	23-Sep	112	133	Dual Magnum	Endigo ZC Fulfill	Bravo WS Headline
Aberdeen Idaho (ID)	J. Stark R. Novy J. Whitworth P. Bain	Late	Sprink.	185-100-80	2-May	2-Sep	24-Sep	123	145	Sencor DF Matrix Eptam	Admire Pro	Dithane F-45 Equus
Corvallis Oregon (CV)	I. Vales S. Yilma	Late	Sprink.	150-150-150	19-May	10-Sep	24-Sep	114	128	Matrix Prowl	Platinum	Bravo Dithane Quadris Curzate
Dalhart Texas (TX)	J. C. Miller, Jr. J. Koym D. Schuering	Early	Pivot	205-221-50	13-May	8-Sep	15-Sep	118	125	Sencor Eptam Matrix Liberate Intensity Superb Reglone Dual	Fulfill Thimet LI 700 Spintor AgriMek Superb Reaper Rimon	Ultra Flourish Headline Echo Manzate Endura Revus Top Scala SuperTin

TABLE 2: 2008 Western Regional Chipping Potato Variety Trial - CLONE, PARENTS, ENTERED BY, SEED SOURCE, STAND,
TUBER AND VINE CHARACTERISTICS, AND STEMS PER PLANT

No	Clone	Parents	Flower Color	Entered by	Year in Trial	Seed Source	Mean Stand %	Tuber			Vine		Stems/ Plant			
								Shape	Skin		Size	Maturity				
1	ATLANTIC	WAUSEON B5141-6	V Lt Red- purple	Check	Ck	CO	97	1.6	Oval	2.2	Buff	3.0	Medium	3.0	Med Early	3.0
2	CHIPETA	WNC612-13 WISCHIP	Med Red- purple	Check	Ck	CO	94	2.2	Oblong	1.7	White	4.3	Large	3.8	Med--late	3.2
3	IVORY CRISP	ND292-1 A77268-4	White	Check	Ck	ID	85	1.3	Round	1.3	White	2.8	Medium	3.2	Medium	3.0
4	CO97043-14W	AC91817-5 AC87340-2	White	CO	3	CO	83	1.4	Round	1.3	White	2.7	Medium	3.0	Med Early	2.9
5	CO97065-7W	AC92513-3 Chipeta	Red-purple	CO	3	CO	97	1.3	Round	1.7	White	3.1	Med-large	2.5	Early	2.9

TABLE 3: 2008 Western Regional Chipping Potato Variety Trial - TOTAL YIELD - YIELD OF U.S. #1'S (CWT/A & %)

No. Clone	Total Yield (CWT/A)					Entry Mean	Rank	U.S. No. 1's (CWT/A) / %					Entry Mean	Rank
	CA	CO	ID	CV	TX			CA	CO	ID	CV	TX		
1 ATLANTIC	476	511	453	670	428	508	2	377	391	395	462	407	406	2
								79	77	87	66	95		
2 CHIPETA	533	606	599	592	346	535	1	508	510	558	338	340	451	1
								95	84	93	57	98		
3 IVORY CRISP	490	471	354	623	273	442	5	424	250	321	340	263	320	5
								87	53	91	55	96		
4 CO97043-14W	493	453	446	680	223	459	3	418	313	390	462	217	360	3
								85	69	87	68	97		
5 CO97065-7W	458	434	316	597	428	447	4	390	302	237	370	415	343	4
								95	70	75	62	97		
Location Means	490	495	434	632	340	478		423	353	380	394	328	376	
LSD (.05)						NS		88	71	87	62	97	81	NS

TABLE 4: 2008 Western Regional Chipping Potato Variety Trial - YIELD OF U.S. #1'S >10-12OZ.
& YIELD <4OZ. (CWT/A & %)

No. Clone	U.S. No. 1's > 10/12 OZ (CWT/A) / %							Yield < 4 OZ (CWT/A) / %						
	CA*	CO*	ID	CV	TX	Entry Mean	Rank	CA	CO	ID	CV	TX	Entry Mean	Rank
1 ATLANTIC	71	82	38	175	0	73	4	79	109	52	45	21	61	3
	15	16	8	25	0	13	4	17	21	11	7	5	12	4
2 CHIPETA	293	127	361	131	0	182	1	18	84	7	47	6	32	5
	55	21	60	22	0	32	1	4	14	1	8	2	6	5
3 IVORY CRISP	137	30	135	142	0	89	3	55	214	18	37	11	67	1
	28	6	38	23	0	19	2	11	45	5	6	4	14	2
4 CO97043-14W	191	34	72	196	0	99	2	54	138	52	40	6	58	4
	39	8	16	29	0	18	3	11	30	12	6	3	12	3
5 CO97065-7W	61	16	2	141	0	44	5	62	130	76	45	13	65	2
	13	4	1	24	0	8	5	14	30	24	7	3	16	1
Location Means	151	58	122	157	0	97		54	135	41	43	11	57	
LSD (.05)	30	11	25	25	0	18		11	28	11	7	3	12	NS

* 10 ounce

TABLE 5: 2008 Western Regional Chipping Potato Variety Trial - SPECIFIC GRAVITY

No. Clone	Specific Gravity					Entry Mean	Rank
	CA	CO	ID	CV	TX		
1 ATLANTIC	1.103	1.103	1.096	1.102	1.091	1.099	1
2 CHIPETA	1.090	1.100	1.088	1.095	1.076	1.090	4
3 IVORY CRISP	1.107	1.103	1.096	1.091	1.080	1.095	2
4 CO97043-14W	1.085	1.094	1.087	1.088	1.078	1.086	5
5 CO97065-7W	1.098	1.107	1.087	1.090	1.082	1.093	3
Location Means	1.097	1.101	1.091	1.093	1.081	1.087	
LSD (.05)						0.006	

TABLE 7: 2008 Western Regional Chipping Potato Variety Trial - EXTERNAL DEFECTS - GROWTH CRACKS, SECOND GROWTH, SHATTER BRUISE, SCAB - MEANS OF LOCATIONS

No. Clone	Growth Cracks ¹					Second Growth ¹					Shatter Bruise ¹			Scab ¹			
	CO	ID	CV	TX	Means	CO	ID	CV	TX	Means	CA	TX	AB ²	ID	TX	Means	
1 ATLANTIC	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.5	2.9	3.0	5.0	4.0
2 CHIPETA	4.0	5.0	4.0	5.0	4.5	5.0	4.8	4.0	5.0	4.7	4.0	5.0	4.5	3.2	4.0	5.0	4.5
3 IVORY CRISP	5.0	5.0	1.0	5.0	4.0	5.0	5.0	4.0	5.0	4.8	3.0	5.0	4.0	3.8	4.0	5.0	4.5
4 CO97043-14W	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.5	2.7	2.3	5.0	3.7
5 CO97065-7W	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	5.0	4.5	3.2	3.7	5.0	4.4
MEANS					4.7					4.9			4.4	3.2			4.2

¹ Score 1-5, with 1=severe, 5=none.

² Aberdeen shatter scores obtained from bruise evaluation conducted using a shatter chamber [1-5(none)].

TABLE 8: 2008 Western Regional Chipping Potato Variety Trial - INTERNAL DEFECTS - HOLLOW HEART PLUS BROWN CENTER, INTERNAL BROWN SPOT, VASCULAR DISCOLORATION/NET NECROSIS, BLACKSPOT - MEANS OF LOCATIONS

No.	Clone	Percent Hollow Heart plus Brown Center						Percent Internal Brown Spot				Percent Net Necrosis Vascular Discoloration				Blackspot Bruise			
		CO	ID	CV	CA	TX	Means	ID	CV	TX	Means	ID	CV	CA	TX	Means	% TX	CO ¹	AB ²
1	ATLANTIC	2	25	4	0	20	10	0	0	3	1	0	1	0	0	0	0	2.4	3.0
2	CHIPETA	0	8	0	0	5	3	0	0	0	0	0	4	0	0	1	0	2.8	2.9
3	IVORY CRISP	0	3	4	0	10	3	0	6	0	2	0	6	0	0	2	0	3.5	2.4
4	CO97043-14W	0	0	0	0	10	2	0	0	5	2	0	6	0	0	2	0	2.7	2.9
5	CO97065-7W	1	0	3	0	3	1	0	0	3	1	0	1	0	0	0	0	3.5	3.4
MEANS							3.9				1.1					1.0	0.0	3.0	2.9
LSD (.05)							6.5				NS								

¹ Score 1-5, with 1=severe, 5=none.

² Aberdeen blackspot scores from an abrasive peel test [1-5(none)].

TABLE 9: 2008 Western Regional Chipping Potato Variety Trial - CHIP COLOR

Clone	CV ² Field	TX ¹ Field	CO ¹				ID ¹			50 Means
			Chip 40		Chip 50		Chip 40		Chip 50	
			^a	Recon ^b	^c	Recon ^d	^a	Recon ^b	^c	
1 ATLANTIC	32.9	1.0	5.0	4.5	3.0	3.0	3.2	1.5	1.2	2.1
2 CHIPETA	27.3	2.0	5.0	5.0	3.0	2.5	4.3	2.1	1.0	2.0
3 IVORY CRISP	29.9	1.0	4.0	3.0	1.0	2.0	2.6	1.8	1.0	1.0
4 CO97043-14W	29.4	1.0	4.0	3.0	1.5	1.0	2.5	1.5	1.0	1.3
5 CO97065-7W	28.5	1.0	4.5	3.5	2.0	2.0	4.3	2.1	1.0	1.5
Location Means	29.6	1.2	4.5	3.8	2.1	2.1	3.4	1.8	1.0	

¹ Color using Snack Food Association Frycolor Standards (1-5(darkest)).

² Agron readings (higher number(lightest)).

^a Stored 6-8 weeks at 40°F.

^b Stored 6-8 weeks at 40°F plus 3 weeks at 60°F.

^c Stored 6-8 weeks at 50°F.

^d Stored 6-8 weeks at 50°F plus 3 weeks at 60°F.

^e Stored 8 weeks at 45°F

TABLE 10: 2008 Western Regional Chipping Potato Variety Trial - DISEASE EVALUATIONS, METRIBUZIN REACTION

No. Clone	Vert. Wilt/ Early Dying		Early Blight	Late Blight			Corky Ringspot	Root- knot	Common Scab AB	% Net Necrosis/ vascular discoloration		% Virus Infection ⁶		Erwinia Soft Rot	Metr. Reaction	
	AB	HERM		AB	Foliar	Tuber				PROSSER ⁴	% Serious	Serious	PVY			PLRV
	0-9 ¹	0-9 ¹	0-9 ¹	CORV	CORV	CORV	(%)	(0-5)	Defect ⁵	Incidence	defect ⁵	HRM	0-5 ⁷	AB ⁸		
				1-9 ¹	AUDPC ²	% ³										
1 Atlantic	5.7	8.0	3.7	--	--	--	28.8	S	3.7	28.9	49.8	2.8	95	70	1.5	MR
2 Chipeta	3.5	3.0	3.7	6.8	671	0	23.8	S	2.7	11.7	66.8	11.2	90	100	0.5	MR
3 Ivory Crisp	3.0	7.9	4.0	7.3	837	0	73.8	S	3.3	44.1	72.3	3.3	90	90	1.5	--
AC99213-8W	--	5.3	--	--	--	--	65.0	S	--	--	--	--	95	95	--	MR
4 CO97043-14W	5.5	7.1	5.0	8.0	1037	0	36.3	S	3.7	56.3	66.6	2.5	90	80	1.0	MR
5 CO97065-7W	7.3	8.8	4.7	8.5	1097	0	12.5	S	3.3	44.2	47.9	0.0	90	85	2.3	MR
MEANS	5.0	6.7	4.2	7.7	911	0	40.0	--	3.3	37.0	60.7	4.0	92	87	1.4	--
LSD @ .05	2.2	--	1.8	0.7	271	5.1	--	--	1.4	15.0	24.3	17.6	--	--	1.5	--

¹ Evaluations made by Whitworth, Hane, and Yilma; 0 to 9, Where 0 or 1=No symptoms to a trace; 2=1-5%; 3=5-10%; 4=10-20%; 5=25-40%; 6=40-60%; 7=60-70%; 8=75-90%; 9=90-100% dead or dying with typical disease symptoms

² Evaluations made at Corvallis, Oregon by Solomon Yilma; AUDPC=area under the disease progress curve. Higher number indicates more disease over time.

³ Evaluations made at Corvallis, Oregon by Solomon Yilma; % of tubers examined with any late blight symptoms. Normal readings: three yr. tuber average for Ivory Crisp = 57%; foliar

⁴ Evaluations made at Prosser, Washington by Chuck Brown: S=susceptible, R= resistant

Evaluations made at Aberdeen, Idaho by Jonathan Whitworth; Percent serious defect = number of tubers with a 3 rating (0-5 scale) or higher, divided by the total number of tubers examined. Data from PLRV infected plots.

Evaluations made at Hermiston, Oregon by Dan Hane; scale as indicated, highest number being most severe.

⁶ % Virus are from ELISA test of sprouts from tubers grown under high virus pressure

⁷ Evaluations made at Aberdeen, Idaho by Jonathan Whitworth; scale as indicated with highest number being most severe.

⁸ Metribuzin Reaction measured at Aberdeen, ID

VR=very resistant, R=Resistant, MR=Moderately resistant, MS=moderately susceptible, S=susceptible VS=very susceptible.

TABLE 11: 2008 Western Regional Chipping Potato Variety Trial - SOLIDS, DEXTROSE, SUCROSE, PROTEIN, VITAMIN C, AND GLYCOALKALOIDS - ABERDEEN

Clone	Solids Oven Dry (%)	Sugars		Protein (%DWB)	Vitamin C (mg/100g FWB)	Glycoalkaloids (mg/100gFWB)
		Dextrose (%FWB)	Sucrose (%FWB)			
1 ATLANTIC	24.3	0.03	0.14	6.3	22.2	5.8
2 CHIPETA	22.5	0.02	0.17	6.6	25.8	3.6
3 IVORY CRISP	24.4	0.02	0.17	6.5	23.3	3.1
4 CO97043-14W	21.8	0.01	0.10	6.4	16.1	6.4
5 CO97065-7W	22.4	0.02	0.09	6.6	22.4	4.8
Means	23.1	0.02	0.13	6.5	21.9	4.7

FWB = fresh weight basis DWB = dry weight basis

Glycoalkaloids: The 2008 Greenhouse grown Lenape check from Aberdeen was 9.0 mg/100g

TABLE 12: 2008 Western Regional Chipping Potato Variety Trial - MERIT SCORES (1-5(best))

No.	Clone	Fresh Merit				Means	Processing Merit			Means
		CO	ID	CV	TX		CO	ID	CV	
1	ATLANTIC	3.0	2.8	2.8	3.9	3.1	2.0	3.0	2.6	2.8
2	CHIPETA	5.0	2.5	3.2	3.6	3.6	4.0	3.5	4.0	3.8
3	IVORY CRISP	1.0	2.8	3.5	4.2	2.9	2.0	3.8	4.5	4.2
4	CO97043-14W	2.0	3.0	3.5	3.4	3.0	3.0	4.0	4.5	4.3
5	CO97065-7W	1.0	3.0	4.0	3.6	2.9	2.0	3.5	4.0	3.8
Location Means		2.4	2.8	3.4	3.7		2.6	3.6	3.9	

TABLE 13: 2008 Western Regional Chipping Potato Variety Trial - SUMMARY

No.	Clone	Year in Trial	Yield Late	% US#1's	Tuber Size (oz)	Specific Gravity	Chip Color	Merit Score	Comments	Disposition
1	ATLANTIC	CK	508 med-high	406 81 medium	7.3 medium	99 high	2.1 fair	2.8 medium	Hollow Heart	
2	CHIPETA	CK	535 v. high	451 85 high	9.6 large	90 high	2.0 fair	3.8 good		
3	IVORY CRISP	CK	442 medium	320 76 med-low	8.0 med-large	95 high	1.0 excell.	4.2 v good		
5	CO97043-14W	3	459 medium	360 81 medium	7.3 medium	86 med-high	1.3 good	4.3 v good	scab	graduate
6	CO97065-7W	3	447 low	343 80 medium	6.1 small	93 high	1.5 good	3.8 good	small tubers, vert susc.	graduate

TABLE 14: 2008 Western Regional Chipping Potato Variety Trial - 3 YEAR SUMMARY ADVANCED CLONES

Clone	Year in Trial	Yield	Yield Late	% US#1's		Tuber Size (oz)		Specific Gravity		Chip Color		Merit Score		Comments
ATLANTIC	2008	508	med-high	406 81	medium	7.3	medium	99	high	2.1	fair	2.8	medium	Hollow Heart
ATLANTIC	2007	507	high	392 78	med-high	7.1	med-large	89	high	1.4	good	2.6	medium	Hollow Heart
ATLANTIC	2006	511	high	436 85	med-high	6.4	medium	89	high	2.5	fair	2.4	medium	Hollow Heart

CO97043-14W	2008	459	medium	360 81	medium	7.3	medium	86	med-high	1.3	good	4.3	v good	scab
CO97043-14W	2007	556	medium	424 75	medium	6.1	medium	79	med-low	1.9	fair	3.8	v good	adhering stolens
CO97043-14W	2006	436	medium	369 84	high	6.1	medium	79	medium	1.5	good	3.3	good	low SG scab

CO97065-7W	2008	447	low	343 80	medium	6.1	small	93	high	1.5	good	3.8	good	small tubers, vert susc.
CO97065-7W	2007	480	low	367 75	med-low	5.3	small	83	med-high	1.5	good	3.2	good	small tubers
CO97065-7W	2006	419	medium	339 80	high	5.2	small	83	med-high	1.5	good	3.1	good	scab

Comments and Information from States

Idaho Comments			length width	length depth	Early Blight	Eye Depth	
1	Atlantic	rot, deep end	1.12	1.36	2.3	2.5	3.5
2	Chipeta	big	1.27	1.49	2.3	3.0	2.5
3	Ivory Crisp	green, few	0.98	1.17	3.8	3.0	3.5
4	CO97043-14W	deep ends	0.71	0.91	2.5	2.5	3.3
5	CO97065-7W	small, scaley deep ends	0.98	1.09	1.7	2.3	3.7

Texas Comments			% Zebra	Anti Oxidants µg Trolox equivalents/gfw
1	Atlantic	Buff, 34% Vas, 3% HH	0	230
2	Chipeta	oversize, Rough, greening, soft, 70% Vas, 7% Dk	0	300
3	Ivory Crisp	Green, Feathering, oversize, 3% Z, 10% Vas, 3% Bru	3	198
4	CO97043-14W	Rough, over size, deep nose, sticky stolen, Light set, 17% Vas	0	199
5	CO97065-7W	nice flesh, 3% Bru, BOT	3	192
			Average	224
			LSD	70

Temperature was higher than average for the last week in May and the first and second week in June. Precipitation was high than normal during the growing season