

Ohio Potato Cultivar Trials, 1975

A. R. Mosley

E. C. Wittmeyer

R. C. Rowe

F. I. Lower

DEPARTMENT OF HORTICULTURE
OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
U. S. 250 and OHIO 83 SOUTH
WOOSTER, OHIO

Table of Contents

Introduction - - - - - 1
Statewide Trials - - - - - 1
Marietta Trials - - - - - 12
Muck Trials - - - - - 15
Characteristics of Cultivars - - - - - 18

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OHIO POTATO CULTIVAR TRIALS, 1975

A. R. Mosley, E. C. Wittmeyer¹, R. C. Rowe², and F. I. Lower³

INTRODUCTION

Tests were conducted on 7 grower farms and at the OARDC Muck Crops Branch, Celeryville, in 1975. Thirty-eight cultivars and advanced selections were evaluated. As in past years, the overall program was divided into 3 segments: (1) An across-the-state trial of 9 major entries at locations 1-6; (2) An early-market test of 15 entries at Marietta (Location No. 7); and (3) A planting of 9 entries on muck at Celeryville (Location No. 8).

STATEWIDE TRIAL

Procedure

The following 9 major entries were tested on 6 grower farms across Ohio (see back cover).

W 718	W 710
Hudson	6CX6
Kennebec	Superior
Shurchip	Norchip
Katahdin	

All entries evaluated in 1975 are characterized in Table 1. As in past years, Superior was included for an early-maturing standard while Katahdin served that purpose for late-maturing entries. In addition to the 9 entries on 6 farms, 30 observational entries were evaluated on Farms 2 and 5.

Plots were located in commercial fields to insure the use of commercially-acceptable cultural and disease and insect control practices. Production methods and soil type and fertility varied widely from farm to farm (Tables 2 and 3). Planting dates ranged from April 18 to June 23; harvest dates from September 12 to October 22. Plot size was consistent across locations. Major plots were double rows 50 feet long replicated 3 times on each of the 6 farms. Observational entries were grown in double-row plots 25 feet long replicated twice each for farms 2 and 5.

Stand, vigor, and disease and insect damage were evaluated during the growing season. At harvest, plots were dug using a level-bed digger and the tubers were rated for general appearance while drying on the soil. Tubers were then weighed in the field for total yield; during the weighing, a 50-lb. sample was collected from each plot for grading and sizing. During the grading process, 15-lb. samples were taken from each plot for the 9 major entries and for each promising observational selection for chipping and specific gravity determinations in the Horticulture Pilot Plant at Columbus. Results of chip and storage tests will be published separately.

¹ Extension Horticulturist
² Plant Pathologist
³ County Extension Agent, Emeritus

TABLE 1.--Sources, Origin and Characteristics of Entries, Ohio Potato Cultivar Trial, 1975

(1) Entry	Locations Tested	Origin	Years in Ohio Tests	Resistant or Tolerant to:	Comments
1111-2	2,5	Mich.	1	?	No yield, Rough.
6CX6	All	Penn.	4	?	High solids. Resembles Norchip. Good yields. Variable size. May shatter bruise.
6RF1	2,5	Penn.	4	Late blight	Very late. High yields. Often immature at harvest. Large and rough in 1974.
711-8	2,5	Mich.	1	?	Above avg. yields. Attractive.
AK 11-4	2,5	Alaska	1	-	Low yields in '75. Low grade. No promise
AK 13-2	2,5	Alaska	1	-	Low yields, Very low grades.
AK 25-5	2,5	Alaska	1	-	High yields. Low grade.
AK 28-8	2,5	Alaska	1	-	Avg. to high yields. Low yields in '75.
AK FV	2,5	Alaska	1	-	Very low yields, grade.
Anoka	2,5,7	Minn.,1964	4	Scab (mod.), Late blight	Avg. yields, good grades. Early. Chips. High solids. Heavy set.
B6987-56	2,5	USDA & Me.	1	?	Will be named "Atlantic". Low gravity. Attractive. High yields.
Belleisle	2,5	N.B.,1974	2	Res't. bruising. Susc. Vert., leaf roll, Virus Y.	Avg. to high yields. Good chipper. All-purpose. Pink eyes. Low grades.
F61025	2,5	N.B.	2	Res't. Vert. wilt. and leaf roll.	Average yields. Low grades.
FL 73	2,5	Frito-Lay	2	?	Chips. Low to average yields.

TABLE 1.--Sources, Origin and Characteristics of Entries, Ohio Potato Cultivar Trial, 1975(cont.)

Entry	(1) Locations Tested	Origin	Years in Ohio Tests	Resistant or Tolerant to:	Comments
Hudson	All	N.Y.,1973	6	Golden nematode	High yields. Jumbo tubers, sometimes rough. Does not chip from storage. Susc. scab and possibly late blight.
Katahdin	All	USDA,1935	13	Leaf roll, mosaic, net necrosis	Standard all-purpose variety. Widely adopted. Attractive, shallow-eyes. Not as dependable as Norchip, Kennebec, for chips.
Kennebec	All	USDA,1948	9	Late blight, mosaics net necrosis	High yields. Low grades. Good chipper, all purpose. Susc. Vert., spindle tuber. Prone to storage rots if dug wet.
MS 709	2,5	Mich.	6	?	High yielding potential. Attractive. Large tubers.
Nampa	2,5,7	Ida., Wisc., USDA, 1973	2	Scab	Oblong, russet. Late. High gravity. Rough shape, low grades.
NC64C2	2.5	Penn.	2	?	Not promising. Heavy set. Small. Deep eyes.
ND8888-2	2,5	N.D.	1	?	Cascade X Norchip. Avg. to good yields. Low grades. Chips.
ND8891-3	2,5	N.D.	1	?	Chips. Early. High yields.
Norchip	All	N.D.,1968	8	Scab. Some insects. Susc. V., spindle tuber & virus X	Tubers tend to be small. Generally rough. Good chipper.
Onaway	2,5,7	USDA & Mich. 1957	?	Scab, Late blight (mod.)	Susc. Vert. wilt, Tubers often rough in Ohio.

TABLE 1.--Sources, Origin and Characteristics of Entries, Ohio Potato Cultivar Trial, 1975(cont.)

(1) Entry	Locations Tested	Origin	Years in Ohio Tests	Resistant or Tolerant to:	Comments
Penn 71	2,5,7	Pa.,1972	4	Late blight. Susc. Vert. wilt.	Good chipper. Var. yields. Rough Shape. Low grades.
Shurchip	All	Neb.,1968	3	Scab, tolerant to V. and F. wilts. Susc. to Late blight	Attractive russet in most years. High yields. Not a dependable chipper.
Snowchip	2,5	Alaska & USDA,1973	2	-	High yields. Chips. High solids.
Superior	All	Wisc.,1961	13	Scab, late blight. Susc. to "early dying" disorder	Early. Usually smooth and uniform. Early maturing. Chips and cooks. Standard early var. in Ohio.
Targhee	2,5,7	Ida., Wisc., USDA,1973	2	Scab. Some res't. to V. wilt.	Long russet. High solids. Late. Low grades.
W623	2,5	Wisc.	3	?	Chips. High solids. Small, low grades in Ohio in '74. May be named in '76.
W 710	All	Wisc.	3	?	Good yields. Low solids. Sometimes poor chip color.
W 715	2,5	Wisc.	1	?	Avg. to good yields. Fairly attractive.
W 718	All	Wisc.	3	?	High-yielding. Large, attractive tubers. Shallow eyes.
W 721	2,5	Wisc.	1	?	Good yields. Promising.
W 723	2,5	Wisc.	1	?	Above avg. yields. Good grades.

TABLE 1.--Sources, Origin and Characteristics of Entries, Ohio Potato Cultivar Trial, 1975(cont.)

Entry (1)	Locations Tested	Origin	Years in Ohio Tests	Resistant or Tolerant to:	Comments
W 726	2,5	Wisc.	1	?	Promising in Wisc. Good yields in Ohio, but skin problems--scab, rhizoc.
W 728	2,5	Wisc.	1	?	Above avg. yields, but rough. Unattractive.
W 731	2,5	Wisc.	1	?	Yields acceptable, but low grades.
Wischip	2,5,7	Wisc.,1974	3	Tol. to scab. Very Susc. L. blight.	Poor vigor. Chips but low yields. Small tubers. Early.

(1) Entries listed alphabetically.

TABLE 2.--Cultural and Pest Control Methods, Ohio Potato Variety Trials, 1975.

	LOCATION NO.					
	1	2	3	4	5	6
Planted	April 18	May 23	May 9	May 19	May 2	June 23
Killed	Aug. 29	Sept. 17	Frost	--	Sept. 8	Frost
Harvest	Sept. 12	Oct. 2	Oct. 22	Oct. 1	Sept. 27	Oct. 17
Days to Kill	133	118	--	--	129	--
Days to Harvest	147	133	144	134	148	116
1974 Crop	Potatoes	Timothy & Clover	Wheat	Wheat	Wheat	Wheat
Cover Crop	Rye	Timothy & Clover	Clover	Barley	Timothy & Clover	Rye
Fertilizer/A.						
Broadcast	150# Epsom Slts 500# 12-24-24	--	--	--	--	--
In-Row	500# 12-24-24	800# 10-20-20	1200# 15-15-15	200# 12-12-12	1000# 10-20-20	950# 14-14-14
Herbicide	Eptam	Eptam, 50#	Lorox	Lasso & Lorox	Eptam, 50#	Lorox & Senco
Syst. Insect.	Di-Syston, 20#	Di-Syston, 50#	Di-Syston	Temik, 20#	Temik, 20#	Thimet, 20#
Spacing, In.	9.5 x 34	11 x 32	10 x 32	8 x 32	8.5 x 36	12 x 36
Soil Type	Sandy Silt Loam	Wooster Silt Loam	Silt Loam	Silt Loam	Silt Loam	Sandy Silt Lc
Total Moisture, in.*	13.2	11.1	9.7	16.0	11.0	10.4

* Total moisture June 1 to August 31. Locations 1 and 5 were irrigated 3.0 and 2.0 inches, respectively.

TABLE 3.--Soil Test Results, Ohio Potato Variety Trials, 1975.

Location	pH	LTI	Pounds Per Acre						% Base Saturation			CEC	OM
			P	K	Ca	Mg	NO ₃	Mn	Ca	Mg	K		
1	6.2	66	106	232	2250	260	12	87	50	9	3.0	11	1.5
2	4.9	62	101	350	1600	151	16	104	27	4	3.1	14	2.3
3	5.0	61	137	580	1960	352	31	92	27	8	4.2	17	1.8
4	5.6	64	99	198	1880	297	48	88	35	9	1.9	13	1.8
5	5.7	64	141	394	1550	358	30	86	29	11	3.9	13	1.5
6	6.4	69	28	113	3260	333	18	17	74	12	1.3	10	2.6
7	4.7	59	123	391	1000	143	16	172	14	3	3.0	16	2.8
8	5.2	52	119	588	11410	2169	95	18	43	15	1.5	55	85.0

LTI - Lime Test Index

CEC - Cation Exchange Capacity

OM - Percent Organic Matter

Results

Yield.--The advanced breeding selection W718 with 371 cwt/A significantly outyielded all other entries in 1975 with the exception of Hudson (Table 4). Differences in yield between W718 and Hudson approached statistical significances at the 5% level. Tubers of W718 were generally smooth (88% No. 1's) with shallow eyes and were of above average size. Skins were light-colored and free of defects. W718 has shown considerable promise in other north central states. It had been tested only in observational plots in Ohio prior to 1975.

Hudson produced 2nd highest average yields in 1975 with 349 cwt. followed by: Kennebec, 331 cwt.; Shurchip, 327; Katahdin, 312; W710, 309; 6CX6, 307; Superior, 284; and Norchip, 282 cwt. per acre. Prior to 1975, Hudson had outyielded all others each year it was tested in Ohio (Table 5); however, performance in 1975 was not as good as in previous years. In 1975, Hudson tubers were rougher than usual and more prone to scab--especially on light-textured soils. Hudson tubers were larger than those of any other variety (Table 7), weighing about 25% more than the average. Norchip yields were unusually low. Diseased seed apparently accounted for this poor performance. With the exceptions of Farm No. 1, the B-size Norchip seed used was heavily infected with Fusarium which caused a poor stand and low yields. Cut seed used on Farm No. 1 was from another source and produced above average yields for that location.

6CX6 has had high solids in pasts tests and chipped light at Celeryville in 1975; tubers resembled those of Norchip but varied in size and grade. 6CX6 appeared to be susceptible to shatter bruise. W710 yielded well, but tubers in previous tests tended to be low in solids and to chip dark in some instances. It may prove to be a suitable variety for early fresh market. W710 led in yield at Marietta in 1975. Superior has produced below-average yields in most years in Ohio (Table 5). This is to be expected from an early-maturing variety. Superior continues to be a standard early variety in Ohio due to scab resistance and earliness.

Average yields differed considerably among farms in 1975. Farm No. 6 was planted late (June 23), probably accounting for the unusually low average yields of only 209 cwt. Soil test results indicated somewhat low levels of phosphorus and maganese on Farm No. 6 (Table 3).

Grades.--Grades averaged 85% U.S. No. 1 in 1975 (Table 6). Varieties grading out above average were: W710, 89.9%; Katahdin, 89.1%; W718, 87.7%; Shurchip, 87.4%; and Superior, 86.0%. All others produced less than 85% No. 1's. Kennebec, 6CX6, and Norchip averaged around 80 percent U.S. No. 1.

Percent Stand.--Varieties showing below average stands in 1975 included: W718, 80.5%; 6CX6, 83.5%; and Norchip, 77%. Norchip stands were reduced considerably due to poor seed; seed used at 5 of the 6 locations was severely infected with fusarium. W718 produced highest yields despite the very low stand of 81%.

TABLE 4.--Average U.S. No. 1 Yields in Cwt. Per Acre, Major entries, STATEWIDE TRIAL, 1975.

Entry (1)	LOCATION						Average
	1	2	3	4	5	6	
W 718	395	--	412	--	446	232	371
Hudson	331	532	373	360	272	228	349
Kennebec	357	436	271	326	350	247	331
Shurchip	376	448	193	354	360	233	327
KATAHDIN	274	387	379	403	203	223	312
W 710	344	431	309	330	290	148	309
6CX6	363	404	288	265	352	170	307
SUPERIOR	275	344	247	340	271	227	284
Norchip	356	326	213	292	326	177	282
Average	341	414	298	334	319	209	319
LSD, 5% level	77	74	89	86	64	47	26

(1) Entries ranked according to average yields across all locations.

TABLE 5.--U.S. No. 1 Yields in Cwt/A. For Major Entries Tested State-Wide in 1975
Or More Than 1 Year In The Last 10 Years

Variety	Year										Average
	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	
<u>EARLY</u>											
Haig	204	254	233	----	----	310	296	----	----	----	259
Alamo	----	----	298	286	308	277	----	----	----	----	292
Superior	255	283	269	308	269	275	228	287	266	273	271
Iopride	----	----	----	----	321	302	----	----	----	----	312
<u>MEDIUM EARLY</u>											
La Chipper	285	325	272	301	----	----	----	----	----	----	296
Platte	----	315	273	302	----	----	----	----	----	----	297
Monona	229	288	231	284	274	300	----	----	----	----	268
Wauseon	----	----	----	----	297	270	----	----	----	----	284
Abnaki	----	----	----	----	----	319	297	291	260	----	292
<u>MIDSEASON</u>											
Peconic	----	----	305	297	349	290	----	----	----	----	267
Penobscott	222	----	307	425	----	----	----	----	----	----	318
Shurchip	----	----	----	385	282	335	304	310	305	327	321
Norchip	----	----	307	282	355	294	284	292	297	272	298
Hudson	----	----	----	----	----	347	352	342	396	348	357
Katahdin	270	327	284	290	344	285	277	283	301	336	300
Kennebec	290	286	----	----	----	----	285	280	362	321	304
Lenape	----	326	263	274	----	----	----	----	----	----	288
W 710	----	----	----	----	----	----	----	----	----	315	315
W 718	----	----	----	----	----	----	----	----	----	371	371
6CX6	----	----	----	----	----	----	----	----	----	307	307
Penn 71	----	----	----	----	----	----	----	268	293	----	281
<u>LATE</u>											
Ona	234	350	319	----	----	----	----	----	----	----	301
Sebago	225	299	----	----	----	----	----	----	----	----	262
Average	246	305	280	312	311	300	290	294	310	319	

TABLE 6.--Percent Stand, Grade and Average Tuber Weight
Major Entries, STATEWIDE TRIAL, 1975.

Cultivar	Percent Stand	Average Percent			Avg.Wt. lbs.
		No. 1	B-Size	Culls	
W 718*	81	87.7	3.2	9.0	0.42
Hudson	94	84.0	1.9	8.8	0.53
Kennebec	89	79.2	2.6	18.1	0.51
Shurchip	94	87.4	5.1	7.5	0.33
KATAHDIN	90	89.1	2.9	5.3	0.44
W 710	87	89.9	4.4	8.5	0.41
6CX6	84	80.0	5.3	15.0	0.38
SUPERIOR	93	86.0	4.9	8.8	0.35
Norchip	77	80.6	5.0	14.4	0.36
Average	88	84.9	3.9	10.6	0.41
LSD 5% level	2.6	3.4	1.0	3.4	----

* Not included on farms 2 and 4.

Observational Entries

Yields for the observational entries averaged 306 cwt/A. across all varieties (Table 7). Grades were relatively poor, however, averaging only 78% U.S. No. 1. Slightly heavy soils and wet weather contributed to off-shapes and skin disorders on Farms 2 and 5 so that grades were lower on these farms.

Several of the observational entries were promising and will be tested further. Among these was Snowchip which was released by Alaska and the USDA in 1973. Snowchip produced highest yields among the observational selections with 425 cwt. per acre. Tubers were fairly attractive with shallow eyes.

6RF1 from Pennsylvania produced 416 cwt. It matures too late for some situations in Ohio, however; mechanical damage due to thin, immature skins has been serious. Tubers were rough in 1974 and 1975.

B6987-56 yielded well and had a high percentage of large, smooth and attractive tubers. Skins were light-colored, but gravities have tended to be low. It does not appear to be a chipping variety. Reports indicate that B6987-56 will probably be named "Atlantic" in 1976.

Other observational entries to be tested further in 1976 include: W721, 711-8, Anoka, and Onaway. Several other entries including W726, W728, AK28-8, W623, W731, and MS709 are being considered for further testing as indicated in Table 7. All remaining entries in Table 7 will be dropped from further tests in Ohio.

TABLE 7.--Percent Stand, U.S. No. 1 Yields, Grade, and Characteristics of Observational Entries, STATEWIDE TRIAL, 1975.

(1) Entry	Percent Stand	U.S. No.1		Avg. Tuber wt/lbs.	Plans for 1976	Comments
		cwt/A	%			
Snowchip	95	425	80	.37	Test	High solids, yields. Shallow eyes. Chips in Alaska. Good tops.
6RF1	95	416	77	.35	Test	Res't L.blight. Good yields. Very late. Rough in 1974.
ND8891-3	97	400	81	.39	Test	Chips. Early.
B6987-56	94	378	91	.50	Test	Med. early. Attractive. Low solids. "Atlantic"
W 721	90	373	93	.37	Test	High yields, grade.
W 726	85	355	90	.44	Undec- ided	Rough in '75. Heavy set.
W 728	87	349	86	.29	Undec- ided	Deep bud ends. Prom. lenticels. Ugly.
W 723	92	344	91	.39	Undec- ided	Yields above avg. Good grades. Some rough.
Penn 71	88	344	84	.47	Drop	Tested sufficiently in Ohio. No better than Katahdin.
AK 25-5	91	338	78	.33	Drop	Above Avg. yields in '75. Rough.
AK 28-8	96	336	78	.36	Undec- ided	- - - - -
711-8	93	335	86	.44	Test	Above avg. yields. Att.
W 623	89	333	83	.38	Undec- ided	Avg. yields. Doubtful in 1974.
W 731	94	325	81	.53	Undec- ided	Avg. yields and grade. 1 yr.
W 715	98	320	77	.35	Undec- ided	Good yields, poor grades.
MS 709	94	312	79	.54	Undec- ided	Avg. yields-high some years. Tested 2-3 yrs. in Ohio.
Targhee	100	286	76	.36	Drop	Low yields, grade. Long russet.
Anoka	92	283	89	.35	Test	Early.

TABLE 7.--Percent Stand, U.S. No. 1 Yields, Grade, and Characteristics of Observational Entries, STATEWIDE TRIAL, 1975.

Entry	(1) Percent Stand	U.S. No.1		Avg. Tuber wt/lbs.	Plans for 1976	Comments
		cwt/A	%			
ND8888-2	89	282	68	.39	Drop	Low yields, poor grades. No good in 3 years.
Belleisle	86	275	71	.41	Undec- ided	Late. Avg. or below yields. Chips. All-purpose.
Onaway	93	271	83	.40	Test	Test at Marietta. Good yields, grades-Marietta.
FL 73	96	261	78	.47	Drop	Low yields. Avg. grades. Rough.
AK 13-2	77	261	63	.42	Drop	Low yields, poor grades.
F61025	82	259	77	.42	Undec- ided	Below Avg. yields in 2 yrs.
NC64C2	97	249	68	.27	Drop	Low yields, grades. Deep eyes. Small tubers.
Wischip	98	247	90	.27	Drop	Low yields, small. Susc. to L. blight.
AK 11-4	76	231	62	.47	Drop	Low yields, grade. Rough.
Nampa	93	227	57	.38	Drop	Low yields, grade. Long russet.
1111-2	64	188	60	.43	Drop	Low yields, grades.
AKFV	100	187	54	.21	Drop	Poor yields, grade.
Average	---	306	78	---	----	- - - - -

(1) Entries ranked by average U.S. No. 1 yields.

MARIETTA EARLY MARKET TRIALS
INTRODUCTION

Commercial potato production in southern Ohio is geared primarily toward early fresh market outlets. Fields are planted in April and harvested late in July and early August. To aid growers in that area and across southern Ohio 11 named cultivars and 4 numbered selections were tested for late summer cropping potential on a grower farm near Marietta in 1975. In approximate order of maturity, entries were:

SUPERIOR	6CX6
Wischip	Penn 71
Anoka	Kennebec
W710	KATAHDIN
W718	Hudson
Norchip	Targhee
Shurchip	Nampa
Onaway	

Entries are described briefly in Table 1. Superior was used for comparison with early entries and Katahdin for mid-season to late entries.

Procedure

Plots were planted on April 14 in Wheeling Gravelly Loam which had been cropped to potatoes the preceding season and cover-cropped with rye. Eptam was pre-plant incorporated for weed control. Seed were spaced 9.5 inches apart in 34-inch rows; individual plots were double rows 50 feet long. Plots were replicated 3 times in a completely randomized design. Fertilizer was banded at planting @1100 lbs. per acre of 12-12-12. The systemic insecticide Di-Syston was applied in the furrow according to label directions. Thiodan and Polyram were applied on three occasions between May 23 and July 6 for control of late blight and the Colorado Potato Beetle. Beetles were extremely numerous at harvest.

Rainfall amounted to 14.96 inches from planting to harvest with an additional 0.8 inches of moisture through irrigation on June 26. Soil tests (Table 3) indicated a pH of only 4.7; other nutrients and characteristics were approximately normal.

Vines were shredded and the potatoes were harvested on July 30 after a growing season of 106 days. Vines of most varieties were 90 to 100% dead prior to shredding with exception of Targhee (75% dead), Nampa (70%) and Hudson (85%). Harvest, grading and sizing operations were as described previously. Samples were collected for chip tests.

Result

Yield.--Yields averaged 198 cwt. per acre of U.S. No. 1 potatoes across all varieties (Table 8). W710 produced 310 cwt.; other entries yielding higher than average included: Hudson, 261 cwt.; Shurchip, 252; Superior, 235; Kennebec, 224; Onaway, 222; Anoka, 219; and W718, 199 cwt. per acre.

Most of the entries yielding less than 200 cwt. are unsuited for use at Marietta. Wischip, Nampa, Targhee, and 6CX6 hold very little promise. Wischip

yielded almost 20% below average in 1975 and 12 percent below in 1974 (Table 9). Penn 71 has produced only average or below yields in 3 years of testing and, therefore, is of doubtful use. Katahdin has produced below average yields most years at Marietta, but has been continued for purposes of comparison. Norchip has yielded above average most years, but has been of doubtful use as a fresh market variety. W718 yielded poorly in 1975, only 199 cwt., but has been tested only 1 year at Marietta.

Grade.--Grades were slightly poorer at Marietta than for the major test (Tables 6 and 8). Seventy-six percent of the tubers were classed U.S. No. 1 at Marietta versus 85% for the major trial. A higher percentage of B-sized tubers at Marietta accounted for this discrepancy in overall quality. Wischip, 6CX6, Targhee, and Nampa produced 20.6, 22.6, 40.2 and 48.7 percent B-sized tubers, respectively. Small average tuber size and subsequent low grades were due to the short 106-day growing season at Marietta. Tubers of Hudson, Kennebec, and Onaway were frequently rough at Marietta.

Stand.--Stands were good with the exception of Norchip which produced only 81% stand. Norchip stands were poor across the state in 1975.

TABLE 8.--Percent Stand, Percent Vine Death, Yield and Grade,
Marietta Early Market Trial, 1975.

Cultivar	Percent Stand	Percent Vine Death ⁽²⁾	U.S. No. 1		Percent B-Size ⁽¹⁾	Percent Culls
			cwt/A	%		
W 710	92	100	310	85.9	9.3	4.7
Hudson	99	85	261	83.4	4.9	11.7
Shurchip	93	95	252	86.5	9.3	4.2
SUPERIOR	92	100	235	86.9	5.7	7.5
Kennebec	90	90	224	78.7	11.2	10.1
Onaway	95	95	222	77.4	10.7	11.9
Anoka	96	95	219	80.0	16.9	3.1
W 718	88	100	199	82.5	14.3	3.2
Penn 71	90	95	198	78.0	13.7	8.3
Norchip	81	95	197	81.4	12.8	5.8
KATAHDIN	92	100	170	80.3	17.3	2.3
6CX6	91	95	162	75.2	22.6	2.2
Wischip	95	100	161	77.2	20.6	2.2
Targhee	87	75	81	54.9	40.2	4.9
Nampa	97	70	75	41.2	48.7	10.1
Average	92	---	198	76.6	17.2	6.2

(1) 1 7/8-inch screen

(2) Percent vines dead when shredded July 30 - 106 days after planting.

TABLE 9.--U.S. No. 1 Yields in Cwt. per Acre,
Marietta Early Market Trial, 1972-1975

Cultivar	1972	1973	1974	1975
W 710	----	----	----	310
Hudson	----	----	----	261
Shurchip	416	302	408	252
Superior	322	221	386	235
Kennebec	----	244	394	224
Onaway	365	254	----	222
Anoka	----	----	331	219
W 718	----	----	----	199
Penn 71	----	222	262	198
Norchip	----	244	348	197
Katahdin	262	195	332	170
6CX6	----	----	----	162
Wischip	----	----	282	161
Targhee	----	----	----	81
Nampa	----	----	----	75
Abnaki	336	181	409	----
Seminole	298	----	326	----
Norland	----	192	223	----
York	----	137	158	----
Red LaSoda	----	231	----	----
La Rouge	----	231	----	----
Haig (L)	305	221	----	----
Chippewa	238	----	----	----
Cobbler	285	----	----	----
Alamo	267	----	----	----
Average	318	221	322	198

CELERYVILLE MUCK CROPS TRIAL, 1975

INTRODUCTION

The 9 major entries were also evaluated on muck at the OARDC Muck Crops Branch at Celeryville. A test on organic soil was essential in that cultivars performing well on mineral soil are not necessarily well suited to muck due to different disease and nutritional pressures. 1975 entries are characterized in Table 1.

Procedure

Soil at the Muck Crops Branch was approximately 85-90% organic matter (Table 3). The pH was 5.2 due to an application of lime in 1974. Overhead irrigation was available and was used as needed to supply total moisture of at least 1-inch per week during the growing season.

Plots were planted on May 12. Seed were spaced 11-inches apart in 34-inch rows; plots were single rows 25 long and were replicated 5 times in a randomized block design. Eight hundred pounds per acre of 0-25-25 was broadcast and incorporated before planting. Nitrogen was not applied in 1975. The systemic insecticide Temik was used in the furrow at recommended rates. Disease and insects were controlled during the season by weekly applications of Dithane M-45 and additional insecticides during the latter part of the summer. Weeds were controlled by mechanical cultivation.

Plots were harvested on September 30 after a growing season of 141 days planting to harvest. Tubers were weighed in the field and then sized and graded using a commercial potato grader. Tuber samples from each plot were chipped by Dr. W. A. Gould in the Horticulture Pilot at Columbus.

Results

Yields.--Yields averaged 224 cwt. per acre across all varieties (Table 10). Shurchip produced well in 1975 with 288 cwt. and has yielded consistently well in 5 years of testing on muck (Table 11). However, tubers have tended to be slightly dark and possibly somewhat hard to clean. Katahdin yielded relatively well in 1975 with 266 cwt. but has varied in performance on muck, producing below average yields in 1971 and 1972. Hudson produced 264 cwt. of U.S. No. 1 potatoes in 1975 and yielded well in 1974, but yielded well below average in 1973. Other entries producing above average yields in 1975 included W710, 234 cwt. and Norchip with 231 cwt. per acre.

Superior produced below average yields in 1975 and has fallen either last or next to last in yield 4 of the last 5 years. Based on 1975 yields, 6CX6 has little promise in Ohio. However, it did chip lighter than any other variety at Celeryville in 1975.

Grade.--An average 76.6% of all tubers were graded U.S. No. 1 in 1975 (Table 10). Shurchip produced 84% No. 1's. Shurchip skins were slightly rough and dark, however; scab has not been a problem on muck with this variety. Katahdin tubers were smooth, white and of good quality as usual (83% No. 1). Hudson tended to be rough in shape and skin texture and susceptible to scab and other skin disorders. It was not suited for muck in 1975. Kennebec was also subject to scab in 1975 and is not considered to be a muck variety. W710 has been tested on muck only 1 year, but tubers appeared to be smooth in shape with slightly russet skins of average

TABLE 10.--Yield Per Acre, Grade, Tuber Size,
and Chip Color Rating, Celeryville Trial, 1975.

Cultivar	U.S. No. 1		Percent B-Size	Percent Culls	Percent Green	Avg. Tuber wt./lbs.	Chip Color Rating
	cwt/A	%					
Shurchip	288.1	83.6	8.8	5.7	1.9	0.32	5.0
KATAHDIN	266.0	83.2	6.4	7.1	3.3	0.35	5.9
Hudson	264.3	78.4	7.8	11.1	2.7	0.38	6.0
W 710	233.5	80.7	10.6	6.1	2.6	0.35	6.1
Norchip	230.6	77.0	10.6	9.3	3.1	0.37	5.0
SUPERIOR	224.2	75.0	13.0	8.8	3.1	0.29	5.2
W 718	205.6	80.1	7.5	6.2	6.2	0.40	5.2
Kennebec	159.1	57.8	10.2	18.2	13.8	0.31	5.0
6CX6	151.0	73.4	8.7	10.8	6.9	0.37	4.4
Average	224.7	76.6	8.3	8.6	4.8	0.35	5.3
LSD .05	64.9	7.4	3.1	5.5	4.1	----	---

* NPCII subjective color rating. Higher numbers indicate darker color.

TABLE 11.--Average U.S. No. 1 Yields in cwt/A, Celeryville Trial, 1971-1975

Entry	1971	1972	1973	1974	1974	Avg.
Shurchip	328	309	252	369	288	311
Katahdin	308	270	264	----	266	277
Hudson	----	312	150	429	264	289
W 710	----	----	----	----	234	234
Norchip	315	232	231	263	231	254
Superior	159	167	109	288	224	189
W 718	----	----	----	----	206	206
Kennebec	----	296	156	404	159	254
6CX6	----	----	----	----	151	151
Abnaki	360	302	205	----	----	173
Haig	311	290	----	----	----	301
Onaway	----	----	202	----	----	202
6RF1	----	----	201	----	----	201
Penn 71	----	----	98	348	----	223
Average	297	272	187	353	225	----

size; 81% of W710 tubers were graded No. 1. Norchip tubers were generally attractive being light in color and free of blemishes, but only 77% were graded U.S. No. 1. Kennebec produced only 58% No. 1's and ranked significantly lower than any other entry in this category. Tubers were off-shaped and subject to excessive scab and greening. W718 and 6CX6 produced tubers of satisfactory appearance.

Tuber greening accounted for a large percentage of the Kennebec cullage, since 13% were sun-greened. Greening was also a factor with W718 (6%) and 6CX6 (7%). Katahdin and Norchip have sun-green badly in past tests, but were not especially susceptible in 1975.

The average weight of U.S. No. 1 tubers ranged from 0.40 lb. for W718 to 0.29 for Superior. In previous years, Hudson has produced a high percentage of jumbo-sized potatoes and did so on mineral soils in 1975. Kennebec tubers were unusually small (0.31 lbs.) at Celeryville in 1975.

Chip Color.--Chip tests were performed approximately 2-3 weeks after harvest. The average NPCII color rating was 5.3 across all varieties. W710 produced darkest chips with a rating of 6.1; 6CX6 scored 4.4, considerably below all other entries. The chipping varieties, Kennebec and Norchip, averaged 5.0 as did Shurchip. Katahdin and Hudson produced relatively dark chips with respective average ratings of 5.9 and 6.0.

CHARACTERISTICS OF SELECTED CULTIVARS GROWN IN OHIO

Superior.--Released by Wisconsin in 1961, Superior is a standard early cultivar in Ohio. It is moderately resistant to common scab, but may be slightly susceptible to virus X, Fusarium wilt, and late blight. It appears to be extremely susceptible to the "early-dying" disorder. Superior normally produces lower yields than Katahdin, but Muck growers often plant Superior in preference to Katahdin, due to better resistance to scab and earliness. Tubers are oval to oblong, generally smooth in shape and uniform in size, with light, flaky, russet skins. Tubers set deep on short rhizomes and do not green readily; skins toughen at an early stage of development. Superior is a multi-purpose early variety which chips and cooks moderately well. It is highly resistant to air pollution damage.

Shurchip.--Shurchip is a round russet released by Nebraska in 1969. It has yielded well in Ohio tests, generally ranking second only to Hudson. It is moderately resistant to common scab and tolerant to Fusarium and Verticillium wilts, but is moderately susceptible to damage to air pollution. Tops are intermediate in size, spreading, and dark green. Tubers are similar in size to Katahdin, and are round to oblong with shallow eyes. Although it was released primarily for chipping purposes, Shurchip has become a popular tablestock variety in Ohio. It is somewhat slower-cooking than Katahdin and may be firmer when baked. Specific gravity is generally slightly higher than Katahdin. It is not a dependable chipping variety in comparison to Norchip and Kennebec.

Norchip.--Released by North Dakota in 1968, Norchip is susceptible to late blight, Verticillium wilt, virus X and damage by air pollution, but is moderately resistant to common scab. Yields have been only average in Ohio. Tops mature early to midseason and are of medium size and upright. Tubers are smooth-skinned and creamy white, with shallow eyes but deep bud ends. On heavy or poorly drained soils, Norchip is subject to growth cracks and off-shapes, with shouldering at the tuber ends. Tuber shape is generally round to oblong. This variety tends to set heavily and tubers often run small; consequently, wider spacing may be desirable. Norchip is equal to or better than Kennebec for chipping, especially from storage, and has higher solids. Although it is not considered a table stock variety, Norchip is finding its way into fresh market outlets.

Katahdin.--Katahdin has been a standard midseason-to-late variety in Ohio for many years. It was released by the USDA in 1935 and is resistant to mild mosaic, moderately resistant to leaf roll, and immune to net necrosis and potato wart. It is widely adapted, yielding satisfactorily under a wide range of conditions. Tops are medium to large; tubers are elliptical to round, with shallow eyes and smooth, white skin. Katahdin is widely used as an all-purpose potato and is a leading variety for potato salads. It chips and fries satisfactorily from the field, but may not be the best choice for chipping from prolonged storage. It is relatively easy to store for tablestock, being somewhat resistant to rot.

Kennebec.--Kennebec is a midseason-to-late variety released by the USDA in 1948. It is somewhat resistant to late blight, mild mosaic, net necrosis, and air pollution, but is susceptible to Verticillium wilt. Tops are large, vigorous, and upright. U.S. No. 1 yields are generally high despite low grades due to a tendency toward rough shapes, greening, and field rots. It is also subject to leak and pink-eye rot in storage and for these reasons is relatively difficult to store for long periods. Tubers of Kennebec are white, smooth, and elliptical to oblong. It is an excellent general-purpose potato suitable for boiling, baking,

frying, or processing into chips. Kennebec is a very important chipping variety in Ohio despite its low solids. It is a good choice for chipping from storage provided rots are controlled.

Hudson.--Hudson, formerly NY 41, was released by New York in 1973. It is resistant to the golden nematode which has been a serious pest in New York, but not in Ohio. In 1975 it appeared to be very susceptible to scab and off-shapes. It is intermediate between Kennebec and Katahdin for resistance to Verticillium wilt. It is said to be susceptible to late blight on foliage and tubers. In Ohio tests, Hudson has outyielded all other varieties 4 out of 5 years on mineral soils. Plants are large and spreading and compete effectively with weeds. Hudson tubers tend to be larger than those of Katahdin and sometimes rougher in shape, but otherwise somewhat similar in appearance. Hollow heart has been almost non-existent in Ohio. Tuber skins are smooth and creamy, but some lenticel enlargement has been noted under wet conditions. Hudson appears to have palatability for table use but is not suitable for chipping from storage. It is of higher specific gravity than Katahdin, tends to be somewhat mealier when cooked, and is said to be less subject to after-cooking darkening. Seed is now commercially available in limited quantities.

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LOCATIONS OF 1975 POTATO CULTIVAR TRIALS