

# 2005 OHIO POTATO GERMPLASM EVALUATION REPORT

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**the**  
**NORTHEAST (NE-1014)**  
**REGIONAL PROJECT**  
**COOPERATING**

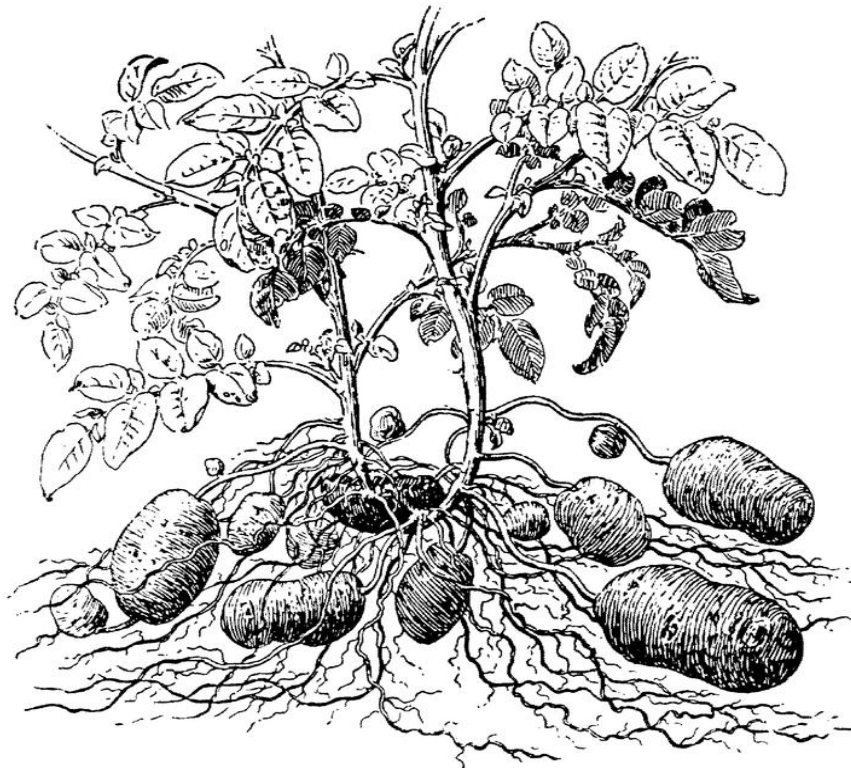


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## **OHIO POTATO GERMPLASM EVALUATIONS - 2005**

### **Summary**

Ohio cooperates with private and public breeders in the U.S. and elsewhere in evaluating varieties and experimental lines of fresh and processing potatoes. A total of 107 distinct varieties and experimental lines developed in five breeding programs were evaluated in 2005. Entries were placed into one of four experiments completed at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, OH; Northeast Regional Project 1014 (NE-1014), Triple Observation (OBT), Double Observation (OBD) and Single Observation (OBS). Named varieties were included in at least one study, numbered entries in one or two studies, depending on seed availability. Experimental lines were contributed by breeding programs in Alberta, Canada (CAA), Maine (ME), New York (NY), Oregon (OR) and the USDA-ARS (ARS) in Beltsville, MD. A total of thirteen entries were contributed by CAA, ten by ME, thirteen by NY, eight by OR, and fifty-one by ARS, with twelve named varieties included as standards.

The studies were established to evaluate the growth and market traits of each entry when grown under non-irrigated conditions in Ohio. The fact that the trials at the OARDC are not irrigated tends to affect the performance of individual entries. Marketable yield of six varieties and seasonal rainfall for 1995-2005 at the OARDC are shown in Table 3.

### **Procedures**

#### **Planting**

Seed potatoes were cut on May 11 and 13, 2005 and then cured and stored under recommended temperature and humidity conditions at the OARDC until planting on May 19, 2005. Table 1 lists the cooperating breeding programs. Table 2 list the genotypes used for the four trials. Tables 3-5 contain season and historic information for the study site. Table 6 contains pre-plant soil analysis results. Soil type was a well-drained Wooster silt loam. All entries in the NE-1014 experiments were replicated three times. Entries in the Observation studies were replicated once, twice, or three times depending on seed availability.

#### **Field Observations**

Percent stand was recorded four weeks after planting. Whole plots were harvested on October 3, 2005. Total yield and observations of external tuber characteristics were taken at harvest. Observations included tuber shape, color, surface texture, eye depth, general appearance, and uniformity. These observations, along with yield data, determined which entries were forwarded to chipping evaluation. In addition, tubers were graded for size and external appearance on October 18. At grading, 10 randomly selected tubers from each replicate in the NE-1014 and Observations studies were examined for scab, external defects, hollow heart and other internal defects. Samples from each entry in the NE-1014 study and from promising entries in the Observation plots were saved for specific gravity and chipping quality measurements completed on October 25, 2005.

## Chipping Evaluation

Samples were held in refrigerated storage (44-48° F) and then removed from storage and held under ambient conditions (approx. 70° F) until being processed on October 25, 2005.

For chipping quality evaluation, 3 randomly selected tubers were placed in an abrasive peeler and sliced to an approximate thickness of 0.063 inches (approximately 16 slices per inch). Raw slices were rinsed in cold water and then fried in a continuous fryer containing clear liquid shortening maintained at 190°C (372°F). After frying, a representative sample was taken for visual color evaluation using standards contained in the manual published by the SFA by which chips light in color are scored “1” and very dark chips are scored “5”. Chip color was also measured with an Agtron Electronic Model M-350. Agtron readings and chip color are negatively related (high readings indicate lighter chip color). The percentage of chips with blister(s) greater than 1 cm (0.39 in.) was recorded.

## Results

Yield, plant and tuber traits, and chipping quality data are presented in Tables 7-11. Total and U.S. #1 yield averaged 320 and 183 cwt/A across all studies and entries, respectively. Total yield averaged 332 among fourteen named varieties and 317 cwt/A among sixty-four experimental lines (range 197–525 cwt/A). Marketable yield averaged 187 among thirteen named varieties and 182 cwt/A among sixty-four experimental lines (range 101–258 cwt/A). Six experimental selections were rated as mid-maturing while all others were rated as late-maturing. Twenty-two experimental lines were rated as producing tubers with good-excellent overall appearance. Based on positive yield and external tuber traits at harvest, tubers from sixty-four experimental lines were forwarded for measures of specific gravity and chip quality. Fourteen lines were rated as having acceptable chip color based on the SFA scale.

1. Entries having an overall appearance rating of  $\geq 7$  (good-excellent) at grading.
  - NE-1014: Atlantic, AF 2211-9
  - Triple Observation: AF 2393-7, B 2280-5, B2281-2, B 1806-8, AF 1455-20
  - Double Observation: NY 133, NY 125, NY 130, NY 134, NY 137, B 2327-2, B 2451-1
  - Single Observation: BNC 47-6, B 2467-21, BNC 47-1, B 2440-124, A 37-12, Y 36-50, A 31-6, A 37-6, B 2457-7
2. Entries having an external tuber rating of  $\geq 7$  (good-excellent) at grading and marketable yield  $\geq$  the study average.
  - NE-1014: Atlantic
  - Triple Observation: B 2280-5, B2281-2
  - Double Observation: NY 133, NY 130, NY 134, B 2327-2, B 2451-1
  - Single Observation: B 2467-21, BNC 47-1, A 37-12, Y 36-50, B2457-7
3. Entries having a specific gravity  $\geq$  the study average.

- NE-1014: Atlantic, AF 2215-1, Yukon Gold, AF 2291-10, Snowden, AF 2206-9, B 1816-5, AF 2211-2, AF 2222-2, NY 127, NY 126
- Triple Observation: B 2280-5, AF 2206-9, B 1829-5, B 2152-17, B 0766-3, B 1952-2, B 2281-2, B 1985-1, B 2276-1, B 1806-8, FV 12246-6, V 0319-1, V 1102-1, Gem Star Russet, Langlade
- Double Observation: NY 132, NY 133, NY 125, NY 130, NY 134, B 2451-1, B 2307-3
- Single Observation: BNC 47-6, B 2449-3, B2467-21, BNC 47-1, B 2440-124, BNC 48-2, Y 36-50, B 2329-1, B 2440-124

4. Entries having a chip score of  $\leq 3$ .

- NE-1014: AF 2215-1, AF 2291-10, Snowden, AF 2206-9, AF 2211-2, AF 2222-2
- Triple Observation: AF 2393-7, AF 2206-9, AF 2363-11, V 0319-1
- Double Observation: NY 134, B 2327-2, B 2451-1
- Single Observation: A 31-10, A 37-12, Y 36-50, A 31-6

Table 1. List of programs participating in the 2005 Ohio Potato Germplasm Evaluations.

		-----2005 experiment-----					
Number	Program	Genotypic Codes				Total	
			NE-1014	Triple Observation	Double Observation		Single <sup>1</sup> Observation
1	Ag and Agri-Food Canada	V		2		2	
		FV		2		2	
2	Univ. Maine	AF	6	4		10	
3	Cornell Univ.	NY	6		7	13	
4	Oregon	A				8	
5	USDA	B	3	11	5	22	
		BNC				6	
		BP				3	
		Y				3	
6	Various	named	6	6		12	
		Total	21	25	12	42	100

<sup>1</sup> refers to number of single row replicates. All other experiments contain two (Double Observation) or three (NE-1014, Triple Observation) replicates.

Table 2. List of varieties and experimental lines planted in the potato germplasm evaluations at the Ohio Agricultural Research and Developmental Center (OARDC) in Wooster, OH in 2005.

----- Experiment -----			
<u>NE-1014</u>	<u>Triple Observation</u>	<u>Double Observation</u>	<u>Single Observation</u>
1. Atlantic	1. AF 2393-7	1. NY 132	1. A 31-10
2. AF 2215-1	2. B 2280-5	2. NY 133	2. B 2333-1
3. NY 128	3. AF 2206-9	3. NY 125	3. BNC 41-4
4. NY 120	4. AF 2363-11	4. NY 130	4. BNC 47-6
5. NY 125	5. B 1829-5	5. NY 129	5. B 2414-126
6. Katahdin	6. Cherry Red	6. NY 134	6. B 2448-4
7. Yukon Gold	7. B 2152-17	7. NY 137	7. BP 153-2
8. Kennebec	8. B 1145-2	8. B 2327-2	8. B 2451-4
9. AF 2291-10	9. B 0766-3	9. B 2451-1	9. BNC 40-2
10. Snowden	10. B 1952-2	10. B 2407-1	10. B 2253-4
11. D. Red Nordland	11. B 2281-2	11. B 2332-2	11. B 2448-5
12. AF 2206-9	12. B 1816-5	12. B 2307-3	12. B 2445-8
13. B 1816-5	13. Chieftan		13. B 2449-3
14. B 1826-1	14. Dark Red Norland		14. B 2444-121
15. AF 2211-2	15. B 1985-1		15. B 2434-121
16. AF 2222-2	16. B 2276-1		16. B 2467-21
17. NY 127	17. Blackwell		17. B 2414-125
18. Superior	18. B 1806-8		18. BNC 49-1
19. NY 129	19. FV 12246-6		19. B 2451-2
20. B 1806-8	20. FV 12486-2		20. BNC 47-1
21. NY 126	21. V 0319-1		21. B 2440-124
22. AF 2211-9	22. V 1102-1		22. BP 153-1
	23. Gem Star Russet		23. B 2319-1
	24. Langlade		24. B 2418-124
	25. AF 1455-20		25. BP 146-1
			26. BNC 48-2
			27. A 99-2
			28. A 35-7
			29. A 37-12
			30. Y 36-4
			31. Y 41-67
			32. A 300-44
			33. A 31-11
			34. Y 36-50
			35. A 31-6
			36. A 37-6
			37. B 2329-1
			38. B 2457-7
			39. B 2440-124
			40. B 2463-23
			41. B 2446-2
			42. B 2449-1



Table 3. Yield of marketable A-size (cwt/A) tubers of standard varieties grown at the OARDC in Wooster, OH 1995-2005.

Variety	Year and Mkt. Yield (cwt/A)										
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Atlantic	214	288	216	196	152	175	213	125	240	*	211
Katahdin	207	339	178	205	238	204	61	103	223	204	211
Kennebec	180	*	188	151	118	242	184	116	225	151	164
Russet Burbank	*	*	*	*	*	150	41	19	151	*	*
Superior	184	241	245	167	165	174	66	100	218	146	140
Yukon Gold	204	*	170	248	174	224	165	103	135	164	155
Rainfall (inches, July-Aug)	6.85	5.51	4.64	6.31	5.67	5.22	6.2	2.83	10.91	8.5	7.1

Table 4. Cultural, nutrient, and pest management practices for the potato germplasm evaluations completed at the OARDC in Wooster, OH in 2005.

Date planted	19-May-05	
Date harvested	03-Oct-05	
2004 main crop	Sorghum-Sudangrass (Sudex)	
2004 cover crop	Wheat (in winter) Sorghum-Sudangrass (Sudex) (in summer)	
Fertilizer	10-20-20	600lb/A preplant (disc-in) 600lb/A at planting
Herbicide	Dual-Magnum (2pt/A), Sencor (1 lb/A)	
Spacing (ft.) within, between row	1 X 3	
Plot width, length (ft.)	3 X 30	
Soil conditions at planting	moist	
Irrigation (inches)	None	
Sprays applied	16-Jun	Asana XL (8oz/A), Tanos 50 DF(8oz/A)
	22-Jun	Asana XL (8oz/A), Manzate 75 (2lb/A)
	29-Jun	Dithane DF (2lb/A), Baythroid 2E (2.5oz/A)
	7-Jul	Dithane DF (2lb/A), Baythroid 2E (2.5oz/A)
	14-Jul	Dithane DF (2lb/A)
	22-Jul	Dithane DF (2lb/A), Tanos 50 DF (8oz/A)
	29-Jul	Bravo 720 (1.5pt/A), Baythroid 2E (2.5oz/A), Tanos 50 DF (8oz/A)
	4-Aug	Bravo 720 (1.5pt/A)
	11-Aug	Bravo 720 (1.5pt/A), Asana XL (8oz/A)
	17-Aug	Tanos 50 DF (8oz/A), Dithane DF (2lb/A)
	25-Aug	Bravo 720 (1.5pt/A)
	8-Sep	Bravo 720 (1.5pt/A), Tanos 50 DF (8oz/A)
	12-Sep	Vine Killer Rely (3 pt/A), Sticker (1 pt/A), Ammonium Sulfate (4lb/A)
	19-Sep	Vine Killer (3pt/A)

Table 5. Seasonal and historical climatic data for the potato germplasm evaluations completed at the OARDC in Wooster, OH in 2005.

	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
Avg. High Temp. (2005) (F)	68.6	84.7	86.1	84.1	79.8
Avg. Low Temp. (2005) (F)	43.1	60.5	63.2	62.3	53.4
Avg. Temp. (2005) (F)	56	71.9	74	72.4	65.8
Normal Avg. Temp. (Historical) (F)	58.5	67.6	71.5	69.9	63.4
Total Precip. (2005) (in.)	2.28	1.39	4.03	4.82	2.73
Normal Avg. Precip. (Historical) (in.)	3.91	3.94	4.1	3.63	3.14
Precip. deficit/surplus (2005) (in.)					
period	-1.63	-2.55	-0.07	1.19	-0.41
cumulative	-1.63	-4.18	-4.25	-3.06	-3.47

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Table 6. Soil analyses for land used in the potato germplasm evaluations completed at the OARDC in Wooster, OH in 2005.

<u>Factor</u>	<u>Level</u>
pH	6.2
P (µg/g)	65
K(µg/g)	142
Ca (µg/g)	770
Mg (µg/g)	207

Soil analyses conducted at Service Testing and Analytical Research (STAR) Lab at the OARDC.

Table 7. Percent stand, maturity, yield, and chip quality for entries grown in the Ohio NE-1014 Regional Project experiment in 2005.

Entry #	Entry Name	Stand %	Plant Maturity <sup>1</sup>	Total cwt/A	Mrkbl cwt/A	Mrkbl %	B-Size %	Cull %	Specific Gravity <sup>2</sup>	Chip Color <sup>3</sup>	Blister <sup>4</sup> %	Agtron 350
1	Atlantic	78	8	371	211	87	2	11	1.085	4	30	28.6
2	AF 2215-1	88	8	324	258	90	1	9	1.088	3	40	44.3
3	NY 128	88	8	373	242	92	4	4	1.072	4	40	34.8
4	NY 120	71	7	355	198	83	3	14	1.07	4	30	36.6
5	NY 125	77	8	391	198	81	3	16	1.071	5	70	25.7
6	Katahdin	77	9	403	211	82	2	15	1.067	5	30	22.9
7	Yukon Gold	87	7	363	155	68	1	31	1.08	4	20	28.2
8	Kennebec	71	9	345	164	63	4	33	1.063	5	10	30.8
9	AF 2291-10	80	9	346	168	68	5	27	1.073	3	50	41.9
10	Snowden	84	9	338	237	81	8	11	1.075	3	10	39.1
11	D. Red Norland	83	4	307	241	78	4	19	1.066	5	0	24.6
12	AF 2206-9	84	7	294	202	85	6	9	1.077	2	20	40.1
13	B 1816-5	82	6	350	177	69	6	25	1.073	4	10	33.8
14	B 1826-1	84	8	337	160	56	4	40	1.069	3.5	10	38.1
15	AF 2211-2	80	7	280	166	67	3	31	1.08	2.5	0	46.6
16	AF 2222-2	74	8	359	222	75	1	24	1.074	3	0	37
17	NY 127	82	7	417	198	72	5	22	1.079	4	40	32.8
18	Superior	83	7	362	140	59	3	38	1.07	5	10	20.1
19	NY 129	57	8	235	195	72	5	27	1.066	5	20	21.8
20	B 1806-8	74	7	346	167	60	5	35	1.068	4.5	30	32.7
21	NY 126	63	9	314	164	59	1	40	1.076	3.5	0	41
22	AF 2211-9	86	7	341	195	75	4	21	1.072	3.5	0	31.1
	Average	78	8	343	194	74	4	23	1.073	3.9	21	33.3

<sup>1</sup> See reference table for rating system on page 15.

<sup>2</sup> See reference table on page 16 for starch and dry matter conversions.

<sup>3</sup> SFA Standard (1=light, 5=dark).

<sup>4</sup> Percentage of chips that developed blisters greater than 20 mm in diameter during the frying process.

Table 8. Tuber characteristics for entries grown in the Ohio NE-1014 Regional Project experiment in 2005.

Entry #	Entry Name	-----External <sup>1</sup> -----					-----Internal <sup>2</sup> -----				
		Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appear.	Hollow Heart	Brown Center	Necrosis	Vsclr Dsclrtn	% Defected Tubers
1	Atlantic	6	5	2	5	7	0	0	9	0	90
2	AF 2215-1	6	5	2	5	5	1	0	1	0	20
3	NY 128	6	6	2	7	5	1	0	0	0	10
4	NY 120	6	6	2	7	5	0	0	0	0	0
5	NY 125	6	6	3	7	5	0	0	0	0	0
6	Katahdin	7	7	2	5	4	0	0	0	1	10
7	Yukon Gold	6	6	2	7	5	0	0	1	1	20
8	Kennebec	7	7	4	7	2	0	0	0	0	0
9	AF 2291-10	6	6	3	5	3	2	0	0	0	20
10	Snowden	6	5	2	3	5	1	0	3	0	40
11	D. Red Norland	3	7	3	7	4	0	0	0	0	0
12	AF 2206-9	6	6	2	7	3	0	0	0	0	0
13	B 1816-5	1	5	3	7	3	0	0	0	0	0
14	B 1826-1	6	6	3	7	3	0	0	2	0	20
15	AF 2211-2	5	5	2	4	5	0	0	0	0	0
16	AF 2222-2	6	6	2	7	6	0	0	1	0	10
17	NY 127	6	6	2	7	5	0	0	0	0	0
18	Superior	7	6	4	2	3	0	0	0	0	0
19	NY 129	2	6	2	7	2.5	0	0	0	0	0
20	B 1806-8	7	7	3	7	3	0	0	0	0	0
21	NY 126	6	6	3	7	4	1	1	0	0	20
22	AF 2211-9	5	5	2	5	7	0	0	5	0	50

<sup>1</sup> See reference table for rating system on page 15.

<sup>2</sup> Number of tubers out of 10 that contain the defect.

Table 9. Percent stand, maturity, yield, and chip quality for entries grown in the Triple Observation Trial in 2005.

Study	Entry #	Entry Name	Stand %	Plant Maturity <sup>1</sup>	Total cwt/A	Mktbl cwt/A	Mktbl %	B-Size %	Cull %	Specific Gravity <sup>2</sup>	Chip Color <sup>3</sup>	Blister <sup>4</sup> %	Agtron 350
OBT	1	AF 2393-7	82	4	197	152	71	14	16	1.067	2.5	20	43.7
OBT	2	B 2280-5	87	7	251	194	76	1	23	1.074	3.5	30	34.2
OBT	3	AF 2206-9	88	7	260	171	77	4	20	1.082	2	30	45
OBT	4	AF 2363-11	77	9	314	192	80	1	19	1.073	3	20	42.3
OBT	5	B 1829-5	90	7	272	218	81	2	18	1.087	4.5	10	29.4
OBT	6	Cherry Red	82	3	199	182	8	5	12	1.07	5	40	20
OBT	7	B 2152-17	78	7	329	212	82	8	11	1.083	5	50	19.8
OBT	8	B 1145-2	96	5	331	206	80	6	14	1.065	5	0	21.1
OBT	9	B 0766-3	85	8	306	151	76	4	20	1.079	3.5	0	31.2
OBT	10	B 1952-2	79	7	267	171	77	3	21	1.075	5	10	19.3
OBT	11	B 2281-2	77	8	328	210	78	2	21	1.074	4.5	10	30.1
OBT	12	B 1816-5	93	8	341	199	74	6	20	1.068	4	20	24
OBT	13	Chieftan	83	8	344	151	62	2	36	1.06	4	100	27.8
OBT	14	Dark Red Norland	88	5	253	179	74	4	22	1.07	5	20	24.6
OBT	15	B 1985-1	99	6	263	168	75	14	11	1.08	3.5	20	33
OBT	16	B 2276-1	93	9	386	176	73	7	20	1.081	5	10	21.6
OBT	17	Blackwell	80	8	343	208	72	9	18	1.07	4	0	30.4
OBT	18	B 1806-8	82	8	312	160	74	3	23	1.08	4.5	30	22.4
OBT	19	FV 12246-6	72	9	266	133	49	7	45	1.081	3.5	30	37.1
OBT	20	FV 12486-2	82	4	242	180	78	4	18	1.063	4	0	31.6
OBT	21	V 0319-1	81	8	338	111	56	3	41	1.08	2.5	0	49.4
OBT	22	V 1102-1	75	8	324	113	54	2	44	1.075	5	0	18.6
OBT	23	Gem Star Russet	52	8	245	144	71	7	22	1.075	4	40	33.7
OBT	24	Langlade	73	9	357	215	80	3	16	1.075	4	50	30.7
OBT	25	AF 1455-20	87	9	290	173	75	5	20	1.073	4.5	10	27.7
		Average	82	7	294	175	70	5	22	1.074	4	22	29.9

Table 9 (cont.). Percent stand, maturity, yield, and chip quality for entries grown in the Double and Single Observation Trials in 2005.

Study	Entry #	Entry Name	Stand %	Plant Maturity <sup>1</sup>	Total cwt/A	Mktbl cwt/A	Mktbl %	B-Size %	Cull %	Specific Gravity <sup>2</sup>	Chip Color <sup>3</sup>	Blister <sup>4</sup> %	Agtron 350
OBD	1	NY 132	63	9	302	132	72	2	27	1.076	4	20	31.3
OBD	2	NY 133	82	7	275	201	73	1	26	1.071	3.5	0	29.9
OBD	3	NY 125	87	9	395	154	68	4	28	1.076	4	0	29.9
OBD	4	NY 130	83	8	345	186	79	6	15	1.072	4	20	30.8
OBD	5	NY 129	70	9	197	155	86	3	12	1.065	5	80	20
OBD	6	NY 134	72	8	305	210	84	2	14	1.077	3	40	39.6
OBD	7	NY 137	75	8	204	142	78	12	10	1.064	5	0	22.2
OBD	8	B 2327-2	67	9	237	191	82	9	9	1.065	2.5	0	42
OBD	9	B 2451-1	95	7	341	179	81	9	10	1.08	2.5	30	40.2
OBD	10	B 2407-1	86	8	396	146	66	10	25	1.066	5	40	25.3
OBD	11	B 2332-2	72	8	398	232	78	1	21	1.066	4.5	0	29
OBD	12	B 2307-3	45	9	402	164	58	4	39	1.075	3.5	50	32
		Average	75	8	316	174	75	5	20	1.071	4	23	31
OBS	1	A 31-10	53	9	251	211	82	1	17	1.071	3	40	44.3
OBS	2	B 2333-1	90	9	267	101	39	51	10	*	*	*	*
OBS	4	BNC 47-6	87	8	240	175	76	8	17	1.076	4	20	33
OBS	13	B 2449-3	83	6	525	157	65	13	23	1.075	5	0	22.5
OBS	16	B 2467-21	90	9	246	190	80	4	17	1.088	4	50	31.3
OBS	20	BNC 47-1	80	9	389	225	94	3	3	1.08	4	10	35.7
OBS	21	B 2440-124	90	7	236	152	88	4	9	1.086	4.5	0	25.8
OBS	26	BNC 48-2	80	7	373	159	88	3	9	1.077	3.5	30	32.3
OBS	27	A 99-2	73	9	470	200	85	3	12	1.068	5	0	21.7
OBS	29	A 37-12	63	9	233	205	88	3	10	1.069	2.5	20	44.8
OBS	32	A 300-44	67	7	294	238	82	2	16	1.07	3.5	20	34.9
OBS	33	A 31-11	63	8	364	194	80	4	16	1.072	3.5	30	29.6
OBS	34	Y 36-50	93	9	392	210	77	12	10	1.083	3	30	44.6
OBS	35	A 31-6	73	8	347	162	78	6	16	1.064	3	10	42.2
OBS	36	A 37-6	80	9	285	183	66	2	33	1.065	4	20	30.3
OBS	37	B 2329-1	93	7	337	187	58	27	16	1.088	4.5	40	26.9
OBS	38	B 2457-7	87	7	332	260	80	4	17	1.065	4	20	31.9
OBS	39	B 2440-124	90	9	252	169	67	4	29	1.081	5	0	21.9
		Average	80	8	324	188	76	9	16	1.075	4	20	32.6

<sup>1</sup> See reference table for rating system on page 15.

<sup>2</sup> See reference table on page 16 for starch and dry matter conversions.

<sup>3</sup> SFA Standard (1=light, 5=dark).

<sup>4</sup> Percentage of chips that developed blisters greater than 20 mm in diameter during the frying process.

Table 10. Tuber characteristics for entries grown in the Triple Observation Trial in 2005.

Study	Entry #	Entry Name	-----External <sup>1</sup> -----				-----Internal <sup>2</sup> -----					% Defected Tubers
			Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appear.	Hollow Heart	Brown Center	Necrosis	Vsclr Dsclrtn	
OBT	1	AF 2393-7	2	6	3	7	7	0	0	0	0	0
OBT	2	B 2280-5	6	6	2	7	8	0	0	0	0	0
OBT	3	AF 2206-9	6	6	3	7	6	0	0	0	0	0
OBT	4	AF 2363-11	6	6	2	2	4	0	0	0	0	0
OBT	5	B 1829-5	6	6	2	7	6	0	0	0	0	0
OBT	6	Cherry Red	2	6	2	5	5	0	0	0	0	0
OBT	7	B 2152-17	2	6	2	7	5	0	0	0	0	0
OBT	8	B 1145-2	3	5	2	5	5	0	0	0	0	0
OBT	9	B 0766-3	6	5	2	7	6	0	0	0	1	10
OBT	10	B 1952-2	1	6	3	5	6	0	0	0	0	0
OBT	11	B 2281-2	6	5	2	7	7	0	3	4	0	70
OBT	12	B 1816-5	1	5	2	7	5	0	0	0	0	0
OBT	13	Chieftan	3	7	3	7	4	0	0	0	0	0
OBT	14	Dark Red Norland	2	6	2	7	5	0	0	1	0	10
OBT	15	B 1985-1	7	5	2	5	4	0	0	7	0	70
OBT	16	B 2276-1	6	5	2	7	6	0	0	0	0	0
OBT	17	Blackwell	6	5	2	7	6	0	0	0	0	0
OBT	18	B 1806-8	6	6	3	7	7	0	0	0	0	0
OBT	19	FV 12246-6	7	6	4	5	2	0	0	0	0	0
OBT	20	FV 12486-2	2	6	2	7	5	0	0	0	0	0
OBT	21	V 0319-1	7	6	4	7	3.5	0	0	0	0	0
OBT	22	V 1102-1	7	6	4	7	4	0	0	3	2	50
OBT	23	Gem Star Russet	4	2	6	8	3	1	0	0	0	10
OBT	24	Langlade	7	6	2	7	6.5	0	0	2	0	20
OBT	25	AF 1455-20	7	6	2	7	7.5	0	0	4	2	60

Table 10 (cont.). Tuber characteristics for entries grown in the Double and Single Observation Trials in 2005.

Study	Entry #	Entry Name	-----External <sup>1</sup> -----					-----Internal <sup>2</sup> -----				
			Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appear.	Hollow Heart	Brown Center	Necrosis	Vsclr Dsclrtn	% Defected Tubers
OBD	1	NY 132	6	6	3	7	5	0	0	0	0	0
OBD	2	NY 133	6	6	2	8	7.5	0	0	0	0	0
OBD	3	NY 125	6	5	3	5	7	0	0	1	0	10
OBD	4	NY 130	6	6	2	8	7	0	0	0	0	0
OBD	5	NY 129	2	6	2	7	6	0	0	0	0	0
OBD	6	NY 134	7	6	3	7	7	0	0	0	0	0
OBD	7	NY 137	6	6	2	7	8	0	0	0	0	0
OBD	8	B 2327-2	2	8	1	8	8	0	0	0	0	0
OBD	9	B 2451-1	6	5	1	5	8	0	0	1	0	10
OBD	10	B 2407-1	3	6	3	3	3	0	0	0	0	0
OBD	11	B 2332-2	2	7	2	5	3	0	0	0	0	0
OBD	12	B 2307-3	7	6	2	7	5	0	0	0	0	0
OBS	1	A 31-10	7	7	3	7	5	0	0	0	0	0
OBS	2	B 2333-1	6	6	3	7	3	0	0	0	0	0
OBS	4	BNC 47-6	6	6	1	8	8	0	0	2	0	20
OBS	13	B 2449-3	6	6	2	6	4	0	0	0	0	0
OBS	16	B 2467-21	6	6	1	8	8	0	0	0	0	0
OBS	20	BNC 47-1	6	5	2	8	8	0	0	0	0	0
OBS	21	B 2440-124	6	5	1	7	8	0	0	1	0	10
OBS	26	BNC 48-2	5	5	3	7	6	0	0	0	0	0
OBS	27	A 99-2	5	5	3	7	6.5	0	0	9	0	90
OBS	29	A 37-12	5	5	2	7	7.5	0	0	7	0	70
OBS	32	A 300-44	5	5	3	7	6.5	0	0	4	0	40
OBS	33	A 31-11	6	5	2	7	6	0	0	0	0	0
OBS	34	Y 36-50	6	6	2	6	7	0	0	0	0	0
OBS	35	A 31-6	6	6	2	7	8	0	0	0	0	0
OBS	36	A 37-6	7	6	3	7	7	0	0	3	0	30
OBS	37	B 2329-1	5	5	2	4	5	0	0	0	0	0
OBS	38	B 2457-7	6	5	2	5	8	0	0	0	0	0
OBS	39	B 2440-124	6	6	2	8	6	0	0	1	0	10

<sup>1</sup> See reference table for rating system on page 15.

<sup>2</sup> Number of tubers out of 10 that contain the defect.



Table 11. Percent stand and maturity for entries grown in the Ohio Single Observation plots but not selected for chipping quality evaluation in 2005.

Study	Entry #	Entry Name	% Stand	Plant Maturity <sup>1</sup>
OBS	3	BNC 41-4	97	8
OBS	5	B 2414-126	87	8
OBS	6	B 2448-4	90	9
OBS	7	BP 153-2	87	7
OBS	8	B 2451-4	100	8
OBS	9	BNC 40-2	83	9
OBS	10	B 2253-4	83	8
OBS	11	B 2448-5	93	9
OBS	12	B 2445-8	97	9
OBS	14	B 2444-121	97	8
OBS	15	B 2434-121	90	9
OBS	17	B 2414-125	93	8
OBS	18	BNC 49-1	93	9
OBS	19	B 2451-2	77	8
OBS	22	BP 153-1	70	8
OBS	23	B 2319-1	97	9
OBS	24	B 2418-124	83	9
OBS	25	BP 146-1	77	9
OBS	28	A 35-7	67	8
OBS	30	Y 36-4	77	9
OBS	31	Y 41-67	90	7
OBS	40	B 2463-23	77	9
OBS	41	B 2446-2	100	9
OBS	42	B 2449-1	90	9

<sup>1</sup> See reference table for rating system on page 15.

## TUBER DATA RATING SYSTEM

### Tuber Skin 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. Mod. russet
4. Light russet
5. Netted
6. Slight netting
7. Moderately
8. Smooth
9. Very smooth

### Tuber Shape

1. Round
2. Mostly round
3. Round to oblong
4. Mostly oblong
5. Oblong
6. Oblong to long
7. Mostly long
8. Long
9. Cylindrical

### Eye Depth

1. VD
2. --
3. D
4. --
5. Intermediate
6. --
7. S
8. --
9. VS

### Appearance

1. Very poor
2. --
3. Poor
4. --
5. Fair
6. --
7. Good
8. --
9. Excellent

## PLANT RATING SYSTEM

### Plant Type

1. Decumbent-poor canopy
2. Decumbent-fair canopy
3. Decumbent-good canopy
4. Spreading-poor canopy
5. Spreading-fair canopy
6. Spreading-good canopy
7. Upright-poor canopy
8. Upright-fair canopy

### Air Pollution

1. Dead
2. ---
3. Mod. Defol.
4. ---
5. Mod. Injury
6. ---
7. Mild Injury
8. ---
9. No symptoms

### Plant size

1. Very small
2. +
3. Small
4. +
5. Medium
6. +
7. Large
8. +
9. Very large

### Plant Maturity

1. Very early
2. Early
3. +
4. Medium early
5. Medium
6. Medium late
7. +
8. Late
9. Very late

### Plant Appearance

1. Very poor
2. Poor
3. +
4. --
5. Fair
6. +
7. --
8. Good
9. Excellent

Conversion Table for Specific Gravity of Potato Tubers to Content of Starch and Dry Matter % (Calculated from Von Scheele equations: % starch = 17.565 + 199.07 (Sp. Gr.-1.0988); % dry matter = 24.181 + 211.04 (Sp. Gr.-1.0988))

Specific Gravity	Starch %	Dry Matter %	Specific Gravity	Starch %	Dry Matter%
1.050	7.85	13.88	1.081	14.02	20.43
1.051	8.05	14.09	1.082	14.22	20.64
1.052	8.25	14.31	1.083	14.42	20.85
1.053	8.45	14.32	1.084	14.62	21.06
1.054	8.65	14.73	1.085	14.82	21.27
1.055	8.85	14.94	1.086	15.02	21.48
1.056	9.04	15.15	1.987	15.22	21.69
1.057	9.24	15.38	1.088	15.41	21.90
1.058	9.44	15.57	1.089	15.61	22.11
1.059	9.64	15.78	1.090	15.81	22.33
1.060	9.84	15.99	1.091	16.01	22.54
1.061	10.04	16.21	1.092	16.20	22.75
1.062	10.24	16.42	1.093	16.41	22.96
1.063	10.44	16.63	1.094	16.61	23.17
1.064	10.64	16.84	1.095	16.81	23.38
1.065	10.84	17.05	1.096	17.01	23.59
1.066	11.04	17.26	1.097	17.21	23.89
1.067	11.23	17.47	1.098	17.41	24.01
1.068	11.43	17.68	1.099	17.60	24.22
1.069	11.63	17.89	1.100	17.80	24.44
1.070	11.83	18.10	1.101	18.00	24.65
1.071	12.03	18.32	1.102	18.20	24.86
1.072	12.23	18.53	1.103	18.40	25.07
1.073	12.43	18.74	1.104	18.60	25.28
1.074	12.63	18.95	1.105	18.80	25.49
1.075	12.83	19.16	1.106	19.00	25.70
1.076	13.03	19.37	1.107	19.20	25.91
1.077	13.22	19.58	1.180	19.40	26.12
1.078	13.42	19.79	1.109	29.60	26.34
1.079	13.62	20.00	1.110	19.79	26.55
1.080	13.82	220.21	1.111	19.99	26.76

Factors Affecting the Specific Gravity of the White Potato in Maine. Maine Agricultural Experiment Station. Bulletin 583. May 1959.