Florida Potato Variety Trial Report, 2019

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Florida Potato Variety Trial Report, 2019

Editors

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Photograph

Cover photos: L. Zotarelli.

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Table of Contents

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Chapter 1. Introduction

General Potato Production Information

Potato clones were obtained from university, government, and industry breeding programs. Clones progress through the evaluation program following the track described in the Potato Variety Evaluation Flowchart (Fig.1).

Variety trials, unless noted, were conducted at the University of Florida/IFAS Hastings Agricultural Extension Center (HAEC) Research Farm in Hastings, FL. The HAEC Research Farm is part of the University of Florida/IFAS network of research and demonstration farms located around the state to conduct research on important horticultural crops. The soil at the field site is classified as Ellzey fine sand (sandy, siliceous, hyperthermic Arenic Ochraqualf; sand 93%, < 1% clay, < 6% silt).

The trials were conducted under conditions that represent the grower's practices for potato (*Solanum tuberosum* L.) production in the Tri-County Agricultural Area (TCAA) around Hastings, Florida. The research plots were irrigated with seepage and subsurface drip irrigation for water table management methods. For these irrigation methods, the perched water table depth is managed by water flow into irrigation furrows that evenly separate each bed for seepage and using subsurface drip tape (permanently installed at 20 inches below the surface spaced every 20 ft). Potatoes were grown in 60 feet wide beds consisting of sixteen raised rows. The spacing between rows was 40 inches (center to center). A clay layer underlies the topsoil at a depth of 3 to 5 feet in the Tri-County Agricultural Area (TCAA).

Potatoes were planted following a sorghum/sudan grass summer cover crop (variety: Sugargrazer). The cover crop was incorporated into the potato beds in October, 2018. Potato beds were fumigated with Telone II C35, 7.7 gal/A (1,3-dichloropropene 63.4%, and chloropicrin 34.7%) in December 2018. Fertilizer (4-8-4, 50 N 100 P 50 K lb/acre granular) was incorporated into the beds prior to planting.

Potato seed pieces were whole and cut tubers weighing approximately 2.5 oz and were dusted with fungicide (Maxim) prior to being planted. They were planted on an 8-inch within row spacing unless otherwise noted. Regent (3.0 oz/A), Quadris (10.4 oz/A), and Vydate C-LV (32 oz/A) were applied in a banded spray in the furrow after planting but before the seed was covered with soil. Boundary (24 oz/A) was broadcast sprayed at "boarding off" for weed control. Fungicides and insecticides were applied on a schedule during the season based on IPM practices. Two side-dress fertilizer applications (8-0-8, liquid) were made around plant emergence (100 N 100 K lb/acre) and at layby (50 N 50 K lb/acre) in all trials unless otherwise noted.

Plant growth characteristics were rated during the season using the rating scale listed in Table 1. An initial stand count was done around 25 days after planting. The final stand count, plant vigor rating, and vine type rating were done around 40 days after planting. The vine

maturity rating was done around 80 days after planting. No growth enhancers or chemicals to enhance skin color were used in any trial unless otherwise noted.

Fresh market tablestock variety plots were vine-killed by chemical desiccation with diquat dibromide (Reglone, 2 pt/A). Plots were harvested with a single-row, commercial potato harvester. Potatoes were graded using commercial grading equipment. Culls were removed and remaining potatoes were separated into six size classes and weighed. Specific gravity was measured on a random 20-tuber sample (less if not enough tubers available) from each plot using the weight-in-air/weight-in-water method. A random sample was rated for external appearance characteristics. External tuber quality characteristics were rated using the rating scale listed in Table 2. A second random 20-tuber sample (less if not enough tubers available) was collected from each plot and each tuber was cut into fourths and rated for hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC), and enlarged lenticel.

Sub-samples of potatoes from the SNAC trial were shipped to Utz Quality Foods. Chips were prepared following the procedures outlined in the Snack Food Association Chipping Potato Handbook (1995). Chips fried by Utz utilized the Hunter Lab rating scale.

Seasonal Weather and Growing Conditions

Daily rainfall and temperatures are reported in Appendix 1. The data reported was collected at a University weather station located at the UF/IFAS HAEC Research Farm. Real-time and historic weather data from the weather station can be accessed at: http://fawn.ifas.ufl.edu/ .

Growing conditions for the 2019 growing season were rated as good. The total precipitation between planting and harvest was 5.24”, relatively good rainfall distribution during vegetative growth, tuber initiation and bulking stages (Table 36). Overall air temperatures were near normal for the season (Table 37). There were no freeze events during 2019.

Production

There were no major changes to the production system in 2019.

Figure 1. Potato Variety Program Evaluation Flowchart.

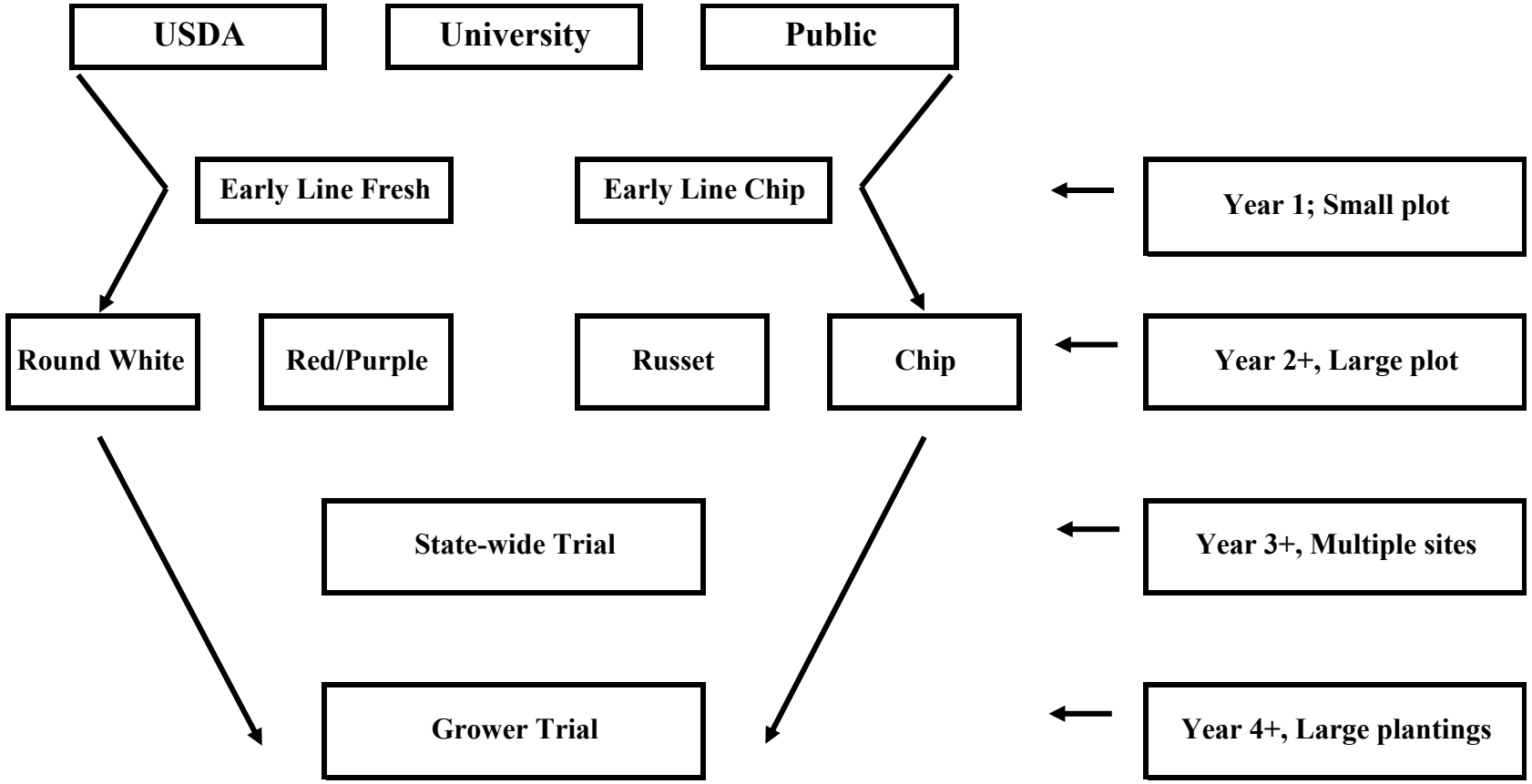

Table 1. Plant growth characteristics.

Rating	Early Vigor (plant height)	Vine Type	Vine Maturity at Harvest/Vine Kill
1	no emergence	decumbent – poor	dead
2	leaves in rosette	decumbent – fair	+-
3	plants < 2 in	decumbent – good	yellow and dying
4	plants 2 to 4 in	spreading – poor	+-
5	plants 4 to 6 in	spreading – fair	moderately senesced
6	plants 6 to 8 in	spreading – good	+-
7	plants 8 to 10 in	upright – poor	starting to senesce
8	plants 10 to 12 in	upright – fair	+-
9	plants > 12 in	upright – good	green and vigorous

Adapted from Sisson and Porter, 2002.

Table 2. External and Internal Potato Tuber Characteristics.

Rating	Internal Flesh Color	Skin Color	Skin Texture	Tuber Shape	Eye Depth	Overall Appearance
1	White	Purple	Partial Russet	Round	Very Deep	Very Poor
2	Cream	Red	Heavy Russet	Mostly Round	+-	+-
3	Light Yellow	Pink	Mod. Russet	Round to Oblong	Deep	Poor
4	Medium Yellow	Dark Brown	Light Russet	Mostly Oblong	+-	+-
5	Dark Yellow	Brown	Netted	Oblong	Intermediate	Fair
6	Pink	Tan	Slightly Netted	Oblong to Long	+-	+-
7	Red	Buff	Mod. Smooth	Mostly Long	Shallow	Good
8	Blue	White	Smooth	Long	+-	+-
9	Purple	Cream	Very Smooth	Cylindrical	Very Shallow	Excellent

Adapted from Sisson and Porter, 2002.

Chapter 2. USDA 2nd Year Potato Variety Trial

General Comments

A goal of the 2nd year USDA trial is to continue evaluating new clones for production potential in Florida. The entries in this trial were selected from an early generation clone trial conducted in 2018.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 7, 2019
Vine Kill Date	N/A
Harvest Date	May 14, 2019
Season Length	96 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	5 (Standard: Atlantic)
Number of Clones	21
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	1
Plot Size	5 ft 4 in (1.6 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	Soraya (564 cwt/acre or 63.2 T/ha)
Highest Marketable Yield	Soraya (495 cwt/acre or 55.5 T/ha)
Best Appearance Rating	BNC902-3, BNC916-3, BNC917-2, BD1528-1, Harley Blackwell (B0564-8), Snowden, Peter Wilcox (B1816-5), Soraya (6, very fair)

Table 3. Production statistics for the 2019 USDA 2nd Year Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–96 days												
BNC896-2	101	53	15	12	20	26	41	0	0	67	41	1.074
BNC896-3	294	163	47	6	16	39	38	0	0	77	38	1.082
BNC902-2	339	240	70	4	6	25	65	0	0	90	65	1.081
BNC902-3	379	266	77	5	14	37	44	0	0	81	44	1.082
BNC904-1	442	329	96	1	7	34	52	6	0	92	59	1.083
BNC916-3	413	382	111	2	5	55	37	0	0	92	37	1.085
BNC917-2	385	323	94	4	5	45	46	0	0	91	46	1.070
BD1501-1	175	38	11	48	29	23	0	0	0	23	0	.
BD1505-4	248	0	0	69	31	0	0	0	0	0	0	1.097
BD1505-5	158	0	0	52	48	0	0	0	0	0	0	1.084
BD1506-1	128	37	11	58	10	32	0	0	0	32	0	1.097
BD1515-1	153	0	0	57	43	0	0	0	0	0	0	1.097
BD1528-1	130	0	0	56	44	0	0	0	0	0	0	.
BD1528-2	82	13	4	33	48	10	10	0	0	20	10	.
BD1529-7	158	41	12	42	27	17	14	0	0	31	14	1.097
BD1531-1	104	12	4	45	42	13	0	0	0	13	0	.
BD1548-1	38	0	0	58	42	0	0	0	0	0	0	1.090
BD1560-1	242	0	0	70	30	0	0	0	0	0	0	1.084
BD1568-1	184	0	0	60	40	0	0	0	0	0	0	1.097
BD1569-5	285	67	19	30	40	23	8	0	0	30	8	.
BD1570-1	124	1	0	65	34	1	0	0	0	1	0	.
Atlantic	454	344	100	8	3	30	59	0	0	89	59	1.087
Harley Blackwell (B0564-8)	326	253	74	1	4	20	69	6	0	95	75	1.078
Snowden	472	388	113	3	10	41	46	0	0	87	46	1.080
Peter Wilcox (B1816-5)	497	438	127	5	5	24	66	0	0	90	66	1.077
Soraya	564	495	144	1	5	18	52	25	0	94	76	1.067

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

Table 4. Plant growth and tuber characteristics for the 2019 USDA 2nd Year Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
BNC896-2	100	5	9	6						5	4
BNC896-3	100	7	9	6						5	4
BNC902-2	100	7	9	6						5	3
BNC902-3	100	7	9	7						6	2
BNC904-1	100	8	9	7						5	2
BNC916-3	100	8	9	7						6	1
BNC917-2	88	7	9	8						6	1
BD1501-1	100	9	6	8						5	3
BD1505-4	88	8	9	8						4	4
BD1505-5	75	7	9	8						5	3
BD1506-1	100	9	9	5						4	3
BD1515-1	50	8	9	9						4	4
BD1528-1	100	8	9	6						6	3
BD1528-2	100	8	9	5						3	4
BD1529-7	88	8	9	6						4	3
BD1531-1	88	7	9	4						4	3
BD1548-1	88	5	9	5						4	3
BD1560-1	100	8	9	8						4	4
BD1568-1	100	8	9	6						4	4
BD1569-5	100	8	9	7						4	4
BD1570-1	100	8	9	6						4	3
Atlantic	88	8	9	8						5	-
Harley Blackwell (B0564-8)	100	9	9	7						6	2
Snowden	100	9	9	6						6	1
Peter Wilcox (B1816-5)	100	8	9	7						6	1
Soraya	100	8	9	8						6	1

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 8 for 5.33 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.

Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 5. External and internal defects for the 2019 USDA 2nd Year Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
BNC896-2	0	0	10	12	21	0	0	0	0	0	0
BNC896-3	0	0	4	24	28	0	0	0	0	0	0
BNC902-2	5	0	11	6	21	0	0	0	0	0	0
BNC902-3	0	0	13	0	13	0	0	0	0	0	0
BNC904-1	0	8	10	2	20	0	0	0	0	0	0
BNC916-3	0	0	0	0	0	0	0	0	0	0	0
BNC917-2	0	0	8	0	8	0	0	0	0	0	0
BD1501-1	0	0	0	6	6	0	0	0	0	0	0
BD1505-4	0	0	35	0	35	0	0	0	0	0	0
BD1505-5	0	0	10	0	10	0	0	0	0	0	0
BD1506-1	0	0	11	0	11	0	0	0	0	0	0
BD1515-1	0	0	54	0	54	0	0	0	0	0	0
BD1528-1	0	0	18	0	18	0	0	0	0	0	0
BD1528-2	0	0	22	0	22	0	0	0	0	0	0
BD1529-7	0	0	4	11	16	0	0	0	0	0	0
BD1531-1	0	0	9	0	9	0	0	0	0	0	0
BD1548-1	0	0	0	0	0	0	0	0	9	0	9
BD1560-1	0	0	16	4	20	0	0	0	0	0	0
BD1568-1	0	24	0	0	24	0	0	0	0	0	0
BD1569-5	0	0	22	0	22	0	0	0	0	0	0
BD1570-1	0	0	13	0	13	0	0	0	0	0	0
Atlantic	8	3	1	4	15	0	0	0	0	0	0
Harley Blackwell (B0564-8)	0	0	13	6	19	0	0	0	0	0	0
Snowden	0	0	6	0	6	0	0	0	0	0	0
Peter Wilcox (B1816-5)	0	0	2	0	2	0	0	0	0	0	0
Soraya	0	0	2	5	7	0	0	0	0	0	0

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 3. USDA 3rd Year Potato Variety Trial

General Comments

A goal of the 3rd year USDA trial is to continue evaluating new clones for production potential in Florida. The entries in this trial were selected from the 2nd year clone trial conducted in 2018.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 1, 2019
Vine Kill Date	N/A
Harvest Date	May 9, 2019
Season Length	97 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	5 (Standard: Atlantic)
Number of Clones	62
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	1
Plot Size	16 ft (4.9 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	BNC811-22 (532 cwt/acre or 59.6 T/ha)
Highest Marketable Yield	BNC811-22 (445 cwt/acre or 49.9 T/ha)
Best Appearance Rating	BNC833-2, B3364-3, B3372-6, B3410-12, BNC723-4 (8, very good)

Table 6. Production statistics for the 2019 USDA 3rd Year Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–97 days												
BNC811-6	246	168	43	7	23	48	23	0	0	70	23	1.079
BNC811-9	378	301	77	7	12	43	37	2	0	81	39	1.091
BNC811-15	454	374	96	4	12	44	40	0	0	83	40	1.087
BNC811-17	440	339	87	7	14	41	36	2	0	79	37	1.074
BNC811-22	532	445	114	3	12	35	49	0	0	84	49	.
BNC811-33	361	303	78	4	8	34	53	1	0	88	54	1.081
BNC811-35	372	304	78	4	8	38	50	0	0	88	50	1.073
BNC815-6	383	332	85	4	7	34	51	4	0	89	55	1.081
BNC815-7	351	276	71	7	11	45	37	0	0	82	37	1.077
BNC816-3	131	37	9	39	32	18	11	0	0	30	11	1.074
BNC818-9	466	358	92	6	15	34	45	0	0	79	45	1.081
BNC819-2	357	222	57	12	23	27	37	0	0	64	37	1.082
BNC821-6	327	260	67	9	10	30	50	1	0	81	51	1.065
BNC821-9	364	287	73	4	9	34	51	2	0	87	53	1.075
BNC831-8	270	95	24	21	42	33	3	0	0	36	3	1.067
BNC833-2	366	201	52	14	27	48	11	0	0	59	11	1.073
BNC839-5	289	225	58	7	11	17	61	4	0	83	65	1.069
B3355-6	303	179	46	12	28	32	28	0	0	60	28	1.069
B3364-3	366	251	64	8	17	57	16	1	0	75	17	1.061
B3365-6	313	178	46	12	26	56	6	0	0	62	6	1.071
B3365-7	310	194	50	13	24	45	18	0	0	63	18	1.073
B3372-1	339	155	40	18	34	39	10	0	0	49	10	1.067
B3372-6	267	96	25	22	42	29	7	0	0	36	7	1.056
B3376-5	187	74	19	22	38	37	3	0	0	40	3	1.058
B3378-1	324	144	37	17	35	41	7	0	0	48	7	1.072
B3378-3	314	177	45	15	27	43	15	0	0	59	15	1.080
B3379-1	268	131	33	23	26	41	9	0	0	51	9	1.082
B3379-2	320	267	68	7	9	52	32	0	0	84	32	1.087
B3379-6	289	197	50	11	19	30	40	0	0	70	40	1.079
B3381-2	265	149	38	21	19	29	31	0	0	60	31	1.077

Table 6 (cont'd). Production statistics for the 2019 USDA 3rd Year Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
B3381-4	332	238	61	8	17	31	41	2	0	74	43	1.088
B3382-8	374	280	72	8	14	26	50	1	0	77	52	1.076
B3384-1	277	222	57	3	9	31	53	4	0	88	57	1.068
B3385-2	288	210	54	7	14	46	33	0	0	79	33	1.072
B3388-3	347	275	70	6	9	42	42	1	0	85	43	1.080
B3390-6	400	318	81	5	12	46	37	0	0	82	37	1.071
B3397-1	436	369	94	6	8	65	21	0	0	86	21	1.073
B3403-6	435	372	95	10	4	55	31	1	0	87	32	1.081
B3407-7	.	.	.	.	.	.	.	.	.	.	.	.
B3410-12	316	263	67	6	10	27	55	2	0	84	58	1.067
B3418-9	294	243	62	5	7	43	43	1	0	88	45	1.082
B3421-1	315	257	66	5	10	36	46	3	0	85	49	1.079
B3423-9	379	328	84	2	4	30	64	0	0	94	64	1.083
B3423-14	255	153	39	15	24	42	19	0	0	61	19	1.080
B3423-16	415	360	92	5	7	26	61	2	0	88	63	1.071
B3424-4	268	167	43	12	25	55	8	0	0	63	8	1.075
B3292-5	241	206	53	2	4	14	71	8	0	94	79	1.067
B3294-1	298	238	61	5	14	41	36	5	0	81	41	1.080
B3295-5	484	441	113	2	4	40	51	4	0	94	55	1.071
B3295-9	365	299	76	3	7	22	64	4	0	90	68	1.077
Atlantic	414	380	97	2	4	33	61	0	0	95	61	1.083
B3304-12	311	216	55	7	15	30	48	0	0	78	48	1.071
B3306-2	223	154	39	11	19	39	31	0	0	70	31	1.084
B3317-1	324	263	67	5	11	52	30	2	0	84	32	1.076
B3325-6	350	297	76	3	11	40	47	0	0	87	47	1.076
B3328-4	396	321	82	8	9	35	46	2	0	82	48	1.068
B3340-3	326	284	73	4	8	26	63	0	0	89	63	1.063
BNC718-1	326	292	75	4	6	36	55	0	0	90	55	1.074
BNC723-4	385	291	74	8	14	37	41	0	0	78	41	1.073
BNC726-1	384	314	80	1	3	13	78	4	0	95	82	1.078

Table 6 (cont'd). Production statistics for the 2019 USDA 3rd Year Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
BNC726-5	290	242	62	6	8	34	50	2	0	86	52	1.087
BNC731-2	324	287	73	2	5	40	53	0	0	93	53	1.070
BNC742-2	372	303	78	5	14	44	38	0	0	82	38	1.079
Atlantic	474	401	103	2	5	32	60	0	0	92	60	1.082
Harley Blackwell (B0564-8)	383	304	78	5	10	31	52	2	0	85	54	1.083
Snowden	322	256	66	4	11	44	40	0	0	85	40	1.084
Peter Wilcox (B1816-5)	373	306	78	4	12	48	36	0	0	84	36	1.075
Soraya	454	351	90	4	16	43	37	0	0	80	37	1.062

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

Table 7. Plant growth and tuber characteristics for the 2019 USDA 3rd Year Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
BNC811-6	96	8	9	6						6	3
BNC811-9	96	8	6	7						6	2
BNC811-15	100	8	9	6						7	1
BNC811-17	100	9	6	6						5	2
BNC811-22	100	8	9	7						.	1
BNC811-33	100	9	9	6						7	2
BNC811-35	96	9	9	6						5	2
BNC815-6	100	8	9	8						5	1
BNC815-7	100	9	9	6						6	2
BNC816-3	96	9	9	4						5	3
BNC818-9	100	9	6	5						6	1
BNC819-2	100	9	6	5						6	2
BNC821-6	100	9	6	6						6	2
BNC821-9	96	7	9	7						6	2
BNC831-8	100	8	9	5						7	3
BNC833-2	96	9	6	6						8	3
BNC839-5	100	6	9	6						6	2
B3355-6	100	8	9	5						6	3
B3364-3	96	8	9	5						8	2
B3365-6	100	8	9	5						5	3
B3365-7	96	9	9	4						7	3
B3372-1	96	9	6	3						7	3
B3372-6	96	9	9	3						8	3
B3376-5	100	9	6	3						7	3
B3378-1	96	9	6	4						6	3
B3378-3	100	9	6	6						6	3
B3379-1	96	9	6	6						6	3
B3379-2	92	9	9	7						6	2
B3379-6	96	9	6	6						6	3
B3381-2	96	9	6	4						5	3

Table 7 (cont'd). Plant growth and tuber characteristics for the 2019 USDA 3rd Year Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
B3381-4	100	9	6	6						6	2
B3382-8	96	9	6	6						6	2
B3384-1	83	7	9	6						6	2
B3385-2	100	9	6	6						7	3
B3388-3	100	9	9	6						7	2
B3390-6	100	9	6	6						6	2
B3397-1	100	9	9	5						7	1
B3403-6	96	9	6	6						6	1
B3407-7	92	8	9	6						.	.
B3410-12	100	8	9	4						8	2
B3418-9	100	8	9	7						7	2
B3421-1	96	8	9	6						6	2
B3423-9	96	7	9	6						6	2
B3423-14	100	9	9	4						6	3
B3423-16	96	8	9	6						5	1
B3424-4	100	9	6	5						6	3
B3292-5	92	8	9	6						6	3
B3294-1	100	9	9	4						6	2
B3295-5	100	8	9	7						6	1
B3295-9	100	9	9	6						6	3
Atlantic	92	9	9	7						5	-
B3304-12	100	8	9	6						5	3
B3306-2	96	9	9	4						6	3
B3317-1	100	8	9	6						6	2
B3325-6	100	8	9	7						6	2
B3328-4	96	8	9	6						6	2
B3340-3	96	9	9	6						6	2
BNC718-1	92	7	9	6						6	2
BNC723-4	100	9	9	3						8	2
BNC726-1	100	8	9	6						5	2

Table 7 (cont'd). Plant growth and tuber characteristics for the 2019 USDA 3rd Year Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
BNC726-5	92	8	9	6						6	2
BNC731-2	67	8	9	7						7	2
BNC742-2	100	9	6	4						5	2
Atlantic	100	9	9	7						6	-
Harley Blackwell (B0564-8)	100	8	9	6						5	2
Snowden	100	9	9	4						5	2
Peter Wilcox (B1816-5)	92	8	9	5						6	2
Soraya	88	8	9	5						6	1

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 24 for 16 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.

Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 8. External and internal defects for the 2019 USDA 3rd Year Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
BNC811-6	0	0	2	1	3	0	0	0	0	0	0
BNC811-9	0	0	2	0	2	0	0	0	0	0	0
BNC811-15	0	0	0	1	1	.	.	.	.	.	.
BNC811-17	0	1	0	1	2	0	0	0	0	0	5
BNC811-22	0	0	1	0	1	.	.	.	.	.	.
BNC811-33	3	0	1	0	4	0	0	0	0	0	0
BNC811-35	1	0	1	5	7	0	0	0	0	0	0
BNC815-6	1	0	1	1	3	0	0	0	0	0	0
BNC815-7	0	0	1	3	4	0	0	0	0	0	0
BNC816-3	0	0	4	1	5	0	0	0	0	0	0
BNC818-9	0	0	1	1	3	0	0	0	0	0	0
BNC819-2	0	0	1	2	3	0	0	0	0	0	0
BNC821-6	0	0	1	1	2	0	0	0	0	0	0
BNC821-9	2	0	6	1	9	0	0	0	0	0	0
BNC831-8	0	0	1	2	3	0	0	0	0	0	0
BNC833-2	0	0	5	2	7	0	0	0	0	0	0
BNC839-5	0	0	4	1	6	0	0	0	0	0	0
B3355-6	0	2	0	0	2	0	0	0	0	0	0
B3364-3	1	6	1	0	8	0	0	0	0	0	0
B3365-6	0	0	4	4	8	0	0	0	0	0	0
B3365-7	0	0	0	1	1	0	0	0	0	0	0
B3372-1	6	0	0	0	6	0	0	0	0	0	0
B3372-6	0	0	0	0	0	0	0	0	0	0	0
B3376-5	0	1	0	0	1	0	0	0	0	0	0
B3378-1	0	0	0	8	8	0	0	0	0	0	0
B3378-3	0	0	0	3	3	0	0	0	0	0	0
B3379-1	1	0	1	1	4	0	0	0	0	0	0
B3379-2	0	0	0	1	1	0	0	0	0	0	0
B3379-6	0	0	1	1	3	0	0	0	0	0	0
B3381-2	0	0	7	1	7	0	0	0	0	0	0

Table 8 (cont'd). External and internal defects for the 2019 USDA 3rd Year Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
B3381-4	0	0	0	4	4	0	0	0	0	0	0
B3382-8	0	0	3	0	3	0	0	0	0	0	0
B3384-1	2	0	4	3	9	0	0	0	0	0	0
B3385-2	0	0	7	1	8	0	0	0	0	0	0
B3388-3	0	0	0	6	7	0	0	0	0	0	0
B3390-6	1	0	3	0	4	0	0	0	0	0	0
B3397-1	0	0	0	1	2	0	0	0	0	0	0
B3403-6	0	0	1	0	1	0	0	0	0	0	0
B3407-7	.	.	.	.	.	.	.	.	.	.	.
B3410-12	0	0	1	0	1	0	0	0	0	0	0
B3418-9	1	0	1	4	6	0	0	0	0	0	0
B3421-1	0	0	1	3	4	0	0	0	0	0	0
B3423-9	1	0	1	6	8	0	0	0	0	0	0
B3423-14	2	0	0	0	2	0	0	0	0	0	0
B3423-16	0	0	2	0	2	0	0	0	0	0	0
B3424-4	0	0	1	0	1	0	0	0	0	0	0
B3292-5	1	3	0	5	9	0	0	0	0	0	0
B3294-1	0	0	0	2	2	0	0	0	0	0	0
B3295-5	1	0	1	2	3	0	0	0	0	0	0
B3295-9	4	0	3	2	9	0	10	0	0	0	0
Atlantic	1	0	0	2	3	0	0	0	0	0	0
B3304-12	6	0	3	2	11	0	0	0	0	0	0
B3306-2	0	0	0	1	1	0	0	0	0	0	0
B3317-1	0	0	3	0	3	0	0	0	0	0	0
B3325-6	1	0	1	0	2	0	0	0	0	0	0
B3328-4	0	1	0	1	1	0	0	0	0	0	0
B3340-3	1	0	1	0	2	0	0	0	0	0	0
BNC718-1	0	0	0	1	1	0	0	0	0	0	0
BNC723-4	0	0	2	1	3	0	0	0	0	0	0
BNC726-1	8	0	3	3	14	0	0	0	0	0	0

Table 8 (cont'd). External and internal defects for the 2019 USDA 3rd Year Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
BNC726-5	0	0	1	2	3	0	5	0	0	0	0
BNC731-2	2	1	0	2	5	0	0	0	0	0	0
BNC742-2	0	0	0	0	0	0	0	0	0	0	0
Atlantic	4	1	2	2	8	0	5	0	0	0	0
Harley Blackwell (B0564-8)	0	1	0	5	6	0	0	0	0	0	0
Snowden	1	0	3	1	6	0	0	0	0	0	0
Peter Wilcox (B1816-5)	0	1	1	1	2	0	0	0	0	0	0
Soraya	0	0	0	3	3	0	0	0	0	0	0

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 4. Fresh Market, Red, And Purple Potato Variety Trial

General Comments

A goal of the fresh market, red, and purple variety trial is to identify a round white, red, or purple potato that has better quality and production characteristics than the “standard” Red LaSoda. Identification of “specialty” potatoes that expand the varieties produced in Florida is also a priority. Established varieties were included to provide a baseline for comparison with the numbered clones.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 14, 2019
Vine Kill Date	May 7, 2019
Harvest Date	May 20, 2019
Season Length	82 days planting to vine kill; 95 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	34 (Standard: Red LaSoda)
Number of Clones	10
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	3
Plot Size	20 ft (6.1 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	NC470-3 (432 cwt/acre or 48.4 T/ha)
Highest Marketable Yield	NC470-3 (361 cwt/acre or 40.5 T/ha)
Best Appearance Rating	Concordia, Coronada, Malou, Natascha, Queen Anne, Sunshine, NY164, Satina (9, excellent)

Table 9. Production statistics for the 2019 Fresh Market, Red, and Purple Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–82 days												
Carolina	306	244	88	6	11	38	43	3	0	83	46	1.057
Cerata	396	340	123	2	8	42	46	2	0	90	48	1.060
Concordia	243	151	55	9	27	49	15	0	0	64	15	1.070
Coronada	388	284	103	5	16	46	32	2	0	79	33	1.053
Malou	378	311	113	3	11	40	45	1	0	86	46	1.068
Ricarda	319	236	85	7	14	43	34	2	0	79	36	1.060
Volare	403	332	120	3	5	28	58	5	0	92	64	1.059
Belmonda	377	284	103	4	17	41	37	1	0	79	38	1.067
Natascha	355	253	92	6	18	53	24	0	0	77	24	1.057
NC470-3	432	361	131	5	10	31	50	4	0	85	54	1.074
NC509-16	194	164	60	4	9	50	36	1	0	87	37	1.068
NC606-23	263	178	64	9	13	65	13	0	0	78	13	1.063
NCB3171-7	276	169	61	11	23	58	8	0	0	66	8	1.064
Allora	252	177	64	7	11	40	40	2	0	82	42	1.057
Arizona	340	239	87	5	18	41	34	2	0	77	36	1.048
Constance	173	131	47	5	17	53	24	0	0	78	25	1.064
Montreal	236	169	61	5	8	32	49	6	0	87	55	1.062
Queen Anne	125	53	19	16	40	40	4	0	0	44	4	1.059
Soraya	365	280	102	5	14	40	40	1	0	81	41	1.059
Prada	324	231	84	4	19	62	15	0	0	76	15	1.058
Sunshine	249	147	53	12	26	51	12	0	0	62	12	1.054
Katahdin	282	223	81	5	6	55	31	3	0	89	34	1.064
Reveille Russet	281	244	89	2	4	16	74	4	0	94	78	1.057
AF5280-5	404	343	124	2	5	26	60	6	0	92	66	1.061
AF5412-3	239	197	71	3	11	51	34	0	0	86	34	1.059
NDAF102629C-4	324	265	96	4	10	32	52	2	0	86	54	1.068
NY151	401	284	103	5	15	40	39	1	0	80	40	1.057
NY164	231	174	63	7	10	28	54	1	0	84	56	1.063
WAF10664-3	339	234	85	4	11	38	45	2	0	85	47	1.068
Adirondack Blue	221	179	65	6	11	43	41	0	0	84	41	1.062

Table 9 (cont'd). Production statistics for the 2019 Fresh Market, Red, and Purple Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	% of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	A2 to A3	Specific Gravity
All Blue	234	53	19	30	47	21	2	0	0	23	2	1.070
Chieftain	318	248	90	5	11	49	34	1	0	84	35	1.061
Dark Red Norland	258	187	68	6	16	44	32	2	0	78	34	1.062
Goldrush	248	203	74	4	11	57	26	2	0	85	28	1.063
Lamoka	326	269	98	2	6	38	52	1	0	91	53	1.074
Marcy	265	228	83	3	7	46	40	4	0	90	45	1.068
Peter Wilcox (B1816-5)	306	255	93	4	12	38	47	0	0	85	47	1.068
Pike	247	203	74	3	8	27	57	4	0	89	62	1.072
Red LaSoda	322	276	100	4	4	33	53	7	0	93	60	1.058
Russian Banana	154	58	21	31	31	26	12	0	0	38	12	1.065
Satina	391	317	115	4	8	36	51	1	0	88	52	1.052
Soraya	351	266	96	4	17	38	41	0	0	78	41	1.057
Vivaldi	274	185	67	7	20	41	31	1	0	73	32	1.062
Yukon Gold	273	212	77	4	9	42	43	3	0	88	45	1.076
MSD[3]	78	64		4	6	12	13	3	ns	7	14	0.006
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

[3]Means separated within columns by Waller-Duncan K-ratio t Test.

Table 10. Plant growth and tuber characteristics for the 2019 Fresh Market, Red, and Purple Variety Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]					
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP
Carolina	93	9	9	4	1	3	8	4	9	7
Cerata	97	9	9	4	1	3	9	3	7	8
Concordia	96	8	9	3	4	9	9	3	8	9
Coronada	98	9	7	6	3	3	9	6	9	9
Malou	96	9	8	6	4	9	9	3	8	9
Ricarda	97	9	9	4	1	3	8	4	7	8
Volare	93	8	9	5	1	8	8	3	7	8
Belmonda	100	9	9	6	4	7	8	2	9	8
Natascha	97	9	9	6	5	7	9	3	7	9
NC470-3	92	9	9	6	1	6	5	2	6	7
NC509-16	86	7	9	6	9	1	8	3	6	7
NC606-23	90	8	6	4	4	7	8	3	8	7
NCB3171-7	98	9	6	5	4	9	9	3	6	6
Allora	93	8	9	4	4	7	9	6	6	6
Arizona	96	9	6	6	1	9	7	3	8	7
Constance	99	7	9	3	3	9	8	2	8	8
Montreal	93	8	9	4	3	9	9	3	6	7
Queen Anne	90	7	9	5	4	9	9	6	8	9
Soraya	91	8	9	6	3	9	9	3	6	8
Prada	98	8	9	3	3	8	8	6	7	6
Sunshine	91	8	9	4	4	9	9	6	7	9
Katahdin	93	8	9	6	1	7	7	2	7	6
Reveille Russet	90	4	9	8	1	5	4	6	7	8
AF5280-5	99	9	9	6	1	7	7	2	5	7
AF5412-3	97	8	9	6	9	1	8	4	6	6
NDAF102629C-4	94	9	9	5	1	7	7	2	6	7
NY151	100	8	9	6	1	8	8	2	6	7
NY164	87	8	9	5	1	2	9	1	8	9
WAF10664-3	90	8	9	6	3	9	9	3	7	7
Adirondack Blue	88	7	9	4	9	1	7	3	3	6

Table 10 (cont'd). Plant growth and tuber characteristics for the 2019 Fresh Market, Red, and Purple Variety Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]					
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP
All Blue	98	8	9	4	9	1	8	3	8	6
Chieftain	97	9	9	6	1	2	8	2	7	7
Dark Red Norland	100	8	9	4	1	2	8	3	8	8
Goldrush	97	8	9	6	1	5	4	6	8	8
Lamoka	92	9	9	7	1	7	7	2	7	6
Marcy	90	9	9	7	1	6	5	3	7	7
Peter Wilcox (B1816-5)	93	9	9	5	3	1	8	3	8	7
Pike	89	8	9	7	1	7	8	2	7	7
Red LaSoda	94	8	8	5	1	2	8	3	6	7
Russian Banana	98	6	9	6	3	9	9	7	7	6
Satina	87	9	9	6	4	9	9	2	8	9
Soraya	93	9	9	6	3	7	8	3	7	8
Vivaldi	97	8	9	5	2	7	7	3	7	6
Yukon Gold	96	9	9	5	3	9	9	3	7	7

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 30 for 20 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.

Table 11. External and internal defects for the 2019 Fresh Market, Red, and Purple Variety Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Carolina	0	0	0	4	4	0	0	0	0	0	0
Cerata	1	0	0	4	5	0	0	0	0	0	0
Concordia	0	0	0	3	3	0	0	0	0	0	0
Coronada	0	0	1	6	7	0	0	0	0	0	0
Malou	0	0	0	4	5	0	0	0	0	0	0
Ricarda	1	0	3	3	6	0	0	0	0	0	0
Volare	0	0	0	11	11	0	0	0	0	0	0
Belmonda	0	0	1	3	5	0	0	0	0	0	0
Natascha	1	0	2	4	7	0	0	0	0	0	0
NC470-3	0	0	1	1	2	0	0	0	0	0	0
NC509-16	1	0	0	2	2	0	0	0	0	0	0
NC606-23	4	0	1	8	14	0	0	0	0	0	2
NCB3171-7	2	0	0	5	6	0	0	0	0	0	0
Allora	0	1	1	12	15	0	0	0	0	0	0
Arizona	0	0	0	9	9	0	0	0	0	0	0
Constance	0	0	0	4	4	0	0	0	0	0	0
Montreal	3	0	4	10	17	0	0	0	0	0	0
Queen Anne	0	0	1	5	5	0	0	0	0	0	0
Soraya	0	0	0	4	5	0	0	0	0	0	0
Prada	3	0	1	3	7	0	0	0	0	0	0
Sunshine	1	0	2	4	7	0	0	0	0	0	0
Katahdin	1	0	4	6	11	0	0	0	0	0	0
Reveille Russet	0	0	2	6	9	0	0	0	0	0	0
AF5280-5	1	0	1	6	8	0	2	0	0	0	0
AF5412-3	2	0	0	2	4	0	0	0	0	0	0
NDAF102629C-4	0	0	1	4	5	0	0	0	0	0	0
NY151	1	0	1	11	13	0	0	0	0	0	0
NY164	0	0	1	9	10	0	0	0	0	0	0
WAF10664-3	6	5	0	6	17	0	0	0	0	0	0
Adirondack Blue	0	0	0	2	3	0	0	0	0	0	0

Table 11 (cont'd). External and internal defects for the 2019 Fresh Market, Red, and Purple Variety Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
All Blue	0	0	0	1	1	0	0	0	0	0	0
Chieftain	0	0	1	5	7	0	0	0	0	0	0
Dark Red Norland	1	0	1	6	8	0	0	0	0	0	0
Goldrush	1	0	0	3	4	0	0	0	0	0	0
Lamoka	4	0	3	2	9	0	0	0	0	0	0
Marcy	0	0	3	2	5	0	0	0	0	2	0
Peter Wilcox (B1816-5)	1	0	0	1	2	0	0	0	0	0	0
Pike	1	0	1	6	8	0	0	0	0	0	0
Red LaSoda	1	0	0	7	8	0	2	0	0	0	0
Russian Banana	0	0	1	4	5	0	0	0	0	0	0
Satina	1	0	0	7	8	0	0	0	0	0	0
Soraya	1	0	0	3	4	0	0	0	0	0	0
Vivaldi	2	0	1	5	8	0	0	0	0	0	0
Yukon Gold	2	0	4	6	11	0	0	0	0	0	0
MSD[3]	ns	ns	2	5	4	ns	ns	ns	ns	ns	ns
P Value	0.1153	0.5235	<0.0001	<0.0001	<0.0001	-	0.5047	-	-	0.5054	0.5060

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

[3]Means separated within columns by Waller-Duncan K-ratio t Test.

Chapter 5. University of Maine Advanced Selection Potato Variety Trial

General Comments

A goal of the University of Maine advanced selection trial is to continue gathering data on these advanced potato selections for potential Florida production. The chipping "standard" Atlantic was included to provide a baseline for comparison with the numbered clones.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 14, 2019
Vine Kill Date	May 7, 2019
Harvest Date	May 16, 2019
Season Length	82 days planting to vine kill; 91 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	4 (Standard: Atlantic)
Number of Clones	28
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	4
Plot Size	20 ft (6.1 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	AF4659-12 (340 cwt/acre or 38.1 T/ha)
Highest Marketable Yield	Atlantic (276 cwt/acre or 30.9 T/ha)
Best Appearance Rating	Yukon Gold, AF4659-12, AF6027-2, NDAF113484B-1 (8, very good)

Table 12. Production statistics for the 2019 University of Maine Advanced Selection Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–82 days												
Atlantic	324	276	100	2	6	27	63	2	0	92	65	1.076
Harley Blackwell (B0564-8)	287	241	87	4	6	22	63	5	0	90	68	1.070
Snowden	257	210	76	4	13	36	46	0	0	82	46	1.072
Yukon Gold	250	181	66	5	6	28	56	4	0	89	61	1.077
AF4659-12	340	162	59	17	30	49	4	0	0	54	4	1.060
AF4872-2	239	175	63	3	11	45	41	0	0	86	41	1.070
AF5648-3	197	139	50	7	15	39	40	0	0	78	40	1.077
AF5715-6	227	175	63	3	11	55	31	1	0	86	32	1.072
AF5819-2	132	99	36	8	12	30	48	2	0	80	49	1.066
AF5870-2	236	162	59	8	19	42	31	0	0	73	31	1.068
AF5891-1	235	152	55	2	11	25	57	3	0	86	61	1.069
AF5931-1	210	152	55	4	9	38	49	0	0	87	50	1.070
AF5994-2	209	150	54	3	7	23	63	3	0	90	66	1.072
AF5966-1	175	141	51	3	8	17	66	5	0	88	71	1.063
AF6016-2	213	168	61	3	8	20	65	5	0	90	70	1.069
AF6027-2	142	109	39	5	14	49	31	0	0	81	31	1.065
AF6043-1	197	103	37	9	25	39	26	0	0	66	26	1.068
AF6048-4	257	159	57	3	10	47	39	0	0	86	39	1.062
AF6050-1	202	118	43	10	22	39	28	0	0	68	28	1.062
AF6052-1	254	166	60	5	10	36	45	3	0	85	48	1.059
AAF09055-2WH	237	182	66	5	10	27	56	3	0	85	58	1.064
MSAFB609-12	169	106	38	9	23	51	17	0	0	68	17	1.071
MSAFB636-1	123	71	26	13	28	38	20	1	0	59	21	1.063
NDAF102696C-5	221	138	50	13	23	41	23	0	0	64	23	1.064
NDAF113484B-1	196	155	56	4	9	31	55	2	0	88	57	1.058
NDAF12129-6	163	105	38	10	20	39	29	2	0	70	32	1.070
NDAF12143-1	191	142	51	4	8	29	57	3	0	89	60	1.060
NDAF12238Y-2	252	191	69	6	12	31	49	3	0	83	52	1.063
NDAF14424-1	221	159	58	3	8	18	65	5	0	89	71	1.058
NDAF14424-2	186	125	45	2	7	13	68	10	0	91	79	1.054

Table 12 (cont'd). Production statistics for the 2019 University of Maine Advanced Selection Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
WAF13058-1	186	139	50	4	11	30	53	2	0	84	55	1.073
WAF14096-5	212	148	54	10	17	38	34	1	0	73	34	1.062
MSD[3]	112	107		8	14	20	22	7	ns	18	23	0.013
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	<0.0001

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

[3]Means separated within columns by Tukey's Studentized Range (HSD) Test.

Table 13. Plant growth and tuber characteristics for the 2019 University of Maine Advanced Selection Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Atlantic	96	8	9	6						6	-
Harley Blackwell (B0564-8)	93	9	9	6						7	1
Snowden	96	8	9	6						7	2
Yukon Gold	88	8	9	5						8	3
AF4659-12	91	8	9	6						8	2
AF4872-2	91	8	9	6						5	3
AF5648-3	95	8	9	6						7	3
AF5715-6	96	8	9	6						5	3
AF5819-2	90	6	9	5						5	3
AF5870-2	92	5	9	8						5	2
AF5891-1	93	9	9	6						6	3
AF5931-1	84	6	9	7						7	3
AF5994-2	92	7	9	7						3	4
AF5966-1	98	6	9	7						4	3
AF6016-2	88	5	9	8						7	3
AF6027-2	93	5	9	8						8	3
AF6043-1	94	8	9	3						5	4
AF6048-4	90	6	9	5						5	3
AF6050-1	103	7	9	4						7	3
AF6052-1	81	8	9	5						4	3
AAF09055-2WH	88	6	9	8						6	3
MSAFB609-12	98	7	9	7						5	3
MSAFB636-1	93	4	9	7						5	3
NDAF102696C-5	95	7	9	6						4	3
NDAF113484B-1	89	6	9	7						8	3
NDAF12129-6	88	6	9	5						6	3
NDAF12143-1	87	4	9	7						7	3
NDAF12238Y-2	82	8	9	6						5	2
NDAF14424-1	95	7	9	6						7	3
NDAF14424-2	94	8	9	6						7	4

Table 13 (cont'd). Plant growth and tuber characteristics for the 2019 University of Maine Advanced Selection Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
WAF13058-1	99	7	9	7						5	3
WAF14096-5	91	9	7	5						7	3

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 30 for 20 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.

Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 14. External and internal defects for the 2019 University of Maine Advanced Selection Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Atlantic	2	0	3	3	8	0	4	0	1	0	0
Harley Blackwell (B0564-8)	0	1	2	4	7	0	0	0	0	0	0
Snowden	0	0	3	3	6	0	0	0	0	0	0
Yukon Gold	0	0	8	11	20	0	0	0	0	4	0
AF4659-12	0	7	2	1	9	0	0	0	0	0	0
AF4872-2	0	0	6	11	18	0	0	0	0	0	0
AF5648-3	1	0	3	7	10	0	0	0	0	0	0
AF5715-6	1	0	2	8	11	0	0	0	0	0	0
AF5819-2	2	0	1	6	8	0	0	0	0	0	0
AF5870-2	1	0	1	5	7	0	0	0	0	0	0
AF5891-1	1	0	4	20	25	0	0	0	0	0	0
AF5931-1	0	1	0	17	19	0	0	0	0	0	0
AF5994-2	5	5	2	7	20	0	0	0	0	0	0
AF5966-1	2	0	0	6	8	0	0	0	0	0	0
AF6016-2	2	0	4	5	11	0	0	0	0	0	0
AF6027-2	0	0	3	2	5	0	0	0	0	0	0
AF6043-1	2	0	3	16	21	0	0	0	0	0	0
AF6048-4	0	0	4	25	29	0	0	0	1	0	0
AF6050-1	1	0	3	11	14	0	0	0	0	0	0
AF6052-1	1	0	2	21	24	0	1	0	0	0	0
AAF09055-2WH	0	0	2	7	10	0	0	0	0	0	0
MSAFB609-12	0	2	0	5	8	0	0	0	0	0	0
MSAFB636-1	0	0	2	4	5	0	0	0	0	0	0
NDAF102696C-5	1	0	2	3	6	0	0	0	3	0	0
NDAF113484B-1	0	0	4	7	11	0	0	0	0	0	0
NDAF12129-6	1	0	4	6	11	0	0	0	0	0	0
NDAF12143-1	0	0	3	14	16	0	0	0	0	0	0
NDAF12238Y-2	1	0	4	4	9	0	1	0	1	0	0
NDAF14424-1	0	0	5	13	18	0	0	0	0	0	0
NDAF14424-2	0	0	5	21	25	0	0	0	0	0	0

Table 14 (cont'd). External and internal defects for the 2019 University of Maine Advanced Selection Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
WAF13058-1	4	1	1	6	12	0	0	0	0	0	0
WAF14096-5	0	0	1	4	5	0	0	0	0	0	0
MSD[3]	5	5	6	15	16	ns	3	ns	ns	ns	ns
P Value	0.0071	<0.0001	<0.0001	<0.0001	<0.0001	-	0.0099	-	0.5838	0.4805	-

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

[3]Means separated within columns by Tukey's Studentized Range (HSD) Test.

Chapter 6. University of Maine Early Line Potato Variety Trial

General Comments

A goal of the University of Maine early line trial is to continue gathering data on early line potato selections for potential Florida production. The fresh market “standard” Red LaSoda was included to provide a baseline for comparison with the numbered clones.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 15, 2019
Vine Kill Date	May 7, 2019
Harvest Date	May 22, 2019
Season Length	81 days planting to vine kill; 96 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	5 (Standard: Red LaSoda)
Number of Clones	63
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	1
Plot Size	16 ft (4.9 m)

Production Statistics

Early Vigor Ratings	41 DAP
Highest Total Yield	COAF14207-3 (398 cwt/acre or 44.6 T/ha)
Highest Marketable Yield	AF6225-5 (328 cwt/acre or 36.8 T/ha)
Best Appearance Rating	Peter Wilcox (B1816-5), Soraya, Satina, AF6181-9, AF6225-1, AF6226-6, AF6245-6, AF6253-1, WAF15204-4, COAF14207-3, AF6183-12, AF6289-2, COAF14107-1, NDAF13138BY-1, NDAF13158BY-2, NDAF13176CB-2, NDAF13273-1, NDAF13296Y-4, AF6286-1, AF6296-3, AF6307-3, AF6384-2, AF6407-2, AAF13334-3 (8, very good)

Table 15. Production statistics for the 2019 University of Maine Early Line Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–81 days												
Red LaSoda	244	197	100	3	4	31	59	2	0	93	62	1.062
Peter Wilcox (B1816-5)	212	169	86	4	12	26	58	0	0	85	58	1.070
Soraya	227	151	76	4	22	44	30	0	0	73	30	1.058
Satina	138	90	46	5	3	25	60	7	0	92	68	1.061
Dark Red Norland	184	87	44	8	17	46	29	0	0	75	29	1.059
BNC177-5	195	122	62	14	19	50	17	0	0	67	17	1.070
AF6165-9	281	229	117	3	8	37	50	2	0	89	52	1.079
AF6181-9	299	210	107	2	7	24	66	0	0	91	66	1.066
AF6182-6	348	262	133	2	6	18	70	3	0	92	74	1.060
AF6190-7	267	211	107	3	4	27	65	1	0	93	67	1.072
AF6197-8	240	166	85	5	17	36	42	0	0	78	42	1.076
AF6199-5	268	188	95	6	20	42	32	0	0	74	32	1.065
AF6200-7	240	197	100	3	7	31	58	2	0	90	60	1.085
AF6203-3	277	212	108	3	11	28	57	2	0	87	58	1.057
AF6206-3	284	154	78	6	23	38	33	0	0	71	33	1.062
AF6206-5	243	116	59	4	19	36	42	0	0	78	42	1.082
AF6221-3	206	152	77	3	18	33	45	0	0	79	45	1.075
AF6225-1	203	137	70	5	10	38	47	0	0	85	47	1.068
AF6225-5	393	328	167	2	4	14	61	18	0	94	79	1.064
AF6226-6	289	179	91	7	18	31	43	2	0	76	45	1.063
AF6236-7	258	203	103	4	7	21	63	5	0	89	68	1.071
AF6237-3	253	186	95	5	17	52	26	0	0	78	26	1.064
AF6245-6	346	292	148	4	7	25	62	1	0	89	64	1.070
AF6253-1	284	202	102	5	15	32	47	2	0	80	49	1.075
AF6261-2	333	203	103	6	14	29	51	0	0	80	51	1.067
WAF15184-4	298	229	116	3	14	21	63	0	0	84	63	1.078
WAF15204-4	252	163	83	2	10	41	44	3	0	88	47	1.068
COAF14207-3	398	311	158	3	11	30	53	3	0	87	56	1.053
NDAF1393Y-4	24	14	7	10	10	46	33	0	0	80	33	1.058
AF6194-4	255	220	112	3	6	28	63	0	0	91	63	1.067

Table 15 (cont'd). Production statistics for the 2019 University of Maine Early Line Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
AF6259-1	367	279	141	4	10	23	56	6	0	86	63	1.069
WAF15133-1	211	155	79	4	11	9	76	0	0	85	76	1.070
AF6183-12	190	128	65	5	9	20	59	7	0	86	66	1.062
AF6262-3	83	45	23	2	22	50	26	0	0	76	26	1.077
AF6271-5	165	84	43	21	23	46	11	0	0	56	11	1.054
AF6280-1	202	89	45	21	32	41	6	0	0	47	6	1.066
AF6287-6	237	154	78	8	22	42	27	0	0	70	27	1.058
AF6289-2	246	179	91	6	16	66	13	0	0	78	13	1.066
COAF14107-1	238	157	80	8	11	31	47	2	0	81	49	1.058
NDAF13136Y-5	256	191	97	4	15	39	42	0	0	81	42	1.069
NDAF13138BY-1	183	149	76	2	11	41	46	0	0	87	46	1.063
NDAF13158BY-2	252	157	80	3	12	38	46	0	0	85	46	1.057
NDAF13176CB-2	187	102	52	10	25	38	27	0	0	65	27	1.069
NDAF13273-1	254	166	84	6	18	49	27	0	0	76	27	1.056
NDAF13296Y-3	338	263	133	3	9	45	44	0	0	88	44	1.064
NDAF13296Y-4	346	269	137	3	7	21	65	4	0	90	69	1.063
AF6286-1	301	231	117	6	15	44	35	0	0	79	35	1.055
AF6296-3	322	173	88	6	14	44	34	2	0	80	36	1.061
AF6307-3	145	48	24	12	36	46	6	0	0	52	6	1.063
AF6314-12	187	77	39	5	23	51	21	0	0	72	21	1.068
AF6318-3	152	62	32	15	31	51	3	0	0	54	3	1.068
AF6340-6	181	93	47	4	15	33	48	0	0	81	48	1.058
AF6347-3	334	198	101	7	17	62	13	0	0	76	13	1.055
AF6354-2	246	128	65	4	14	53	30	0	0	82	30	1.063
AF6357-2	212	98	50	11	40	36	14	0	0	50	14	1.076
AF6370-1	207	96	49	9	29	47	15	0	0	62	15	1.067
AF6373-2	54	25	12	0	29	63	9	0	0	71	9	1.052
AF6374-14	230	111	56	14	30	42	14	0	0	56	14	1.061
AF6377-3	223	102	52	14	31	51	4	0	0	55	4	1.068
AF6377-10	111	49	25	14	35	42	9	0	0	51	9	1.052

Table 15 (cont'd). Production statistics for the 2019 University of Maine Early Line Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
AF6377-12	320	196	100	3	15	37	46	0	0	83	46	1.071
AF6384-2	336	254	129	4	13	49	35	0	0	83	35	1.063
AF6407-2	358	238	121	2	13	43	43	0	0	86	43	1.064
AF6413-3	300	189	96	6	28	61	5	0	0	66	5	1.077
AAF13334-3	311	230	117	4	12	53	31	0	0	84	31	1.070
COAF14172-1	226	99	50	10	27	50	13	0	0	63	13	1.070
NDAF13242B-3	262	161	82	6	20	51	23	0	0	74	23	1.071
NDAF13242B-8	315	232	118	2	16	71	10	0	0	82	10	1.068

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

Table 16. Plant growth and tuber characteristics for the 2019 University of Maine Early Line Variety Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Red LaSoda	96	7	9	6						7	-
Peter Wilcox (B1816-5)	92	7	9	7						8	1
Soraya	92	8	9	7						8	2
Satina	83	7	9	6						8	4
Dark Red Norland	100	8	9	4						7	4
BNC177-5	92	7	9	6						7	2
AF6165-9	96	9	9	7						7	1
AF6181-9	100	6	9	7						8	3
AF6182-6	96	6	9	7						7	2
AF6190-7	96	8	9	7						6	2
AF6197-8	96	9	9	6						6	2
AF6199-5	92	7	9	6						7	1
AF6200-7	96	8	9	7						6	1
AF6203-3	88	8	9	7						7	2
AF6206-3	92	6	9	9						7	3
AF6206-5	100	8	9	7						7	4
AF6221-3	92	8	9	6						6	2
AF6225-1	96	9	9	5						8	3
AF6225-5	96	9	9	6						6	2
AF6226-6	79	5	9	9						8	2
AF6236-7	100	7	9	8						7	2
AF6237-3	92	5	9	8						7	1
AF6245-6	88	8	9	6						8	2
AF6253-1	96	9	9	5						8	2
AF6261-2	83	9	9	6						7	2
WAF15184-4	92	8	9	6						7	1
WAF15204-4	92	6	9	7						8	3
COAF14207-3	88	9	6	6						8	2
NDAF1393Y-4	92	5	9	9						5	4
AF6194-4	92	6	9	8						6	1

Table 16 (cont'd). Plant growth and tuber characteristics for the 2019 University of Maine Early Line Variety Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
AF6259-1	88	9	9	5						6	2
WAF15133-1	88	9	9	8						7	2
AF6183-12	83	8	9	7						8	3
AF6262-3	75	4	9	8						7	4
AF6271-5	88	7	9	5						7	3
AF6280-1	96	7	9	6						7	3
AF6287-6	92	8	9	5						7	2
AF6289-2	96	8	9	4						8	1
COAF14107-1	96	6	9	4						8	2
NDAF13136Y-5	96	6	9	6						7	1
NDAF13138BY-1	88	8	6	5						8	2
NDAF13158BY-2	100	9	9	5						8	3
NDAF13176CB-2	88	9	9	3						8	3
NDAF13273-1	88	7	9	6						8	2
NDAF13296Y-3	88	9	9	4						7	2
NDAF13296Y-4	92	8	9	5						8	2
AF6286-1	92	8	9	4						8	1
AF6296-3	79	8	9	7						8	3
AF6307-3	92	8	9	5						8	4
AF6314-12	96	8	9	7						7	4
AF6318-3	96	8	6	4						7	4
AF6340-6	88	8	9	7						7	4
AF6347-3	96	4	9	9						.	2
AF6354-2	83	7	9	7						7	4
AF6357-2	92	7	9	6						7	3
AF6370-1	88	5	9	7						6	4
AF6373-2	42	2	9	9						6	4
AF6374-14	92	7	9	8						7	3
AF6377-3	83	5	9	8						7	3
AF6377-10	29	3	9	8						7	3

Table 16 (cont'd). Plant growth and tuber characteristics for the 2019 University of Maine Early Line Variety Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
AF6377-12	79	6	9	7						7	2
AF6384-2	83	6	9	8						8	1
AF6407-2	100	8	9	8						8	2
AF6413-3	100	8	9	5						6	1
AAF13334-3	83	7	9	5						8	2
COAF14172-1	88	6	9	8						7	4
NDAF13242B-3	96	7	9	8						7	2
NDAF13242B-8	88	8	9	7						7	2

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 24 for 16 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.

Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 17. External and internal defects for the 2019 University of Maine Early Line Variety Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Red LaSoda	0	4	3	7	13	0	5	0	0	0	0
Peter Wilcox (B1816-5)	2	0	2	2	6	0	0	0	0	0	0
Soraya	0	0	2	8	10	0	0	0	0	0	0
Satina	0	0	6	23	29	0	0	0	0	0	0
Dark Red Norland	12	3	5	16	37	0	0	0	0	0	0
BNC177-5	0	0	1	5	6	0	0	0	0	0	0
AF6165-9	0	1	0	7	8	0	0	0	0	0	0
AF6181-9	16	0	0	6	23	0	35	0	0	0	0
AF6182-6	8	0	0	9	18	0	0	0	0	0	0
AF6190-7	1	3	1	10	15	0	0	0	0	0	0
AF6197-8	0	0	3	8	11	0	0	0	0	0	0
AF6199-5	0	0	2	4	6	0	0	0	0	0	0
AF6200-7	0	0	1	7	9	0	0	0	0	0	0
AF6203-3	4	0	2	6	11	0	0	0	5	0	0
AF6206-3	0	0	2	22	24	0	0	0	0	0	0
AF6206-5	3	0	2	34	39	0	0	0	0	0	0
AF6221-3	0	1	2	4	6	0	0	0	0	0	0
AF6225-1	20	1	0	0	21	0	0	0	0	0	0
AF6225-5	1	7	0	2	11	0	0	0	0	0	0
AF6226-6	6	0	2	11	18	0	0	0	0	0	0
AF6236-7	0	0	3	9	12	0	0	0	0	0	0
AF6237-3	0	0	1	5	6	0	0	0	0	0	0
AF6245-6	0	3	0	2	5	0	0	0	0	0	10
AF6253-1	0	0	5	6	12	0	0	0	0	0	0
AF6261-2	5	0	1	18	24	0	0	0	0	0	0
WAF15184-4	3	0	4	1	8	0	0	0	0	0	0
WAF15204-4	13	0	3	11	27	0	0	0	0	0	0
COAF14207-3	0	0	0	9	10	0	0	0	0	0	0
NDAF1393Y-4	13	0	0	15	28	0	0	0	0	0	0
AF6194-4	0	0	3	2	5	0	0	0	0	0	0

Table 17 (cont'd). External and internal defects for the 2019 University of Maine Early Line Variety Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
AF6259-1	3	0	4	4	12	0	0	0	0	0	0
WAF15133-1	0	2	2	9	14	0	0	0	0	0	0
AF6183-12	2	0	1	19	22	0	0	0	0	0	0
AF6262-3	9	0	4	16	29	0	0	0	0	0	0
AF6271-5	4	0	2	4	9	0	0	0	0	0	0
AF6280-1	1	0	3	2	6	0	0	0	0	0	0
AF6287-6	0	3	0	4	7	0	0	0	0	0	0
AF6289-2	1	0	1	6	7	0	0	0	0	0	0
COAF14107-1	13	0	3	2	18	0	0	0	0	0	0
NDAF13136Y-5	0	1	0	6	7	0	0	0	0	0	0
NDAF13138BY-1	0	0	0	7	7	0	0	0	0	0	0
NDAF13158BY-2	2	1	3	21	26	0	0	0	0	0	0
NDAF13176CB-2	0	0	3	14	17	0	0	0	0	0	0
NDAF13273-1	0	0	1	13	14	0	0	0	0	0	0
NDAF13296Y-3	2	0	5	5	12	0	0	0	0	0	0
NDAF13296Y-4	0	0	3	10	13	0	0	0	0	0	0
AF6286-1	0	0	0	3	3	0	0	0	0	0	0
AF6296-3	0	0	3	31	33	0	0	0	0	0	0
AF6307-3	0	0	0	37	37	0	0	0	0	0	0
AF6314-12	0	0	6	36	43	0	0	0	5	0	0
AF6318-3	0	0	6	18	24	0	0	0	0	0	0
AF6340-6	0	0	2	35	37	0	0	0	0	0	0
AF6347-3	0	0	2	20	22	0	0	0	0	0	0
AF6354-2	2	0	0	35	37	0	0	0	0	0	0
AF6357-2	0	0	2	5	7	0	0	0	5	0	0
AF6370-1	0	0	6	20	25	0	0	0	0	0	0
AF6373-2	7	0	0	29	37	0	0	0	0	0	0
AF6374-14	0	3	2	9	14	0	0	0	0	0	0
AF6377-3	0	0	4	13	17	0	0	0	0	0	0
AF6377-10	0	0	2	11	13	0	0	0	0	0	0

Table 17 (cont'd). External and internal defects for the 2019 University of Maine Early Line Variety Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
AF6377-12	0	0	11	15	26	0	0	0	0	0	0
AF6384-2	0	0	2	7	9	0	0	0	0	0	0
AF6407-2	2	0	3	18	23	0	0	0	0	0	0
AF6413-3	0	0	3	1	4	0	0	0	0	0	0
AAF13334-3	0	1	5	7	12	0	0	0	0	0	0
COAF14172-1	1	2	12	16	31	0	0	0	0	0	0
NDAF13242B-3	1	0	11	5	17	0	0	0	0	0	0
NDAF13242B-8	1	2	4	4	10	0	0	0	0	0	0

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 7. University of Maine Early Generation Red and Specialty Potato Variety Trial

General Comments

The University of Maine early generation red and specialty trial gives us an opportunity to look at these newest breeding clones for the first time.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	January 22, 2019
Vine Kill Date	April 16, 2019
Harvest Date	May 1, 2019
Season Length	84 days planting to vine kill; 99 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	9 (Standard: Dark Red Norland instead of Red LaSoda)
Number of Clones	15
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	1
Plot Size	5 ft 4 in (1.6 m)

Production Statistics

Early Vigor Ratings	44 DAP
Highest Total Yield	AF6605-5 (477 cwt/acre or 53.5 T/ha)
Highest Marketable Yield	AF6605-5 (353 cwt/acre or 39.6 T/ha)
Best Appearance Rating	Atlantic, Natascha, Dark Red Norland (8, very good)

Table 18. Production statistics for the 2019 University of Maine Early Generation Red and Specialty Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–84 days												
Red LaSoda	310	270	168	3	8	57	32	0	0	89	32	1.061
Atlantic	330	246	153	2	3	56	38	0	0	95	38	1.073
Peter Wilcox (B1816-5)	278	201	125	7	18	39	36	0	0	75	36	1.060
Natascha	313	222	138	8	19	72	0	0	0	72	0	1.053
Satina	420	351	218	7	8	62	23	0	0	85	23	1.050
Snowden	287	252	157	3	9	45	43	0	0	88	43	1.075
Dark Red Norland	220	161	100	4	6	48	43	0	0	91	43	1.061
All Blue	252	66	41	26	47	27	0	0	0	27	0	1.069
Chieftain	352	293	182	6	9	66	19	0	0	85	19	1.059
AF6575-6	343	219	136	8	28	58	6	0	0	64	6	1.065
AF6605-5	477	353	219	9	15	70	6	0	0	76	6	1.057
AF6606-1	124	69	43	22	23	56	0	0	0	56	0	1.066
AF6606-4	122	39	24	25	43	32	0	0	0	32	0	1.077
AAF11546-3	387	246	153	10	27	58	6	0	0	64	6	1.054
COAF15121-1	194	122	76	13	24	56	7	0	0	63	7	1.054
COAF15121-5	308	210	130	11	13	76	0	0	0	76	0	1.058
COAF15129-3	220	125	77	21	18	46	15	0	0	61	15	1.041
COAF15129-5	65	22	14	24	33	43	0	0	0	43	0	1.058
COAF15226-2	279	185	115	13	20	56	11	0	0	66	11	1.070
COAF15226-5	245	141	88	13	23	52	11	0	0	64	11	1.061
NDAF141Y-1	448	256	159	13	29	51	7	0	0	58	7	1.070
NDAF141Y-3	404	224	139	14	29	51	6	0	0	56	6	1.060
NDAF1438Y-2	337	246	153	12	12	44	33	0	0	77	33	1.060
NDAF14113Y-3	440	293	182	12	17	64	7	0	0	70	7	1.056

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

Table 19. Plant growth and tuber characteristics for the 2019 University of Maine Early Generation Red and Specialty Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Red LaSoda	88	7	9	6						7	1
Atlantic	100	8	9	8						8	2
Peter Wilcox (B1816-5)	63	5	9	7						7	1
Natascha	100	8	9	7						8	1
Satina	88	8	9	7						7	1
Snowden	100	5	9	8						6	1
Dark Red Norland	100	8	9	6						8	-
All Blue	88	5	9	8						7	3
Chieftain	100	5	9	8						7	1
AF6575-6	100	7	9	8						6	1
AF6605-5	100	8	9	6						7	1
AF6606-1	38	3	9	9						5	3
AF6606-4	38	3	9	9						7	3
AAF11546-3	100	7	9	5						6	1
COAF15121-1	50	4	9	8						5	3
COAF15121-5	88	4	9	8						6	3
COAF15129-3	38	4	9	7						6	2
COAF15129-5	0	1	-	9						6	4
COAF15226-2	100	9	6	5						7	1
COAF15226-5	88	5	9	8						7	2
NDAF141Y-1	100	9	9	7						7	1
NDAF141Y-3	100	8	9	7						7	1
NDAF1438Y-2	100	5	9	6						7	1
NDAF14113Y-3	88	7	9	7						6	1

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 8 for 5.33 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.

Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 20. External and internal defects for the 2019 University of Maine Early Generation Red and Specialty Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Red LaSoda	0	0	2	0	2	0	0	0	0	0	0
Atlantic	18	0	3	0	21	0	0	0	0	0	0
Peter Wilcox (B1816-5)	0	4	0	0	4	0	0	0	0	0	0
Natascha	2	0	0	0	2	0	0	0	0	0	0
Satina	0	0	0	1	1	0	0	0	0	0	0
Snowden	0	0	0	0	0	0	0	0	0	0	0
Dark Red Norland	6	8	4	1	19	0	0	0	0	0	0
All Blue	0	2	2	0	4	0	0	0	0	0	0
Chieftain	0	0	2	0	2	0	0	0	0	0	0
AF6575-6	0	0	0	0	0	0	0	0	0	0	0
AF6605-5	0	2	0	0	2	0	0	0	0	0	0
AF6606-1	0	0	0	0	0	0	0	0	0	0	0
AF6606-4	0	0	0	0	0	0	0	0	0	0	0
AAF11546-3	0	0	0	0	0	0	0	0	0	0	0
COAF15121-1	0	0	0	0	0	0	0	0	0	10	0
COAF15121-5	2	8	0	0	11	0	0	0	0	0	18
COAF15129-3	0	0	0	7	7	0	0	0	0	0	0
COAF15129-5	0	0	20	0	20	0	0	0	0	0	0
COAF15226-2	0	0	0	0	0	0	0	0	0	0	0
COAF15226-5	0	3	7	0	10	0	0	0	0	0	0
NDAF141Y-1	2	0	0	0	2	0	0	0	0	0	0
NDAF141Y-3	1	0	0	0	1	0	0	0	0	0	0
NDAF1438Y-2	5	0	0	0	5	0	0	0	0	0	0
NDAF14113Y-3	0	0	5	1	5	0	0	0	0	0	0

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 8. University of Maine Early Generation Round White Potato Variety Trial

General Comments

The University of Maine early generation round white trial gives us an opportunity to look at these newest breeding clones for the first time. This trial only evaluated round white clones.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 7, 2019
Vine Kill Date	N/A
Harvest Date	May 14, 2019
Season Length	96 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	9 (Standard: Atlantic instead of LaChipper)
Number of Clones	96
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	1
Plot Size	5 ft 4 in (1.6 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	WAF16094-3 (1001 cwt/acre or 112.2 T/ha)
Highest Marketable Yield	WAF16094-3 (890 cwt/acre or 99.8 T/ha)
Best Appearance Rating	AF6541-15, AF6542-16, AF6563-11, AF6599-2, AF6600-1, AF6608-4, AF6601-2 (8, very good)

Table 21. Production statistics for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–96 days												
Red LaSoda	437	384	93	1	2	40	48	9	0	97	57	1.067
Atlantic	443	411	100	2	5	55	19	19	0	93	38	1.086
Peter Wilcox (B1816-5)	788	586	142	1	15	84	0	0	0	84	0	1.075
Soraya	585	546	133	2	5	53	41	0	0	93	41	1.066
Satina	595	479	116	1	7	55	13	24	0	92	36	1.061
Snowden	432	381	93	3	9	69	15	5	0	88	20	1.088
Dark Red Norland	102	70	17	4	6	89	0	0	0	89	0	1.054
All Blue	362	142	35	14	45	41	0	0	0	41	0	1.077
Katahdin	394	359	87	4	2	55	19	20	0	94	39	1.056
AF6499-3	567	510	124	3	3	59	24	11	0	94	35	1.077
AF6517-6	456	335	81	6	12	71	3	8	0	82	11	1.072
AF6522-1	207	138	33	13	21	67	0	0	0	67	0	1.070
AF6524-3	610	461	112	5	10	49	17	19	0	85	36	1.074
AF6526-1	526	411	100	4	1	54	25	17	0	96	42	1.075
AF6526-3	543	477	116	2	6	58	17	18	0	93	35	1.086
AF6526-7	522	469	114	2	6	37	36	19	0	92	55	1.090
AF6527-3	499	418	102	1	3	33	43	19	0	96	62	1.080
AF6529-4	499	365	89	4	4	55	20	17	0	92	37	1.082
AF6530-5	532	389	95	4	5	55	17	20	0	92	37	1.073
AF6530-7	648	356	87	9	10	27	18	36	0	81	54	1.070
AF6537-4	382	341	83	3	4	31	10	52	0	93	62	1.064
AF6541-1	744	616	150	1	8	16	47	28	0	91	75	1.077
AF6541-3	433	361	88	2	7	72	4	15	0	91	19	1.082
AF6541-15	455	371	90	2	10	74	3	10	0	88	13	1.082
AF6542-16	477	322	78	5	13	78	4	0	0	82	4	1.085
AF6543-2	405	305	74	6	11	62	13	8	0	83	22	1.095
AF6548-4	432	345	84	2	10	88	0	0	0	88	0	1.087
AF6550-2	475	390	95	2	4	71	8	15	0	93	23	1.084
AF6550-8	450	332	81	4	10	18	59	9	0	86	68	1.075
AF6551-3	358	310	75	1	0	84	4	11	0	99	15	1.086

Table 21 (cont'd). Production statistics for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
AF6553-1	421	331	80	2	6	60	16	16	0	92	32	1.086
AF6553-3	636	463	113	3	7	15	65	10	0	90	75	1.076
AF6554-5	505	391	95	3	9	65	15	7	0	87	22	1.082
AF6555-2	545	487	118	3	5	63	12	17	0	92	29	1.089
AF6558-1	666	402	98	8	11	32	49	0	0	81	49	1.079
AF6559-3	305	222	54	5	9	26	51	9	0	86	60	1.066
AF6560-8	426	329	80	7	9	67	17	0	0	84	17	1.085
AF6562-3	549	436	106	3	9	88	0	0	0	88	0	1.083
AF6562-6	354	261	63	5	7	32	51	6	0	89	57	1.066
AF6563-11	556	410	100	4	8	35	53	0	0	89	53	1.075
AF6563-12	486	377	92	3	8	58	22	9	0	89	31	1.083
AF6565-1	451	302	73	3	13	27	48	9	0	84	57	1.052
AF6565-3	366	305	74	3	13	73	10	0	0	84	10	1.080
AF6566-1	624	531	129	3	4	21	71	0	0	93	71	1.090
AF6566-7	364	273	66	5	5	30	60	0	0	90	60	1.088
AF6568-2	641	540	131	1	4	22	69	4	0	95	73	1.060
AF6569-3	620	537	131	2	5	81	12	0	0	93	12	1.081
AF6570-3	449	292	71	7	21	37	31	4	0	72	35	1.081
AF6571-5	588	490	119	4	5	32	52	7	0	91	59	1.078
AF6572-3	386	321	78	5	8	40	47	0	0	87	47	1.076
AF6574-1	475	381	93	3	8	33	56	0	0	89	56	1.090
AF6574-7	330	247	60	4	13	15	56	12	0	83	68	1.071
AF6577-2	455	254	62	10	14	25	42	9	0	76	51	1.084
AF6578-4	326	242	59	2	11	35	47	5	0	87	52	1.080
AF6579-4	448	294	71	3	17	41	39	0	0	80	39	1.078
AF6582-5	444	382	93	3	8	39	46	4	0	89	50	1.075
AF6584-1	550	457	111	4	6	50	40	0	0	90	40	1.084
AF6589-1	519	339	82	5	10	39	41	6	0	86	47	1.066
AF6589-4	537	284	69	6	18	53	23	0	0	76	23	1.075
AF6591-2	563	343	83	2	6	27	65	0	0	92	65	1.070

Table 21 (cont'd). Production statistics for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
AF6593-2	397	350	85	2	5	27	60	5	0	93	65	1.080
AF6594-4	187	86	21	23	29	33	15	0	0	49	15	1.066
AF6594-6	160	94	23	12	21	67	0	0	0	67	0	1.074
AF6595-2	411	284	69	12	17	67	3	0	0	70	3	1.073
AF6595-8	496	344	84	2	12	54	32	0	0	86	32	1.070
AF6591-1	355	241	59	11	17	72	0	0	0	72	0	1.071
AF6598-5	470	298	72	8	8	41	36	7	0	83	42	1.073
AF6598-6	401	331	80	1	3	61	35	0	0	96	35	1.092
AF6598-7	394	255	62	2	8	24	12	36	18	72	48	1.068
AF6599-2	482	405	98	1	7	73	13	6	0	92	19	1.068
AF6599-10	337	276	67	2	4	56	16	23	0	94	38	1.059
AF6600-1	541	387	94	0	5	17	11	45	20	74	56	1.067
AF6600-3	322	197	48	9	18	48	10	7	7	65	17	1.080
AF6602-2	443	221	54	14	21	60	5	0	0	65	5	1.072
AF6602-3	399	297	72	3	18	68	11	0	0	78	11	1.069
AF6607-1	504	384	93	3	8	73	8	7	0	88	15	1.086
AF6607-3	451	285	69	7	22	67	4	0	0	71	4	1.080
AF6608-2	405	302	73	5	10	73	12	0	0	85	12	1.073
AF6608-4	483	367	89	5	7	61	28	0	0	89	28	1.077
AF6611-2	366	295	72	5	6	84	4	0	0	89	4	1.071
AF6614-4	448	341	83	4	9	83	4	0	0	87	4	1.084
AF6616-1	504	413	100	1	9	90	0	0	0	90	0	1.082
AF6616-4	643	527	128	2	8	57	23	10	0	89	33	1.072
WAF16092-5	363	265	64	5	14	81	0	0	0	81	0	1.088
WAF16094-3	1001	890	216	2	4	68	18	8	0	94	26	1.084
WAF16098-13	378	348	85	3	5	47	41	4	0	92	45	1.073
WAF16100-9	609	468	114	1	7	56	20	16	0	92	36	1.078
WAF16100-13	279	177	43	7	12	64	17	0	0	81	17	1.054
WAF16100-19	384	228	55	4	6	59	24	7	0	90	31	1.056
WAF16101-6	380	292	71	4	15	64	17	0	0	81	17	1.083

Table 21 (cont'd). Production statistics for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
WAF16102-3	464	300	73	4	3	64	12	16	0	93	28	1.088
WAF16103-3	524	420	102	2	6	24	44	24	0	92	68	1.082
WAF16120-2	499	402	98	5	10	80	5	0	0	85	5	1.088
WAF16128-5	491	385	94	2	11	71	0	15	0	86	15	1.082
WAF16137-3	184	0	0	49	51	0	0	0	0	0	0	1.084
WAF16220-1	412	304	74	4	10	60	21	5	0	86	26	1.087
WAF16220-4	430	311	76	2	4	53	29	13	0	94	41	1.084
NDAF1480Y-4	400	341	83	1	6	31	20	42	0	93	62	1.082
NDAF1487-1	324	238	58	3	7	55	34	0	0	89	34	1.081
NDAF1488-3	450	316	77	7	13	57	14	9	0	80	23	1.065
NDAF1489-1	280	144	35	19	24	58	0	0	0	58	0	1.073
NDAF1489-3	298	216	52	10	10	40	32	8	0	81	40	1.087
NDAF1489-4	350	255	62	10	15	65	11	0	0	75	11	1.069
NDAF14132Y-1	402	275	67	8	15	56	16	4	0	77	21	1.071
AF6601-2	375	301	73	2	11	40	47	0	0	87	47	1.083

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

Table 22. Plant growth and tuber characteristics for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Red LaSoda	100	8	9	6						4	1
Atlantic	100	8	9	7						4	-
Peter Wilcox (B1816-5)	88	8	9	7							2
Soraya	100	8	9	8						7	1
Satina	100	8	9	7						4	2
Snowden	100	8	9	7						6	1
Dark Red Norland	100	8	9	6						5	4
All Blue	100	7	9	7						6	3
Katahdin	100	8	9	7						6	1
AF6499-3	100	8	9	7						4	1
AF6517-6	100	8	9	6						4	2
AF6522-1	100	7	9	7						3	3
AF6524-3	100	8	9	8						5	2
AF6526-1	88	7	9	9						7	2
AF6526-3	75	7	9	9						6	1
AF6526-7	88	8	9	8						4	1
AF6527-3	100	7	9	8						4	2
AF6529-4	100	9	9	7						4	2
AF6530-5	100	9	9	5						4	2
AF6530-7	100	9	6	8						4	3
AF6537-4	88	5	9	8						5	2
AF6541-1	100	8	9	8						4	1
AF6541-3	100	7	9	8							1
AF6541-15	100	8	9	6						8	1
AF6542-16	88	8	9	8						8	2
AF6543-2	100	6	9	8						5	2
AF6548-4	100	8	9	7						5	2
AF6550-2	100	9	9	6						7	2
AF6550-8	100	9	9	7						5	2
AF6551-3	88	8	9	8						5	2

Table 22 (cont'd). Plant growth and tuber characteristics for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
AF6553-1	88	8	6	7						4	2
AF6553-3	100	6	9	7						5	2
AF6554-5	100	7	9	6						4	2
AF6555-2	88	9	9	9						4	1
AF6558-1	100	9	9	7						6	2
AF6559-3	13	3	9	9						4	3
AF6560-8	100	5	9	8						5	2
AF6562-3	88	5	9	8						6	1
AF6562-6	50	2	9	9						5	3
AF6563-11	100	8	6	7						8	3
AF6563-12	100	6	9	7						5	2
AF6565-1	75	4	9	9						5	3
AF6565-3	100	7	9	7						4	2
AF6566-1	100	4	9	9						5	1
AF6566-7	100	8	9	5						6	3
AF6568-2	88	8	9	8						7	2
AF6569-3	100	9	9	6						4	1
AF6570-3	100	9	6	7						4	2
AF6571-5	100	7	9	9						5	1
AF6572-3	88	9	9	6						4	2
AF6574-1	88	7	9	9						5	2
AF6574-7	38	2	9	9						4	3
AF6577-2	88	6	9	8						6	3
AF6578-4	88	4	9	8						6	3
AF6579-4	100	7	9	8						6	2
AF6582-5	100	6	9	8						6	1
AF6584-1	100	4	9	8						6	1
AF6589-1	100	8	9	7						7	3
AF6589-4	100	7	9	7						5	4
AF6591-2	100	8	9	6						6	3

Table 22 (cont'd). Plant growth and tuber characteristics for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
AF6593-2	75	4	9	9						5	2
AF6594-4	75	5	9	5						5	3
AF6594-6	75	6	9	7						4	3
AF6595-2	88	9	9	6						4	2
AF6595-8	88	7	9	8						6	2
AF6591-1	100	7	9	7						6	2
AF6598-5	88	5	9	8						4	3
AF6598-6	100	8	9	8						5	2
AF6598-7	100	8	9	8						6	3
AF6599-2	100	6	9	7						8	1
AF6599-10	88	5	9	7						7	3
AF6600-1	88	8	9	7						8	2
AF6600-3	63	3	9	9						5	3
AF6602-2	88	8	9	7						4	4
AF6602-3	100	9	9	6						5	2
AF6607-1	63	3	9	9						7	2
AF6607-3	100	8	9	6						7	3
AF6608-2	88	9	6	7						6	2
AF6608-4	88	7	9	8						8	2
AF6611-2	100	8	9	7						5	2
AF6614-4	100	8	9	8						5	2
AF6616-1	100	7	9	8						5	1
AF6616-4	88	7	9	9						4	1
WAF16092-5	100	9	9	6						4	3
WAF16094-3	88	8	9	9						5	1
WAF16098-13	100	6	9	8						5	1
WAF16100-9	100	8	9	8						5	2
WAF16100-13	88	6	9	8						4	4
WAF16100-19	100	9	6	6						4	4
WAF16101-6	88	5	9	8						5	2

Table 22 (cont'd). Plant growth and tuber characteristics for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
WAF16102-3	100	8	9	8						4	3
WAF16103-3	100	7	9	9						4	2
WAF16120-2	100	8	9	7						5	1
WAF16128-5	100	6	9	8						4	1
WAF16137-3	100	8	9	6						4	4
WAF16220-1	75	8	9	8						5	3
WAF16220-4	100	8	9	8						4	3
NDAF1480Y-4	100	6	9	9						5	2
NDAF1487-1	100	9	6	8						6	3
NDAF1488-3	100	6	9	8						7	2
NDAF1489-1	100	8	9	6						5	3
NDAF1489-3	100	9	6	5						4	3
NDAF1489-4	100	7	9	5						4	2
NDAF14132Y-1	100	7	9	7						7	3
AF6601-2	88	6	9	7						8	2

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 8 for 5.33 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.

Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 23. External and internal defects for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Red LaSoda	9	0	0	0	9	0	0	0	0	0	0
Atlantic	0	0	0	0	0	0	0	0	0	0	0
Peter Wilcox (B1816-5)	4	0	0	8	12	0	0	0	0	0	0
Soraya	0	0	0	0	0	0	0	0	0	0	0
Satina	0	0	0	12	12	0	0	0	0	0	0
Snowden	0	0	0	0	0	0	0	0	0	0	0
Dark Red Norland	11	0	0	12	23	0	0	0	0	0	0
All Blue	4	0	0	0	4	0	0	0	0	0	0
Katahdin	0	0	0	3	3	0	0	0	0	0	0
AF6499-3	0	0	4	0	4	0	0	0	0	0	0
AF6517-6	4	0	0	7	11	0	0	0	0	0	0
AF6522-1	0	0	0	0	0	0	0	0	0	0	0
AF6524-3	2	0	9	0	11	0	0	0	0	0	0
AF6526-1	3	0	16	0	18	0	5	0	0	0	0
AF6526-3	0	0	3	3	5	0	0	0	0	0	0
AF6526-7	0	0	0	2	2	0	0	0	0	0	0
AF6527-3	5	0	8	0	12	0	0	0	0	0	0
AF6529-4	10	0	10	0	20	0	0	0	0	0	0
AF6530-5	0	3	10	7	20	0	0	0	0	0	0
AF6530-7	8	0	0	24	32	0	0	0	0	0	0
AF6537-4	2	0	0	2	4	0	0	0	0	0	0
AF6541-1	0	3	2	4	9	0	0	0	0	0	0
AF6541-3	0	0	4	4	9	0	0	0	0	0	0
AF6541-15	3	0	0	4	7	0	0	0	0	0	0
AF6542-16	2	5	10	0	18	0	0	0	0	0	0
AF6543-2	2	0	8	0	9	0	0	0	0	0	0
AF6548-4	0	0	4	6	10	0	0	0	0	0	0
AF6550-2	8	0	0	4	12	0	0	0	0	0	0
AF6550-8	5	0	9	0	14	0	0	0	0	0	0
AF6551-3	6	0	0	7	12	0	0	0	0	0	0

Table 23 (cont'd). External and internal defects for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
AF6553-1	0	8	1	6	15	0	0	0	0	0	0
AF6553-3	3	14	3	0	19	0	0	0	0	0	0
AF6554-5	3	0	2	7	11	0	0	0	0	0	0
AF6555-2	1	0	1	0	3	0	0	0	0	0	0
AF6558-1	11	0	1	14	26	0	0	0	0	0	0
AF6559-3	12	0	0	3	15	0	0	0	0	0	0
AF6560-8	0	0	9	0	9	0	0	0	0	0	0
AF6562-3	4	3	2	1	9	0	0	0	0	0	0
AF6562-6	0	0	14	3	17	0	0	0	0	0	0
AF6563-11	0	0	7	10	17	0	15	0	0	0	0
AF6563-12	0	8	4	2	13	0	0	0	0	0	0
AF6565-1	14	0	7	0	21	0	0	0	0	0	0
AF6565-3	0	0	0	0	0	0	0	0	0	0	0
AF6566-1	0	2	1	5	8	0	0	0	0	0	0
AF6566-7	4	0	4	8	17	0	0	0	0	0	0
AF6568-2	0	0	1	10	11	0	0	0	0	0	5
AF6569-3	0	0	5	2	7	0	0	0	0	0	0
AF6570-3	0	0	9	0	9	0	0	0	0	0	0
AF6571-5	0	0	8	1	9	0	0	0	0	0	0
AF6572-3	0	3	0	2	5	0	0	0	0	0	0
AF6574-1	5	0	4	1	10	0	0	0	0	0	0
AF6574-7	6	0	0	3	10	0	0	0	0	0	10
AF6577-2	0	8	16	2	26	0	0	0	0	0	0
AF6578-4	0	7	8	0	15	0	0	0	0	0	0
AF6579-4	0	2	5	10	18	0	0	0	0	0	0
AF6582-5	0	0	3	0	3	0	0	0	0	0	0
AF6584-1	0	0	4	5	8	0	0	0	0	0	0
AF6589-1	4	20	0	0	24	0	0	0	0	0	0
AF6589-4	0	13	16	1	30	0	0	0	0	0	0
AF6591-2	1	0	4	29	34	0	0	0	0	0	0

Table 23 (cont'd). External and internal defects for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
AF6593-2	0	0	5	0	5	0	0	0	0	0	20
AF6594-4	0	0	6	0	6	0	0	0	0	0	0
AF6594-6	2	0	10	0	13	0	0	0	0	0	0
AF6595-2	1	0	0	0	1	0	0	0	0	0	0
AF6595-8	2	0	10	7	19	0	0	0	0	0	0
AF6591-1	0	2	2	2	6	0	0	0	0	0	0
AF6598-5	4	3	13	4	24	0	0	0	0	0	5
AF6598-6	0	0	9	5	14	0	0	0	0	0	0
AF6598-7	0	0	5	5	10	0	0	0	0	0	0
AF6599-2	0	4	0	5	9	0	0	0	0	0	0
AF6599-10	6	0	7	0	13	0	10	0	0	0	0
AF6600-1	0	0	1	2	3	0	10	0	0	0	0
AF6600-3	0	0	3	3	6	0	0	0	0	0	0
AF6602-2	0	13	5	6	24	0	0	0	0	0	0
AF6602-3	0	0	5	0	5	0	0	0	0	0	0
AF6607-1	11	0	3	0	13	0	0	0	0	0	0
AF6607-3	0	4	4	3	11	0	0	0	0	0	0
AF6608-2	6	0	0	6	12	0	0	0	0	0	0
AF6608-4	0	0	13	2	14	0	0	0	0	0	0
AF6611-2	0	0	2	7	9	0	0	0	0	0	0
AF6614-4	0	0	4	8	12	0	0	0	0	0	0
AF6616-1	0	0	7	1	9	0	0	0	0	0	0
AF6616-4	0	2	2	3	8	0	0	0	0	0	0
WAF16092-5	0	3	0	7	10	0	0	0	0	0	0
WAF16094-3	3	2	0	1	6	0	0	0	0	0	0
WAF16098-13	0	0	0	0	0	0	0	0	0	0	0
WAF16100-9	9	0	7	0	16	0	5	0	0	0	0
WAF16100-13	2	0	12	7	21	0	0	0	0	0	0
WAF16100-19	29	0	5	0	34	0	0	0	0	0	0
WAF16101-6	0	0	4	1	5	0	0	0	0	0	0

Table 23 (cont'd). External and internal defects for the 2019 University of Maine Early Generation Round Whites Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
WAF16102-3	2	18	10	0	30	0	5	0	0	0	0
WAF16103-3	10	0	3	0	13	0	0	0	0	0	0
WAF16120-2	0	0	2	3	6	0	0	0	0	0	0
WAF16128-5	3	0	6	0	9	0	0	0	0	0	0
WAF16137-3	50	0	0	24	74	0	0	0	0	0	0
WAF16220-1	14	0	0	0	14	0	20	0	0	0	0
WAF16220-4	15	0	3	5	23	0	10	0	0	0	0
NDAF1480Y-4	0	3	0	6	9	0	0	0	0	0	0
NDAF1487-1	8	0	3	7	18	0	0	0	0	0	0
NDAF1488-3	3	0	6	3	12	0	0	0	0	0	0
NDAF1489-1	0	0	0	11	11	0	0	0	0	0	0
NDAF1489-3	2	6	2	0	10	0	0	0	0	0	0
NDAF1489-4	0	1	0	2	3	0	0	0	0	0	0
NDAF14132Y-1	6	0	5	0	11	0	0	0	0	0	0
AF6601-2	0	0	4	4	8	0	0	0	0	0	0

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 9. Potatoes USA National Chip Processing Trial

General Comments

In the past, many selections from breeding programs may have been eliminated before they had an opportunity to be evaluated in many locations. This study has been set up to evaluate the earliest selections from public breeding programs. These selections are also evaluated in several other locations across the United States. Clones that perform the best at multiple locations are then compared and kept for further evaluation. This trial is supported by Potatoes USA, formerly the United States Potato Board.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 7, 2019
Vine Kill Date	N/A
Harvest Date	May 15, 2019
Season Length	97 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	4 (Standard: Atlantic)
Number of Clones	129
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	1 replication for Tier 1 & 2 replications for Tier 2
Plot Size	10 ft (3.0 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	AF6024-1 (536 cwt/acre or 60.1 T/ha)
Highest Marketable Yield	B2904-2 (419 cwt/acre or 47.0 T/ha)
Highest Specific Gravity	BNC726-5 (1.092)

Table 24. Production statistics for the 2019 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–97 days												
Atlantic	371	314	100	3	6	70	17	4	0	91	21	1.083
Lamoka	329	264	84	2	11	73	7	7	0	87	14	1.079
Pike	306	258	82	4	6	67	12	11	0	91	23	1.082
Snowden	339	257	82	5	18	65	9	2	0	77	12	1.080
Tier 1 = 1 rep												
AC11453-7W	278	186	59	6	13	60	14	0	7	74	14	1.084
AC11494-6W	298	231	74	3	10	84	0	3	0	88	3	1.085
CO12235-3W	291	212	68	5	14	70	8	4	0	82	12	1.080
CO12293-1W	420	335	107	3	7	68	19	3	0	90	22	1.078
CO12428-2W	181	84	27	21	23	52	4	0	0	56	4	1.074
B3306-2	188	104	33	7	29	64	0	0	0	64	0	1.086
B3317-1	297	209	67	3	9	73	3	11	0	88	15	1.079
BNC726-5	326	249	79	3	18	73	5	0	0	78	5	1.092
BNC742-2	198	117	37	8	29	59	4	0	0	63	4	1.077
AF5933-4	382	276	88	4	7	75	8	6	0	89	14	1.083
AF5960-4	368	315	100	2	5	59	20	13	0	92	33	1.088
AF5973-3	265	217	69	3	8	80	9	0	0	89	9	1.089
AF5975-1	325	296	95	2	7	80	11	0	0	91	11	1.084
AF6024-1	536	364	116	7	17	75	1	0	0	76	1	1.075
AF6030-1	285	236	75	4	9	61	16	9	0	86	25	1.089
AF6031-2	.	.	.	.	.	.	.	.	.	.	.	.
AF6034-1	326	229	73	5	17	76	3	0	0	79	3	1.081
AF6036-1	361	260	83	3	10	87	0	0	0	87	0	1.084
NDAF14477C-2	289	209	67	9	10	74	3	5	0	81	7	1.091
NDAF14477C-7	222	123	39	12	24	0	64	0	0	64	64	1.086
WAF14067-6	306	232	74	3	16	74	5	2	0	81	7	1.081
AF6188-9	191	124	40	10	19	71	0	0	0	71	0	1.085
AF6192-3	393	317	101	4	9	69	7	12	0	87	18	1.067
AF6200-4	327	279	89	3	5	70	12	10	0	92	22	1.091
AF6232-1	415	324	103	3	10	69	18	0	0	88	18	1.078

Table 24 (cont'd). Production statistics for the 2019 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
AF6241-4	263	171	54	9	23	68	0	0	0	68	0	1.079
AF6243-10	298	197	63	5	17	71	6	0	0	77	6	1.087
WAF15195-3	347	240	77	8	16	72	4	0	0	76	4	1.082
WAF15133-3	287	180	58	3	4	68	11	13	0	92	24	1.078
MSAA036-03	297	248	79	2	7	84	0	7	0	91	7	1.082
MSAA072-04	403	305	97	6	14	71	4	5	0	81	9	1.075
MSAA091-01	207	133	42	8	7	85	0	0	0	85	0	1.074
MSAA100-01	252	157	50	10	15	68	4	4	0	75	8	1.075
MSAA217-3	396	328	105	0	4	78	7	10	0	96	17	1.079
MSAA240-06	338	252	80	2	8	75	15	0	0	90	15	1.090
MSAA275-03	311	275	88	2	7	72	10	9	0	91	18	1.071
MSAA290-02	359	262	83	1	5	80	10	3	0	94	14	1.083
MSAA309-15	249	157	50	8	12	67	8	5	0	80	13	1.078
MSAA311-1	301	212	68	4	14	76	6	0	0	83	6	1.082
MSAA313-01	413	327	104	5	7	55	16	17	0	88	33	1.082
MSAA328-04	397	333	106	2	4	63	14	17	0	94	32	1.087
MSAA342-11Y	361	258	82	4	10	59	14	13	0	86	27	1.074
MSAA498-18	261	216	69	3	6	66	12	13	0	91	25	1.084
MSAA513-01	338	220	70	3	19	68	3	8	0	79	11	1.087
MSBB008-03	.	.	.	.	.	.	.	.	.	.	.	.
MSBB058-01	188	110	35	7	23	65	5	0	0	70	5	1.065
MSBB060-01	361	254	81	3	7	42	33	16	0	90	49	1.070
MSBB067-02	309	237	76	3	7	83	3	4	0	90	7	1.082
MSBB131-01	275	215	68	4	11	63	11	11	0	84	22	1.078
MSBB152-01	437	315	101	4	20	72	4	0	0	76	4	1.079
MSBB166-01	312	223	71	4	13	78	3	3	0	83	5	1.079
MSBB193-01	319	234	74	5	12	70	8	5	0	83	13	1.084
MSBB230-01	194	116	37	10	20	57	9	5	0	70	14	1.079
MSBB610-13	348	297	95	1	3	53	26	16	0	95	42	1.077
MSBB611-03	322	263	84	4	12	76	8	0	0	84	8	1.079

Table 24 (cont'd). Production statistics for the 2019 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
MSBB613-04	327	250	80	5	14	75	7	0	0	81	7	1.074
MSBB614-10	451	350	112	4	14	68	9	5	0	82	13	1.077
MSBB617-02	291	218	70	5	11	77	6	0	0	83	6	1.088
MSBB618-02	367	267	85	4	8	62	20	7	0	88	27	1.078
MSBB618-09	291	208	66	5	9	60	16	11	0	86	26	1.077
MSBB623-12	164	91	29	10	25	65	0	0	0	65	0	1.076
MSBB625-02	143	47	15	13	34	53	0	0	0	53	0	1.089
MSBB626-11	320	237	76	0	14	73	0	13	0	86	13	1.086
MSBB631-04	279	235	75	3	8	69	11	8	0	89	19	1.083
MSBB633-18	388	348	111	2	5	77	11	4	0	93	16	1.082
MSBB636-11	304	212	68	6	15	79	0	0	0	79	0	1.080
MSCC129-02	387	322	103	2	3	67	17	12	0	96	29	1.075
MSCC129-04	274	213	68	3	12	81	4	0	0	85	4	1.086
MSCC246-07	383	279	89	3	10	69	2	16	0	87	18	1.069
MSCC248-02	.	.	.	.	.	.	.	.	.	.	.	.
MSCC248-03	466	330	105	3	9	72	7	9	0	88	16	1.086
MSCC256-02	279	196	63	4	16	70	5	6	0	81	10	1.076
NC475-3	293	162	52	10	27	63	0	0	0	63	0	1.077
ND13217C-1	198	73	23	19	27	55	0	0	0	55	0	1.087
ND13219C-4	313	192	61	12	26	62	0	0	0	62	0	1.090
ND13220C-3	356	232	74	9	21	65	5	0	0	70	5	1.084
ND13221C-3	273	200	64	8	16	70	0	7	0	77	7	1.069
ND124C-1	266	151	48	10	23	67	0	0	0	67	0	1.082
ND113307C-3	343	221	71	8	19	73	0	0	0	73	0	1.078
NYQ23-4	307	233	74	7	10	81	2	0	0	83	2	1.080
NYQ29-1	241	195	62	5	4	68	16	6	0	91	22	1.074
NYQ29-2	274	170	54	8	23	70	0	0	0	70	0	1.082
NYQ36-6	215	155	50	3	19	78	0	0	0	78	0	1.082
NYQ37-1	266	222	71	5	7	78	6	3	0	88	9	1.083
NYQ38-4	276	193	62	2	20	71	3	4	0	78	7	1.083

Table 24 (cont'd). Production statistics for the 2019 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
NYQ106-13	296	135	43	12	22	55	10	0	0	66	10	1.082
NYORQ2-2	341	307	98	3	3	94	0	0	0	94	0	1.086
NYORQ6-3	268	198	63	4	3	67	9	10	7	86	19	1.074
NYORQ6-6	387	312	100	4	11	50	23	12	0	85	35	1.077
NYORN6-8	368	291	93	2	14	78	2	5	0	85	7	1.085
NYORN18-1	354	292	93	1	6	23	37	32	0	93	69	1.067
NYORN41-5	389	333	106	5	7	68	12	9	0	88	21	1.082
NDTX12135-1W	251	177	57	6	15	76	3	0	0	79	3	1.085
NDTX14362AB-1W	244	204	65	6	4	62	14	14	0	90	28	1.080
Tier 2 = 2 reps												
CO11023-2W	346	278	89	2	9	70	13	5	0	89	19	1.078
CO11023-9W	379	299	95	3	7	69	14	8	0	91	22	1.078
CO11037-5W	339	257	82	4	12	76	7	1	0	84	8	1.080
A11516-1C	360	292	93	4	10	83	3	0	0	87	3	1.070
B2904-2	509	419	134	2	10	72	5	11	0	88	16	1.080
B3012-1	300	228	73	6	11	78	3	1	0	82	4	1.080
BNC549-1	282	147	47	8	26	64	1	0	0	65	1	1.086
B3296-3	408	305	97	4	8	48	21	20	0	88	41	1.082
MSAFB605-4	500	378	121	5	14	77	4	0	0	81	4	1.082
MSAFB609-5	397	309	99	5	10	78	7	0	0	84	7	1.085
MSAFB635-3	310	231	74	5	15	70	9	2	0	81	11	1.085
MSAFB635-15	355	294	94	4	9	69	10	9	0	88	19	1.091
AF6037-2	294	248	79	4	7	78	8	4	0	89	11	1.082
MSAA373-3	280	192	61	7	12	76	3	2	0	80	4	1.088
MSAA036-09	318	229	73	5	10	69	9	8	0	85	17	1.075
MSAA036-10	300	241	77	5	11	82	1	1	0	85	2	1.079
MSAA038-09Y	346	268	86	3	14	70	3	10	0	83	13	1.073
MSAA076-04	317	183	58	14	28	56	1	0	0	57	1	1.075
MSAA241-01	330	267	85	3	5	82	1	8	0	92	9	1.080
MSAA252-07	377	285	91	5	9	74	9	3	0	86	12	1.079

Table 24 (cont'd). Production statistics for the 2019 Potatoes USA National Chip Processing Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
MSAA254-04	423	353	112	4	7	66	11	12	0	90	23	1.083
MSAA260-03	394	315	101	4	9	69	8	10	0	88	18	1.076
MSAA324-04	303	200	64	4	18	75	3	0	0	78	3	1.082
MSAA678-01	284	187	60	8	19	67	6	0	0	73	6	1.081
ND1328YABC-1	275	149	47	14	26	54	3	4	0	60	7	1.076
NY166	404	305	97	3	11	72	7	7	0	86	14	1.081
NY168	380	280	89	7	12	75	3	2	0	81	6	1.083
NYP14-1	317	229	73	10	16	74	0	0	0	74	0	1.084
NYP19-2	238	168	54	9	14	75	2	0	0	77	2	1.083
NYP111-9	228	138	44	10	22	69	0	0	0	69	0	1.087
AOR12197-4	360	230	73	7	18	66	4	6	0	75	9	1.078
NYOR14Q9-5	447	387	123	1	8	54	19	18	0	91	37	1.072
NYOR14Q9-9	306	211	67	9	17	68	5	1	0	74	6	1.079
COOR13270-2	241	169	54	5	20	69	5	0	0	74	5	1.071
NDTX1246-5W/Y	264	162	52	11	19	57	9	5	0	70	14	1.084

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

Table 25. Plant growth and tuber characteristics for the 2019 Potatoes USA National Chip Processing Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]								
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	SFA Chip Score	SED Score	Merit
Atlantic	93	8	9	7	2	6	5	2	3	7	1.2	2	1
Lamoka	83	8	9	8	2	8	6	3	5	6	1.1	1	2
Pike	73	7	9	9	2	8	8	3	3	7	1.4	1	2
Snowden	98	8	9	6	2	7	6	2	4	6	1.0	1	2
Tier 1 = 1 rep													
AC11453-7W	87	8	6	5	2	8	6	2	5	7	1.0	1	2
AC11494-6W	93	7	9	6	2	7	5	2	5	6	1.5	1	2
CO12235-3W	80	7	9	7	2	9	7	2	5	4	1.5	0	3
CO12293-1W	100	7	9	7	2	9	7	2	6	6	1.0	0	2
CO12428-2W	100	8	9	5	2	5	4	1	7	4	1.0	1	3
B3306-2	93	9	6	5	3	6	6	3	7	6	1.5	1	3
B3317-1	87	5	9	7	1	8	5	2	6	6	1.0	1	3
BNC726-5	93	8	9	6	2	6	6	3	6	6	1.0	0	2
BNC742-2	100	8	9	5	2	7	6	3	6	7	1.5	1	3
AF5933-4	87	7	9	8	3	7	7	2	6	7	2.0	4	2
AF5960-4	73	5	9	8	2	7	7	2	8	8	1.5	1	1
AF5973-3	93	6	9	8	2	8	7	3	6	5	1.0	0	2
AF5975-1	93	7	9	7	2	9	7	3	3	7	2.0	1	1
AF6024-1	80	8	6	7	5	9	7	3	4	7	1.5	1	2
AF6030-1	100	8	9	7	2	9	7	2	5	7	1.5	1	2
AF6031-2	100	8	9	6	.	.	.	.	.	.	.	.	.
AF6034-1	87	6	9	7	3	6	8	1	4	7	1.0	2	2
AF6036-1	93	7	9	8	2	9	6	3	4	7	1.5	1	2
NDAF14477C-2	100	8	9	5	2	9	7	2	6	6	1.5	1	3
NDAF14477C-7	93	8	9	5	2	7	7	2	3	6	1.0	0	3
WAF14067-6	93	8	9	7							1.0	0	2
AF6188-9	47	3	9	9	3	6	5	2	6	6	2.0	3	3
AF6192-3	93	6	9	7	2	9	8	2	5	6	1.5	3	1
AF6200-4	100	8	9	8	2	7	6	2	5	6	1.5	1	1
AF6232-1	87	8	9	6	1	8	7	2	3	7	1.0	2	2

Table 25 (cont'd). Plant growth and tuber characteristics for the 2019 Potatoes USA National Chip Processing Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]								
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	SFA Chip Score	SED Score	Merit
AF6241-4	100	7	9	8	3	9	8	3	5	6	1.5	1	3
AF6243-10	100	6	9	8	2	6	6	1	5	8	1.0	1	3
WAF15195-3	93	6	9	7	2	9	6	2	6	8	1.0	0	2
WAF15133-3	100	8	9	7	1	8	7	2	5	7	1.0	3	4
MSAA036-03	93	7	9	7	2	6	6	2	3	6	1.0	1	2
MSAA072-04	93	8	9	7	2	9	7	2	4	7	1.5	1	1
MSAA091-01	80	8	9	7	2	6	6	3	4	7	1.0	0	4
MSAA100-01	93	7	9	6	2	6	6	4	4	7	1.0	0	3
MSAA217-3	100	8	9	7	1	5	6	4	7	8	1.0	1	2
MSAA240-06	87	9	6	6	2	9	8	3	3	7	1.0	1	2
MSAA275-03	93	8	6	7	2	9	8	2	4	8	1.0	1	1
MSAA290-02	100	7	9	8	3	5	5	3	3	7	1.5	1	3
MSAA309-15	93	8	9	7	2	6	6	1	5	4	1.0	2	4
MSAA311-1	93	7	9	7	2	6	5	3	3	7	1.0	1	3
MSAA313-01	93	7	9	4	2	9	6	4	4	5	1.0	1	2
MSAA328-04	100	8	9	6	2	7	6	2	4	7	1.5	1	2
MSAA342-11Y	93	8	6	6	4	6	4	2	3	7	.	.	2
MSAA498-18	93	8	6	6	2	5	5	2	3	4	1.5	1	2
MSAA513-01	80	8	9	7	2	9	3	3	7	7	1.0	0	2
MSBB008-03	100	7	9	6	.	.	.	.	.	.	.	.	.
MSBB058-01	87	7	9	5	2	6	7	2	5	6	1.0	1	3
MSBB060-01	80	9	9	8	3	5	6	2	6	8	1.0	0	3
MSBB067-02	93	6	9	7	1	8	7	2	5	6	1.0	1	3
MSBB131-01	93	8	6	4	4	6	6	2	5	6	1.5	1	2
MSBB152-01	93	8	9	8	1	6	6	4	2	6	1.0	1	1
MSBB166-01	80	8	6	7	2	6	5	3	4	7	1.5	0	2
MSBB193-01	93	9	9	6	3	5	4	2	3	4	1.5	1	2
MSBB230-01	93	7	9	5	3	5	5	2	3	3	1.5	1	3
MSBB610-13	93	7	9	7	2	7	6	3	3	6	1.0	0	2
MSBB611-03	93	7	6	7	1	8	6	3	7	7	1.5	2	2

Table 25 (cont'd). Plant growth and tuber characteristics for the 2019 Potatoes USA National Chip Processing Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]								
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	SFA Chip Score	SED Score	Merit
MSBB613-04	100	7	9	6	3	5	3	2	6	6	1.0	1	2
MSBB614-10	93	8	9	7	3	6	6	2	3	7	1.5	2	1
MSBB617-02	93	8	9	6	2	7	7	2	3	6	1.5	1	2
MSBB618-02	87	7	9	8	3	4	3	2	3	8	1.0	0	2
MSBB618-09	100	8	9	7	3	9	6	2	2	4	1.0	0	3
MSBB623-12	93	8	9	4	2	6	4	1	4	5	1.5	0	3
MSBB625-02	100	6	9	6	3	5	5	2	7	5	1.5	1	4
MSBB626-11	87	9	9	7	3	8	7	3	2	7	1.0	0	2
MSBB631-04	93	8	6	7	2	6	6	2	5	7	1.0	0	2
MSBB633-18	100	8	9	7	3	6	6	2	3	7	2.0	0	1
MSBB636-11	100	6	9	7	3	7	6	2	4	7	1.0	0	3
MSCC129-02	100	7	9	7	2	7	6	3	3	7	1.5	1	2
MSCC129-04	73	8	9	7	2	6	5	2	5	7	1.5	1	2
MSCC246-07	13	4	9	9	2	5	7	5	5	7	1.5	2	2
MSCC248-02	100	8	9	8	.	.	.	.	.	.	.	.	.
MSCC248-03	100	9	9	7	3	4	3	2	5	8	1.5	1	2
MSCC256-02	93	9	9	6	1	5	2	2	3	4	1.0	0	3
NC475-3	87	8	6	4	1	9	5	2	6	6	1.5	2	3
ND13217C-1	100	8	6	6	1	7	5	4	4	2	1.5	0	4
ND13219C-4	100	9	9	7	1	6	7	2	6	7	1.5	0	2
ND13220C-3	87	8	9	7	2	7	7	2	5	6	1.0	0	2
ND13221C-3	87	8	6	5	9	7	8	4	3	6	1.0	1	2
ND124C-1	93	8	9	5	1	7	7	3	5	7	1.0	1	3
ND113307C-3	100	9	6	5	2	9	6	3	5	7	1.0	0	2
NYQ23-4	80	7	9	7	3	6	6	2	5	6	1.0	0	2
NYQ29-1	80	8	9	7	2	3	4	1	6	5	1.0	0	3
NYQ29-2	100	8	9	7	5	6	5	2	6	6	1.0	0	3
NYQ36-6	87	7	9	8	2	7	7	3	5	4	1.0	0	3
NYQ37-1	20	4	9	9	2	9	7	2	6	6	1.0	0	2
NYQ38-4	100	8	9	7	2	9	8	2	5	7	1.0	2	3

Table 25 (cont'd). Plant growth and tuber characteristics for the 2019 Potatoes USA National Chip Processing Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]								
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	SFA Chip Score	SED Score	Merit
NYQ106-13	73	9	9	7	2	5	5	2	6	6	1.0	0	4
NYORQ2-2	93	8	9	8	2	6	7	2	7	8	1.5	1	1
NYORQ6-3	87	7	9	7	1	7	7	2	3	7	1.0	1	3
NYORQ6-6	93	7	9	8	2	7	7	2	3	7	1.5	2	1
NYORN6-8	93	7	9	5	3	6	6	3	4	6	1.0	1	1
NYORN18-1	87	8	9	8	2	6	6	4	2	7	1.0	1	2
NYORN41-5	87	8	9	8	1	6	6	2	7	7	1.0	0	1
NDTX12135-1W	100	8	9	6	2	7	6	1	6	7	1.0	0	3
NDTX14362AB-1W	100	9	6	6	3	6	5	6	9	8	1.5	0	2
Tier 2 = 2 reps													
CO11023-2W	90	6	9	7	2	7	7	2	5	7	1.0	0	1
CO11023-9W	87	6	9	8	4	7	7	3	5	7	1.8	1	2
CO11037-5W	97	7	9	6	2	7	6	2	4	7	1.3	3	2
A11516-1C	90	7	9	9	3	6	7	3	5	7	1.0	1	1
B2904-2	90	8	9	7	2	8	5	3	5	7	1.3	1	2
B3012-1	93	8	9	6	2	8	7	2	6	7	1.0	1	2
BNC549-1	100	8	9	6	2	8	7	4	6	5	1.0	2	3
B3296-3	87	8	9	8	1	9	7	3	5	7	1.5	3	2
MSAFB605-4	93	6	9	8	4	6	6	3	6	8	1.0	0	1
MSAFB609-5	87	9	9	7	2	9	8	3	5	8	1.5	1	2
MSAFB635-3	90	8	9	7	2	7	7	3	5	7	1.3	1	2
MSAFB635-15	100	7	9	9	4	6	6	2	3	6	1.3	1	1
AF6037-2	87	4	9	8	2	7	6	2	4	7	1.0	1	1
MSAA373-3	90	8	9	8	4	6	4	2	5	6	1.0	0	3
MSAA036-09	93	6	9	7	2	5	5	2	2	5	1.0	2	2
MSAA036-10	97	8	9	6	3	8	6	2	4	7	1.0	0	2
MSAA038-09Y	87	7	9	8	3	6	5	2	6	8	1.0	0	1
MSAA076-04	100	8	9	7	3	6	4	3	6	6	1.0	1	2
MSAA241-01	90	9	8	6	2	8	7	2	4	7	1.3	1	2
MSAA252-07	97	9	9	7	2	7	7	2	6	7	1.3	2	2

Table 25 (cont'd). Plant growth and tuber characteristics for the 2019 Potatoes USA National Chip Processing Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]								
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	SFA Chip Score	SED Score	Merit
MSAA254-04	97	9	9	7	2	8	7	2	3	7	1.3	1	2
MSAA260-03	97	9	9	6	2	8	7	4	5	6	1.5	2	1
MSAA324-04	83	9	9	6	2	9	7	2	7	5	1.0	1	3
MSAA678-01	90	8	6	5	3	8	7	2	5	7	1.0	0	2
ND1328YABC-1	97	8	6	4	2	8	7	2	7	6	1.3	0	3
NY166	93	8	9	7	1	6	6	3	4	6	1.3	1	2
NY168	77	8	9	7	2	8	7	3	6	5	1.0	1	2
NYP14-1	87	8	9	6	5	8	7	2	5	6	1.0	2	2
NYP19-2	90	8	9	7	2	8	7	3	6	6	1.0	0	3
NYP111-9	93	8	6	7	3	8	5	3	4	6	1.0	0	3
AOR12197-4	97	8	9	7	3	7	5	2	5	7	1.8	1	3
NYOR14Q9-5	93	8	9	8	2	9	7	2	5	7	1.0	1	1
NYOR14Q9-9	93	8	8	7	2	7	7	2	7	7	1.0	1	2
COOR13270-2	83	8	9	6	3	8	7	4	5	7	1.5	3	2
NDTX1246-5W/Y	90	8	6	6	4	7	6	2	6	7	1.5	1	3

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 15 for 10 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.

SFA Chip Score: Snack Food Association Scale (out of the field) Ratings 1-5: 1 = no defects, exceptionally bright, 2 = excellent, bright, 3 = good, light or golden, 4 = dark defects, marginal, 5 = not acceptable.

SED Score: Stem End Defect, based on Paul Bethke's (USDA/UWisconsin - Madison) 0-5 scale: 0 = no SED, 3 = significant SED, 5 = severe SED.

Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 26. External and internal defects for the 2019 Potatoes USA National Chip Processing Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Atlantic	1	0	4	2	7	0	0	0	0	0	0
Lamoka	1	0	3	4	8	0	0	0	0	0	0
Pike	0	1	5	1	7	0	0	0	0	0	0
Snowden	1	0	2	1	4	0	0	0	0	0	0
Tier 1 = 1 rep											
AC11453-7W	1	0	0	8	9	0	0	0	0	0	0
AC11494-6W	0	0	0	11	11	0	0	0	0	0	0
CO12235-3W	4	0	1	6	11	0	0	0	0	0	0
CO12293-1W	10	0	1	1	11	0	0	0	0	0	0
CO12428-2W	7	0	5	4	17	0	0	0	0	0	0
B3306-2	5	0	2	6	13	0	0	0	0	0	0
B3317-1	8	0	2	10	20	0	0	0	0	0	0
BNC726-5	1	0	1	1	3	0	0	0	0	0	0
BNC742-2	0	0	6	0	6	0	0	0	0	0	0
AF5933-4	6	0	1	12	19	0	0	0	0	0	0
AF5960-4	5	0	1	2	7	0	0	0	0	0	0
AF5973-3	3	2	2	2	8	0	0	0	0	0	0
AF5975-1	0	0	0	0	0	0	0	0	0	0	0
AF6024-1	2	0	6	3	11	0	0	0	0	0	5
AF6030-1	2	0	2	0	4	0	0	0	0	0	0
AF6031-2	.	.	.	.	.	.	.	.	.	.	.
AF6034-1	1	0	4	6	11	0	0	0	0	0	0
AF6036-1	11	0	2	3	17	0	0	0	0	0	0
NDAF14477C-2	0	0	4	7	11	0	0	0	0	0	0
NDAF14477C-7	6	0	1	6	13	0	0	0	0	0	0
WAF14067-6	3	0	2	0	6	0	0	0	0	0	0
AF6188-9	2	0	6	0	8	0	0	0	0	0	0
AF6192-3	0	0	5	2	8	0	0	0	0	0	0
AF6200-4	0	0	1	6	7	0	0	0	0	0	0
AF6232-1	0	0	6	6	11	0	0	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2019 Potatoes USA National Chip Processing Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
AF6241-4	2	0	0	3	4	0	0	0	0	0	0
AF6243-10	0	0	9	6	15	0	0	0	0	0	0
WAF15195-3	0	0	0	9	9	0	0	0	0	0	0
WAF15133-3	4	0	2	26	32	0	0	0	0	0	0
MSAA036-03	3	2	2	1	8	0	0	0	0	0	0
MSAA072-04	0	0	4	2	6	0	0	0	0	0	0
MSAA091-01	6	0	15	3	24	0	0	0	0	0	0
MSAA100-01	10	0	7	0	17	0	0	0	0	0	0
MSAA217-3	0	1	7	5	13	0	0	0	0	0	0
MSAA240-06	14	0	2	2	17	0	0	0	0	0	0
MSAA275-03	1	0	0	1	2	0	0	0	0	0	0
MSAA290-02	12	0	9	1	22	0	0	0	0	0	0
MSAA309-15	10	0	5	6	21	0	10	0	0	0	0
MSAA311-1	5	0	3	7	15	0	0	0	0	0	0
MSAA313-01	1	0	3	6	10	0	0	0	0	0	0
MSAA328-04	3	0	2	6	11	0	0	0	0	0	0
MSAA342-11Y	2	0	11	3	16	0	0	0	0	0	0
MSAA498-18	5	0	2	2	9	0	0	0	0	0	0
MSAA513-01	3	0	8	7	18	0	0	0	0	0	0
MSBB008-03	.	.	.	.	.	.	.	.	.	.	.
MSBB058-01	5	0	0	12	17	0	0	0	0	0	0
MSBB060-01	6	2	12	4	22	0	0	0	0	0	0
MSBB067-02	7	0	6	1	14	0	0	0	0	5	0
MSBB131-01	2	0	2	4	8	0	0	0	0	0	0
MSBB152-01	0	0	0	6	6	0	0	0	0	0	0
MSBB166-01	0	2	6	6	14	0	0	0	0	0	0
MSBB193-01	3	2	5	1	12	0	0	0	0	0	0
MSBB230-01	0	0	11	3	14	0	0	0	0	0	0
MSBB610-13	0	0	11	0	11	0	0	0	0	0	0
MSBB611-03	0	0	2	1	3	0	0	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2019 Potatoes USA National Chip Processing Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
MSBB613-04	0	0	4	2	6	0	0	0	0	0	0
MSBB614-10	0	0	4	1	5	0	0	0	0	0	0
MSBB617-02	5	0	2	4	10	0	0	0	0	0	0
MSBB618-02	0	0	14	3	18	0	0	0	0	0	0
MSBB618-09	0	7	6	4	17	0	0	0	0	0	0
MSBB623-12	2	0	12	0	14	0	0	0	0	0	0
MSBB625-02	0	0	38	0	38	0	0	0	0	0	0
MSBB626-11	0	0	1	13	14	0	0	0	0	0	0
MSBB631-04	0	0	3	2	5	0	0	0	0	0	0
MSBB633-18	0	0	4	0	4	0	0	0	0	0	0
MSBB636-11	0	0	4	8	12	0	0	0	0	0	0
MSCC129-02	2	0	2	9	13	0	0	0	0	0	0
MSCC129-04	1	0	7	1	8	0	0	0	0	0	0
MSCC246-07	3	0	12	1	16	0	0	0	0	0	0
MSCC248-02	.	.	.	.	.	.	.	.	.	.	.
MSCC248-03	10	0	5	4	19	0	0	0	0	0	0
MSCC256-02	0	0	10	2	13	0	0	0	0	0	0
NC475-3	9	0	2	1	12	0	0	0	0	0	0
ND13217C-1	29	0	0	3	32	0	0	0	0	0	0
ND13219C-4	1	0	0	0	1	0	0	0	0	0	0
ND13220C-3	0	3	0	4	7	0	0	0	0	0	0
ND13221C-3	0	2	1	2	5	0	0	0	0	0	0
ND124C-1	0	0	7	8	16	0	0	0	0	0	0
ND113307C-3	1	0	3	7	11	0	0	0	0	0	0
NYQ23-4	0	0	3	6	9	0	0	0	0	0	0
NYQ29-1	0	0	3	8	11	0	0	0	0	0	0
NYQ29-2	0	0	8	3	11	0	0	0	0	0	0
NYQ36-6	0	0	4	4	7	0	5	0	0	0	0
NYQ37-1	0	0	5	0	5	0	0	0	0	0	0
NYQ38-4	0	0	3	7	10	0	0	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2019 Potatoes USA National Chip Processing Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
NYQ106-13	0	0	4	27	31	0	0	0	0	0	0
NYORQ2-2	0	0	1	3	4	0	0	0	0	0	0
NYORQ6-3	2	0	5	7	14	0	0	0	0	0	0
NYORQ6-6	1	3	0	1	5	0	0	0	0	0	0
NYORN6-8	0	0	1	5	7	0	0	0	0	0	0
NYORN18-1	7	0	3	1	11	0	0	0	0	0	0
NYORN41-5	0	1	2	0	3	0	0	0	0	0	0
NDTX12135-1W	1	0	6	3	11	0	0	0	0	0	0
NDTX14362AB-1W	5	0	0	2	7	0	0	0	0	0	0
Tier 2 = 2 reps											
CO11023-2W	3	0	3	3	9	0	0	0	0	0	0
CO11023-9W	7	0	3	3	13	0	0	0	0	0	0
CO11037-5W	4	1	1	4	10	0	0	0	0	0	0
A11516-1C	1	0	4	1	6	0	0	0	0	0	0
B2904-2	5	0	2	2	9	0	0	0	0	0	0
B3012-1	4	0	1	3	8	0	0	0	0	0	0
BNC549-1	16	0	1	4	21	0	0	0	0	0	0
B3296-3	2	1	6	6	15	0	0	0	0	0	0
MSAFB605-4	0	0	3	2	6	0	0	0	0	0	0
MSAFB609-5	1	0	3	4	9	0	0	0	0	0	0
MSAFB635-3	0	0	3	4	7	0	0	0	0	0	0
MSAFB635-15	0	0	3	2	5	0	0	0	0	0	0
AF6037-2	1	0	3	2	5	0	0	0	0	0	0
MSAA373-3	1	0	10	3	14	0	0	0	0	0	0
MSAA036-09	4	0	8	3	15	0	0	0	0	0	0
MSAA036-10	2	0	1	2	5	0	0	0	0	0	0
MSAA038-09Y	0	0	4	1	5	0	0	0	0	0	0
MSAA076-04	0	0	3	3	6	0	0	0	0	0	0
MSAA241-01	2	0	2	8	11	0	0	0	0	0	0
MSAA252-07	0	0	1	9	10	0	0	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2019 Potatoes USA National Chip Processing Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
MSAA254-04	0	0	0	9	9	0	0	0	0	0	0
MSAA260-03	0	0	2	7	9	0	0	0	0	0	0
MSAA324-04	3	0	3	9	16	0	0	0	0	0	0
MSAA678-01	0	0	1	4	5	0	0	0	0	0	0
ND1328YABC-1	0	0	1	9	10	0	0	0	0	0	0
NY166	2	1	4	5	12	0	0	0	0	0	0
NY168	2	0	3	8	13	0	0	0	0	0	0
NYP14-1	0	0	1	0	1	0	0	0	0	0	0
NYP19-2	0	0	10	1	10	0	0	0	0	0	0
NYP111-9	0	0	10	2	12	0	0	0	0	0	0
AOR12197-4	8	1	4	4	18	0	0	0	0	0	0
NYOR14Q9-5	1	0	3	1	5	0	0	0	0	0	0
NYOR14Q9-9	0	0	3	8	11	0	0	0	0	0	0
COOR13270-2	2	0	1	4	7	0	0	0	0	0	0
NDTX1246-5W/Y	2	0	5	8	15	0	0	0	0	0	0

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 10. USDA Chipping Potato Variety Trial

General Comments

A goal of the chipping trial is to identify a short-season processing potato variety with better production and quality characteristics than the “standard” Atlantic.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 1, 2019
Vine Kill Date	N/A
Harvest Date	May 10, 2019
Season Length	98 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	Seepage

Experimental Design

Number of Varieties	10 (Standard: Atlantic)
Number of Clones	13
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	4
Plot Size	16 ft (4.9 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	B2904-2 (418 cwt/acre or 46.9 T/ha)
Highest Marketable Yield	BNC182-5 (359 cwt/acre or 40.2 T/ha)
Highest Specific Gravity	BNC426-2 (1.087)

Table 27. Production statistics for the 2019 USDA Chipping Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–98 days												
B3265-7	369	264	85	8	16	45	30	1	0	76	31	1.081
B3265-9	306	213	68	8	20	40	32	1	0	72	33	1.075
B3175-5	300	215	69	6	16	51	26	0	0	78	26	1.078
BNC559-1	325	271	87	4	10	58	27	1	0	86	28	1.073
B2727-2	399	344	110	2	4	28	62	4	0	94	66	1.078
B2834-8	311	253	81	4	10	24	59	3	0	87	62	1.081
B2869-29	317	233	75	9	17	47	26	1	0	75	28	1.084
B2904-2	418	353	113	5	8	26	53	8	0	87	62	1.077
B3083-11	275	228	73	3	6	30	57	3	0	91	61	1.077
B3083-4	375	322	103	2	4	28	58	7	0	93	65	1.073
BNC182-5	417	359	115	4	7	23	58	8	0	89	66	1.075
BNC369-4	327	282	90	2	7	27	60	3	0	90	63	1.078
BNC426-2	297	220	70	6	16	49	28	1	0	78	29	1.087
Atlantic	370	312	100	3	8	35	52	2	0	88	54	1.083
Chieftain	350	306	98	2	5	47	45	2	0	93	46	1.068
Dark Red Norland	289	214	69	7	13	48	31	1	0	79	31	1.064
Harley Blackwell (B0564-8)	273	208	67	7	11	30	48	3	0	81	51	1.078
Katahdin	376	335	107	3	6	48	38	6	0	92	44	1.071
Kennebec	350	304	97	3	6	51	39	0	0	91	39	1.073
Peter Wilcox (B1816-5)	330	281	90	4	9	38	48	0	0	86	48	1.077
Snowden	240	168	54	7	20	45	27	1	0	73	28	1.080
Superior	306	247	79	5	9	42	41	3	0	86	44	1.081
Yukon Gold	282	233	74	4	6	25	63	2	0	90	65	1.079
MSD[3]	70	71		3	6	16	16	ns	ns	9	20	0.006
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.1685	-	<0.0001	<0.0001	<0.0001

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

[3]Means separated within columns by Waller-Duncan K-ratio t Test.

Table 28. Plant growth and tuber characteristics for the 2019 USDA Chipping Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
B3265-7	95	9	7	6	1	7	7	4	6	6	1
B3265-9	96	9	8	5	1	7	7	3	7	7	2
B3175-5	99	8	9	5	1	7	7	2	8	7	2
BNC559-1	98	8	9	5	1	1	9	4	8	7	1
B2727-2	92	8	9	6	1	7	8	3	6	7	1
B2834-8	98	9	7	6	1	7	7	1	8	8	2
B2869-29	96	9	7	5	1	7	7	3	9	9	2
B2904-2	92	9	8	6	1	6	7	3	8	7	1
B3083-11	95	8	9	6	1	7	8	2	7	7	2
B3083-4	91	9	8	6	1	7	7	1	7	7	1
BNC182-5	98	9	6	6	1	7	8	2	8	8	1
BNC369-4	95	9	8	6	1	7	7	2	3	6	1
BNC426-2	95	9	9	6	2	7	7	3	8	7	2
Atlantic	92	9	9	7	2	6	7	3	9	6	-
Chieftain	96	8	9	7	1	2	8	3	7	7	1
Dark Red Norland	96	9	8	4	1	2	9	3	7	7	2
Harley Blackwell (B0564-8)	91	9	8	6	1	6	7	1	7	8	2
Katahdin	98	7	9	6	1	7	7	3	7	6	1
Kennebec	94	9	9	7	1	7	8	6	8	6	1
Peter Wilcox (B1816-5)	92	8	9	5	3	1	8	3	8	8	1
Snowden	96	9	9	6	1	6	6	2	6	7	3
Superior	95	8	9	6	1	6	7	3	7	6	2
Yukon Gold	89	8	9	6	3	7	8	3	7	7	2

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 24 for 16 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.

Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 29. External and internal defects for the 2019 USDA Chipping Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
B3265-7	0	0	3	3	6	0	0	0	0	0	0
B3265-9	1	0	0	3	4	0	0	0	0	1	0
B3175-5	4	0	2	2	8	0	1	0	0	0	0
BNC559-1	1	0	1	1	3	0	0	0	0	0	0
B2727-2	5	0	1	2	8	0	0	0	0	0	0
B2834-8	1	0	1	4	6	0	0	0	0	0	0
B2869-29	0	1	0	4	5	0	0	0	0	0	0
B2904-2	1	0	1	1	4	0	0	0	0	0	0
B3083-11	6	0	2	2	9	0	1	0	0	0	0
B3083-4	5	0	1	2	9	0	0	0	0	0	0
BNC182-5	0	0	1	2	3	0	0	0	0	0	0
BNC369-4	0	0	1	3	4	0	0	0	0	0	0
BNC426-2	2	0	2	3	6	0	0	0	0	0	0
Atlantic	1	0	4	0	5	0	0	0	0	0	0
Chieftain	4	0	1	1	7	0	0	0	0	0	0
Dark Red Norland	2	0	4	1	7	0	0	0	0	0	0
Harley Blackwell (B0564-8)	1	0	3	3	7	0	0	0	0	0	0
Katahdin	0	0	1	1	3	0	0	0	0	0	0
Kennebec	0	0	2	1	4	0	0	0	0	0	0
Peter Wilcox (B1816-5)	0	0	1	0	2	0	0	0	0	0	0
Snowden	0	0	3	1	4	0	0	0	0	0	1
Superior	1	1	3	3	7	0	0	0	0	0	0
Yukon Gold	3	0	5	1	9	0	0	0	0	0	0
MSD[3]	5	ns	2	ns	6	ns	ns	ns	ns	ns	ns
P Value	0.0086	0.6979	0.0007	0.0677	0.0224	-	0.5661	-	-	0.4943	0.4933

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

[3]Means separated within columns by Waller-Duncan K-ratio t Test.

Chapter 11. Potatoes USA SNAC Potato Variety Trial

General Comments

A goal of the SNAC trial is to identify a short-season processing potato variety with better production and quality characteristics than the “standard” Atlantic. Potatoes were fried and chip scores are noted in Table 31.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 7, 2019
Vine Kill Date	N/A
Harvest Date	May 13, 2019
Season Length	95 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	2 (Standard: Atlantic)
Number of Clones	8
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	4
Plot Size	20 ft (6.1 m) x 2

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	MSZ219-14 (418 cwt/acre or 46.9 T/ha)
Highest Marketable Yield	MSZ219-14 (356 cwt/acre or 39.9 T/ha)
Highest Specific Gravity	MSV030-4, MSX540-4 (1.089)

Table 30. Production statistics for the 2019 Potatoes USA SNAC Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–95 days												
AOR09034-3	347	271	87	3	7	26	60	4	0	90	64	1.078
CO10073-7W	289	216	69	5	11	52	31	0	0	84	32	1.079
MSV030-4	261	193	62	5	16	59	20	0	0	79	20	1.089
MSW075-2	323	249	79	5	14	42	38	0	0	81	38	1.077
MSX540-4	335	278	89	3	8	55	33	0	0	89	34	1.089
MSZ219-14	418	356	114	2	4	24	64	6	0	94	70	1.077
ND7519-1	361	310	99	3	6	46	45	1	0	91	46	1.085
NY162	246	186	59	6	11	44	38	2	0	83	39	1.082
Atlantic	360	314	100	2	6	32	59	2	0	92	60	1.084
Snowden	321	260	83	3	13	50	33	0	0	84	34	1.087
MSD[3]	81	73		3	5	12	14	3	ns	6	15	0.011
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	-	<0.0001	<0.0001	0.0009

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

[3]Means separated within columns by Tukey's Studentized Range (HSD) Test.

Table 31. Plant growth and tuber characteristics for the 2019 Potatoes USA SNAC Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]							
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Chip Score	Merit
AOR09034-3	92	9	9	6	1	7	7	2	7	7	71.2	2
CO10073-7W	75	8	9	6	1	7	7	3	8	6	69.4	3
MSV030-4	92	5	9	8	1	6	7	3	8	7	71.0	2
MSW075-2	90	8	9	6	1	7	7	2	8	8	71.6	3
MSX540-4	86	8	9	7	2	6	7	2	7	7	70.2	2
MSZ219-14	88	9	9	8	1	6	7	2	8	8	70.1	1
ND7519-1	88	9	9	6	1	7	7	3	8	7	71.7	2
NY162	88	6	9	7	1	7	7	3	8	7	72.8	2
Atlantic	92	8	9	7	1	6	7	2	8	6	68.0	2
Snowden	95	8	9	6	1	6	6	2	7	7	75.1	2

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 30 for 20 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.
Chip Score: A subsample of potatoes from the trial was shipped to Utz Quality Snacks, chipped and scored according to the Hunter Lab rating. Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 32. External and internal defects for the 2019 Potatoes USA SNAC Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
AOR09034-3	5	0	1	8	13	0	0	0	1	0	0
CO10073-7W	5	0	2	4	11	0	0	0	0	0	1
MSV030-4	0	0	4	2	6	0	0	0	1	0	0
MSW075-2	1	0	1	3	5	0	0	0	1	6	0
MSX540-4	1	0	1	5	7	0	0	0	2	9	0
MSZ219-14	2	0	1	6	9	0	1	0	1	0	0
ND7519-1	2	0	2	2	6	0	1	0	1	1	1
NY162	1	1	3	4	9	0	0	0	1	4	0
Atlantic	0	0	3	2	5	0	3	0	2	1	1
Snowden	0	0	2	2	3	0	1	0	0	0	0
MSD[3]	2	1	3	5	7	ns	ns	ns	ns	ns	ns
P Value	<0.0001	0.0200	0.0109	0.0032	0.0004	-	0.1764	-	0.7742	0.3544	0.6683

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

[3]Means separated within columns by Tukey's Studentized Range (HSD) Test.

Chapter 12. NE1731 Regional Project Potato Variety Trial

General Comments

The NE1731 regional project trial is a multi-state potato evaluation program developed to identify and evaluate new and advanced potato clones. The production, adaptation, and performance stability of new potato clones are documented under a wide range of geographic, climatic, soil, and cultural conditions. The University of Maine produces and supplies all cooperators with similar seed.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	February 1, 2019
Vine Kill Date	N/A
Harvest Date	May 10, 2019
Season Length	98 days planting to harvest
Fertilizer Program	Pre-plant, 4-8-4 (50 N 100 P 50 K lb/acre granular); Side-dress, 8-0-8 (100 N 100 K emergence, 50 N 50 K layby lb/acre liquid)
Irrigation Program	seepage

Experimental Design

Number of Varieties	13 (Standard: Atlantic)
Number of Clones	16
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	4
Plot Size	16 ft (4.9 m)

Production Statistics

Early Vigor Ratings	40 DAP
Highest Total Yield	NY151 (435 cwt/acre or 48.8 T/ha)
Highest Marketable Yield	Red LaSoda (370 cwt/acre or 41.5 T/ha)
Highest Specific Gravity	Atlantic (1.086)
Best Appearance Rating	AF5429-3, NY164, NY165 (9, excellent)

Table 33. Production statistics for the 2019 University of Maine NE1231 Variety Trial potato selections.

Clone	Total Yield (cwt/A)	Marketable Yield[1] (cwt/A)	Marketable Yield[1] % of standard	Size Distribution by Class (%)[2] C	B	A1	A2	A3	A4	Size Class Range (%) A1 to A3	Size Class Range (%) A2 to A3	Specific Gravity
Season–98 days												
Harley Blackwell (B0564-8)	295	239	70	6	9	34	49	2	0	85	51	1.078
Red LaSoda	409	370	109	2	3	28	63	4	0	95	67	1.070
Atlantic	385	338	100	3	6	28	61	1	0	91	63	1.086
Chieftain	349	294	87	4	10	51	35	1	0	86	36	1.068
Dark Red Norland	352	286	85	6	9	46	39	0	0	85	39	1.065
Katahdin	310	258	76	4	8	49	38	1	0	89	39	1.070
Kennebec	391	345	102	2	6	53	36	2	0	92	38	1.078
Reveille Russet	288	238	70	3	10	39	45	3	0	87	48	1.067
Russet Burbank	323	188	56	9	16	47	26	2	0	75	28	1.072
Shepody	271	223	66	4	4	58	33	0	0	92	33	1.080
Snowden	299	233	69	5	15	39	40	1	0	80	41	1.079
Superior	260	207	61	4	11	60	25	0	0	85	25	1.078
Yukon Gold	248	201	59	4	7	21	65	4	0	90	68	1.079
AF5040-8	292	241	71	6	11	47	36	1	0	83	36	1.085
AF5280-5	400	362	107	2	4	19	68	7	1	94	75	1.064
AF5412-3	257	184	54	6	16	62	16	0	0	78	16	1.063
AF5429-3	353	276	82	6	10	30	49	4	1	83	53	1.079
AF5563-5	276	245	72	2	5	33	59	1	0	93	60	1.080
AF5677-4	299	232	69	5	11	51	33	0	0	84	33	1.083
AF5677-6	387	330	98	4	8	50	38	0	0	88	38	1.080
NDAF102629C-4	350	283	84	3	11	36	48	2	0	86	50	1.070
NDAF113470C-3	314	258	76	4	12	61	23	0	0	84	23	1.078
NDAF113484B-1	319	237	70	7	18	51	24	0	0	75	24	1.066
NY151	435	357	106	4	9	41	46	1	0	87	46	1.064
NY152	375	299	88	5	13	40	39	2	0	82	41	1.079
NY162	311	246	73	6	11	44	39	0	0	83	39	1.082
NY164	276	206	61	7	16	39	37	0	0	77	37	1.072
NY165	345	259	77	5	14	63	18	0	0	81	18	1.078
WAF10664-3	395	301	89	5	13	35	45	1	0	81	46	1.078
MSD[3]	108	109		5	11	17	23	6	ns	14	23	0.009
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.0006	0.4794	<0.0001	<0.0001	<0.0001

[1]Marketable Yield: size classes A1 to A3.

[2]Size classes: C = 0.5 to 1.5" , B = 1.5 to 1.88", A1 = 1.88 to 2.5", A2 = 2.5 to 3.25", A3 = 3.25 to 4", A4 = >4". Size Class Distribution calculated based on weight using the formula, Class Wt / (Total Yield Wt – Cull Wt) * 100.

[3]Means separated within columns by Tukey's Studentized Range (HSD) Test.

Table 34. Plant growth and tuber characteristics for the 2019 University of Maine NE1231 Variety Trial potato selections.

	Plant Growth Characteristics[1]				Tuber Characteristics[2]						
Clone	% Stand	Early Vigor	Vine Type	Vine Maturity	IFC	SC	ST	TS	ED	APP	Merit
Harley Blackwell (B0564-8)	94	9	9	6	1	6	7	2	7	8	2
Red LaSoda	95	7	9	5	1	2	9	3	4	6	1
Atlantic	97	9	8	6	1	6	4	3	7	7	-
Chieftain	99	8	9	6	1	2	9	3	7	8	1
Dark Red Norland	98	8	8	5	1	2	8	3	7	8	1
Katahdin	95	7	9	6	1	7	8	3	7	6	2
Kennebec	94	8	9	6	1	8	9	5	7	6	1
Reveille Russet	68	4	9	9	1	6	4	6	7	7	2
Russet Burbank	93	6	9	9	1	5	4	6	7	7	3
Shepody	99	7	9	7	1	7	8	6	8	6	3
Snowden	96	9	9	5	1	6	5	1	6	7	2
Superior	96	7	9	6	1	7	6	2	6	6	2
Yukon Gold	89	8	9	5	3	7	9	3	7	8	3
AF5040-8	98	9	9	5	2	8	9	2	7	8	2
AF5280-5	91	9	9	6	1	7	7	3	6	8	1
AF5412-3	97	8	9	6	9	1	9	4	7	7	3
AF5429-3	99	9	8	6	1	7	9	1	8	9	2
AF5563-5	98	7	9	7	2	7	8	2	7	7	2
AF5677-4	95	8	9	6	1	7	8	2	8	7	2
AF5677-6	95	8	9	6	1	7	7	2	6	7	1
NDAF102629C-4	95	9	9	5	1	7	7	2	7	7	2
NDAF113470C-3	97	9	9	5	1	8	8	1	8	8	2
NDAF113484B-1	99	8	9	6	1	2	9	2	6	7	2
NY151	97	8	9	6	2	7	8	2	7	7	1
NY152	95	9	8	7	1	6	7	1	7	7	1
NY162	91	7	9	7	1	7	7	2	7	6	2
NY164	98	9	8	6	1	2	8	1	8	9	2
NY165	97	8	9	6	1	7	8	1	9	9	2
WAF10664-3	95	9	8	6	1	7	7	1	7	8	1

[1]Percent Stand: final stand / number of seeds planted per plot * 100 where number of seeds was 24 for 16 ft plot, 8 in spacing.
Early Vigor, Vine Type, Vine Maturity: see rating system outlined in Table 1.

[2]Internal Flesh Color (IFC), Skin Color (SC), Skin Texture (ST), Tuber Shape (TS), Eye Depth (ED), Overall Appearance (APP): see rating system outlined in Table 2.

Merit Score: 1-4 scale: 1 = outstanding, 2 = good/keep, 3 = marginal, 4 = not acceptable/drop.

Table 35. External and internal defects for the 2019 University of Maine NE1231 Variety Trial potato selections.

	% External Tuber Defects						% Internal Defects[2]				
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	Enlarged Lenticel	HH	BR	CRS	IHN	BC
Harley Blackwell (B0564-8)	0	0	2	5	7	0	0	0	0	0	0
Red LaSoda	0	0	3	1	5	0	0	0	0	0	0
Atlantic	0	0	2	1	3	0	0	0	0	3	0
Chieftain	0	0	3	1	4	0	0	0	0	0	0
Dark Red Norland	0	0	2	2	4	0	0	0	0	0	0
Katahdin	0	1	4	1	6	0	0	0	0	0	0
Kennebec	0	1	2	1	4	0	0	0	0	0	0
Reveille Russet	1	2	1	1	5	0	1	0	1	1	1
Russet Burbank	1	20	2	0	22	0	5	0	0	0	4
Shepody	1	4	2	2	10	0	1	0	0	0	0
Snowden	0	0	2	1	3	0	0	0	0	0	0
Superior	0	1	1	4	6	0	0	0	0	1	1
Yukon Gold	1	0	5	3	10	0	0	0	0	0	0
AF5040-8	0	0	1	0	1	0	0	0	0	0	0
AF5280-5	0	0	2	1	4	0	0	0	0	0	0
AF5412-3	1	5	2	0	8	0	0	0	0	0	0
AF5429-3	1	0	3	3	7	0	0	0	0	0	0
AF5563-5	0	0	3	1	5	0	0	0	0	0	0
AF5677-4	0	2	2	4	8	0	0	0	0	0	0
AF5677-6	0	0	1	2	3	0	1	0	0	0	0
NDAF102629C-4	0	0	0	5	6	0	0	0	0	0	0
NDAF113470C-3	0	0	0	1	1	0	0	0	0	0	0
NDAF113484B-1	0	0	2	1	2	0	0	0	0	0	0
NY151	0	2	3	2	6	0	0	0	0	0	0
NY152	0	0	1	2	3	0	0	0	0	0	0
NY162	1	1	1	1	5	0	0	0	0	0	0
NY164	0	0	1	3	4	0	0	0	0	0	0
NY165	0	0	1	7	7	0	0	0	0	0	0
WAF10664-3	2	0	1	3	6	0	0	0	0	0	0
MSD[3]	ns	7	5	5	9	ns	4	ns	ns	ns	ns
P Value	0.3967	<0.0001	0.0242	0.0002	<0.0001	-	0.0038	-	0.4794	0.4794	0.5472

[1]Percent of Total Yield. Total culls include the sum of growth cracks, misshapen, sunburned and rotten/misc.

[2]Percent tubers hollow heart (HH), brown rot (BR), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

[3]Means separated within columns by Tukey's Studentized Range (HSD) Test.

Appendix 1. Potato Season Weather Data for Northeast Florida

Weather data was obtained from the Florida Automated Weather Network (FAWN). FAWN provides up-to-date weather information through a system of automated weather stations distributed throughout the state of Florida. An automated FAWN weather station is located at the University of Florida/IFAS Hastings AEC Research Farm in Hastings, FL. Current and historical weather data can be obtained for many sites in Florida including Hastings at the FAWN website: http://fawn.ifas.ufl.edu/ .

Table 36. Daily rainfall amounts (in) at the UF/IFAS Hastings AEC Research Farm between Jan. 1 and Jun. 30, 2019.

Day	January	February	March	April	May	June
1	0.00	0.00	0.00	0.41	0.00	0.00
2	0.00	0.00	0.08	0.21	0.04	0.00
3	0.10	0.00	0.01	0.00	0.31	0.00
4	0.41	0.00	0.27	0.00	0.01	0.00
5	0.00	0.00	0.00	0.02	1.20	0.76
6	0.01	0.00	0.00	0.09	0.00	0.02
7	0.00	0.00	0.00	0.00	0.00	0.53
8	0.00	0.01	0.00	0.37	0.00	0.77
9	0.00	0.10	0.00	0.02	0.00	1.43
10	0.00	0.25	0.00	0.00	0.00	0.69
11	0.00	0.20	0.00	0.03	0.00	0.82
12	0.00	0.00	0.00	0.00	0.00	0.22
13	0.00	0.24	0.00	0.00	0.05	0.21
14	0.00	0.00	0.00	0.34	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.01	0.00	0.00	0.27
18	0.00	0.00	0.00	0.00	0.00	0.04
19	0.13	0.02	0.01	0.65	0.00	1.70
20	0.27	0.16	0.01	0.00	0.00	0.35
21	0.01	0.01	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.32
23	0.00	0.01	0.00	0.00	0.00	0.00
24	0.63	0.27	0.00	0.00	0.00	0.00
25	0.00	0.04	0.00	0.00	0.00	0.00
26	0.00	0.00	0.01	0.28	0.00	0.00
27	1.65	0.04	1.07	0.00	0.00	0.00
28	0.28	0.00	0.00	0.00	0.46	0.00
29	0.00		0.00	0.00	0.00	0.12
30	0.00		0.00	0.00	0.00	1.19
31	0.00		0.00		0.00	
Total	3.49	1.35	1.47	2.42	2.07	9.44

Table 37. Daily maximum and minimum air temperatures (°F) at the UF/IFAS Hastings AEC Research Farm between Jan. 1 and Jun. 30, 2019.

	January		February		March		April		May		June	
Day	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	80	62	68	53	81	60	65	54	82	62	94	74
2	80	60	70	58	77	58	66	51	82	71	94	74
3	78	65	64	57	83	62	68	45	83	69	96	74
4	78	59	63	50	71	53	75	50	88	70	93	70
5	61	50	75	46	54	44	78	57	82	67	90	71
6	69	45	78	50	55	36	85	59	87	68	90	73
7	74	48	80	52	64	35	84	60	84	66	89	73
8	74	53	82	53	75	43	85	64	82	64	89	72
9	65	49	66	54	78	51	82	66	83	62	85	70
10	55	39	70	59	84	61	79	61	83	66	86	69
11	63	40	80	62	83	61	80	60	89	63	86	72
12	71	48	82	64	70	58	85	63	91	69	85	72
13	77	56	63	45	74	56	85	69	81	68	80	70
14	60	49	69	41	77	57	86	71	82	63	82	71
15	54	47	73	49	83	56	76	54	80	59	84	70
16	59	40	78	52	69	54	76	47	82	58	86	71
17	68	35	82	63	61	55	79	56	86	59	85	71
18	72	47	86	61	67	51	85	58	87	60	86	73
19	76	46	75	63	65	52	83	58	86	57	87	72
20	67	40	83	62	66	51	68	54	88	64	87	74
21	40	39	82	66	71	46	74	47	91	68	93	76
22	68	39	84	64	74	42	78	48	88	67	92	72
23	75	54	86	65	72	40	81	50	85	65	94	74
24	71	51	83	64	77	46	84	53	86	59	93	72
25	58	37	64	49	80	55	84	58	92	63	94	75
26	58	41	69	51	77	58	82	62	94	65	91	72
27	53	45	76	58	61	56	79	49	97	70	90	70
28	58	41	77	59	69	55	83	53	96	72	89	72
29	63	36			73	53	80	57	93	70	87	73
30	49	37			78	51	82	61	93	69	92	71
31	55	36			80	54			94	71		
Avg.	65	46	75	56	73	52	79	57	87	65	89	72