

1999
WESTERN REGIONAL CHIPPING
POTATO VARIETY TRIAL REPORT

State Experiment Stations and
USDA-ARS Cooperating

California
Colorado
Idaho

Oregon
Texas
Washington

1999 WESTERN REGIONAL CHIPPING POTATO VARIETY TRIAL REPORT

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Compiled by Peggy Bain

TABLE 1: 1999 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
Kern Co. California (CA)	R. Voss, H. Phillips J. Nunez	Early	Sprink.	260-0-0-0	10-Feb	--	23-Jun	--	134		None	Bravo Manzanate
San Luis Valley Colorado (CO)	D. Holm	Late	Pivot	130-100-0-0	19-May	1-Sep	23-Sep	105	127	Dual Sencor	Thiodan	Manex, Bravo Super Tin Quadris, Curzate, Dithane, Champ
Aberdeen Idaho (ID)	S. Love, R. Novy, D. Corsini	Late	Sprink.	240-150-80-44	5-May	8-Sep	23-Sep	126	141	Metribuzin Matrix Eptam	Admire Monitor Fulfil	Bravo
Hermiston Oregon (HRE)	D. Hane, A. Mosley	Early	Pivot	--	12-Mar	--	8-Jul	--	118		Admire	
Hermiston Oregon (HRL)	D. Hane, A. Mosley	Late	Pivot	--	6-Apr	13-Sep	28-Sep	160	175		Admire	
Klamath Falls Oregon (KF)	K. Rykbost, B. Charlton	Late	Sprink.	160-80-80-0	19-May	6-Sep	1-Oct	110	135	Dual Prowl Matrix	DiSyston	Tops Dithane Bravo
Springlake Texas (TX)	J. C. Miller, Jr. J. Koym, D. Schuering	Early	Pivot	177-30-30-0	12-Mar	29-Jul	10-Aug	139	151	Trifluralin Sencor Roundup		Maxim
Othello Washington (WA)	R. Thornton, N. Fuller, J. Rupp, G. Newberry	Late	Sprink.	262-455-245-0	13-Apr	5-Aug	25-Aug	114	134	Eptam Prowl	Monitor Sevin	Chlorlthalonil EDBC Quadras

TABLE 2: 1999 Western Regional Chipping Potato Variety Trial - CLONE, PARENTS, ENTERED BY, SEED SOURCE, STAND, TUBER AND VINE CHARACTERISTICS, METRIBUZIN REACTION

No	Clone	Parents	Flower Color	Entered by	Year in Trial	Seed Source	Mean Stand %	Tuber		Vine		Metr. Reaction AB ¹
								Shape	Skin	Size	Maturity	
1	ATLANTIC	WAUSEON B5141-6	V Lt Red-purple	Check	Ck	Varied	97	Round	White	Medium	Med-early	S
2	CHIPETA	WNC612-13 WISCHIP	Med Red-purple	Check	Ck	CO	98	Round	Buff	Very large	Late	VR
3	A90467-14	ATD180-4 A80559-2	White	ID	2	OR	97	Round	White	Large	Late	VR
4	AC87340-2	NDA2031-2 SPARTAN PEARL	V Lt Red-purple	CO	2	OR	98	Round	Buff	Med-large	Med-late	MS
5	AC89653-3	NDA2031-2 SPARTAN PEARL	White	CO	1	CO	98	Oval	White	Med-large	Late	MS
6	AO91812-1	NDA2031-2 A86463-3	V Lt Red-purple	OR	2	OR	98	Oval	White	Large	Very late	MS

^{1/} Metribuzin Reaction measured at Aberdeen, R=Resistant, MR=Moderately resistant, MS=moderately susceptible, S=suceptible VR=very resistant.

TABLE 3: 1999 Western Regional Chipping Potato Variety Trial - TOTAL YIELD (CWT/A) - EARLY AND LATE HARVEST

No.	Clone	Total Yield - Early Harvest (CWT/A)				Total Yield - Late Harvest (CWT/A)							
		CA	HRE	TX	Entry Mean	Rank	CO ¹	ID	KF	HRL	WA	Entry Mean	Rank
1	ATLANTIC	509	546	270	442	4	446	425	492	661	639	554	4
2	CHIPETA	648	-	211	430	5	486	597	567	647	447	564	2
3	A90467-14	555	421	253	410	6	-	563	475	390	486	479	6
4	AC87340-2	685	546	338	523	2	460	477	574	486	662	550	5
5	AC89653-3	824	444	293	520	3	476	513	599	737	754	651	1
6	AO91812-1	713	591	273	526	1	-	575	514	595	559	561	3
Location Means		656	510	273	479		467	525	537	586	591	541	
LSD (.05)					NS							NS	

¹ Excluded from means due to missing entries.

TABLE 4: 1999 Western Regional Chipping Potato Variety Trial - YIELD OF U.S. #1'S (CWT/A & %) - EARLY AND LATE HARVEST

No.	Clone	U.S. No. 1's - Early Harvest (CWT/A)					U.S. No. 1's - Late Harvest (CWT/A)					Entry Mean	Rank
		CA	HRE	TX	Entry Mean	Rank	CO ¹	ID	KF	HRL	WA		
1	ATLANTIC	475	442	144	354	4	391	342	453	505	461	440	5
		93	81	52	75	1	87	80	92	76	72	80	4
2	CHIPETA	594	-	76	335	5	345	550	527	574	362	503	1
		92	-	35	64	4	71	92	93	89	81	89	1
3	A90467-14	532	171	97	267	6	-	488	418	226	294	357	6
		95	41	38	58	5	-	87	88	58	61	74	5
4	AC87340-2	651	449	150	417	1	305	393	531	363	505	448	4
		95	82	44	74	2	66	82	93	75	76	82	3
5	AC89653-3	762	317	15	365	3	297	329	489	468	511	449	3
		92	71	5	56	6	62	64	82	64	68	70	6
6	AO91812-1	659	397	108	388	2	-	491	477	470	439	469	2
		93	67	39	66	3	-	85	93	79	79	84	2
Location Means		612	355	98	355		335	432	483	434	429	422	
		93	68	36	66		72	82	90	74	73	78	
LSD (.05)					NS							NS	

¹ Excluded from means due to missing entries.

TABLE 5: 1999 Western Regional Chipping Potato Variety Trial - YIELD > 10/12 OZ (CWT/A & %) - EARLY AND LATE HARVEST

No.	Clone	U.S. No. 1's > 10/12 OZ - Early Harvest (CWT/A)					U.S. No. 1's > 10/12 OZ - Late Harvest (CWT/A)					Entry Mean	Rank
		CA	HRE	TX	Entry Mean	Rank	CO	ID	KF	HRL	WA		
1	ATLANTIC	144	93	10	82	2	176	43	185	67	93	97	3
		28	17	3	16	1	40	10	38	10	15	18	3
2	CHIPETA	141	-	6	74	3	55	136	204	394	101	209	1
		22	-	3	13	2	11	23	36	61	23	36	1
3	A90467-14	111	4	7	41	6	-	80	75	23	16	49	5
		20	1	3	8	5	-	14	16	6	3	10	5
4	AC87340-2	155	52	5	71	4	26	44	82	77	36	60	4
		23	10	1	11	4	6	9	14	16	6	11	4
5	AC89653-3	126	11	1	46	5	24	9	29	65	27	33	6
		15	2	0	6	6	5	2	5	9	4	5	6
6	AO91812-1	229	29	1	86	1	-	86	129	175	96	122	2
		32	5	0	12	3	-	15	25	29	17	22	2
Location Means		151	38	5	65		70	66	117	134	62	90	
		23	7	2	11		16	12	22	22	11	17	
LSD (.05)					NS							NS	

¹ Excluded from means due to missing entries.

TABLE 6: 1999 Western Regional Chipping Potato Variety Trial - YIELD < 4 OZ (CWT/A & %) - EARLY AND LATE HARVEST

No.	Clone	Yield < 4 OZ - Early Harvest (CWT/A)					Yield < 4 OZ - Late Harvest (CWT/A)					Entry Mean	Rank
		CA	HRE	TX	Entry Mean	Rank	CO ¹	ID	KF	HRL	WA		
1	ATLANTIC	19	93	123	78	6	40	71	30	155	103	90	3
		4	17	47	23	6	9	17	6	23	16	16	5
2	CHIPETA	41	-	134	88	5	93	32	17	59	42	38	6
		6	-	64	35	3	19	5	3	9	9	7	6
3	A90467-14	19	249	152	140	2	-	63	54	148	173	110	2
		3	59	60	41	2	-	11	11	38	36	24	2
4	AC87340-2	15	96	187	99	4	149	78	42	111	110	85	4
		2	18	56	25	5	32	16	7	23	17	16	4
5	AC89653-3	38	118	278	145	1	178	176	107	245	157	171	1
		5	27	95	42	1	37	34	18	33	21	27	1
6	AO91812-1	28	182	165	125	3	-	77	32	111	78	75	5
		4	31	61	32	4	-	13	6	19	42	20	3
Location Means		27	148	173	116		115	83	47	138	111	99	
		4	30	64	33		24	16	9	24	24	19	
LSD (.05)					NS							36	

¹ Excluded from means due to missing entries.

TABLE 7: 1999 Western Regional Chipping Potato Variety Trial - SPECIFIC GRAVITY - EARLY AND LATE HARVEST

No. Clone	Specific Gravity - Early Harvest					Specific Gravity - Late Harvest						
	CA	HRE	TX	Entry Means	Rank	CO ¹	ID	KF	HRL	WA	Entry Mean	Rank
1 ATLANTIC	1.086	1.079	1.054	1.073	1	1.104	1.097	1.082	1.073	1.081	1.083	1
2 CHIPETA	1.075	-	1.051	1.063	5	1.092	1.092	1.081	1.063	1.062	1.075	5
3 A90467-14	1.088	1.080	1.039	1.069	2	-	1.098	1.087	1.073	1.075	1.083	2
4 AC87340-2	1.076	1.069	1.041	1.062	6	1.094	1.086	1.074	1.063	1.069	1.073	6
5 AC89653-3	1.079	1.069	1.046	1.065	3	1.096	1.089	1.081	1.066	1.071	1.077	4
6 AO91812-1	1.074	1.073	1.046	1.064	4	-	1.097	1.079	1.072	1.067	1.079	3
Location Means	1.080	1.074	1.046	1.067		1.097	1.093	1.081	1.068	1.071	1.078	
LSD (.05)				NS							0.005	

¹ Excluded from means due to missing entries.

TABLE 8: 1999 Western Regional Chipping Potato Variety Trial - AVERAGE TUBER SIZE, AND TUBER SHAPE

No. Clone	Average Tuber Size (oz)							Tuber Shape (1-5, 1 = round, 5 = long)				
	HRE E	TX E	Early Entry Means	ID L	HRL L	WA L	Late Entry Means	TX E	CO L	ID L	WA L	Entry Means
1 ATLANTIC	5.5	3.3	4.4	5.7	4.9	5.6	5.4	1.0	1.0	1.8	1.0	1.2
2 CHIPETA	.	3.0	3.0	7.7	8.7	7.0	7.8	1.0	1.0	2.0	1.0	1.3
3 A90467-14	3.0	3.2	3.1	6.5	3.9	4.1	4.8	1.0	-	1.3	1.0	1.1
4 AC87340-2	5.1	3.2	4.2	5.5	5.0	5.4	5.3	1.0	1.0	1.3	1.0	1.1
5 AC89653-3	4.3	2.0	3.2	4.1	4.1	5.0	4.4	3.0	1.0	1.5	2.0	1.9
6 AO91812-1	4.3	3.0	3.7	6.2	6.2	6.0	6.1	2.0	-	2.3	1.0	1.8
Location Means	4.4	3.0	3.7	6.0	5.5	5.5	5.6	1.5	1.0	1.7	1.2	1.4

TABLE 9: 1999 Western Regional Chipping Potato Variety Trial - EXTERNAL DEFECTS MEANS OF LOCATIONS - GROWTH CRACKS, SECOND GROWTH, SHATTER BRUISE, SCAB

No. Clone	Growth Cracks ¹		Second Growth ¹		Shatter Bruise ¹			Scab ¹	
	Early	Late	Early	Late	Early	Late	AB ²	Early	Late
1 ATLANTIC	5.0	4.8	5.0	5.0	5.0	4.6	3.2	5.0	4.6
2 CHIPETA	5.0	4.9	5.0	5.0	5.0	4.5	3.6	5.0	4.9
3 A90467-14	5.0	5.0	5.0	5.0	5.0	3.9	3.5	5.0	4.8
4 AC87340-2	5.0	4.8	5.0	5.0	5.0	4.1	3.5	5.0	4.7
5 AC89653-3	5.0	4.8	5.0	5.0	5.0	4.3	3.3	5.0	4.6
6 AO91812-1	5.0	4.9	5.0	5.0	5.0	4.4	4.0	5.0	4.6

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 10: 1999 Western Regional Chipping Potato Variety Trial - INTERNAL DEFECTS MEANS OF LOCATIONS - HOLLOW HEART PLUS BROWN CENTER, INTERNAL BROWN SPOT, VASCULAR DISCOLORATION/NET NECROSIS, BLACKSPOT

No.	Clone	Percent Hollow Heart plus Brown Center		Percent Internal Brown Spot		Percent Net Necrosis/ Vascular Discoloration		Blackspot Bruise ¹		
		Early	Late	Early	Late	Early	Late	Early	Late	AB ²
1	ATLANTIC	7.0	14.4	3.0	1.9	0.0	0.0	4.9	5.0	3.9
2	CHIPETA	0.0	2.8	0.0	0.3	0.4	2.0	5.0	5.0	3.1
3	A90467-14	0.0	5.0	0.0	2.1	0.6	1.8	5.0	5.0	4.0
4	AC87340-2	0.5	2.1	0.0	1.3	0.6	0.0	5.0	5.0	4.0
5	AC89653-3	0.0	7.4	0.0	1.8	0.0	1.0	5.0	5.0	4.0
6	AO91812-1	0.0	0.6	1.5	0.0	0.2	1.0	4.9	5.0	3.6

¹ Score 1-5, with 1=severe, 5=none.

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

TABLE 11: 1999 Western Regional Chipping Potato Variety Trial - CHIP COLOR, AND PERCENT SUGAR ENDS

No.	Clone	Early Harvest			Late Harvest										% Sugar Ends				
		CA ¹	TX		HRE ³	CO ¹				ID ¹			KF ¹	HRL ³	HRM		ID	Means	
			Hunter Color			Chip 40		Chip 50		Chip 40		Chip 50			E	L			L
			L ²			a	Recon ^b	c	Recon ^d	a	Recon ^b	c							
1	ATLANTIC	1.0	56.6	1.0	4.0	3.5	2.5	2.5	4.0	2.7	1.5	3.0	0.1	0	0	44	15		
2	CHIPETA	1.0	50.7	1.0	4.5	4.5	3.0	2.0	4.0	2.9	1.1	2.3	0.0	0	0	33	11		
3	A90467-14	1.0	64.5	1.0					2.9	2.0	1.0	2.3	0.0	0	0	8	3		
4	AC87340-2	1.0	58.6	1.0	3.5	3.0	2.0	1.5	3.0	2.0	1.1	2.3	0.0	0	0	6	2		
5	AC89653-3	1.0	54.2	1.0	3.5	3.5	2.5	2.5	3.3	3.2	1.4	2.8	0.0	0	0	3	1		
6	AO91812-1	1.0	62.3	1.0					4.2	2.9	1.5	2.5	0.0	0	0	3	1		
Location Means		1.0	57.8	1.0	3.9	3.6	2.5	2.1	3.6	2.6	1.3	2.5	0.0	0	0	16			

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

² L=light to dark. Samples lower than 62 'L' are unacceptable.

³ USDA (00-4.0(darkest)).

^a Stored 8 weeks at 40°F.

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

^c Stored 8 weeks at 50°F.

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

TABLE 12: 1999 Western Regional Chipping Potato Variety Trial - DISEASE EVALUATION

No. Clone	Vert. Wilt/ Early Dying		Early Blight	Late Blight		Common Scab	Leafroll Net Necrosis	Erwinia Soft Rot
	AB	HERM	AB	Foliar	Tuber	AB	HERM	AB
	0-9 ¹	0-9 ¹	0-9 ¹	1-9 ¹	% by Wt.	0-5 ²	1-5 ²	0-5 ²
1 ATLANTIC	3.7	-	6.7	6.5	0.0	4.0	-	1.9
2 CHIPETA	2.3	1.1	5.0	-	-	2.0	3.6	2.0
3 A90467-14	3.0	2.6	5.3	-	-	3.0	2.3	1.9
4 AC87340-2	3.7	2.5	6.7	7.2	2.5	4.0	1.8	3.6
5 AC89653-3	3.7	2.1	6.7	-	-	1.0	2.8	2.2
6 AO91812-1	2.7	2.0	4.5	2.5	10.0	2.0	1.9	3.1
MEANS	3.2	2.1	5.8	5.4	4.2	2.7	2.5	2.5
LSD @ .05	1.7		1.2			1.2		1.6

1 0 to 9 or 1-9, 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 0 to 5, 0=None; 1=mild symptoms, sample would not be out of grade to disease defect; 2= moderate symptoms, some culls due to disease; 3= moderately severe symptoms, sample would be out of grade due to disease defect; 4=severe symptoms, sample out of grade; 5= maximum severity, all tubers in sample showing severe symptoms.

TABLE 13: 1999 Western Regional Chipping Potato Variety Trial - SOLIDS, DEXTROSE, SUCROSE, PROTEIN, VITAMIN C, AND GLYCOALKALOIDS - ABERDEEN

Clone	Solids	Sugars		Protein (%DWB)	Vitamin C (mg/100g FWB)	Glycoalkaloids (mg/100gFWB)
	Oven Dry (%)	Dextrose (%DWB)	Sucrose (%DWB)			
ATLANTIC	25.6	0.02	0.21	5.6	23.7	6.2
CHIPETA	23.5	0.02	0.26	6.1	26.7	2.3
A90467-14	25.6	0.01	0.26	6.7	28.0	2.9
AC87340-2	22.7	0.01	0.15	5.7	17.6	4.9
AC89653-3	22.2	0.02	0.19	6.5	27.7	2.6
AO91812-1	24.8	0.02	0.23	5.4	18.7	2.2
Means	24.1	0.02	0.22	6.0	23.7	3.5

DWB = dry weight basis

FWB = fresh weight basis

TABLE 14: 1999 Western Regional Chipping Potato Variety Trial - MERIT SCORES (1-5(best))

No.	Clone	Early Process Merit			Late Process Merit			
		HRE	TX	Means	CO	ID	HRL	Means
1	ATLANTIC	2.0	3.2	2.6	1.0	3.0	4.0	2.7
2	CHIPETA	.	2.7	2.7	4.0	3.5	3.0	3.5
3	A90467-14	1.0	2.7	1.9		3.5	1.0	2.3
4	AC87340-2	4.0	3.0	3.5	4.0	4.0	3.0	3.7
5	AC89653-3	3.0	3.2	3.1	1.0	4.0	2.0	2.3
6	AO91812-1	3.0	3.0	3.0		3.5	4.0	3.8
Location Means		2.6	3.0	2.8	2.5	3.6	2.8	3.0

TABLE 15: 1999 Western Regional Chipping Potato Variety Trial - SUMMARY

No.	Clone	Year in Trial	Yield	% US#1's	Tuber Size	Specific Gravity	Fry Color	Merit Score	Problems	Disposition
1	ATLANTIC	CK	554 high	440 80 high	5.4 medium	83 med-high	fair	2.7 fair	HH and Sugar Ends	
2	CHIPETA	Ck	564 high	503 89 high	7.8 med-large	75 med-low	fair	3.5 good	Sugar Ends	
3	A90467-14	2	479 med-high	357 73 medium	4.8 med-small	83 med-high	good	2.3 poor		
4	AC87340-2	2	550 high	448 81 med-high	5.3 medium	73 low	fair	3.7 good	Disease sus.	
5	AC89653-3	1	651 very high	449 69 medium	4.4 small	77 medium	fair	2.3 poor	Small tubers	
6	AO91812-1	2	561 high	469 84 high	6.1 medium	79 medium	fair	3.8 top		