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# 2012 OHIO POTATO GERMPLASM EVALUATION REPORT

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IN COOPERATION WITH  
NORTHEAST (NE-1031)  
REGIONAL PROJECT

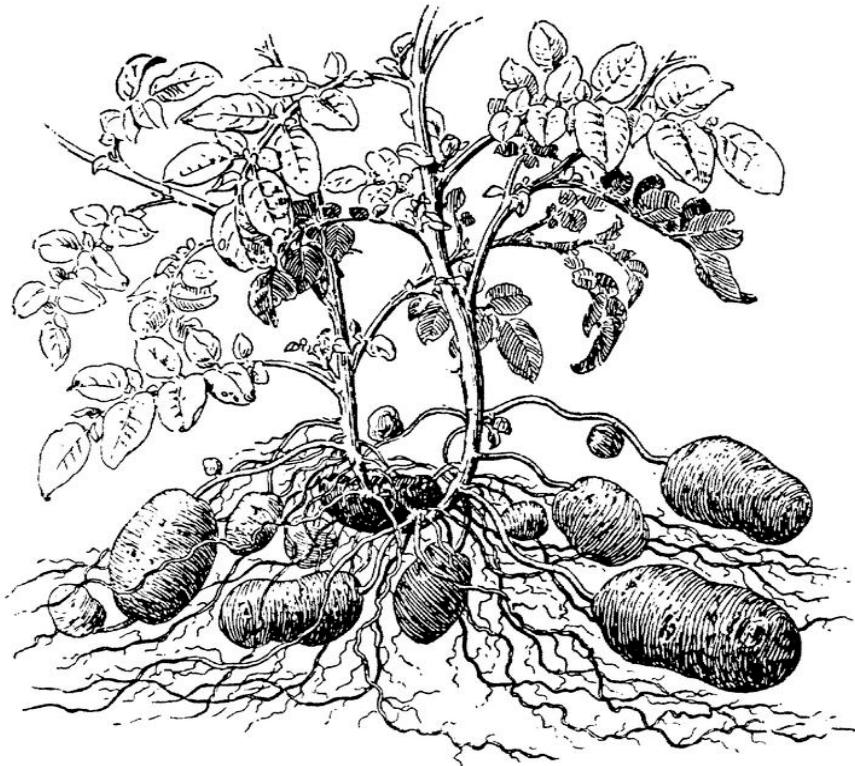


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## **OHIO POTATO GERMPLASM EVALUATIONS - 2012**

### **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 seventy-two distinct varieties and experimental lines developed in three breeding programs were evaluated in 2012 (Table 1). Entries were placed into one of four experiments completed at the Ohio Agricultural Research and Development Center (OARDC) in Wooster, OH; Northeast Regional Project 1031 (NE-1031), Triple Observation (OBT), Double Observation (OBD) and Single Observation (OBS). Named varieties were included in at least one study, and numbered entries in one study. Entries were contributed by breeding programs in Maine (ME), New York (NY), and USDA (in Beltsville, MD). Entries are listed in Table 2 and include a total of forty-two varieties contributed by ME, two by NY, eighteen by the USDA, and ten 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 five varieties and seasonal rainfall for 2002-2012 at the OARDC are shown in Table 3.

### **Procedures**

#### **Planting, Stand Establishment and Cultural Practices**

Seed potatoes were cut on April 30, May, 2, and May 3, 2012 and allowed to cure under recommended temperature and humidity conditions. Plots were established on May 11, 2012. All entries in the NE-1031 experiment were replicated three times. Entries in the Observation studies were replicated once, twice or three times depending on the study. Percent stand was recorded 5 weeks after planting.

Tables 3, 4 and 5 contain plot, climatic and historical yield data for the study site, located on a well-drained Wooster silt loam. Pest, weed and disease pressure were minimized using procedures and materials consistent with local commercial practice, including weekly pesticide applications. Plants were not vine-killed.

#### **Crop Yield and Quality**

Whole plots in the NE-1031 and Observation trials were harvested on October 1, 2012. Tubers were placed in a barn under ambient conditions, and then transferred to humidified refrigerated (37° F) storage on October 17, 2012.

On November 1, 2012, tubers were removed for grading. At grading, the total weight of tubers produced by each genotype (across multiple plots, if present) was recorded. Approximately 50% of this total weight (or the entire weight if necessary) -- comprised of a sub-sample of tubers from all plots of the genotype -- was retained and graded. The weight of tubers in the A-size marketable external appearance, B-size, and cull categories was recorded. These weights were also expressed as percentages of the weight of the graded potatoes. The same percentages were then applied to the total weight of the

potatoes produced by the genotype in order to calculate its marketable yield (cwt/A). Total yield (cwt/A) was calculated for each plot and the average for each genotype was found.

After grading, tubers were retained for internal and external quality ratings and chipping quality evaluations. Tubers set aside for internal and external quality ratings were placed in refrigerated (48-50° F) storage. Tubers set aside for chipping were placed in humidified refrigerated storage (37° F).

Tubers were rated for internal and external quality on December 4, 5, and 6, 2012. Up to ten randomly selected, A-size, marketable tubers collected at grading were scored for tuber shape, color, surface texture, eye depth, general appearance, and the presence or absence of hollow heart, brown center, internal necrosis, and vascular discoloration using accepted protocols. (See Tuber Data Rating System on p.17).

### Chipping Quality Evaluation

Tubers were held in refrigerated humidified storage (37° F) until November 12, 2013. Potatoes were reconditioned for chipping by raising the storage temperature 2-3°F every 3 days until November 21, and held at 50°F until November 26. They were removed from storage on November 26, 2012 and held under ambient conditions (approx. 65°F) until being processed on November 27, 2012.

Chipping quality evaluation began with measurements of specific gravity. Eight pounds of potatoes were placed in a hydrometer and specific gravity was recorded. A subset of three potatoes was selected and peeled using a Rotato Express electric potato peeler. These potatoes were sliced to an approximate thickness of 0.051 inches using a DeBuyer Kobra mandolin slicer. Slices were rinsed in cold water and then fried in a Commercial Pro Model CPF32 electric fryer containing cottonseed oil donated by Shearer's Foods, Inc. at 171-173°C (340-345°F) for approximately 2 minutes and 15 seconds. After frying, a representative sample was visually evaluated for color using color standards in the Potato Chip Color Reference Chart published by the Snack Food Association. Chips that are very light in color are scored "1" and very dark chips are scored "6". The percentage of chips with blister(s) greater than 1 cm (0.39 in) in diameter was recorded.

### Results

Yield, tuber traits, and chipping quality data are presented in Tables 8-9. Total yield and US #1 yield averaged 129 and 82 (cwt/A) across all studies respectively, with a range of 39-230 (total) and 24-143 (US #1). Average total yield averaged 85 cwt/A among varieties and 111 cwt/A among the selections (a study range of 39 -167 cwt/A) in the NE-1031 study. Of the 72 entries evaluated overall tuber appearance was rated poor-fair (scale rating of 1-3), fair-good (scale rating of 4-6), and good-excellent (scale rating of 7-9) in 0, 46, and 26 entries, respectively.

1. Entries having an overall appearance rating of  $\geq 7$  (good-excellent) at grading.

- NE-1031: Atlantic, BNC 182-5, Chieftain, Dark Red Norland, Modoc, Yukon Gem, Yukon Gold
- Triple Observation: AF 4430-2, B 2810-8, B 2818-1, B 2820-4, B 2844-3, B 2858-1, BNC 240-1, BNC 295-1

- Double Observation: None
  - Single Observation: AF 4138-8, AF 4831-3, AF 4834-2, AF 4842-2, AF 4914-4, AF 4917-3, AF 4917-4, AF 4963-4, AF 4963-5, AF 4985-1
1. Entries having an external tuber rating of  $\geq 7$  (good-excellent) at grading and marketable yield  $\geq$  the study average.
    - NE-1031: BNC 182-5
    - Triple Observation: AF 4430-2
    - Double Observation: None
    - Single Observation: None
  2. No entries had a chip score of  $\leq 3$ .

Table 1. List of programs participating in the 2012 Ohio Potato Germplasm Evaluations.

----- 2012 experiment -----							
Number	Program	Genotype Codes	NE-1031	Triple Observation	Double Observation	Single <sup>1</sup> Observation	Total
1	Univ. Maine	AF	4	13	1	24	42
2	Cornell Univ.	NY	1				1
		NYE	1				1
3	USDA	B	1	11	2		14
		BNC	1	2	1		4
↳	4 Various	named	10				10
			Total	18	26	4	72

<sup>1</sup> Refers to number of single row replicates. All other experiments contained two (Double Observation) or three (NE-1031, 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 2012.

<b>Experiment</b>			
<b>NE-1031</b>	<b>Triple Observation</b>	<b>Double Observation</b>	<b>Single Observation</b>
1. AF 0338-17	19. AF 4130-7	45. AF 4437-5	49. AF 4138-8
2. AF 4013-3	20. AF 4363-5	46. B 2842-3	50. AF 4147-1
3. AF 4125-1	21. AF 4376-3	47. B 2869-11	51. AF 4725-14
4. AF 4157-6	22. AF 4421-4	48. BNC 244-17	52. AF 4728-2
5. Atlantic	23. AF 4430-1		53. AF 4747-7
6. B 2727-2	24. AF 4430-2		54. AF 4831-3
7. BNC 182-5	25. AF 4449-2		55. AF 4834-2
8. Chieftain	26. AF 4454-3		56. AF 4840-1
9. Dark Red Norland	27. AF 4463-7		57. AF 4842-2
10. Katahdin	28. AF 4463-8		58. AF 4852-2
11. Kennebec	29. AF 4552-5		59. AF 4852-4
12. Modoc	30. AF 4573-2		60. AF 4914-4
13. NY 150 (NYF 52-1)	31. AF 4640-1		61. AF 4917-3
14. NYE 106-4	32. B 1992-106		62. AF 4917-4
15. Snowden	33. B 2810-8		63. AF 4927-2
16. Superior	34. B 2818-1		64. AF 4963-4
17. Yukon Gem	35. B 2820-4		65. AF 4963-5
18. Yukon Gold	36. B 2832-14		66. AF 4963-9
	37. B 2844-12		67. AF 4965-2
	38. B 2844-3		68. AF 4975-4
	39. B 2858-1		69. AF 4983-1
	40. B 2876-3		70. AF 4985-1
	41. B 2903-7		71. AF 5012-1
	42. B 2902-1		72. AF 5175-2
	43. BNC 240-1		
	44. BNC 295-1		

Table 3. Yield (cwt/A) of marketable, A-size tubers of six varieties grown at the OARDC in Wooster, OH 2002-2012.

Variety	Year and Mkt. Yield (cwt/A)											row average
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
Atlantic	125	240	*	211	327	225.4	277	276	197	153	57	209
Katahdin	103	223	204	211	241	231.8	256	280	79	70	25	175
Kennebec	116	225	151	164	199	225.7	203	290	101	59	43	162
Russet Burbank	19	151	*	*	*	*	*	*	*	*	*	85
Superior	100	218	146	140	149	140.5	226	224	104	110	45	146
Yukon Gold	103	135	164	155	222	222.5	255	267	113	91	60	163
Rainfall (inches, July-Aug)	5.22	6.20	2.83	10.91	8.50	7.10	7.74	10.57	5.70	8.77	4.56	7.10

Table 4. Cultural, nutrient, and pest management practices for the potato germplasm evaluations completed at the OARDC in Wooster, OH in 2012.

Date planted	11-May
Date vine-killed	NA
Date harvested	1-Oct
2011 main crop	Pepper
Fertilizer	10-20-20 (400 lb/A), separated dairy solids (13.5 lb N/A)
Herbicide	Ammonium Sulfate (1.5 lb/A), Roundup (2 pt/A) Dual-Magnum (2 pt/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	15-Jun Kocide (1 lb/A), Baythroid (2.8 oz/A), Bravo (2 pt/A) 21-Jun Tanos (8 oz/A), Kocide (2 lb/A), Penncozeb (2 lb/A), Baythroid (2.8 oz/A) 28-Jun Imidan (1.3 lb/A), Bravo (2 pt/A) 6-Jul Tanos (8 oz/A), Kocide (2 lb/A), Penncozeb (2 lb/A), Entrust (3 oz/A) 12-Jul Quadris (5 oz/A), Asana (9 oz/A) 20-Jul Bravo (2 pt/A), Sevin XLR (1 qt/A) 27-Jul Tanos (8 oz/A), Kocide (2 lb/A) 2-Aug Bravo (2 pt/A), Baythroid (2.8 oz/A) 9-Aug Quadris (5 oz/A), Imidan (1 lb/A) 16-Aug Tanos (8 oz/A), Kocide (2 lb/A), Penncozeb (2 lb/A), Baythroid (2.8 oz/A) 24-Aug Quadris (5 oz/A), Entrust (2 oz/A) 31-Aug Quadris (5 oz/A), Entrust (2 oz/A)

Table 5. Seasonal and historical climatic data for the potato germplasm evaluations completed at the OARDC in Wooster, OH in 2012.

	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>
Avg. High Temp. (2012) (F)	78.1	81.6	88.2	83.5	73.4
Avg. Low Temp. (2012) (F)	52.3	56.6	64.8	57.5	50.7
Avg. Temp. (2012) (F)	65.3	69.8	76.3	70.2	61.5
Normal Avg. Temp. (Historical) (F)	58.5	67.6	71.5	69.9	63.4
Total Precip. (2012) (in.)	2.2	2.2	2.3	2.2	4.9
Normal Avg. Precip. (Historical) (in.)	3.9	3.9	4.1	3.6	3.1
Precip. deficit/surplus (2012) (in.)					
period	-1.7	-1.7	-1.8	-1.4	1.8
cumulative	-1.7	-3.4	-5.2	-6.5	-4.8

Table 6. Percent stand, yield and chip quality for entries grown in the Ohio NE-1031 Regional Project experiment in 2012.

Entry #	Entry Name	Stand %	Total cwt/A	US # 1 cwt/A	US # 1 %	B-Size %	Cull %	Specific Gravity <sup>1</sup>	Specific Gravity <sup>2</sup>	Chip Color <sup>3</sup>	Blister <sup>4</sup> %
∞	1 AF 0338-17	72	109	85	78	2	20	1.071	1.071	5	2
	2 AF 4013-3	73	132	91	69	13	17	1.064	1.064	5	25
	3 AF 4125-1	87	108	89	82	7	11	1.065	1.065	6	10
	4 AF 4157-6	80	102	66	65	10	24	1.073	1.073	5	15
	5 Atlantic	94	111	57	52	5	44	1.074	1.074	6	0
	6 B 2727-2	81	61	35	58	4	38	1.075	1.075	6	10
	7 BNC 182-5	93	167	129	77	5	18	1.063	1.063	6	20
	8 Chieftain	87	89	55	62	8	31	1.060	1.060	6	25
	9 Dark Red Norland	93	88	61	69	7	24	1.060	1.060	6	15
	10 Katahdin	78	39	25	64	5	31	1.060	1.060	6	15
	11 Kennebec	93	79	43	54	17	29	1.060	1.060	6	15
	12 Modoc	62	83	49	59	22	19	1.060	1.060	6	10
	13 NY 150 (NYF 52-1)	96	99	41	42	47	12	1.067	1.067	5	15
	14 NYE 106-4	94	107	76	71	6	23	1.065	1.065	5	15
	15 Snowden	96	118	84	72	8	20	1.070	1.070	5	20
	16 Superior	84	77	45	58	6	36	1.061	1.061	6	15
	17 Yukon Gem	84	81	48	59	9	32	1.060	1.060	6	15
	18 Yukon Gold	82	84	60	71	6	23	1.063	1.063	6	15
Average		85	96	63	64	10	25	1.065	1.065	6	14

<sup>1</sup> Specific gravity recorded at chipping.

<sup>2</sup> Specific gravity with correction factor based on SFA chart. See reference table on page 16 for starch and dry matter conversions.

<sup>3</sup> SFA Standard (1=light, 6 =dark).

<sup>4</sup> Percentage of chips that developed blisters greater than 1 cm in diameter during the frying process.

Table 7. Tuber Characteristics for entries grown in the Ohio NE-1031 Regional Project experiment in 2012.

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 Dsclrt	% Defected Tubers
1	AF 0338-17	6	6	2	5	6	0	0	2	0	20
2	AF 4013-3	7	7	4	5	6	0	0	1	6	70
3	AF 4125-1	6	7	2	6	6	0	0	0	2	20
4	AF 4157-6	6	5	2	6	6	0	0	0	3	30
5	Atlantic	5	5	2	7	7	0	0	6	2	60
6	B 2727-2	6	5	3	5	5	0	0	0	0	0
7	BNC 182-5	6	5	2	8	7	0	0	2	3	50
8	Chieftain	3	7	2	4	7	0	0	2	0	20
9	Dark Red Norland	2	4	2	5	7	0	0	0	2	20
10	Katahdin	6	6	3	5	5	0	0	0	1	10
11	Kennebec	7	7	4	6	6	0	0	0	1	10
12	Modoc	2	6	2	4	7	0	0	0	2	20
13	NY 150 (NYF 52-1)	6	6	2	6	5	0	0	0	3	30
14	NYE 106-4	6	5	2	5	6	0	0	0	1	10
15	Snowden	5	5	2	4	6	0	2	0	5	50
16	Superior	6	5	3	4	6	0	0	0	0	0
17	Yukon Gem	7	7	2	8	7	0	0	0	2	20
18	Yukon Gold	7	7	3	7	7	0	0	0	1	10

<sup>1</sup> See reference table for rating system on page 17.

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

Table 8. Percent stand, yield and chip quality for entries grown in the Ohio Triple Observation Trial in 2012.

Study	Entry #	Entry Name	Stand %	Total cwt/A	US # 1 cwt/A	US # 1 %	B-Size %	Cull %	Specific Gravity <sup>1</sup>	Specific Gravity <sup>2</sup>	Chip Color <sup>3</sup>	Blister <sup>4</sup> %
OBT	19	AF 4130-7	93	188	135	72	4	24	1.077	1.077	5	10
OBT	20	AF 4363-5	77	101	68	68	9	23	1.059	1.059	6	25
OBT	21	AF 4376-3	90	172	128	74	3	22	1.062	1.062	5	10
OBT	22	AF 4421-4	94	172	125	72	8	20	1.071	1.071	6	15
OBT	23	AF 4430-1	94	117	83	71	11	18	1.060	1.060	6	2
OBT	24	AF 4430-2	97	129	89	69	13	18	1.060	1.060	6	5
OBT	25	AF 4449-2	89	197	132	67	13	20	1.076	1.076	5	20
OBT	26	AF 4454-3	91	124	75	60	13	27	1.060	1.060	6	7
OBT	27	AF 4463-7	90	129	91	70	8	21	1.060	1.060	5	25
OBT	28	AF 4463-8	77	166	121	73	6	21	1.060	1.060	5	10
OBT	29	AF 4552-5	94	215	126	58	13	29	1.063	1.063	5	0
OBT	30	AF 4573-2	83	148	106	72	13	16	1.060	1.060	6	15
OBT	31	AF 4640-1	63	114	67	59	13	29	1.063	1.063	6	7
OBT	32	B 1992-106	97	131	73	55	14	31	1.072	1.072	6	15
OBT	33	B 2810-8	93	72	38	54	31	16	1.069	1.069	6	25
OBT	34	B 2818-1	97	122	80	65	18	17	1.060	1.060	6	20
OBT	35	B 2820-4	93	140	77	55	9	36	1.073	1.073	6	15
OBT	36	B 2832-14	97	201	143	71	10	20	1.074	1.074	6	5
OBT	37	B 2844-12	98	152	107	70	19	11	1.060	1.060	6	12
OBT	38	B 2844-3	96	131	98	75	13	13	1.067	1.067	6	30
OBT	39	B 2858-1	92	161	88	55	26	19	1.061	1.061	5	40
OBT	40	B 2876-3	92	148	108	73	4	24	1.066	1.066	6	20
OBT	41	B 2903-7	94	126	94	75	10	15	1.079	1.079	6	35
OBT	42	B 2902-1	94	160	103	64	17	19	1.071	1.071	5	12
OBT	43	BNC 240-1	91	124	85	69	17	14	1.077	1.077	5	20
OBT	44	BNC 295-1	68	120	89	75	16	10	1.083	1.083	6	25
Average			90	145	97	67	13	20	1	1	6	16

<sup>1</sup> Specific gravity recorded at chipping.

<sup>2</sup> Specific gravity with correction factor based on SFA chart. See reference table on page 16 for starch and dry matter conversions.

<sup>3</sup> SFA Standard (1=light, 6 =dark).

<sup>4</sup> Percentage of chips that developed blisters greater than 1 cm in diameter during the frying process.

Table 8 (cont.). Percent stand, yield and chip quality for entries grown in the Ohio Double Observation Trial in 2012.

Study	Entry #	Entry Name	Stand %	Total cwt/A	US # 1 cwt/A	US # 1 %	B-Size %	Cull %	Specific Gravity <sup>1</sup>	Specific Gravity <sup>2</sup>	Chip Color <sup>3</sup>	Blister <sup>4</sup> %
1	OBD 45	AF 4437-5	92	128	65	58	1	40	1.074	1.074	5	25
	OBD 46	B 2842-3	92	181	80	35	28	37	1.068	1.068	6	25
	OBD 47	B 2869-11	90	265	121	56	21	23	1.065	1.065	6	15
	OBD 48	BNC 244-17	98	106	24	34	58	7	nd	nd	6	12
	Average			93	170	73	46	27	1.069	1.069	6	19

<sup>1</sup> Specific gravity recorded at chipping.

<sup>2</sup> Specific gravity with correction factor based on SFA chart. See reference table on page 16 for starch and dry matter conversions.

<sup>3</sup> SFA Standard (1=light, 6 =dark).

<sup>4</sup> Percentage of chips that developed blisters greater than 1 cm in diameter during the frying process.

Table 8 (cont.). Percent stand, yield and chip quality for entries grown in the Ohio Single Observation Trial in 2012.

Study	Entry #	Entry Name	Stand %	Total cwt/A	US # 1 cwt/A	US # 1 %	B-Size %	Cull %	Specific Gravity <sup>1</sup>	Specific Gravity <sup>2</sup>	Chip Color <sup>3</sup>	Blister <sup>4</sup> %
OBS	49	AF 4138-8	90	151	91	60	8	31	1.060	1.075	5	20
OBS	50	AF 4147-1	90	134	68	50	12	37	1.075	1.062	6	20
OBS	51	AF 4725-14	87	132	60	45	12	43	1.062	nd	6	10
OBS	52	AF 4728-2	90	49	307	63	15	23	nd	1.066	5	20
OBS	53	AF 4747-7	80	137	80	58	6	36	1.066	1.060	6	25
OBS	54	AF 4831-3	83	129	78	61	9	30	1.060	1.060	6	20
OBS	55	AF 4834-2	93	107	73	68	8	24	1.060	nd	4	15
OBS	56	AF 4840-1	90	79	47	59	18	23	nd	1.060	6	17
OBS	57	AF 4842-2	83	176	125	71	10	19	1.060	1.060	5	15
OBS	58	AF 4852-2	83	154	82	53	37	10	1.060	nd	5	35
OBS	59	AF 4852-4	90	107	49	46	42	13	nd	nd	5	20
OBS	60	AF 4914-4	93	70	30	43	47	10	nd	nd	5	25
OBS	61	AF 4917-3	93	69	43	62	16	22	nd	1.060	5	10
OBS	62	AF 4917-4	100	110	72	66	13	22	1.060	1.060	5	10
OBS	63	AF 4927-2	93	163	74	45	23	32	1.060	1.060	6	25
OBS	64	AF 4963-4	93	128	83	65	12	23	1.060	1.060	6	15
OBS	65	AF 4963-5	90	169	118	70	7	23	1.060	1.060	6	10
OBS	66	AF 4963-9	93	163	124	76	8	17	1.060	1.070	5	20
OBS	67	AF 4965-2	90	171	130	76	6	18	1.070	1.071	4	0
OBS	68	AF 4975-4	83	149	133	89	4	7	1.071	1.060	5	25
OBS	69	AF 4983-1	93	168	103	62	2	37	1.060	1.060	6	15
OBS	70	AF 4985-1	60	169	121	72	7	21	1.060	1.060	6	20
OBS	71	AF 5012-1	93	131	79	60	6	34	1.060	1.060	6	7
OBS	72	AF 5175-2	87	108	76	70	5	25	1.060	1.060	4	2
Average			88	130	94	62	14	24	1.062	1.063	5	17

<sup>1</sup> Specific gravity recorded at chipping.<sup>2</sup> Specific gravity with correction factor based on SFA chart. See reference table on page 16 for starch and dry matter conversions.<sup>3</sup> SFA Standard (1=light, 6 =dark).<sup>4</sup> Percentage of chips that developed blisters greater than 1 cm in diameter during the frying process.<sup>5</sup> ND = No data due to low yield or insufficient tubers for analysis.

Table 9. Tuber Characteristics for entries grown in the Ohio Triple Observation Trial in 2012.

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 Dsclrt	% Defected Tubers
OBT	19	AF 4130-7	6	5	2	6	6	0	0	0	3	30
OBT	20	AF 4363-5	7	7	2	8	8	0	0	0	1	10
OBT	21	AF 4376-3	7	6	3	7	6	0	0	0	0	0
OBT	22	AF 4421-4	7	6	3	6	6	0	0	0	2	20
OBT	23	AF 4430-1	6	5	2	6	6	0	0	0	1	10
OBT	24	AF 4430-2	7	7	2	6	7	0	0	0	1	10
OBT	25	AF 4449-2	6	5	2	5	6	0	0	0	1	10
OBT	26	AF 4454-3	6	6	2	5	5	0	0	0	0	0
OBT	27	AF 4463-7	7	6	2	4	5	0	0	0	1	10
OBT	28	AF 4463-8	6	5	2	5	5	0	0	0	2	20
OBT	29	AF 4552-5	6	5	2	4	5	0	0	0	5	50
OBT	30	AF 4573-2	7	6	2	5	6	0	0	0	3	30
OBT	31	AF 4640-1	5	6	2	7	6	0	0	0	0	0
OBT	32	B 1992-106	5	5	2	7	6	0	0	0	0	0
OBT	33	B 2810-8	3	6	3	6	7	0	0	0	1	10
OBT	34	B 2818-1	1	5	4	3	7	0	0	1	0	10
OBT	35	B 2820-4	7	7	2	8	7	0	1	7	2	80
OBT	36	B 2832-14	6	5	2	4	6	0	0	0	2	20
OBT	37	B 2844-12	2	5	2	5	5	0	0	0	1	10
OBT	38	B 2844-3	2	6	2	6	7	0	0	0	0	0
OBT	39	B 2858-1	7	7	3	7	7	0	0	1	0	10
OBT	40	B 2876-3	7	5	2	6	6	0	0	0	1	10
OBT	41	B 2903-7	6	5	3	6	6	0	0	0	0	0
OBT	42	B 2902-1	6	5	2	6	5	0	0	5	10	100
OBT	43	BNC 240-1	1	5	4	7	7	0	0	0	0	0
OBT	44	BNC 295-1	7	7	2	6	7	0	0	1	1	20

<sup>1</sup> See reference table for rating system on page 17.<sup>2</sup> Number of tubers out of 10 that contain the defect.

Table 9 (cont.). Tuber Characteristics for entries grown in the Ohio Double Observation Trial in 2012.

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 Dsclrt	% Defected Tubers
4	OBD 45	AF 4437-5	6	5	3	7	6	0	0	0	1	10
	OBD 46	B 2842-3	5	5	2	5	4	0	0	0	1	10
	OBD 47	B 2869-11	7	6	2	6	6	0	0	0	0	0
	OBD 48	BNC 244-17	1	5	3	5	5	0	0	0	0	0

<sup>1</sup> See reference table for rating system on page 17.

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

Table 9 (cont.). Tuber Characteristics for entries grown in the Ohio Single Observation Trial in 2012.

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
OBS	49	AF 4138-8	7	5	2	7	7	0	0	0	2	20
OBS	50	AF 4147-1	5	5	2	8	6	0	0	0	0	0
OBS	51	AF 4725-14	6	6	3	7	5	0	0	0	3	30
OBS	52	AF 4728-2	7	7	3	6	5	0	0	0	4	40
OBS	53	AF 4747-7	5	5	3	3	5	0	0	4	4	80
OBS	54	AF 4831-3	2	7	2	4	7	0	0	0	1	10
OBS	55	AF 4834-2	2	8	1	4	7	0	0	0	0	0
OBS	56	AF 4840-1	7	6	2	7	6	0	1	0	0	10
OBS	57	AF 4842-2	2	8	3	7	8	0	0	0	1	10
OBS	58	AF 4852-2	5	6	2	5	6	0	0	0	2	20
OBS	59	AF 4852-4	5	6	2	6	6	0	0	0	5	50
OBS	60	AF 4914-4	7	8	2	8	7	0	0	0	0	0
OBS	61	AF 4917-3	6	6	2	6	7	0	0	0	1	10
OBS	62	AF 4917-4	6	7	2	8	8	0	0	0	2	20
OBS	63	AF 4927-2	7	7	2	6	6	0	0	0	0	0
OBS	64	AF 4963-4	2	7	2	5	7	0	0	0	0	0
OBS	65	AF 4963-5	2	8	3	3	7	0	0	0	0	0
OBS	66	AF 4963-9	2	6	2	5	6	0	0	0	0	0
OBS	67	AF 4965-2	6	6	3	5	6	0	0	1	0	10
OBS	68	AF 4975-4	5	5	3	3	5	0	0	0	0	0
OBS	69	AF 4983-1	7	6	2	4	6	0	0	0	0	0
OBS	70	AF 4985-1	2	8	2	6	8	0	0	0	0	0
OBS	71	AF 5012-1	6	3	2	5	6	0	0	0	0	0
OBS	72	AF 5175-2	3	7	3	5	6	0	0	0	0	0

<sup>1</sup> See reference table for rating system on page 17.<sup>2</sup> Number of tubers out of 10 that contain the defect.

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	1.087	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	1.108	19.40	26.12
1.078	13.42	19.79	1.109	19.60	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.

## 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. Mod. smooth
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