Florida Potato Variety Trial Report, 2021

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Florida Potato Variety Trial Report, 2021

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Photograph

Cover photo: Pam Solano.

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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, 2020. Potato beds were fumigated with Telone II C35, 7.7 gal/A (1,3-dichloropropene 63.4%, and chloropicrin 34.7%) in December 2020. 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 10-tuber sample (less if not enough tubers available) from each plot using the weight-in-air/weight-in-water method. The sample was rated for external appearance characteristics. External tuber quality characteristics were rated using the rating scale listed in Table 2. The sample tubers were then cut into fourths and rated for hollow heart (HH), corky ringspot (CRS), internal heat necrosis (IHN), and brown center (BC).

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 2021 growing season were rated as fair. The total precipitation between planting and harvest was 14.32” which was concentrated during early stages of plant growth and bulking stage (Table 33). Overall air temperatures were within the favorable range for crop development and tuber bulking for the season (Table 34). There was one freeze event during 2021.

Production

There were no major changes to the production system in 2021.

Figure 1. Potato Variety Program Evaluation Flowchart.

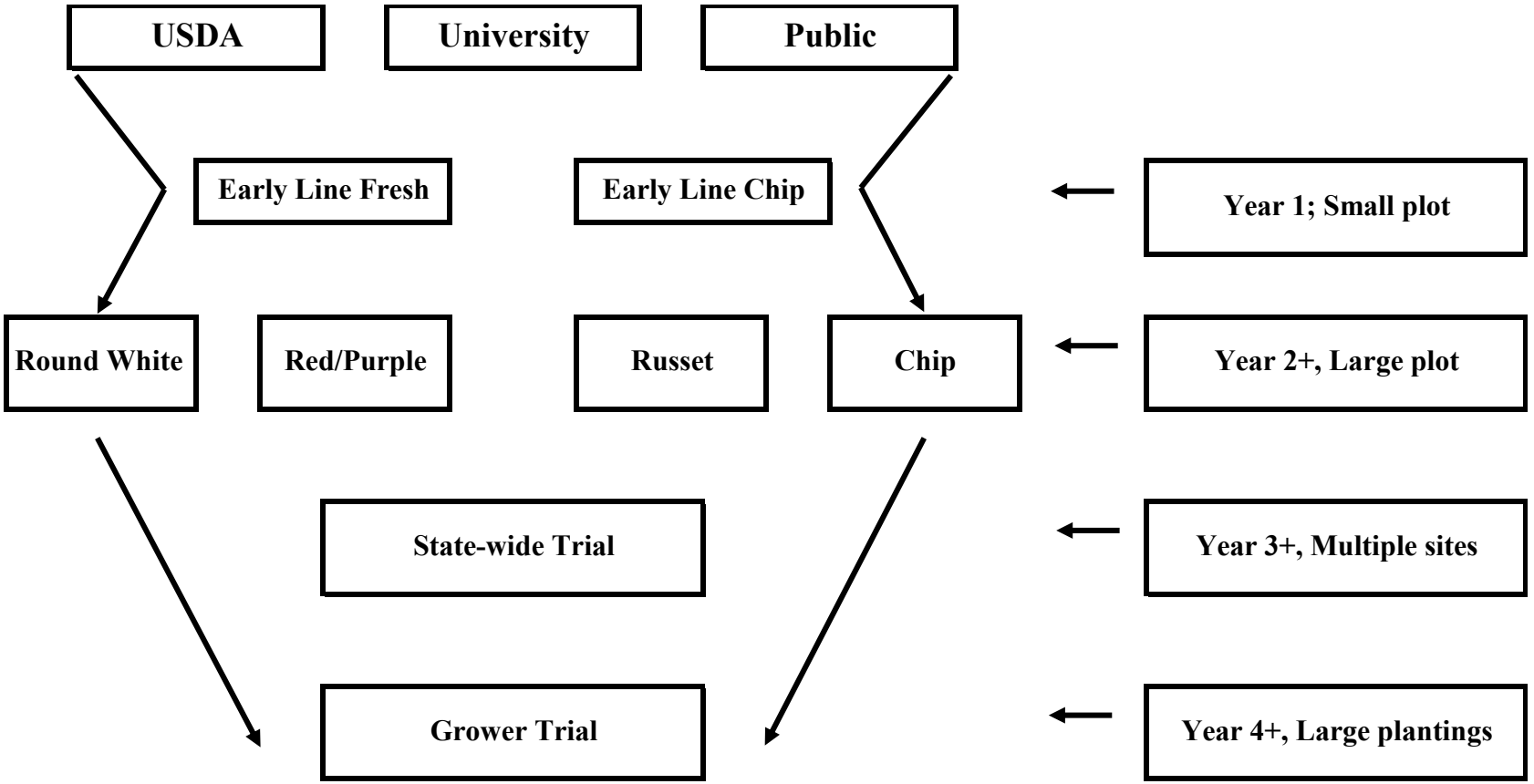

Table 1. Plant growth characteristics.

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 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 2020.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	January 22, 2021
Vine Kill Date	N/A
Harvest Date	April 28, 2021
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	44
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	42 DAP
Highest Total Yield	BNC973-2 (400 cwt/acre or 44.8 T/ha)
Highest Marketable Yield	BNC973-2 (337 cwt/acre or 37.8 T/ha)
Best Appearance Rating	BNC965-1, BNC977-2, BNC990-4, B3465-6, B3465-7, B3471-1, B3472-1, B3477-2, Snowden (9, excellent)

Table 3. Production statistics for the 2021 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–96 days												
BNC958-1	338	292	139	4	8	35	53	0	0	88	53	1.055
BNC959-2	388	321	153	5	11	29	55	0	0	84	55	1.059
BNC960-7	320	287	137	5	4	24	67	0	0	91	67	1.051
BNC961-1	391	301	143	8	13	39	40	0	0	79	40	1.058
BNC965-1	312	216	103	10	18	43	29	0	0	72	29	1.056
BNC969-1	317	267	127	4	6	34	56	0	0	90	56	1.064
BNC973-2	400	337	160	6	7	38	48	0	0	86	48	1.059
BNC973-5	386	317	151	6	8	39	47	0	0	86	47	1.053
BNC973-7	152	105	50	16	12	35	37	0	0	72	37	1.061
BNC974-1	302	247	118	5	12	47	36	0	0	83	36	1.052
BNC976-4	352	296	141	6	10	51	33	0	0	84	33	1.058
BNC977-2	295	195	93	14	19	35	31	0	0	67	31	1.053
BNC981-1	293	244	116	3	12	47	38	0	0	85	38	1.047
BNC990-1	328	247	118	6	17	31	46	0	0	77	46	1.048
BNC990-2	247	55	26	30	47	17	5	0	0	23	5	1.046
BNC990-4	264	148	71	16	26	39	16	4	0	58	20	1.067
BNC992-1	252	167	80	12	18	32	38	0	0	70	38	1.055
B3451-4	229	160	76	10	16	36	37	0	0	74	37	1.073
B3451-7	287	169	81	18	22	23	37	0	0	60	37	1.083
B3451-8	176	101	48	12	28	7	53	0	0	59	53	1.050
B3453-2	289	247	118	11	2	33	53	0	0	86	53	1.060
B3455-1	321	215	103	8	24	42	26	0	0	68	26	1.066
B3460-1	241	148	71	13	23	27	37	0	0	64	37	1.051
B3463-4	322	154	73	20	32	38	10	0	0	48	10	1.052
B3465-3	243	125	60	24	25	37	14	0	0	52	14	1.051
B3465-4	357	287	137	5	12	38	41	5	0	84	46	1.060
B3465-6	240	147	70	18	20	44	19	0	0	62	19	1.060
B3465-7	171	94	45	17	24	42	17	0	0	58	17	1.052
B3467-1	328	293	140	3	6	20	70	0	0	91	70	1.050
B3471-1	289	185	88	12	24	46	14	5	0	64	18	1.066

Table 3 (cont'd). Production statistics for the 2021 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
B3472-1	252	175	83	13	17	45	25	0	0	70	25	1.064
B3476-3	230	176	84	7	13	52	29	0	0	81	29	1.081
B3477-2	254	172	82	11	18	41	29	0	0	71	29	1.055
B3478-3	239	201	96	4	11	39	46	0	0	85	46	1.062
B3479-2	266	223	106	5	10	23	62	0	0	85	62	1.066
B3480-4	220	162	77	5	10	31	54	0	0	85	54	1.061
B3480-6	297	204	97	9	21	39	31	0	0	70	31	1.053
B3480-7	207	129	61	14	24	41	21	0	0	62	21	1.069
B3480-15	226	193	92	6	8	45	41	0	0	85	41	1.068
B3480-16	237	187	89	6	13	37	44	0	0	81	44	1.061
B3480-17	244	179	85	5	16	37	42	0	0	79	42	1.058
B3481-1	254	217	103	3	9	28	60	0	0	88	60	1.063
B3482-4	279	216	103	5	17	31	47	0	0	78	47	1.063
B3483-1	241	196	93	4	14	39	42	0	0	81	42	1.062
Atlantic	251	210	100	6	3	22	68	0	0	90	68	1.072
Harley Blackwell (B0564-8)	267	220	105	7	6	28	59	0	0	87	59	1.062
Snowden	289	236	113	3	13	29	48	7	0	84	55	1.066
Peter Wilcox (B1816-5)	350	230	110	12	16	28	44	0	0	71	44	1.055
Soraya	383	317	151	5	10	35	49	0	0	85	49	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 4. Plant growth and tuber characteristics for the 2021 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
BNC958-1	88	8	9	8						7	1
BNC959-2	100	7	9	7						7	2
BNC960-7	92	5	9	8						7	1
BNC961-1	96	6	9	8						7	1
BNC965-1	92	6	9	8						9	1
BNC969-1	79	5	9	9						8	1
BNC973-2	96	5	9	8						7	2
BNC973-5	100	5	9	8						8	1
BNC973-7	4	2	9	9						7	3
BNC974-1	100	6	9	7						7	1
BNC976-4	100	7	9	8						7	1
BNC977-2	100	7	9	7						9	1
BNC981-1	92	5	9	7						7	1
BNC990-1	96	7	9	7						7	2
BNC990-2	96	6	9	6						8	3
BNC990-4	88	8	9	6						9	2
BNC992-1	100	6	9	7						8	2
B3451-4	92	7	9	7						7	2
B3451-7	92	7	9	8						7	2
B3451-8	96	7	9	7						.	3
B3453-2	96	8	9	8						8	1
B3455-1	100	6	9	8						8	1
B3460-1	92	5	9	8						7	2
B3463-4	96	7	9	7						7	2
B3465-3	100	7	9	5						8	2
B3465-4	88	8	9	7						7	1
B3465-6	96	7	9	7						9	2
B3465-7	83	6	9	6						9	3
B3467-1	96	7	9	7						7	1
B3471-1	92	8	9	7						9	1

Table 4 (cont'd). Plant growth and tuber characteristics for the 2021 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
B3472-1	83	9	9	5						9	2
B3476-3	96	8	9	7						8	2
B3477-2	88	5	9	8						9	2
B3478-3	67	5	9	9						8	1
B3479-2	83	7	9	8						6	1
B3480-4	79	6	9	8						8	2
B3480-6	88	7	9	8						6	1
B3480-7	75	7	9	7						7	2
B3480-15	75	7	9	7						8	1
B3480-16	79	6	9	9						7	1
B3480-17	96	7	9	7						6	1
B3481-1	67	5	9	9						8	1
B3482-4	83	6	9	8						7	1
B3483-1	83	7	9	7						6	1
Atlantic	79	6	9	9						6	-
Harley Blackwell (B0564-8)	75	7	9	8						8	1
Snowden	83	7	9	8						9	1
Peter Wilcox (B1816-5)	71	6	9	7						8	1
Soraya	83	7	9	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 5. External and internal defects for the 2021 USDA 3rd Year Trial potato selections.

	% External Tuber Defects					% Internal Defects[2]			
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	HH	CRS	IHN	BC
BNC958-1	0	1	1	0	1	0	0	0	0
BNC959-2	0	0	1	1	2	0	0	10	10
BNC960-7	1	0	0	0	1	0	0	0	0
BNC961-1	0	2	0	0	2	0	0	0	0
BNC965-1	3	0	1	0	4	0	0	0	0
BNC969-1	0	2	2	2	6	0	0	0	0
BNC973-2	0	0	2	1	2	0	0	20	0
BNC973-5	0	0	4	0	5	0	0	0	0
BNC973-7	0	0	0	4	4	0	0	0	0
BNC974-1	1	0	0	0	1	0	0	0	0
BNC976-4	0	0	0	0	0	0	0	0	0
BNC977-2	1	0	0	0	1	0	0	0	0
BNC981-1	0	0	0	2	2	0	0	0	0
BNC990-1	2	0	0	1	3	0	0	10	0
BNC990-2	1	0	0	1	3	0	0	0	0
BNC990-4	2	0	0	2	4	0	0	0	0
BNC992-1	0	0	4	2	6	0	0	0	0
B3451-4	3	0	2	0	5	0	0	0	0
B3451-7	1	0	0	0	2	0	0	0	0
B3451-8	1	0	0	3	3	0	0	10	0
B3453-2	0	0	1	0	1	0	0	0	0
B3455-1	1	0	0	0	1	0	0	0	0
B3460-1	1	2	0	1	4	0	0	20	0
B3463-4	0	1	0	0	1	0	0	0	0
B3465-3	1	0	0	0	1	0	0	0	0
B3465-4	3	0	1	0	4	0	0	0	0
B3465-6	1	0	1	0	2	0	0	20	0
B3465-7	5	0	0	1	6	0	10	0	0
B3467-1	1	0	0	0	1	0	0	0	0
B3471-1	0	0	0	0	0	0	0	0	0

Table 5 (cont'd). External and internal defects for the 2021 USDA 3rd Year Trial potato selections.

	% External Tuber Defects					% Internal Defects[2]			
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	HH	CRS	IHN	BC
B3472-1	1	0	0	0	1	0	0	0	0
B3476-3	3	0	0	2	5	0	0	0	0
B3477-2	1	1	1	1	4	0	0	0	0
B3478-3	0	0	1	0	1	0	0	0	0
B3479-2	1	0	0	0	1	0	0	0	0
B3480-4	13	0	1	0	13	0	0	0	0
B3480-6	2	0	0	0	2	0	0	0	0
B3480-7	0	0	0	0	0	0	0	0	0
B3480-15	0	0	0	0	0	0	0	0	0
B3480-16	2	0	0	0	2	0	0	0	0
B3480-17	4	0	3	1	8	0	0	0	0
B3481-1	2	0	0	1	3	0	0	0	0
B3482-4	0	0	0	0	0	0	0	0	0
B3483-1	0	0	0	0	0	0	0	0	0
Atlantic	2	2	2	1	7	0	0	0	0
Harley Blackwell (B0564-8)	0	4	0	2	6	0	0	0	0
Snowden	1	0	2	0	3	0	0	0	0
Peter Wilcox (B1816-5)	0	2	1	5	8	0	0	0	0
Soraya	0	1	1	1	2	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), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 3. 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 18, 2021
Vine Kill Date	May 12, 2021
Harvest Date	May 24, 2021
Season Length	83 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	30 (Standard: Red LaSoda)
Number of Clones	4
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	41 DAP
Highest Total Yield	Cerata (277 cwt/acre or 31.1 T/ha)
Highest Marketable Yield	Cerata (214 cwt/acre or 24.0 T/ha)
Best Appearance Rating	Malou, PSS13/041/26 (Thunderball), Constance, French Fingerling, Goldrush (9, excellent)

Table 6. Production statistics for the 2021 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–83 days												
Almera	230	164	163	8	10	33	49	0	0	82	49	1.051
Betty	137	76	76	13	28	47	11	0	0	59	11	1.077
Cerata	277	214	213	3	14	37	46	0	0	83	46	1.053
Corinna	128	65	64	14	23	35	29	0	0	64	29	1.054
Danina	211	106	106	19	25	38	18	0	0	56	18	1.059
Floridana	208	129	128	12	20	39	29	0	0	68	29	1.060
Malou	217	158	157	11	12	38	39	0	0	77	39	1.058
Montana	224	110	110	21	25	39	15	0	0	54	15	1.051
PSS13/041/26 (Thunderball)	190	95	95	22	27	44	7	0	0	51	7	1.061
PSS13/041/35 (Spector)	122	37	37	41	27	30	2	0	0	32	2	1.075
Ricarda	265	182	181	11	17	45	27	0	0	72	27	1.058
Tilbury	163	115	114	8	17	27	48	0	0	75	48	1.086
NC508-37	142	87	87	12	22	53	13	0	0	65	13	1.068
NC663-21	209	129	128	15	20	48	16	0	0	65	16	1.065
NC669-48	226	151	150	7	20	51	22	0	0	72	22	1.065
NC708-3	175	102	102	12	29	47	12	0	0	60	12	1.066
Adirondack Blue	202	151	151	6	15	58	21	0	0	79	21	1.054
All Blue	120	21	21	39	43	18	0	0	0	18	0	1.064
Chieftain	221	159	159	9	14	49	28	0	0	77	28	1.050
Constance	160	96	95	17	20	49	14	0	0	62	14	1.059
Dark Red Norland	194	131	131	6	10	43	41	0	0	84	41	1.057
French Fingerling	124	39	39	31	38	31	0	0	0	31	0	1.060
Goldrush	177	121	120	10	13	60	16	0	0	76	16	1.059
Lamoka (NY139)	224	170	170	5	9	45	42	0	0	86	42	1.059
Lehigh	224	171	170	6	10	35	50	0	0	84	50	1.057
Natascha	164	104	104	20	11	55	13	0	0	69	13	1.051
Peter Wilcox (B1816-5)	168	116	115	10	17	43	30	0	0	73	30	1.067
Pike	215	151	150	9	16	46	29	0	0	75	29	1.068
Prada	232	162	162	6	16	43	35	0	0	78	35	1.047
Red LaSoda	162	100	100	8	9	37	46	0	0	83	46	1.053

Table 6 (cont'd). Production statistics for the 2021 Fresh Market, Red, and Purple Variety Trial potato selections.

	Total	Marketable Yield[1]										
	Yield		% of	Size Distribution by Class (%)[2]						Size Class Range (%)		Specific
Clone	(cwt/A)	(cwt/A)	standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	Gravity
Satina	255	183	182	5	12	42	41	0	0	83	41	1.054
Soraya	249	180	179	8	16	41	35	0	0	76	35	1.054
Strawberry Paw (NY136)	182	124	123	8	11	28	53	0	0	81	53	1.057
Yukon Gold	160	118	118	3	9	35	53	0	0	88	53	1.059
MSD[3]	147	117		17	17	28	27	ns	ns	26	27	0.017
P Value	0.0004	<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 7. Plant growth and tuber characteristics for the 2021 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
Almera	88	8	8	7	1	8	9	5	8	8
Betty	90	9	9	7	1	8	8	2	7	6
Cerata	92	9	8	7	1	2	9	3	8	7
Corinna	86	9	8	5	3	8	8	3	7	7
Danina	90	8	8	8	3	8	9	3	8	7
Floridana	90	9	8	5	3	8	8	2	9	6
Malou	88	9	8	7	3	8	9	3	6	9
Montana	86	9	8	8	4	8	9	4	9	8
PSS13/041/26 (Thunderball)	97	8	8	7	1	2	8	3	7	9
PSS13/041/35 (Spector)	97	9	8	5	1	2	8	2	7	8
Ricarda	92	9	9	5	1	3	9	3	6	8
Tilbury	94	9	9	8	1	8	8	2	5	4
NC508-37	84	8	7	5	9	1	8	3	7	6
NC663-21	90	9	8	7	1	8	9	2	7	7
NC669-48	97	9	6	7	1	8	8	2	7	8
NC708-3	80	8	8	7	3	8	9	6	8	7
Adirondack Blue	90	7	8	6	9	1	8	6	7	7
All Blue	86	8	9	5	9	1	8	6	6	6
Chieftain	91	8	9	8	1	2	9	3	7	8
Constance	93	8	9	6	3	8	9	3	7	9
Dark Red Norland	91	9	7	4	1	2	9	2	7	7
French Fingerling	93	9	9	7	3	3	9	7	7	9
Goldrush	94	7	9	7	1	5	4	7	9	9
Lamoka (NY139)	88	9	8	8	1	8	8	3	7	7
Lehigh	86	8	9	7	3	6	7	3	7	7
Natascha	86	9	7	7	3	8	9	6	8	8
Peter Wilcox (B1816-5)	77	9	7	6	3	1	9	3	8	8
Pike	93	9	9	8	1	8	8	3	7	8
Prada	83	9	7	5	3	8	9	6	8	7
Red LaSoda	92	8	8	6	1	2	9	3	5	7

Table 7 (cont'd). Plant growth and tuber characteristics for the 2021 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
Satina	93	9	9	7	3	8	9	3	6	8
Soraya	92	9	7	7	4	8	9	3	8	8
Strawberry Paw (NY136)	96	8	9	8	1	2	9	3	8	8
Yukon Gold	90	9	9	7	3	8	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 8. External and internal defects for the 2021 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]	HH	CRS	IHN	BC
Almera	0	1	0	13	14	0	0	0	0
Betty	0	0	4	6	10	0	0	0	0
Cerata	1	0	0	7	7	0	0	0	0
Corinna	0	0	0	24	24	0	0	0	0
Danina	0	0	0	10	11	0	3	7	0
Floridana	0	0	0	11	11	0	0	3	0
Malou	0	0	0	8	8	0	0	0	0
Montana	1	0	0	12	12	0	0	10	0
PSS13/041/26 (Thunderball)	0	0	1	1	2	0	0	0	0
PSS13/041/35 (Spector)	0	1	0	5	6	0	0	0	0
Ricarda	2	0	1	3	6	0	3	0	0
Tilbury	0	0	0	5	6	0	0	3	0
NC508-37	0	0	0	5	5	0	3	7	0
NC663-21	0	0	0	11	12	0	3	0	0
NC669-48	0	0	0	7	8	3	0	0	0
NC708-3	0	0	0	3	3	0	0	0	0
Adirondack Blue	0	0	0	5	5	0	0	3	3
All Blue	0	1	0	1	2	3	0	7	0
Chieftain	2	0	0	5	7	0	0	3	0
Constance	0	0	2	5	7	0	0	0	0
Dark Red Norland	6	0	4	10	20	0	3	0	0
French Fingerling	0	0	0	4	4	0	3	7	0
Goldrush	2	0	0	8	10	0	0	0	0
Lamoka (NY139)	2	0	1	7	11	0	0	3	0
Lehigh	0	0	0	9	9	0	3	0	0
Natascha	0	0	0	8	8	0	0	10	0
Peter Wilcox (B1816-5)	0	0	0	3	3	0	3	0	0
Pike	0	0	1	6	7	0	0	0	0
Prada	0	0	0	10	11	0	0	0	0
Red LaSoda	4	0	1	19	25	0	0	3	0

Table 8 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
Satina	0	1	5	9	14	0	0	0	7
Soraya	0	0	0	5	5	0	0	0	0
Strawberry Paw (NY136)	4	0	0	13	17	0	3	3	0
Yukon Gold	0	0	0	16	16	0	3	3	0
MSD[3]	4	ns	ns	18	17	ns	ns	ns	5
P Value	<0.0001	0.6377	0.3165	0.0007	<0.0001	0.5466	0.8604	0.8916	0.0015

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

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

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

Chapter 4. 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 18, 2021
Vine Kill Date	May 12, 2021
Harvest Date	May 25, 2021
Season Length	83 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	4 (Standard: Atlantic)
Number of Clones	36
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	41 DAP
Highest Total Yield	AAF10736-2 (260 cwt/acre or 29.2 T/ha)
Highest Marketable Yield	Atlantic (217 cwt/acre or 24.3 T/ha)
Best Appearance Rating	AF5762-8, NDAF113476CB-3, AF6289-2, NDAF13136Y-5, COAF15129-3, AAF12139-1 (9, excellent)

Table 9. Production statistics for the 2021 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–83 days												
Atlantic	249	217	100	3	5	37	55	0	0	92	55	1.076
Harley Blackwell (B0564-8)	194	136	62	8	14	35	43	0	0	78	43	1.068
Snowden	232	184	85	5	12	40	43	0	0	83	43	1.073
Yukon Gold	187	128	59	7	8	36	46	2	0	85	48	1.069
AF5280-5	208	158	73	5	6	27	60	1	0	89	61	1.054
NDAF113484B-1	146	95	44	7	11	54	29	0	0	83	29	1.061
AF5707-1	132	70	32	12	19	50	19	0	0	69	19	1.063
AF5735-8	183	126	58	7	20	64	9	0	0	73	9	1.062
AF5762-8	146	87	40	8	18	62	12	0	0	74	12	1.070
NDAF113476CB-3	81	46	21	11	39	36	15	0	0	51	15	1.066
NDAF12143-1	119	75	35	4	10	26	60	0	0	86	60	1.061
AF5931-1	170	112	52	10	16	55	19	0	0	74	19	1.065
AF6286-1	133	90	41	13	18	35	34	0	0	69	34	1.058
AF6289-2	193	145	67	10	11	52	27	0	0	80	27	1.059
AAF10736-2	260	170	78	12	21	43	24	0	0	66	24	1.065
NDAF12238Y-2	127	72	33	9	16	50	25	0	0	75	25	1.062
NDAF13136Y-5	150	98	45	11	19	51	19	0	0	70	19	1.061
NDAF13273-1	139	78	36	13	25	50	12	0	0	62	12	1.063
NDAF13296Y-4	133	94	43	7	13	39	42	0	0	81	42	1.067
WAF14096-5	204	130	60	10	19	33	37	0	0	70	37	1.062
AF6526-3	205	162	75	6	12	53	28	1	0	82	29	1.077
AF6541-3	183	115	53	15	15	32	38	0	0	70	38	1.066
AF6542-16	112	41	19	24	36	36	5	0	0	40	5	1.064
AF6562-1	95	57	26	8	11	25	56	0	0	81	56	1.054
AF6566-1	181	127	59	6	10	31	52	1	0	83	52	1.074
AF6598-6	193	144	66	4	9	41	41	4	0	87	45	1.058
AF6602-10	85	31	14	35	25	33	7	0	0	40	7	1.074
AF6606-2	177	120	55	6	12	38	44	0	0	82	44	1.064
AF6608-4	222	134	62	14	22	46	18	0	0	65	18	1.067
AF6610-2	165	108	50	7	9	42	42	0	0	84	42	1.058

Table 9 (cont'd). Production statistics for the 2021 University of Maine Advanced Selection Trial potato selections.

	Total	Marketable Yield[1]										
	Yield		% of	Size Distribution by Class (%)[2]						Size Class Range (%)		Specific
Clone	(cwt/A)	(cwt/A)	standard	C	B	A1	A2	A3	A4	A1 to A3	A2 to A3	Gravity
WAF16220-2	192	139	64	6	10	34	50	0	0	84	50	1.064
NDAF1489-4	159	79	36	21	24	44	11	0	0	56	11	1.053
COAF15129-3	132	69	32	14	21	44	21	0	0	65	21	1.053
NDAF141Y-3	196	79	36	27	28	39	7	0	0	45	7	1.061
NDAF14113Y-3	156	84	38	18	20	50	12	1	0	62	12	1.058
AAF11611-2	226	151	69	11	18	48	23	1	0	71	23	1.059
AF6441-3	154	90	42	6	22	52	19	0	0	71	19	1.067
AF6455-21	107	42	19	14	30	39	17	0	0	56	17	1.066
AAF12139-1	189	136	63	7	17	59	18	0	0	76	18	1.063
NDAF1415Y-2	230	168	77	8	17	39	35	0	0	75	35	1.070
MSD[3]	146	125		17	20	27	33	ns	ns	29	34	0.017
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.6199	-	<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 10. Plant growth and tuber characteristics for the 2021 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	91	9	9	7						7	-
Harley Blackwell (B0564-8)	91	9	9	7						7	3
Snowden	96	9	9	7						8	1
Yukon Gold	88	9	9	7						8	3
AF5280-5	78	8	8	7						8	2
NDAF113484B-1	96	8	9	7						8	4
AF5707-1	90	8	9	8						8	4
AF5735-8	94	8	9	8						8	2
AF5762-8	86	8	9	8						9	4
NDAF113476CB-3	96	7	9	7						9	3
NDAF12143-1	82	7	9	6						8	4
AF5931-1	80	8	8	7						8	3
AF6286-1	83	8	8	4						8	3
AF6289-2	98	9	8	3						9	2
AAF10736-2	92	9	6	7						6	2
NDAF12238Y-2	97	8	8	6						7	4
NDAF13136Y-5	92	8	9	7						9	3
NDAF13273-1	93	8	8	4						7	3
NDAF13296Y-4	82	7	9	7						7	3
WAF14096-5	79	9	6	7						4	2
AF6526-3	92	9	7	6						6	2
AF6541-3	95	8	8	7						8	3
AF6542-16	94	9	9	6						4	3
AF6562-1	40	5	9	9						7	4
AF6566-1	78	8	9	8						8	3
AF6598-6	71	8	9	8						8	3
AF6602-10	89	9	7	5						8	3
AF6606-2	84	8	9	7						8	3
AF6608-4	80	9	8	7						6	2
AF6610-2	83	8	8	7						8	4

Table 10 (cont'd). Plant growth and tuber characteristics for the 2021 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
WAF16220-2	89	9	8	7						7	3
NDAF1489-4	95	9	7	4						6	3
COAF15129-3	92	8	9	5						9	3
NDAF141Y-3	88	9	8	5						8	3
NDAF14113Y-3	93	9	9	6						7	3
AAF11611-2	90	8	9	8						7	2
AF6441-3	88	8	9	6						7	4
AF6455-21	91	9	8	6						7	4
AAF12139-1	73	8	9	9						9	2
NDAF1415Y-2	86	8	9	8						6	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.

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

Table 11. External and internal defects for the 2021 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]	HH	CRS	IHN	BC
Atlantic	0	0	0	5	5	0	0	3	0
Harley Blackwell (B0564-8)	0	0	0	11	11	3	0	0	0
Snowden	0	0	0	3	3	0	0	0	0
Yukon Gold	0	0	1	19	20	3	3	3	0
AF5280-5	0	0	0	19	19	3	0	0	0
NDAF113484B-1	0	0	1	21	22	0	0	5	0
AF5707-1	0	0	0	26	26	0	0	0	0
AF5735-8	0	0	0	8	8	0	0	0	0
AF5762-8	0	0	0	24	24	0	0	0	0
NDAF113476CB-3	1	0	0	12	13	0	0	0	0
NDAF12143-1	4	0	1	21	26	0	8	8	0
AF5931-1	0	0	1	10	11	0	0	0	0
AF6286-1	0	0	0	3	3	0	0	0	0
AF6289-2	0	0	0	6	7	0	0	5	0
AAF10736-2	0	0	0	2	2	0	0	0	0
NDAF12238Y-2	0	0	0	23	23	0	0	0	0
NDAF13136Y-5	3	0	0	3	6	0	0	0	0
NDAF13273-1	1	0	0	9	10	0	0	0	0
NDAF13296Y-4	0	0	1	12	13	0	0	5	0
WAF14096-5	0	0	0	7	8	0	0	0	0
AF6526-3	0	0	0	3	3	0	0	0	0
AF6541-3	0	0	0	14	14	0	0	0	0
AF6542-16	0	0	0	11	11	0	0	0	0
AF6562-1	9	0	0	23	33	0	0	0	0
AF6566-1	0	0	0	19	19	0	0	0	0
AF6598-6	0	0	0	19	19	0	0	3	0
AF6602-10	0	0	0	9	9	0	0	0	3
AF6606-2	0	0	0	20	20	0	0	0	0
AF6608-4	0	0	0	3	3	0	5	0	0
AF6610-2	9	0	0	13	22	0	0	0	0

Table 11 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
WAF16220-2	0	0	0	15	15	0	3	0	0
NDAF1489-4	0	0	0	11	11	0	0	0	0
COAF15129-3	4	0	3	13	19	0	0	0	0
NDAF141Y-3	0	0	1	8	9	0	0	0	0
NDAF14113Y-3	0	0	0	13	13	0	0	8	0
AAF11611-2	0	0	0	7	8	0	0	0	0
AF6441-3	0	0	0	22	23	0	0	0	0
AF6455-21	2	0	0	28	30	0	0	0	0
AAF12139-1	1	0	0	7	8	3	0	0	3
NDAF1415Y-2	0	0	1	4	5	0	0	0	0
MSD[3]	7	ns	ns	22	21	ns	ns	ns	ns
P Value	<0.0001	0.5348	0.5648	<0.0001	<0.0001	0.5641	0.5677	0.0693	0.5348

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

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

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

Chapter 5. 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 11, 2021
Vine Kill Date	May 5, 2021
Harvest Date	May 17, 2021
Season Length	83 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	6 (Standard: Red LaSoda)
Number of Clones	58
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	Soraya (404 cwt/acre or 45.3 T/ha)
Highest Marketable Yield	AF6618-2 (327 cwt/acre or 36.7 T/ha)
Best Appearance Rating	AF6626-2, AF6664-8, AF6668-3, AF6675-1, AF6680-2, AF6688-8, AF6691-1, WAF17042-7, WAF17045-1, NDAF14316CABY-3, AF6692-1, AF6698-9, AF6702-1, AF6705-8, AF6708-2, AF6709-4, WAF17022-6, AF6693-1 (8, very good)

Table 12. Production statistics for the 2021 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–83 days												
Red LaSoda	210	160	100	5	6	38	51	0	0	89	51	1.046
Peter Wilcox (B1816-5)	260	173	108	10	22	36	31	0	0	67	31	1.068
Soraya	404	320	201	6	13	45	36	0	0	81	36	1.052
Satina	374	303	190	3	10	39	47	0	0	86	47	1.054
Dark Red Norland	293	251	157	5	7	49	39	0	0	88	39	1.042
All Blue	218	38	24	49	34	18	0	0	0	18	0	1.066
AF6618-1	291	231	145	4	8	29	59	0	0	88	59	1.072
AF6618-2	368	327	205	3	5	32	59	0	0	91	59	1.081
AF6626-2	326	203	127	11	26	51	12	0	0	63	12	1.069
AF6647-4	256	146	91	12	23	51	14	0	0	65	14	1.073
AF6652-3	369	282	177	8	14	40	36	2	0	77	37	1.058
AF6655-1	229	139	87	15	22	36	26	0	0	62	26	1.066
AF6664-8	294	202	126	6	7	27	60	0	0	87	60	1.057
AF6664-9	320	270	169	2	6	24	68	0	0	92	68	1.079
AF6665-3	336	199	124	13	27	40	20	0	0	60	20	1.056
AF6668-3	282	190	119	6	19	53	21	0	0	74	21	1.068
AF6669-10	305	247	155	7	11	40	42	0	0	82	42	1.075
AF6670-1	302	261	164	4	8	27	59	2	0	88	61	1.064
AF6671-10	284	222	139	1	7	28	63	2	0	93	65	1.068
AF6675-1	353	236	148	12	18	43	27	0	0	70	27	1.073
AF6680-2	276	189	118	9	20	51	19	0	0	70	19	1.062
AF6684-9	304	252	158	5	10	43	42	0	0	85	42	1.068
AF6686-5	213	143	89	16	13	46	24	0	0	70	24	1.067
AF6687-3	325	274	171	2	4	8	80	6	0	94	85	1.072
AF6688-2	306	203	127	12	17	38	32	0	0	71	32	1.047
AF6688-8	289	226	141	8	11	42	38	0	0	80	38	1.050
AF6691-1	341	272	170	5	10	44	40	0	0	85	40	1.047
AF6717-1	347	264	165	8	13	25	53	1	0	80	54	1.053
AF6722-3	288	248	155	4	7	60	30	0	0	89	30	1.056
AF6724-2	195	143	89	8	13	39	37	3	0	79	40	1.046

Table 12 (cont'd). Production statistics for the 2021 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
AF6729-1	312	235	147	8	10	47	35	0	0	82	35	1.061
AF6729-2	284	226	141	3	9	38	50	0	0	88	50	1.046
AF6729-6	242	159	100	8	20	53	18	0	0	71	18	1.062
AF6731-1	312	223	140	10	15	43	32	0	0	75	32	1.071
AF6735-2	276	217	136	6	12	50	31	0	0	82	31	1.065
AF6743-6	241	151	95	10	24	55	11	0	0	66	11	1.075
WAF17037-1	222	119	74	18	24	34	24	0	0	58	24	1.043
WAF17042-7	339	278	174	7	8	43	43	0	0	85	43	1.077
WAF17045-1	258	198	124	6	6	47	41	0	0	87	41	1.073
WAF17045-2	271	160	100	11	21	36	32	0	0	68	32	1.081
WAF17060-5	245	184	115	9	11	22	58	0	0	80	58	1.049
COAF16023-3	190	55	35	35	35	30	0	0	0	30	0	1.063
NDAF14188-5	280	192	120	11	14	41	34	0	0	75	34	1.067
NDAF14316CABY-3	274	141	89	16	29	37	18	0	0	55	18	1.066
AF6692-1	109	45	28	12	32	38	18	0	0	56	18	1.056
AF6692-7	238	140	87	11	18	48	22	0	0	70	22	1.055
AF6694-1	200	111	70	18	16	46	21	0	0	67	21	1.057
AF6694-8	236	124	77	18	20	52	10	0	0	62	10	1.063
AF6694-9	256	108	68	26	24	32	18	0	0	50	18	1.041
AF6695-3	114	27	17	25	33	24	18	0	0	42	18	1.071
AF6698-8	154	94	59	13	16	40	32	0	0	72	32	1.055
AF6698-9	156	68	43	11	32	35	22	0	0	57	22	1.058
AF6702-1	203	79	49	22	34	42	2	0	0	44	2	1.046
AF6705-2	196	117	73	13	28	40	20	0	0	60	20	1.048
AF6705-6	80	23	14	15	32	42	11	0	0	53	11	1.068
AF6705-8	106	40	25	16	36	43	5	0	0	48	5	1.046
AF6708-2	167	105	65	4	12	35	49	0	0	84	49	1.054
AF6709-4	193	83	52	9	31	44	17	0	0	60	17	1.069
AF6712-7	176	89	56	13	23	49	16	0	0	65	16	1.055
WAF17010-9	231	121	76	12	27	40	22	0	0	62	22	1.060

Table 12 (cont'd). Production statistics for the 2021 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
WAF17022-4	137	83	52	15	15	36	34	0	0	70	34	1.046
WAF17022-6	186	78	49	8	19	35	32	6	0	73	38	1.062
NDAF14280CB-1	241	127	79	7	13	24	47	8	0	80	56	1.053
AF6693-1	234	137	86	9	24	38	28	0	0	67	28	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 13. Plant growth and tuber characteristics for the 2021 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	92	8	9	5						7	-
Peter Wilcox (B1816-5)	83	9	9	6						7	1
Soraya	96	9	9	7						6	1
Satina	96	9	9	6						7	1
Dark Red Norland	92	8	9	4						7	1
All Blue	79	8	9	6						6	3
AF6618-1	83	8	9	7						7	2
AF6618-2	96	9	9	7						7	1
AF6626-2	92	9	9	6						8	1
AF6647-4	88	9	9	6						7	2
AF6652-3	96	9	9	7						6	2
AF6655-1	92	8	9	7						6	1
AF6664-8	96	9	9	6						8	2
AF6664-9	92	8	9	8						6	1
AF6665-3	96	9	6	6						7	1
AF6668-3	100	9	9	5						8	1
AF6669-10	92	9	9	6						6	1
AF6670-1	88	8	9	8						7	2
AF6671-10	88	9	9	6						6	2
AF6675-1	100	9	9	7						8	1
AF6680-2	96	8	9	7						8	2
AF6684-9	92	9	9	7						7	1
AF6686-5	100	7	9	7						6	1
AF6687-3	96	8	9	7						7	2
AF6688-2	92	8	9	6						7	1
AF6688-8	92	8	9	6						8	1
AF6691-1	79	8	9	7						8	2
AF6717-1	88	9	9	6						7	1
AF6722-3	75	9	9	7						7	1
AF6724-2	79	5	9	8						7	1

Table 13 (cont'd). Plant growth and tuber characteristics for the 2021 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
AF6729-1	92	8	9	7						7	1
AF6729-2	92	9	9	7						5	2
AF6729-6	83	9	9	7						4	1
AF6731-1	96	9	9	6						6	1
AF6735-2	96	8	9	6						6	1
AF6743-6	100	8	9	7						4	1
WAF17037-1	92	7	9	8						7	2
WAF17042-7	79	9	9	8						8	1
WAF17045-1	96	8	9	8						8	2
WAF17045-2	100	9	9	6						7	2
WAF17060-5	79	8	9	7						6	1
COAF16023-3	100	8	9	6						7	3
NDAF14188-5	83	9	9	7						6	1
NDAF14316CABY-3	88	8	9	7						8	1
AF6692-1	92	8	9	5						8	4
AF6692-7	96	9	9	4						7	2
AF6694-1	96	7	9	6						7	2
AF6694-8	96	9	9	5						7	2
AF6694-9	96	9	9	5						6	3
AF6695-3	96	9	9	5						7	4
AF6698-8	96	8	9	4						7	3
AF6698-9	96	8	9	5						8	4
AF6702-1	100	8	9	5						8	3
AF6705-2	96	8	9	8						7	2
AF6705-6	92	5	9	8						7	4
AF6705-8	92	8	9	4						8	4
AF6708-2	96	9	9	4						8	3
AF6709-4	96	7	9	5						8	4
AF6712-7	79	8	9	5						7	3
WAF17010-9	100	8	9	4						6	3

Table 13 (cont'd). Plant growth and tuber characteristics for the 2021 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
WAF17022-4	96	9	9	5						7	3
WAF17022-6	96	9	9	5						8	4
NDAF14280CB-1	96	9	9	5						6	3
AF6693-1	92	8	9	5						8	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 14. External and internal defects for the 2021 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]	HH	CRS	IHN	BC
Red LaSoda	0	0	3	11	14	0	20	0	0
Peter Wilcox (B1816-5)	0	0	0	1	1	0	0	0	0
Soraya	0	0	0	2	2	0	0	0	0
Satina	0	0	0	6	6	0	0	0	0
Dark Red Norland	0	0	0	3	3	0	0	0	0
All Blue	0	0	0	1	1	0	0	0	0
AF6618-1	0	0	1	9	10	0	0	0	0
AF6618-2	0	0	0	2	3	0	0	0	0
AF6626-2	0	0	1	1	1	0	0	0	0
AF6647-4	0	0	1	12	12	0	0	0	0
AF6652-3	0	0	0	0	1	0	0	20	0
AF6655-1	0	0	0	3	3	0	0	0	0
AF6664-8	0	0	0	21	21	0	0	0	0
AF6664-9	0	0	4	5	8	0	0	0	0
AF6665-3	0	0	0	1	1	0	0	0	0
AF6668-3	0	0	0	9	9	0	0	0	0
AF6669-10	0	0	0	2	2	0	0	0	0
AF6670-1	0	0	1	1	2	0	0	40	0
AF6671-10	0	0	1	15	16	0	0	0	0
AF6675-1	0	0	0	5	5	0	0	0	0
AF6680-2	0	0	0	3	3	0	0	10	0
AF6684-9	1	0	0	2	2	0	0	0	0
AF6686-5	1	0	0	3	5	0	0	0	0
AF6687-3	0	0	1	9	10	0	0	0	0
AF6688-2	0	0	0	6	6	0	0	0	0
AF6688-8	0	1	0	2	3	0	0	0	0
AF6691-1	0	0	2	3	6	0	0	0	10
AF6717-1	0	0	1	4	4	0	0	0	0
AF6722-3	1	0	1	3	4	0	0	0	0
AF6724-2	0	0	0	7	7	0	0	0	0

Table 14 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
AF6729-1	0	0	1	7	8	0	0	0	0
AF6729-2	0	0	0	10	10	0	0	0	0
AF6729-6	0	0	2	6	8	0	0	0	0
AF6731-1	0	0	1	4	5	0	0	0	0
AF6735-2	1	0	0	3	4	0	0	0	0
AF6743-6	0	0	0	5	5	0	0	0	0
WAF17037-1	0	0	0	8	8	0	0	33	0
WAF17042-7	1	0	0	2	4	0	0	0	0
WAF17045-1	0	0	1	11	12	0	0	0	0
WAF17045-2	0	0	2	12	14	0	0	0	0
WAF17060-5	1	0	0	5	7	0	0	0	0
COAF16023-3	0	0	0	3	3	0	0	0	0
NDAF14188-5	0	0	1	7	8	0	0	0	0
NDAF14316CABY-3	0	0	0	6	6	0	0	0	0
AF6692-1	0	0	5	22	27	0	10	0	0
AF6692-7	0	0	0	16	16	0	20	0	0
AF6694-1	0	0	0	17	17	0	0	0	0
AF6694-8	0	0	0	16	16	0	0	0	0
AF6694-9	0	0	0	15	15	0	0	0	0
AF6695-3	0	0	0	42	42	0	0	0	0
AF6698-8	0	0	0	15	15	0	20	0	0
AF6698-9	0	0	0	24	24	0	0	20	0
AF6702-1	0	0	2	10	11	0	0	0	0
AF6705-2	0	0	0	0	0	0	0	10	0
AF6705-6	0	0	0	46	46	0	0	30	0
AF6705-8	4	0	0	18	22	0	0	0	0
AF6708-2	0	0	3	22	25	0	0	0	0
AF6709-4	0	0	0	29	29	0	0	0	0
AF6712-7	3	18	1	0	22	0	0	0	0
WAF17010-9	9	0	0	6	15	10	10	0	0

Table 14 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
WAF17022-4	0	0	4	10	14	0	0	0	0
WAF17022-6	0	0	1	42	43	0	10	0	0
NDAF14280CB-1	0	0	1	33	34	0	0	0	0
AF6693-1	0	0	0	12	12	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), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 6. 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	February 11, 2021
Vine Kill Date	May 5, 2021
Harvest Date	May 17, 2021
Season Length	83 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	9 (Standard: Dark Red Norland instead of Red LaSoda)
Number of Clones	50
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	AF6889-2 (444 cwt/acre or 49.8 T/ha)
Highest Marketable Yield	AF6889-2 (311 cwt/acre or 34.9 T/ha)
Best Appearance Rating	AF6985-1 (9, excellent)

Table 15. Production statistics for the 2021 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–83 days												
Red LaSoda	6	6	30	0	0	0	100	0	0	100	100	1.063
Atlantic	0	0	0	0	0	0	0	0	0	0	0	.
Peter Wilcox (B1816-5)	210	181	858	5	6	39	50	0	0	89	50	1.060
Soraya	7	0	0	100	0	0	0	0	0	0	0	.
Satina	47	42	200	10	0	90	0	0	0	90	0	1.054
Snowden	0	0	0	0	0	0	0	0	0	0	0	.
Dark Red Norland	41	21	100	22	15	63	0	0	0	63	0	1.062
All Blue	62	62	293	0	0	100	0	0	0	100	0	1.062
Chieftain	299	201	953	8	7	49	36	0	0	85	36	1.054
AF6868-6	241	136	644	17	12	41	30	0	0	72	30	1.062
AF6875-4	361	231	1095	6	12	49	33	0	0	82	33	1.075
AF6875-5	349	206	979	6	13	50	31	0	0	81	31	1.071
AF6875-6	320	195	923	12	25	49	14	0	0	63	14	1.077
AF6889-1	188	104	495	11	29	44	15	0	0	59	15	1.066
AF6889-2	444	311	1477	9	17	44	30	0	0	74	30	1.077
AF6889-4	399	303	1437	3	13	20	65	0	0	84	65	1.069
AF6900-1	170	131	621	6	12	65	16	0	0	82	16	1.075
AF6900-3	284	253	1200	4	4	29	62	0	0	91	62	1.068
AF6903-3	334	251	1188	9	12	67	12	0	0	79	12	1.076
AF6903-5	243	165	781	9	14	45	32	0	0	77	32	1.064
AF6913-1	187	72	340	16	31	33	20	0	0	53	20	1.075
AF6913-2	50	13	63	43	24	33	0	0	0	33	0	1.057
AF6930-1	100	78	370	5	13	40	42	0	0	82	42	1.051
AF6932-2	26	14	67	26	0	74	0	0	0	74	0	1.083
AF6932-4	0	0	0	0	0	0	0	0	0	0	0	.
AF6932-6	37	4	21	0	36	64	0	0	0	64	0	1.091
AF6933-2	76	25	116	14	38	10	37	0	0	48	37	1.055
AF6935-1	5	0	0	0	100	0	0	0	0	0	0	.
AF6938-4	0	0	0	0	0	0	0	0	0	0	0	.
AF6938-5	0	0	0	0	0	0	0	0	0	0	0	.

Table 15 (cont'd). Production statistics for the 2021 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
AF6938-7	167	98	465	4	9	48	39	0	0	87	39	1.055
AF6942-2	219	92	435	17	32	41	9	0	0	50	9	1.052
AF6942-4	301	220	1044	9	7	46	39	0	0	85	39	1.062
AF6942-5	213	149	707	14	7	44	35	0	0	79	35	1.058
AF6944-3	74	54	258	0	8	16	76	0	0	92	76	1.054
AF6945-3	204	133	630	6	23	37	33	0	0	70	33	1.069
AF6954-2	311	245	1163	4	10	19	67	0	0	85	67	1.073
AF6963-1	315	224	1063	12	7	44	38	0	0	81	38	1.070
AF6963-2	314	248	1174	3	3	36	58	0	0	94	58	1.050
AF6963-6	268	216	1026	11	2	20	67	0	0	87	67	1.049
AF6963-8	376	234	1109	6	11	33	50	0	0	83	50	1.067
AF6965-5	272	178	847	7	12	34	47	0	0	81	47	1.068
AF6965-7	224	170	807	0	5	34	61	0	0	95	61	1.066
AF6969-2	153	106	505	15	4	13	68	0	0	81	68	1.057
AF6969-3	221	157	744	6	1	26	66	0	0	93	66	1.055
AF6973-1	280	123	584	16	25	48	11	0	0	59	11	1.052
AF6973-2	250	115	544	13	20	55	12	0	0	67	12	1.056
AF6973-3	186	103	488	12	8	23	58	0	0	81	58	1.063
AF6974-1	170	108	514	4	13	31	52	0	0	83	52	1.065
AF6974-4	196	137	649	5	0	43	52	0	0	95	52	1.067
AF6985-1	127	58	277	24	28	48	0	0	0	48	0	1.077
AF6985-2	156	51	243	25	30	30	15	0	0	45	15	1.062
NDAF14384-1	116	28	133	13	13	74	0	0	0	74	0	1.052
NDAF14384-5	24	11	53	30	0	70	0	0	0	70	0	1.076
NDAF14384-7	88	9	44	17	17	66	0	0	0	66	0	1.079
NDAF1727Y-1	129	90	428	3	3	32	63	0	0	95	63	1.058
NDAF1727Y-3	172	106	502	2	23	47	29	0	0	76	29	1.060
NDAF1759-1	219	108	514	2	4	49	44	0	0	94	44	1.057
AF6992-1	43	5	23	15	15	70	0	0	0	70	0	1.064

[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 2021 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	0	1	-	-						8	3
Atlantic	0	1	-	9						.	3
Peter Wilcox (B1816-5)	50	6	9	8						8	1
Soraya	0	1	-	9						.	3
Satina	13	6	9	8						8	1
Snowden	0	1	-	-						.	3
Dark Red Norland	13	6	9	8						7	-
All Blue	13	6	9	8						7	1
Chieftain	75	5	9	8						7	2
AF6868-6	100	8	9	7						7	2
AF6875-4	88	9	9	7						7	2
AF6875-5	100	9	9	7						7	2
AF6875-6	88	9	9	6						8	2
AF6889-1	88	6	9	8						8	1
AF6889-2	75	9	9	8						8	1
AF6889-4	88	9	9	8						7	2
AF6900-1	100	9	9	6						7	1
AF6900-3	88	9	9	7						8	1
AF6903-3	100	9	9	7						8	1
AF6903-5	88	9	9	7						8	2
AF6913-1	88	8	9	6						8	2
AF6913-2	100	6	9	7						6	3
AF6930-1	50	5	9	8						7	1
AF6932-2	13	4	9	8						8	3
AF6932-4	0	1	-	-						.	3
AF6932-6	13	6	9	5						8	4
AF6933-2	0	1	-	9						8	3
AF6935-1	13	5	9	7						.	3
AF6938-4	0	1	-	-						.	3
AF6938-5	0	1	-	-						.	3

Table 16 (cont'd). Plant growth and tuber characteristics for the 2021 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
AF6938-7	100	6	9	5						8	3
AF6942-2	63	7	9	5						7	2
AF6942-4	100	8	9	5						6	2
AF6942-5	75	8	9	6						8	2
AF6944-3	38	4	9	8						7	3
AF6945-3	75	6	9	7						8	1
AF6954-2	100	7	9	6						8	1
AF6963-1	100	8	9	5						8	2
AF6963-2	100	6	9	7						8	2
AF6963-6	75	7	9	8						7	1
AF6963-8	88	6	9	7						8	2
AF6965-5	100	8	9	6						7	2
AF6965-7	88	5	9	8						7	2
AF6969-2	100	5	9	6						8	2
AF6969-3	88	5	9	7						7	2
AF6973-1	100	8	9	6						8	2
AF6973-2	100	7	9	5						8	3
AF6973-3	88	8	9	4						8	3
AF6974-1	100	7	9	6						7	2
AF6974-4	100	6	9	6						6	2
AF6985-1	100	9	9	4						9	1
AF6985-2	88	8	9	5						7	2
NDAF14384-1	100	6	9	6						6	3
NDAF14384-5	100	6	9	6						6	4
NDAF14384-7	75	5	9	7						7	4
NDAF1727Y-1	63	4	9	7						7	2
NDAF1727Y-3	100	6	9	7						7	2
NDAF1759-1	100	8	9	5						7	3
AF6992-1	88	6	9	5						5	4

[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 17. External and internal defects for the 2021 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]	HH	CRS	IHN	BC
Red LaSoda	0	0	0	0	0	0	0	0	0
Atlantic	0	0	0	0	0	.	.	.	.
Peter Wilcox (B1816-5)	0	0	3	0	3	0	0	0	0
Soraya	0	0	0	0	0	.	.	.	.
Satina	0	0	0	0	0	0	0	0	0
Snowden	0	0	0	0	0	.	.	.	.
Dark Red Norland	0	0	0	18	18	0	0	0	0
All Blue	0	0	0	0	0	0	0	0	0
Chieftain	0	0	0	20	20	0	0	0	10
AF6868-6	0	0	0	21	21	0	0	0	0
AF6875-4	0	0	1	20	22	0	0	0	0
AF6875-5	0	0	0	27	27	0	0	0	0
AF6875-6	0	0	0	4	4	0	10	0	0
AF6889-1	0	0	0	7	7	0	0	0	0
AF6889-2	0	0	0	5	5	0	0	0	0
AF6889-4	0	0	3	7	10	0	0	0	0
AF6900-1	0	0	0	6	6	0	0	0	0
AF6900-3	0	0	0	2	2	0	0	0	0
AF6903-3	0	0	1	4	5	0	0	0	0
AF6903-5	2	0	0	10	12	0	0	0	0
AF6913-1	0	0	0	28	28	0	0	0	0
AF6913-2	0	0	0	20	20	0	25	0	0
AF6930-1	0	0	5	0	5	0	0	0	0
AF6932-2	0	0	0	28	28	0	0	0	0
AF6932-4	0	0	0	0	0	.	.	.	.
AF6932-6	0	0	68	13	81	0	0	0	0
AF6933-2	26	0	0	6	32	0	13	0	0
AF6935-1	0	0	0	0	0	.	.	.	.
AF6938-4	0	0	0	0	0	.	.	.	.
AF6938-5	0	0	0	0	0	.	.	.	.

Table 17 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
AF6938-7	29	0	0	3	32	0	10	0	0
AF6942-2	17	0	0	0	17	0	0	14	0
AF6942-4	0	0	0	14	14	0	0	0	0
AF6942-5	0	0	0	12	12	0	0	0	0
AF6944-3	0	0	0	20	20	0	0	0	17
AF6945-3	0	0	0	7	7	0	0	0	0
AF6954-2	0	0	6	2	8	0	0	0	0
AF6963-1	2	0	2	9	12	0	0	0	0
AF6963-2	13	0	4	0	16	0	0	0	0
AF6963-6	0	0	0	7	7	0	0	0	0
AF6963-8	2	0	0	23	25	0	0	0	0
AF6965-5	8	0	0	11	19	0	0	0	0
AF6965-7	0	0	7	13	20	0	0	0	0
AF6969-2	0	0	0	14	14	10	0	0	0
AF6969-3	0	0	1	22	23	0	0	0	0
AF6973-1	0	0	0	25	25	0	0	0	0
AF6973-2	0	0	0	31	31	10	10	0	0
AF6973-3	0	0	5	26	32	0	0	0	0
AF6974-1	0	0	0	23	23	0	0	0	0
AF6974-4	0	0	0	26	26	0	0	0	0
AF6985-1	0	0	0	4	4	0	0	0	0
AF6985-2	0	0	0	27	27	0	0	0	0
NDAF14384-1	0	0	0	68	68	0	0	0	0
NDAF14384-5	0	0	0	31	31	0	50	0	0
NDAF14384-7	0	0	0	84	84	0	0	0	0
NDAF1727Y-1	0	0	0	27	27	0	0	0	0
NDAF1727Y-3	0	0	0	19	19	0	0	0	0
NDAF1759-1	0	0	0	47	47	0	0	0	0
AF6992-1	0	0	0	23	23	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), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 7. 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	January 22, 2021
Vine Kill Date	N/A
Harvest Date	April 27, 2021
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	9 (Standard: Atlantic instead of LaChipper)
Number of Clones	119
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	42 DAP
Highest Total Yield	AF6981-9 (567 cwt/acre or 63.6 T/ha)
Highest Marketable Yield	AF6924-5 (390 cwt/acre or 43.7 T/ha)
Best Appearance Rating	Red LaSoda, Soraya, Satina, Snowden, Dark Red Norland, AF6871-14, AF6877-8, AF6877-12, AF6878-3, AF6878-15, AF6880-15, AF6881-4, AF6883-4, AF6886-3, AF6888-9, AF6888-12, AF6888-15, AF6890-7, AF6891-10, AF6894-4, AF6901-5, AF6901-13, AF6902-6, AF6919-9, AF6924-6, AF6954-8, AF6957-15, AF6957-18, AF6976-1, AF6978-1, AF6978-6, AF6980-9, NDAF175Y-1, NDAF175Y-4, NDAF1710Y-7, NDAF1710Y-8, NDAF1732-4, NDAF1747AB-3 (8, very good)

Table 18. Production statistics for the 2021 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–95 days												
Red LaSoda	339	231	70	1	17	16	65	0	0	82	65	1.059
Atlantic	410	332	100	2	5	32	60	0	0	92	60	1.078
Peter Wilcox (B1816-5)	384	270	81	16	14	32	39	0	0	70	39	1.064
Soraya	348	221	66	10	27	28	36	0	0	63	36	1.054
Satina	475	386	116	7	8	27	58	0	0	85	58	1.058
Snowden	317	279	84	2	10	31	57	0	0	88	57	1.071
Dark Red Norland	269	203	61	12	13	48	28	0	0	76	28	1.066
All Blue	180	80	24	25	30	31	14	0	0	45	14	1.067
Katahdin	278	221	67	9	9	40	42	0	0	82	42	1.058
AF6867-1	203	144	43	6	21	42	31	0	0	73	31	1.092
AF6871-14	437	379	114	3	5	27	66	0	0	93	66	1.065
AF6872-11	145	108	32	9	16	48	27	0	0	74	27	1.058
AF6872-13	228	156	47	6	12	25	57	0	0	82	57	1.070
AF6874-3	297	182	55	14	24	62	0	0	0	62	0	1.081
AF6874-4	269	200	60	6	11	36	47	0	0	83	47	1.077
AF6874-11	340	216	65	6	12	49	33	0	0	81	33	1.071
AF6874-13	210	183	55	6	5	49	40	0	0	89	40	1.077
AF6876-18	247	186	56	6	18	48	29	0	0	77	29	1.070
AF6877-3	318	268	81	3	11	61	25	0	0	86	25	1.081
AF6877-8	267	203	61	4	11	60	25	0	0	85	25	1.068
AF6877-12	309	251	76	2	11	39	48	0	0	87	48	1.066
AF6878-3	272	227	68	2	4	22	72	0	0	93	72	1.075
AF6878-4	321	247	74	6	13	45	36	0	0	81	36	1.077
AF6878-12	290	215	65	8	14	53	25	0	0	78	25	1.078
AF6878-15	265	236	71	3	4	41	51	0	0	92	51	1.076
AF6878-17	284	185	56	4	9	23	64	0	0	87	64	1.071
AF6878-18	431	296	89	12	18	48	22	0	0	70	22	1.076
AF6878-22	393	308	93	0	6	56	38	0	0	94	38	1.072
AF6878-30	312	277	83	3	1	32	63	0	0	95	63	1.076
AF6880-1	318	263	79	3	7	52	38	0	0	90	38	1.080

Table 18 (cont'd). Production statistics for the 2021 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
AF6880-9	322	230	69	9	18	31	42	0	0	73	42	1.073
AF6880-13	237	181	55	5	12	67	16	0	0	82	16	1.082
AF6880-15	440	370	112	3	6	47	44	0	0	91	44	1.070
AF6881-1	319	276	83	3	7	30	60	0	0	90	60	1.066
AF6881-4	310	230	69	14	8	39	39	0	0	78	39	1.073
AF6881-5	225	131	39	14	21	65	0	0	0	65	0	1.075
AF6882-2	234	171	51	7	14	65	15	0	0	80	15	1.074
AF6883-4	224	133	40	6	16	55	23	0	0	78	23	1.086
AF6883-8	341	248	75	5	18	45	32	0	0	77	32	1.073
AF6885-4	334	304	91	3	5	32	60	0	0	92	60	1.061
AF6886-3	349	306	92	3	2	41	54	0	0	95	54	1.071
AF6886-7	300	187	56	10	12	27	51	0	0	78	51	1.082
AF6886-8	255	241	73	1	3	28	68	0	0	96	68	1.074
AF6887-3	369	291	88	2	1	18	64	14	0	96	78	1.068
AF6887-12	354	326	98	3	2	24	70	0	0	95	70	1.067
AF6887-13	236	189	57	3	8	38	51	0	0	89	51	1.064
AF6888-9	394	354	106	2	5	21	72	0	0	93	72	1.066
AF6888-12	257	180	54	12	10	44	34	0	0	77	34	1.071
AF6888-15	296	234	71	5	6	28	61	0	0	89	61	1.076
AF6890-7	347	264	80	6	15	51	28	0	0	79	28	1.075
AF6891-6	266	171	51	10	20	46	24	0	0	70	24	1.067
AF6891-9	317	242	73	7	13	39	41	0	0	80	41	1.064
AF6891-10	331	165	50	19	29	41	12	0	0	53	12	1.085
AF6892-1	309	156	47	23	25	41	12	0	0	52	12	1.079
AF6893-6	457	340	102	8	14	51	27	0	0	78	27	1.071
AF6893-7	451	248	75	15	30	36	18	0	0	55	18	1.068
AF6893-10	337	258	78	12	9	55	25	0	0	80	25	1.068
AF6894-1	333	258	78	5	15	56	24	0	0	80	24	1.073
AF6894-4	396	260	78	14	18	32	36	0	0	68	36	1.080
AF6894-5	341	290	87	2	11	46	41	0	0	87	41	1.082

Table 18 (cont'd). Production statistics for the 2021 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
AF6895-9	296	122	37	17	30	42	11	0	0	52	11	1.069
AF6895-10	292	149	45	9	32	34	25	0	0	58	25	1.077
AF6896-1	362	280	84	9	12	46	32	0	0	78	32	1.072
AF6897-9	296	265	80	3	3	46	48	0	0	94	48	1.074
AF6898-1	362	245	74	8	23	43	27	0	0	70	27	1.075
AF6898-3	449	322	97	7	14	30	48	0	0	78	48	1.066
AF6898-4	263	148	44	12	30	31	27	0	0	58	27	1.072
AF6899-2	384	349	105	3	5	33	60	0	0	93	60	1.067
AF6899-6	420	340	103	4	8	21	67	0	0	88	67	1.075
AF6901-3	353	290	87	5	7	46	42	0	0	88	42	1.071
AF6901-4	456	367	110	3	10	38	48	0	0	87	48	1.062
AF6901-5	418	370	111	2	5	46	47	0	0	93	47	1.067
AF6901-8	310	244	73	5	9	32	54	0	0	86	54	1.066
AF6901-12	366	288	87	4	8	40	48	0	0	88	48	1.067
AF6901-13	411	380	114	2	6	46	46	0	0	92	46	1.061
AF6902-6	415	364	110	2	8	26	64	0	0	90	64	1.065
AF6905-3	178	126	38	3	16	57	24	0	0	81	24	1.077
AF6905-11	322	279	84	4	6	32	57	0	0	90	57	1.077
AF6906-13	370	166	50	23	28	37	12	0	0	49	12	1.088
AF6908-2	369	243	73	9	22	52	17	0	0	69	17	1.072
AF6908-9	291	173	52	11	22	52	15	0	0	67	15	1.083
AF6909-6	393	306	92	3	9	26	51	11	0	88	62	1.067
AF6910-4	287	191	58	13	17	45	25	0	0	70	25	1.086
AF6911-2	217	135	41	8	27	18	47	0	0	65	47	1.071
AF6911-3	297	183	55	16	23	40	21	0	0	62	21	1.090
AF6911-4	314	271	82	3	9	42	46	0	0	88	46	1.071
AF6912-3	282	185	56	12	9	63	16	0	0	79	16	1.080
AF6914-1	286	89	27	27	39	35	0	0	0	35	0	1.081
AF6916-6	314	267	81	5	6	29	60	0	0	88	60	1.075
AF6919-9	357	313	94	2	3	22	73	0	0	95	73	1.063

Table 18 (cont'd). Production statistics for the 2021 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
AF6924-3	458	373	112	3	15	44	38	0	0	82	38	1.077
AF6924-4	481	380	114	6	15	31	49	0	0	80	49	1.068
AF6924-5	460	390	118	4	11	36	49	0	0	85	49	1.074
AF6924-6	168	105	32	19	12	32	37	0	0	69	37	1.079
AF6926-10	419	308	93	6	6	34	54	0	0	88	54	1.065
AF6927-3	341	280	84	7	9	41	44	0	0	84	44	1.086
AF6940-4	285	215	65	6	17	24	52	0	0	76	52	1.067
AF6944-1	357	183	55	8	33	44	16	0	0	59	16	1.059
AF6949-3	389	347	105	3	8	44	45	0	0	89	45	1.067
AF6951-5	294	221	67	3	10	36	50	0	0	87	50	1.073
AF6951-7	176	130	39	3	21	35	40	0	0	75	40	1.071
AF6952-6	156	107	32	19	10	20	50	0	0	71	50	.
AF6953-7	265	223	67	6	8	30	56	0	0	86	56	1.054
AF6954-8	290	210	63	4	12	29	55	0	0	84	55	1.075
AF6955-3	292	270	81	3	2	49	46	0	0	95	46	1.061
AF6957-15	369	331	100	2	5	27	66	0	0	93	66	1.074
AF6957-18	251	155	47	8	23	37	31	0	0	69	31	1.068
AF6959-3	104	63	19	22	17	38	23	0	0	61	23	1.083
AF6965-1	391	284	86	9	7	35	49	0	0	84	49	1.064
AF6965-3	280	237	71	2	11	28	59	0	0	87	59	1.060
AF6969-1	343	254	77	10	11	38	41	0	0	79	41	1.069
AF6969-5	302	206	62	4	11	32	53	0	0	85	53	1.064
AF6976-1	355	208	63	14	21	39	26	0	0	65	26	1.060
AF6978-1	469	360	109	4	9	29	58	0	0	87	58	1.069
AF6978-6	312	254	77	4	9	43	44	0	0	87	44	1.067
AF6979-2	316	247	74	5	12	38	45	0	0	83	45	1.067
AF6980-1	266	171	51	9	26	43	22	0	0	66	22	1.073
AF6980-9	385	180	54	16	35	30	18	0	0	48	18	1.078
AF6981-4	418	275	83	14	15	50	21	0	0	71	21	1.061
AF6981-9	567	349	105	8	17	39	35	0	0	74	35	1.069

Table 18 (cont'd). Production statistics for the 2021 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
NDAF175Y-1	388	304	91	11	7	53	30	0	0	82	30	1.066
NDAF175Y-4	274	230	69	2	10	32	56	0	0	88	56	1.069
NDAF1710Y-5	305	181	55	10	29	29	32	0	0	61	32	1.070
NDAF1710Y-6	296	204	61	10	21	49	20	0	0	69	20	1.078
NDAF1710Y-7	307	173	52	14	27	12	48	0	0	60	48	1.067
NDAF1710Y-8	404	313	94	10	11	50	29	0	0	79	29	1.066
NDAF1732-4	281	253	76	4	6	24	54	12	0	90	66	1.068
NDAF1747AB-3	167	136	41	6	8	34	52	0	0	86	52	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 19. Plant growth and tuber characteristics for the 2021 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	88	5	9	8						8	2
Atlantic	75	8	9	8						6	-
Peter Wilcox (B1816-5)	100	6	9	7							2
Soraya	88	7	9	8						8	2
Satina	100	7	9	8						8	1
Snowden	75	6	9	8						8	2
Dark Red Norland	100	6	9	7						8	2
All Blue	100	6	9	8						7	3
Katahdin	88	6	9	7						7	3
AF6867-1	75	5	9	8						7	3
AF6871-14	75	5	9	8						8	1
AF6872-11	0	1	-	9						7	3
AF6872-13	38	4	9	9						7	3
AF6874-3	100	6	9	8						7	2
AF6874-4	100	6	9	8						7	3
AF6874-11	88	6	9	7						7	3
AF6874-13	100	6	9	8						7	2
AF6876-18	63	4	9	9						7	2
AF6877-3	100	5	9	8						7	2
AF6877-8	100	6	9	8						8	3
AF6877-12	75	5	9	9						8	2
AF6878-3	88	6	9	8						8	3
AF6878-4	88	7	9	8							2
AF6878-12	75	4	9	8						7	3
AF6878-15	63	6	9	8						8	2
AF6878-17	100	6	9	8						7	3
AF6878-18	88	6	9	8						7	1
AF6878-22	75	5	9	9						6	2
AF6878-30	75	4	9	9						7	2
AF6880-1	88	6	9	8						7	2

Table 19 (cont'd). Plant growth and tuber characteristics for the 2021 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
AF6880-9	88	5	9	8						7	2
AF6880-13	100	5	9	8						7	3
AF6880-15	100	7	9	8						8	1
AF6881-1	88	4	9	8						7	2
AF6881-4	100	6	9	7						8	3
AF6881-5	88	7	9	8						7	3
AF6882-2	0	1	-	9						7	3
AF6883-4	75	5	9	8						8	4
AF6883-8	75	5	9	8						7	2
AF6885-4	75	4	9	8						7	1
AF6886-3	75	5	9	8						8	1
AF6886-7	88	6	9	8						7	3
AF6886-8	75	6	9	8						7	2
AF6887-3	88	7	9	8						7	2
AF6887-12	63	5	9	9						6	1
AF6887-13	63	5	9	8						7	3
AF6888-9	88	5	9	9						8	1
AF6888-12	63	4	9	8						8	3
AF6888-15	88	6	9	8						8	2
AF6890-7	88	4	9	8						8	2
AF6891-6	38	4	9	8						6	3
AF6891-9	75	4	9	7						7	2
AF6891-10	100	6	9	7						8	3
AF6892-1	88	6	9	8						7	3
AF6893-6	100	7	9	8						7	1
AF6893-7	75	6	9	8						7	2
AF6893-10	75	4	9	9						7	2
AF6894-1	75	5	9	8						6	2
AF6894-4	75	6	9	8						8	2
AF6894-5	88	5	9	8						7	2

Table 19 (cont'd). Plant growth and tuber characteristics for the 2021 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
AF6895-9	63	4	9	8						7	4
AF6895-10	75	5	9	7						6	3
AF6896-1	75	4	9	8						7	2
AF6897-9	88	5	9	8						7	2
AF6898-1	75	7	9	7						6	2
AF6898-3	88	6	9	8						7	1
AF6898-4	75	6	9	7						7	3
AF6899-2	75	8	9	7						7	2
AF6899-6	88	5	9	8						6	1
AF6901-3	88	5	9	8						7	1
AF6901-4	88	8	9	8						7	2
AF6901-5	100	4	9	8						8	1
AF6901-8	100	5	9	8						7	2
AF6901-12	63	5	9	8						7	2
AF6901-13	100	5	9	8						8	1
AF6902-6	88	5	9	8						8	1
AF6905-3	25	2	9	9						7	3
AF6905-11	88	6	9	8						7	2
AF6906-13	88	7	9	7						7	3
AF6908-2	100	6	9	8						7	2
AF6908-9	100	7	9	7						6	3
AF6909-6	88	6	9	8						6	2
AF6910-4	100	5	9	8						7	2
AF6911-2	88	6	9	8						7	3
AF6911-3	100	7	9	6						7	2
AF6911-4	100	5	9	9						7	2
AF6912-3	88	6	9	8						7	3
AF6914-1	75	5	9	7						7	3
AF6916-6	100	5	9	8						7	2
AF6919-9	88	5	9	9						8	1

Table 19 (cont'd). Plant growth and tuber characteristics for the 2021 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
AF6924-3	100	7	9	8						7	1
AF6924-4	75	6	9	8						7	1
AF6924-5	100	7	9	8						6	1
AF6924-6	13	6	9	9						8	3
AF6926-10	100	6	9	8						7	3
AF6927-3	75	6	9	9						7	2
AF6940-4	75	5	9	9						6	2
AF6944-1	88	5	9	7						6	3
AF6949-3	100	5	9	9						7	2
AF6951-5	88	5	9	9						7	3
AF6951-7	38	4	9	9						7	3
AF6952-6	0	1	-	9						.	3
AF6953-7	38	4	9	9						7	2
AF6954-8	88	5	9	9						8	3
AF6955-3	88	5	9	8						7	2
AF6957-15	88	6	9	8						8	1
AF6957-18	63	5	9	9						8	3
AF6959-3	0	1	-	9						7	3
AF6965-1	100	4	9	9						7	2
AF6965-3	88	6	9	8						7	2
AF6969-1	88	4	9	9						6	2
AF6969-5	100	8	9	8						7	3
AF6976-1	88	8	9	8						8	2
AF6978-1	100	5	9	8						8	2
AF6978-6	100	5	9	8						8	2
AF6979-2	75	4	9	8						6	2
AF6980-1	100	8	9	7						7	3
AF6980-9	100	6	9	8						8	3
AF6981-4	100	5	9	8						7	2
AF6981-9	100	6	9	8						7	2

Table 19 (cont'd). Plant growth and tuber characteristics for the 2021 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
NDAF175Y-1	88	8	9	8						8	1
NDAF175Y-4	88	5	9	8						8	2
NDAF1710Y-5	88	8	9	8						7	3
NDAF1710Y-6	100	9	9	8						7	2
NDAF1710Y-7	88	8	9	7						8	3
NDAF1710Y-8	50	9	9	9						8	1
NDAF1732-4	100	5	9	8						8	2
NDAF1747AB-3	75	5	9	9						8	3

[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 2021 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]	HH	CRS	IHN	BC
Red LaSoda	0	0	2	14	17	0	0	0	0
Atlantic	9	0	2	1	12	10	0	0	0
Peter Wilcox (B1816-5)	0	0	0	0	0	0	0	0	0
Soraya	0	0	0	0	0	0	0	0	0
Satina	0	2	0	2	4	0	0	0	0
Snowden	0	0	0	0	0	0	0	0	0
Dark Red Norland	0	0	0	0	0	0	0	0	0
All Blue	0	0	0	0	0	0	0	0	0
Katahdin	0	0	3	0	3	0	0	10	0
AF6867-1	0	0	0	3	3	0	0	0	0
AF6871-14	0	0	0	6	6	0	0	0	0
AF6872-11	0	0	0	0	0	0	0	0	0
AF6872-13	0	0	6	10	17	0	0	0	0
AF6874-3	0	0	0	1	1	0	0	0	0
AF6874-4	3	2	3	2	10	0	0	0	0
AF6874-11	0	3	17	3	22	0	0	0	0
AF6874-13	0	0	0	2	2	0	0	0	0
AF6876-18	0	0	0	2	2	0	0	0	0
AF6877-3	0	0	0	2	2	0	0	20	0
AF6877-8	11	0	0	0	11	0	0	0	0
AF6877-12	0	0	2	6	7	0	0	0	0
AF6878-3	5	3	0	3	10	0	0	0	0
AF6878-4	2	0	1	3	5	0	0	0	0
AF6878-12	0	0	0	5	5	0	0	10	0
AF6878-15	0	0	4	0	4	0	0	10	0
AF6878-17	7	0	18	0	25	0	0	0	0
AF6878-18	0	0	0	2	2	0	0	0	0
AF6878-22	2	10	0	4	17	0	0	10	0
AF6878-30	4	0	0	4	7	0	0	0	0
AF6880-1	5	0	2	1	8	0	0	0	0

Table 20 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
AF6880-9	0	0	0	2	2	0	0	0	0
AF6880-13	0	0	0	7	7	0	0	10	0
AF6880-15	5	0	0	2	7	0	0	0	0
AF6881-1	0	0	0	4	4	0	0	0	0
AF6881-4	0	0	0	5	5	0	0	44	0
AF6881-5	4	0	0	6	10	0	0	30	0
AF6882-2	0	0	2	7	8	0	0	10	0
AF6883-4	22	0	0	2	24	0	0	0	0
AF6883-8	6	0	0	0	6	0	0	0	0
AF6885-4	0	0	0	1	1	0	0	0	0
AF6886-3	0	0	2	6	8	0	0	0	0
AF6886-7	18	0	0	2	20	0	0	0	0
AF6886-8	0	0	0	1	1	0	0	0	0
AF6887-3	12	0	0	6	18	0	0	0	0
AF6887-12	0	0	0	3	3	0	0	0	0
AF6887-13	0	0	0	10	10	0	0	0	0
AF6888-9	0	0	1	2	3	0	0	0	0
AF6888-12	8	0	0	1	10	0	0	70	0
AF6888-15	3	0	1	7	11	0	0	0	0
AF6890-7	0	0	2	1	3	0	0	0	0
AF6891-6	0	0	0	8	8	0	0	0	0
AF6891-9	0	0	0	4	4	0	0	0	0
AF6891-10	4	2	0	0	6	0	0	0	0
AF6892-1	0	0	0	4	4	0	0	0	0
AF6893-6	3	2	0	0	5	0	0	0	0
AF6893-7	0	0	0	0	0	0	0	0	0
AF6893-10	0	0	0	4	4	0	10	0	0
AF6894-1	3	0	0	1	3	0	0	0	0
AF6894-4	2	0	0	1	3	0	0	0	0
AF6894-5	0	3	0	0	3	0	0	10	0

Table 20 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
AF6895-9	22	0	0	0	22	0	0	0	0
AF6895-10	12	0	0	1	13	0	0	0	0
AF6896-1	0	0	0	1	1	0	0	0	0
AF6897-9	0	3	0	1	5	0	0	0	0
AF6898-1	0	0	2	1	3	0	0	0	0
AF6898-3	2	0	4	2	8	0	0	0	0
AF6898-4	0	0	0	3	3	0	0	0	0
AF6899-2	0	0	0	2	2	0	0	30	0
AF6899-6	3	2	0	3	8	0	0	0	0
AF6901-3	1	0	0	5	7	0	0	0	0
AF6901-4	5	0	2	0	7	0	0	20	0
AF6901-5	0	0	1	3	5	0	0	0	0
AF6901-8	5	0	0	4	9	0	0	0	0
AF6901-12	7	0	0	4	11	0	0	0	0
AF6901-13	0	0	0	0	0	0	0	0	0
AF6902-6	0	0	2	1	3	0	0	0	0
AF6905-3	0	0	0	12	12	0	0	0	0
AF6905-11	0	0	1	2	3	0	0	0	0
AF6906-13	7	0	0	2	9	0	0	0	0
AF6908-2	1	0	0	3	4	0	0	0	0
AF6908-9	12	0	0	0	12	0	0	0	0
AF6909-6	4	0	7	0	12	0	0	0	0
AF6910-4	3	0	2	0	4	0	0	0	0
AF6911-2	0	0	0	4	4	0	0	10	0
AF6911-3	0	0	0	0	0	0	0	0	0
AF6911-4	0	0	0	2	2	0	0	0	0
AF6912-3	9	0	0	8	17	0	0	13	0
AF6914-1	10	0	0	0	10	0	0	0	0
AF6916-6	0	0	0	4	4	0	0	0	0
AF6919-9	3	0	4	0	8	0	0	0	0

Table 20 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
AF6924-3	0	0	0	0	0	0	0	0	0
AF6924-4	0	0	0	1	1	0	0	0	0
AF6924-5	0	0	0	0	0	0	0	0	0
AF6924-6	0	0	0	9	9	0	0	0	0
AF6926-10	14	0	0	3	17	0	0	10	10
AF6927-3	0	0	0	3	3	0	0	30	0
AF6940-4	0	0	0	1	1	0	0	0	0
AF6944-1	12	0	1	0	14	0	10	0	0
AF6949-3	0	0	0	0	0	0	0	30	0
AF6951-5	4	9	0	0	13	0	0	0	0
AF6951-7	0	0	0	2	2	0	0	0	0
AF6952-6	0	0	0	3	3	.	.	.	.
AF6953-7	3	0	0	0	3	0	0	0	0
AF6954-8	12	0	2	0	14	0	0	0	0
AF6955-3	0	0	0	3	3	0	0	0	0
AF6957-15	4	0	0	0	4	0	0	0	0
AF6957-18	0	5	0	5	10	0	0	0	0
AF6959-3	0	0	0	0	0	0	0	0	0
AF6965-1	10	0	1	3	14	0	0	0	0
AF6965-3	0	0	3	0	3	0	0	0	0
AF6969-1	0	2	0	4	6	0	0	0	0
AF6969-5	7	0	3	9	20	0	0	0	0
AF6976-1	4	0	0	5	9	0	0	0	0
AF6978-1	10	0	0	2	12	0	0	0	0
AF6978-6	2	0	0	4	6	0	0	0	0
AF6979-2	2	2	0	1	6	0	0	0	0
AF6980-1	0	0	0	2	2	0	20	0	0
AF6980-9	0	3	0	0	3	0	0	0	0
AF6981-4	5	0	0	2	8	0	0	0	0
AF6981-9	6	0	9	2	17	0	0	0	0

Table 20 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
NDAF175Y-1	2	0	0	3	5	0	0	0	0
NDAF175Y-4	0	0	0	4	4	0	10	0	0
NDAF1710Y-5	3	0	0	0	3	0	0	20	0
NDAF1710Y-6	0	0	0	0	0	0	0	0	0
NDAF1710Y-7	1	2	0	2	6	0	0	0	0
NDAF1710Y-8	0	2	0	0	2	0	0	0	0
NDAF1732-4	0	0	0	0	0	0	0	0	11
NDAF1747AB-3	4	0	0	2	6	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), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 8. 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 1, 2021
Vine Kill Date	N/A
Harvest Date	May 11, 2021
Season Length	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	4 (Standard: Atlantic)
Number of Clones	159
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	42 DAP
Highest Total Yield	NYS9-8 (553 cwt/acre or 62.0 T/ha)
Highest Marketable Yield	AF6601-2 (512 cwt/acre or 57.4 T/ha)
Highest Specific Gravity	BNC726-5 (1.097)

Table 21. Production statistics for the 2021 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–99 days												
Atlantic	368	312	100	3	4	39	54	0	0	92	54	1.081
Lamoka	356	284	91	6	9	35	50	0	0	85	50	1.075
Pike	348	264	85	6	16	45	33	0	0	78	33	1.073
Snowden	396	318	102	5	12	35	47	0	0	83	48	1.064
Tier 1 = 1 rep												
AC13126-1W	227	192	62	4	7	24	64	0	0	89	64	1.080
A13125-3C	379	297	95	4	3	15	78	0	0	93	78	1.070
A16150-1C	337	264	85	6	14	43	37	0	0	80	37	1.088
A16153-2C	287	142	46	22	24	35	20	0	0	54	20	1.074
COA16084-2C	303	104	33	24	37	29	7	3	0	38	9	1.078
B2904-2	242	197	63	4	12	39	46	0	0	84	46	1.076
B3012-1	273	164	53	13	21	50	13	3	0	66	16	1.071
B3296-3	321	247	79	7	11	30	49	3	0	82	52	1.070
B3306-2	307	183	59	15	22	37	26	0	0	63	26	1.075
B3317-1	331	258	83	9	11	40	41	0	0	81	41	1.079
B3378-3	232	58	19	36	38	15	10	0	0	25	10	1.081
B3379-6	345	260	83	8	10	19	63	0	0	82	63	1.081
B3381-2	280	162	52	19	22	39	20	0	0	59	20	1.082
B3381-4	413	306	98	9	14	29	49	0	0	78	49	1.081
B3388-3	289	235	75	8	10	19	63	0	0	82	63	1.089
BNC549-1	355	197	63	14	28	44	15	0	0	58	15	1.080
BNC726-5	344	279	89	7	11	41	41	0	0	82	41	1.097
BNC742-2	262	216	69	4	13	5	42	35	0	83	78	1.075
BNC811-9	363	326	105	2	3	24	58	12	0	94	70	1.087
AF5973-3	383	264	85	11	18	33	38	0	0	71	38	1.090
AF6200-7	224	201	64	4	5	34	57	0	0	91	57	1.090
AF6206-3	379	321	103	6	9	26	59	0	0	85	59	1.081
AF6206-5	475	412	132	5	7	45	43	0	0	88	43	1.082
AF6526-3	365	290	93	5	14	33	48	0	0	81	48	1.079
AF6526-7	391	331	106	3	9	33	55	0	0	88	55	1.083

Table 21 (cont'd). Production statistics for the 2021 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
AF6527-3	275	229	74	7	5	36	51	0	0	87	51	1.086
AF6551-4	382	322	103	6	6	23	62	3	0	88	65	1.068
AF6552-2	288	262	84	4	3	49	43	0	0	93	43	1.081
AF6555-2	352	276	88	8	11	37	41	3	0	81	44	1.070
AF6565-8	424	364	117	3	11	35	51	0	0	86	51	1.075
AF6567-4	383	337	108	4	4	33	60	0	0	92	60	1.077
AF6582-1	457	388	124	3	11	57	29	0	0	86	29	1.082
AF6598-6	470	383	123	3	5	15	73	3	0	91	76	1.073
AF6601-2	512	446	143	3	7	31	59	0	0	90	59	1.085
WAF15184-4	347	299	96	5	9	22	64	0	0	86	64	1.079
WAF16107-2	340	287	92	5	6	38	51	0	0	89	51	1.091
WAF16120-2	361	200	64	18	26	37	18	0	0	56	18	1.080
WAF16134-2	418	342	110	4	10	31	55	0	0	86	55	1.088
WAF16220-4	435	340	109	5	12	30	52	0	0	82	52	1.083
MSAA241-1	355	317	102	3	6	22	68	2	0	92	70	1.065
MSAA252-7	262	231	74	5	7	13	65	10	0	88	75	1.072
MSAA254-4	462	397	127	4	6	24	66	0	0	90	66	1.064
MSAA266-1	274	223	71	2	2	12	55	29	0	96	84	1.072
MSAA311-1	310	245	79	4	8	37	50	0	0	88	50	1.075
MSAA328-4	304	220	71	6	7	27	60	0	0	87	60	1.078
MSAA678-1	290	180	58	10	26	43	21	0	0	64	21	1.060
MSBB051-1	314	228	73	7	18	41	34	0	0	75	34	1.070
MSBB060-1	404	365	117	3	3	14	75	5	0	94	80	1.091
MSBB094-1	192	139	44	6	22	54	19	0	0	72	19	1.086
MSBB121-1	355	291	93	5	8	58	29	0	0	87	29	1.063
MSBB131-1	205	165	53	6	4	16	74	0	0	90	74	1.065
MSBB179-1	301	218	70	4	13	22	61	0	0	84	61	1.076
MSBB210-A	396	368	118	3	3	18	76	0	0	94	76	1.083
MSBB614-11	309	182	58	11	30	31	29	0	0	59	29	1.054
MSBB615-1	166	100	32	14	24	51	11	0	0	62	11	1.075

Table 21 (cont'd). Production statistics for the 2021 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
MSBB618-2	215	188	60	3	5	18	74	0	0	92	74	1.064
MSBB636-11	266	239	77	4	4	37	55	0	0	92	55	1.075
MSBB637-6	304	266	85	4	6	34	55	0	0	90	55	1.074
MSCC012-1	356	305	98	3	8	32	56	0	0	89	56	1.073
MSCC084-1	188	153	49	8	11	48	33	0	0	81	33	1.061
MSCC129-2	364	307	98	10	6	32	53	0	0	84	53	1.078
MSCC129-4	320	266	85	4	12	35	50	0	0	85	50	1.078
MSCC246-7	79	54	17	12	19	56	13	0	0	69	13	1.064
MSDD039-1	311	239	77	8	16	51	26	0	0	77	26	1.078
MSDD089-2	197	153	49	9	7	27	57	0	0	84	57	1.079
MSDD114-10	364	254	81	5	7	29	55	3	0	88	59	1.067
MSDD219-02	335	215	69	27	9	31	34	0	0	64	34	1.078
MSZ025-2	236	181	58	8	15	51	26	0	0	78	26	1.071
MN18AF6717-6	240	212	68	3	6	41	50	0	0	91	50	1.070
NC818-24	497	404	130	7	10	41	43	0	0	83	43	1.065
NC818-26	456	389	125	5	5	26	64	0	0	90	64	1.067
NC821-30	439	307	99	7	22	34	32	5	0	70	37	1.085
NC821-41	397	291	93	11	13	33	43	0	0	76	43	1.077
NCB3401-1	255	190	61	8	13	41	39	0	0	79	39	1.083
ND12209C-2	390	254	81	13	20	33	33	0	0	66	33	1.057
ND13228CAB-3	280	139	44	19	32	46	4	0	0	50	4	1.076
ND14138AB-9	298	239	77	11	7	42	40	0	0	82	40	1.068
ND14163AB-4	314	211	68	12	19	45	24	0	0	69	24	1.066
ND14165AB-2	229	179	57	3	13	23	61	0	0	84	61	1.069
ND14197CAB-1	323	267	86	6	9	44	41	0	0	85	41	1.057
ND14199CAB-5	233	71	23	34	35	26	4	0	0	30	4	1.074
ND14247CAB-2	433	339	109	5	13	57	25	0	0	82	25	1.077
ND14247CAB-15	423	304	97	11	16	52	21	0	0	73	21	1.077
ND14256B-8	309	208	67	14	17	50	18	0	0	69	18	1.078
ND14288ABC-4	323	239	77	5	17	42	35	0	0	78	35	1.074

Table 21 (cont'd). Production statistics for the 2021 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
ND14291CAB-3	251	174	56	8	20	44	27	0	0	72	27	1.072
ND14291CAB-9	343	283	91	6	11	28	55	0	0	83	55	1.065
ND14292CAB-5	358	301	97	6	9	45	41	0	0	86	41	1.082
ND102631AB-1	359	278	89	10	8	40	42	0	0	82	42	1.081
NYS1-4	348	218	70	7	16	49	29	0	0	78	29	1.084
NYS2-2	361	202	65	22	18	43	18	0	0	60	18	1.075
NYS4-3	446	342	110	8	13	40	40	0	0	80	40	1.081
NYS5-3	353	272	87	9	11	44	36	0	0	79	36	1.061
NYS7-2	288	187	60	14	19	35	32	0	0	66	32	1.067
NYS8-2	431	328	105	8	16	58	19	0	0	76	19	1.082
NYS9-8	553	386	124	12	18	32	38	0	0	70	38	1.086
NYS17-5	375	299	96	4	7	29	60	0	0	89	60	1.081
NYS18-4	352	119	38	27	38	25	10	0	0	35	10	1.065
NYS27-3	387	325	104	5	6	39	50	0	0	89	50	1.078
NYS28-8	337	258	83	4	17	26	52	0	0	79	52	1.069
NYS37-2	298	217	69	3	15	39	43	0	0	82	43	1.081
AOR10922-1	320	252	81	7	9	32	52	0	0	84	52	1.080
AOR15303-3	295	231	74	8	7	33	45	7	0	85	51	1.063
COOR16014-3	427	324	104	2	7	29	63	0	0	91	63	1.073
NDOR14307CB-5	466	395	127	2	8	24	65	0	0	89	65	1.073
ATTX10333-1W/Y	365	230	74	7	17	49	27	0	0	76	27	1.086
COTX16054-1Ru	325	226	72	5	18	36	41	0	0	77	41	1.067
NDTX14247CAB-1W	325	254	81	6	9	52	33	0	0	85	33	1.076
NDTX14247CAB-2W	304	214	69	5	11	59	25	0	0	84	25	1.069
NDTX14263BC-3W	243	101	32	23	33	24	20	0	0	44	20	1.061
TX17846-1W	299	201	65	11	17	51	22	0	0	73	22	1.073
W16133-35	272	218	70	3	16	34	47	0	0	81	47	1.084
W16219-8	398	326	105	5	12	33	50	0	0	83	50	1.074

Table 21 (cont'd). Production statistics for the 2021 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
Tier 2 = 2 reps												
AC11494-6W	351	267	85	8	16	39	37	0	0	76	37	1.076
CO12235-3W	244	166	53	9	19	37	35	0	0	72	35	1.071
CO12293-1W	415	346	111	5	9	28	58	0	0	86	58	1.063
CO13232-5W	297	205	66	7	23	43	27	0	0	70	27	1.065
AF6165-9	334	263	84	8	10	47	33	3	0	83	36	1.080
AF6200-4	331	294	94	5	5	36	53	0	0	89	53	1.079
AF6237-3	257	217	70	4	11	67	18	0	0	85	18	1.075
AF6550-2	337	216	69	11	20	45	25	0	0	70	25	1.069
AF6603-5	247	50	16	26	50	21	3	0	0	24	3	1.067
AF6616-4	231	158	51	10	18	55	17	0	0	72	17	1.087
MSAFB609-12	340	234	75	11	18	46	25	0	0	72	25	1.075
MSAFB635-15	268	225	72	2	9	34	55	0	0	88	55	1.079
MSAA076-6	264	176	56	7	24	33	36	0	0	69	36	1.068
MSAA232-4	359	280	90	3	13	23	59	1	0	84	61	1.076
MSBB018-1	392	301	96	9	13	33	45	0	0	77	45	1.073
MSBB047-1	271	200	64	7	13	39	41	0	0	80	41	1.065
MSBB058-1	354	247	79	9	19	35	35	2	0	72	37	1.080
MSBB079-2	341	244	78	10	17	34	38	0	0	73	38	1.067
MSBB222-1	379	304	98	4	8	36	49	2	0	88	52	1.069
MSBB230-2	412	311	100	5	14	29	52	0	0	81	52	1.079
MSBB610-13	263	209	67	7	11	40	42	0	0	82	42	1.074
MSBB617-2	344	288	92	3	9	22	66	1	0	88	67	1.083
MSCC168-1	287	251	81	4	7	27	63	0	0	90	63	1.073
MSCC248-2	350	294	94	3	5	22	69	2	0	92	70	1.074
NYR1-7	331	272	87	3	11	46	40	0	0	86	40	1.082
NYR3-5	484	372	119	5	13	46	36	0	0	82	36	1.085
NYR101-2	406	357	114	4	6	32	57	2	0	91	59	1.068
NYR102-3	391	330	106	3	5	27	65	0	0	92	65	1.073
NYR107-4	327	254	82	9	12	44	35	0	0	79	35	1.084
NYR107-6	294	177	57	15	24	49	12	0	0	61	12	1.078

Table 21 (cont'd). Production statistics for the 2021 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
NYR107-11	434	297	95	9	17	55	19	0	0	74	19	1.078
AOR13124-6	381	299	96	6	10	46	33	6	0	84	39	1.082
COOR13270-2	263	184	59	10	19	39	32	0	0	71	32	1.075
NDOR13320CAB-2	301	237	76	9	12	39	40	0	0	80	40	1.083
NYORN41-5	182	156	50	5	7	21	62	5	0	88	67	1.084
OR16E.R.2.1435	392	341	109	4	5	26	62	3	0	90	65	1.070
ATX13134-3W/Y	290	185	59	14	20	29	37	0	0	66	37	1.080
NDTX1482YB-1W	197	33	11	55	28	15	3	0	0	17	3	1.080
TX12484-3WZC	298	218	70	7	12	41	39	0	0	80	39	1.074
W14NYQ4-1	354	283	91	9	4	23	64	0	0	87	64	1.076
W14NYQ9-2	389	310	99	3	10	35	51	0	0	86	51	1.067
W15NYR11-8	295	183	59	12	26	41	21	0	0	62	21	1.072
W15NYR11-13	360	268	86	7	12	43	37	0	0	81	37	1.069
W15125-4	339	252	81	8	13	30	46	3	0	79	49	1.069
W15200-3	286	222	71	5	14	33	48	0	0	81	48	1.085

[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 2021 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	82	6	9	8	1	6	6	3	8	7	1.0	0	1
Lamoka	77	5	9	8	1	7	8	3	8	7	1.0	0	1
Pike	88	6	9	8	1	8	8	3	7	8	1.0	0	1
Snowden	92	6	9	8	1	6	7	2	6	7	1.0	0	1
Tier 1 = 1 rep													
AC13126-1W	60	6	9	7	1	6	6	2	6	7	1.0	0	2
A13125-3C	60	6	9	9	1	8	7	3	6	7	1.0	0	2
A16150-1C	87	5	9	8	1	7	7	2	7	7	1.0	0	1
A16153-2C	73	6	9	7	1	8	8	2	8	8	1.0	0	3
COA16084-2C	73	8	9	7	1	8	8	2	8	7	1.0	0	3
B2904-2	40	4	9	8	1	6	7	3	8	8	1.0	0	2
B3012-1	73	5	9	7	1	7	7	2	8	8	1.0	0	3
B3296-3	87	5	9	8	1	8	8	3	7	5	1.0	0	2
B3306-2	93	8	9	7	3	7	7	2	7	7	1.0	0	3
B3317-1	80	5	9	8	1	7	8	3	9	7	1.0	0	2
B3378-3	87	9	9	6	3	7	7	3	8	8	1.0	0	3
B3379-6	100	7	9	7	3	7	8	2	6	8	1.0	0	2
B3381-2	93	8	9	7	1	6	7	2	8	7	1.5	0	3
B3381-4	87	8	9	7	3	7	8	1	9	8	1.0	0	2
B3388-3	87	5	9	8	1	7	7	3	8	8	1.0	0	2
BNC549-1	100	8	9	7	1	8	8	3	8	8	1.0	0	2
BNC726-5	93	8	9	7	1	8	8	3	6	6	1.0	0	1
BNC742-2	87	6	9	6	1	7	7	3	9	7	1.0	0	2
BNC811-9	73	5	9	9	1	6	7	3	7	7	1.0	0	2
AF5973-3	93	5	9	8	1	8	8	2	8	8	1.0	0	1
AF6200-7	80	5	9	7	1	7	7	1	9	7	1.0	0	2
AF6206-3	93	5	9	9	1	8	7	2	8	8	1.0	0	1
AF6206-5	87	7	9	8	1	6	8	2	9	8	1.0	0	1
AF6526-3	87	7	9	8	1	8	8	3	7	7	1.0	0	1
AF6526-7	87	6	9	8	1	8	9	3	6	8	1.0	0	2

Table 22 (cont'd). Plant growth and tuber characteristics for the 2021 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
AF6527-3	67	4	9	9	1	6	7	3	7	7	1.0	0	2
AF6551-4	73	4	9	9	1	6	7	3	8	8	1.0	0	1
AF6552-2	93	6	9	9	1	7	7	3	8	6	1.0	0	2
AF6555-2	87	6	9	8	1	7	7	2	7	6	1.0	0	1
AF6565-8	80	5	9	7	1	6	7	2	9	8	1.0	0	1
AF6567-4	80	7	9	7	1	6	8	3	9	8	1.0	0	1
AF6582-1	80	6	9	7	3	8	9	4	8	9	1.0	0	1
AF6598-6	87	5	9	9	3	7	7	3	8	7	1.0	0	2
AF6601-2	80	4	9	8	1	8	8	2	8	8	1.0	0	1
WAF15184-4	87	6	9	8	1	7	7	2	8	7	1.0	0	1
WAF16107-2	87	5	9	8	1	7	7	2	7	7	1.5	0	1
WAF16120-2	93	7	9	7	1	7	8	2	8	8	1.0	0	2
WAF16134-2	87	6	9	8	1	7	8	2	7	7	1.0	0	1
WAF16220-4	100	6	9	8	1	7	8	3	8	7	1.0	0	1
MSAA241-1	93	6	9	8	1	6	7	1	7	6	1.0	0	1
MSAA252-7	93	7	9	8	3	6	7	2	8	7	1.0	0	2
MSAA254-4	87	7	9	8	1	6	7	2	8	6	1.0	0	1
MSAA266-1	33	4	9	9	1	5	7	1	8	8	1.0	0	2
MSAA311-1	80	7	9	7	1	6	7	2	7	6	1.0	0	2
MSAA328-4	80	7	9	8	1	7	7	2	6	7	1.0	0	2
MSAA678-1	80	6	9	7	1	8	8	2	7	8	1.0	0	2
MSBB051-1	80	7	9	7	1	6	6	3	9	8	1.0	0	2
MSBB060-1	73	7	9	9	1	6	7	2	8	8	1.0	0	1
MSBB094-1	73	4	9	8	1	7	7	3	7	7	1.0	0	3
MSBB121-1	87	6	9	7	1	6	6	2	8	7	1.0	0	1
MSBB131-1	87	5	9	7	3	7	7	2	7	6	1.0	0	3
MSBB179-1	73	6	9	8	1	6	6	2	6	6	1.0	0	2
MSBB210-A	80	6	9	9	1	6	7	3	8	7	1.0	0	1
MSBB614-11	80	6	9	7	1	6	6	1	7	6	1.0	0	2
MSBB615-1	87	5	9	6	1	6	6	2	9	7	1.0	0	3

Table 22 (cont'd). Plant growth and tuber characteristics for the 2021 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
MSBB618-2	93	4	9	8	1	5	3	1	6	7	1.0	0	3
MSBB636-11	60	4	9	9	1	7	7	1	8	6	1.0	0	2
MSBB637-6	80	6	9	7	1	6	7	1	8	6	1.0	0	1
MSCC012-1	80	5	9	8	1	6	7	3	8	7	1.0	0	1
MSCC084-1	100	6	9	7	1	7	7	1	7	7	1.0	0	3
MSCC129-2	93	6	9	8	1	7	8	3	8	7	1.0	0	1
MSCC129-4	80	5	9	8	1	6	6	1	7	8	1.0	0	1
MSCC246-7	27	4	9	9	1	5	7	2	7	5	1.0	0	3
MSDD039-1	87	6	9	8	1	6	7	3	8	6	1.0	0	2
MSDD089-2	67	5	9	8	1	6	6	2	7	7	1.0	0	3
MSDD114-10	93	4	9	9	1	6	7	3	7	6	1.0	1	3
MSDD219-02	67	6	9	7	1	5	6	3	9	8	1.0	0	2
MSZ025-2	80	5	9	7	1	6	6	2	8	8	1.0	0	2
MN18AF6717-6	87	5	9	8	1	7	8	3	7	6	1.0	0	2
NC818-24	80	7	9	9	1	7	7	3	7	7	1.0	1	1
NC818-26	93	7	9	7	1	8	8	3	6	7	1.5	0	1
NC821-30	87	8	9	7	1	7	7	2	7	7	1.0	0	1
NC821-41	93	8	9	7	1	6	7	1	7	8	1.0	0	1
NCB3401-1	80	6	9	7	1	8	9	2	8	9	1.0	0	2
ND12209C-2	80	6	9	7	1	7	7	7	7	7	1.0	0	2
ND13228CAB-3	73	8	9	7	1	8	8	3	8	7	1.0	0	3
ND14138AB-9	73	5	9	7	1	8	8	1	7	9	1.0	0	2
ND14163AB-4	100	5	9	7	1	8	7	1	8	8	1.0	1	2
ND14165AB-2	60	4	9	9	1	8	9	1	7	8	1.0	0	2
ND14197CAB-1	87	6	9	7	1	8	7	3	9	7	1.0	0	1
ND14199CAB-5	100	6	9	7	1	8	8	3	8	8	1.0	0	3
ND14247CAB-2	100	7	9	7	1	8	9	3	8	8	1.0	0	1
ND14247CAB-15	100	9	9	7	1	8	8	3	8	8	1.0	0	1
ND14256B-8	93	5	9	7	1	5	7	1	8	8	1.0	0	2
ND14288ABC-4	100	6	9	7	1	8	9	3	8	8	1.0	0	2

Table 22 (cont'd). Plant growth and tuber characteristics for the 2021 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
ND14291CAB-3	87	6	9	7	1	8	9	2	8	7	1.0	0	2
ND14291CAB-9	73	8	9	6	1	8	9	3	6	8	1.0	0	2
ND14292CAB-5	93	7	9	7	1	8	8	3	8	8	1.0	0	2
ND102631AB-1	87	8	9	7	1	8	8	3	8	9	1.0	0	1
NYS1-4	100	7	9	8	1	8	8	3	8	8	1.0	0	3
NYS2-2	87	7	9	6	1	7	7	2	8	7	1.0	0	2
NYS4-3	87	6	9	7	1	8	8	3	7	8	1.0	0	1
NYS5-3	80	5	9	7	1	8	8	3	6	7	1.0	0	1
NYS7-2	80	6	9	7	1	8	7	1	7	5	1.0	0	2
NYS8-2	93	8	9	7	1	7	7	1	7	6	1.0	0	1
NYS9-8	93	8	9	8	1	8	8	1	7	7	1.0	0	1
NYS17-5	67	4	9	9	1	7	7	3	7	7	1.0	0	2
NYS18-4	93	5	9	9	1	6	7	3	8	7	1.0	0	3
NYS27-3	73	5	9	8	1	8	7	3	8	7	1.0	0	1
NYS28-8	60	4	9	9	1	6	7	3	7	6	1.0	0	2
NYS37-2	53	4	9	9	1	7	7	2	8	8	1.0	0	3
AOR10922-1	60	6	9	9	1	8	7	3	7	7	1.5	0	2
AOR15303-3	87	6	9	7	1	7	8	1	7	8	1.0	1	2
COOR16014-3	93	8	9	8	1	8	7	3	7	5	1.0	0	2
NDOR14307CB-5	93	5	9	7	1	8	8	3	8	8	1.0	0	1
ATTX10333-1W/Y	87	7	9	7	1	8	8	3	8	6	1.0	0	2
COTX16054-1Ru	93	6	9	6	1	7	7	2	7	8	1.0	0	2
NDTX14247CAB-1W	87	8	9	7	1	8	9	1	8	9	1.0	0	2
NDTX14247CAB-2W	80	6	9	7	1	8	8	3	8	7	1.0	0	3
NDTX14263BC-3W	87	5	9	6	1	8	8	2	7	7	1.0	0	3
TX17846-1W	93	6	9	7	1	8	9	2	9	9	1.0	0	2
W16133-35	80	6	9	7	1	6	7	2	6	7	1.0	0	2
W16219-8	93	5	9	9	1	6	6	2	8	7	1.0	0	1

Table 22 (cont'd). Plant growth and tuber characteristics for the 2021 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
Tier 2 = 2 reps													
AC11494-6W	63	5	9	8	1	6	7	1	8	8	1.0	1	2
CO12235-3W	80	6	9	7	1	8	9	2	7	7	1.0	0	2
CO12293-1W	70	8	9	8	1	8	9	3	9	9	1.0	0	1
CO13232-5W	77	6	9	7	1	8	8	2	8	7	1.0	0	2
AF6165-9	83	7	9	9	1	8	8	3	8	7	1.0	0	1
AF6200-4	100	6	9	8	1	7	7	2	8	8	1.0	0	1
AF6237-3	60	4	9	9	1	6	7	3	8	7	1.3	1	2
AF6550-2	77	8	9	7	1	8	9	3	8	9	1.0	0	2
AF6603-5	83	7	9	7	1	7	8	4	9	8	1.0	1	3
AF6616-4	77	4	9	9	3	6	8	1	8	8	1.0	0	3
MSAFB609-12	87	5	9	8	1	8	8	2	8	8	1.0	0	2
MSAFB635-15	77	5	9	9	1	6	7	2	8	7	1.0	0	2
MSAA076-6	77	5	9	7	1	7	8	2	9	6	1.0	1	2
MSAA232-4	87	6	9	7	1	8	8	3	7	8	1.0	0	1
MSBB018-1	83	5	9	9	1	7	7	3	8	7	1.0	0	2
MSBB047-1	87	5	9	8	1	8	7	2	8	8	1.0	1	2
MSBB058-1	87	7	9	7	1	6	7	2	8	7	1.0	0	2
MSBB079-2	77	5	9	7	1	8	8	2	9	8	1.0	0	2
MSBB222-1	90	7	9	7	1	7	7	3	8	8	1.0	0	1
MSBB230-2	80	6	9	9	1	7	7	3	7	8	1.0	0	1
MSBB610-13	83	6	9	7	1	7	7	2	8	8	1.0	0	2
MSBB617-2	73	6	9	8	1	6	7	2	7	7	1.3	0	1
MSCC168-1	83	7	9	7	1	8	8	3	8	8	1.0	1	1
MSCC248-2	90	6	9	8	1	6	7	3	8	7	1.0	0	2
NYR1-7	80	8	9	8	1	6	7	3	8	7	1.0	0	1
NYR3-5	93	8	9	9	1	6	8	4	9	6	1.0	0	1
NYR101-2	77	5	9	8	1	8	8	3	7	7	1.0	0	1
NYR102-3	77	5	9	9	1	7	8	3	7	7	1.0	0	1
NYR107-4	77	7	9	7	1	8	8	3	9	8	1.0	0	1
NYR107-6	87	6	9	8	1	7	7	3	9	8	1.0	0	2

Table 22 (cont'd). Plant growth and tuber characteristics for the 2021 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
NYR107-11	97	7	9	7	1	8	8	3	8	8	1.0	0	1
AOR13124-6	33	4	9	9	1	8	7	2	8	7	1.0	0	2
COOR13270-2	87	6	9	8	1	8	8	3	8	7	1.0	0	2
NDOR13320CAB-2	97	6	9	7	1	8	9	1	7	8	1.0	0	2
NYORN41-5	80	7	9	8	1	7	8	2	8	7	1.0	0	2
OR16E.R.2.1435	90	5	9	9	1	8	8	3	7	7	1.5	1	1
ATX13134-3W/Y	87	6	9	7	3	8	8	2	7	7	1.0	0	2
NDTX1482YB-1W	90	6	9	7	1	8	9	3	9	9	1.0	0	3
TX12484-3WZC	93	7	9	7	1	8	8	3	8	8	1.0	0	2
W14NYQ4-1	80	6	9	7	1	7	7	3	9	8	1.0	0	1
W14NYQ9-2	80	6	9	8	1	8	8	3	8	9	1.0	0	1
W15NYR11-8	87	5	9	8	1	8	8	3	7	8	1.0	0	2
W15NYR11-13	87	6	9	7	1	7	7	3	7	8	1.0	1	1
W15125-4	80	7	9	8	1	6	6	3	7	8	1.0	0	2
W15200-3	80	7	9	7	1	7	7	2	8	7	1.0	0	2

[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 23. External and internal defects for the 2021 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]	HH	CRS	IHN	BC
Atlantic	0	0	3	6	9	0	0	0	0
Lamoka	2	0	1	4	7	0	0	0	0
Pike	0	0	1	2	3	0	0	0	0
Snowden	0	0	0	2	3	0	0	0	0
Tier 1 = 1 rep									
AC13126-1W	2	0	1	1	5	0	0	0	0
A13125-3C	14	0	0	1	16	0	0	0	0
A16150-1C	1	0	0	0	2	0	0	0	0
A16153-2C	7	1	0	1	9	0	0	0	0
COA16084-2C	6	0	0	3	10	0	0	0	0
B2904-2	0	0	0	4	4	0	0	0	0
B3012-1	0	0	0	9	9	0	0	0	0
B3296-3	0	0	2	4	7	0	0	0	0
B3306-2	0	2	0	3	5	0	0	10	0
B3317-1	4	0	0	0	4	0	0	0	0
B3378-3	0	0	0	1	1	0	0	0	0
B3379-6	0	0	1	7	8	0	0	0	0
B3381-2	0	0	0	3	3	0	0	0	0
B3381-4	1	0	0	3	4	0	10	0	0
B3388-3	0	0	1	0	1	0	0	0	0
BNC549-1	3	0	0	3	5	0	0	0	0
BNC726-5	0	0	2	0	2	0	0	0	0
BNC742-2	0	0	0	0	0	0	0	0	0
BNC811-9	1	0	1	2	5	10	0	0	0
AF5973-3	0	0	0	3	3	0	0	0	0
AF6200-7	2	0	0	0	2	0	0	0	0
AF6206-3	0	0	0	0	0	0	0	0	0
AF6206-5	1	0	0	1	2	0	0	0	0
AF6526-3	0	0	1	1	2	0	0	0	0
AF6526-7	1	3	0	0	4	0	0	10	0

Table 23 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
AF6527-3	0	0	0	4	4	0	0	0	0
AF6551-4	2	0	0	2	4	0	0	0	0
AF6552-2	0	0	0	2	2	0	0	0	0
AF6555-2	0	0	0	3	3	0	0	0	0
AF6565-8	0	0	1	0	1	0	0	0	0
AF6567-4	0	0	0	5	5	0	0	0	0
AF6582-1	0	0	1	0	1	0	0	0	0
AF6598-6	4	1	3	3	11	0	0	0	0
AF6601-2	0	0	3	0	3	0	0	0	0
WAF15184-4	0	0	0	0	0	0	0	0	0
WAF16107-2	0	0	1	4	5	0	0	0	0
WAF16120-2	0	0	0	1	1	0	0	0	0
WAF16134-2	1	0	0	4	5	0	0	0	0
WAF16220-4	2	0	2	1	5	0	0	0	0
MSAA241-1	0	0	1	2	3	0	0	0	0
MSAA252-7	0	0	0	0	0	0	0	0	0
MSAA254-4	0	0	1	4	5	0	0	0	0
MSAA266-1	6	0	0	10	15	0	0	0	0
MSAA311-1	9	0	0	1	10	0	0	0	0
MSAA328-4	5	0	9	3	16	0	0	0	0
MSAA678-1	0	0	1	2	3	0	0	0	0
MSBB051-1	1	0	0	2	3	0	0	0	0
MSBB060-1	2	0	1	1	4	0	0	0	0
MSBB094-1	0	0	0	0	0	0	0	0	0
MSBB121-1	0	0	3	3	6	0	0	0	0
MSBB131-1	3	0	0	8	11	0	0	0	0
MSBB179-1	10	0	1	3	14	0	0	0	0
MSBB210-A	1	0	0	0	1	0	0	0	0
MSBB614-11	0	0	1	0	1	0	0	0	0
MSBB615-1	2	0	0	0	2	0	0	0	0

Table 23 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
MSBB618-2	0	0	0	5	5	0	0	10	0
MSBB636-11	0	0	0	3	3	0	0	0	0
MSBB637-6	1	0	0	2	3	0	0	0	0
MSCC012-1	0	0	0	4	4	0	0	0	0
MSCC084-1	0	0	0	0	0	0	0	0	0
MSCC129-2	0	0	0	0	0	0	0	0	0
MSCC129-4	2	0	0	0	2	0	0	0	0
MSCC246-7	0	0	0	0	0	0	0	0	0
MSDD039-1	0	0	0	0	0	0	0	0	0
MSDD089-2	3	0	0	5	8	0	0	0	0
MSDD114-10	16	0	0	4	20	0	0	0	0
MSDD219-02	0	0	0	0	0	0	0	0	0
MSZ025-2	0	0	0	1	1	0	0	0	0
MN18AF6717-6	0	0	0	3	3	0	0	0	0
NC818-24	0	0	1	1	2	0	0	0	0
NC818-26	0	0	4	1	5	0	0	0	0
NC821-30	0	0	0	1	1	0	0	0	0
NC821-41	1	0	2	0	3	0	0	0	0
NCB3401-1	2	0	1	4	6	0	0	0	0
ND12209C-2	0	0	0	2	2	0	0	0	0
ND13228CAB-3	0	0	0	0	0	0	0	0	0
ND14138AB-9	0	0	2	0	2	0	0	0	0
ND14163AB-4	0	0	0	3	3	0	0	0	0
ND14165AB-2	0	0	0	7	7	0	0	0	0
ND14197CAB-1	0	0	1	2	3	0	0	0	0
ND14199CAB-5	0	0	0	0	0	0	0	0	0
ND14247CAB-2	4	0	0	1	5	0	0	0	0
ND14247CAB-15	1	0	0	1	2	0	0	0	0
ND14256B-8	0	0	2	0	2	0	0	0	0
ND14288ABC-4	5	0	0	0	5	0	0	0	0

Table 23 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
ND14291CAB-3	0	2	1	0	3	0	0	0	0
ND14291CAB-9	0	0	1	0	1	0	0	10	0
ND14292CAB-5	0	0	0	2	2	0	0	10	0
ND102631AB-1	0	0	1	4	5	0	0	0	0
NYS1-4	0	0	1	19	20	0	0	0	0
NYS2-2	0	0	1	6	7	0	0	0	0
NYS4-3	0	0	0	4	4	0	0	0	0
NYS5-3	0	0	1	2	3	0	0	0	0
NYS7-2	0	0	2	0	2	0	0	0	0
NYS8-2	0	0	0	0	0	0	0	0	0
NYS9-8	0	0	0	0	0	0	0	0	0
NYS17-5	9	0	0	1	10	0	0	0	0
NYS18-4	2	0	0	1	3	0	0	0	0
NYS27-3	1	0	0	4	6	0	0	0	0
NYS28-8	0	1	0	1	2	0	0	10	0
NYS37-2	0	0	5	6	11	0	0	0	0
AOR10922-1	3	0	1	2	6	0	0	0	0
AOR15303-3	0	0	0	8	8	0	0	0	0
COOR16014-3	12	0	5	0	17	0	0	0	0
NDOR14307CB-5	3	0	1	1	5	0	0	0	0
ATTX10333-1W/Y	10	0	0	7	17	0	0	0	0
COTX16054-1Ru	0	0	6	4	10	0	0	0	0
NDTX14247CAB-1W	7	0	0	1	8	0	0	0	0
NDTX14247CAB-2W	7	5	0	4	16	0	0	0	0
NDTX14263BC-3W	2	0	0	3	5	0	0	0	0
TX17846-1W	0	0	0	7	7	0	0	0	0
W16133-35	0	0	0	1	1	0	0	0	0
W16219-8	0	0	1	0	1	0	0	0	0

Table 23 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
Tier 2 = 2 reps									
AC11494-6W	0	0	0	1	1	0	0	0	0
CO12235-3W	0	3	2	1	6	0	0	0	0
CO12293-1W	1	0	1	1	2	0	0	0	0
CO13232-5W	1	0	0	3	4	0	0	0	0
AF6165-9	0	0	3	2	5	0	0	0	0
AF6200-4	0	0	0	0	0	0	0	0	0
AF6237-3	0	0	0	1	1	0	0	0	0
AF6550-2	1	0	1	7	8	0	0	0	0
AF6603-5	1	0	0	12	13	0	0	0	0
AF6616-4	0	0	0	5	5	0	0	0	0
MSAFB609-12	0	2	0	2	4	0	0	0	0
MSAFB635-15	1	0	2	3	5	0	5	0	0
MSAA076-6	1	0	1	1	3	0	0	0	0
MSAA232-4	0	0	1	6	7	0	0	0	0
MSBB018-1	0	0	0	1	1	0	20	0	0
MSBB047-1	0	0	0	9	9	0	0	0	0
MSBB058-1	2	0	0	1	3	0	0	0	0
MSBB079-2	3	0	0	3	6	0	0	5	0
MSBB222-1	4	0	0	4	8	0	0	0	0
MSBB230-2	0	1	1	5	6	0	0	0	0
MSBB610-13	0	0	0	5	5	0	0	0	0
MSBB617-2	0	0	1	4	5	0	0	0	0
MSCC168-1	0	0	0	3	3	0	0	0	0
MSCC248-2	8	0	0	1	9	0	0	0	0
NYR1-7	0	0	0	4	4	0	0	0	0
NYR3-5	0	0	0	6	6	0	0	0	0
NYR101-2	3	0	0	1	4	0	0	0	0
NYR102-3	2	2	1	3	8	0	0	0	0
NYR107-4	0	0	0	2	2	0	0	0	0
NYR107-6	0	0	0	3	3	0	0	0	0

Table 23 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
NYR107-11	0	0	0	8	8	0	0	0	0
AOR13124-6	4	2	0	4	9	5	0	0	5
COOR13270-2	0	0	0	0	1	0	0	0	0
NDOR13320CAB-2	0	0	1	0	1	0	0	0	0
NYORN41-5	0	0	2	0	2	0	0	0	0
OR16E.R.2.1435	0	0	2	2	4	0	0	0	0
ATX13134-3W/Y	2	0	0	2	3	0	0	0	0
NDTX1482YB-1W	0	0	0	1	1	0	0	0	0
TX12484-3WZC	2	0	3	4	9	0	0	0	0
W14NYQ4-1	0	0	1	7	8	0	0	0	0
W14NYQ9-2	0	0	3	4	8	0	0	0	0
W15NYR11-8	1	0	0	0	1	0	0	0	0
W15NYR11-13	0	0	2	6	8	0	0	0	0
W15125-4	2	1	1	14	17	0	0	0	0
W15200-3	3	1	0	0	3	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), corky ringspot (CRS), internal heat necrosis (IHN), brown center (BC).

Chapter 9. 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, 2021
Vine Kill Date	N/A
Harvest Date	May 5, 2021
Season Length	93 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	19 (Standard: Atlantic)
Number of Clones	24
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	42 DAP
Highest Total Yield	B3403-6 (437 cwt/acre or 49.0 T/ha)
Highest Marketable Yield	NC818-24 (364 cwt/acre or 40.8 T/ha)
Highest Specific Gravity	BD1569-5 (1.089)

Table 24. Production statistics for the 2021 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–93 days												
BNC916-3	336	280	104	5	9	63	24	0	0	86	24	1.080
BNC917-2	344	263	97	7	15	34	43	0	0	77	43	1.057
BD1505-4	109	18	7	56	26	12	6	0	0	17	6	1.078
BD1560-1	60	11	4	19	61	18	2	0	0	20	2	1.083
BD1569-5	120	23	9	56	26	13	6	0	0	19	6	1.089
BNC811-15	310	212	78	8	23	43	26	0	0	69	26	1.073
BNC811-22	314	202	75	12	20	43	25	0	0	68	25	1.076
BNC811-33	373	315	116	3	8	30	58	0	0	88	59	1.072
BNC815-7	430	326	121	10	13	42	35	0	0	77	35	1.071
BNC816-3	282	167	62	17	22	39	22	0	0	61	22	1.071
BNC821-9	344	259	96	8	14	31	48	0	0	78	48	1.078
BNC833-2	313	164	60	15	32	43	10	0	0	54	10	1.053
BNC839-5	311	257	95	5	10	23	61	0	0	84	61	1.057
B3355-6	332	208	77	14	24	36	26	0	0	62	26	1.067
B3379-1	289	153	56	17	29	29	26	0	0	55	26	1.075
B3379-2	328	196	73	15	23	41	21	0	0	62	21	1.086
B3403-6	437	290	107	15	18	34	32	0	0	66	32	1.076
B3292-5	349	306	113	2	4	10	80	4	0	94	84	1.065
BNC718-1	289	223	82	6	14	35	46	0	0	80	46	1.063
BNC559-1	405	325	120	4	13	56	27	0	0	83	27	1.058
B2152-17	412	262	97	16	19	43	22	0	0	65	22	1.063
B2869-29	315	240	89	9	13	49	28	1	0	78	30	1.079
Atlantic	324	245	91	4	9	50	37	0	0	87	37	1.078
Elkton (B1992-106)	210	180	67	2	5	23	57	14	0	93	70	1.070
Harley Blackwell (B0564-8)	300	229	85	6	14	33	47	0	0	80	47	1.072
Snowden	333	273	101	6	12	37	44	1	0	82	45	1.073
Superior	242	177	66	12	13	49	24	2	0	75	26	1.070
Yukon Gold	223	201	74	3	5	29	63	0	0	93	63	1.067
Atlantic	337	296	109	3	7	41	49	0	0	90	49	1.081
Chieftain	385	331	122	4	8	47	42	0	0	88	42	1.058

Table 24 (cont'd). Production statistics for the 2021 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
Chippewa	425	341	126	6	10	57	27	0	0	84	27	1.058
Dark Red Norland	345	257	95	8	15	53	23	0	0	77	23	1.055
Elkton (B1992-106)	309	257	95	4	8	18	64	5	0	88	70	1.070
Green Mountain	385	297	110	5	11	52	30	2	0	83	32	1.067
Harley Blackwell (B0564-8)	311	250	93	5	13	32	50	0	0	82	50	1.069
Katahdin	362	281	104	7	14	65	14	0	0	79	14	1.061
Kennebec	386	306	113	6	8	48	37	0	0	85	37	1.060
Peter Wilcox (B1816-5)	396	227	84	19	24	42	15	0	0	57	15	1.063
Snowden	284	235	87	6	9	36	49	0	0	85	49	1.067
Superior	233	176	65	8	13	62	17	0	0	79	17	1.072
Yukon Gold	293	228	84	3	6	29	62	0	0	91	62	1.066
NC818-24	433	364	135	5	11	34	51	0	0	84	51	1.072
NC821-30	411	308	114	9	16	29	46	0	0	76	46	1.079
MSD[3]	70	59		6	6	11	14	3	ns	9	14	0.008
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 25. Plant growth and tuber characteristics for the 2021 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
BNC916-3	91	6	9	6	1	1	9	4	8	6	1
BNC917-2	90	6	9	6	1	1	8	6	6	6	1
BD1505-4	86	5	9	9	1	6	7	2	8	6	3
BD1560-1	92	6	9	9	5	7	9	4	8	7	3
BD1569-5	93	5	9	8	5	2	8	2	6	6	3
BNC811-15	90	6	9	8	1	6	6	3	8	6	2
BNC811-22	92	6	9	8	1	6	7	3	7	7	2
BNC811-33	92	5	9	8	1	7	7	2	8	7	1
BNC815-7	94	7	9	8	1	7	7	2	9	8	1
BNC816-3	97	8	9	7	1	6	6	3	8	8	2
BNC821-9	85	5	9	9	.	.	.	.	.	.	1
BNC833-2	88	7	9	6	9	1	9	3	7	6	2
BNC839-5	81	5	9	7	1	2	9	1	7	8	1
B3355-6	95	8	9	7	9	1	9	5	6	6	2
B3379-1	94	8	9	7	2	6	6	2	6	8	2
B3379-2	99	6	9	8	1	6	7	2	8	7	2
B3403-6	95	8	9	7	1	6	6	1	8	8	1
B3292-5	91	6	9	7	1	6	7	1	8	8	1
BNC718-1	66	4	9	8	3	1	9	2	8	7	2
BNC559-1	90	7	9	6	1	9	9	5	8	8	1
B2152-17	91	6	9	6	3	2	8	3	8	8	1
B2869-29	91	8	9	7	1	7	7	2	7	7	1
Atlantic	96	6	9	8	1	6	6	3	7	7	-
Elkton (B1992-106)	50	5	9	9	1	6	6	3	9	7	3
Harley Blackwell (B0564-8)	86	6	9	8	1	6	7	1	7	8	1
Snowden	92	6	9	7	1	7	7	4	7	7	1
Superior	94	5	9	8	1	7	7	4	6	8	2
Yukon Gold	71	5	9	8	3	7	8	2	7	7	2
Atlantic	93	6	9	8	1	6	6	3	8	7	-
Chieftain	92	6	9	8	1	3	9	3	7	7	1

Table 25 (cont'd). Plant growth and tuber characteristics for the 2021 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	Merit
Chippewa	95	8	9	6	1	8	9	4	7	8	1
Dark Red Norland	93	6	9	6	1	2	9	3	8	8	1
Elkton (B1992-106)	72	6	9	8	1	6	6	3	8	7	1
Green Mountain	95	6	9	7	1	7	9	6	5	7	1
Harley Blackwell (B0564-8)	85	6	9	8	1	7	7	1	8	8	1
Katahdin	93	5	9	7	1	7	8	3	6	7	1
Kennebec	89	6	9	8	1	7	7	2	7	7	1
Peter Wilcox (B1816-5)	83	7	9	6	4	1	8	3	7	7	2
Snowden	89	6	9	8	1	7	7	1	6	8	1
Superior	94	5	9	7	1	7	7	3	7	7	2
Yukon Gold	79	5	9	8	4	7	7	4	7	8	2
NC818-24	95	6	9	9	1	6	6	2	7	8	1
NC821-30	95	7	9	8	2	6	6	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 26. External and internal defects for the 2021 USDA Chipping Trial potato selections.

	% External Tuber Defects					% Internal Defects[2]			
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	HH	CRS	IHN	BC
BNC916-3	0	0	1	2	3	0	3	0	0
BNC917-2	0	0	0	2	2	0	0	0	0
BD1505-4	0	0	1	2	2	11	0	10	3
BD1560-1	0	1	0	0	1	0	0	0	0
BD1569-5	0	0	0	0	0	0	0	0	0
BNC811-15	0	0	0	1	1	0	0	0	0
BNC811-22	0	1	2	2	5	0	0	0	3
BNC811-33	1	0	2	2	4	8	0	0	0
BNC815-7	0	0	0	1	1	0	0	3	0
BNC816-3	0	1	0	0	2	0	0	0	0
BNC821-9	1	0	0	1	3	0	0	0	0
BNC833-2	0	0	0	1	2	0	0	0	0
BNC839-5	0	0	1	0	1	0	0	3	0
B3355-6	0	0	0	0	0	0	0	0	0
B3379-1	2	1	0	1	4	0	3	0	0
B3379-2	2	0	0	1	3	0	3	0	0
B3403-6	0	0	0	1	1	0	0	0	0
B3292-5	2	0	1	3	7	0	3	0	0
BNC718-1	0	0	0	4	4	0	0	0	0
BNC559-1	0	0	1	2	4	0	5	0	0
B2152-17	0	0	0	1	1	0	0	0	0
B2869-29	1	0	0	0	2	0	0	0	0
Atlantic	0	13	0	0	13	0	0	0	0
Elkton (B1992-106)	7	1	2	0	10	3	5	0	0
Harley Blackwell (B0564-8)	0	0	2	2	5	0	0	0	0
Snowden	0	0	1	0	1	0	0	0	0
Superior	3	3	2	0	7	0	0	0	0
Yukon Gold	0	0	1	2	2	0	3	5	0
Atlantic	0	0	1	1	2	0	0	0	0
Chieftain	1	0	0	2	2	0	0	0	0

Table 26 (cont'd). External and internal defects for the 2021 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]	HH	CRS	IHN	BC
Chippewa	0	1	2	1	5	0	0	3	0
Dark Red Norland	1	0	0	1	3	0	3	0	0
Elkton (B1992-106)	1	1	0	2	5	0	0	0	0
Green Mountain	1	2	2	2	7	0	0	0	0
Harley Blackwell (B0564-8)	0	0	1	0	2	0	0	0	0
Katahdin	1	0	1	1	2	0	0	0	0
Kennebec	1	1	2	4	7	0	0	0	0
Peter Wilcox (B1816-5)	0	0	0	0	0	0	0	0	3
Snowden	0	0	2	0	3	3	0	0	0
Superior	1	0	1	2	4	0	0	0	3
Yukon Gold	1	0	3	8	12	0	0	0	3
NC818-24	0	0	0	0	0	0	0	0	0
NC821-30	0	0	0	0	0	0	0	0	0
MSD[3]	2	ns	3	ns	ns	4	ns	ns	ns
P Value	<0.0001	0.5137	0.0180	0.3199	0.1300	0.0002	0.4056	0.6102	0.6419

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

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

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

Chapter 10. 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 28.

Planting Information

Planting Site	Hastings AEC Research Farm, Hastings, FL
Planting Date	January 22, 2021
Vine Kill Date	N/A
Harvest Date	April 26, 2021
Season Length	94 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	3 (Standard: Atlantic)
Number of Clones	5
Within Row Spacing	8 in (20.3 cm)
Between Row Spacing	40 in (1.0 m)
Replications	8
Plot Size	20 ft (6.1 m) x 2

Production Statistics

Early Vigor Ratings	42 DAP
Highest Total Yield	Atlantic (324 cwt/acre or 36.3 T/ha)
Highest Marketable Yield	Atlantic (252 cwt/acre or 28.3 T/ha)
Highest Specific Gravity	MSAFB635-15 (1.081)

Table 27. Production statistics for the 2021 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–94 days												
MSAFB635-15	292	204	81	8	20	43	30	0	0	72	30	1.081
MSZ242-13	255	204	81	5	11	31	53	0	0	84	53	1.080
NC470-3	210	111	44	13	33	37	17	0	0	55	17	1.077
NY165	293	155	61	16	30	40	14	0	0	55	14	1.079
W12078-76	261	185	73	7	13	46	33	0	0	79	33	1.077
Atlantic	324	252	100	6	13	31	50	0	0	81	50	1.079
Snowden	283	201	80	10	17	39	34	0	0	73	34	1.076
Mackinaw	251	178	71	8	17	49	26	0	0	75	26	1.079
MSD[3]	43	40		5	8	8	10	ns	ns	8	10	ns
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	-	-	<0.0001	<0.0001	0.3742

[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 28. Plant growth and tuber characteristics for the 2021 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
MSAFB635-15	92	6	9	8	1	6	7	1	8	7	69.5	2
MSZ242-13	83	6	9	8	1	6	7	1	7	7	68.9	2
NC470-3	85	7	9	8	1	5	7	1	7	8	70.0	3
NY165	89	7	9	8	1	6	7	2	8	9	70.3	2
W12078-76	76	5	9	9	1	6	7	2	8	7	69.6	2
Atlantic	86	7	9	8	1	6	7	2	8	7	70.1	1
Snowden	87	7	9	8	1	6	7	1	8	8	70.3	2
Mackinaw	78	5	9	9	1	6	7	2	8	8	68.0	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 29. External and internal defects for the 2021 Potatoes USA SNAC Trial potato selections.

	% External Tuber Defects					% Internal Defects[2]			
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	HH	CRS	IHN	BC
MSAFB635-15	1	1	0	2	4	0	0	0	0
MSZ242-13	2	1	1	1	5	0	0	0	0
NC470-3	1	1	0	1	3	0	0	0	0
NY165	2	0	0	1	3	0	0	0	0
W12078-76	9	0	0	2	11	0	0	0	0
Atlantic	2	1	1	1	4	0	0	0	0
Snowden	0	0	1	0	2	0	0	0	0
Mackinaw	2	0	1	3	5	0	0	1	0
MSD[3]	4	ns	1	2	5	ns	ns	ns	ns
P Value	<0.0001	0.0522	0.0029	0.0009	<0.0001	-	-	0.4427	-

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

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

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

Chapter 11. 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	January 22, 2021
Vine Kill Date	N/A
Harvest Date	April 28, 2021
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	12 (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	42 DAP
Highest Total Yield	NY165 (379 cwt/acre or 42.5 T/ha)
Highest Marketable Yield	AF5280-5 (318 cwt/acre or 35.7 T/ha)
Highest Specific Gravity	CO10098-5W/Y (1.087)
Best Appearance Rating	Harley Blackwell (B0564-8), Shepody, AF5819-2, CO10098-5W/Y, NY165 (9, excellent)

Table 30. Production statistics for the 2021 University of Maine NE1731 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–96 days												
Harley Blackwell (B0564-8)	296	233	85	10	11	26	54	0	0	79	54	1.071
Atlantic	318	276	100	4	8	29	59	0	0	88	59	1.076
Chieftain	329	284	103	5	8	45	42	0	0	86	42	1.060
Dark Red Norland	248	194	70	8	12	40	40	0	0	80	40	1.064
Katahdin	335	271	98	5	12	54	28	0	0	82	28	1.066
Kennebec	289	253	92	4	6	54	36	0	0	90	36	1.063
Russet Burbank	276	199	72	6	20	52	22	0	0	74	22	1.068
Russet Norkotah	251	196	71	8	13	54	25	0	0	79	25	1.059
Shepody	328	259	94	6	12	46	36	0	0	82	36	1.067
Snowden	335	267	97	5	13	37	45	0	0	82	45	1.075
Superior	324	261	95	5	11	46	39	0	0	85	39	1.072
Yukon Gold	288	250	91	3	6	32	59	0	0	90	59	1.072
AAF10615-1	270	202	73	7	14	41	38	0	0	79	38	1.076
AF5071-2	347	139	50	19	40	33	8	0	0	41	8	1.069
AF5280-5	353	318	115	4	4	21	70	1	0	93	71	1.063
AF5406-7	370	248	90	8	24	51	16	1	0	68	17	1.068
AF5407-13	344	138	50	22	38	36	4	0	0	40	4	1.065
AF5492-6	311	136	49	20	35	38	7	0	0	45	7	1.075
AF5563-5	287	246	89	4	6	36	55	0	0	90	55	1.065
AF5770-7	327	252	91	4	14	55	26	1	0	82	26	1.062
AF5819-2	346	292	106	6	9	30	55	0	0	85	55	1.059
CO10098-5W/Y	209	61	22	31	40	26	3	0	0	29	3	1.087
MSAFB609-12	332	202	73	13	24	50	13	0	0	63	13	1.078
MSAFB635-15	296	197	71	11	21	41	28	0	0	68	28	1.075
NC470-3	273	173	63	12	23	39	24	1	0	65	26	1.075
NDAF102629C-4	328	283	103	3	8	25	63	1	0	89	64	1.068
NDAF113484B-1	349	240	87	11	20	36	34	0	0	70	34	1.059
NY165	379	235	85	12	25	44	19	0	0	63	19	1.067
MSD[3]	55	43		3	4	8	8	ns	ns	5	8	0.010
P Value	<0.0001	<0.0001		<0.0001	<0.0001	<0.0001	<0.0001	0.6740	-	<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 31. Plant growth and tuber characteristics for the 2021 University of Maine NE1731 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)	91	7	9	7	1	7	7	1	6	9	1
Atlantic	85	7	9	8	1	6	7	2	7	6	-
Chieftain	86	6	9	8	1	2	8	3	6	6	1
Dark Red Norland	91	7	9	7	1	2	8	3	6	7	2
Katahdin	84	6	9	7	1	7	8	2	7	7	1
Kennebec	85	6	9	7	1	7	7	4	8	7	1
Russet Burbank	90	5	9	8	1	6	8	6	6	7	2
Russet Norkotah	88	5	9	8	1	5	4	7	7	8	2
Shepody	90	6	9	7	1	8	9	5	9	9	1
Snowden	86	7	9	8	1	6	7	1	6	8	1
Superior	86	6	9	7	1	7	8	2	6	7	1
Yukon Gold	89	5	9	8	3	7	8	2	7	7	1
AAF10615-1	81	6	9	7	1	7	7	3	6	8	2
AF5071-2	84	7	9	7	1	7	8	6	6	8	3
AF5280-5	86	7	9	8	1	7	7	2	6	8	1
AF5406-7	88	7	9	7	1	6	8	7	7	8	1
AF5407-13	93	7	9	6	1	6	7	4	9	8	3
AF5492-6	89	6	9	8	1	6	7	4	7	7	3
AF5563-5	83	5	9	8	1	8	8	1	7	8	1
AF5770-7	75	5	9	9	1	6	7	6	6	7	1
AF5819-2	88	7	9	7	1	7	9	1	7	9	1
CO10098-5W/Y	85	5	9	7	5	7	8	4	8	9	3
MSAFB609-12	89	8	9	7	1	8	9	2	7	8	2
MSAFB635-15	88	7	9	8	2	6	7	2	6	7	2
NC470-3	88	7	9	7	1	5	4	1	6	7	2
NDAF102629C-4	79	7	9	8	1	7	9	2	6	8	1
NDAF113484B-1	90	7	9	8	1	2	8	3	6	7	1
NY165	91	8	9	7	1	7	7	1	8	9	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 32. External and internal defects for the 2021 University of Maine NE1731 Variety Trial potato selections.

	% External Tuber Defects					% Internal Defects[2]			
Clone	Growth Cracks	Mis-shapen	Sun-burned	Rotten & misc.	Total Culls[1]	HH	CRS	IHN	BC
Harley Blackwell (B0564-8)	0	0	0	1	1	0	0	0	0
Atlantic	0	0	1	0	2	0	0	0	0
Chieftain	0	0	0	0	0	0	0	0	0
Dark Red Norland	1	0	1	0	2	0	0	0	3
Katahdin	0	0	1	0	2	0	0	0	0
Kennebec	2	0	0	1	3	0	3	0	3
Russet Burbank	0	2	0	0	3	0	0	3	0
Russet Norkotah	0	0	0	1	1	0	0	0	0
Shepody	0	1	0	2	3	0	0	0	0
Snowden	0	0	2	1	3	0	0	0	0
Superior	0	0	0	4	5	0	0	0	0
Yukon Gold	0	0	1	3	4	0	0	0	0
AAF10615-1	0	0	0	5	6	0	0	3	0
AF5071-2	0	0	1	2	2	0	0	3	0
AF5280-5	0	0	2	1	3	0	0	3	0
AF5406-7	0	0	1	0	2	0	0	0	0
AF5407-13	0	0	0	0	0	0	0	0	0
AF5492-6	0	0	0	3	3	0	0	0	0
AF5563-5	0	0	1	4	5	0	0	0	0
AF5770-7	0	0	2	3	6	0	0	0	0
AF5819-2	0	0	0	1	1	0	0	0	0
CO10098-5W/Y	0	0	0	0	1	0	0	0	0
MSAFB609-12	0	0	0	0	1	0	0	0	0
MSAFB635-15	0	0	0	3	3	0	0	0	0
NC470-3	0	0	0	2	3	0	0	0	0
NDAF102629C-4	0	0	1	3	3	0	0	0	0
NDAF113484B-1	0	0	0	1	1	0	0	3	0
NY165	1	0	1	0	2	0	0	0	0
MSD[3]	ns	1	ns	3	4	ns	ns	ns	ns
P Value	0.1402	0.0004	0.0959	0.0002	0.0113	-	0.4790	0.6618	0.5418

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

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

[3]Means separated within columns by Waller-Duncan K-ratio t 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 33. Daily rainfall amounts (in) at the UF/IFAS Hastings AEC Research Farm between Jan. 1 and Jun. 10, 2021.

Day	January	February	March	April	May	June
1	0.00	0.20	0.00	0.00	0.00	0.00
2	0.00	0.00	0.10	0.00	0.78	0.00
3	0.04	0.00	0.61	0.00	0.01	1.96
4	0.00	0.00	0.00	0.00	0.00	0.07
5	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	1.89	0.02	0.00	0.07	0.00
7	0.03	0.66	0.00	0.00	0.00	0.00
8	0.02	0.00	0.00	0.00	0.00	0.03
9	0.00	0.00	0.00	0.00	0.00	0.02
10	0.00	0.00	0.00	0.89	0.07	0.00
11	0.00	0.00	0.00	1.31	0.12	-
12	0.03	0.10	0.00	0.02	0.00	-
13	0.00	0.27	0.00	0.00	0.07	-
14	0.00	0.38	0.00	0.00	0.00	-
15	0.05	0.76	0.00	0.00	0.00	-
16	0.00	0.03	0.00	0.70	0.00	-
17	0.00	0.00	0.00	1.14	0.00	-
18	0.00	0.00	0.00	1.41	0.00	-
19	0.00	0.79	0.00	0.01	0.00	-
20	0.00	0.01	0.01	0.00	0.00	-
21	0.00	0.00	0.05	0.00	0.00	-
22	0.00	0.02	0.15	0.00	0.00	-
23	0.05	0.00	0.00	0.00	0.00	-
24	0.07	0.00	0.00	0.00	0.00	-
25	0.00	0.00	0.00	0.61	0.00	-
26	0.00	0.00	0.00	0.00	0.00	-
27	0.87	0.00	0.00	0.00	0.00	-
28	0.00	0.00	0.00	0.00	0.01	-
29	0.00	-	0.00	0.00	0.00	-
30	0.00	-	0.00	0.00	0.00	-
31	0.00	-	0.07	-	0.00	-
Total	1.16	5.11	1.01	6.09	1.13	2.08

Table 34. Daily maximum and minimum air temperatures (°F) at the UF/IFAS Hastings AEC Research Farm between Jan. 1 and Jun. 10, 2021.

	January		February		March		April		May		June	
Day	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1	83	65	68	43	84	65	70	50	81	60	82	60
2	79	66	53	40	66	59	56	40	82	63	85	65
3	71	50	57	34	66	53	64	38	90	66	87	70
4	65	40	65	30	72	47	70	45	92	67	83	71
5	69	37	72	46	71	43	76	43	92	69	89	73
6	64	39	61	51	63	53	79	46	80	70	89	73
7	70	46	71	53	61	42	82	47	80	57	88	75
8	61	49	69	51	63	38	82	52	78	53	88	71
9	49	43	72	61	68	43	82	55	88	53	90	72
10	57	41	79	58	72	47	86	59	89	66	91	71
11	74	43	81	62	75	47	67	57	86	69	-	-
12	65	52	82	62	77	49	83	58	90	67	-	-
13	54	48	75	59	82	50	79	54	70	61	-	-
14	63	39	78	55	84	52	86	57	75	57	-	-
15	71	35	79	54	80	53	80	63	76	51	-	-
16	60	38	70	54	82	59	77	60	79	53	-	-
17	59	31	58	53	85	60	77	61	80	57	-	-
18	64	35	84	58	81	60	75	64	81	62	-	-
19	64	31	73	51	70	55	79	64	81	63	-	-
20	73	34	60	44	59	52	74	62	80	67	-	-
21	75	47	67	43	61	51	83	60	82	61	-	-
22	71	59	77	52	65	58	67	51	82	59	-	-
23	63	56	73	48	73	60	74	49	83	58	-	-
24	68	57	77	44	80	55	86	61	88	57	-	-
25	80	61	77	45	86	60	83	61	88	60	-	-
26	78	60	80	49	88	64	78	57	90	61	-	-
27	74	57	83	55	88	63	78	58	89	64	-	-
28	67	42	84	61	86	66	81	58	92	67	-	-
29	61	39	-	-	71	61	87	60	91	68	-	-
30	67	38	-	-	80	60	87	62	88	67	-	-
31	76	52	-	-	84	68	-	-	81	63	-	-
Avg.	68	46	72	51	75	55	78	55	84	62	87	70