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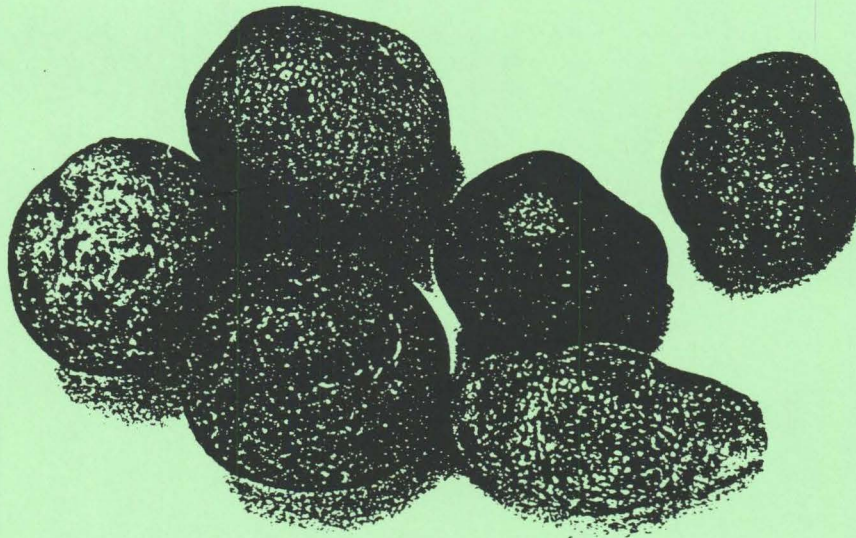
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OHIO POTATO CULTIVAR TRIALS

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OHIO STATEWIDE TRIALS - 1994

INTRODUCTION

The purpose of these statewide potato variety trials is to evaluate new varieties which may benefit Ohio growers, buyers of fresh and processing potatoes when seed becomes available. These varieties are grown under various farm conditions in different regions to determine the potential for a given variety under different environmental and soil conditions.

Cultural practices and pest control measures in each case are those used by the cooperating grower. Plant stands are recorded in each plot. At harvest, the tubers are evaluated, weighed and graded with samples taken for chipping and other quality determinations.

The varieties were selected for these statewide trials on the basis of promising varieties in previous statewide trials at these cooperating farms, or were selected from the extensive variety evaluation plots at the Ohio Agricultural Research and Development Center (OARDC), Wooster, Ohio.

Farm Locations:

Farm 1 (M)	Michael Farms, Urbana (Champaign County)
Farm 2 (L)	Logan Farms, Mt. Gilead (Morrow County)
Farm 3 (W)	Ohio Agricultural Research and Development Center (OARDC), Wooster (Wayne County)

See Table 1 for a summary of cultural practices followed on these cooperating farms--planting dates, harvest dates, plant spacing and related information.

Procedures

The Over-the-State trials with the two cooperating farms included twenty cultivars which were planted in three replicates on each farm. An additional planting of the same cultivars was made at the Ohio Agricultural Research and Development Center, Wooster, Ohio. See Table 1 for additional information on planting dates, spacing, fertilizer practices and related information.

Thirty seed pieces were planted in each replicate. The seed potatoes were received at OARDC and stored under similar conditions. The seed potatoes were cut and treated with Mancozeb on May 5 and 6, 1994. The seed was cured under recommended temperature and humidity conditions. Thirty seed pieces were planted in each replicate. Adequate space was left between each replicate so that little change for error would exist at harvest.

The plots were harvested with conventional equipment. Harvest dates ranged from

September 22 and 23 for the OARDC plots to September 27 and 29 for the plots on Michael and Logan Farms. All plots were deat at harvest. Approximately 50 pounds was collected from each replicate for grading and additional samples of each variety were collected for quality evaluations in the Pilot Plant, The Ohio State University. Grading was done immediately following harvest at the Michael Farm and Logan Farm. At OARDC, the grading was done October 24 and 25. At grading, ten tubers from each replicate were cut for internal defects.

Weather and Growing Conditions

See Table 2 for rainfall date for the three farms. Additional data for the OARDC plots are contained in the North Central Regional Potato Trial Report, page 21. Soil physical conditions were excellent at the three locations. In addition, the temperatures, especially night temperatures, were very favorable for potato growth.

Field Observations

The average percent stand of the 20 cultivars on Michael Farm was 69%, very similar to 1993 (70%), but the stand on Logan Farm was 79%, much better than 1993 (66%). The average stand on the OARDC plot was 85% compared with 78% in 1993.

The average minimum and maximum temperatures at OARDC, Wooster, for July and August were lower than 1993. These lower temperatures during these two critical months had a favorable effect on yields and specific gravity.

At harvest, observations of tuber characteristics are made and recorded. These observations include tuber shape, color and surface texture, eye depth, general appearance, along with uniformity and apparent yielding ability. These observations, along with the yield data and quality evaluations, help determine which cultivars warrant further testing under Ohio conditions.

As mentioned earlier, weather and soil conditions have great effect on performance of individual cultivars. The following data from plots at the Ohio Agricultural Research and Development Center, Wooster, illustrate the effect of seasonal conditions on the yield of potatoes.

Wooster - U.S. No. 1 (Cwt/A)						
<u>Variety</u>	<u>1988</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>
Norchip	133	285	124	276	140	257
Katahdin	163	208	121	311	138	312
Atlantic	246	278	163	343	213	267
LaBelle	---	226	122	177	172	255
Monona	170	243	---	271	---	258
Superior	172	307	199	317	170	267
Gemchip	---	<u>268</u>	<u>111</u>	<u>337</u>	<u>217</u>	<u>276</u>
Rainfall (July-Aug.)	9.8	10.8	3.93	12.32	2.81	7.08

OBSERVATIONS ON PROMISING VARIETIES

The following comments are based primarily on field observations made at harvest on the three cooperating farms. Growers will be unable to purchase seed of new varieties except perhaps in limited quantities--maybe several hundred pounds at the most. This information is being presented so growers will have some background information on variety selection when these new varieties become available. **Also, some of these varieties may be discarded after more testing is done under different conditions.**

AF875-15 is a medium-early maturing variety with round to slightly oval tubers with moderate netting which tends to give tubers a light tan to buff appearance. The irregular surface may be a problem for fresh market. Resistant to verticillium wilt and net necrosis.

Gemchip is a medium-late maturing variety with smooth, white skin texture. The tubers are round to slightly oval shape. It appears to have yielding ability under dry conditions. Surface and pitted scab could be problems under Ohio conditions. It has excellent cooking quality. It has much resistance to verticillium wilt and is reported to be resistant to early blight, but we have not been able to evaluate it for early blight tolerance. Developed by Campbell Soup and released by USDA and several western states.

AF1060-2 is a medium-late maturing selection from Maine Experiment Station with reported resistances to verticillium wilt, net necrosis, Fusarium dry rot and early blight. Round tubers with medium buff to light texture and fairly uniform tuber size. Experiences in Ohio in 1992 and 1994 indicate variety may have yielding potential. We observed some purple streaks in the tubers in 1993 which were probably a genetic disorder.

A80559-2 is a late maturing variety with round tubers and a white to buff skin appearance. Has a high specific gravity and chips well from 50°F storage, according to reports from the West. In our plots it had an irregular surface and seemed to be scab susceptible and shatter bruised at harvest. It does best under irrigated conditions.

NY 84 is from the breeding program at Cornell. Round to slightly oval tubers with buff to light tan skin color and with uniform shape and size in these plots. Eyes are shallow. It is reported to have scab resistance. The maturity is late midseason. Promising for fresh market. Specific gravity is low.

NYE55-44 is another new variety from Cornell. It is a medium-early variety with round to slightly oval tubers and with a smooth surface. Excellent uniformity in our plots in 1993 and 1994. It has resistance to common scab and golden nematode.

Langlade was developed by breeders at the University of Wisconsin. It has found a place in Ohio's industry especially in well-drained soils of medium texture. The tubers are round to slightly oval with a medium buff appearance and fairly uniform. There is a tendency for large tubers and

hollow heart. Closer spacing may be needed.

Mainechip was developed in Maine and released in 1992. The round tubers with buff skin appearance are attractive. The relatively smooth tuber surface aids their appearance. Tuber size tends to be small, but more study on spacing, fertilizer and irrigation may help to improve size. It appears to have yielding ability. The variety was developed primarily for the chip industry, but it may have a place in fresh market. In 1992, hollow hearts was a serious problem. It has high specific gravity.

W1100R is a promising red cultivar from the University of Wisconsin breeding program. The tubers are mostly round with a medium to dark red color. Eyes tend to be medium to shallow depth. This cultivar was included in the OARDC plots in 1993 and 1994.

Table 1. Cultural and pest control practices and rainfall totals for Ohio statewide potato trials - 1994

	Michael Farms	Logan Farms	OARDC Wooster
Date Planted	5/13	5/19	5/18-19/94
Date Harvested	9/27	9/29	9/22&23/94
1993 crop	Sweet corn	Corn	alfalfa
Cover crop	Oats	---	winter wheat - plow down
Fertilizer applied in row	1200 lbs 13-20-20	75N-200P-175K 75N	1200 lbs. 10-20-20 (1/2 at plow-down; 1/2 at planting)
Herbicide	Sencor;Dual	Lorox;Dual	Dual, Sencor
Spacing	8" x 36"	8" x 36"	12" x 36"
Soil Type	Silt Loam	Silty Clay Loam	Wooster Silt Loam
Soil conditions at planting	Excellent	Excellent	Excellent
Irrigation	Yes	No	No
Monthly Rainfall Totals (inches)			
May	.9	.23	1.84
June	6.7	6.14	4.28
July	9.2	4.05	2.08
August	6.1	3.97	5.00
September	-----	.67	1.24
Season Total	22.9	15.06	14.44

SOIL ANALYSES OF STATEWIDE TRIAL PLOTS - 1994

Test Results	Michael Farms	Logan Farms	OARDC Wooster	OARDC Fremont
pH	6.4	5.1	5.8	5.6
P (lb/A)	230	114	120	178
K (lb/A)	204	264	194	274
Ca (lb/A)	2870	2630	1860	3610
Mg (lb/A)	478	293	464	432
CEC (meg/100 g)	9	9	8	15
Ca (% base sat.)	76	78	58	61
Mg (% base sat.)	21	13	24	12
K (% base sat.)	2.8	3.6	3.1	2.14

Soil analyses conducted at Research-Extension Analytical Lab, The Ohio Agricultural Research and Development Center, Wooster.

Table 2. Stand counts for main trials of potato cultivars, Ohio Statewide Trials, 1994.

Cultivar	Percent Stand			Mean
	Michael Farms 42 days after planting	Logan Farms 42 days after planting	OARDC Wooster 35 days after planting	
MS700-70	66	69	74	70
NY84	63	76	83	74
Langlade	69	88	83	80
Superior	72	78	85	78
NYE55-44	66	77	83	75
Mainechip	66	85	89	80
AF1426-1	73	92	85	83
AF875-15	68	86	93	82
AF1433-4	72	77	89	79
Snowden	79	76	95	83
Labelle	67	68	71	69
NE19-47	63	79	87	76
BO178-34	71	67	88	75
A80559-2	76	79	86	80
AF1331-2	66	78	74	73
Chipeta	72	89	93	85
AF1060-2	76	80	92	83
Gemchip	60	76	76	71
Atlantic	63	78	89	77
Castile	63	73	90	75
Means	68.5	78.5	85.3	77.4

Table 3. Total yields, percent U.S. No. 1 and marketable yields for main trial potato cultivars, Ohio Statewide Trial, 1994.

Cultivar	Total Yield			U.S. No. 1			No. 1 Yields		
	cwt/a			cwt/a			cwt/a		
	Michael	Logan	OARDC	Michael	Logan	OARDC	Michael	Logan	OARDC
MS700-70	235	343	346	95	94	86	223	322	298
NY84	318	441	280	93	92	90	296	406	252
Langlade	317	392	334	90	91	91	285	388	304
Superior	247	312	307	95	93	87	235	290	267
NYE55-44	232	286	235	96	94	93	223	269	218
Mainechip	259	270	315	96	92	80	249	248	252
AF 1426-1	351	310	347	89	79	67	312	252	232
AF 875-15	291	386	289	93	93	92	271	359	266
AF 1433-4	273	336	319	95	92	90	259	309	287
Snowden	313	331	315	96	93	90	300	308	283
Labelle	294	276	277	98	95	92	288	262	255
NE 19-47	102	162	165	68	63	83	69	102	137
BO178-34	313	321	309	86	81	87	269	260	268
A 80559-2	319	290	321	96	93	91	306	270	292
AF 1331-2	301	282	333	96	87	79	289	245	263
Chipeta	324	354	304	93	89	84	301	315	255
AF 1060-2	361	394	296	94	94	85	339	370	252
Gemchip	254	338	321	92	94	86	234	318	276
Atlantic	421	360	294	97	95	91	408	342	267
Castile	360	356	337	93	93	89	335	331	300
Mean	294.3	327.0	302.2				274.5	298.3	261.2

Table 4. Percent culls, percent B's and internal defects for main trial potato cultivars, Ohio Statewide Trials, 1994.

Cultivar	Percent Culls			Percent B's			% Hollow Heart			Necrosis			Vascular Discoloration		
	Michael	Logan	OARDC	Michael	Logan	OARDC	Michael	Logan	OARDC	Michael	Logan	OARDC	Michael	Logan	OARDC
MS 700-70	2	3	10	3	3	4	0	10	13	0	0	0	0	0	0
NY 84	2	1	7	5	7	7	0	0	3	0	0	0	0	0	0
Langlade	2	5	4	4	4	5	0	10	10	0	0	0	0	0	0
Superior	3	5	7	2	2	6	0	13	8	0	0	0	0	0	0
NYE 55-44	2	1	0	2	5	13	0	20	0	0	0	0	0	0	0
Mainechip	1	3	8	3	5	4	10	40	28	0	0	0	0	0	0
AF 1426-1	9	19	32	2	2	1	0	0	3	0	0	0	0	0	3
AF 875-15	3	5	4	4	2	4	0	0	5	0	0	0	0	0	0
AF 143304	2	5	5	3	3	5	0	7	17	0	0	0	0	0	0
Snowden	1	1	0	3	6	10	0	37	0	0	0	0	0	0	0
Labelle	0	2	5	2	3	3	0	0	30	0	0	0	0	0	0
NE 19-47	1	4	1	30	33	16	0	0	0	0	0	0	0	0	0
BO178-34	11	13	7	3	6	6	0	10	0	0	0	0	0	0	0
Λ 80559-2	1	4	4	3	3	5	3	20	17	0	0	0	0	0	0
AF 1331-2	2	10	17	2	3	4	0	10	8	0	0	0	0	0	0
Chipeta	5	3	15	2	3	1	0	10	8	0	0	0	0	0	0
AF 1060-2	2	1	9	4	5	6	0	0	0	0	0	0	0	0	0
Gemchip	2	5	9	6	5	5	0	7	0	0	0	0	0	0	0
Atlantic	1	5	2	2	5	7	0	23	0	0	0	0	0	0	0
Castile	3	4	9	4	3	2	0	0	3	0	0	0	0	0	0

Table 5. Specific gravity, chip color, percent blister, and Agtron E-5F. Readings of potato cultivars grown at three farms in statewide trials, 1994.

Cultivar	Specific Gravity			Chip Color ^y *			% Blister ^z			Agtron*		
	Michael	Logan	OARDC	Michael	Logan	OARDC	Michael	Logan	OARDC	Michael	Logan	OARDC
MS700-70	1.080	1.091	1.087	2.5	2	2.0	0	20	10	42.6	48.4	46.2
NY 84	1.069	1.075	1.069	4.5	3	1.5	20	20	10	19.0	33.0	46.7
Langlade	1.071	1.079	1.077	3.5	3.5	3.5	10	10	10	34.0	29.6	30.4
Superior	1.079	1.076	1.077	5.0	3.50	3.5	40	10	50	15.3	26.9	34.3
NYE 55-44	1.080	1.091	1.088	1.0	1	2.0	0	10	20	53.6	52.2	33.4
Mainechip	1.094	1.097	1.094	1.5	2	3.0	0	0	30	47.7	45.4	31.9
AF 1426-1	1.077	1.085	1.079	2	2	4.0	0	0	40	38.8	43.2	24.9
AF 875-15	1.087	1.086	1.091	1	1.5	4.0	0	10	20	51.0	41.9	22.7
AF 1433-4	1.075	1.091	1.071	3	1	4.0	0	0	10	32.7	50.3	22.9
Snowden	1.088	1.098	1.089	2.5	3	3.0	10	10	10	37.2	37.8	34.2
Labelle	1.076	1.083	1.076	3.5	3	3.5	10	10	10	32.3	34.8	32.4
NE 19-47	1.073	-----	1.077	1	-	1	0	--	0	52.7	-----	52.3
BO 178-34	1.086	1.0921	1.093	2.5	1	3	0	0	20	39.0	53.8	36.9
A 80559-2	1.086	1.011	1.096	1.5	2	1.5	0	0	0	46.3	46.3	46.3
AF 1331-2	1.069	1.093	1.089	4	2.5	2.0	10	20	40	26.4	33.4	44.4
Chipeta	1.079	1.087	1.079	1.5	2	3.0	10	10	0	41.9	47.1	34.4
AF 1060-2	1.076	1.087	1.082	4	3.5	4	20	40	10	21.6	25.5	22.9
Gemchip	-----	1.078	1.078	--	2.5	2.0	--	10	10	-----	38.8	38.6
Atlantic	1.084	1.103	1.092	1.5	2	1.5	0	10	10	41.1	43.2	48.4
Castile	1.083	1.089	1.083	4	4	5	10	20	10	28.6	26.5	17.0

^yPC/SFA standards: 1 = light (high Agtron index readings); 5 = dark, low agtron index readings.

^zPercentage of chips that develop blisters >20mm in diam. during the frying process.

^yPercentage of chips that develop blisters >20 mm in diam. during the frying process.

*The holding temperature after harvest dropped to 44°F, this is the reason for the chip color ratings.

Table 6. Mean U.S. No. 1 yields in cwt. per acre for major entries in the Ohio statewide potato trials of all farms each year grown in the last ten years and grown more than one year.

Cultivar	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Early & Med. Early											
Superior	---	---	---	---	131	---	207	224	278	183	267
Conestoga	230	266	321	225	---	---	---	---	---	---	---
Rus. Norkotah	---	---	302	272	105	---	---	---	---	---	---
Early Midseason											
Langlade (W718) 304	---	---	---	---	181	188	---	---	---	216	---
Norchip	208	228	301	236	160	161	235	---	---	---	---
Midseason											
Snowden (W855)	---	---	---	---	---	167	---	231	373	202	283
LA01-38 (LaBelle)	---	359	413	330	233	211	272	---	344	217	255
Katahdin	315	335	363	276	187	178	246	251	373	---	312
Atlantic	---	---	---	---	---	193	260	260	269	276	267
Late											
Castile (B7592-1)	---	---	---	---	---	191	280	238	338	---	300
Allegany (NY72)	---	---	---	---	213	184	---	192	---	---	---
Denali	---	---	---	---	---	---	---	---	---	---	---
Elba (NY59)	---	---	393	---	---	---	---	---	---	---	---
Neb. A129-69-1	278	---	---	---	---	---	---	---	---	---	---
WCN521-12	---	325	344	---	---	---	---	---	---	---	---
MS700-70	---	---	378	281	232	187	230	263	---	---	298
Gemchip (BR7093-24) 276	---	---	---	---	---	268	230	344	218	---	---
Steuben (NY81)	---	---	---	---	235	215	---	---	---	---	---

Some of the cultivars grown in Ohio for which the characteristics are well known after several years of testing have been omitted in later years. Some cultivars were included in the trials prior to the last ten years. Among these are Shurchip, Monona, Kennebec, Atlantic, Crystal, Sebago, Red Pontiac, Red LaSoda, etc. Katahdin, Norchip and Superior are well known and used as standards for comparison.

PLANT STAND ESTABLISHMENT STUDY

The purpose of this study was to examine four cultivars (Table 7a) for possible stand establishment difficulties. Each seed piece was examined and determined to have at least one eye. Seed pieces were placed twelve inches apart within the row. Each plot consisted of thirty seed pieces, replicated four times. LaBelle was the only cultivar that lacked acceptable plant stands. Further studies will continue to examine the problem with stand establishment

NATURAL COLORADO POTATO BEETLE, LEAF HOPPER AND APHID CULTIVAR RESISTANCE

The purpose of this study was to examine the cultivar NY235-4 for natural resistance to these insects (Table 7b). The cultivar is out of Dr. Bob Plaisted's breeding program at Cornell University. This cultivar is known as the hairy leaf potato. The study was performed at Fremont, Ohio at the Vegetable Crops Research Station, OARDC/OSU.

The Colorado potato beetle and aphid population was not high enough in our plots to note any noticeable resistances. However, the leaf hopper pressure was significantly high to show noticeable differences. The cultivar NY235-4 shows considerably less damage than did the other three cultivars. Currently the cultivar is not an acceptable marketable cultivar.

Table 7a. Plant stand, total yields, U.S. No. 1 yields, grade distribution, and internal disorders for selected cultivars to examine growth characteristics, grown at OARDC-Wooster, Ohio 1994.

Cultivar	% Plant stand	Total yield cwt/a	U.S.#1 cwt/a	U.S. #1 %	Cull %	B's %	Hollow Heart %	Vascular Discolor. %	Necrosis %	Tuber color	Tuber shape	Appearance	Skin texture	Eye depth
Snowden	98	320	288	90	2	8	5	0	0	5	2	6.5	5	5
Langlade	91	438	416	95	2	3	35	0	0	6	2	6.5	6	6
Labelle	83	310	296	95	3	2	0	0	0	5	3	6	6	6
Atlantic	95	405	369	91	4	5	0	0	0	5	3	6	5	6

Table 7b. Plant stand, total yields, U.S. No. 1 yields, grade distribution, and internal disorders for selected cultivars grown for a Colorado Potato Beetle Study grown at Fremont, Ohio 1994.

Cultivar	% Plant stand	Total yield cwt/a	U.S.#1 cwt/a	U.S. #1 %	Cull %	B's %	Hollow Heart %	Vascular Discolor. %	Necrosis %
NY235-4	98	247	222	90	6	4	0	0	0
Superior	95	184	151	82	9	9	10	0	0
Atlantic	93	353	318	90	5	5	20	0	0
Gemchip	98	206	179	87	4	9	0	0	0

Table 8a. Plant stand, total yields, U.S. No. 1 yields, grade distribution, and internal disorders for the Observation trial grown at Wooster, OH - 1994.(single replication)

Cultivar	% Plant stand	Total yield cwt/A	U.S. No.1 cwt/A	U.S. No.1 %	Culls %	B's %	Internal Defects		
							Hollow heart %	Vascular discoloration %	Necrosis %
W1149	87	342	328	96	1	3	0	0	0
W1100R	90	358	315	88	3	9	0	0	0
AF1475-16	90	249	239	96	0	4	0	0	0
AF1475-20	93	370	344	93	3	4	30	0	0
AF1480-5	90	341	297	87	10	3	60	0	0
AF1455-20	97	368	350	95	0	5	0	0	0
AF1437-1	87	324	305	94	3	3	0	0	0
AF1470-18	97	300	267	89	1	10	0	0	0
AF1470-6	87	353	307	87	9	4	0	0	0
M14-6	77	344	310	90	5	5	10	0	10
M19-4	70	324	282	87	9	4	0	0	0
M19-3	90	288	276	96	2	2	0	0	0
M14-11	87	290	267	92	2	6	0	0	0
M1-2	67	300	288	96	0	4	0	0	0
Superior	83	307	267	87	7	6	8	0	0
Landglade	83	334	304	91	4	5	10	0	0
Atlantic	89	294	267	91	2	7	0	0	0

Table 8b. Plant stand, total yields, U.S. No. 1 yields, grade distribution, and internal disorders for selections in Observation trials, Wooster, Ohio - 1994.(two replications)*

Cultivar	% Plant stand	Total yield cwt/A	U.S. No.1 cwt/A	U.S. No.1 %	Culls %	B's %	Internal Defects		
							Hollow heart %	Vascular discoloration %	Necrosis %
BO766-3	90	329	299	91	6	3	0	0	0
BO835-11	88	348	324	93	6	1	0	0	0
BO887-5	85	231	203	88	11	1	0	0	0
BO903-2	85	505	419	83	13	4	0	0	0
BO564-9	88	374	333	89	7	4	10	0	0
BO813-7	92	289	240	83	7	10	0	0	0
BO950-6	83	304	243	80	18	2	90	0	0
B1016-3	88	355	309	87	8	5	10	0	0
BO984-1	70	376	331	88	10	2	40	0	0
BO852-7	98	414	364	88	11	1	20	0	0
BO856-4	83	410	340	83	16	1	0	0	0
BO893-8	68	438	394	90	9	1	0	0	0
BO405-4	97	407	358	88	9	3	50	0	0
BO687-14	90	371	312	84	7	9	0	0	0
BO1004-8	75	307	282	92	6	2	0	0	0
BO850-8	87	431	401	93	3	4	0	0	0
BO169-56	88	367	312	85	5	10	0	0	0
BO587-9	88	257	216	84	5	11	10	0	0
BO613-2	83	463	417	90	6	4	0	0	0
B9922-11	83	335	315	94	4	2	50	0	0
BO174-16	95	384	346	90	4	6	0	0	0
BO717-1	83	414	364	88	5	7	0	0	0
BO800-12	95	278	247	89	3	8	0	0	0
BO585-1	88	376	327	87	7	6	0	0	0
BO585-5	82	335	281	84	13	3	0	0	0
BO684-5	82	356	313	88	10	2	0	0	0
BO176-24	95	405	312	77	21	2	0	0	0
BO763-15	87	375	338	90	1	9	0	0	0
BO852-5	83	427	316	74	23	3	10	0	0
B1110-11	55	415	294	71	27	2	0	0	0
L8-18	62	346	304	88	10	2	0	0	0
AO82611-7	90	402	237	59	36	5	0	0	0
ND03438-	38	127	105	83	13	4	10	0	0
NDO1496-1	72	340	272	80	15	5	0	0	0
NDO2904-7	65	278	234	84	14	2	0	0	0
Superior	83	307	267	87	7	6	8	0	0
Landglade	83	334	304	91	4	5	10	0	0
Atlantic	89	294	267	91	2	7	0	0	0

*Trial includes various advanced lines and clones from US Department of Agriculture, Beltsville, MD.

Table 9a. Tuber data and chip data for the Observation trial grown at Wooster, OH - 1994.

Cultivar	Tuber Data ^x					Chip Data*			Agtron ^y
	tuber color	skin texture	tuber shape	eye depth	appearance	specific gravity	chip color	blisters ^z %	
W1149	5	7	3	6	6	1.086	3.5	30	28.6
W100R	2	8	2	7	7				
AF1478-16	7	8	2	7	8	1.077	3	30	38.0
AF1475-20	6	6	2	7	7	1.083	4	0	17.2
AF1480-5	6	6	3	5	5	1.074	4.5	10	19.2
AF1455-20	6	7	2	7	6				
AF1437-1	6	6	2	6	6	1.073	5	10	10.3
AF1470-18	6	7	3	6	6	1.070	4	10	23.8
AF1470-6	6	6	3	6	5				
M14-6	4	5	3	6	6	1.084	2.5	0	33.8
M19-4	5	6	3	6	6				
M19-3	6	6	3	6	7	1.072	4.5	20	16.0
M14-11	5	5	2	6	7	1.081	3.0	50	29.8
M1-2	5	6	2	7	7	1.089	1.5	0	44.8
Superior	6	6	5.0	5	5	1.077	3.5	50	34.3
Landglade	-	-	-	-	-	1.077	3.5	10	30.4
Atlantic	5	5	2.5	6.50	5.75	1.092	1.5	10	48.4

*Tuber Data Rating System:

Tuber Color: 1) purple, 2) red, 3) pink, 4) dark brown, 5) brown, 6) tan, 7) buff, 8) white, 9) cream

Skin Texture: 1) part russet, 2) heavy russet, 3) moderate russet, 4) light russet, 5) netted, 6) slight net, 7) moderate smooth, 8) very smooth

Eye Depth: 1) very deep, 2) --, 3) deep, 4) --, 5) intermediate, 6) --, 7) shallow, 8) --, 9) very shallow

Tuber Shape: 1) round, 2) mostly round, 3) round to oblong, 4) mostly oblong, 5) oblong to long, 6) mostly long, 7) long, 8) cylindrical

Appearance: 1) very poor, 2) --, 3) poor, 4) --, 5) fair, 6) --, 7) good, 8) --, 9) excellent

^yPC/SFA Standards: 1 = light (high Agtron index readings), 5 = dark (low Agtron index readings).

^zPercentage of chips that develop blisters >20 mm in diam., during the frying process.

*The holding temperature after harvest dropped to 44°F, this is the reason for the chip color ratings.

Table 9b. Tuber data and chip data for selections in Observation trials, Wooster, Ohio - 1994 (two replications)¹.

Cultivar	Tuber Data ^a					Chip Data ^a			Agtron ^b
	tuber color	skin texture	tuber shape	eye depth	appearance	specific gravity	chip color	blisters ^c %	
BO766-3	7	7	3	7	7	1.083	4	0	24.9
BO835-11	4	3	8	7	8	-----	-	---	-----
BO887-5	6	6	2	5	3	-----	-	---	-----
BO903-2	1	7	3	5	6	-----	-	---	-----
BO564-9	5	5	2	5	4	1.082	3	30	38.7
BO813-7	6	6	2	6	6	1.093	2	0	43.9
BO950-6	5	4	8	7	6	-----	-	---	-----
B1016-3	5	3	3	4	5	-----	-	---	-----
BO984-1	2	7	3	4	5	-----	-	---	-----
BO852-1	1	7	2	7	7	1.083	1.5	0	49.0
BO856-4	7	3	2	5	6	1.078	3	30	34.9
BO893-8	4	3	8	8	8	-----	-	---	-----
BO405-4	6	5	2	6	7	1.091	2	0	40.0
BO687-14	6	7	2	4	4	-----	-	---	-----
BO1004-8	4	3	4	7	8	1.079	3	10	30.7
BO850-8	6	7	3	6	5	1.071	4	30	21.7
BO169-56	6	7	3	6	5	-----	-	---	-----
BO587-9	6	6	2	5	4	-----	-	---	-----
BO613-2	5	5	2	6	5	1.073	3.5	10	33.9
B9922-11	4	3	4	6	6	-----	-	---	-----
BO174-16	6	6	2	7	7	1.084	4	10	26.5
BO717-1	5	5	2	6	6	-----	-	---	-----
BO800-72	2	6	3	5	5	-----	-	---	-----
BO585-1	6	7	2	5	5	-----	-	---	-----
BO585-5	6	7	3	6	6	1.081	3	10	36.6
BO684-5	6	7	2	6	7	1.071	3	0	34.8
BO176-24	5	5	2	4	4	1.084	2.5	10	43.3
BO763-15	1	7	3	6	6	-----	-	---	-----
BO852-5	6	7	4	5	5	-----	-	---	-----
B1110-11	7	7	4	5	4	-----	-	---	-----
L8-18	6	6	4	6	8	-----	-	---	-----
AO82611-7	5	3	8	6	4	-----	-	---	-----
NDO3438-7	2	7	3	4	4	-----	-	---	-----
NDO1496-1	6	7	3	5	5	-----	-	---	-----
NDO2904-7	4	3	8	5	5	-----	-	---	-----
Superior	6	6	5	5	5	1.077	3.5	50	34.3
Langlade	-	-	-	-	-	1.077	3.5	10	30.4
Atlantic	5	5	2.5	6.5	5.75	1.092	1.5	10	48.4

^aTuber Data Rating System:

Tuber Color: 1) purple, 2) red, 3) pink, 4) dark brown, 5) brown, 6) tan, 7) buff, 8) white, 9) cream

Skin Texture: 1) part russet, 2) heavy russet, 3) moderate russet, 4) light russet, 5) netted, 6) slight net, 7) moderate smooth, 8) very smooth

Eye Depth: 1) very deep, 2) --, 3) deep, 4) --, 5) intermediate, 6) --, 7) shallow, 8) --, 9) very shallow

Tuber shape: 1) round, 2) mostly round, 3) round to oblong, 4) mostly oblong, 5) oblong to long, 6) mostly long, 7) long, 8) cylindrical

Appearance: 1) very poor, 2) --, 3) poor, 4) --, 5) fair, 6) --, 7) good, 8) --, 9) excellent

^bPC/SFA Standards: 1 = light (high Agtron index readings), 5 = dark (low Agtron index readings), Agtron E-5F.^cPercentage of chips that develop blisters >20 mm in diam., during the frying process.¹Trial includes various advanced lines and clones from US Department of Agriculture, Beltsville, MD.²The holding temperature after harvest dropped to 44°F, thus, the reason for the chip color readings.

Table 10. Selections eliminated after harvest due to poor yields or undesirable tuber characteristics Wooster, Ohio - 1994.

W1005 Rus	AF1559-5	M-39-4	B9922-11
W1099 Rus	AF1294-10	N51-1	BO717-1
W84-178 R	AF1455-9	BO835-11	BO800-12
W842	N38-4	BO887-5	BO585-1
W845	M28-2	BO903-2	BO176-24
W848	N51-2	BO950-6	BO763-15
W1242	N38-1	B1016-3	BO852-5
W1061 R	M32-7	BO984-1	B1110-11
W1046	M28-3	BO893-8	L8-18
W1189	N38-5	BO687-14	AO82611-7
W921	M14-1	BO857-9	NDO2438-7
			NDO1496-1
			NDO2904-7

*The senior author can supply additional information on the field observations and other quality attributes which affected the decision to eliminate these cultivars. These cultivars may develop into outstanding commercial varieties under other environmental conditions.

**CAMPBELL SOUP CO. POTATO CULTIVAR TRIAL,
NAPOLEON, OHIO, 1994**

Conclusions and Recommendations

AF 1426-1 was in a yield category of its own at this location, both total and marketable grades significantly out-performed all other entries. It had acceptable tuber characteristics, mid-range specific gravity and processed dice produced a pleasing sample; ie., minimal translucency.

Other entries with potential were, AF1060-2 and Atlantic (in spite of slightly higher SG than thought desirable for heat processing).

Portage produced a good processed dice, but there is some concern that this variety may be susceptible to rhizoctonia--black scurf. Gemchip combined a good yield with nice tuber shape, free of defects but the processed dice were rated poor because of significant translucency.

NYE 55-44 produced the best processed dice sample but yield of this variety was low--similar to Superior.

Recommend advancing the two AF lines, 1426-1 and 1060-2 as seed supplies permit. The Napoleon Plant should try variety Atlantic again, based on samples from this trial, as finished produce were promising.

Recommend continuing cooperative efforts with OPGA.

Table 1. Campbell Soup Cultivar Trials -- 1994; Replicated Potato Variety Trial - Napoleon.

Variety	Yield Cwt/A		Tuber Characteristics									Comments
	Total	market- able	% Marketable	% Small	S.G.	Hollow heart %	Stem-end discolor (internal)	Eye depth	Scab	Black scurf		
AF1426-1	460.4	426.4	92.2	8.1	1.076	1.3	1.3	S	VL	--		
Sunchip	395.8	352.2	89.0	8.2	1.092	17.5	1.3	S	VL	L-M		
Castile	388.3	345.4	89.01	9.1	1.080	0.0	10.0	S	L	L-M	Oblong	
Atlantic	375.4	347.5	92.6	6.9	1.084	2.6	11.3	S-M	L			
AF1060-2	372.6	318.2	85.4	10.6	1.075	0.0	12.5	S	M			
NY84	370.6	326.4	88.1	11.0	1.066	0.0	45.0	S	M	--		
Gemchip	359.7	316.9	88.1	10.0	1.078	1.3	3.6	S-M	-	--		
Chipeta	351.5	307.4	87.4	3.1	1.083	15.0	3.8	M	-	--		
Langlade	344.8	317.6	92.1	7.3	1.072	1.3	10.0	S	-	L		
AF1433-4	340.7	306.0	89.8	9.8	1.081	0.0	38.8	M-D	-	L-M		
Snowden	342.0	316.2	92.0	6.7	1.075	0.0	17.5	S-M	L	--		
AF875	331.8	301.9	91.0	7.2	1.079	1.3	12.5	S	VL	--		
af1331-2	324.4	263.2	81.1	7.3	1.076	0.0	30.0	S-M	VL	--		
Labelle	314.8	303.3	96.8	2.8	1.078	1.3	13.7	S	M	--		
A80589	310.8	286.3	92.1	7.0	1.093	3.8	3.8	S	VL	--	Yellow Flesh	
Mainechip	284.9	240.0	84.2	14.3	1.089	3.8	7.5	S-M	VL	--		
BO178-34	274.0	246.8	90.1	9.2	1.086	2.6	10.0	S	L	--		
NY55-44	250.2	224.4	88.7	9.5	1.078	1.3	5.0	S	VL	L		
Superior	237.3	209.4	88.2	10.5	1.074	0.0	16.3	S-M	VL	L	Checked skiin	
MSU700-70	220.3	213.5	96.9	1.5	1.078	6.3	3.8	M	L-M	--		
NE19-47	122.4	68.0	55.6	42.2	1.074	0.0	6.3	S	-	L		
Bayes LSD 5%	41.5	44.9	-----	-----	0.003	8	11.5					

Table 2. Evaluation of Processed Potato Samples

Variety	Drained Wt. grams	Presence of starch gel	No. Gray Translucent dice/34	Overall Dice Appearance in milk
AF1426-1	151.9	-	3.25	Good
Suncrisp	155.1	++	6.25	Fair
Castile	146.1	+	6.5	Fair-Poor
Atlantic	152.7	+	3.75	Good
AF 1060-2	153.1	-	3.75	Good
NY 84	141.5	-	4.75	Fair
Portage	145.6	+	6.0	Fair-Good
Gemchip	152.7	-	6.0	Poor
Chipeta	151.9	++	6.25	Poor
Langlade	146.2	-	10.25	Poor
AF1443-4	149.4	+	7.5	Poor
Snowden	154.1	-	4.0	Poor
AF 875-15	153.6	+	5.25	Fair
AF 1331-2	140.6	-	4.75	Good
Labelle	146.8	++	5.75	Fair
A 80589-21	146.4	++	5.0	Poor
Mainechip	156.4	++	5.75	Poor
B 0178-34	155.0	+	5.75	Poor
NYE 55-44	145.6	+	2.2	V. Good
Superior	149.1	+	3.5	Fair-Good
MSU 700-70	150.5	++	2.75	Fair-Good
NE 19-47	144.4	++	6.75	Poor
Bayes LSD 5%	8.3		3.8	

Correlations Drained Wt. and S.G. $r=0.71 = \text{sig.}$

Correlations No. Gray Dice and Overall Appearance $r = 0.69 = \text{sig.}$

No other correlations were found significant.

Presence of starch gel in canned potatoes is subjective; - none, + present, ++ thick gel formed.

The significance of this gel is not known at this time.

Overall appearance of dice in milk is subjective, but relates to the level and degree of translucency of the dice in a milk background. The presence of potato dice that appear to be gray in color in contrast to a cream base is not desirable in cream of potato soup or clam chowder soup.

1994 NORTH CENTRAL REGIONAL POTATO TRIALS

Location Wooster, Ohio Soil Type Wooster Silt Loam
600 lbs/10-20-20 disked in
 Fertilizer Treatment 600 lbs/10-20-20 at planting Date Planted 5/18-19/94
 Date Harvested 9/22-23/94 Size of Plots Single rows-30 ft. long
 Spacing - Between Hills 12 inches Spacing - Between Rows 36 inches
 Replications 4 Number of Hills per Replication 30

Environmental Factors (rainfall, temperature, irrigations, etc.)

	Rainfall <u>(in.)</u>	Long Term <u>Avg.(in.)</u>	Air Temperature (°F) <u>Avg. Min. Avg. Max.</u>		Long Term Avg. (°F) <u>Min. Max.</u>	
May	1.84	3.90	41.3	67.8	46.5	70.6
June	4.28	3.95	56.8	83.2	55.5	79.4
July	2.08	4.16	61.9	84.5	59.7	83.6
Aug.	5.00	3.65	57.0	80.0	57.8	82.0
Sept.	1.24	3.15	49.1	75.0	51.4	75.6

Sprays Applied:

6/10/94 Imidan 70W 1.3 lb + Thiodan 50WP 1#
 6/30/94 Guthion 3F 1.5 pt + Bravo 720 2 pt
 7/10/94 Guthion 3F 1.5 pt + Dithane DF 2 lb
 7/20/94 Imidan 70W 1.3 lb + Thiodan 50 WP 1 lb + Dithane DF 2 lb
 7/29/94 Asana XL 9 oz + Dithane DF 2 lb
 8/10/94 Guthion 3F 1 pt + Thiodan 50 WP 1 lb + Dithane DF 2 lb
 8/19/94 Monitor 4 2 pt + Dithane DF 2 lb
 8/30/94 Imidan 70W 1 lb + Bravo 720 2 pt

Other Data (vine killing, specific gravity determinations, etc.):

Herbicide: Dual 8E (2 pt.), Sencor 75% (1 lb.), 5/20/94

Vine Killing: Diquat (1 pt.) plus Sticker 9/6/94

Specific Gravity determined using weight in air-weight in water method, and solids determined by tabular conversion.

Objective chip color measurements were made with Agtron E-5F.

**1994 NORTH CENTRAL REGIONAL POTATO VARIETY TRIAL
SUMMARY OF GRADE DEFECTS FROM Ohio**

Selection Number or Variety	Percent External Defects (1)					Percent Internal Defects (1)				
	Scab (2)	Growth Cracks	Off Shape and Second Growth	Sun Green	Tuber Rot	Total (3) Tubers Free of Ext. Defects	Hollow Heart	Internal Necrosis	Vascular Discoloration	Normal Tubers (4)
EARLY TO MEDIUM MATURITY										
ND2471-8	2.75	0.25	1.00	0.00	0.00	16.00	0	0	0	100
Red Norland	2.00	0.75	0.50	0.00	0.00	17.25	0	0	0	100
Russet Norkotah	0.50	0.00	3.75	0.00	0.00	16.25	13	0	0	87
Norchip	2.00	1.50	1.75	1.25	0.00	13.50	0	0	0	100
MEDIUM LATE TO LATE MATURITY										
MN13540	1.50	1.25	4.25	0.00	0.00	13.25	0	0	0	100
MN12823	2.00	0.00	9.50	1.00	0.00	7.50	3	0	0	97
MN15220	1.50	0.25	6.50	0.25	0.00	11.50	0	0	0	100
ND2417-6	2.50	0.00	4.25	2.25	0.00	11.00	3	0	0	97
W1100R	4.25	0.25	1.00	0.25	0.00	14.75	0	0	0	100
W1099 Russ	0.00	1.50	3.50	0.25	0.00	12.25	0	0	0	100
W1149	4.00	0.00	1.00	0.33	0.00	14.67	5	0	0	95
Red Pontiac	3.75	0.00	7.50	0.00	0.00	8.75	0	0	0	100
Russet Burbank	0.50	0.00	11.00	0.00	0.00	8.50	0	0	3	97
(5) P84-9-8	2.25	1.25	0.75	1.50	0.00	14.25	0	0	0	100
P83-11-5	1.50	1.25	0.50	1.25	0.00	15.50	0	0	0	100
Average										

(1) Based on four 20 tuber samples (one from each replication). Percentage based on number of tubers.

(2) Includes all tubers with scab lesions, whether merely surface, pitted or otherwise and regardless of area. Be sure to count tubers with any amount of scab in this category.

(3) This total - tubers free from any external defect of any sort.

(4) Percentage normal tubers are those showing no internal defects. Some individual tubers will have more than one type of internal defect.

(5) P83 and P84 not in all trial locations.

1994 NORTH CENTRAL REGIONAL POTATO TRIAL SUMMARY SHEET of Ohio

Selection Number or Variety	Aver. (1) Maturity	Most (2) Representative Scab Area-Type (A-T)	CWT/A Average Yield	CWT/A Yield US #1	Average Percent US #1	Aver.(3) % Total Solids	Gen (4) Merit Rating	* Chip (5) Color	Comments and General Notes
EARLY TO MEDIUM MATURITY									
ND2471-8	3.0	1-1	291	256	88	21.06	1	2.0	Apical & eyes slightly indented
Red Norland	1.0	1-1	277	252	91	15.99		5.0	Light red color
Russet Norkotah	2.5	0	318	319	90	20.21	5	5.0	Wide range of size, misshapened
Norchip	2.5	1-2	343	257	75	20.00		3.0	Rough surface, growth cracks, second growths
MEDIUM LATE TO LATE MATURITY									
MN13540	3.5	1-1	299	254	85	17.68	3	4.0	Second growth and tends to be flattish
MN12823	4.0	1-1	274	225	82	18.95		2.0	Wide range in size, rough surface
MN15220	4.0	1-1	354	276	78	16.63	4	5.0	Large tubers, misshapene and rough surface
ND2417-6	4.0	1-1	410	324	79	19.37	2	2.5	Apical end tends to be deep
W1100R	1.0	1-1	329	276	84	17.05		4.0	Large tubers, rough surface
W1099 Russ	3.0	0	338	281	83	16.63		2.0	No uniform tuber shape
W1149	3.0	2-1	268	266	93	21.69		4.0	Tubers feathering
Red Pontiac	4.0	1-1	392	345	88	17.89		4.0	Deep apical end, rough surface
Russet Burbank	5.0	1-2	169	132	78	20.43		3.5	Variable shape, rough surface, growth cracks
P84-9-8	3.0	1-1	113	77	68	19.79		3.0	Shatter, bruising a problem
P83-11-5	3.0	1-1	233	198	85	20.21		1.0	Wide range in size
Average									

- 1) 1=Very Early-Norland maturity; 2=Early-Norchip or Irish Cobbler maturity; 3=Medium-Red Pontiac maturity; 4=Late-Katahdin maturity; 5=Very Late-Kennebec or Russet Burbank maturity.
- 2) AREA: 1=less than 1%; 2=10-20%; 3=21-40%; 4=41-60%; 5=61-80%; 6=81-100%. TYPE: 1=Small, superficial; 2=Larger, superficial; 3=Larger, rough pustules; 4=Larger pustules, shallow holes; 5=Very large pustules, deep holes.
- 3) Percent total solids, not total solids/acre.
- 4) Place top FIVE among all entries, including check varieties, disregard maturity classification. (Rate first, second, third, fourth, fifth (in order) for overall worth as a variety).
- 5) Chip Color=PCH Color Chart or Agtron. Indicate what Agtron you are using.

* The holding temperature after harvest dropped to 44°F this is the reason for the chip color rating.

OHIO

Richard Hassell, David Kelly, E.C. Wittmeyer, Elaine Grassbaugh, Mark Bennett and John Elliott
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Introduction

Forty varieties and clones were evaluated in 1994 at the Ohio Agricultural Research and Development Center, Wooster, Ohio, as part of the NE 107 Regional Project (Breeding and Evaluation of Potato Clones for the Northeast).

Methods

The seed samples, when received, were stored under recommended conditions. Plots were planted May 18, 1994, with 30 seed pieces spaced 12 inches apart, in rows 36 inches apart. A randomized complete block design with four replications was used. Soil type was a Wooster silt loam (fine-loamy, mixed mesic typic Fragiudalf) with a pH of 5.8 and a phosphorus level of 120 lbs. and a potassium level of 194 lbs., according to analytical procedures of the Research Extension Analytical Laboratory, the Ohio Agricultural Research and Development Center.

Fertilization consisted of 1200 lbs/A 10-20-20, one-half applied as broadcast application after plowing and disked in, and one-half applied in bands at planting. Herbicides used were Dual and Sencor. Other pesticides included Imidan, Thiodan, Guthion, Bravo, Monitor, Asana, and Dithane. Phorate-Thimet was applied at planting. Plots were mechanically harvested on September 22-23, 1994. Samples were taken at harvest for quality evaluations in the Pilot Plant, The Ohio State University. Specific gravity was determined using the potato hydrometer method. The potatoes from each replicate were graded October 24-25, when 10 tubers were taken at random from each replicate for hollow heart and internal necrosis ratings (Ohio Table 2).

Weather Conditions

Rainfall during the growing season (May-September) was 14.44 inches, 4.37 inches below the long-term average for Wooster. Average temperatures for May and September were slightly below the long-term average for the area.

Results

Top-yielding entries (more than 290 cwt/A, U.S. No. 1) included BO493-8, Castile, BO257-12, Katahdin, BO172-22, St. Johns, and B9792-157. These seven entries produced U.S. No. 1 yields ranging from 291 cwt/A to 312 cwt/A, and the U.S. No. 1 percentage ranging from 83% to 96%.

Entries with specific gravity above 1.080 included F80054, NYE55-44, Snowden, Castile, AF10650-2, Yukon Gold, BO257-12, ND2471-8, NYE55-35, B245-15, Atlantic, AI875-15, Mainechip, BO178-34, AF1331-2, Kennebec, BO172-22, NCO12-18, Russet Bakeking, A81473-2, B9792-157.

Hollow heart was present in 58% of the cultivars evaluated, much higher than 1993 when only 10 percent showed this problem. Cultivars with more than 5% hollow heart (on basis of examining 40 tubers) included NY87 (15%), B245-15 (10%), Katahdin (5%), Mainechip (28%), AF1331-2 (8%), Superior (8%), and AF1481-4 (10%).

Ohio Table 1.

Yield, marketable yield, percent of yield by grade size distribution and specific gravity for varieties grown at Wooster, Ohio - 1994. (Northeast)

Cultivar	Total Yield cwt/A	Size Distribution by Classes					
		Marketable Yield			% of Total Yield		
		U.S.#1 cwt/A	% STD	U.S.#1 (>1-7/8")	B size	Culls	Specific gravity
F80054	252	184	74	73	15	12	1.095
NYE11-45	272	226	80	83	4	13	1.067
ND2417-6	321	279	95	87	5	8	1.079
NYE55-44	235	219	69	93	5	2	1.088
BO564-8	296	260	87	88	11	1	1.073
BO493-8	325	312	96	96	1	3	1.078
AF1470-17	317	241	94	76	5	19	1.071
NY87	327	307	96	94	2	4	1.078
Snowden	281	253	83	90	10	0	1.089
Castile	337	300	99	89	2	9	1.083
AF1426-1	347	232	102	67	1	32	1.079
AF1060-2	296	252	87	85	6	9	1.082
Yukon Gold	282	262	83	93	1	6	1.087
BO257-12	337	310	99	92	2	6	1.088
ND2471-8	281	256	83	91	7	2	1.085
NYE55-35	302	263	89	87	13	0	1.088
B245-15	282	271	83	96	1	3	1.083
Atlantic	294	268	87	91	7	2	1.092
AF875-15	289	266	85	92	4	4	1.091
Chipeta	304	255	90	84	1	15	1.079
Katahdin Std	339	312	100	92	1	7	1.076
Mainechip	315	277	93	88	4	8	1.094
BO178-34	309	269	91	87	6	7	1.093
AF1331-2	333	263	98	79	4	17	1.089
Kennebec	338	223	100	66	4	30	1.082
Superior	307	267	91	87	6	7	1.077
AF1438-4	319	262	94	82	9	9	1.071
AF538-2	272	218	80	80	16	4	1.070
BO172-22	342	301	101	88	3	9	1.094
NC012-18	318	239	94	75	9	16	1.089
St. Johns	351	291	104	83	2	15	1.076
BO616-1	268	225	79	84	8	8	1.073
NY84	280	241	83	86	7	7	1.069
AF1481-4	295	233	87	79	7	14	1.079
AF1425-1	272	226	80	83	10	7	1.075
AF1438-1	275	239	81	87	4	9	1.071
Monona	287	258	85	90	3	7	1.070
Russet Baking	288	259	85	90	7	3	1.087
AS1473-2	242	208	71	86	11	3	1.086
B9792-157	339	305	100	90	4	6	1.083

Ohio Table 2.

Tuber shape and appearance, hollow heart ratings, internal necrosis ratings and chip color for varieties grown at Wooster, Ohio - 1994. (Northeast)

Cultivar	Plant maturity	Tuber shape	Appearance ²	Hollow heart	Internal ¹ necrosis	Chip ^y * color
F80054	5	3.00	4.75	0	0	2.0
NYE11-45	7	2.50	7.00	0	0	3.5
ND2417-6	6	2.00	6.50	0	0	4.5
NYE55-44	3	2.00	6.25	0	0	4.0
BO564-8	7	2.00	5.25	3	0	3.5
BO493-8	7	4.25	4.00	3	0	4.0
AF1470-17	7	3.00	2.75	0	0	3.0
NY87	5	2.75	5.75	15	0	2.5
Snowden	6	2.00	4.50	0	0	3.0
Castile	7	4.00	4.25	3	0	5.0
AF1426-1	5	3.00	3.25	3	0	4.0
AF1060-2	7	2.00	5.00	0	0	
Yukon Gold	5	2.25	6.00	3	0	5.0
B257-12	4	3.00	5.25	8	0	4.5
ND2471-8	7	2.00	5.50	5	0	3.0
NYE55-35	6	2.00	6.25	0	0	2.0
B245-15	7	4.00	6.25	10	0	1.5
Atlantic	6	2.50	5.75	0	0	1.5
AF875-15	4	2.50	5.00	5	0	4.0
Chipeta	9	3.00	5.00	8	0	
Katahdin (STD)	8	3.00	6.50	5	0	3.5
Mainechip	6	2.00	6.25	28	0	3.0
BO178-34	6	2.50	5.00	0	0	3.0
AF1331-2	7	2.50	7.25	8	0	2.0
Kennebec	7	3.00	5.00	3	0	3.0
Superior	3	3.00	5.00	8	0	3.5
AF1438-4	3	2.00	5.00	0	0	5.0
AF538-2	7	2.00	6.00	3	0	2.0
BO172-22	7	3.00	4.75	3	0	2.5
NC012-18	6	4.00	5.00	3	0	1.5
St. Johns	8	3.00	5.75	0	0	3.0
BO616-1	7	2.75	6.75	0	0	5.0
NY84	6	3.00	5.50	3	0	1.5
AF1481-4	6	7.75	7.00	10	0	4.0
AF1425-1	7	3.00	7.50	0	0	3.5
AF1438-1	6	3.00	7.50	0	0	3.5
Monona	7	3.00	5.25	0	0	4.0
Russet Bakeking	8	4.50	7.25	0	0	4.0
A81473-2	7	8.00	4.50	2.5	0	3.0
B9792-157	7	3.00	3.75	3	0	2.0

²See standard NE107 rating system³PC/SFA standard

*The holding temperature after harvest dropped to 44°F, thus the reason for the chip ratings.

¹There was no vascular discoloration found in any of the entries.

Ohio Table 3.

Plant stand, percent blister, Agron readings, and additional tuber data for varieties grown at Wooster, Ohio - 1994. (Northeast)

Cultivar	Stand %	Chip Blister % ²	Agron E-5F	Tuber Data		
				skin texture	eye depth	skin color
F80054	97	40	36.6	6.25	5.00	7.00
NYE11-45	86	10	30.0	8.00	6.00	6.25
ND2417-6	84	30	21.7	6.75	6.75	5.25
NYE 55-44	82	10	19.9	5.00	7.75	5.00
BO564-8	92	20	31.8	5.5	6.00	5.25
BO493-8	79	10	21.1	3.75	7.50	4.00
AF1470-17	88	20	37.2	6.25	6.50	6.00
NY87	93	10	40.7	6.75	6.00	6.00
Snowden	95	10	34.2	5.00	4.50	5.00
Castile	90	70	17.0	6.00	6.25	6.00
AF1426-1	85	40	24.9	5.00	6.00	4.50
AF1060-2	92	10	22.9	6.00	6.00	6.00
Yukon Gold	80	50	16.2	6.00	7.00	5.50
BO257-12	88	20	18.6	6.00	6.00	5.50
ND2471-8	86	20	39.4	6.75	5.75	6.00
NYE55-35	88	20	33.4	5.50	5.75	6.00
BO245-15	92	10	46.8	6.00	5.75	5.00
Atlantic	89	10	48.4	5.00	6.50	5.00
AF875-15	93	20	22.7	6.00	5.75	5.75
Chipeta	93	0	34.4	5.00	5.75	5.00
Katahdin	88	50	34.4	6.50	6.00	6.00
Mainechip	89	30	31.9	5.25	6.50	5.25
BO178-34	88	20	36.9	5.50	6.00	5.25
AF1331-2	74	40	44.4	7.00	7.00	6.00
Kennebec	88	10	31.3	6.75	6.00	6.25
Superior	85	50	34.3	6.25	5.00	6.00
AF1438-4	85	20	12.0	6.00	6.00	5.00
AF538-2	85	10	43.6	5.00	6.50	6.00
BO172-22	90	0	43.0	6.75	6.25	6.00
NCO12-18	83	30	47.4	5.75	6.00	4.75
St. Johns	83	10	37.0	7.00	6.25	6.00
BO616-1	88	10	10.1	5.75	6.50	2.00
NY84	86	10	46.7	7.00	6.25	6.00
AF1481-4	83	50	17.9	3.75	6.25	4.00
AF1425-1	88	30	29.7	7.50	7.00	6.50
AF1438-1	83	20	26.8	7.00	7.00	7.00
Monona	98	10	24.4	6.50	5.50	6.00
Russet Bakeking	92	50	20.4	3.00	7.00	4.00
A81473-2	85	30	33.8	3.00	7.00	4.00
B9792-157	93	0	38.3	5.00	4.00	5.00

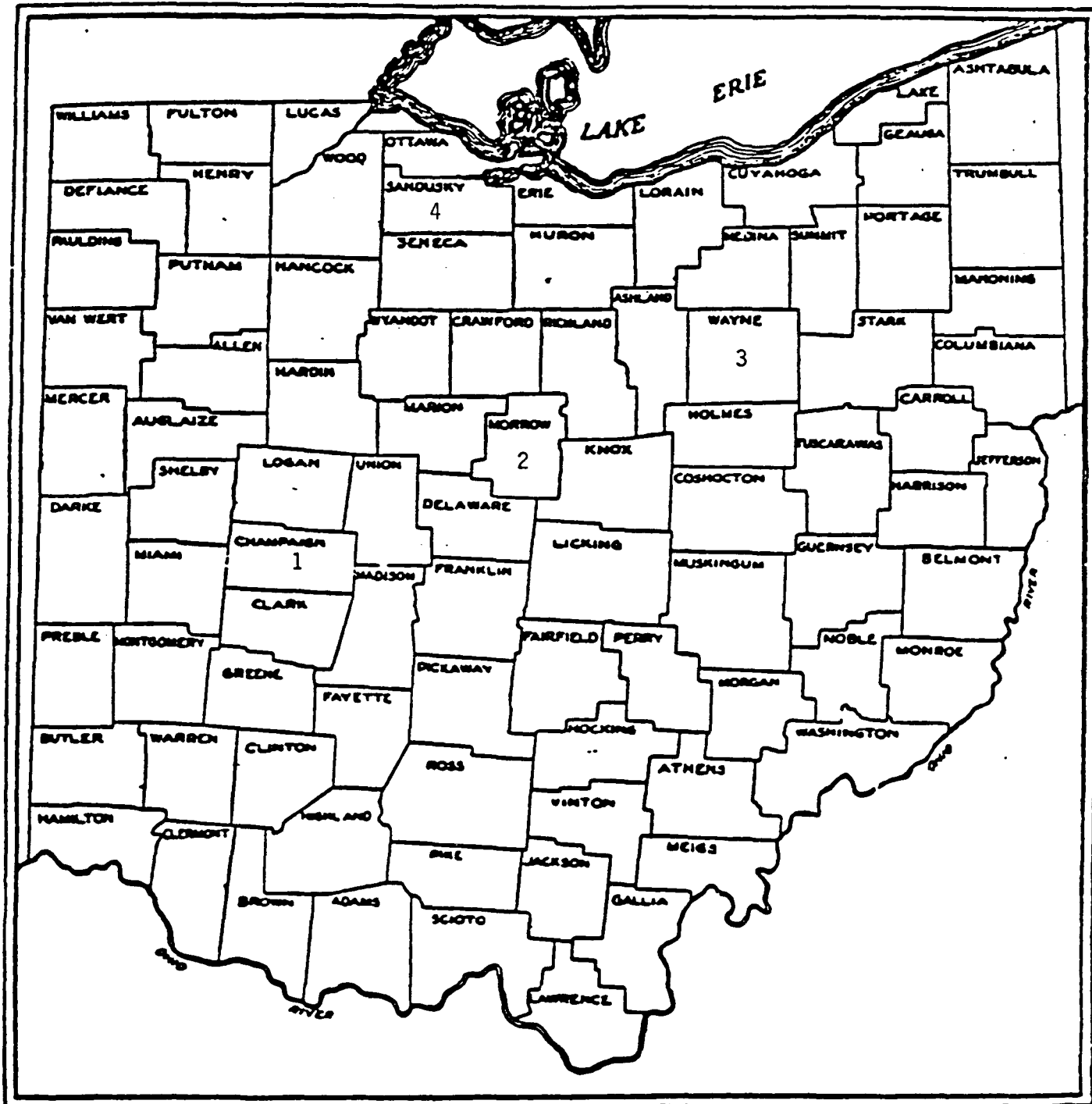
¹Percentage of chips that develop blisters greater than 20 mm in diameter during the frying process.²See standard NE107 rating system.

**TUBER DATA RATING SYSTEM FOR
POTATO VARIETY TRIALS - NE-107**

<u>Tuber Skin Color</u>	<u>Skin Texture</u>	<u>Tuber Shape</u>
1. Purple	1. Part. russet	1. Round
2. Red	2. Heavy russet	2. Mostly round
3. Pink	3. Mod. russet	3. Round to oblong
4. Dark brown	4. Light russet	4. Mostly oblong
5. Brown	5. Netted	5. Oblong to long
6. Tan	6. Slight netting	6. Mostly long
7. Buff	7. Moderately	7. Long
8. White	8. Smooth	8. Cylindrical
9. Cream	9. Very smooth	
<u>Eye Depth</u>	<u>Appearance</u>	
1. VD	1. Very poor	
2. --	2. --	
3. D	3. Poor	
4. --	4. --	
5. Intermediate	5. Fair	
6. --	6. --	
7. S	7. Good	
8. --	8. --	
9. VS	9. Excellent	

PLANT RATING SYSTEM

<u>Plant Type</u>	<u>Air Pollution</u>	
1. decumbent-poor canopy	0. dead	
2. decumbent-fair canopy	1. decreasing plant appearance	
3. decumbent-good canopy	2. with varying degrees	
4. spreading-poor canopy	3. of defoliation	
5. spreading-fair canopy	4.	
6. spreading-good canopy	5. most leaves have symptoms, but generally appearance is still good	
7. upright-poor canopy	6. good plant condition with decreasing	
8. upright-fair canopy	7. percent of foliar symptoms	
9. upright-good canopy	8.	
	9. no symptoms	
<u>Plant Size</u>	<u>Plant Maturity</u>	<u>Plant Appearance</u>
1. very small	1. very early	1. very poor
2. +	2. early	2. poor
3. small	3. +	3. +
4. +	4. medium early	4. --
5. medium	5. medium	5. fair
6. +	6. medium late	6. +
7. large	7. +	7. --
8. +	8. late	8. good
9. very large	9. very late	9. excellent



LOCATIONS OF 1993 OHIO POTATO VARIETY TRIALS

1. Michael Farms, Urbana
2. Logan Farms, Mt. Gilead
3. Ohio Agricultural Research & Development Center
4. Vegetable Crops Branch, Fremont

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