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OHIO POTATO CULTIVAR TRIALS, 1978

J. M. Pisarczyk

R. C. Rowe

E. C. Wittmeyer

D. E. Simonet

F. I. Lower

W. A. Gould

New
OARDC

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

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The 1978 Ohio Potato Cultivar Trials were jointly sponsored by the Ohio Agricultural Research and Development Center, the Ohio Cooperative Extension Service, the Ohio Potato Growers Association and the following individual growers:

	<u>Location*</u>
Don & Ed Becker, Beach City	1
Celeryville Muck Crops Branch, Celeryville	7
Chase Farms, Defiance	5
Frank Goodell & Sons, Mantua	4
Galen Moomaw, Smithville	3
Harold Thompson, Hanoverton	2
Ernst & Perry Tritten, Lisbon	6
OARDC, Wooster	8

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* See map, back cover.

INTRODUCTION

Over 75 potato varieties and advanced selections were evaluated in trials across Ohio in 1978 (See Appendix Table A1). These trials included: 1) a Statewide Trial of 8 entries located on 6 commercial farms, 2) an Observational Trial of many newer entries located on two of the 6 commercial farms, 3) a trial of 13 entries at the OARDC Muck Crops Branch at Celeryville, and 4) an evaluation of 19 entries on the North Central Regional Potato Trials located at the OARDC campus at Wooster.

STATEWIDE TRIAL

Introduction

Eight entries were evaluated at 6 commercial farms located across the state. Five of the entries (ND 8891-3, Atlantic, W 718, Snowchip, and Denali) were included because they have looked promising in previous years, and the other three entries (Superior, Norchip, and Katahdin) were included as standards. Superior and Katahdin were included for comparison as standard early and midseason varieties, and Norchip was included as a standard for comparison of chipping potential.

Procedure

All plots on the 6 commercial farms were subjected to standard cultural and pest control practices used on those farms (Appendix Table A2). Plots consisted of double rows approximately 50 feet long (100 seedpieces) and entries were replicated three times. Stand, vigor, ozone damage, and disease were evaluated at certain farms during the growing season.

At harvest tubers were dug by machine, left on the soil surface to dry for approximately 30 minutes, and were picked up by hand and weighed for total yield. A 50 pound sample was randomly selected from each plot for grading. A sample of 40 ungraded tubers from each plot was weighed to determine average tuber weight.

Ten of the largest tubers from each plot were cut and evaluated for hollow heart and internal necrosis. A 15 pound subsample of U.S. No. 1 potatoes was collected from every plot and transported to the Horticulture Pilot Plant at Ohio State University for determination of specific gravity and chipping potential both from the field and from storage.

A soil sample was also taken after harvest from the plots (Appendix, Table A3).

Results

Because of excessive rainfall on some of the cooperating farms, almost ideal conditions on some, and dry conditions in late summer on two of the farms, yields varied greatly from farm to farm and for some of the varieties.

Each entry will be discussed as to yield, tuber grade and defects; and any other pertinent information (Refer to Tables 1-7).

ND 8891-3 led in average yield with 348 cwt/A of U.S. No.1 for the six farms. Yield at six farms ranged from 507 cwt/A to 193 cwt/A. In 1977, yields for this entry were not this high. ND 8891-3 performed well at every farm, ranking first first or second in yield at five of the six farms. ND 8891-3 had the second highest percentage of culls averaging 11.2% and ranging from 4.5% to 15.8% culls. There was a moderate amount of hollow heart and internal necrosis in the tubers cut.

Denali ranked second in average yield with 333 cwt/A of U.S. No. 1 potatoes for the six farms. Yield for the six farms ranged from 474 cwt/A to 178 cwt/A. Denali performed well at most farms, ranking first or second in yield at four of the six farms, but unexpectedly ranked last in yield at the Chase Farm. Denali had the lowest percentage of culls averaging 5.5% and ranging from 3.6% to 9.2% culls. There was some hollow heart and internal necrosis present in the tubers cut.

Atlantic ranked third in average yield with 309 cwt/A of U.S. No.1 potatoes for the six farms. In 1977, Atlantic ranked first in yield in the statewide trials. Yield on the six farms ranged from 444 cwt/A to 188 cwt/A. Atlantic yielded consistently over all the farms and did not perform poorly at any farm. Atlantic averaged 6.4% culls over the six farms and ranged from 1.4% to 13.1% culls. In last year's report it was stated that hollow heart and heat necrosis might be a limiting factor in introducing Atlantic into Ohio. In 1978, the tubers cut had an average of 13% hollow heart and 22% internal necrosis; this is the highest percentage for both hollow heart and internal necrosis for any variety. The internal necrosis was present at every farm. We would still have to agree with the statement in last year's report.

W 718 ranked fourth in average yield with 299 cwt/A of U.S.No. 1 for the six farms. Yield on the six farms ranged from 471 cwt/A to 210 cwt/A. W 718 had a moderate amount of hollow heart and internal necrosis in the tubers cut. W 718 yielded consistently over the six farms. W 718 has yielded well in Ohio in previous years. W 718 lacked usual vigor and growth this year. It usually is slow to emerge, but it did not make the usual rank growth late in the season. W 718 also had the second lowest stand this year averaging 79%.

Snowchip ranked fifth in average yield with 288 cwt/A of U.S. No. 1 potatoes. Yield at the six farms ranged from 409 cwt/A to 176 cwt/A. Snowchip has yielded well in tests in previous years. Tubers are rough and eyes are too deep for effective tablestocking. Snowchip had the highest average percentage of culls at 12.9%, and ranged from 4.4% to 20.4% culls. Snowchip showed internal necrosis in 20% of the tubers cut.

Superior ranked sixth in average yield with 256 cwt/A of U.S. No. 1 potatoes for the six farms. Yield at the six farms ranged from 441 cwt/A to 135 cwt/A. Superior had an average of 5.9% culls and ranged from 1.8% to 10% culls. Superior

showed internal necrosis in 4% of the tubers cut.

Katahdin ranked seventh in average yield with 255 cwt/A of U.S. No. 1 potatoes for the six farms. Yield at the six farms ranged from 316 cwt/A to 184 cwt/A. Katahdin had an average of 9.8% culls and ranged from 2.4% to 14.8% culls. Katahdin showed internal necrosis in 10% of the tubers cut. Katahdin had the poorest average stand in these tests, 71%, and lacked its usual vigor.

Norchip had the lowest average yield with 252 cwt/A of U.S. No. 1 potatoes for the six farms. Yield at the six farms ranged from 373 cwt/A to 167 cwt/A. Norchip had an average of 10% culls and ranged from 5.2% to 15% culls. Norchip showed 3% hollow heart and 13% internal necrosis in the tubers cut.

Chipping data will be available under separate cover from Dr. W. A. Gould (Dept. of Horticulture, Ohio State University) after chipping/storage tests are complete.

Summary

ND 8891-3 led in yield this year and looks promising. Denali also looks promising. It yielded well, graded well, and had fewer internal defects than most varieties tested. Atlantic yielded well as in previous year, but hollow heart and especially internal necrosis may limit its potential in Ohio. W 718 and Snowchip yielded higher than the standard varieties but had some internal defects.

TABLE 1. Average U.S. No. 1 yields, grades, tuber weights, and stands. Statewide Trials

Entry	Yield cwt/A	Listed in order of average yield Percent			Tuber Wt. (oz.)	Percent stand
		U.S. No.1	B Size	Culls		
ND 8891-3	348	85	3.8	11.2	5.4	91
Denali	333	89	5.0	5.5	5.4	88
Atlantic	309	90	3.5	6.4	5.7	87
W 718	299	88	4.2	7.3	5.6	79
Snowchip	288	80	6.9	12.9	4.6	89
Superior	256	87	6.8	5.9	4.3	94
Katahdin	255	87	3.5	9.8	5.9	71
Norchip	252	84	5.7	10.0	4.7	86
Average	293	86	4.9	8.6	5.2	86

TABLE 2. Yield-U.S. No. 1 tubers in cwt/A for each farm. Statewide Trials. (Rank of yield on each farm in parenthesis)

Farm Entry	1 B	2 TH	3 M	4 G	5 C	6 TR	Average
ND 8891-3	507(1)	355(2)	193(2)	258(4)	416(1)	361(1)	348
Denali	474(2)	431(1)	178(5)	333(1)	242(8)	340(2)	333
Atlantic	444(4)	318(5)	188(3)	274(2)	340(2)	290(3)	309
W 718	471(3)	341(3)	210(1)	231(5)	320(4)	220(6)	299
Snowchip	409(6)	336(4)	176(6)	261(3)	328(3)	219(7)	288
Superior	441(5)	250(8)	135(8)	178(8)	267(7)	263(4)	256
Katahdin	316(8)	297(6)	184(4)	226(6)	302(5)	202(8)	255
Norchip	373(7)	267(7)	167(7)	208(7)	273(6)	223(5)	252
Average	430	324	180	246	311	265	293

TABLE 3. Percent U.S. No. 1 for each farm. Statewide Trial.

Farm Entry	1 B	2 TH	3 M	4 G	5 C	6 TR	Average
ND 8891-3	84.6	81.7	85.9	80.6	93.0	83.4	84.9
Denali	90.0	93.7	88.7	88.6	86.5	89.0	89.4
Atlantic	87.5	93.5	85.3	87.9	94.9	91.0	90.0
W 718	90.0	88.4	92.3	81.9	91.9	85.6	88.5
Snowchip	83.9	76.8	78.6	75.8	86.1	80.2	80.2
Superior	89.4	89.4	90.7	81.6	92.1	80.3	87.3
Katahdin	88.3	85.7	87.8	85.7	92.5	80.1	86.7
Norchip	85.2	84.3	90.6	78.8	87.7	79.0	84.3
Average	87.4	86.7	87.5	82.6	90.6	83.7	86.4

TABLE 4. Percent B size tubers for each farm. Statewide Trial.

Farm Entry	1 B	2 TH	3 M	4 G	5 C	6 TR	Average
ND 8891-3	4.0	2.6	1.6	7.5	2.4	5.0	3.8
Denali	4.2	2.9	2.0	6.6	10.2	4.4	5.0
Atlantic	3.6	2.6	1.5	5.2	3.6	4.8	3.5
W 718	3.5	2.7	1.9	7.0	3.4	6.8	4.2
Snowchip	6.7	2.9	2.6	8.8	9.6	11.0	6.9
Superior	6.6	4.6	2.1	8.4	6.2	13.0	6.8
Katahdin	3.0	2.0	.6	5.4	5.2	5.0	3.5
Norchip	6.7	3.8	2.4	6.2	7.0	8.0	5.7
Average	4.8	3.0	1.8	6.9	6.0	7.2	4.9

TABLE 5. Percent culls for each farm. Statewide Trial

Farm Entry	1 B	2 TH	3 M	4 G	5 C	6 TR	Average
ND 8891-3	11.4	15.8	12.5	11.8	4.4	11.6	11.2
Denali	5.6	3.4	9.2	4.8	3.6	6.6	5.5
Atlantic	8.8	3.9	13.1	6.8	1.4	4.3	6.4
W 718	6.4	9.0	5.8	11.0	4.8	6.6	7.3
Snowchip	9.4	20.4	19.0	15.4	4.4	8.8	12.9
Superior	4.0	5.9	7.2	10.0	1.8	6.8	5.9
Katahdin	8.7	12.4	11.6	9.0	2.4	14.8	9.8
Norchip	8.0	12.0	7.0	15.0	5.2	13.0	10.0
Average	7.3	10.3	10.7	10.5	3.4	9.0	8.6

TABLE 6. Tuber weight (oz.) for each farm. Statewide Trial

Farm Entry	1 B	2 TH	3 M	4 G	5 C	6 TR	Average
ND 8891-3	6.4	5.1	5.8	4.0	5.3	5.0	5.4
Denali	6.2	5.8	5.7	4.9	4.6	5.0	5.4
Atlantic	7.9	5.3	6.4	4.8	5.7	5.0	5.7
W 718	7.4	5.8	5.6	4.1	5.4	4.5	5.6
Snowchip	5.4	4.5	4.7	5.2	4.5	3.8	4.6
Superior	4.9	4.1	4.2	4.1	4.7	3.5	4.3
Katahdin	7.7	6.0	6.5	6.2	4.9	5.1	5.9
Norchip	4.7	5.4	5.9	4.0	3.8	4.1	4.7
Average	6.2	5.1	5.6	5.0	4.9	4.5	5.2

TABLE 7. Percentage of total tubers cut showing hollow heart and internal necrosis (Omitting those with 2% or less) Statewide Trial

	HH	NEC		HH	NEC
Superior	-	4	Norchip	3	13
ND 8891-3	5	9	Katahdin	-	10
Atlantic	13	22	Snowchip	-	20
W 718	8	5	Denali	5	4

OBSERVATION TRIAL

Introduction

Over 40 entries were evaluated in the observation plots. Most entries are new breeding lines or varieties released by potato breeders recently.

Procedure

The procedure was approximately the same as for the main plots. The observation plots were on two of the six farms that had the main plots. Plot size consisted of double rows approximately 25 feet long (50 seedpieces). Stand, vigor, ozone damage, and disease were evaluated during the growing season. Harvest procedures were the same as for the main plots. Only the most promising entries were saved for storage and chipping tests.

Results

Four of the more promising entries were NY 59, Neb. A129.69-1, Michibonne, and Michimac (Tables 8 and 9). This is the second year NY59 yielded well, 380 cwt/A, but cut tubers showed 8% hollow heart and 40% internal necrosis. Neb. A129.69-1 yielded second best at 358 cwt/A and cut tubers only showed 5% internal necrosis. Michibonne yielded 327 cwt/A but cut tubers showed 8% hollow heart and 6% internal necrosis. Michimac yielded 293 cwt/A and only had 3% hollow heart in cut tubers. Hollow heart and internal necrosis must be evaluated along with yield to determine how much they may limit applicability of the entries cited above to Ohio conditions.

Several other entries that yielded well in these trials will be tested again next year. Many observation entries will be dropped because of low yield ability and/or a high degree of external or internal defects. While not in the high yielding category, several russet varieties had average yields and will be evaluated again next year to determine if they will produce an acceptable crop in Ohio.

TABLE 8.--Yield, grade, and tuber size of Observation Entries

Entry	Yield (cwt/A)	% U. S. No. 1	Tuber Weight (oz.)
NY 59	380	88.1	5.4
Neb. A129.69-1	358	88.0	4.5
Michibonne	327	89.6	6.2
LA 01-70	302	84.9	5.6
Batoche	299	92.1	5.4
CA 02-7	294	83.0	4.9
Michimac	293	87.2	5.0
LA 92-157	286	81.7	5.6
Michigami	283	82.6	5.1
NDA 8694-3	279	86.6	4.9
B 7583-6	274	80.0	5.6
Kennebec	273	77.2	5.9
Shurchip	267	84.6	4.6
B 7845-4	263	77.4	4.5
Campbell 12	261	77.6	5.0
CA 55-24	261	85.7	6.0
Belchip	261	77.6	5.2
W 738	259	78.2	5.2
ND 8888-2	257	83.0	5.5
CD 106-16	245	73.6	6.2
LA 42-38	239	75.4	5.4
FL 162	237	81.6	5.2
Neb. 2.67-1	236	84.5	4.0
Croatan	225	82.6	4.1
Neb. A112.69-1	223	73.5	6.0
F 67072	221	85.7	5.8
A 67678-1	218	70.1	5.7
Russet Shur.	208	81.6	3.7
ND 8913-4	200	79.9	3.8
Belrus	186	81.7	4.5
B 6503-2	182	78.4	4.8
Campbell 13	179	82.6	4.2
ND 8850-2	150	74.7	3.1
Neb. 54.58-H33	139	77.4	3.6

TABLE 9.--Summary of percent hollow heart and internal necrosis of tubers cut - Observation trial

Hollow Heart

<u>Severe (Over 15%)</u>	<u>Moderate (9 to 15%)</u>	<u>Slight (8% and under)</u>	
Trent	FL 162	Neb 2.67-1	Michigami
LA 01-70	ND 8913-4 Russ	NY 59	Michimac
B 6987-184	A 68678-1	Michibonne	Belrus
LA 42-38	B 7583-6	F 67072	NDA 8694-3
Norgold L	B 6503-2	Belchip	
	B 7845-4	Superior L.	
		CA 02-7	
		CA 55-24	

Necrosis

<u>Severe (Over 15%)</u>	<u>Moderate (9 to 15%)</u>	<u>Slight (8% and under)</u>	
AK 10-1	ND 8888-2	B 6987-184	
Nipigon	Michigami	Kennebec	
Neb. A112.69-1	CD 106-16	Michibonne	
NY 59	CA 02-7	Norgold L	
B 7845-4	Superior L	FL 162	
CA 55-24		Neb 2.67-1	
		Campbell 12	
		B 6503-2	
		A 68678-1	
		Croatan	
		Neb A129.69-1	

CELERYVILLE MUCK TRIAL

Introduction

Twelve entries were evaluated at the OARDC Muck Crops Branch at Celeryville in 1978. These included Superior, Katahdin, and Norchip. Superior is a standard early muck variety due to its scab resistance. Katahdin is a mid-season standard, and Norchip was included as a chipping standard.

Procedure

Plots were planted on May 2. The spacing in the plots was a double row 32" apart, skip 40" to the next double row, and seedpieces were spaced 11" apart in the row. Plots were a double row 25 feet long. Fertilizer was broadcast before planting at a rate of 850 lbs/A of 6-24-12. Temik was the systemic insecticide used at planting.

At harvest plots were dug by machine and tubers picked up by hand. The tubers were graded for B's and culls.

Results

The overall yield of U.S. No. 1 potatoes in 1978 was 318 cwt/A (Table 10). The standard varieties yielded well--Superior at 312 cwt/A, Norchip at 320 cwt/A, and Katahdin at 337 cwt/A.

W 718 led in yield with 365 cwt/A and also graded well at 91% U.S. No. 1. W 718 tubers have been smooth, white, and uniform, but it has been susceptible to hollow heart in other areas of Ohio and may not be acceptable on this basis. Michigammi was second in yield with 351 cwt/A of U.S. No. 1 potatoes, but it was dropped this year by the Michigan seed growers. Other new selections with good yields were ND 8891-3, Atlantic, Snowchip, and Michimac. Snowchip is usually rough in appearance, Atlantic is very attractive but susceptible to internal necrosis based on other tests in Ohio, and ND 8891-3 led in yield on mineral soils

this year in the statewide trials. Denali, which yielded well on mineral soils, did not yield as well on muck soil. Belrus which is an attractive russet had a low yield and 10.5% B's. Throughout the state, Belrus did not develop size to the tubers.

TABLE 10.--Yield and grade characteristics of entries in Celeryville Muck Trial.

Entry	CWT/A		Percent		
	Total	US No.1	US No.1	B-Size	Culls
W 718	400	365	91.1	3.4	5.5
Michigammi	383	351	91.6	3.5	4.9
Snowchip	394	340	86.4	8.2	5.4
Katahdin	370	337	91.1	4.1	4.8
Michinac	367	331	90.2	5.2	4.6
ND 8891-3	369	328	88.9	5.7	5.4
Norchip	368	320	86.7	7.3	6.0
Superior	351	312	88.9	5.7	5.5
Atlantic	367	306	83.3	8.4	8.3
Denali	310	283	91.2	5.9	2.8
Belrus B 7147-8	294	258	87.6	10.5	1.9
B 7583-6	295	256	86.6	5.5	7.8

NORTH CENTRAL REGIONAL TRIAL

Introduction

The North Central Regional Potato Variety Trial has been conducted for its 28th year. Eleven states and two Canadian provinces are now cooperating in this trial. Participating plant breeders throughout the country give seed of their most promising potato selections to cooperators, and they are evaluated in each cooperating state or province. At least 35 varieties have been named after testing in this program. This program is under the direction of Robert H. Johannsen of North Dakota State University.

Procedure

Nineteen varieties and selections were evaluated in the NCR plot at Wooster. Six breeders entered selections and there were 5 red, 5 white, and 5 russet selections plus 4 standards. Plots were single rows, 25 feet long and were replicated four times in a randomized complete block design. The plot was planted on May 26 and vines were killed on September 20. The fertilizer program consisted of 1200 lbs. of 10-20-20, half of which was broadcast before planting and the other half banded at planting.

Plots were dug by machine and tubers picked up by hand and weighed. Tubers were graded for B's and culls and internal and external defects.

Results

Yields averaged 226 cwt/A of U.S. No. 1 (Table 11). The highest yielder was LA 42-38 a red skinned selection averaging 411 cwt/A. LA 01-70 was second in yield at 340 cwt/A. It is a white-skinned selection. Wis. HS-17, red-skinned, was highest in yield last year and this year yielded 325 cwt/A. Red Pontiac was 4th highest in yield at 301 cwt/A. The other selections did not show promise for use in Ohio this year.

Tuber marketability was poor at 69%, and part of this is due to inadequate hilling which resulted in an average of 22% sungreen tubers. However, also contributing to this low marketability were the six russet selections and varieties grown in this trial which ranged from 4% to 24% growth cracks and 12% to 86% second growth.

LA 42-38 LA 01-70 would have graded out better and, therefore, had higher yields if not for the sungreen tubers. Neb. 63.71-7 and Neb. 74-1 were both very attractive russets but yields were low, and they had 12% and 18% second growth, respectively.

TABLE 11.--Average yield, grade, and defects - North Central Regional Trial

Entry	U. S. No. 1								
	cwt/ A	%	Scab	G.C. ¹	2nd G. ²	G. ³	H.H. ⁴	I.N. ⁵	V.D. ⁶
La. 42-38	411.4	82	1	5	7	23	0	0	23
La. 01-70	340.5	82	1	5	4	23	0	1	37
Wis. HS-17	324.8	79	0	1	5	5	0	0	20
Red Pontiac	301.5	75	0	4	12	19	0	1	22
Norchip	284.7	72	0	4	20	18	0	4	28
Wis. 723	279.5	83	0	2	6	10	0	0	24
Norland	274.2	90	0	2	0	6	0	4	0
Minn. 4536	269.0	86	0	0	6	6	0	4	4
La. 92-157	268.4	73	0	0	4	22	0	2	4
Wis. 738	260.3	71	0	0	10	54	0	2	36
Neb. 63.71-1	235.3	76	0	4	18	6	0	8	28
Neb. 74-1	187.1	70	0	4	12	14	0	2	6
Neb. 143.70-2	154.6	65	0	2	24	20	0	6	16
Minn. 9152	148.7	47	1	3	55	16	1	0	42
AK 6-5	138.3	45	0	18	50	4	0	0	74
ND 8850-2	130.7	58	0	6	22	36	0	0	50
Russet Burbank	103.4	24	0	8	86	18	0	0	36
Minn. 7973	97.0	60	0	0	20	76	0	4	16
ND 8924-4 Russ.	95.9	62	0	24	24	38	0	10	8

1) G.C. - growth cracks

2) 2nd G. - second growth

3) G - green or brown flecking of flesh

4) H.H. - hollow heart

5) I.N. - internal necrosis

6) V.D. - vascular discoloration

APPENDIX

TABLE A1.--Origin and Characteristics¹ from Entries

Entry	Origin	Tuber Evaluation at Harvest Field Comments	Grade Notes ¹	Notes from Prior Years	Years Tested in Ohio (2)
MAIN ENTRIES					
ND 8891-3	ND	Some off shape. Size varies. Good bud end. Some scab. Shallow eyes.	Av. grade & size. Slight H.H. & Mod. Necrosis.	Good in 75 & 76. Not as good in 77. High yields. May be rough.	4
Denali	1978 Alaska & USDA	Attractive. Size may vary. Shallow eyes. Some scab & enlarged lenticels.	Grade & size above av. Many B's on 2 farms. Some scab. Mod. H.H. & Nec.	High yield. No disease. Av. grade. Attractive.	2
Atlantic	1975 USDA	Attractive. Shallow eyes. Shape & size varies some. Some scab & enl. lent.	Good grades. 23% H.H. 40% Nec.	Promising. Above av. grades. Nec. on 2 farms. H.H. on one. High yields. Att. chips.	4
W 718	Wisc.	Looks good. Shallow eyes. Some scab. Size varies.	Above. Av. grades. Some greening. Size above av.	Gen. good. Above av. grades & yields. Large. Attractive. Seems res't to disease.	6
Snowchip	1973 Alaska & USDA	Shape & size varies. Eyes & bud end Mod. deep. Some scab & off shape.	Many B size. Low grade. Some greening. Var. in % of culls.	High yields & solids. Shallow eyes Smooth. Rough in 77. Varies. Chips.	5
Superior	1961 Wisc.	Uniform. Small. Shallow eyes. Some	High % B's at No. 4 and 6. Slight Nec.	Considerable wilt. Usually smooth and uniform. High grades. Chips.	16
Katahdin	1935 USDA	Shallow eyes. Some var. in size and shape. Some scab.	Usual greening. Mod. Nec. Largest tubers in main plots.	Attractive. Widely adapted. Leading Ohio variety.	16

APPENDIX

TABLE A1.--Origin and Characteristics from Entries

Entry	Origin	Tuber Evaluation at Harvest Field Comments	Grade Notes ¹	Notes from Prior Years	Years Tested in Ohio (2)
MAIN ENTRIES					
Norchip	1948 N.D.	Size varies. Some off shape. Deep bud end. Shallow eyes. Some scab.	Size and grade below average. Some cracking and greening. Severe nec.	Sets heavily. Good chipper. Frequently rough and small.	11
OBSERVATION ENTRIES					
N.Y. 59	N.Y.	Shallow eyes. Tend to growth cracks. Some scab.	Good grades. Few B's 8% H.H., 40% Nec.	Good grades. Smooth. Attractive. Not a chipper. H.H. in 77.	2
Neb. A129 69-1	Neb.	Shallow eyes. Size varies. Not uniform	Grades. Slight nec.		1
Superior L			Slight H.H. Mod. Nec.	In 76 large, rough, and not later than Sup. Yields above Sup.	2
Michibonne	1977 Mich.	Shallow eyes. Some off shape. Susc. to scab.	Good grades and size 8% H.H. 6% Nec. Greening.	Variable yields, some high. Attractive Large tubers.	8
N.Y. 61	N.Y.	Red eyes. Shallow eyes. Good yields.	Av. grade at No.2 Not graded at No.6	Shallow eyes. Red spots.	2
La 01-70	LA	Shallow eyes. Fairly uniform. Test more.	Av. grades or below. 40% H.H. High culls.		1
Batoche	1977 Sask.	Bright red. Shallow eyes. Round.	Highest grade. Av. size.		1

APPENDIX

TABLE A1.--Origin and Characteristics from Entries

Entry	Origin	Tuber Evaluation at Harvest Field Comments	Grade Notes	Notes from Prior Years	Years Tested in Ohio (2)
OBSERVATION ENTRIES					
CA 02-7	Ca: Inst.	Shallow eyes. Some knobs. Test more.	Av. grade. Some greening Slight H.H. and Necrosis.		1
LA 92-157	LA	Att. red.	Low grades. Many culls.		1
Michimac	1977 Mich.	Mod. Shallow eyes. Att. Good set. Mod. size.	Slight H.H. Some greening.	Good grades and size. Some H.H. Some rough.	4
Michigami (706-34)	1977 Mich.	Shallow eyes. Some knobby. Tend to crack green, scab, etc.	Low grades. Many culls. Slight H.H. Mod. Nec.	Late. 50% H.H. in 1977. Growth cracks. High yields claimed.	2
NDA 8694-3	N.D., I.D.	Shallow eyes. Shape varies. Light russet.	Av. grade. Slight H.H. & Necrosis.	Much wilt and stem rot in 77. Attractive. Good yields.	2
Nipigon	1977, Ont.	Shallow eyes, smooth. Not uniform. Some knobs. Small.	45% Nec. Av. grade.		1
Trent	1978, Ont.	Shallow eyes. Some	70% H.H. Av. grade.		1
B 7583-6	USDA	Shallow eyes. Some rough & off shape. Dark russet. Knobby.	Many culls at No. 2 & 6. Av. 80% U.S. No.1 13% H.H.	Low yields. Cracks & greening.	2
Kennebec	1948, USDA	Shallow eyes. Some scab & knobs.	Slight Nec. Usual low grade & good size.	High yields. Low grades. Good chipper and cooker.	13
B 6987-184	USDA	Poor set. Low yield. Russet.	22% H.H. Low grade. 7% Nec.		1

APPENDIX

TABLE A1.--Origin and Characteristics from Entries

Entry	Origin	Tuber Evaluation at Harvest Field Comments	Grade Notes	Notes from Prior Years	Years Tested in Ohio (2)
OBSERVATION ENTRIES					
Shurchip	1968, Neb.	Size varies. Many small.	Some greening & scab. Yields lower than usual.	Attractive russet. Good yields. Chips. Large.	10
B 7845-4	USDA	Shallow eyes. Buff skin. Test more. Many off shape.	Only 70% U.S. No.1 at No.6. Mod. H.H. at both farms. 20% Nec.		1
Campbell 12	1977 Ca.Inst.	Shallow eyes. Some 2nd growth.	Below av. grades. Slight Nec.	Late. Chips from field. High yields claimed & widely adapted. 20% H.H. in 77.	2
CA 55-24	Ca. Inst.	Shallow eyes & bud end. Test more. Some off shape, varies Scab. susc.?	Good size. Av. grades. Slight H.H. 18% Nec.	Med. late. Yields above Av. Chips. like Kennebec.	3
Belchip (B6987-29)	USDA	Av. size. Uniform set. Test more. Large are knobby & off shape.	Slight H.H. Many culls. Low grade.	77 too rough. Low yield & grade. Discard. Some H.H.	2
W 738	Wisc.	Large are off shape. Doubtful. Some greening. Smooth.	67% U.S. No. 1 at No.6. and many small. Tend off shape.	Good in Wisc. in 77. Susc. to Vert.? Good solids.	1
ND 8888-2	N.D.	Shallow eyes. Some knobs & scab.	Mod. Nec. Below Av. grade. Some greening.		1
AK 10-1	AK	Deep bud end. Mod. deep eyes. Scab susc. Doubtful.	60% Nec. Low grade. Many off shape.		1

APPENDIX

TABLE A1.--Origin and Characteristics from Entries

Entry	Origin	Tuber Evaluation at Harvest			Years Tested in Ohio (2)
		Field Comments	Grade Notes	Notes from Prior Years	
OBSERVATION ENTRIES					
CD106-16	Ca Inst.	Shallow eyes. Size & shape varies. Some scab. Doubtful.	62% U.S. No. 1 at No.6. 6% wilt at No. 2. Late.	Claimed-resistant to late blight.	1
LA 42-38	LA	Mod. deep eyes. Round red.	Low grades. 20% H.H. at No.2. Some cracks & greening.		1
FL 162	Frito-Lay	Shallow eyes. Many off shape. Scab. Knobby.	15% H.H. Slight Nec. Low grade at No. 6.	Low yields & grades. Not promising.	3
Neb. 2.67-1	Neb.	Shallow eyes. Russet.	Many B's. Small. Uniform. Av. grades. Slight H.H. and Necrosis.		1
AK13-5	AK	Shallow eyes. Uniform size. Test more.	Av. size. Below av. grade.		1
Rideau	1977, Ont.	Round red. Mod. deep eyes. Off shape.	66% U.S. No.1 Av. size Some cracks.		1
A69868-2		Long white. Shallow eyes. Tends to curve and crack. Doubtful.	Low grade. 32% culls. Very low yield.		1
Croatan	1977, N.C.	Shallow eyes. Small scab. Cracks. greening. Doubtful.	Smooth. Grade Av. or below.		1
Neb. A112.69-1	Neb.	Shallow eyes. Tend tough. Scab. Med. to large.	Many culls. Low grades. 46% Necrosis.	Claims white chipper	1

APPENDIX

TABLE A1.--Origin and Characteristics from Entries

Entry	Origin	Tuber Evaluation at Harvest Field Comments	Grade Notes ¹	Notes from Prior Years	Years Tested in Ohio (2)
OBSERVATION ENTRIES					
F57072	New Brunswick	Shallow eyes. Uniform Med. size. Some scab, cracks.	Above av. grades. Cracks & greening. 7% H.H. at No. 6.		1
Norgold L		Shallow eyes. Off shape Light russet.	Many culls. Low grade 20% H.H. Slight Nec.	Norgold Russet. Discarded some years ago.	1
A67678-1	ID	Shallow eyes. Off shape. Knobby. Doubt- ful. Good size.	Many culls. Low grades Mod. H.H. Slight Nec.		1
A66107-12	ID	Shallow eyes. Tends to curve. Doubtful.	Russet. 80% U.S. No.1		1
A66102-16	ID	Long. Doubtful.	Russet. 69% U.S. No.1		1
Russet- Shruchip		Shallow eyes. Small Poor yield. Deep bud end. Doubtful.	Many B's at No.6 Small No H.H.	Like Shurchip but darker	2
ND8013-4	ND	Att.Shallow eyes. Light russet. Few eyes. Test more.	Small. Many B's. 12% H.H. at No.6. 80% U.S. No. 1	Low yields & grades. Russet.	2
A70327-5	ID	Long russet. Shallow eyes.	62% U.S. No.1 33% culls.		1
Belrus	USDA	Shallow eyes. Uniform Dark russet. Test more.	Small. Many B's Below Av. grades. Slight H.H.		1

APPENDIX

TABLE A1.--Origin and Characteristics from Entries

Entry	Origin	Tuber Evaluation at Harvest Field Comments	Grade Notes ¹	Notes from Prior Years	Years Tested in Ohio (2)
OBSERVATION ENTRIES					
A70365-6	ID	Shallow eyes. Tend to curve. Light russet. Test more.	46% culls. Low grade. 54% U.S. No. 1.		1
B6503-2		Attractive. Doubtful. Shallow eyes. Some rough & off shape.	Grade below Av. 13% H.H. Slight Nec.		1
Campbell	1977, Ca. Inst.	Shallow eyes. Much scab. (Susc.) greening. Cracks uniform size.	About Av. grades. Low yields. Small.		2
A68588-16	ID	Round to long. Tend 2nd growth. Doubtful.	43% culls. Poor shape. Some greening.		1
A70365-27	ID	Light russet. Curved. Off shape. Shallow eyes.	55% U.S. No. 1 Small. 40% culls.		1
ND8850-2	ND	Shallow eyes. Small. Doubtful.	Low grades. Too many B's.		1
Neb. 54.58-H33	Neb.	Shallow eyes. Smooth. Doubtful. Small.	Low grades. Many B's. Low yields.		1
A68710-5	ID	Long white. Many off shape. Tend to curve.	25% U.S. No. 1 72% culls. Very low yields.		1

1) % Hollow Heart (HH) and Internal Necrosis (Nec.) from 10 largest tubers cut in each replicate

2) Includes Observation tests.

APPENDIX

TABLE A2.--Cultural and pest control methods - Ohio Potato Variety Trials - 1978

	Farm No.1(B)	Farm No.2(TH)	Farm No.3(M)	Farm No.4(G)	Farm No.5(C)	Farm No.6(TR)
Date Planted	May 1	May 4	May 12	May 25	May 26	June 17
Date Killing	Sept. 5	Sept. 11	Sept. 17	Died. No	Sept. 16	Sept. 20
Chemical Applied	Paraquat	Dinitro	Dinitro	chemical		Dow General
Stage of maturity when killed	Mostly green	Earlier entries largely dead. Others mostly green.				Earlier entries largely dead. Others mostly green.
Date harvested	Sept. 21	Sept. 28	Oct. 19	Oct. 5	Oct. 11	Oct. 20
No. days planted to killed	127	130	128	--	113	95
No. days planted to harvested	143	146	160	133	138	125
1977 crop	Sweet corn	Sudax	Wheat	Clover & Timothy	Cantaloupe	Wheat
Cover crop plowed down	Rye	Sudas & Rye	none	Timothy	none	Timothy
Fertilizer lbs/acre plowed down	200# urea* 400# 12-24-24	50# nitrogen		150# am. nitrate		
Broadcast in-row	500# 12-24-24	1000# 11-20-25	800#19-19-19	1000# 10-20-20	1000#14-14-14	800# 10-20-20
Herbicide	Sencor 2 lbs/A	Eptam	Sencor or Lorox at emergence		Sencor	45-50 lbs. Eptam
Systemic insecticide	None	Furadan	Temik	20# Disystem	25# Furadan	30# Furadan
Spacing	9 1/2 x 34	8 1/2 x 36	10 x 34	10 x 32	36 x 10 1/2	11 x 34
Soil type	Sandy silt loam	Silt loam	Silt loam	Silt loam	Sandy silt loam	Wooster silt loam
Total Water	22.00	17.4	19.68		12.82	16.41

APPENDIX

TABLE A3. Soil Test Data, Ohio Potato Variety Trials

Location	% Base Saturation										
	pH	LTI ¹	P	K	Ca	Mg	CEC ²	Ca	Mg	K	OM ³
TH	6.3	68	506	468	1440	418	8	43	21	7.2	1.9
M	6.5	69	97	321	2290	688	10	56	28	4.0	2.3
TR	5.0	64	271	550	820	187	11	19	7	6.6	2.0
C	4.8	64	648	586	750	102	10	18	4	7.3	1.3
B	5.9	68	515	396	1440	346	8	45	18	6.4	1.7

1) LTI = Lime Test Index

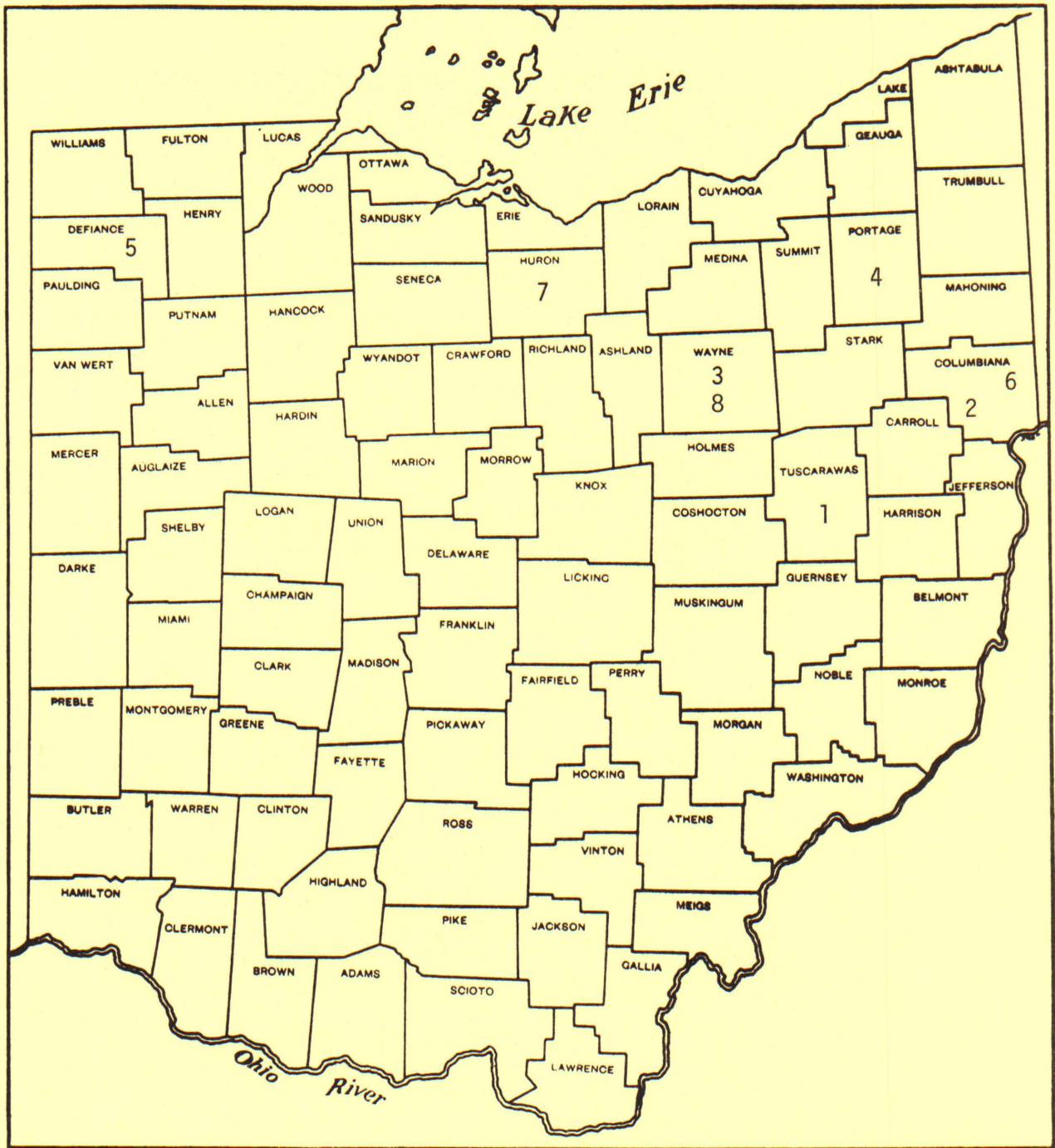
2) CEC = Cation Exchange Capacity

3) OM = Organic Matter

APPENDIX

TABLE A4.-- U.S. No. 1 yields in cwt/acre for major entries tested in the Ohio Statewide Trials in 1978 or more than one year in the last 10 years.

Entry	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
<u>Early</u>										
Haig	----	----	310	296	----	----	----	----	----	----
Alamo	286	308	277	----	----	----	----	----	----	----
Superior	308	269	275	228	287	266	273	342	248	256
<u>Medium Early</u>										
La Chipper	301	----	----	----	----	----	----	----	----	----
Platte	301	----	----	----	----	----	----	----	----	----
Monona	284	274	300	----	----	----	----	----	----	----
<u>Early Midseason</u>										
ND 8891-3	----	----	----	----	----	----	----	----	256	348
Atlantic	----	----	----	----	----	----	----	----	374	309
<u>Midseason</u>										
W 718	----	----	----	----	----	----	371	385	360	299
Peconic	297	349	290	----	----	----	----	----	----	----
Shurchip	385	282	335	304	310	305	327	----	----	----
Norchip	282	355	294	284	292	297	272	273	262	252
Hudson	----	----	347	352	342	396	348	----	----	----
Katahdin	290	344	285	277	283	301	336	319	320	255
Lenape	274	----	----	----	----	----	----	----	----	----
6 CX 6	----	----	----	----	----	----	307	307	----	----
Penn 71	----	----	----	----	268	293	----	----	----	----
Snowchip	----	----	----	----	----	----	----	402	329	288
Denali	----	----	----	----	----	----	----	----	----	333
Abnaki	----	----	319	297	291	260	----	----	----	----
Kennebec	----	----	----	285	280	362	321	343	----	----
Average	312	311	300	290	294	310	319	316	306	293



LOCATIONS OF 1978 OHIO POTATO VARIETY TRIALS

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